KHA Sepsis, Severe Sepsis, & Septic Shock Clinical Pathway

Broad Overview: Sepsis

- **Recognition -** Early identification is crucial. Sepsis is a syndrome caused by a host response to an infection.
- **Symptoms -** Include elevated Temperature (T), increased heart rate (HR), increased respiratory rate (RR), and signs of infection.
- **Initial Management:**
  - **Lactate (LA) Levels -** Elevated LA can indicate tissue hypoxia and severity of sepsis.
  - **Complete Blood Count (CBC) -** To check for abnormalities in white blood cells, which can indicate infection.
  - **C-Reactive Protein (CRP) and Procalcitonin -** These are biomarkers that can help in diagnosing sepsis and monitoring response to treatment.
  - **Arterial Blood Gases (ABGs) -** To assess oxygenation and acid-base status.
  - **Comprehensive Metabolic Panel (CMP) -** To evaluate organ function and electrolyte balance.
  - **Blood Cultures (B/C) -** Obtain before starting antibiotics (ATB). Multiple Sets - Collecting multiple sets helps differentiate between true pathogens and contaminants.
    - **Blood Culture Collection Does and Don'ts - KHA Quality**
  - **Antibiotic (ATB) -** Administer broad-spectrum ATBs as soon as possible.
    - **Antibiotic Stewardship and Spectrum Guide**
    - **SHC-Sepsis-ABX-Pocket-Card.pdf**
  - **Fluid Resuscitation -** Administer intravenous fluids (IVF) to maintain blood pressure(BP) and perfusion.
    - CMS IVF recommendations are:
      - 0.9% saline solution
      - 0.9% Sodium Chloride Solution
      - Isolyte
      - Lactated Ringers (LR) Solution
      - Normal Saline (NS)
      - Normosol
      - PlasmaLyte
  - **Monitoring -** Continuously monitor vital signs (V/S) and organ function: T, HR, RR, BP (per your hospital protocol and/or sepsis standards.

Severe Sepsis (Defined as Sepsis + associated organ dysfunction)

- **Recognition -** Severe Sepsis involves organ dysfunction.
- **Symptoms -** May include altered mental status, decreased urine output (UO), and shortness of air (SOA).
- **Management:**
  - **Continued ATBS -** Adjust based on B/C results.
  - **Fluid Resuscitation -** Continue to manage BP & perfusion.
  - **Vasopressors -** If fluids are insufficient, use meds to constrict blood vessels and raise BP.

CMS Recommendations:

Generic:	Brand:
Norepinephrine	Levophed
Epinephrine	Adrenalin
Phenylephrine	Neosynephine/Vazculep
Dopamine	Dopamine
Vasopressin	Vasopressin
Angiotensin II	Glapreza

NOTE: The guidelines to the left outline CMS requirements for SEP-1 (Sepsis) bundle compliance as defined in the CMS Specifications Manual for National Hospital Inpatient Quality Measures version(s) 5.17 and 5.18 which are the current and future publications at the time of this tool's publishing. Please ensure that all medication selections align with your facility's formulary lists, clinical guidelines, and approved protocols. Drug choices should reflect your institution's standards for safe and effective prescribing.

  - **Organ Support -** Provide support for affected organs (e.g., oxygen (O2) via cannula, mask, BiPAP, mechanical ventilation for respiratory failure).

Septic Shock (Defined as Severe Sepsis + hemodynamic instability)

- **Recognition:** Septic Shock is characterized by persistent hypotension despite fluid resuscitation, along with signs of organ dysfunction.
- **Management:**
  - **Aggressive Fluid Resuscitation -** Administer large volumes of IVFs.
  - **Vasopressors -** Use meds (listed above) to maintain BP
  - **Inotropic Support -** If needed, use meds to improve heart function.
    - Inotropes - **Types, Purpose and Side Effects**
- **Monitoring and Support:**
  - Intensive monitoring and support for all organ systems, including renal replacement therapy if necessary.

General Principles:

- **Early Goal-Directed Therapy -** Implement protocols to guide timely and effective treatment.
- **Source Control -** Identify and eliminate the source of infection (e.g., drainage of abscesses).
- **LA Measurement -** Regularly measure LA levels to assess tissue perfusion and guide resuscitation efforts.

Discharge (D/C) Criteria:

- **Clinical Stability**
  - **Hemodynamic stability:**
    1. Stable BP - No need for vasopressors to maintain BP.
    2. HR - Within normal limits (WNL) and stable.
  - **Respiratory stability:**
    1. Stable O2 saturation levels without need for supplemental O2.
    2. Stable RR: WNL.
  - **Renal function:**
    1. Adequate UO: Normal or stable UO.
    2. Stable creatinine levels indicating stable kidney function.

