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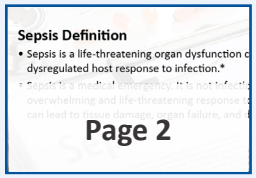
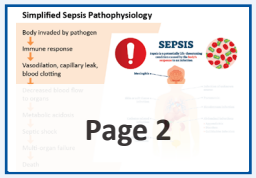




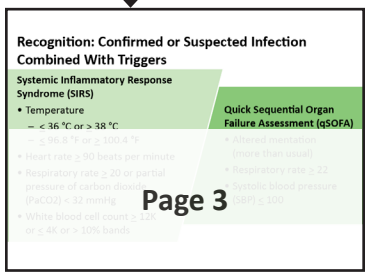
Improving the Sepsis 30-Day Mortality Metric

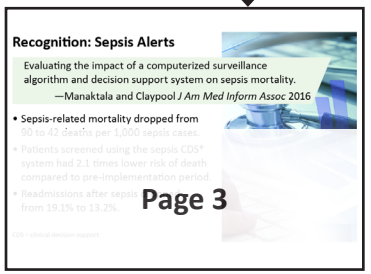
	Description
Numerator	All-cause deaths within 30 days of the start of the index admission
Denominator	Index admissions with a principal diagnosis of sepsis
Denominator Exclusions	Exclude against medical advice (AMA), hospice patients, and transfers during hospital stay
Rate Calculation	Numerator/Denominator
Data Source(s)	Medicare Fee-For-Service Part A claims; Beneficiary Identification Code (BIC)
Baseline Period	Calendar year (CY) 2019

Recognize Sepsis Early

Screen patients for sepsis in the emergency department (ED), on admission, every shift, and with a change in condition.

Utilize sepsis alerts.



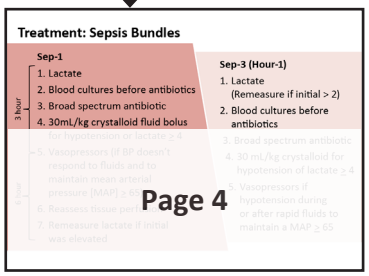


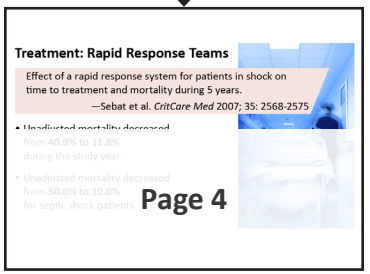
Treat Sepsis Immediately

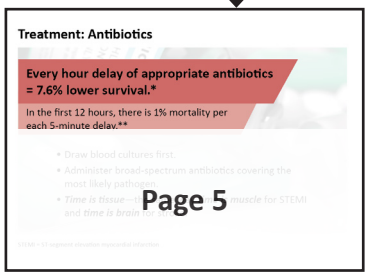
Consistently utilize standardized order sets based upon the sepsis bundles.

Deploy a rapid response team to assist with rapid treatment of sepsis.

Ensure the most-utilized antibiotics are readily available in patient care areas.



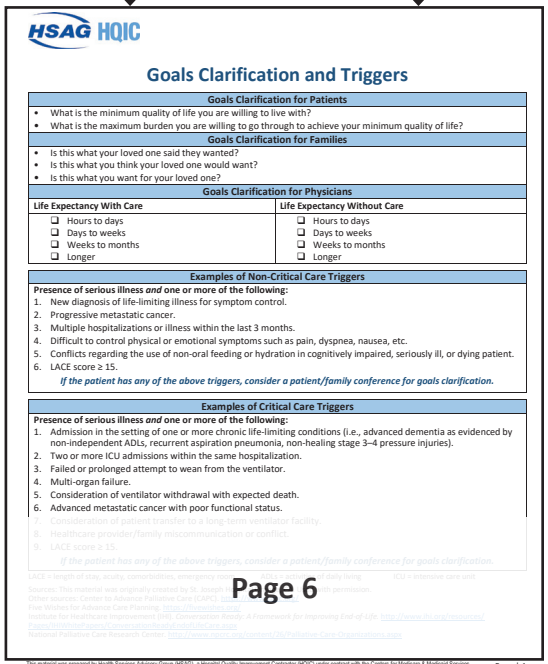




Hospice Referral for End of Life

Hold a patient/family conference for goals clarification based upon triggers or clinician experience.

Consistently utilize standardized order sets for hospice referrals.



Sepsis Definition

- Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection.[1,2]
- Sepsis is a medical emergency. It is not infection; it is the body's overwhelming and life-threatening response to infection. Sepsis can lead to tissue damage, organ failure, and death.

