Sepsis:
Nursing Care Management

Nursing Professional Development
October 2023

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Learning Objectives

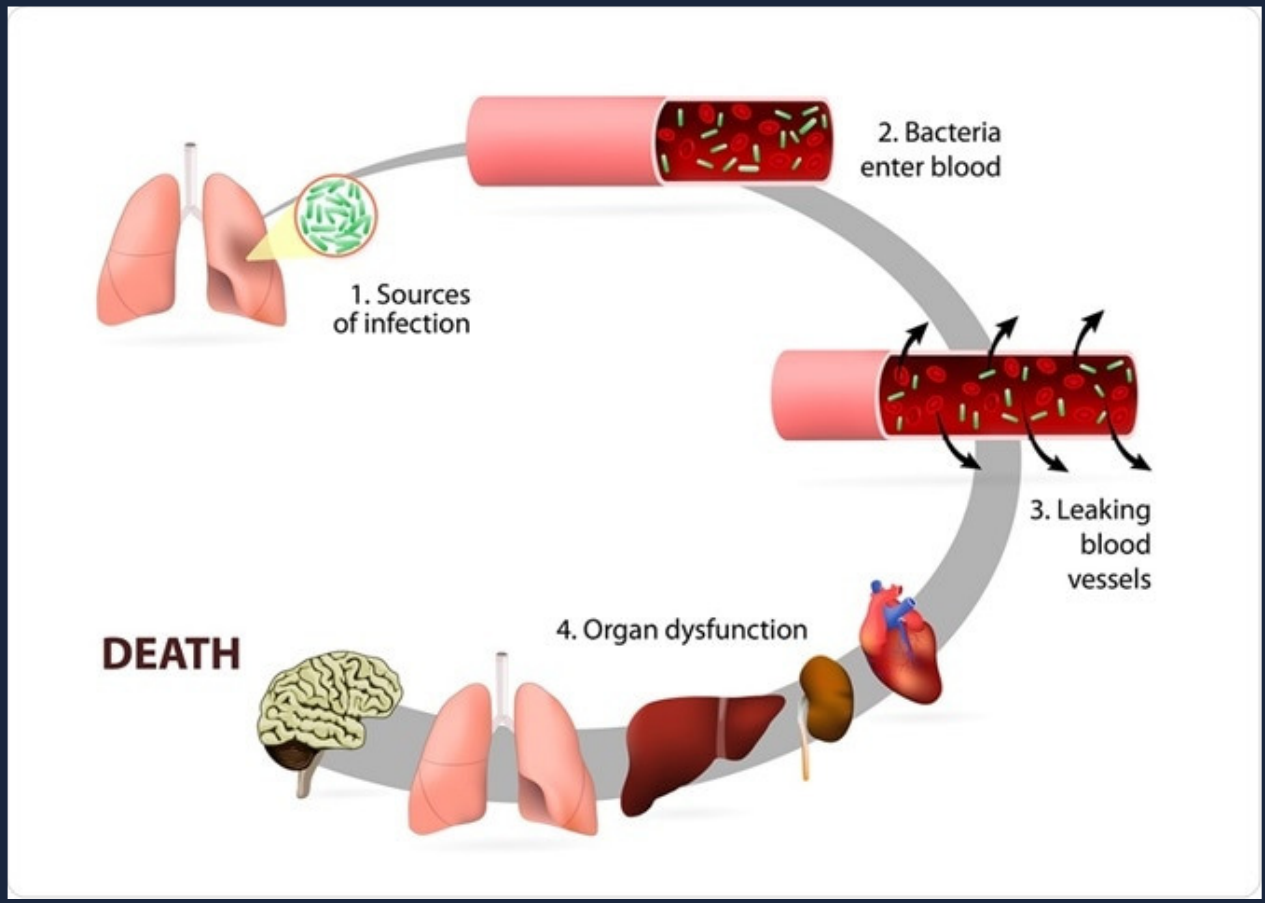
- The user will recognize signs and symptoms of septic patients
- The user will understand where septic patients fall along the Sepsis Pathway
- The user will describe UMH-West specific protocols for septic patients

Sepsis is…

"…the body's extreme response to an infection. It is a ***life-threatening medical emergency***. Sepsis happens when an infection you already have triggers a chain reaction throughout your body."

"Without timely treatment, sepsis can rapidly lead to tissue damage, organ failure, and death."

