NHA Sepsis Toolkit

NHA
Nebraska
Hospital
Association

The influential voice of Nebraska's hospitals

Dear Healthcare Leaders,

According to the Centers for Disease Control and Prevention (CDC), each year, at least 1.7 million adults in America develop sepsis. Nearly 270,000 Americans die as a result of sepsis and 1 in 3 patients who die in a hospital have sepsis. Additionally, according to the Sepsis Alliance, sepsis is the #1 cost of hospitalization in the U.S., costing more than $27 billion each year. Hospital stays for patients with sepsis are double the average cost per stay across all other conditions and sepsis is the #1 cause for readmissions, costing more than $2 billion each year.

The following video boldly illustrates the potential severity and lasting effects of Sepsis:

https://www.youtube.com/watch?v=0KtR93zhkhU#action=share.

This 16 minute video describes the sepsis experience of Jay and Sue Stull and is narrated by Dr. Steven Simpson, MD, Professor of Pulmonology & Critical Care Medicine, University of Kansas.

Data collected during the Hospital Improvement Innovation Network (HIIN) project showed that Nebraska hospitals have an opportunity for improvement in the care of sepsis patients across the state. Many Nebraska healthcare leaders have agreed to participate in the development of this toolkit, to assist NHA members in the following areas:

- Providing best practices in the care of septic patients
- Sharing information provided by Nebraska hospitals in order to improve communication between those caring for septic patients – EMS personnel, rural hospitals & tertiary sites regarding: the care and transfer of septic patients
- Offering resources and tools intended to aide in the improvement processes associated with caring for septic patients & improving outcomes

Participants in this project include representatives from Nebraska Methodist Hospital, Mary Lanning Healthcare, Bryan Health, Crete Area Medical Center, Franciscan Care Services, Great Plains Health and Lexington Regional Health Center.

The NHA and HIIN staff thank those who participated in this project and the content contributors for their valuable input.

Sincerely,

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In response to the COVID-19 pandemic

The creation of this toolkit comes at an unprecedented time in healthcare, in the country…in the world. Because of vastity and reach of the COVID-19 Pandemic and its direct relation to sepsis, it was pertinent to mention within this tool.

The Novel Coronavirus and the national response to the pandemic are fluid and changing, so please continue to monitor all emerging recommendation and data that is presented by reputable resources. We have included some great resources to support healthcare providers during this difficult time, which can be found in the Resources section at the back of this guide.

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| Components	Yes	No	NA	Action Plans (What, By Who, By When)
Organizational Commitment / Team				
Physician / Provider and nursing leadership participate in action planning for sepsis initiatives				
Multidisciplinary team in place and regularly occurring meetings from various care areas: ED, ICU, med/surg, perinatal, pediatrics, clinic				
Executive sponsor receives regular data reports and provides feedback				
Sepsis team is part of/reports to quality structure in hospital				
Managing sepsis is aligned with hospital's quality, safety or organizational goals				
Baseline data collection completed for process and outcome data				
Components	Yes	No	NA	Action Plans (What, By Who, By When)
Dedicated Sepsis Resources / Sepsis Coordinator / Lead				
Dedicated sepsis resource in place (in action steps identify the title) – who is going to take responsibility for outcomes? FTE allocation/time commitment to sepsis role. Other responsibilities in the role – job description				
Scope of the Sepsis Program – are all units included?				
Components	Yes	No	NA	Action Plans (What, By Who, By When)
Identification / Screening				
Early alert or warning system/process in place in the ED or describe triggers for sepsis screening:				
ED				
ICU				
Inpatient Units				
Perinatal				
Pediatrics				
Clinic				
EMS				
Long-Term Care				
Is a screening process completed consistently, as designed?				
A process is in place to screen/assess for sepsis upon admission and every shift in each clinical area.				

Gap Analysis

Components	Yes	No	NA	Action Plans (What, By Who, By When)
A process is in place to communicate potential sepsis patients with area EMS				
A process is in place to communicate potential sepsis patients with area Long-term Care Facilities				
Does the process include specific actions by nurse when a positive screen is obtained? Is a Nurse-Driven Protocol in place?				
Is a rapid response process or sepsis alert team in place for a new sepsis presentation?				
Components	Yes	No	NA	Action Plans (What, By Who, By When)
Treatment / Implementing the Bundles				
Decision algorithm regarding transfer; networks in place transfer and communication				
Sepsis order sets are in place and utilized by providers (CPOE/paper)				
Nurse-Driven Protocol is in place and utilized appropriately				
Sepsis documentation tools are in place and utilized to meet SEP-1 requirements				
Communication in place between physician/provider and nurses related to diagnosis and treatment plan specific for sepsis; handoffs readily incorporate appropriate sepsis language				
Laboratory: • get blood cultures STAT, prior to antibiotic administration • get lactate level within one hour • process in place to repeat lactate in 4-6 hrs if > 2 initially				
Nursing: • adequate IV access established • consider Central Line placement, depending on medications ordered				
Pharmacy: Able to get antibiotics in one hour for ICU, three hours for ED				
IT: work with IT and EHR Vendor to create built-in Sepsis workflows				
Process in place for reassessment of volume status and tissue perfusion for septic shock patients				
Identify resistance/barriers to components of bundles and developed solutions (fluid resuscitation, blood cultures before antibiotics, repeat lactate, etc.)				
Determination of Time Zero				

Components	Yes	No	NA	Action Plans (What, By Who, By When)
Discharge Planning / Decreased Readmissions				
Process for identifying new physical, mental, and cognitive problems in a patient post-sepsis and referring for appropriate treatment to decrease the chance of long-term or permanent harm and readmission				
Initiate Patient focused education regarding signs and symptoms of infection and sepsis during discharge planning				
Components	Yes	No	NA	Action Plans (What, By Who, By When)
Quality Measurement / Continuous Improvement				
Define real time method for tracking patients (i.e. patient log)				
Define concurrent review process for core measure and core measure defect review process				
Sepsis Coordinator communicates with clinical areas to answer questions and ensure appropriate processes are being followed (bundles, protocols, documentation)				

Review data and ideas for improvement at team meetings.
    Do you have a way to know your data elements that fall out each month and a process for follow up?
    Do you have a process to address deviations from evidence-based care processes with physicians, nurses, and other clinical staff?				

Components	Yes	No	NA	Action Plans (What, By Who, By When)
Education				
Provider Education				
Nursing Education				
Support Staff Education				
General Sepsis Education - all organization				
Public / Patient Education				
EMS Education				
Other Healthcare Facility Education (LTC, Assisted Living)				
Other Tools to enhance communication and ease of practice				
Other Resources				

Gap Analysis

Organizational Commitment / Team

Alignment of Quality Goals Across an Organization

Quality of care within a hospital is defined in many ways, however, everyone can agree that healthcare providers want to do the best to care for their patients in a safe, effective and efficient manner. Many organizations have worked to create tools, definitions, and guides to assist healthcare providers in creating quality programs that align with organizational priorities and allow a culture of safety and quality to prevail.
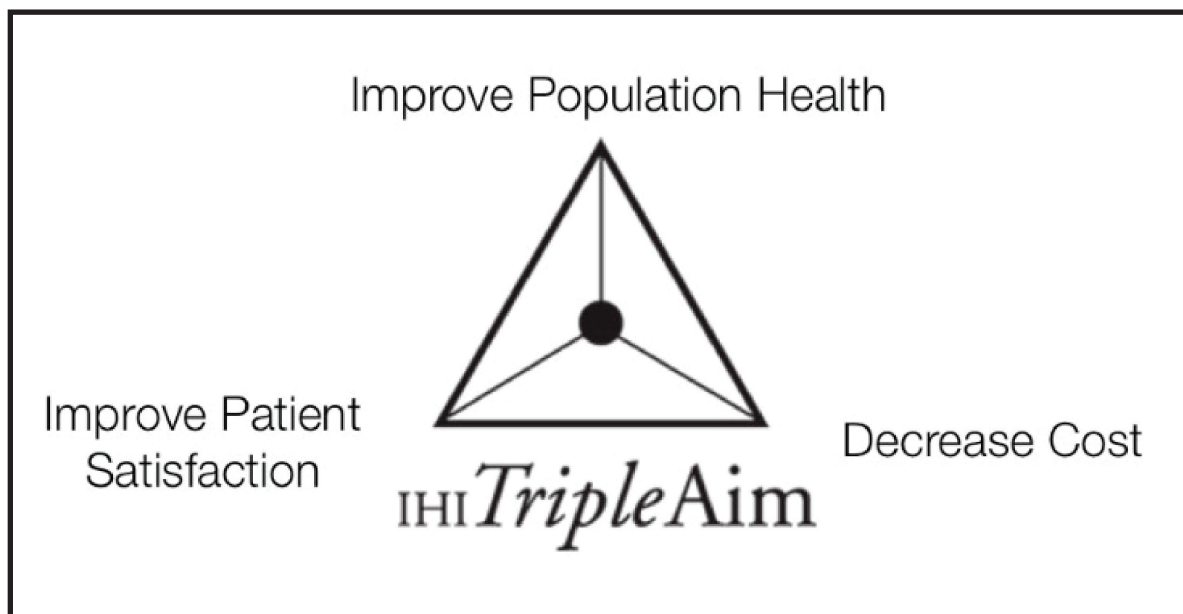
IHI Triple Aim

The IHI Triple Aim is a framework developed by the Institute for Healthcare Improvement that describes an approach to optimize health system performance.

Source: http://www.ihi.org/engage/initiatives/TripleAim/Pages/default.aspx

National Quality Strategy

Improving health and health care quality can occur only if all sectors, individuals, family members, payers, providers, employers, and communities, make it their mission. Members of the health care community can align to the National Quality Strategy by doing the following: Adopt the three aims to provide better, more affordable care for the individual and the community.

Most importantly, healthcare quality is based around setting goals that are measurable and attainable with a plan to measure and assess progress.

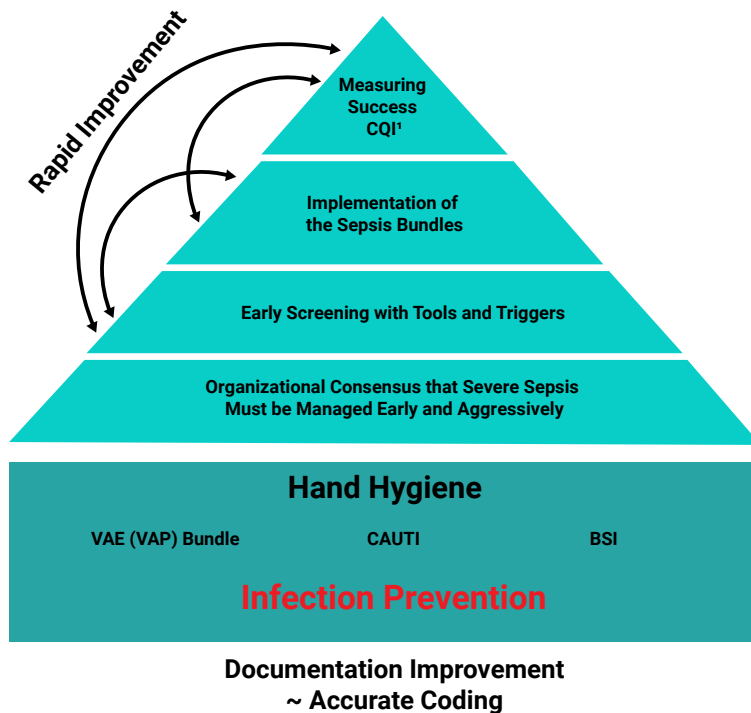Source: https://www.ahrq.gov/workingforquality/about/index.html

Economic Implications of an Evidence-Based Sepsis Protocol: Can We Improve Outcomes and Lower Costs?

One organization realized a post-protocol, savings of ~$6,000/patient, which translated into

- Total cost difference of $573,000 between the pre-protocol and post-protocol patient groups

- Post-protocol, ICU costs reduced by ~35%

- Ward costs fell by 30%

- Protocol resulted in a reduction in overall hospital LOS of 5 days

- Pre-protocol, 28-day mortality rate was 48.3% vs. 30.0% following protocol initiation

Source: Shorr AF et al. Crit Care Med. 2007;35:1257–1262

Sepsis Practice Collaborative Model
4 Tier Process for Program Implementation

Rapid Improvement

Measuring Success CQI[1]

Implementation of the Sepsis Bundles

Early Screening with Tools and Triggers

Organizational Consensus that Severe Sepsis Must be Managed Early and Aggressively

Hand Hygiene

VAE (VAP) Bundle   CAUTI   BSI

Infection Prevention

Documentation Improvement
~ Accurate Coding

[1]Continuous Quality Improvement

https://www.sepsiscoordinatornetwork.org/wp-content/uploads/2018/09/Sepsis-Gap-Analysis-Results-and-Next-Steps-at-Your-Facility-Aug-2018AllSlides.pdf

Letter of Commitment Example

Month XX, 20XX

Commitment to Creating an Effective and Efficient Sepsis Program:
Enter Hospital Name

ENTER HOSPITAL NAME, Board of Directors, CEO, Executive team, and healthcare providers commit to creating a sepsis program within our organization that will provide high-quality, evidence-based sepsis care for all patients. This program will be supported with necessary resources to create an effective and efficient program that will best serve our patients.

Goals of the Sepsis Program will include, but are not limited to:

Designating a Sepsis Leader that will coordinate the program and address successes and barriers. This person will also be responsible for communicating results of the program to quality leaders and others designated.

Creating a multidisciplinary team that will address sepsis as a whole and allow collaborative care from all caregivers.

Implementing evidence-based protocols and algorithms that will drive consistent, high-quality care in all areas.

Assessing the effectiveness and gaps in care given in order to continuously improve the care that is given.

ENTER HOSPITAL NAME, commits to improving sepsis care for our Patients.