Simplified Sepsis Pathophysiology[3]

Body invaded by pathogen

↓

Immune response

↓

Vasodilation, capillary leak, blood clotting

↓

Decreased blood flow to organs

↓

Metabolic acidosis

↓

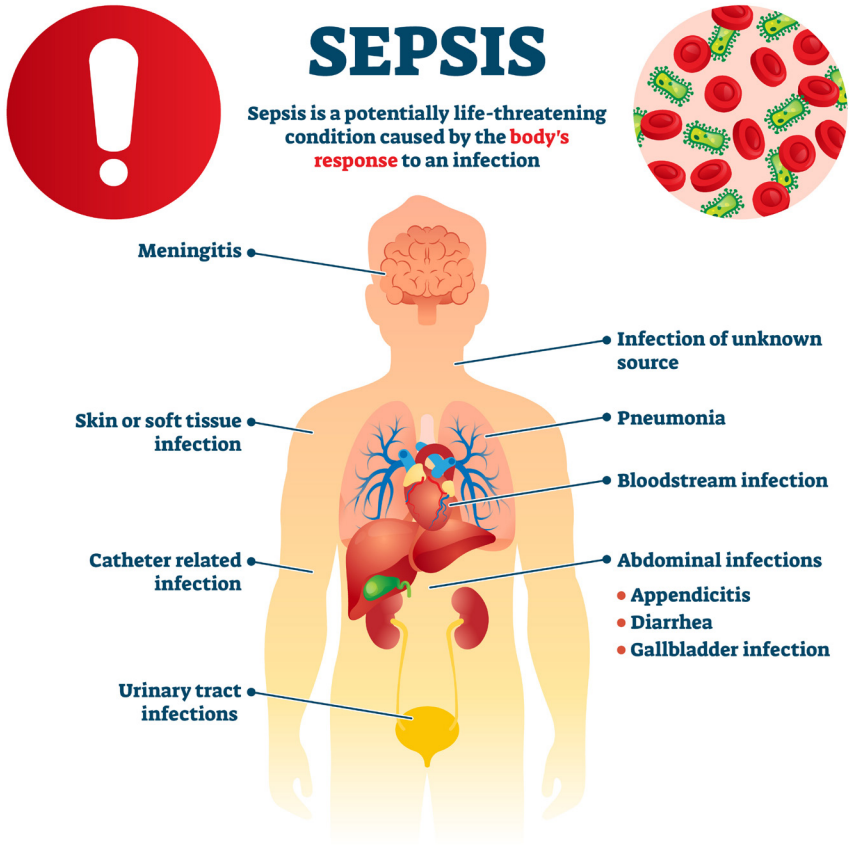
Septic shock

↓

Multi-organ failure

↓

Death



Recognition: Confirmed or Suspected Infection Combined With Triggers

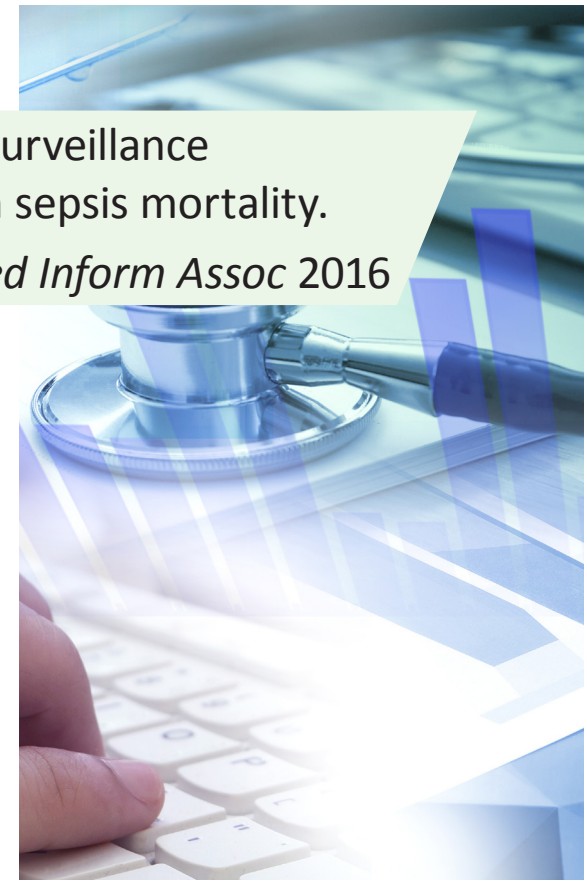
Systemic Inflammatory Response Syndrome (SIRS)[4]

- Temperature
  - ≤ 36 °C or ≥ 38 °C
  - ≤ 96.8 °F or ≥ 100.4 °F
- Heart rate ≥ 90 beats per minute
- Respiratory rate ≥ 20 or partial pressure of carbon dioxide (PaCO2) < 32 mmHg
- White blood cell count ≥ 12K or ≤ 4K or > 10% bands

Quick Sequential Organ Failure Assessment (qSOFA)[5]

- Altered mentation (more than usual)
- Respiratory rate ≥ 22
- Systolic blood pressure (SBP) ≤ 100

Recognition: Sepsis Alerts



Evaluating the impact of a computerized surveillance algorithm and decision support system on sepsis mortality.

—Manaktala and Claypool *J Am Med Inform Assoc* 2016

- Sepsis-related mortality dropped from 90 to 42 deaths per 1,000 sepsis cases.
- Patients screened using the sepsis CDS* system had 2.1 times lower risk of death compared to pre-implementation period.
- Readmissions after sepsis dropped from 19.1% to 13.2%.