CDC, 2022



Getty Images

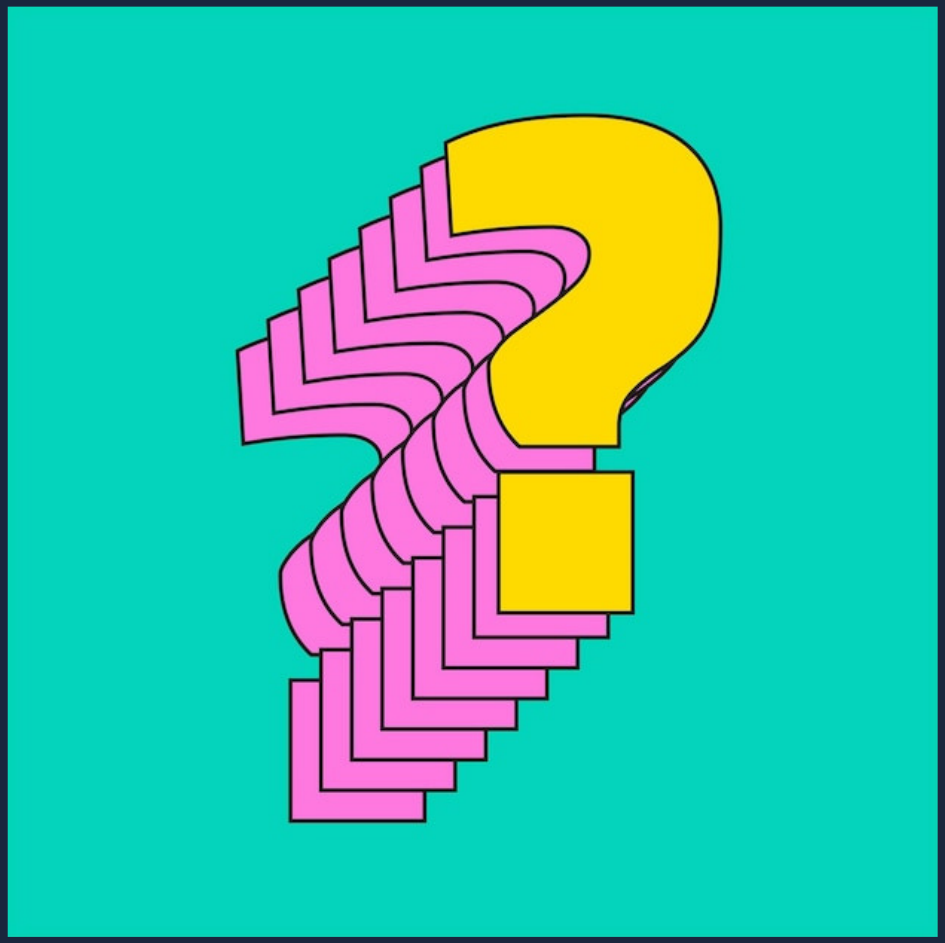
Sepsis Facts

Per year…

- ≥ 1 million American adults develop sepsis.
- The infection that eventually causes sepsis is acquired in the community in 87% of the cases.
- 350,000 adults with sepsis die during their hospitalization or are discharged to hospice care.
- 1 in 3 people who die in a hospital had sepsis.

CDC, 2022

Sepsis Overview



What is sepsis?

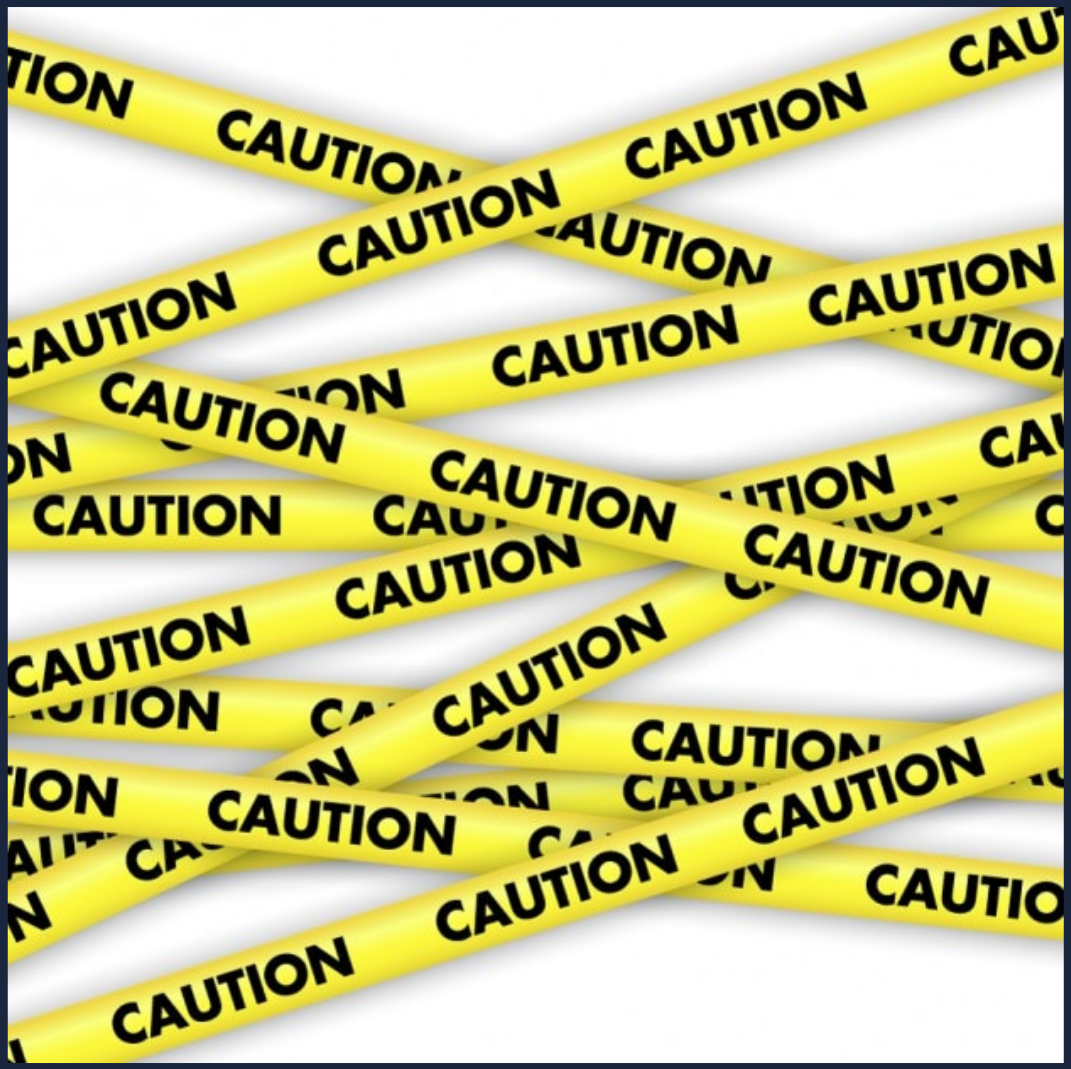
- The body's response to a severe infection causing tissue damage, organ failure, or death
- ANY infection can cause sepsis
  - Pneumonia, UTI, meningitis, cellulitis, etc.

Where does it start?

- Sepsis usually starts at home (i.e., community acquired), but it can also start days after admission to the hospital.

Who is at risk?