_____   _____
CEO Signature   Date

_____   _____
Board Member Signature   Date

Organizational Commitment/Team

Potential Sepsis Team Members & Roles

Team Member	Potential Role
Executive Leader	Encourages a culture of support and understanding
Quality Leader	Drives data collection and review to improve the quality of care
Nursing Leader	Understands the needs of caretakers to ensure that communication and education of nursing staff is effective.
Physician Champion	Drive medical decision making, educates all providers
Non-Physician Provider	Nurse practitioners and Physician Assistants are key players in healthcare and often plan a large role in rural communities
Frontline Nursing Staff	Help understand the formalization of the program into daily work
Laboratory	Brings specialized laboratory information
Pharmacy	Helps understand antibiotic options and medication protocols
Infection Preventionist	Brings expertise in the underlying infectious process
Care Management/Care Transitions	Ensure a plan is in place for patients following a sepsis diagnosis - decrease readmission potential or long-term deficit

Sample Sepsis Team Meeting Agenda

Enter Hospital Name

Team Members:

Date and Time of Meeting:

1. Review Minutes from the Previous Meeting: Ensure that each action item is addressed so that progress does not stall.

Objective	Action Item	By Whom? By When?
1. Set meeting schedule	Calendar request	Name, Due date
2. Review all sepsis patient cases	Chart Review	Name, Due date
3. Discuss outliers	Trend data, case study	Name, Due date
4. Discuss successes / good catches	Trend data, case study	Name, Due date
5. Sepsis Discharge plans / 30-day readmissions post-sepsis diagnosis	Readmission data review	Name, Due date
6. Changes in evidence or care protocols	Information review	Name, Due date
7. Education	Information Review	Name, Due date
8. Items to share with your team	Create talking points to be reported	Name, Due date

2. Ensure understanding amongst team regarding action items.

Sepsis Data Collection:

Data should be used to understand the effectiveness of a Sepsis Program implementation or the improvement to a current Sepsis Program.

Important things to remember when collecting data:

• Collect baseline data using the same methodology and measurement (i.e.: date range, patient inclusion)

• Use data to drive decision-making – look at trends and outliers.

• Document date of initiative beginning so that improvement can be assessed, and changes can be made as needed.

• BE CONSISTENT

Baseline Data Collection Process:

• Pick time period for medical record query

• Sample size: minimum of 9 pts per unit

   Query strategies:

      • ICD 10 codes or DRG

      • Patients on 1-2 antibiotics, vasopressor (review charts to see if meet criteria for severe sepsis with lactate > 4 or septic shock before including in outcome data or process data)

Select Data Collection Elements – Outcome – Process

Sep-1 Bundle:

	#1	#2	#3	#4	#5	#6	#7	#8	#9
Within 3 hours of presentation:									
• Serum Lactate									
• Blood Cultures Drawn (prior to AB)									
• Administer Antibiotics									
• Fluid resuscitation based on algorithm or order set									
• Assess volume status and perfusion assessment									
Within 6 hours of presentation:									
• Repeat serum lactate if initial is > 2									
• Repeat volume status and perfusion assessment									
• Vasopressor Administration (based on hypotension needs)									

Other data collection points:

	#1	#2	#3	#4	#5	#6	#7	#8	#9
Full Set of Vital Signs per order set									
Cardiopulmonary Assessment									
Assess Cap Refill									
Peripheral pulse evaluation									

Rural ED Data Collection:

	#1	#2	#3	#4	#5	#6	#7	#8	#9
Time to decision to transfer was < 1 hour									
ED LOS < 3 hours									
Provider to Provider Hand-off with transferring facility									

Organizational Commitment/Team

Dedicated Sepsis Resources / Sepsis Coordinator / Lead

Job Description: RN Sepsis Coordinator Template

Reports to: Chief Nursing Officer

Job Summary:

The Sepsis Coordinator will be responsible for planning, implementing and coordinating services and activities associated with INSERT HOSPITAL NAME sepsis patients and programming. This role will be responsible for establishing and monitoring clinical performance criteria, assuring compliance with regulatory requirements, establishing or assessing effective treatment plans for sepsis patients including discharge disposition to ensure patients move to appropriate levels of care, and educating staff on evidence-based sepsis care.

Duties:

• Coordinates the sepsis program at INSERT HOSPITAL NAME.

• Manages and coordinates sepsis patients during and post hospitalization.

• Facilitates sepsis community education work and events.

• Completes ongoing staff educational opportunities.

• Collects and analyzes ongoing data regarding treatment and outcomes of sepsis patients.

• Uses data to drive decision-making and process improvement.

• Submits required data to regulatory agencies.

• Performs and evaluates effectiveness of patient teaching.

• Maintains most current knowledge related to sepsis care.

• Resource to the organization for care of the sepsis patient.

• Reports and recognizes accomplishments.

• Addresses fallouts as they occur to ensure consistent high-quality care.

Qualifications:

• Current Nebraska RN License

• Current BLS Certification

Dedicated Sepsis Resources/ Sepsis Coordinator / Lead

Sepsis Mortality Reduction Project Charter

Project Title: Sepsis

Sponsor: Hospital Name

Facilitators: Sepsis Coordinator, Quality Improvement Leader

Project Start Date: XX/XX/XXXX

Problem Statement:

Sepsis has a high mortality rate and a high rate of dysfunction post sepsis.

Team Members: Names and departments

Project Scope:

The Sepsis Project includes Hospital Unit(s).

This project excludes certain patient type(s).

Project Requirements:

Healthcare professionals will receive a straightforward protocol that can be consistently executed and changes strategies to improve the adoption of best practice.

Goals:

To develop evidence-based project tools and organization-specific measures to reduce the occurrence and mortality of sepsis in the patient population by 10% across the organization. Furthermore, focused intervention measures with the sepsis patient will reduce progression of illness.

Deliverables:

Best practice and guidelines for care

Screening tool(s) – to evaluate patients for sepsis

Order Set

Implementation plan

Staff Education

Data Gathering

Outcomes and Tools to measure outcomes

Process Improvement Ideas

Identification / Screening

Sepsis Screening Tools

There is no perfect tool. Choose one that works for your organization and use it consistently.

Ensure all staff are trained on the appropriate use and audit screening processes.

Screening should occur at least every shift and more frequently for high-risk patients.

SIRS Criteria:

Occurrence of any two of the following:

Temperature	Heart Rate	Tachypnea	WBC Count
<36°C or; >38°C	>90 beats per minute	>20 breaths per minute or; $PaCO_2$ <32 mm Hg	< 4,000/mm³ or; > 12,000/mm³

SOFA: Sequential Organ Failure Assessment score (SOFA score)

The Sequential Organ Failure Assessment (SOFA) Score is a mortality prediction score that is based on the degree of dysfunction of six organ systems. The score is calculated on admission and every 24 hours until discharge using the worst parameters measured during the prior 24 hours.

System	0	1	2	3	4
Respiration PaO_2 / FiO2 mmHg (kPa)	>=400 >= 53.3	<400 < 53.3	<300 <40	<200 <26.7	<100 <13.3
Renal Creatinine (uMol/l)	<1.2 <110	1.2-1.9 110-170	2.0-3.4 171-299	3.5-4.9 300-440	>5 >440
Hepatic Bilirubin mg/dL (uMol/l)	<1.2 <20	1.2-1.9 20-32	2.0-5.9 33-101	6.0-11.9 102-204	>12.0 >204
Coagulation (Platelets x10³/ul)	>= 150	<150	<100	<50	<20
Cardiovascular	MAP >=70 mmHg	MAP <70mmHg	Dopamine <5 or any Dobutamine	Dopamine 5.1-15 or Epinephrine <-0.1 or Norepinephrine <=0.1	Dopamine > 15 or Epinephrine >0.1 or Norepinephrine > 0.1
CNS GCS Score	15	13-14	10-12	6-9	<6

Source: JAMA. 2016;315(8):801-810. doi:10.1001/jama.2016.0287. https://jamanetwork.com/journals/jama/fullarticle/2492881
Source: ACCP/SCCM Consensus Conference on Sepsis & Organ Failure. (Chest 92;101: 1644-1655.)

qSOFA: Quick SOFA

Potentially septic patients can be promptly identified at bedside with qSOFA. The qSOFA score is less robust than a SOFA score, but it does not require laboratory tests and can be assessed quickly and repeatedly.

NEWS — National Early Warning Score

The National Early Warning Score (NEWS) was developed to standardize the approach to detection of clinical deterioration in acutely ill patients in the United Kingdom. This new standard has still not been fully embraced by the medical community in the UK or elsewhere. It is hoped that adopting a single early warning score system will facilitate and standardize training in their use.

NEWS should not be used in patients under 16 years of age, and pregnant women.

Source: Mark Ramzy, DO, "Early Sepsis Screening in the Emergency Department", REBEL EM blog, December 10, 2018. Available at: https://rebelem.com/early-sepsis-screening-in-the-emergency-department/.

There is no perfect answer to screening…

The Surviving Sepsis Campaign recommends that hospitals and health systems have a performance improvement program for sepsis, one that includes screening for high-risk, acutely ill patients.

What we do know -- is that screening should have a low-enough bar to recognize all the patients with sepsis, as well as those who are at high risk for becoming septic.

Developing a process for Code Sepsis or Sepsis Alert:

Create triggers for alert to be called (i.e. two SIRS + infection + organ dysfunction [elevated lactate (> 2 mmol/L) or hypotension (SBP < 90 mmHg or MAP < 65 mmHg)]

Code Sepsis or Sepsis Alerts should include:

Mobilizing resources to the patient's bedside, as available in the facility. Could include:

• Laboratory Technologists

• Pharmacists

• House Managers / Charge Nurse

• Respiratory Therapists

If your facility already utilizes a rapid response team, this could be part of that role.

Roles of each person responding should be well-defined.

Directly following the alert, (before end of shift), gather the team to review/assess the case to identify exceptional care recognition or opportunities for improvement (debrief).

Primary Care Team suspects or has a confirmed sepsis diagnosis

Any team member can initiate "Code Sepsis"

Sepsis Team goes to bedside

Team members receive patient information from primary team and assist in treatment bundle

Additional Thoughts:

- Sepsis should be suspected anytime a patient with a known or suspected infection has new or worsening organ dysfunction.

- Clinicians should assess suspected sepsis patients immediately, sepsis can be subtle and patients may deteriorate rapidly.

- Sepsis Alert / Code Sepsis should bring additional hands to the patient and ability for rapid implementation of care.

Source: https://cha.com/wp-content/uploads/2019/04/6.10-Screening-and-Code-Sepsis-Best-Practices.pdf

Pre-hospital Sepsis Screening and Alert:

1 Respiratory rate
> 20 breaths per minute

2 Heart rate
> 90 beats per minute

3 Systolic blood pressure
< 90mm Hg

4 Documented fever or history of temperature
> 100.9 ˚F or < 96.8 ˚F

5 Onset of mental status change

6 Oxygen saturation:
< 90%

7 Suspected infection
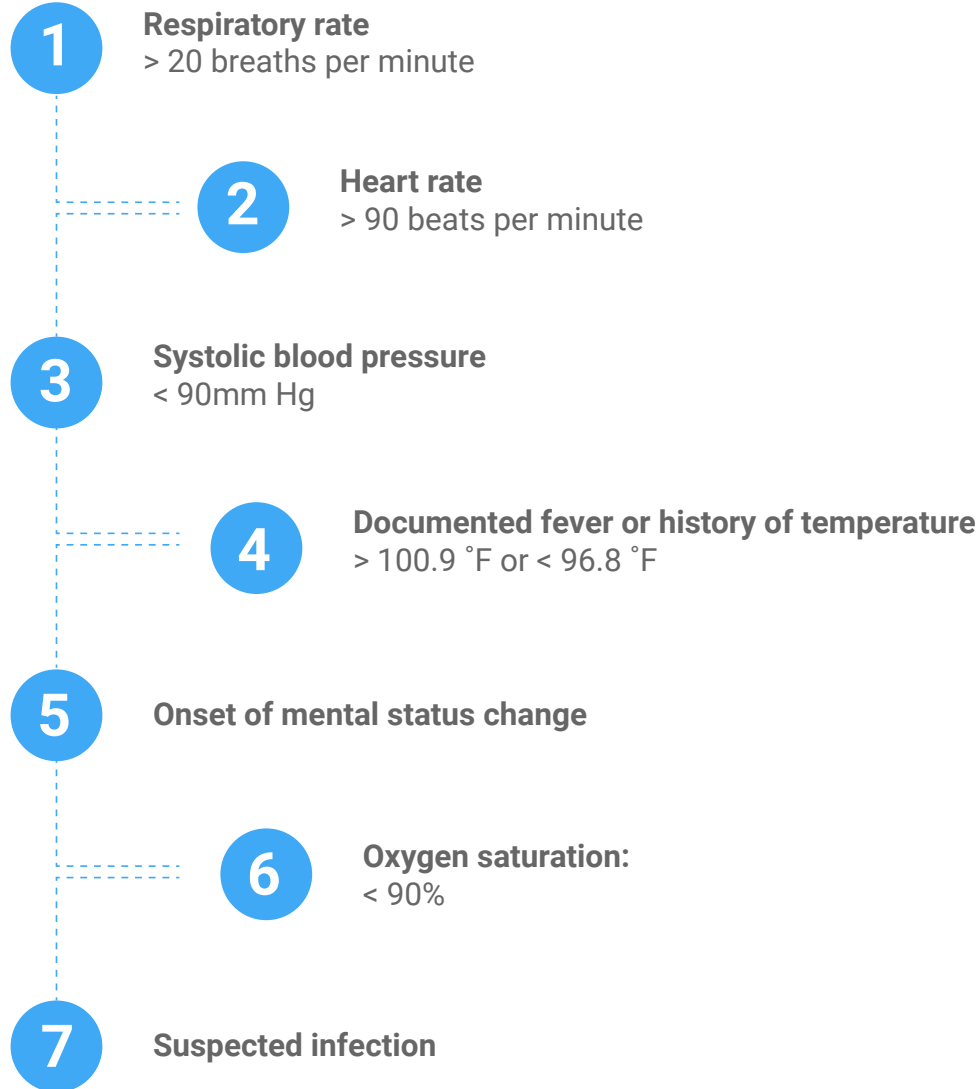
For many sepsis patients, EMS is the first point of medical contact when they become ill. Multiple studies have shown that EMS can play a role in faster antibiotic administration and initiation of time sensitive therapies, which reduces patient morbidity and mortality. This occurs through early screening and Emergency Department contact prior to patient arrival.

Source: https://www.jems.com/2014/01/10/infection-detection-identifying-and-unde/

Identification / Screening

Development of Nurse-Driven Sepsis Protocol

ADULT SEPSIS ASSESSMENT (≥18 years of age) and Physician Approved Sepsis Nursing Protocol

PURPOSE

To use a standardized, physician approved, nursing assessment and protocol to assess and/or screen all adult patients ≥ 18 years of age for Sepsis, Severe Sepsis or Septic Shock and implement specified elements of the Severe Sepsis/Septic Shock treatment bundle as indicated. The physician approved sepsis nursing protocol will be implemented system wide for all qualifying inpatients ≥ 18 years of age.

SCOPE

This health system protocol applies to Registered Nurses (RNs) only and includes the Emergency Department (ED) and inpatient population ≥ 18 years of age at ENTER HOSPITAL NAME.