- **Neurological status:**
  1. Patient is awake, alert, & oriented.
  2. No Delirium: Absence of acute confusion, delirium, or patient return to previous normal status.

- **Infection Control**
  - **Source control -** Source of infection has been controlled or eliminated. No new signs or symptoms of infection.
  - **ATB therapy -** Completion of prescribed course of ATBs OR a clear plan for completing it after D/C.

- **Functional Status**
  - **Mobility:**
    1. Independent or Assisted Mobility: Ability to move independently or with minimal assistance.
    2. Physical Therapy (PT) if needed, a plan for continued physical therapy (exception: pt. is confined to a bed, paralyzed, etc.)
  - **Self-care:**
    1. Ability to perform activities of daily living (ADLs) or return to prior normal status.

- **Follow-Up (F/U) & Support:**
  - F/U appt. with primary care providers (PCP) and specialists are scheduled PRIOR to the patient leaving the hospital.
  - **Home health (HH) services if needed: (Add your facility's HH services below)**

Agency	Service Areas	Phone

  - Rehabilitation Services as needed.
  - **Palliative Care Services -** If needed, consider palliative care to manage symptoms and improve Quality of Life (QOL).
    - **(Insert your facility's palliative care resource links here)**

    _____

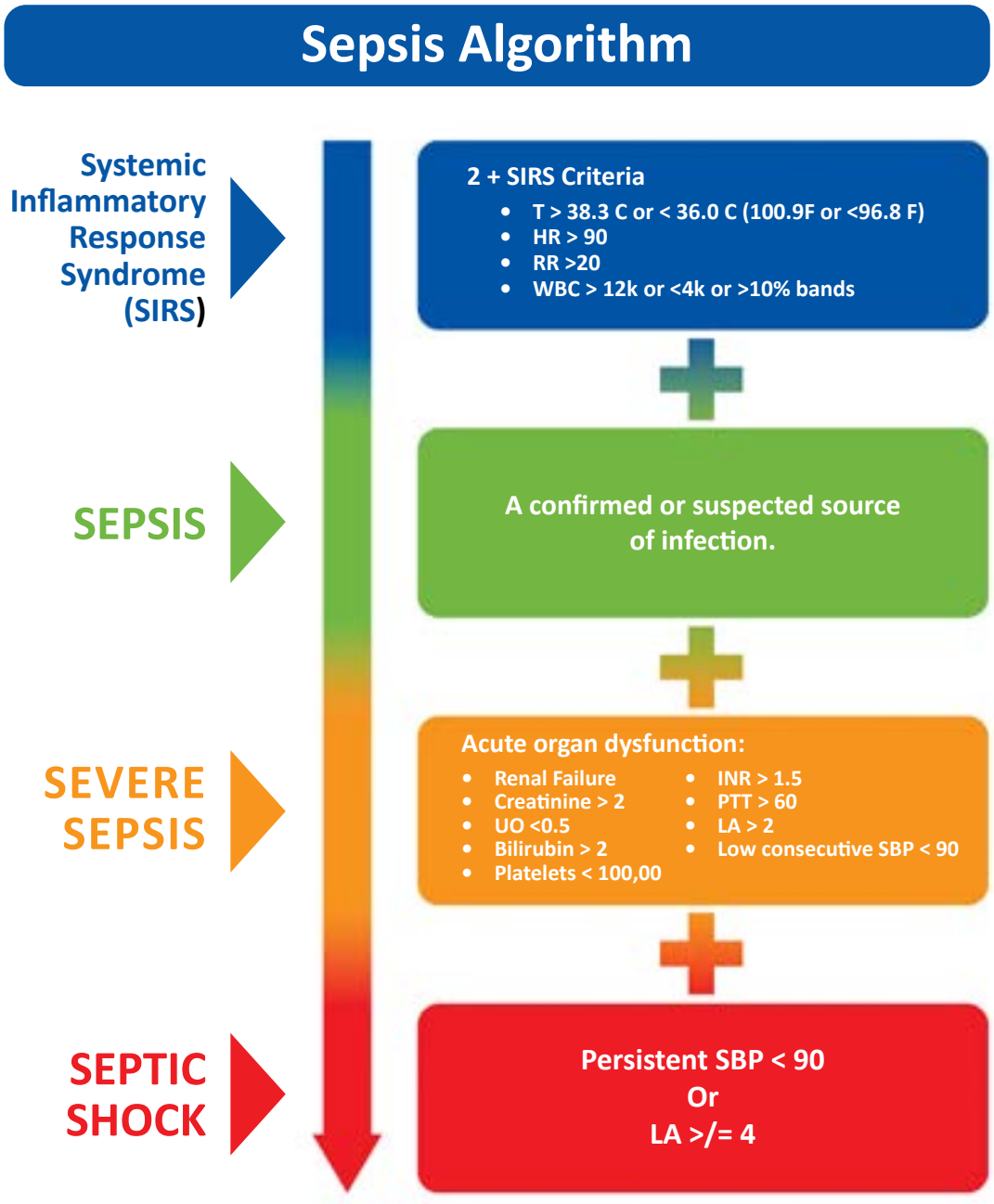
  - **End-of-Life Care -** If needed discuss advanced directives & end-of-life care preferences with patient and family