- Adults 65 years old and older
- Children under 1 year old
- Immunocompromised: pregnancy, cancer, chronic steroid use, asplenia
- Pre-existing co-morbidities: diabetes, cancer, kidney disease, lung disease
- Pre-existing infections, burns, and wounds
- Recent severe illness or hospitalization, surgery, or invasive lines/drains/tubes
- Currently hospitalized patients
- Sepsis survivors

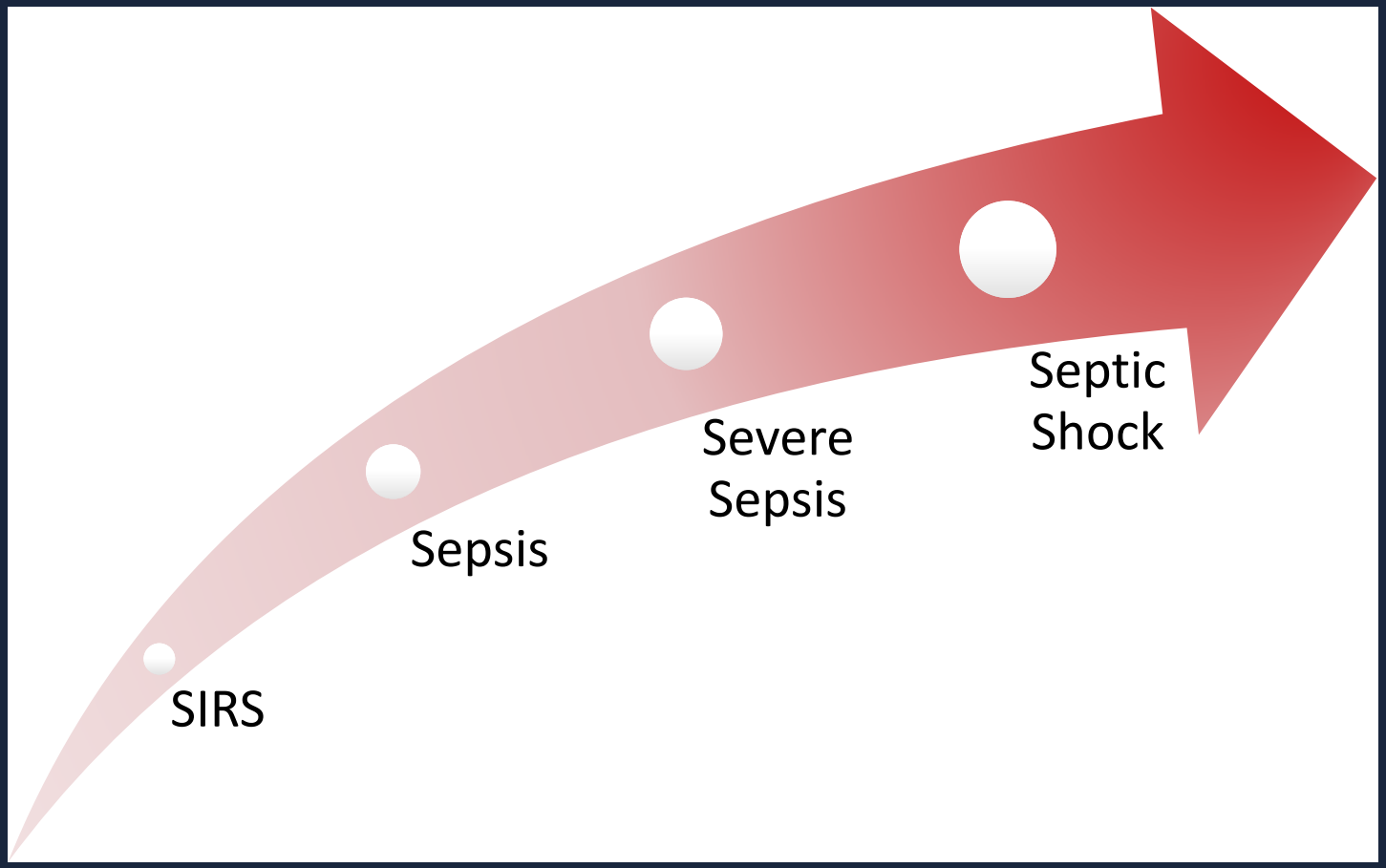


Symptoms of Sepsis

S – Shivering
E – Extreme pain or discomfort
P – Pale, clammy or sweaty skin
S – Sleepy, difficulty waking up or confusion
I – Increased heart rate or low blood pressure
S – Shortness of breath

Not all symptoms are present for every patient, every time. Often, patients have different ***combinations*** *of symptoms.*

Sepsis Pathway



Sepsis starts with a SIRS response from the body and can quickly progress to severe sepsis and septic shock.

Stages in the Sepsis Pathway

SIRS Criteria

(2 of the following)

- Temp: > 38.3 **or** < 36
- HR: > 90
- RR: > 20
- WBC: > 12,000 **or** < 4,000 **or** bands > 10%