PROTOCOL

Assessment

All patients ≥18 years of age will be screened/assessed for sepsis, severe sepsis, and/or septic shock upon triage to the Emergency Department (ED). Ongoing reassessment will occur in order to evaluate and/or update a patient's status to reflect changes as needed and to follow up with additional lab testing and/or treatment as warranted.

All inpatients ≥18 years of age will be screened/assessed/reassessed for sepsis, severe sepsis, and/or septic shock upon admission to all inpatient floors and/or units. Ongoing reassessment will occur throughout the hospitalization in order to evaluate and/or update a patient's status to reflect changes and additional treatment as needed. The adult sepsis assessment tool must be completed only by a Registered Nurse (RN). The completed sepsis assessment tool will be completed in the electronic medical record (EMR) and will become a permanent part of the patient's medical record.

Criteria/Definitions

Systemic Inflammatory Response Syndrome (SIRS) = two (2) or more of the following:

• Temperature: <36°C or; >38°C

• Heart Rate: >90 beats per minute• Tachypnea: >20 breaths per minute or; PaCO <32mm Hg

• WBC Count: < 4,000/mm³ or; > 12,000/mm³

Once a patient screens positive for Sepsis, the physician approved sepsis protocol should be implemented in the electronic medical record by the RN.

Implementation

All patients should receive:
- 2 peripheral IV sites, consider Central Line placement dependent on medication needs
- Vital Signs – frequency based on severity of illness and changes in status
- Cardiac Monitoring
- O2 to keep Oxygen Saturation > 90%

For all positive sepsis assessments, the RN will immediately initiate an electronic order to obtain the following labs:

Required for 6-hour bundle:
- Serum lactate level
- TWO (2) sets of blood cultures (to be obtained from two different sites); a total of 4 bottles
- Repeat lactate if initial lactate level is > 2

Additional Lab Tests:
- Procalcitonin
- CBC with Manual Diff
- Comprehensive Metabolic Panel
- PT/INR
- PTT

RN will immediately notify physician of positive sepsis assessment and request the following physician orders.

Physician may also order additional labs and/or tests or procedures as indicate:
- Broad-spectrum antibiotics, based on the adult sepsis order set, to be initiated within 1 hour of positive assessment
- IV fluid bolus of 30mL/kg to be initiated within 1 hour of time of presentation (TOP) and completed within 3 hours of time of presentation (TOP) – based on hypovolemic presentation

If a physician declines to order Broad Spectrum antibiotics and/or the required amount of IV fluid bolus, based on a positive sepsis assessment, the RN should document the following:
- Provider Name
- Reason(s) why Broad Spectrum antibiotics are not ordered for patient with sepsis
- Why IV fluid bolus of 30 mL/kg is not ordered for patient with sepsis.

The RN should request the physician assess the patient to confirm a positive sepsis assessment and/or to determine the need for transfer of patient to a more acute setting.

Once antibiotic(s) and/or fluids are ready for administration, RN will assure that the both sets of blood cultures (2 bottles each) have been drawn and then administer the first dose of antibiotic(s) and start fluids within one (1) hour of the time of positive sepsis assessment.

*NOTE: The RN should obtain lactate and collect blood cultures X 2 (4 bottles) prior to administering antibiotic(s), or prior to a change in antibiotic(s), following a positive sepsis assessment. The RN should not wait for lab results to administer the first dose of antibiotics or begin IV fluid bolus.

Administration/Documentation

The RN will administer antibiotic(s) and/or IV fluids as ordered by the physician. Administration of the antibiotic(s) and fluids must be documented in the patient's medication administration record. Blood cultures should be drawn prior to administration of antibiotics and documentation should reflect blood culture collection.

Identification / Screening

Long Term Care SEPSIS SCREENING TOOL

INFECTION

- Suspected or documented infection
- Antibiotic therapy

SIRS – Systemic Inflammatory Response Syndrome

- Temperature greater than or equal to 100.4° F or less or equal to 96.8° F
- Heart rate greater than 90 beats/minute
- Systolic blood pressure less than 90 mmHg

*If less than two checked = NEGATIVE screen for sepsis. Initials_____

 *If 2 above are checked, PATIENT SCREENED POSITIVE FOR SEPSIS; alert the nurse who will:

- Place resident on I & O.
- Monitor and record urine output every shift.
- Obtain order for LACTIC ACID and proceed to Organ Dysfunction.

ORGAN DYSFUNCTION

- Respiratory: SaO2 less than 90% OR increasing O2 requirements
- Cardiovascular: SBP less than 90 mmHg or 40 mmHg less than baseline
- Renal: Urine output less than 30ml/hr or less than 240ml/8 hrs
- CNS: Mental status changes
- LABS: (Do not use lab results older than 24 hours.)
- Platelets less than 100,000
- INR greater than 1.5
- Bilirubin >/= 2 mg/dl
- Serum lactic acid greater than or equal to 2 mEq/l

*If 1 above checked, PATIENT SCREENS POSITIVE FOR SEVERE SEPSIS. CALL PROVIDER.

*If no checks above = NEGATIVE screen for sepsis. Initials_____

Continue to assess every 2-4 hours.

Source: https://healthinsight.org/tools-and-resources/send/367-sepsis/1795-sepsis-toolkit-guide-for-skilled-nursing-and-long-term-care

USING YOUR SENSES TO IDENTIFY SEPSIS

EYES: Look for skin redness, swelling, discharge, decreased urination

EARS: Listen for complaints of pain, chills and/or breathing

TOUCH: Feel for a warm wound, fast pulse, hot, cold or clammy skin

SMELL: Check for odor from wound, urine and/or breath

TASTE: Is there a decreased appetite?

STOP AND WATCH (INTERACT)

STOP Seems different than usual	**and** Ate less	**WATCH** Weight change
STOP Talks or communicates less	**and** No bowel movement in 3 days	**WATCH** Agitated or nervous more than usual
STOP Overall needs more help	**and** Drank less	**WATCH** Tired, weak, confused, or drowsy
STOP Pain worsening		**WATCH** Change in skin color or condition
		WATCH Help with walking, transferring, toileting more than usual

When it comes to sepsis, remember **IT'S ABOUT TIME**™. Watch for:

T I M E ™

TEMPERATURE higher or lower than normal

INFECTION may have signs and symptoms of an infection

MENTAL DECLINE confused, sleepy, difficult to rouse

EXTREMELY ILL "I feel like I might die," severe pain or discomfort

Watch for a combination of these symptoms. If you suspect sepsis, see a doctor urgently, CALL 911 or go to a hospital and say, "I AM CONCERNED ABOUT SEPSIS."

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Source: https://www.sepsis.org/education/resources/posters-and-infographics/

Source: https://healthinsight.org/tools-and-resources/send/367-sepsis/1795-sepsis-toolkit-guide-for-skilled-nursing-and-long-term-care

Treatment / Implementing the Bundles

S Shivering, Fever, or very cold

E Extreme Pain or general discomfort ("worst ever")

P Pale or discolored skin

S Sleepy, difficult to rouse, confused

I "I feel like I might die"

S Shortness of breath

If you suspect sepsis (observe a combination of these symptoms) see your medical professional immediately, call 9-1-1, or go to a hospital with an advocate and say, "I am concerned about sepsis."

CMS Sepsis Bundles:
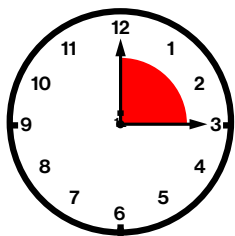
SEP - 1: Three-Hour Bundle

To be completed within three hours from time of presentation*

- Measure lactate level
- Obtain blood cultures prior to administration of antibiotics
- Administer broad spectrum antibiotics
- Administer 30mL/kg crystalloid for hypotension or lactate >=4mmol/L

*Time of presentation is defined as the time of earliest chart annotation consistent with all elements of severe sepsis or septic shock, as ascertained through chart review
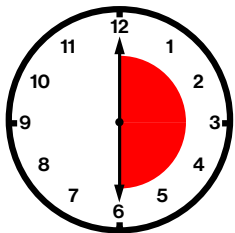
SEP - 1: Six-Hour Bundle

To be completed within three hours from time of presentation*

- Administer vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a mean arterial pressure (MAP) >=65mmHg
- In the event of persistent hypotension after initial fluid administration (MAP <65mmHg) or if initial lactate was $\geq$ 4 mmol/l, re-assess volume status and tissue perfusion and document findings
- Re-measure lactate if initial lactate elevated

*Time of presentation is defined as the time of earliest chart annotation consistent with all elements of severe sepsis or septic shock, as ascertained through chart review

Source: Surviving Sepsis Campaign and the CDC

Treatment / Implementing the Bundles

SEPSIS Algorithm
Courtesy of Mary Lanning Healthcare

Legend:

- (Yellow) Complete within 3 hours of Severe Sepsis presentation
- (Orange) Does the patient have initial hypotension?
- (Blue) Complete within 6 hours of Severe Sepsis presentation
- (Pink) Complete within 6 hours of PERSISTENT HYPOTENTSION
- (Purple) Complete within 6 hours of PERSISTENT HYPOTENTSION OR an Initial Lactate ≥ 4.0
- (Gray) Reminders

7 Steps for Providers to meet the Sepsis Core Measure (SEP-1)

1. Order Initial Lactate

2. Order Blood Cultures
   - Reminder: Do not order a second set of cultures if one was collected within 48 hours prior to Severe Sepsis diagnosis

3. Order Broad Spectrum Antibiotics
   - Reminder: Blood cultures must be collected *before* **Broad Spectrum Antibiotics are administered

4. Order 30mL/kg crystalloid fluid bolus if patient has initial hypotension (any 2 readings of SBP < 90 or MAP < 65) OR initial Lactate ≥ 4.0
   - Reminder: Bolus must be completed within the first 3 hours IF SEPTIC SHOCK is present or Initial Lactate is ≥ 4.0

5. Order Repeat Lactate if Initial Lactate is > 2.0

6. Order Vasopressor if patient has persistent hypotension (SBP < 90 or MAP < 65) within 1 hour after initial fluid bolus; 2 consecutive readings
   - Reminder: Nursing staff will monitor patient vital signs (blood pressure) closely for 1hr post-fluid bolus
   - Reminder: Levophed (Norepinephrine) is preferred; continue fluid administration

7. Perform a focused exam and document "Sepsis Exam Performed"
   - Reminder: Focused Exam Includes: Vitals signs, Cardiopulmonary Exam, Peripheral Pulse Exam, Cap. Refill, and Skin Exam

If patient does not have initial hypotension OR an initial Lactate ≥ 4.0, start crystalloid fluids at a minimum of 130mL/hr
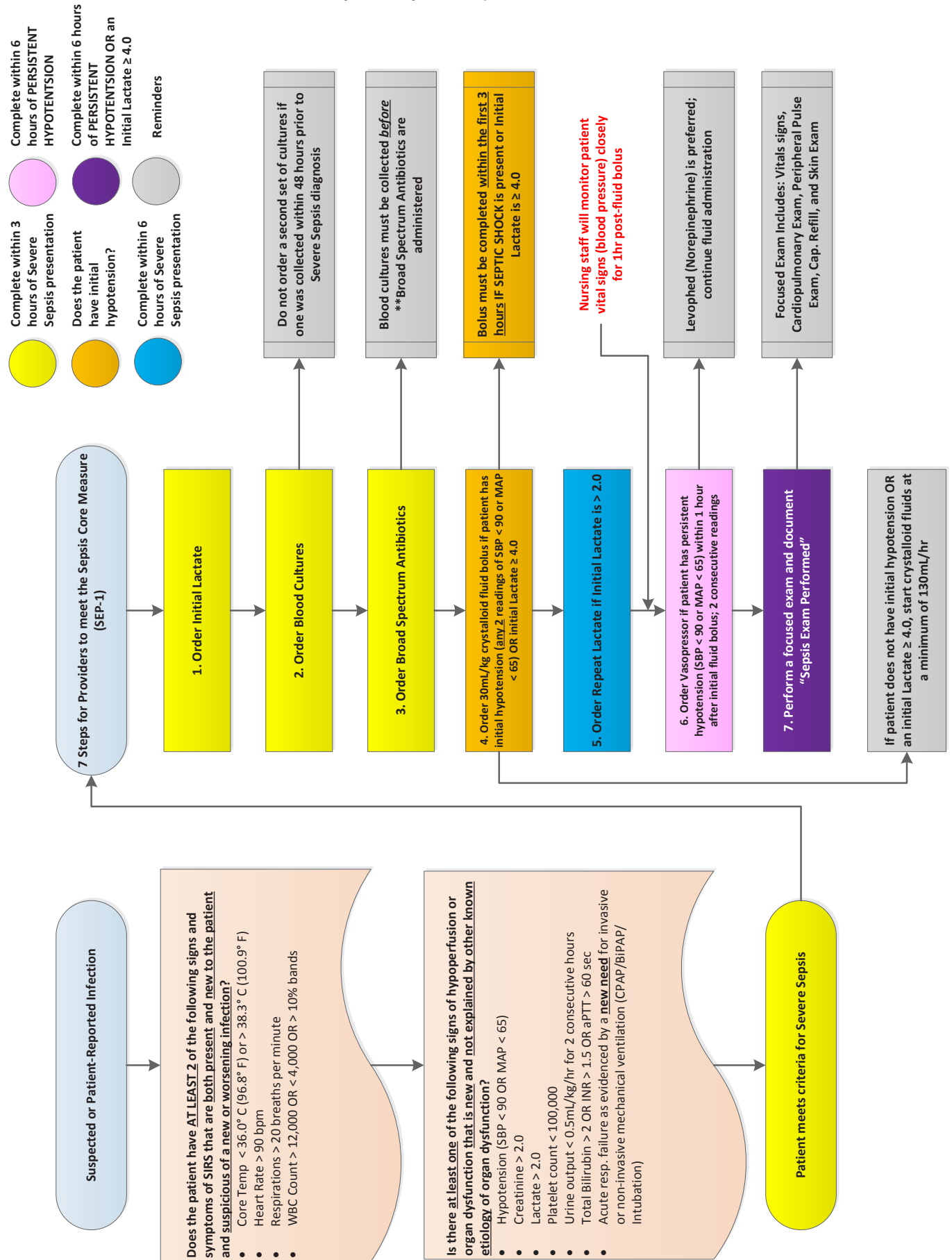

Suspected or Patient-Reported Infection

Does the patient have AT LEAST 2 of the following signs and symptoms of SIRS that are both present and new to the patient and suspicious of a new or worsening infection?
- Core Temp < 36.0° C (96.8° F) or > 38.3° C (100.9° F)
- Heart Rate > 90 bpm
- Respirations > 20 breaths per minute
- WBC Count > 12,000 OR < 4,000 OR > 10% bands