- **Patient and Family Education:**
  - Patient and family understand the condition, treatment plan, and signs of recurrence.
  - **Emergency plan -** Clear instructions on what to do & who to contact in case of emergency.
    - **cdc.gov/sepsis/living-with-sepsis**
    - **Managing Sepsis after Discharge**
    - **FAMILY SUPPORT AFTER PATIENT DISCHARGE - Sepsis-one**
    - **Sepsis Zone Tool - English: ZONE TOOL | Sepsis and/or Infection**
      - Spanish: ZONE TOOL | Sepsis and/or Infection

- **Documentation and Communication:**
  - **D/C Summary -** Comprehensive and detailed D/C summary provided to patient and primary care provider (PCP).
  - **Medication List:** Updated list of medications and dosages.
  - **Checklist -** surviving-sepsis-campaign-adult-guidelines

Key points about clinical pathways:

- **Standardization -** Help reduce variability in clinical practice by providing a standardized approach to treatment.
- **Multidisciplinary -** Involve a team from different specialties working together to provide coordinated care.
- **Evidence-Based -** Developed based on latest research and clinical evidence to ensure best possible outcomes.
- **Efficiency -** By outlining sequence and timing of interventions, they help streamline care process, making it more efficient.
- **Patient-Centered -** Focus on patient's overall journey, ensuring that all aspects of care are addressed in a cohesive manner.



Known or Suspected Source of Information

YES

Does patient have at least TWO SIRS not associated with any other chronic condition?

- T < 96.8 F or > 100.9 F
- HR > 90 BPM
- RR > 20/Min
- WBC < 4 or > 12 or > 10% bands

And at least ONE of these not associated with any other chronic illnesses?

- SBPs < 90 mmHg or < 65 MAP or S BP decrease of more than 40 mmHg
- Initial LA > 2mmol/L
- Acute Respiratory Failure as evidenced by a new need for invasive or noninvasive mechanical ventilation
- Creatinine >2.0
- UO <0.5 mL/kg/hour for two (2) consecutive hours
- Total Bilirubin >2 mg/dL (34.2 mmol/L)
- Platelet count <100,000
- INR >1.5 or aPTT >60 sec

YES

PHASE I: *(within first 30-60 minutes)*

- Initiate Code Sepsis.
- Establish patient weight/document
- Apply BP and heart monitor (V/S q 15 minutes unless otherwise ordered).
- Establish IV access.
- Estimate Time Zero for team/document.
- Obtain initial diagnostics (CBC, CMP, LA {w/ repeat if initial is > 2}, B/C X 2 sets, LFT, ABGs, PCR, ECG, any additional testing as needed).
- Administer O2.
- Administer appropriate ATB .*
- As directed by the clinician: Calculate Crystalloid Fluid (CF) infusion bolus 30mL/kg or other amount as directed by clinical with documented cause-refer to CF bolus sepsis exceptions.**

Cont.

PHASE II: *(within 60-90 minutes):*

- Confirm initial CF bolus is complete/document- make sure at least TWO (2) BPs are recorded in the hour after CF bolus is complete.
- If hypotension is still noted OR signs of altered tissue perfusion, persists after the CF bolus is complete, begin vasopressors urgently within one (1) hour and contact admitting doctor, hospitalist, etc.

Cont.

PHASE III:

- Clinician documentation of Reassess Volume Status and Tissue Perfusion OR
  - Measuring central venous pressure (CVP)
  - Central venous oxygen saturation (ScvO2)
  - Bedside cardiovascular ultrasound
  - Or dynamic assessment of fluid responsiveness.
- Admission from ED:
  - Use severe sepsis or septic shock admission order set
  - Complete admission handoff to receiving unit, including:
    - ✓ Time Zero
    - ✓ Infectious source(s)
    - ✓ CF bolus and results
    - ✓ Current V/S & mental status
    - ✓ Treatments, procedures done in ED
    - ✓ ATB given/start time
    - ✓ Any care that is ongoing or needs to be initiated
- Perform Sepsis debrief with strategies to improve streamlining and/or clinical pathway

NO

Tx as indicated - Continue to monitor for change.

