

General Information

Policy Name:	Sepsis / Severe Sepsis / Septic Shock
Category:	Med Surg
Applies To:	All Units - Excludes NICU & Neonates and Pediatrics
Key Words:	Infection, SIRS, Code Sepsis
Associated Forms & Policies:	
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Policy

To adequately identify and manage a patient presenting with or developing sepsis, severe sepsis or septic shock.

Procedure

1. When a patient with a suspicion of infection displays clinical signs of systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis or septic shock as indicated by an alert in the EMR or by clinical staff using the indicators, the Attending Physician or their designee will be contacted immediately to report findings and discuss the possibility of implementing the sepsis protocol.
2. If the provider cannot be contacted within 30 minutes and patient remains symptomatic a code M will be called unless the patient is in the emergency department or the ICU. If the patient is located in the emergency department, a broadblast via vocera will be called for a provider to present to the patient's room for a possible **Code Sepsis**.
3. If after consultation and/or evaluation by the attending physician or their designee, it is determined that the patient meets SIRS/possible sepsis, severe sepsis, or septic shock criteria, the sepsis protocol will be initiated. In the emergency department, a **Code Sepsis** will be called overhead. The protocol includes appropriate studies to identify the source and severity of infection, which **should not** take precedent over initiation of the laboratory studies, antibiotic therapy, and fluid resuscitation. Judicious use of cultures for likely sources of infection will be obtained and sent (blood, urine, and wounds). A CBC with differential, CMP, ionized calcium, troponin, lactate PT/PTT/INR, and urinalysis will also be ordered.
4. The provider will order using the sepsis protocol order set in CPOE.
5. All orders within this order set are **stat**.
6. Obtain a **Stat** blood draw. An inability to quickly obtain blood cultures should **never** delay antibiotics, though blood cultures should be drawn prior to antibiotic administration.

7. Broad spectrum antibiotics to cover all likely sources of infection will be ordered and initiated within 1 hour of the recognition of sepsis, severe sepsis or septic shock.
 - a. Communicate with pharmacy to deliver any antibiotics not readily available on the patient's unit directly to the nurse caring for the patient, no exceptions
 - b. If more than one antibiotic is ordered, the nurse will discuss with the provider which antibiotic to administer first.

Early antibiotic administration is the single most important factor in determining patient outcome in sepsis, severe sepsis and septic shock. Their timely administration should be treated as a resuscitative measure.

8. Patients that show signs of sepsis, severe sepsis, and septic shock will be fluid resuscitated. An isotonic crystalloid (0.9% NS or LR) bolus will be administered.

Adults: If sepsis is suspected and the patient is not yet exhibiting signs of hypoperfusion, a 1-2L bolus of crystalloids will be given over 2 hours.

In patients with initial hypotension (2 consecutive readings) or septic shock, a target isotonic crystalloid volume of 30ml/kg is to be immediately initiated. Patient reassessment must occur within one hour of completion of fluid resuscitation.

Note: IV "bolus" infusions are administered via:

- high flow blood gravity tubing using a pressure bag on inpatient areas
- rapid infuser in the emergency department

Pumps and pump IV tubing should not be used (these are not fast enough even at highest rate)

9. Additional IV access should be obtained, if required. If peripheral access cannot be obtained in a timely fashion (less than 10 minutes), central or intraosseous (IO) access is to be considered. Nursing staff should consider the vascular access team or a SWAT nurse for assistance. The emergency department will follow their current process for emergent situations (patient must have at least 2 large bore access sites for the administration of high flow IV fluids and antibiotics).
10. Patient will have oxygen titrated to keep SaO₂ >92%, unless otherwise medically contraindicated, vital signs will be repeated after each IV fluid bolus until stable.
11. If not already done on an adult patient, obtain ECG.
12. A repeat lactate level should be drawn within 3 hours of the patient's initial presentation and 2 hours after the initial lactate venipuncture for those patients whose original level was >2. If the patient is treated in the emergency department, the second lactate should be drawn before the patient leaves the emergency room.
13. Monitoring of response to resuscitation should be conducted. Empiric fluid loading with appropriate vital sign response can be used to help determine status of the fluid resuscitation. In addition, dynamic IVC Ultrasound measurements showing a <30% change in IVC diameter with inspiration can be used, if available. Of note: patients in severe sepsis or septic shock may require a large amount of IV fluids (>6 liters).
14. If after seemingly adequate fluid resuscitation, the patient has a lactate level of ≥4 mmol/L, a MAP <65 or has continued symptoms of hypoperfusion or organ dysfunction, the patient is classified as having refractory shock and vasopressor agents should be initiated. If vasopressor support is needed, an inpatient transfer to the Intensive Care Unit is needed for close monitoring.
15. Patients in Severe Sepsis or Septic Shock should have an Intensivist consultation. Appropriate patients will be managed in the ICU. If the patient is not a candidate for the ICU, they will be monitored on an appropriate unit.

16. Patients should be re-evaluated, after appropriate intervention, within 6 hours of sepsis or septic shock identification by both nursing and provider staff to ensure MAP ≥ 65 or SBP ≥ 100 ; and assess and document Cardio-Respiratory response, vital signs, O₂ saturation, urine output, peripheral pulse evaluation, capillary refill, and skin color or condition.
17. Patients who do not adequately respond to the Severe Sepsis and Septic Shock Algorithm, or do not to adequately clear their lactate ($<$ by at least 10%), should be considered for further treatment such as additional treatment access, transfusion of 1 Unit RBC if Hgb < 7 , administration of additional IV fluids, or additional inotrope if one currently is infusing, correction of electrolyte imbalances, or administration of possible IV steroids if there is concern for adrenal insufficiency.

References

Evans, L. et al (2021) Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock 2021. Critical Care Medicine 49(11):p e1063-e1143, November 2021.

Definitions

- A. **Sepsis:** a proven or suspected infection accompanied by a systemic inflammatory response syndrome (SIRS). A patient meets SIRS Criteria if they have any two of the following: Temperature ≥ 38.3 °C (101.0°F) or ≤ 36.0 °C (96.8°F), WBC $> 12K$, $< 4K$, or Bands $> 10\%$. For pediatric age specific vitals see pediatric sepsis policy:
- B. **Severe Sepsis:** sepsis plus at least one sign of hypoperfusion or organ dysfunction.
- C. **Septic Shock:** severe sepsis with persistent hypotension, lactate ≥ 4 , or cardiovascular organ dysfunction despite adequate IV fluid resuscitation.
- D. **Persistent Hypotension:** In the hour after the conclusion of the target ordered volume of crystalloid fluid administration, two consecutive documented hypotensive blood pressure readings.

Addendums, Diagrams & Illustrations

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Adult Severe Sepsis and Septic Shock Treatment Algorithm