Is there at least one of the following signs of hypoperfusion or organ dysfunction that is new and not explained by other known etiology of organ dysfunction?
- Hypotension (SBP < 90 OR MAP < 65)
- Creatinine > 2.0
- Lactate > 2.0
- Platelet count < 100,000
- Urine output < 0.5mL/kg/hr for 2 consecutive hours
- Total Bilirubin > 2 OR INR > 1.5 OR aPTT > 60 sec
- Acute resp. failure as evidenced by a new need for invasive or non-invasive mechanical ventilation (CPAP/BiPAP/Intubation)

Patient meets criteria for Severe Sepsis

Skilled nursing facility sepsis algorithm for adults

seeing sepsis

**Early detection tool
100-100-100**

Suspected infection *and* 2 or more SIRS criteria

Suspected infection	**SIRS criteria**
Fever/chills	Temp ≥100.0 or ≤96.8
Currently on antibiotics	Pulse ≥100
Cough/SOBS	BP <100 or >40 mmHg from baseline
Cellulitis/wound drainage	Resp. rate >20/SpO2 <90%
Weakness	Altered mental status

SIRS = Systemic Inflammatory Response Syndrome

NO →

Negative screen for sepsis

YES

Positive screen for sepsis

Prior to calling provider
- **Educate resident/family about status**
- **Review Advance Directives and options**

Notify provider

Transfer
- Prepare transfer sheet
- Call ambulance
- Call report to hospital
- *Report positive sepsis screen*

Stay in facility

If Advance Directives and/or resident's wishes are in agreement, consider some or all of following order options:

- Labs: CBC w/Diff, lactate level (if possible), UA/UC, blood cultures if able; from 2 sites, not from lines. *Send all labs ASAP.*

Establish IV access for the following:
- IV normal saline 0.9% @ 30ml/kg if BP <100
- Administer IV, IM or PO antibiotics
- Comfort care

Monitor for progression into *Multisystem Organ Dysfunction Syndrome*

Examples:
- Progression of symptoms despite treatment
- Urine output <400ml in 24 hours
- SBP <90 despite IV fluids
- Altered mental status

Consider transferring to another level of care - hospital, palliative, or hospice

Comfort care
- Pain control
- Analgesic for fever
- Reposition every 2-3 hrs
- Oral care every 2 hrs
- Offer fluids every 2 hrs
- Keep family informed
- Adjust care plan as needed

Courtesy of Minnesota Hospital Association

Treatment / Implementing the Bundles

TIME ZERO _____

*time zero is recognition time: for the ED that is triage completion time; see tips

3 Hour Bundle

Projected Completion time _____

Actual completion time _____

*everything in this bundle must be completed prior to 3 hours after time zero

Lactate drawn ☐ *repeat in 4 hours if > 2.0

Blood Cultures drawn ☐ *2 sets - can be drawn concurrently with 2 separate venipunctures

Antibiotic delivery ☐ *goal all antibiotics initiated within 1 hour of order time

_____

_____

_____

_____

Fluid Resuscitation Bolus ☐ *30ml x _____Kg = _____ Total Fluids
*For SBP < 90; MAP < 70; Lactate > 4.0

6 Hour Bundle

Projected Completion time _____

Actual completion time _____

*everything in this bundle must be completed prior to 6 hours after time zero

Addition of vasopressors ☐ *Norepinephrine preferred

Repeat lactate ☐ *If initial >2

Central line insertion ☐

Monitor CVP ☐

Monitor ScV02 ☐

Not a Part of the Patient's Record
Send to Sepsis Coordinator or
_____ in Organizational Quality

SEPSIS TIPS

"Time Zero" is defined as the time of earliest chart annotation consistent with all elements of severe sepsis, or septic shock ascertained through chart reviews. If unknown, may use: Triage Completion time for ED; time of arrival for direct admits with sepsis; sepsis BPA time; BRRT time; Time orders are first received.

3 hour bundle   Projected Completion time = (Time Zero + 3 H)

- Utilize Sepsis order set and Sepsis STAT Antibiotics
- 2 sets of Blood cultures **should** be drawn PRIOR to antibiotic delivery
    - If this _delays_ antibiotic delivery <u>notify</u> provider and **DOCUMENT THE _ORDER_**
    - Cultures <u>need</u> to be drawn peripherally
        - If the provider suspects a central line infection, they may request a blood culture from the line – you will need a **physician order** to obtain cultures from a central line
        - If <u>unable to collect a peripheral set</u> of cultures, obtain a **physician order** to collect the sample from central access.
    - ED Nurses <u>CANNOT</u> draw blood cultures from a peripheral IV start
- Lactates are the dark green tube and need to be on ice
- **ALL ANTIBIOTICS** must hit the body within <u>1 hour</u> of order time **AND** within <u>3 hours</u> from time zero
- Fluid resuscitation is defined as **30 ml/kg** crystalloid (Normosol/Plasma-Lyte,NS) bolus initiate ASAP
    - For SBP < 90; MAP < 70; Lactate > 4.0
    - A _bolus_ is defined as 1 liter over **30 minutes (ICU/ED)** or **60 min (other acute care areas)** some situations may require faster administration. If so, consider transfer to ICU.

6 hour bundle   Projected Completion time = (Time Zero + 6 H)

- If hypotension persists, start a vasopressor. Norepinephrine is the preferred vasopressor.
    - Requires adequate fluid resuscitation to be successful
    - Norepinephrine gtt starts at 0.02 mcg/kg/min for sepsis. Titrate by 0.01 or 0.02 mcg/kg/min q 5 min to goal MAP > 65
- If initial lactate > 2, a repeat needs to be drawn. The repeat lactate needs to be completed within **6 hours** from **time zero**
- Centrally inserted central line _preferred_ for a patient in shock
- A repeat assessment of volume status and tissue perfusion is required for patients with septic shock. Measure CVP and ScVO2 (lab drawn from distal port) – these can be obtained from a PICC as well

Treatment / Implementing the Bundles

Page 2 of 2

SEPSIS Treatment Tool for Emergency Departments/Handoffs

Courtesy of Nebraska Methodist Health System

SEPSIS

Patient Label	Location:	**Sepsis Alert** Date: Time:	Provider Notified ☐ (Name, Date, Time)	**Sepsis Advisor Time**

Complete in 3 Hours

☐ Initial Lactate Drawn

☐ Blood Cultures Drawn x2 — Before antibiotic administration
Do not delay antibiotic if unable to obtain
-If unable to draw B.C. before antibiotic list why in notes

☐ Broad Spectrum Antibiotics Administered:
1st antibiotic given within 1 hour (order stat) — Med:

☐ 2nd Antibiotic Administered
(does not always require 2nd antibiotic) — Med:

☐ 30mL/kg crystalloid IVF Bolus
If hypotensive or original lactate > 4mmol/L

Start	End	Total Amount Given:

Weight used for fluid amount: Actual Weight   Ideal Body Weight

☐ Fluids Charted

Complete in 6 Hours

☐ Repeat Lactate 4-6 hours from initial lactate — If Initial Lactate >2

☐ Vasopressors Started — If hypotension persists after fluid administration (MAP <65mm/Hg)

☐ Repeat Volume Status and Tissue Perfusion Assessment — If Septic Shock presentation:
Hypotension after fluid administration or initial lactate >=4mmol/L

Notes:

INPATIENT	Suspected Infection Source Site: (New or Worsening)	RRT Called Yes / No	Possible Sepsis? Yes / No	Transferred Y / N Where:

	Sepsis Alert Triggers:
	     SIRS (2 or more):
	     Organ Dysfunction:			

SEPSIS: Definitions and Resource

Sepsis	Defined as: life-threatening organ dysfunction caused by a dysregulated host response to infection *In other terms*: a life-threatening condition that arises when the body's response to an infection injures its own tissues and organs.
Septic Shock	Defined as: a subset of sepsis in which underlying circulatory and cellular metabolic abnormalities are profound enough to substantially increase mortality. Sepsis with persisting hypotension requiring vasopressors to maintain a MAP>= 65mm Hg and having a serum lactate level >2mmol/L despite adequate volume resuscitation.
Time Zero	Starts when Sepsis is identified or Sepsis alert fires
Repeat Volume Status and Tissue Perfusion Assessment:	Focused exam—Physician/APRN/PA note must include physical exam of perfusion (reperfusion) Example: "Sepsis re-evaluation was performed", or physical exam including perfusion. NICOM (PLR or Bolus), CVP, ScvO2

SIRS (Systemic Inflammatory Response Syndrome)

Two or more of:
- Temperature >38.3°C or <36.0°C (>100.9°F or < 96.8°F)
- Heart rate >90/min
- Respiratory rate >20/min or $PaCO_2$ <32 mm Hg (4.3 kPa)
- White blood cell count >12 000/mm^3 or <4000/mm^3 or >10% immature bands

Organ Dysfunction

- SBP<90mmHg or MAP<65
- Creatinine >=2.0 and increase of 0.5mg/dL over 72 hours
- Billirubin >=2.0 and =<10.0mg/dL
- Platelet count <100,000 uL^{-1}
- INR >1.5
- Lactate > 2.0mmol/L
- Respiratory Failure (e.g. vent, BiPAP)

qSOFA: (Quick SOFA)

Respiratory rate ≥22/min	1
Alerted Mentation	1
Systolic blood pressure ≤100 mm Hg	1
Total score of 2 or 3 = increased Mortality Risk	

SOFA: (Sepsis-Related) Organ Failure Assessment Score

System Score:	0	1	2	3	4
Respiration PaO_2/FiO_2, mmHg	>=400	<400	<300	<200 with respiratory support	<100 with respiratory support
Coagulation Platelets, x10^3/uL	>=150	<150	<100	<50	<20
Liver Bilirubin, mg/dL	<1.2	1.2-1.9	2.0-5.9	6.0-11.9	>12.0
Cardiovascular	MAP >=70mmHg	MAP <70mmHg	Dopamine<5 or dobutamine	Dopamine 5.1-15 or epinephrine =<0.1 or norepinephrine =< 0.1	Dopamine >15 or epinephrine >0.1 or norepi-nephrine => 0.1
Central Nervous System Glascow Coma Scale Score	15	13-14	10-12	6-9	<6
Renal Creatinine, mg/dL Urine output, mL/day	<1.2	1.2-1.9	2.0-3.4	3.5-4.9 <500	>5.0 <200
A score of 2 or higher in any system indicates organ dysfunction and an elevated risk of mortality.					

Sepsis Treatment Tool Template courtesy of Amber Fuller DNP, APRN, NP-C, Methodist Hospital. Omaha, NE

SEPSIS Treatment Tool
Courtesy of Nebraska Methodist Health System

SEPSIS

Patient Label Location:	**Sepsis Alert** Date: Time:	Provider Notified (Name, Date, Time) ☐	**Sepsis Advisor Time**
Suspected Infection Source Site: (New or Worsening)	RRT Called	Possible Sepsis?	Transferred Y / N

Sepsis Alert Triggers: 　　　SIRS (2 or more): 　　　Organ Dysfunction:	**NEWS ALERT SCORE**

qSOFA　　(outside of the ICU)	Date:　　　　Time:	Result:
SOFA　　(ICU patients)	Date:　　　　Time:	Result:

To be Completed within 3 hours			
	Date	**Time**	
☐ Initial Lactate Drawn			Result:
☐ Blood Cultures Drawn x2 Before antibiotic administration do not delay antibiotic administration if unable to obtain blood cultures. -If unable to draw B.C. before antibiotic please list why in notes section.			Result:
☐ Broad Spectrum Antibiotics Administered: 1st antibiotic given within 1 hour (order stat) 1.			
☐ 2. (does not always require 2nd antibiotic)			
☐ 30mL/kg crystalloid IVF Bolus If hypotensive or original lactate > 4mmol/L 　Weight used for fluid amount: ☐ Actual　☐ Ideal Body Weight	Start: End:	Total Given [　]　Total Charted [　]	

To be Completed within 6 Hours			
☐ Repeat Lactate 4-6 hours from initial lactate If Initial Lactate >2			Result:
☐ Vasopressors Started If hypotension persists after fluid administration (MAP <65mm/Hg)			Medication:
☐ Repeat Volume Status and Tissue Perfusion Assessment If Septic Shock presentation: Hypotension after fluid administration or initial lactate >=4mmol/L			Method: Documented by:

Notes:

Sepsis	Defined as: life-threatening organ dysfunction caused by a dysregulated host response to infection *In other terms*: a life-threatening condition that arises when the body's response to an infection injures its own tissues and organs.
Septic Shock	Defined as: a subset of sepsis in which underlying circulatory and cellular metabolic abnormalities are profound enough to substantially increase mortality. Sepsis with persisting hypotension requiring vasopressors to maintain a MAP>= 65mm Hg and having a serum lactate level >2mmol/L despite adequate volume resuscitation.
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Cardiovascular	MAP >=70mmHg	MAP <70mmHg	Dopamine<5 or dobutamine	Dopamine 5.1-15 or epinephrine =<0.1 or norepinephrine =< 0.1	Dopamine >15 or epinephrine >0.1 or norepinephrine => 0.1
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A score of 2 or higher in any system indicates organ dysfunction and an elevated risk of mortality.					