FYI

Antibiogram is a collection of data generated after a bacterium is isolated from a patient that is placed in a table and summarizes percent of bacteria pathogens that are susceptible to various antimicrobial agents. Antibiograms are site-specific and should be used to form a treatment plan and monitor resistance patterns in the hospital as well as on individual units.

Inpatient (IP) Adult (non-pregnant) Sepsis, Severe Sepsis, Septic Shock Clinical Pathway

Phase 1 (30-60 minutes)	Phase II (w/in 60-90 minutes)	Phase III
1. Documentation of **Time Zero.** 2. Obtain weight. 3. Apply Cardiac, BP, & O2 sat monitors. 4. Apply O2 to maintain SpO2 >95% (88-92% COPD). 5. Obtain Vascular Access (if unable, establish IO or c-line access). 6. Obtain blood work (collect point of care tests if available): LA, CBC, CMP, LFT, ABGs, B/C (2 sets from 2 separate sites-prior to ATB administration unless otherwise specified). 7. Obtain PCXR, ECG, and other tests as ordered.	1. CF bolus given (wt. based 30mL/kg **or** use of IBW, **or** CF volume w/in 10% > 30mL/kg acceptable, different volume ordered with documented reason per clinician. • 0.9% saline solution • 0.9% Sodium Chloride • Isolyte • Lactated Ringers (LR) • Normal Saline (NS) • Normosol • PlasmaLyte 2. Assess fluid response: Monitor mental status and BP readings (aim for SBP ≥ 100mmHg). Monitor and document strict fluid I&O Closely monitor patients with cardiac or renal dysfunction, pulmonary edema, elderly, or frail when giving fluid boluses. 3. Give Broad Spectrum ATB or other ATB as ordered by clinician.	1. Clinician documentation of reassessment of volume status and tissue perfusion (must perform 5/8 to be CMS compliant): • Arterial O2 Sat • Cap refill • Cardiopulmonary assessment (Minimally include HR & rhythm & result of auscultation of lungs) • Peripheral pulses • Shock Index • Skin color or condition • UO • V/S (T, HR, RR, and BP) **OR** 2. Documentation of • CVP • Central venous O2 Sat • Echocardiogram • Fluid challenge • Passive leg raise

D/C: See above information & resource/links

Post D/C

Visit		
1st	1. Head to Toe Assessment w/ VS & O2 sat and weight. **HTT Assessment Template** 2. Documentation of any wound or new infectious source, dyspnea, cough, fever. 3. O2 use compliance. 4. Use of incentive spirometer. **Incentive Spirometer: Purpose, Goals and How To Use** 5. Dietary compliance. 6. Med. compliance. 7. Functional abilities: Need for PT, OT, etc. 8. Availability & willingness to assist from caregiver(s).	1. Explain use of clinical pathways to pt./caregiver(s) (Attached). 2. Introduce sepsis teaching materials to pt./caregiver(s) **Life After Sepsis Fact Sheet-KHA Quality** 3. Visit schedule/care plan. 4. **GOAL:** pt. able to return to normal status prior to sepsis admission.
2nd	1. V/S, O2 sat, and weight 2. Exercise Regimen • Gait/balance assessment/training 1. V/S, O2 sat, and weight 2. Med. compliance	1. **GOAL:** set small goals such as bathing self, walking, sitting in chair, use of incentive spirometer. 2. Use of assistive devices (walker, cane, w/c, etc.)
3rd	1. V/S, O2 sat, and weight 2. Med. compliance	1. Med. (start w/ O2 if needed). 2. Teach S/S of **SEPSIS** to be aware of: • **S**hivering • **S**leepiness • **E**xtreme pain • '**I** feel like I might die' • **P**ale Skin • **S**hortness of breath
1st phone call	1. Have you had any fever, cough, SOA, pain? 2. What was your last weight? 3. When is your next follow-up appointment? 4. What do your ADL look like? 5. Do you have any questions?	1. Further questioning needed as appropriate to ptatient's answers.
2nd phone call	1. Have you had any fever, cough, SOA, pain? 2. What was your last weight? 3. When is your next follow-up appointment? 4. What do your ADL look like? 5. Do you have any questions?	1. Further questioning needed as appropriate to patient's answers.

Resources

- https://www.khaquality.com/document-library/
- https://www.cms.gov
- Sepsis-educational-module
- ccjm.org/content/ccjom/87/1/53.full.pdf
- Best Practices in the Diagnosis and Treatment of Sepsis
- survivingsepsiscampaign/guidelines-and-resources
- CMS Inpatient Data Dictionary/Specification Manual version 5.17: Discharges 01/01/2025 through 12/31/2025

For more information, contact:

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