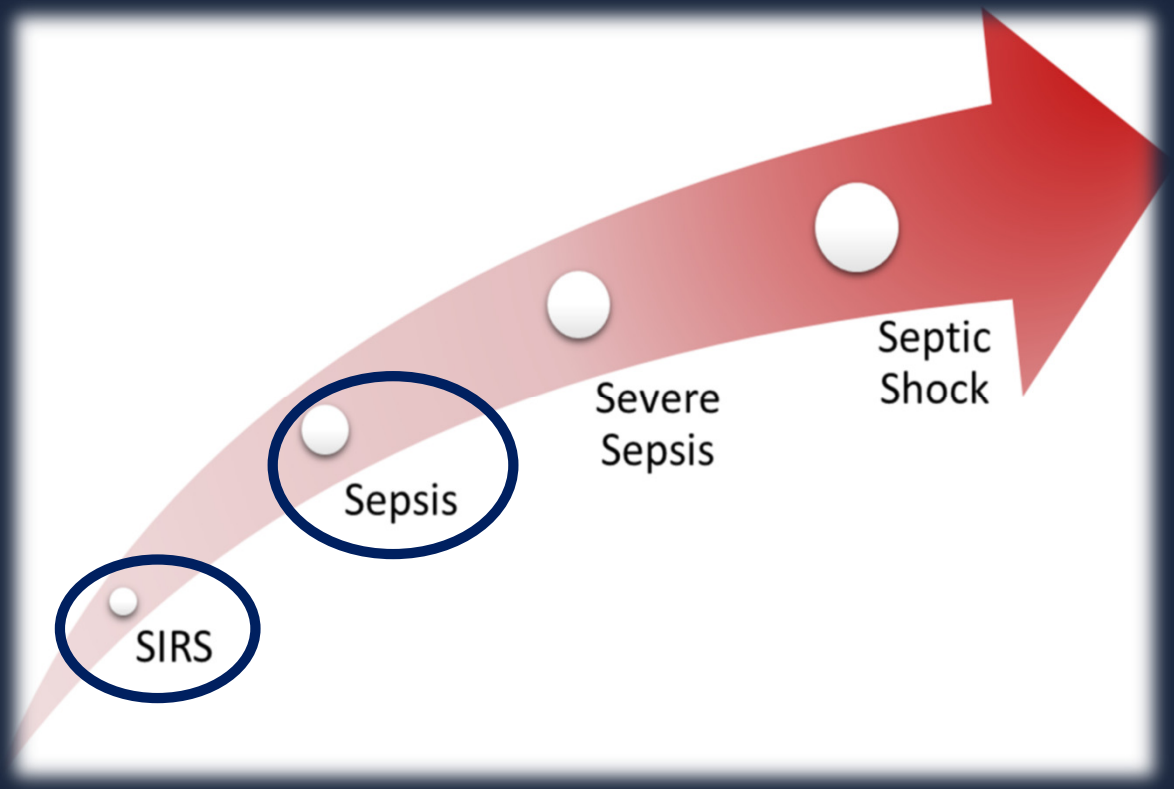
Sepsis

SIRS

+

Infection

(Suspected or Confirmed)

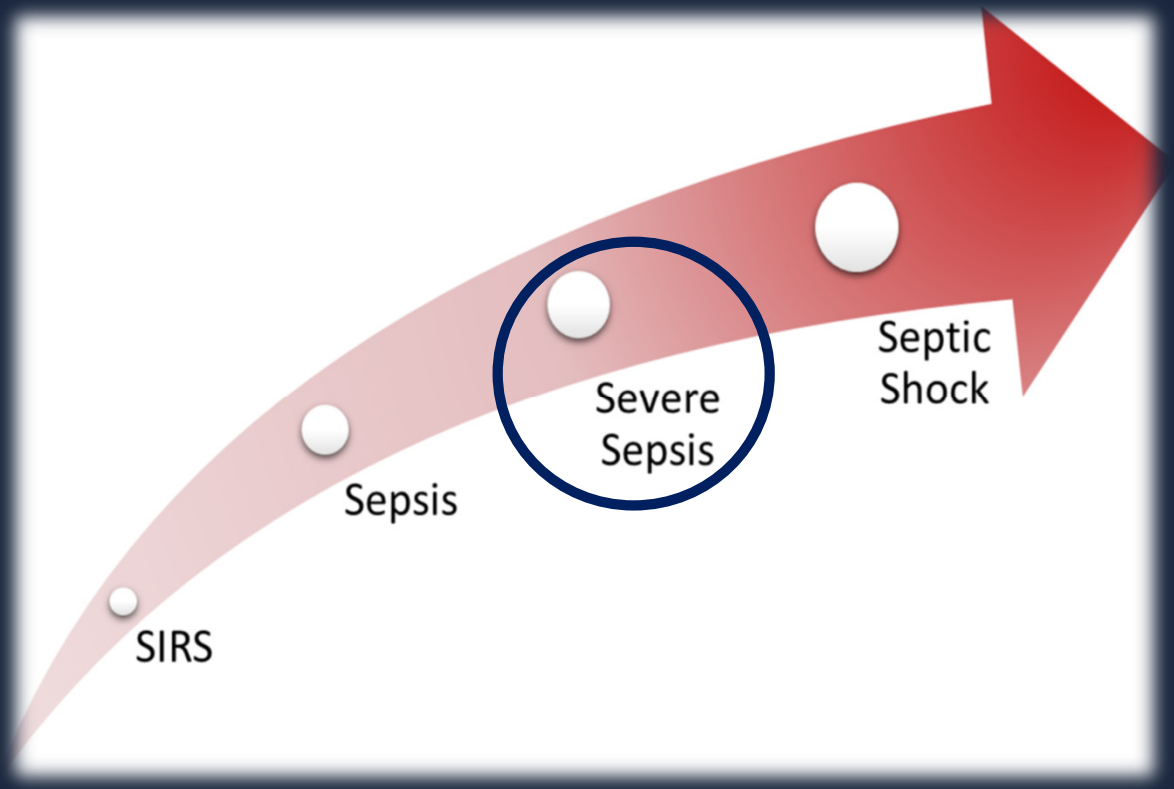


Stages in the Sepsis Pathway

Severe Sepsis

Sepsis
+
Organ Dysfunction
(1 or more of the following)

- SBP: <90
- MAP: < 65
- Creat: > 2
- T. Bili: > 2
- Platelets: < 100
- INR: > 1.5
- PTT: > 60
- Lactic: > 2
- Change in mental status
- Increased oxygen needs
- Decreased urine output