Singer M, Deutschman CS, Seymour CW, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA*. 2016;315(8):801–810. doi:10.1001/jama.2016.0287

Sepsis Treatment Tool Template courtesy of Amber Fuller DNP, APRN, NP-C, Methodist Hospital. Omaha, NE

Treatment / Implementing the Bundles

Severe Sepsis – Septic Shock Checklist

Date: _____

Time Zero Severe Sepsis: _____	Time Zero Septic Shock: _____
Time ED Code Sepsis Paged: _____	Time RRT Paged (inpatient): _____

Severe sepsis: known or suspected infection plus 2 or more SIRS plus new organ dysfunction (see screening tool)

Initials	Date and Time	Sign, Date and Time Below — Nurse to complete ALL Interventions as quickly as possible and within 3 hours or less from time zero
		Physician Order: Obtain orders for Severe Sepsis Bundle
		IV Access: Obtain 18 gauge or larger if possible □ Attempted but unable to obtain **INITIAL LACTATE RESULT:**
		Lactate Sent: Send initial lactate stat if not done already, call stat □ Attempted but unable to obtain specimen
		Blood Cultures Sent: Obtain prior to antibiotics – send 2 sets from peripheral sites DO NOT DELAY ANTIBIOTICS more than 30 min to get BC if difficult stick □ Attempted to draw blood cultures prior to antibiotics, unable to obtain specimen
	■	**IV Antibiotic Given STAT:** DO NOT HOLD ANTIBIOTICS if going to OR, give now GOAL: Give 1st antibiotic within 1 hour of severe sepsis (give Vanco 2nd due to infusion time required) **Date and time** of each antibiotic that was started within 3 hours **Cefepime 2g**_____ **Zosyn 4.5g**_____ Vanco (if ordered give 2nd) _____ **Cipro 400mg**_____ **Ceftriaxone 2g**_____ Other(s): _____
		Initial IV Fluid Bolus Completed: Administer 30 mL/kg 0.9% Sodium Chloride or lactated Ringers bolus for a lactic acid level $\geq$ 4 (regardless of BP) or SBP < 90mmHg or MAP < 65mmHg RAPIDLY INFUSE entire bolus amount over 1 hour Monitor for improvement in BP, HR, urine output, etc. Document BOLUS START TIME **WEIGHT – BASED BOLUS AMOUNT:** Actual Weight in kg: _____ x 30ml = _____ ml □ **START TIME DOCUMENTED IN EMR**
		Repeat Lactate Sent: SEND IMMEDIATELY AFTER IVF BOLUS if initial lactate was > 2. If transferred before recheck: INFORM ACCEPTING RN UPON HANDOFF OF NEED TO SEND REPEAT LACTATE □ Attempted to draw blood but was unable to obtain. **REPEAT LACTATE RESULT:**
		Post-Bolus Vital Signs Recorded: Minimum of 2 full sets VS (including TEMP) recorded: **IMMEDIATELY** and **15 min** AFTER IVF BOLUS completed □ VS CHARTED IN EMR (if SBP < 90 or MAP < 65 we need VS q30 min times 4 hours)
		The next 2 items to be completed for patients meeting SEPTIC SHOCK criteria (within 6 hours of time zero): severe sepsis plus SBP less than 90mm/HG or 40mm/HG decrease from baseline after initial fluid bolus or requires vasopressors OR INITIAL lactate 4 or more regardless of SBP
		Vasopressors Applied: Required if hypotensive (SBP < 90mmHg or MAP < 65 mmHg) despite IVF bolus of 30mL/kg Requires physician order – Norepinephrine is 1st choice OR Not required – hypotension not present
Initials		**RN Signature**
Initials		**RN Signature**
Initials		**RN Signature**
		Medical Provider Documented Post IVF Bolus Shock Re-Assessment Exam: I have completed a focused sepsis exam. Date exam was performed: _____ Time exam was performed: _____ Provider Signature: _____ Provider Printed Name: _____ OR check 2 of the following: □ Measure CVP □ Bedside cardiovascular ultrasound * □ Measure ScvO2 □ Passive leg raise or fluid challenge* *Please document findings in a progress note

Severe sepsis checklist template courtesy of Pat Posa RN, BSN, MSA, CCRN-K, FAAN, St. Joseph Mercy Hospital. Ann Arbor, Mich.

SEPSIS Transfer Driver Diagram

AHA CENTER FOR HEALTH
INNOVATION

SEPSIS TRANSFER DRIVER DIAGRAM

Optimal Transfer of Sepsis Patient from CAH/ Rural to Regional Hospital

Primary Drivers	Secondary Drivers	Change Ideas
Create a Partnership	• Identify facility that you transfer or receive sepsis patients from and contact sepsis or ED leader • Arrange a face to face visit • Arrange a visit to "walk in their shoes" • Develop a partnership between CAH Rural & Regional Facility • Establish agreement for screening, treatment/order sets, roles & responsibilities for both facilities	Change Ideas
Implement Reliable and Valid Early Detection Processes for Sepsis	• Screen every patient in ED triage with a standard sepsis evaluation tool	Change Ideas
	• Monitor sepsis screening processes for reliability and validity	Change Ideas
Implement 3-hr Bundle for patients who screen positive for sepsis:	• Draw lactate ASAP and ensure that the results are available within 45 minutes • Implement processes that ensure the ready availability of blood culture draws so that blood cultures can be drawn before starting antibiotics • Administer broad spectrum antibiotics (goal is within 60 minutes) • Administer fluid bolus 30ml/kg for patients with hypotension or lactate equal to or > than 2mmol/L	Change Ideas
Communicate Status of Treatment	• Communicate to regional facility & EMS status of treatment	Change Ideas
Continue Treatment throughout Transport	• Ensure treatment continues during transport • Develop transfer orders that support fluid administration during transport	Change Ideas
Create learning loop	• Provide regular feedback between CAH Rural facility and referral facility regarding identification, treatment, and status of the patient	Change Ideas

ICU Admission Orders - Severe Sepsis Bundle

Pt. Identifier

Page 1 of 4

STATUS INPATIENT: See *Initial Order Set - Patient Status* already completed by MD ☐ **Transfer to SICU** ☐ **Transfer to CICU** ☐ **Transfer to CVICU** ☐ **Transfer to ICU**	

DIAGNOSIS:

☐ Consult/Notify (if already involved) Infectious Disease Physician _____ to see: STAT / TODAY / IN AM
☐ Consult Dr. _____ re: _____ to see: STAT / TODAY / IN AM

☐ Consult Dr. _____ re: _____ to see: STAT / TODAY / IN AM
Consult Therapy: ☐ Physical   ☐ Occupational   ☐ Wound   re: _____

ALLERGIES/ PRECAUTIONS:

If Allergic to PCN/Cephalosporin or carbapenem - Reaction:
        ___ Anaphylaxis/Breathing difficulties ____ Urticaria ___ Delayed Rash ___ Unknown ____ Other
Reaction investigated & Patient may receive Cephalosporin or Carbapenem: ____ Yes _____ No

CODE STATUS: ☐ See DNR Order   ☐ Full Code

NURSING:
☑ **Vital Signs** Q 1 hr with continuous pulse oximetry
☑ **Call MD** for **SBP** < (90) _____ or > (180) _____; **DBP** < (40) _____ or > (100) _____;

            HR < (50) _____ or > (120) _____; **RR** > (30) _____; **Temp** > (101) _____;

            O2 sats < (90%) _____on _____; **Urine Output** < (1cc/kg/hr) _____

☑ **Vascular Checks** Q (4) _____ hr
☑ **Neuro Checks** Q (4) _____ hr
☑ Delirium Assessment Q shift
☑ **Activity :**   Bedrest **with** HOB ≥30 unless contraindictated ☐**:** _____
☑ Initiate the ICU Pressure Ulcer Prevention Protocol (includes daily weights)
☑ Strict I & O: ☐ Place Foley Catheter with drainage to gravity
☑ Oral Care Q2hr   ☐ Lacrilube to both eyes Q4hrs and PRN
Diet: ☐ NPO   ☐ Clear Liquid   ☐ NPO x ice chips   ☐ Regular   ☐ _____
        ☑ Consult Registered Dietitian (RD) for nutrition management per RD
        ☑ RD may modify/manage diet order and/or enteral nutrition per approved MNT protocol
        ☐ OG/NG: ☐ continuous low suction or ☐ clamped/check residuals Q4hr
        ☑ Initiate Gastric Residual Volume Algorithm

GLUCOSE MANAGEMENT:
☑ Initiate **"ICU Blood Glucose Treatment Protocol"**
☑ Initiate Hypoglycemia protocol if BG < 70 and notify MD

RESPIRATORY
☐ Nasal Cannula AND/OR ☐ Face Mask at _____ L/min or _____FiO2
☐ Wean for SpO2 ≥ 92 %
☐ Initiate "Bronchodilator Protocol"   ☐ Initiate "NonInvasive Ventilation Assistance Protocol"

MECHANICAL VENTILATION
Mode _____   ☑ ABG 30 minutes after initial settings
Rate _____ breaths/min   TV _____ cc   ☑ ABG PRN acute respiratory distress (notify MD of results)
PEEP _____ cmH2O   ☑ Daily Assessment per the Weaning From Mechanical
Pressure Support _____cmH2O   Ventilator Protocol
FI02 _____ titrate to a Sp02 ≥ 92%   ☑ Notify MD for: _____

MD Signature:	**Date:**	**Time:**
RN Signature:	**Date:**	**Time:**

ICU Admission Orders - Severe Sepsis Bundle
Page 2 of 4

SEDATION / ANALGESIA FOR MECHANICAL VENTILATION:
- ■ DO NOT ADMINISTER ANY OF THE BELOW **INFUSIONS** IF PATIENT IS EXTUBATED
- ■ ALL INFUSION ORDERS WILL EXPIRE AFTER 72 HOURS; PHYSICIAN MUST REWRITE
- ■ Maintain level 3-4 on the modified Ramsey sedation scale (MRSS) Q2h and document
- ■ Wean to a MRSS of 2 at least Q 24hrs; Assess neurological status & weaning ability
  Restart infusion at <u>half</u> of previous dose and titrate to desired MRSS
- ■ Notify MD for MAP < 65mmHg or if unable to maintain sedation within dosage range

<u>**SEDATION: (select one)**</u>
- ☐ **Propofol infusion** at 5 micrograms/kg/minute
  - ■ Titrate by 5 micrograms/kg/min Q 5min to maintain ordered MRSS (Max of 50micrograms/kg/minute)
  - ■ Change tubing Q 12hrs
  - ■ Serum triglyceride level at start of infusion and Q 72hrs while on propofol (notify MD if triglycerides > 300 mg/dL)
    OR
- ☐ **Lorazepam** 1-2mg IV Q 2hrs PRN to maintain ordered sedation
  NOT to be used for patients s/p craniotomy

<u>**ANALGESIA:**</u>
- ☐ **Morphine** 1 -2 mg IV Q1h PRN mild pain; 3-4 mg IV Q1h PRN moderate pain; 5 mg IV Q1h PRN severe pain
  NOT to be used for patients s/p craniotomy
  OR
- ☐ **Fentanyl** 12.5 – 50 micrograms IV Q 1 hrs PRN pain;
  mild (1-3) = 12.5 micrograms; mod (4-7) 25 micrograms; severe (8-10) = 50 micrograms

VTE RISK AND PREVENTION: HIGH RISK
- ☑ Bilateral Sequential Compression Devices **– SCDs** (all patients)
- ☐ **Enoxaparin** (Lovenox) 40 mg SQ Q 24hr
- ☐ **Heparin** 5000 units SQ Q 8hr
- ☐ Anticoagulation <u>Contraindicated</u> because**:** ☐High risk of bleeding
                                               ☐On therapeutic anticoagulation
                                               ☐Other:
- ☐ Consult Anesthesiology: indwelling/epidural catheter regarding timing of prophylactic anticoagulation

STRESS ULCER PROPHYLAXIS
- **Enteral feedings:** ☐ Pepcid (famotidine) 20mg via GI Tube q12h (if CrCl <50mL/min Q24h)
  ☐* Protonix (Pantoprazole) 40 mg / 20 mL suspension via OG Daily **(*PPI)**
- **No enteral feedings:** ☐ Pepcid (famotidine) 20mg IV q12h (if CrCl <50mL/min Q24h)
  ☐ *Protonix (pantoprazole) 40mg IV daily (*PPI)
*Proton Pump Inhibitors (PPI) carry a greater risk of C difficile infection

ADRENAL INSUFFICIENCY OF CRITICAL ILLNESS
- ☐ **Cosyntropin stimulation test**
  - ■ Obtain baseline serum cortisol level
  - ■ Administer **Cosyntropin** 250mcg **IV** over 2 minutes
  - ■ Obtain serum cortisol level 60 minutes after Cosyntropin administration
  - ■ **Call MD** with results of Cortrosyn stimulation

PROBIOTICS:
- ☐ **Lactobacillus (Bacid) one caplet** PO / PT Q12 hrs

MISC:

MD Signature: **Date:**   **Time:**

RN Signature: **Date:**   **Time:**

Treatment / Implementing the Bundles

+

Pt. Identifier

ICU Admission Orders - Severe Sepsis / Septic Shock Bundle
Page 3 of 4

Labs
- ☐ Blood Cultures x 2 Stat –
       one may be drawn from central line
- ☐ CBC w/Diff   ☐ Phosphorous
- ☐ CMP   ☐ Mg
- ☐ PTT, PT/INR   ☐ Ionized Calcium
- ☐ Type and Screen   ☐ ABG
- ☐ TSH, free T3, free T4   ☐ BNP

- ☐ UA and Urine Culture
- ☐ Sputum GS and Culture if possible
- ☐ CK/CK-MB & Troponin I STAT then Q _____ hrs x _____
- ☐ Lactate level
- ☐ Legionella UAT
- ☐ Pneumococcal UAT
- ☐ Influenza A and B rapid test

AM Labs/Imaging:
- ☐ CBC   ☐ BMP   ☐ Fasting Lipid Panel
- ☐ Portable CXR - Indication: _____
- ☐ _____

Imaging / Cardiac:
- ☐ **ECG 12 Lead STAT**
- ☐ **2-D Echo** with color Doppler (read by _____)
     Indication: _____
- ☐ **Portable CxR** Indication: _____

Nursing Instruction:
☑ If Lactate Level ≥ 2 - repeat lactate level in 4 hrs and in AM and notify MD

Maintenance Fluids: IV of _____ @ _____ mL/hr

Fluid Resuscitation for Hypoperfusion (SBP < 90 or MAP < 65) OR a Lactate level > 4 mmol/L
- ☐ Give 0.9% Normal Saline _____ mL IV over _____ min
- ☐ If SBP remains < 90 mmHg or MAP <65 mmHg, Give additional _____ mL 0.9% Normal Saline IV over _____ min

Hemodynamic Monitoring:
- ☑ **If CVP in place**- Measure CVP Q1 hr and after each fluid bolus
     Notify MD for CVP < _____ mmHg
- ☑ **If PA catheter in place** – Measure PAP, CO, SVR Q 2hrs, then Q4hrs when stable
     Notify MD for _____

Vasopressors for Hypoperfusion that does not respond to Fluid Resuscitation:
☐ **Begin Norepinephrine** 8mg/250mL D5W
- ☑ Starting dose 2mcg/min
- ☑ Titrate 2mcg/min Q 5 minutes to maintain SBP >90mmHg or MAP ≥ 65mmHg
- ☑ **Notify MD➜** if patient requires ≥ 50mcg/min
- ☑ Draw Random serum Cortisol level **if Norepinephrine titrated to > 12 mcq/min**
       If random serum cortisol level is **< 18 mcg/dL, Notify MD**