CDS = clinical decision support

Treatment: Sepsis Bundles

Sep-1[6]

3 hour

1. Lactate
2. Blood cultures before antibiotics
3. Broad spectrum antibiotic
4. 30mL/kg crystalloid fluid bolus for hypotension or lactate ≥ 4

6 hour

5. Vasopressors (if BP doesn't respond to fluids and to maintain mean arterial pressure [MAP] ≥ 65)
6. Reassess tissue perfusion
7. Remeasure lactate if initial was elevated

Sep-3 (Hour-1)[7]

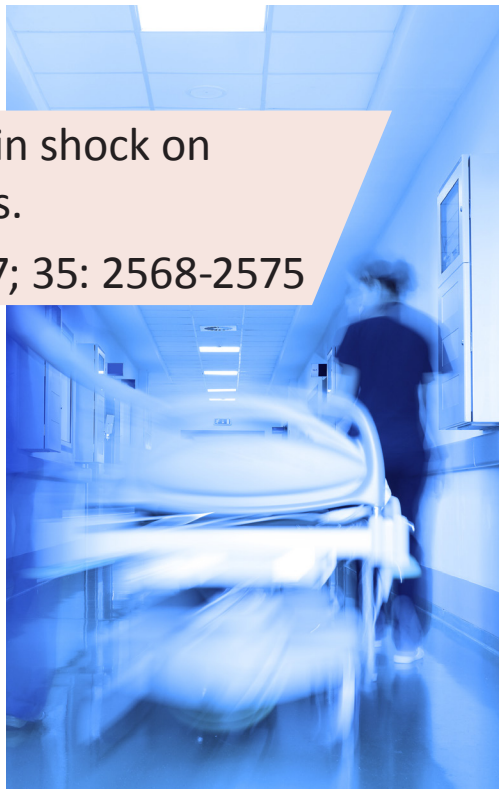
1. Lactate (Remeasure if initial > 2)
2. Blood cultures before antibiotics
3. Broad spectrum antibiotic
4. 30 mL/kg crystalloid for hypotension of lactate ≥ 4
5. Vasopressors if hypotension during or after rapid fluids to maintain a MAP ≥ 65

Treatment: Rapid Response Teams

Effect of a rapid response system for patients in shock on time to treatment and mortality during 5 years.

—Sebat et al. *CritCare Med* 2007; 35: 2568-2575

- Unadjusted mortality decreased from **40.0% to 11.8%** during the study year.
- Unadjusted mortality decreased from **50.0% to 10.0%** for septic shock patients.



Treatment: Antibiotics

Every hour delay of appropriate antibiotics = 7.6% lower survival.[8]

In the first 12 hours, there is 1% mortality per each 5-minute delay.[9]

- Draw blood cultures first.
- Administer broad-spectrum antibiotics covering the most likely pathogen.
- ***Time is tissue***—the same way ***time is muscle*** for STEMI and ***time is brain*** for stroke.[10]

STEMI = ST-segment elevation myocardial infarction

Goals Clarification and Triggers

Goals Clarification for Patients
• What is the minimum quality of life you are willing to live with? • What is the maximum burden you are willing to go through to achieve your minimum quality of life?
Goals Clarification for Families
• Is this what your loved one said they wanted? • Is this what you think your loved one would want? • Is this what you want for your loved one?
Goals Clarification for Physicians

Life Expectancy With Care	Life Expectancy Without Care
❑ Hours to days ❑ Days to weeks ❑ Weeks to months ❑ Longer	❑ Hours to days ❑ Days to weeks ❑ Weeks to months ❑ Longer

Examples of Non-Critical Care Triggers

Presence of serious illness *and* one or more of the following:

1. New diagnosis of life-limiting illness for symptom control.
2. Progressive metastatic cancer.
3. Multiple hospitalizations or illness within the last 3 months.
4. Difficult to control physical or emotional symptoms such as pain, dyspnea, nausea, etc.
5. Conflicts regarding the use of non-oral feeding or hydration in cognitively impaired, seriously ill, or dying patient.
6. LACE score ≥ 15.

If the patient has any of the above triggers, consider a patient/family conference for goals clarification.

Examples of Critical Care Triggers

Presence of serious illness *and* one or more of the following:

1. Admission in the setting of one or more chronic life-limiting conditions (i.e., advanced dementia as evidenced by non-independent ADLs, recurrent aspiration pneumonia, non-healing stage 3–4 pressure injuries).
2. Two or more ICU admissions within the same hospitalization.
3. Failed or prolonged attempt to wean from the ventilator.
4. Multi-organ failure.
5. Consideration of ventilator withdrawal with expected death.
6. Advanced metastatic cancer with poor functional status.
7. Consideration of patient transfer to a long-term ventilator facility.
8. Healthcare provider/family miscommunication or conflict.
9. LACE score ≥ 15.

If the patient has any of the above triggers, consider a patient/family conference for goals clarification.

LACE = length of stay, acuity, comorbidities, emergency room ADLs = activities of daily living ICU = intensive care unit

Sources: This material was originally created by St. Joseph Hospital Orange, CA. Used with permission.
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