Stages in the Sepsis Pathway

Septic Shock

Severe Sepsis

+

Persistent Hypotension

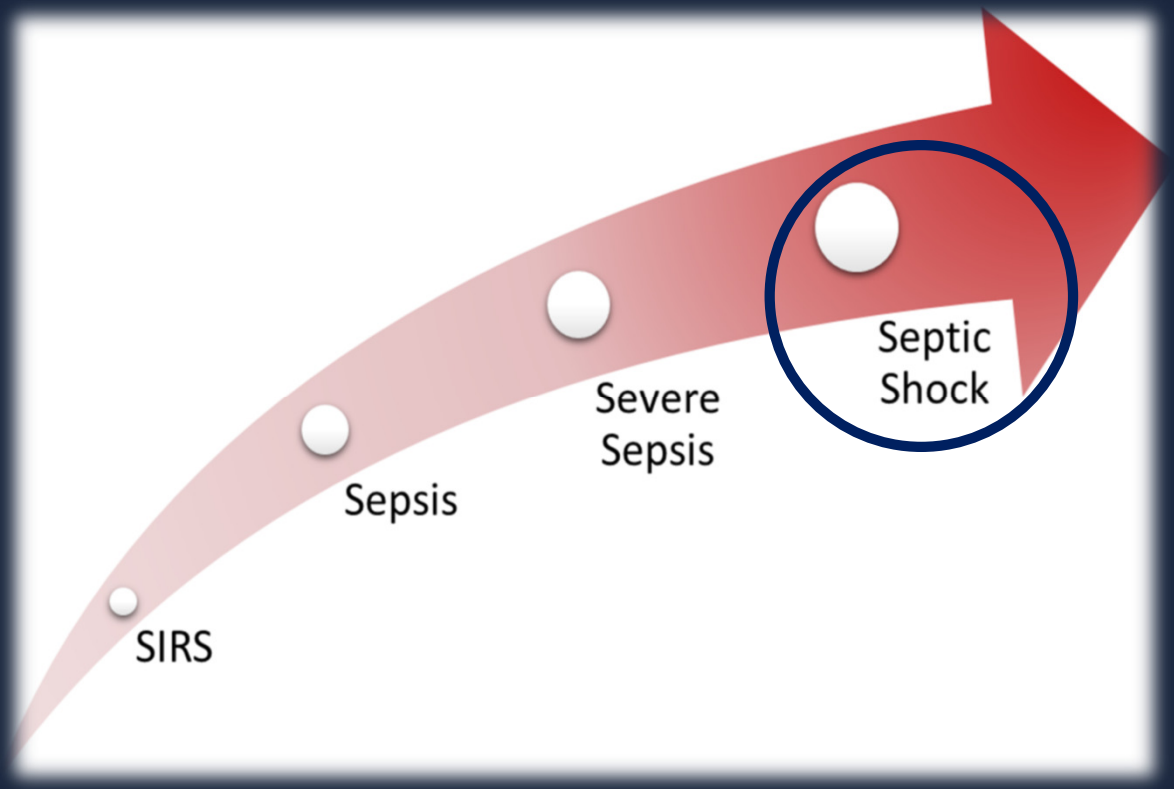
(hypotension after fluid bolus)

-- OR –

Severe Sepsis

+

Lactic ≥ 4



Quiz

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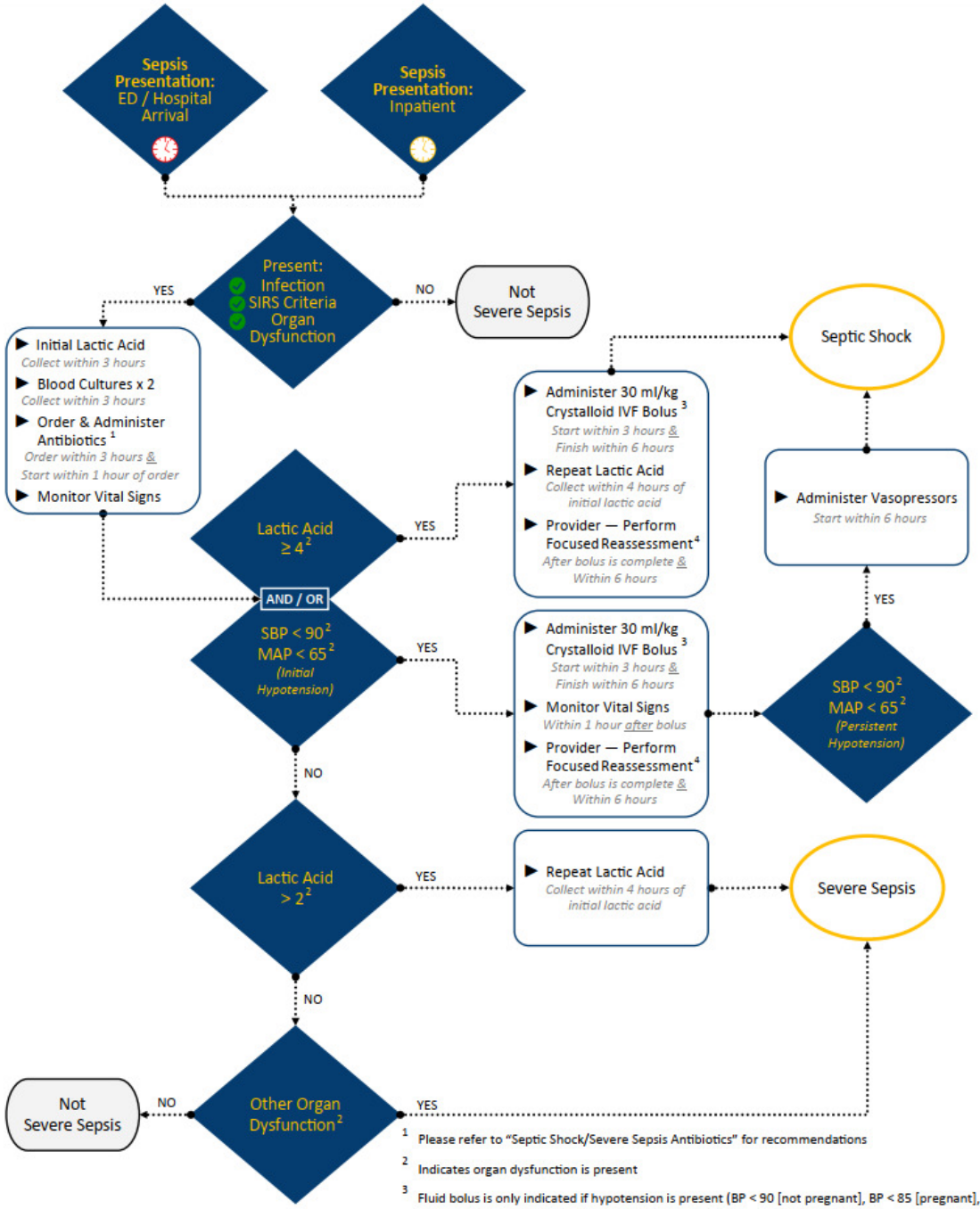
Choose the correct answer in each drop-down list:

Most patients who are septic will have an - Select - in heart rate, a - Select - in blood pressure, and an - Select - in respiratory rate.