   If Additional agent is needed to maintain SBP or MAP:
☐ **Begin Epinephrine** 4mg/250mL D5W   OR ☐ maximize concentration to 8 mg/ 250mL D5W
- ☑ Starting dose _____mcg/min
- ☑ Titrate 0.1 mcg/kg/min Q 5 min to maintain SBP > 90mmHg or MAP ≥ 65mmHg
- ☑ **Notify MD➜** if patient requires ≥ _____ mcg/kg/min

☐ **Begin Vasopressin** 100 units / 250 mL NS
- ☑ Starting dose _____ units /min
- ☑ Maximum dose 0.04 units/min for hemodynamic support
- ☑ Maximum dose 0.8 units/min for GI Bleed

> **Clinical Decision Support:**
> **Sepsis Bundle Recommendation:**
>
> Without clinical contraindication - Administer 30mL/kg crystalloid for SBP < 90 mmHg OR MAP < 65mmHg OR lactate > 4mmol/L
>
> Refer to *"RSFH ICU Guideline on Hemodynamic Monitoring in Shock"* for recommendations

---

MD Signature: Date: Time:

RN Signature: Date: Time:

ICU Admission Orders –
Severe Sepsis <u>Initial</u> <u>Empiric</u> Antibiotics

Patient Identifier

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Suspected Source of Sepsis	First Line Therapy		Alternative Therapy (Due to Allergy or Resistance)
❏ **Community Acquired Pneumonia**	☐ Ceftriaxone 1g IV Q 24h + Azithromycin 500mg IV Q 24h **OR** ☐ Ceftriaxone 1g IV Q 24h + Levofloxacin 750mg IV Q 24h		☐ Aztreonam 2g IV Q 8h + Levofloxacin 750mg IV Q 24h
	❏ If MRSA suspected ADD to the above Vancomycin 20mg/kg IV Q12h (max 2 g)		
❏ **Community Acquired Pneumonia with risk for Pseudomonas** *COPD and chronic steroids, COPD and repeated antibiotic exposure, or Bronchiectasis	☐ Piperacillin/tazobactam 4.5g IV Q 8h + Levofloxacin 750mg IV Q 24h **OR** ☐ Piperacillin/tazobactam 4.5g IV Q 8h + Azithromycin 500mg IV Q 24h		☐ Aztreonam 2g IV Q 8h + Levofloxacin 750mg IV Q 24h
	❏ If MRSA suspected ADD to the above Vancomycin 20mg/kg IV Q12h (max 2 g)		
❏ **Nosocomial Pneumonia** (HAP/VAP/HCAP)	☐ Cefepime 2g IV Q8h + Ciprofloxacin 400mg IV Q8h ☐ Cefepime 2g IV Q8h + Tobramycin 7mg/kg IV Q 24h ☐ Piperacillin/tazo 4.5g IV Q 8h + Ciprofloxacin 400mg IV Q8h ☐ Piperacillin/tazo 4.5g IV Q 8h + Tobramycin 7mg/kg IV Q 24h		☐ Aztreonam 2g IV Q 8h + Levofloxacin 750mg IV Q 24h
	❏ If MRSA suspected ADD Vancomycin 20mg/kg IV Q12h (max 2 g) **OR** ❏ Linezolid 600 mg IV Q12h (P&T restricted use: ID and Pulm/Critical Care specialists only)		
❏ **Community acquired Urinary Tract**	☐ Ceftriaxone 1g IV Q 24h	☐ Aztreonam 1g IV Q 8h + Levofloxacin 750mg IV Q24h ☐ Levofloxacin 750mg IV q24h + Tobramycin 7mg/kg IV q24h	
❏ **Nosocomial Urinary Tract**	☐ Cefepime 2g IV q8h	☐ Aztreonam 1g IV Q 8h + Levofloxacin 750mg IV Q24h ☐ Levofloxacin 750mg IV q24h + Tobramycin 7mg/kg IV q24h	

"ICU Sepsis"

Appropriate initial empiric therapy of complicated intra-abdominal infection, central catheter infection, complicated soft tissue infection (diabetic SSTI, post-op wound), neutropenic fever, or sepsis of unknown source. Selections guided by RSFH antibiograms of inpatient cultures.

First Line Therapy
☐ Piperacillin/tazobactam 3.375g IV Q 8hrs (over 4hrs)
History of rash to penicillin
☐ Cefepime 2g IV Q 8h
History of anaphylaxis to penicillin
☐ Aztreonam 2g IV Q 8h + Levofloxacin 750mg IV Q24h
☐ Levofloxacin 750mg IV q24h + Tobramycin 7mg/kg IV q24h
If expanded gram negative coverage needed, ADD
☐ Tobramycin 7mg/kg IV Q 24h
If MRSA suspected, ADD
☐ Vancomycin 20mg/kg IV Q 12h (max. dose 2g)
ADD anaerobic coverage for intra-abdominal, complicated GU, diabetic SSTI if unable to use piperacillin/tazobactam
☐ Metronidazole 500mg IV Q 8h
For necrotizing fasciitis ADD
☐ Clindamycin 900mg IV Q 8h

☐ Pharmacist to adjust antibiotics per protocol until discontinued
☐ Pharmacist to manage vancomycin and/or aminogylocoside therapy until discontinued
☐ Aminoglycoside Drug levels: ☐ 8-10hrs random post 1st dose ☐ Peak/Trough – 3rd dose ☐ Random @ _____
☐ Vancomycin Drug level as follows: ☐ Trough prior to 4th dose ☐ Random @ _____
   Actual body weight will be used for aminoglycoside dosing unless patient > 120% IBW, then dosing weight will be used

MD Signature:	Date:	Time:
RN Signature:	Date:	Time:

Source: Roper St Francis Healthcare at: https://www.rsfh.com/clinicalorders/Orders/1027%20ICU%20 Admission%20Orders%20−%20Severe%20Sepsis%20Bundle.pdf

Discharge Planning / Decreased Readmissions

Readmissions and Sepsis

Sepsis hospitalizations account for a higher proportion of unplanned 30-day readmissions than hospitalizations for heart attack, heart failure, COPD, and pneumonia in the United States, according to a study published online by JAMA. The average length of stay for unplanned readmissions following sepsis hospitalization was longer than readmissions following AMI, heart failure, COPD, and pneumonia. The estimated average cost per readmission was highest for sepsis compared with the other diagnoses.

With decreasing mortality in sepsis, attention has shifted to longer-term consequences associated with survivorship. Thirty-day readmission as a component of healthcare utilization is an important outcome.

What Can Be Done to Reduce Hospital Readmissions for Sepsis Survivors?

While sepsis is a serious condition that leaves over 16% of survivors with physical, mental, or cognitive impairments, many of the readmissions for sepsis patients could be avoided. Researchers have identified four principle ways to reduce sepsis readmission rates:

1. Improved Post-Discharge Processes

While sepsis patient readmissions are on the increase as more people survive sepsis, there are few, standardized guidelines for the care of post-sepsis patients after discharge, so healthcare providers of sepsis patients must build post-discharge processes to reduce readmissions. Potentially partner with both home health services and skilled nursing facilities to ensure that patients safely transition from acute care to post-acute care before returning home.

"Life after sepsis is challenging, with most patients experiencing new or worsening functional impairments that make returning home difficult at the time of hospital discharge. From this perspective, it is not surprising that most patients require post-acute care, such as home health services or admission to a skilled nursing facility." – Dr. Mikkelson

2. An All-Hands Approach to Post-Sepsis Care

It is critical to make sure that patients receive a thorough follow-up after sepsis. Recent research suggests that post-sepsis patients benefit most from a post-discharge protocol that combines follow-up appointments with both a physician and a nurse, rather than one or the other. Researchers found that patients who saw both a doctor and a home health nurse after sepsis were significantly less likely to need to be readmitted to the hospital. The study's authors suggested that home health nurses were more likely than doctors to spot potential complications triggered by conflicting medications, signs of infections, or problems in the home environment before they had begun to seriously impact the patient's health.

However, without prompt attention from a doctor, these problems might not be addressed quickly enough to avoid re-hospitalizing the patient. There are clear indications, therefore, that the best approach for patients after sepsis would be a combination of nursing attention and revision by a doctor.

3. Better Education on Sepsis for Patients and Caregivers

To prevent hospital readmissions for sepsis survivors after their return home, it is vitally important that both the patients and their loved ones are aware of potential signs and symptoms of complications. In particular, they need to be made aware that they are unusually susceptible to recurring or new infections that could rapidly become serious. Dr. Mikkelson terms this "sepsis surveillance," and suggests that it could make all the difference in reducing readmission rates. As he puts it, "We need to listen to the voices of sepsis survivors who beg us for a better understanding of their condition during and after."

4. Rehabilitation Referrals

An observational study of 30,000 sepsis cases conducted by the University of Michigan and the University of Pennsylvania found that referral to rehabilitation within 90 days of discharge from hospital was correlated with lower 10-year mortality risk. Physical therapy and other rehabilitative treatments not only help keep patients alive; they also help to identify and treat the many serious side effects of sepsis in the weeks and months post-discharge.

The study found that sepsis survivors may experience severe cognitive impairment, anxiety, depression, and PTSD, as well as physical symptoms such as recurring infections and exacerbated heart failure. The researchers involved in the study suggest that many of these symptoms could be effectively treated without the need for hospitalization, if caught early enough by a rehabilitation treatment program.

Source: Rehabselect.net

Physical therapy could also help patients recover functional mobility more quickly, reduce the risk of falls caused by cognitive impairment, and help patients deal with the day-to-day activities affected by post-sepsis complications.

While home health visits by qualified nurses are effective at identifying risk factors at an early stage, for many patients, an inpatient rehab treatment program may be more appropriate, given the severity of the impairments experienced by many sepsis survivors. Inpatient treatment will include 24-hour monitoring and access to rehab facilities and intensive care by a team of specialist rehabilitation staff. In some cases, the more intensive treatment offered in an inpatient rehab program can help severely impaired patients recover more quickly.

Source: Rehabselect.net

Avoiding a Septic Readmission

Prior to discharge of a sepsis patient make sure you have:

☐ Normalized the lactate

☐ Assessed and planned for delirium care and support

☐ Resolved, or see a trend towards normalization of organ dysfunction

☐ Narrowed the spectrum of any antibiotics, and educate on necessity of completing the prescribed course

☐ Educated on the signs and symptoms of infection if discharged with a line, drain, wound, catheter, etc.

☐ Ensure you have evaluated and planned for any changes in functional status

☐ Planned for discharge to appropriate level of care

☐ Follow up appointment made with appropriate providers, based on current condition

Lessons learned from sepsis readmissions reviews:

- Utilize the HRET HIIN top 10 checklist
- Provide comprehensive interdisciplinary services
- Know your numbers - # of sepsis patients per day/week
- Add sepsis patients to Stroke/STEMI huddles
- Link sepsis patients to existing care transitions programs
- The sepsis coordinator can be a new, natural partner
- Look for and join your community coalition efforts
- Periodically, reflect and refresh strategy
- Monitor implementation of key processes
- Culture of change – be creative, try new ideas and celebrate wins
- Pick up the phone and build a relationship – SNFs are thrilled to be a part
- Make post discharge calls to SNFs
- Get patient feedback for your educational materials
- Readmission interviews unlock insights
- Refine patient education materials

Source: HRET HIIN Lessons Learned Sepsis Readmissions FISHBOWL

Preventable Readmissions Top Ten Checklist

Develop a data-informed targeting strategy to identify target populations with higher than average rates of readmissions. Deliver enhanced readmission reduction strategies to these "target population" patients.

Identify root causes of readmissions based on interviewing patients, caregivers and providers. Prioritize your improvement strategies based on those that will address the root causes of readmissions among your patients.

Improve care transition processes for all patients, regardless of readmission risk. Refer to the proposed practices articulated in the proposed CMS Conditions of Participation for Discharge Planning.

Provide a customized transitional care plan for all patients.

Effectively communicate with patients and caregivers. Use translation services, teach-back, motivational interviewing and materials written in plain language.

Deliver enhanced readmission reduction services for your target populations based on their root causes of readmissions.

Design a high utilizer approach for patients with four or more admissions per year. Identify their "driver of utilization," and use care plans to improve care across settings.

Engage the emergency department as a new site of readmission reduction activities.

Collaborate with clinical, behavioral, and social service providers to improve cross-setting care processes for shared patient populations. Ensure you are aware of the services and supports that are available from other providers and agencies in your community.

Measure what you implement, driving to reliable delivery of improved processes.

Discharge Planning / Decreased Readmissions

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Many survivors are left with **LIFE-CHANGING** *challenges.*

LIFE AFTER SEPSIS FACT SHEET

WHAT SEPSIS SURVIVORS NEED TO KNOW

ABOUT SEPSIS

What is sepsis?

Sepsis is a complication caused by the body's overwhelming and life-threatening response to an infection, which can lead to tissue damage, organ failure, and death.

What causes sepsis?

Any type of infection that is anywhere in your body can cause sepsis. It is often associated with infections of the lungs (e.g., pneumonia), urinary tract (e.g., kidney), skin, and gut. An infection occurs when germs enter a person's body and multiply, causing illness and organ and tissue damage.

LIFE AFTER SEPSIS

What are the first steps in recovery?

After you have had sepsis, rehabilitation usually starts in the hospital by slowly helping you to move around and look after yourself: bathing, sitting up, standing, walking, taking yourself to the restroom, etc. The purpose of rehabilitation is to restore you back to your previous level of health or as close to it as possible. Begin your rehabilitation by building up your activities slowly, and rest when you are tired.

How will I feel when I get home?

You have been seriously ill, and your body and mind need time to get better. You may experience the following physical symptoms upon returning home:

- General to extreme weakness and fatigue
- Breathlessness
- General body pains or aches
- Difficulty moving around
- Difficulty sleeping
- Weight loss, lack of appetite, food not tasting normal
- Dry and itchy skin that may peel
- Brittle nails
- Hair loss

Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases

CS257671D

It is also not unusual to have the following feelings once you're at home:

- Unsure of yourself
- Not caring about your appearance
- Wanting to be alone, avoiding friends and family
- Flashbacks, bad memories
- Confusing reality (e.g., not sure what is real and what isn't)
- Feeling anxious, more worried than usual
- Poor concentration
- Depressed, angry, unmotivated
- Frustration at not being able to do everyday tasks

What can I do to help myself recover at home?

- Set small, achievable goals for yourself each week, such as taking a bath, dressing yourself, or walking up the stairs
- Rest and rebuild your strength
- Talk about what you are feeling to family and friends
- Record your thoughts, struggles, and milestones in a journal
- Learn about sepsis to understand what happened
- Ask your family to fill in any gaps you may have in your memory about what happened to you
- Eat a balanced diet
- Exercise if you feel up to it
- Make a list of questions to ask your doctor when you go for a check up

Are there any long-term effects of sepsis?