Sepsis Algorithm

Providers will be utilizing the sepsis algorithm to determine the appropriate treatment plan

Being familiar with this will:

- Allow you to know what to expect;
- Help you facilitate early sepsis management by initiating & completing orders quickly & efficiently;
- Give you the means to advocate for your patients!

The sepsis algorithm is available on the Nursing Educational Resource OneNote!

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So, my patient is septic…
Now what?

What to Expect

If your patient has suspected sepsis, expect these orders within the first three hours:

1. **Labs** → *sepsis | severe sepsis | septic shock*
   - **Lactic acid is paramount**
     - If elevated, tissue is not being perfused adequately
   - BMP, CBC, & Coags
   - Blood cultures x2 – draw before administering antibiotics
2. **Antibiotics** → *sepsis | severe sepsis | septic shock*
   - Broad spectrum
   - Goal: administer within **1 hour of order being placed**
3. **Fluids** → *septic shock | may also be given in severe sepsis*
   - 2-3 liters via separate orders or 30 ml/kg via 1 order
     - Isotonic fluids: Plasma-Lyte, LR, or NS
   - Typically administered over 1 hour per the duration specified in the order
   - **Recheck vitals within 1 hour of fluids being completely infused**
     - Assesses for persistent hypotension and presence of septic shock

What to Expect

If your patient has suspected sepsis, expect these orders after the first three hours:

4. **Repeat Lactic Acid**
   - **Draw within 4 hours of initial lactic acid if initial was > 2**
   - Usually collected after fluid bolus
   - If lactic acid goes **up** after a fluid bolus – poor prognosis

5. **Vasopressor Initiation**
   - Initiate within 6 hours if hypotension is present within the hour after the fluid bolus is completed
     - **This is persistent hypotension – a harbinger of septic shock**

Other Considerations

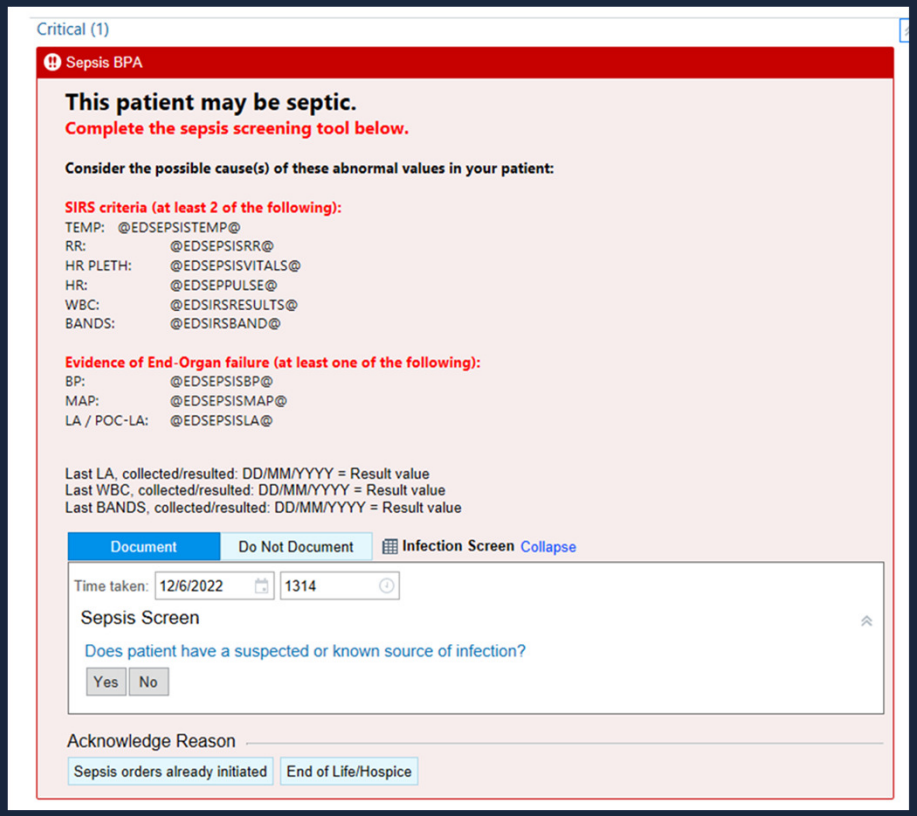
- Respiratory management
  - Monitor SpO2
- Patient may be transferred to a higher level of care
- Steroids may be ordered
  - Helps decrease systemic inflammation
- VTE and GI stress ulcer prophylaxis
- A poor prognosis may lead to a goals of care conversation

Early Recognition is Key!

With a **change in patient condition**, ask …

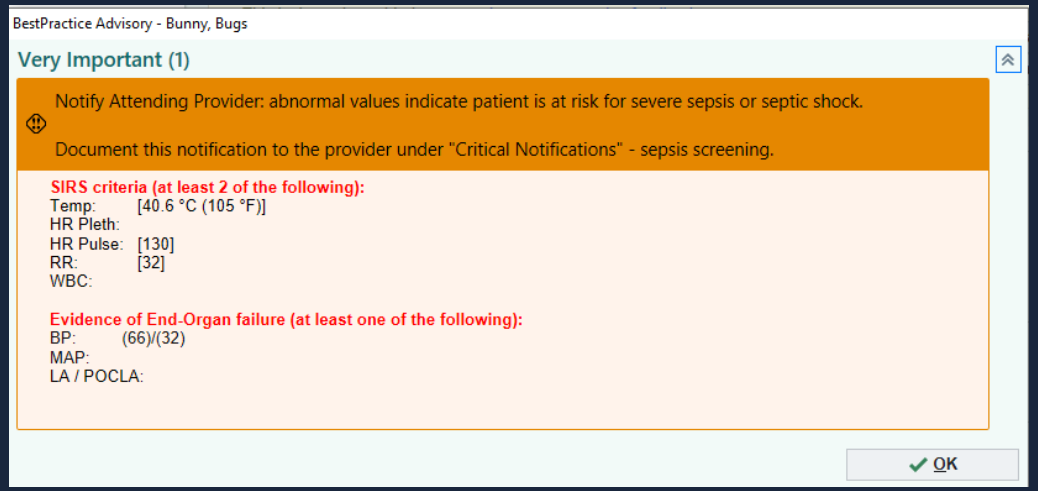
- Do I suspect an infection?
- Are there at least 2 SIRS criteria present?
- Are there any signs of new organ dysfunction?
- **Did the sepsis BPA fire?**

Sepsis BPA



Inpatient Units

Emergency Department



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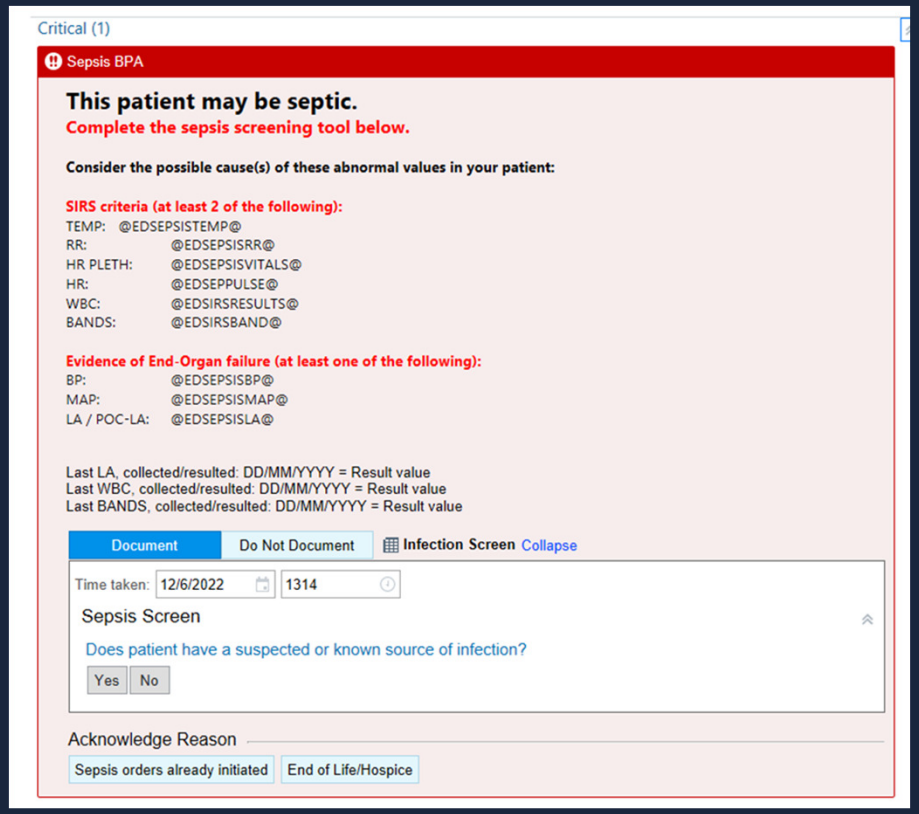
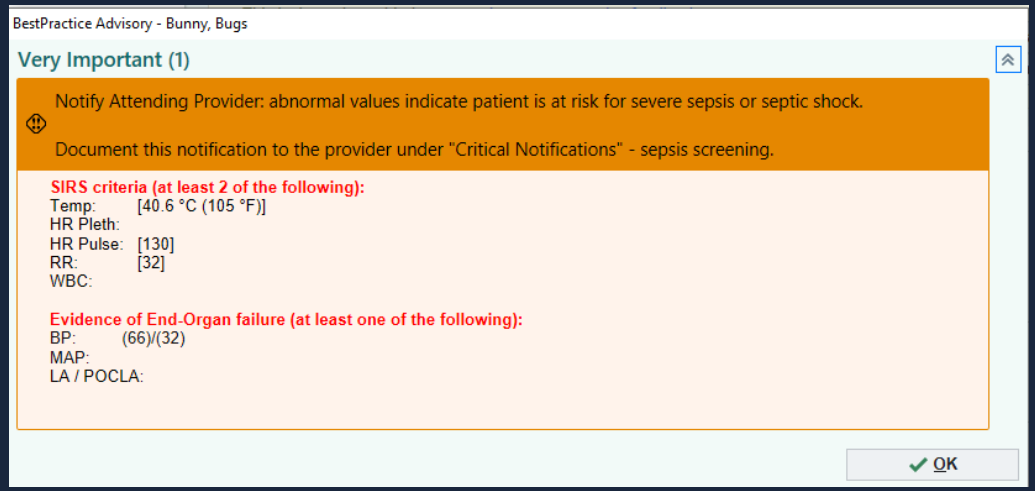
Sepsis BPA

- The Sepsis BPA will fire if a patient meets a certain number of criteria that indicate they could be septic
  - Primarily vitals and labs
- The sepsis BPA will fire ONLY ONCE
  - **Take immediate action!**
- After informing the attending physician, **document this in the provider notification**