Many people who survive sepsis recover completely and their lives return to normal. However, as with some other illnesses requiring intensive medical care, some patients have long-term effects. These problems may not become apparent for several weeks (post-sepsis), and may include such consequences as:

- Insomnia, difficulty getting to or staying asleep
- Nightmares, vivid hallucinations, panic attacks
- Disabling muscle and joint pains
- Decreased mental (cognitive) functioning
- Loss of self-esteem and self-belief
- Organ dysfunction (kidney failure, respiratory problems, etc.)
- Amputations (loss of limb(s)

What's normal and when should I be concerned?

Generally, the problems described in this fact sheet do improve with time. They are a normal response to what you have been through.

Some hospitals have follow-up clinics or staff to help patients and families once they have been discharged. Find out if yours does or if there are local resources available to help you while you get better.

However, if you feel that you are not getting better, or finding it difficult to cope, or continue to be exhausted call your doctor.

Where can I get more information?

- Centers for Disease Control and Prevention (CDC)—CDC works 24/7 protecting America's health, safety and security. Whether diseases start at home or abroad, are curable or preventable, chronic or acute, stem from human error or deliberate attack, CDC is committed to responding to America's most pressing health challenges. cdc.gov/sepsis cdc.gov/cancer/preventinfections

- The Rory Staunton Foundation for Sepsis Prevention— Supports education and outreach efforts aimed at rapid diagnosis and treatment of sepsis, particularly in children. rorystauntonfoundationforsepsis.org

- Sepsis Alliance®—Created to raise sepsis awareness among both the general public and healthcare professionals. Sepsis Alliance offers information on a variety of sepsis-related topics. Visit sepsis.org/library to view the complete series of titles. sepsis.org

THE RORY STAUNTON FOUNDATION
FOR SEPSIS PREVENTION

SEPSIS ALLIANCE
Suspect Sepsis. Save Lives.

This fact sheet was developed in collaboration with CDC, Sepsis Alliance® and the Rory Staunton Foundation for Sepsis Prevention.

Discharge Planning / Decreased Readmissions

Signs of Infection and Sepsis at Home

I recently had an infection: _____.
Common infections can sometimes lead to sepsis. Sepsis is a deadly response to an infection.

Green Zone	• My heartbeat is as usual. Breathing is normal for me • I have not had a fever in the past 24 hours and I am not taking medicine for a fever • I do not feel chilled • My energy level is as usual • My thinking is clear • I feel well • I have taken my antibiotics as prescribed • I have a wound or IV site, it is not painful, red, draining pus or smelling bad	**Doing Great!** No action is needed.
Yellow Zone	• My heartbeat is faster than usual • My breathing is a bit more difficult and faster than usual • I have a fever between 100°F to 101.4°F • I feel chilled and cannot get warm. I am shivering or my teeth are chattering • I am too tired to do most of my usual activities • I feel confused or not thinking clearly • I do not feel well • I have a bad cough or my cough has changed • How often I urinate has changed. When I do urinate, it burns, is cloudy or smells bad • My wound or IV site has changed	**Take action today!** Call your **home health nurse**: _____ *(Phone number)* or call your **doctor**: _____ *(Phone number)*
Red Zone	• My heartbeat is very fast • My breathing is very fast and more difficult • My temperature is below 96.8°F. My skin or fingernails are pale or blue • My fever is 101.5°F or more • I have not urinated for 5 or more hours • I am very tired. I cannot do any of my usual activities • My caregivers tell me I am not making sense • I feel sick • My cough is much worse • My wound or IV site is painful, red, smells bad or has pus	**Take action NOW!** Call your **home health nurse**: _____ *(Phone number)* Or call your **doctor**: _____ *(Phone number)* Call your home health nurse before going to the Hospital Emergency Department

Sources: Sepsis Alliance, sepsis.org; Centers for Disease Control and Prevention (CDC), cdc.gov; and atom Alliance, atomalliance.org

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HRET HIIN PROCESS IMPROVEMENT DISCOVERY TOOL $\rangle\rangle\rangle\rangle\rangle\rangle\rangle\rangle\rangle\rangle\rangle$

READMISSIONS – PART 1A $\rangle\rangle$

The Process Improvement Discovery Tool is meant to help hospitals provide safer patient care by completing an assessment to identify process improvement opportunities. Hospitals can use the results to develop specific strategies to address gaps and identify resource needs. To complete the Readmissions – Part 1A, you will need to identify patients who are currently experiencing a readmission. The purpose of Readmissions – Part 1B is to identify gaps and opportunities for improvement in care transition planning.

Instructions

Enter the information for each readmitted patient medical record reviewed.

Minimum 5 patient Medical Record Numbers/Maximum 10 patient Medical Record Numbers

PROCESS	MEDICAL RECORD NUMBER (MRN)									
	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:
Primary diagnosis (index admission)										
Discharge disposition from index admission (home, home health, SNF, etc.)										
Number of days between discharge date and readmission date										
Total number of hospitalizations at this organization in last 12 months										

1

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Discharge Planning / Decreased Readmissions

HRET HIIN PROCESS IMPROVEMENT DISCOVERY TOOL — READMISSIONS – PART 1B

Instructions

Please complete an interview using the process questions below for each patient identified in Readmissions – Part 1A. Interviews must take place while the patient is currently experiencing a readmission. If the patient is unable to participate in the interview, please complete it with the primary caregiver.

PROCESS	MRN:
In patient's own words, reason for index admission	
In patient's own words, reason for readmission	
Was patient able to attend follow up appointment? If no, why not?	
Did patient feel that something could have been done by the hospital either during the index admission or after discharge to prevent the readmission? If yes, explain.	
Did patient understand the instructions for discharge medications? If no, was this a contributing factor to the readmission? If yes, explain.	
Was patient able to fill discharge prescriptions? If not, why?	
Were any social determinates of health identified, including but not limited to transportation, health literacy, food security, housing? If yes, explain?	
Other contributing factors to the readmission? Please explain.	

HRET HIIN PROCESS IMPROVEMENT DISCOVERY TOOL — READMISSIONS – PART 2

Instructions

Using the same patients identified in Part 1, review the medical record and answer the following questions.
1. If the answer to the question is 'Yes", mark an X in the box.
2. If the question is not applicable to the patient, mark an NA in the box.
3. Leave the box empty if there is no documentation that this important process occurs.
4. The processes with the most blank boxes could be a priority focus.
Minimum 5 patient Medical Record Numbers/Maximum 10 patient Medical Record Numbers

PROCESS	MEDICAL RECORD NUMBER (MRN)									
	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:	MRN:
Documentation that a medication list was provided to patient or caregiver at discharge.										
Information about the patient's condition was documented and provided to the next level of care receiver. (Patient, Caregiver, Home Health, Primary Care Provider, SNF)										
For patients with a comorbid behavioral health condition, is a follow up appointment with a behavioral health provider documented?										
For patients that require assistance from social services, was a direct linkage documented instead of asking patient to self-navigate?										
The primary learner/caregiver is identified and documented in the medical record										
Teach back is documented when discharge education is provided.										
A customized care transitions plan was developed and documented in the medical record that includes:										
> information about obtaining and taking medications										
> information about signs and symptoms and what to do if they occur										
> plan for follow-up appointments, labs or tests, if applicable										
> plan for transportation to get to the follow-up appointments										
A post-discharge phone call is documented										
A follow up appointment was scheduled and documented for patient										

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What is Sepsis?

Sepsis is a **life-threatening** condition caused by your body's negative response to any kind of infection.

How did I get sepsis?
- Any infection can lead to sepsis
- Sepsis is not contagious
- Anyone, young or old, with an infection is at risk

What is my treatment plan?
- Find where the infection is in your body
- Treat the infection with IV fluids and antibiotics
- Test your blood to ensure organs are working properly
- Continue to monitor and support your organ function

How can I prevent sepsis?
- Take care of your existing health conditions
- Get recommended vaccinations
- Wash your hands, brush your teeth and bathe regularly
- Keep cuts clean and covered until healed
- Know the signs and symptoms of sepsis

Can I get sepsis again?
- Yes, sepsis survivors are more at risk to develop sepsis again

Where can I learn more?
- Sepsis Alliance – sepsis.org
- CDC – cdc.gov/sepsis

SIGNS OF SEPSIS
- Fever, chills or sweaty skin
- Extreme pain or discomfort
- Confusion - trouble with normal daily tasks
- Shortness of breath
- Diarrhea and vomiting

If you have any combination of these, call your doctor or go to the emergency room.

It's important to say
"I AM CONCERNED ABOUT SEPSIS."

Bryan Health

Form 2137 (06/19)

Bryan Health

Watch for Signs of Infection and Sepsis after You Leave the Hospital

You are at a greater risk of an infection since you have been in the hospital with an infection or sepsis. Recognizing and reporting the signs of an infection is key to preventing sepsis.
Follow the recommended action if you have these signs.

★ **Take action today to treat an infection and prevent sepsis.**

Call your doctor if you have:

- A fever between 100° to 101.4°
- Chills, shivering or teeth chattering
- Fatigue, too tired to do most activities
- Thinking that feels slow or not right
- Wounds or I.V. site that look different, infected
- Low urine output (I haven't urinated for 5 or more hours)
- Urine burns, is cloudy , dark and smelly
- Heartbeat is faster than usual
- Breathing is more difficult and faster than usual
- Home blood pressure is 20 points (top number) lower than usual

★ **Take action NOW if you have these signs of sepsis!**

Speak to your doctor or go to the emergency room if you have:

- A fever is 101.5° or greater
- Your temperature is below 96.8°
- Skin or fingernails are pale
- Weakness, too weak to get out of bed
- Confusion
- Wounds or I.V. site has pus
- Low urine output (I haven't urinated for 6 or more hours)

Call 911 if:

- Heartbeat is very fast
- Breathing is very fast
- Home blood pressure is 40 points (top number) lower than usual
- Fever of 103.5° or greater
- My skin or fingernails are blue

5/1/2019

Quality Measurement / Continuous Improvement

Things to consider when caring for a septic patient:

- Define real time method for tracking patients (i.e. patient log)

- Example forms are available in the Appendix of the Hospital Toolkit for Adult Sepsis Surveillance, published by the CDC

- Define concurrent review process for core measure and core measures defect review process

- Sepsis Coordinator communicates with clinical areas to answer questions and ensure appropriate processes are being followed (bundles, protocols, documentation)

- Review data and ideas for improvement at team meetings.

- Do you have a way to know your data elements that fall out each month and a process for follow up?

- Do you have a process to address deviations from evidence-based care processes with physicians, nurses, and other clinical staff?

- When auditing successes - Make sure to have clear expectations for all disciplines and staff education is important!

Sepsis Program Review example
Courtesy of Mary Lanning Healthcare

2019 Sepsis Process Data (NEW)

In order to get a better idea of where our biggest delays occur in the "sepsis process," invidual "parts" of the process have been tracked for each patient who met Severe Sepsis/Septic Shock criteria in 2019

Since improved recognition and treatment generally leads to better patient outcomes, shifting our goals/focus and decreasing the following times (next slide) might be something we can look at in 2020

There is also some research pushing for completion of the (current) 3-hour 'standards' to be completed in a 1-hour window; (1) Collection of an intial lactic acid (2) Collection of blood cultures (3) Initiation of broad-spectrum antibiotics.

For that to happen, we will need to significantly decrease the arrival time-to-antibiotic administration (2hr 15min avg. in 2019)

2019 Sepsis Process Data

	Q1 AVG	Q2 AVG	Q3 AVG	Q4 AVG	2019 AVG
Arrival Time to Infection Documentation	0:36	0:24	0:24	0:22	0:30
Arrival Time to Lactic Acid Collection	1:01	0:43	0:43	0:44	0:47
Arrival Time to Blood Cultures Collected	0:48	0:47	0:38	0:38	0:43
Severe Sepsis Presentation to Antibiotic Order	Not tracked			1:03	1:03
Antibiotic Order to Administration	Not tracked			0:22	0:22
Arrival Time to Antibiotics Administered	2:39	2:14	2:12	2:02	2:17
Arrival Time to Fluid Bolus Administration	1:34	1:05	1:02	1:17	1:15
Arrival Time to Hospital Admission	3:53	3:41	3:46	3:28	3:42
Arrival Time to Vasopressors	3:40	3:33	3:19	2:46	3:19
Arrival Time to Follow Up Exam Completed	4:34	5:59	5:08	5:05	5:11

RN Sepsis Communication Tool
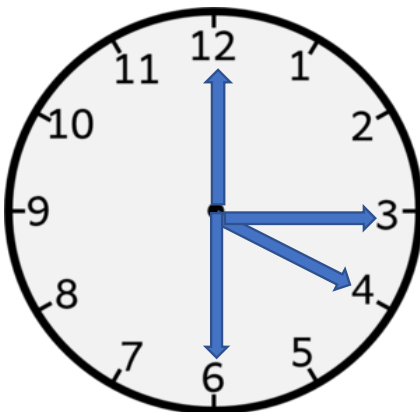

Patient Sticker

TIME ZERO:
(triage time)

PATIENT WT:
If Ideal weight used, note in chart

Sepsis – Does the patient have Two of the following plus suspected infection?
☐ Suspected infection
☐ T: >100.9F or ☐ <96.8F
☐ HR: >90
☐ RR: >20/min
Severe Sepsis
☐ WBC: >12,000 or ☐ <4,000 or ☐ >10% bands
☐ Lactic > 2mmol/L ☐ SBP< 90 ☐ MAP <65 ☐ < urine output ☐ respiratory failure

---

Items to be complete within 3hrs from TIME ZERO: **_TIME:_**
☐ Initial lactic acid (time:_____)
☐ Blood Cultures before antibiotics (time:_____)
☐ Broad spectrum antibiotics (time:_____) ***shortest 1st!!***
☐ Fluid bolus administration: 30ml/kg (total input:_____) **Remember completion time and I&Os**

4hrs from TIME ZERO:
☐ Obtain **2nd** lactic acid be sure it is drawn **after**   **_TIME:_**
fluid bolus is complete

Items to be complete within 6hrs from TIME ZERO:
☐ Vasopressors if hypotensive (name_____) ***after fluid bolus!!!***   **_TIME:_**
☐ Repeat focused exam by MD needs to include reassessment of
perfusion status

If form not complete in ED, send to floor with pt to be completed
Return form to ED manager upon completion.