Nursing Interventions

- **Consider frequent vital signs**
  - q15-30 minutes until stable
  - Ensure the correct blood pressure cuff is being used
  - Ensure your pulse ox is reading properly – poor tissue perfusion can impact its ability to properly monitor
- Monitor tissue perfusion
  - Assess if cap refill remains < 3 sec
- Monitor renal function
  - Assess if urine output remains > 0.5 ml/kg/hr
- IV access
  - Place 2nd IV for fluid resuscitation / antibiotic administration

Nursing Interventions

- Communication with providers is crucial!
  - Real-time notification & documentation
- Advocate for and facilitate early sepsis treatment
- **Issues with Obtaining Labs**
  - Document difficulty obtaining lactic acid and/or cultures with a progress note
    - Helps tell the story and documented attempts meets the CMS requirements for the Sepsis Core Measure
      Example: "Unable to obtain lactic acid or blood culture, lab called."
  - If unable to obtain cultures in a quickly deteriorating patient, ask provider if antibiotic can be given **before** drawing cultures
    - **Cultures won't save patients, but antibiotics can buy time.**

Quiz

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You are dealing with a patient who is a difficult blood draw and is quickly deteriorating; the provider has ordered blood cultures and a lactic acid.

Your best action(s) include which of the following?

- [ ] Writing a progress note detailing the blood draw problems
- [ ] Calling lab
- [ ] Administering IV antibiotics **after** clarifying with the provider
- [ ] Wait until blood is drawn to take any action

What is the Sepsis Core Measure?

- A set of treatment standards (aka “bundles”) set forth by CMS and other quality collaboratives
- The sepsis bundles are evidence-based practices that have been set as the standard of treatment
- The sepsis bundles include:
  - Antibiotics administered in a timely manner
  - Labs drawn in a timely manner **(blood cultures, initial lactic acid, repeat lactic acid)**
  - Blood cultures drawn **before** antibiotic administration
  - Fluid bolus initiated and completed in a timely manner
  - Vasopressors initiated in a timely manner

Why Does the Bundle Matter?

Fallouts

=

Delayed Treatment

↓

Increased Risk of Mortality & Long-Term Effects

What Are Those Providers Thinking?!

- Maintenance IVF @ 126 ml/hr?!
  - This rate was set by CMS as an appropriate rate for fluid resuscitation via maintenance fluids
  - A good option if the provider wants to resuscitate at a slower rate than a bolus
- 30 ml/kg bolus VS. multiple 1L boluses?!
  - Some providers prefer to give the full volume (30 ml/kg) of fluid over multiple orders of 1L boluses to allow for closer monitoring of fluid overload

What Are Those Providers Thinking?!

- Blood cultures before antibiotics?!
  - There is a risk blood cultures will result as "negative" if drawn *after* antibiotics are given…thus not allowing providers to see which organism was in the blood, not being able to run a culture sensitivity, and possibly not treating with the appropriate antibiotics

- Why are we drawing repeat blood cultures?!
  - Often drawn 1-2 days after initial set for two reasons:
    - To assess whether the current antibiotic regimen is working
    - If a patient spikes a fever or appear more septic, to assess if a new pathogen has entered the bloodstream

What if…

…the provider doesn't implement the sepsis guidelines?

- Continue to monitor the patient for worsening signs and symptoms
- Communicate your concern!
- Document your notification and the action
- Follow the chain of command

…the patient refuses care?

- Provide patient education
- Respect & accept the patient's wishes
- Communicate the refusal to the provider
- **Document**

Other Considerations

- Sepsis can cause long-lasting effects
  - Significant functional limitations (cognitive and physical)
  - Chronic organ dysfunction (kidney failure)
  - Post-Sepsis Syndrome
    - A condition that can affect up to 50% of sepsis survivors which impacts physical, cognitive, and mental health of patients

Sepsis Alliance, 2021

- Increased risk for readmission
  - Ensure proper follow up is set up prior to discharge
  - Communicate what signs/symptoms to watch for and who to contact

Quiz

Click the **Quiz** button to edit this object

Let's do a few case studies to review this information

Click the "Start Quiz" button to proceed

Case Study

- 82 yo, male was just admitted to floor from ED for new cough, SOB, and hypoxia. ED orders: CXR, CBC, BMP, RRP, blood cultures, lactic acid POCT completed. ED provider suspects bacterial pneumonia. PMH includes HTN, stroke, and poorly controlled diabetes. Patient does not wear oxygen at home but was placed on 4L NC in the ED. Patient has been A&O x4 (baseline).

  ED Labs: WBC 15.3, Creat 2.2, lactic acid 2.61, RRP + for RSV

  ED CXR: new opacities

  Floor Admission Vitals: T 37, HR 113, RR 28, BP 100/62, 93% 2L NC

- Upon reviewing orders, you realize no repeat lactic acid has been ordered or drawn.
- Is infection suspected or confirmed? Yes
- What (if any) SIRS criteria are present? 3 of 4 - HR, RR, WBC
- What (if any) organ dysfunction is present? 2 - Creat, lactic acid
- Is there anything you should ask the provider for? Repeat lactic order

"Remember, sepsis is a medical emergency and should be treated as one. Early identification and management of sepsis improves patient outcomes.

Nurses have the capacity to make a difference both clinically and system-wide. Actively participate in hospital-wide performance improvement programs and share your experiences and expertise. You can have a global impact on how we manage sepsis and septic shock in the future."

Doble, 2017
Lippincott NursingCenter Blog

Celebrate Sepsis Awareness Month

Sepsis Alliance

September 13 2023 | World Sepsis Day

worldsepsisday.org/toolkits

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References & Contact

For questions about sepsis or any of the content within this module, reach out to Name:

- Number
- Email

Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases, Division of Healthcare Quality Promotion. (2022, August 9). *What is Sepsis?* https://www.cdc.gov/sepsis/what-is-sepsis.html#:~:text=Sepsis%20is%20the%20body's%20extreme,%2C%20skin%2C%20or%20gastrointestinal%20tract.

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