Quality Measurement / Continuous Improvement

AHA CENTER FOR HEALTH **INNOVATION**

HRET HIIN PROCESS IMPROVEMENT DISCOVERY TOOL > > > > >

POST-OP SEPSIS PREVENTION PROCESS

The Process Improvement Discovery Tool is meant to help hospitals provide safer patient care by completing an assessment to identify process improvement opportunities. Hospitals can use the results to develop specific strategies to address gaps and identify resource needs. Please complete the tool using patient charts that align with this specific topic.

Instructions:

1. If the answer to the question is "Yes", mark an X in the box to indicate that the desired process was discovered. You may check more than one box per chart.

2. The processes that are not marked with an X may indicate the most common failures and could be a priority focus.

Minimum 5 charts/Maximum 10 charts

Do NOT spend more than 20-30 minutes per chart!

PROCESS	Chart #	Chart #	Chart #	Chart #	Chart #	Chart #	Chart #	Chart #	Chart #	Chart #
Ambulatory Pre-Operative Infection Prevention Strategies										
Patient received incentive spirometer device and instruction at time of surgery scheduling										
Patient stopped smoking at time of surgery scheduling										
Patient completed 2 sessions of outpatient PT in advance of orthopedic surgery										
SSI Care bundle compliance										
Prophylactic antibiotics were given appropriately with timely start and stop										
Normothermia was maintained through duration of peri-op period										
Supplemental oxygen provided pre op, intra op and post op										
Pre op skin antisepsis was performed										
Additional Peri-Operative Infection Prevention Strategies										
Patient had an indwelling foley less than 2 days **AND** foley met insertion criteria										
Patient received multimodal pain therapy (non narcotics and non medicinal) with or without opioids										
Patient was mobilized at least 3 times/ day										
Good patient adherence of proper pulmonary toilet processes (i.e.Bedside incentive spirometer used 10x/hr. while awake)										
Good patient adherence of proper pulmonary toilet processes (Bedside incentive spirometer used 10x/hr while awake)										

Hand Hygiene compliance in department is greater than 85%										
SSI Rates are below benchmark										
OBSERVATION										
Patient Information										
Age Greater than 65 years										
Elective procedure performed was?										
Source of infection that led to sepsis was?										
Patient was admitted to ICU?										
How many days post-op was the sepsis identified?										

NOTE: patients at increased risk for sepsis are those with intra-abdominal processes, catheters, central lines, drains, renal calculi, cholelithiasis, trauma, and other lines

Sample Letter - Physician Care of a Septic Patient

Dear Provider,

You are receiving this letter because you had the opportunity to participate in the care of a patient diagnosed with Severe Sepsis and/or Septic Shock. As you know, Severe Sepsis is a time sensitive disease state that requires prompt treatment and early goal directed therapy. Here at _____,

We strive to adhere to the Surviving Sepsis Campaign guidelines for the management of severe sepsis and septic shock which recommend the use of evidence based 3 hour and 6 hour resuscitation bundles. Current evidence shows that adherence to these treatment bundles results in a significant decrease in mortality. Below you will find the 3 hour and 6 hour treatment bundle goals and if/when they were achieved for your patient with severe sepsis and/or septic shock. If you have questions or would like more information regarding the management of severe sepsis or septic shock, please contact the Sepsis Committee. Thank you for working with the Sepsis Committee to provide the best care for our patients.

Sincerely,

The Sepsis Committee

Severe Sepsis/Septic Shock Recognition	
3 Hour Resuscitation Bundle	**Time Completed**
Serum Lactate Measured	
Blood Cultures Obtained	
Broad Spectrum Antibiotics Administered	
30 ml/kg Initial Fluid Challenge Given	
6 Hour Resuscitation Bundle	**Time Completed**
Vasopressors for refractory hypotension	
Repeat Focused Physical Exam OR 2 of the following completed: Measure CVP Measure Scv02 Bedside CV ultrasound Passive leg raise or fluid challenge	
Lactate Re-measured if initial is elevated	

Sample Recognition Letter to Provider

Medical Record #:_____   Hospital Logo

Account#   _____

Occurrence Date:_____

Dear (PROVIDER),

To improve the quality of care and outcomes experienced by patients that present to the hospital with sepsis, a CODE: SEPSIS process that is consistent with nationally accepted guidelines has been implemented. If a patient meets SIRS criteria and there is a suspected or known source of infection, the hospital requires that this process be utilized. In addition, data for severe sepsis and septic shock patients will be reported quarterly to the Centers for Medicare and Medicaid.

We would like to take this moment to commend you for the prompt identification, treatment, and documentation of this severe sepsis patient you recently cared for. Your efforts in providing the highest quality care offers our patients their best chance at surviving and recovering from this life-threatening event. Thank you for all you do.

Sincerely,

The Quality Team

Confidential, Patient Safety Work Product

Not for reproduction or distribution -destroy after use

Evaluation Tool of Sepsis Care
Courtesy of Nebraska Methodist Health System

SEPSIS

Patient Label Location:	**Sepsis Alert** Date: Time:	Provider Notified ☐ (Name, Date, Time)	**Sepsis Advisor Time**
Suspected Infection Source Site: (New or Worsening)	RRT Called	Possible Sepsis?	Transferred Y / N

Sepsis Alert Triggers:
    SIRS (2 or more):
    Organ Dysfunction:
	NEWS ALERT SCORE

qSOFA (outside of the ICU)	Date: Time:	Result:
SOFA (ICU patients)	Date: Time:	Result:

To be Completed within 3 hours

	Date	Time	
☐ Initial Lactate Drawn			Result:
☐ Blood Cultures Drawn x2 Before antibiotic administration do not delay antibiotic administration if unable to obtain blood cultures. -If unable to draw B.C. before antibiotic please list why in notes section.			Result:
☐ Broad Spectrum Antibiotics Administered: 1st antibiotic given within 1 hour (order stat) 1.			
☐ 2. (does not always require 2nd antibiotic)			
☐ 30mL/kg crystalloid IVF Bolus If hypotensive or original lactate > 4mmol/L Weight used for fluid amount: ☐ Actual ☐ Ideal Body Weight	Start: End:		Total Given [ ] Total Charted [ ]

To be Completed within 6 Hours

☐ Repeat Lactate 4-6 hours from initial lactate If Initial Lactate >2			Result:
☐ Vasopressors Started If hypotension persists after fluid administration (MAP <65mm/Hg)			Medication:
☐ Repeat Volume Status and Tissue Perfusion Assessment If Septic Shock presentation: Hypotension after fluid administration or initial lactate >=4mmol/L			Method: Documented by:

Notes:

Sepsis	Defined as: life-threatening organ dysfunction caused by a dysregulated host response to infection *In other terms*: a life-threatening condition that arises when the body's response to an infection injures its own tissues and organs.
Septic Shock	Defined as: a subset of sepsis in which underlying circulatory and cellular metabolic abnormalities are profound enough to substantially increase mortality. Sepsis with persisting hypotension requiring vasopressors to maintain a MAP>= 65mm Hg and having a serum lactate level >2mmol/L despite adequate volume resuscitation.
Time Zero	Starts when Sepsis is identified or Sepsis alert fires
Repeat Volume Status and Tissue Perfusion Assessment:	Focused exam—Physician/APRN/PA note must include physical exam of perfusion (reperfusion) Example: "Sepsis re-evaluation was performed", or physical exam including perfusion. NICOM (PLR or Bolus), CVP, ScvO2

SIRS (Systemic Inflammatory Response Syndrome)

Two or more of:
- Temperature >38.3°C or <36.0°C   (>100.9°F or < 96.8°F)
- Heart rate >90/min
- Respiratory rate >20/min or $Paco_2$ <32 mm Hg (4.3 kPa)
- White blood cell count >12 000/mm^3 or <4000/mm^3 or >10% immature bands

Organ Dysfunction

- SBP<90mmHg or MAP<65
- Creatinine >=2.0 and increase of 0.5mg/dL over 72 hours
- Billirubin >=2.0 and =<10.0mg/dL
- Platelet count <100,000 uL^{-1}
- INR >1.5
- Lactate > 2.0mmol/L
- Respiratory Failure (e.g. vent, BiPAP)

qSOFA: (Quick SOFA)

Respiratory rate ≥22/min	1
Alerted Mentation	1
Systolic blood pressure ≤100 mm Hg	1
Total score of 2 or 3 = increased Mortality Risk	

SOFA: (Sepsis-Related) Organ Failure Assessment Score

System Score:	0	1	2	3	4
Respiration PaO$_2$/FiO$_2$, mmHg	>=400	<400	<300	<200 with respiratory support	<100 with respiratory support
Coagulation Platelets, x10^3/uL	>=150	<150	<100	<50	<20
Liver Bilirubin, mg/dL	<1.2	1.2-1.9	2.0-5.9	6.0-11.9	>12.0
Cardiovascular	MAP >=70mmHg	MAP <70mmHg	Dopamine<5 or dobutamine	Dopamine 5.1-15 or epinephrine =<0.1 or norepinephrine =< 0.1	Dopamine >15 or epinephrine >0.1 or norepinephrine => 0.1
Central Nervous System Glascow Coma Scale Score	15	13-14	10-12	6-9	<6
Renal Creatinine, mg/dL Urine output, mL/day	<1.2	1.2-1.9	2.0-3.4	3.5-4.9 <500	>5.0 <200
A score of 2 or higher in any system indicates organ dysfunction and an elevated risk of mortality.					

Singer M, Deutschman CS, Seymour CW, et al. The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA.* 2016;315(8):801–810. doi:10.1001/jama.2016.0287

Sepsis Treatment Tool Template courtesy of Amber Fuller DNP, APRN, NP-C, Methodist Hospital. Omaha, NE

Education

Healthcare providers are key to preventing infections and illnesses that can lead to sepsis.

EDUCATE patients and their families about the early symptoms of severe infection and sepsis, and when to seek care for an infection, especially those at higher risk.

REMIND patients that taking care of chronic illnesses helps prevent infections.

ENCOURAGE infection prevention measures, such as hand hygiene and vaccination against infections.

Know the signs and symptoms of sepsis.

Shivering, fever, or very cold

Extreme pain or discomfort

Clammy or sweaty skin

Confusion or disorientation

Short of breath

High heart rate

SOURCE: CDC Vital Signs, August 2016.

Common infections can lead to sepsis.

Among adults with sepsis:

35% had a lung infection (e.g., pneumonia)

25% had a urinary tract infection (e.g., kidney infection)

11% had a type of gut infection

11% had a skin infection

GET **AHEAD**
OF **SEPSIS**
KNOW THE RISKS. SPOT THE SIGNS. ACT FAST.

PROTECT YOUR
PATIENTS FROM SEPSIS.

Infections put your patients at risk for sepsis. Be alert to the signs and symptoms, and when suspected, act fast.

Sepsis is the body's extreme response to an infection. It is life-threatening, and without prompt treatment, often rapidly leads to tissue damage, organ failure, and death.

SEPSIS STATS

More than
1.7 MILLION
adults develop sepsis each year in the U.S.

Nearly
270,000
Americans die from sepsis each year

About
1 IN 3 PATIENTS
who die in a hospital have sepsis

WHAT CAUSES SEPSIS?

The most frequently identified pathogens that cause infections that can develop into sepsis include *Staphylococcus aureus* (staph), *Escherichia coli* (E. coli), and some types of *Streptococcus*.

Four types of infections that are often linked with sepsis:

Lungs
(e.g., pneumonia)

Urinary tract
(e.g., kidney)

Skin

Gut

Anyone can get an infection, and almost any infection can lead to sepsis. Some people are at higher risk of infection and sepsis:

WHO IS AT RISK?

65+
Adults 65 or older

People with chronic medical conditions, such as diabetes, lung disease, cancer, and kidney disease
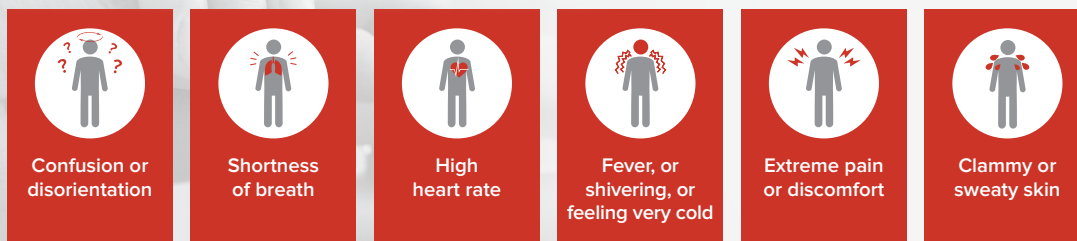
People with weakened immune systems

Children younger than one

Source: www.cdc.gov/sepsis.

WHAT ARE THE
SIGNS AND SYMPTOMS OF SEPSIS?

Signs and symptoms can include any one or a combination of the following:

Confusion or disorientation	Shortness of breath	High heart rate	Fever, or shivering, or feeling very cold	Extreme pain or discomfort	Clammy or sweaty skin

HOW CAN I GET AHEAD OF SEPSIS?

Healthcare professionals can:

- **Know sepsis signs and symptoms** to identify and treat patients early.
- **Act fast** if you suspect sepsis.
- **Prevent infections** by following infection control practices (e.g., hand hygiene, catheter removal) and ensuring patients receive recommended vaccines.
- **Educate your patients and their families about:**
  - Preventing infections.
  - Managing chronic conditions.
  - Keeping cuts clean and covered until healed.
  - Recognizing early signs and symptoms of worsening infection and sepsis and seeking immediate care if present.

Sepsis is a medical emergency. Protect your patients by acting fast. Your fast recognition and treatment can increase your patients' chances of survival.

WHAT SHOULD I DO IF I SUSPECT SEPSIS?

Know your facility's existing guidance for diagnosing and managing sepsis.

- **Immediately alert the clinician in charge if it is not you.**
- **Start antibiotics as soon as possible, in addition to other therapies appropriate for the patient.**
- **Check patient progress frequently.** Reassess antibiotic therapy within 24-48 hours to stop or change therapy as needed. Be sure antibiotic type, dose, and duration are correct.

Learn more about sepsis and how to prevent infections:
www.cdc.gov/sepsis.

KNOW THE RISKS. SPOT THE SIGNS. ACT FAST.

Community Awareness

- Awareness – there is a deficit in sepsis awareness
- Only 55% of U.S. adults have heard of sepsis
- As many as 87% of sepsis cases originate in the community
- Spreading the awareness of the signs and symptoms of sepsis is critical

SEPSIS

Sepsis is the body's extreme response to an infection. It is a **medical emergency**, and without timely treatment, it can rapidly cause tissue damage, organ failure and death. Sepsis happens when an infection you already have - in your skin, lungs, urinary tract or somewhere else - triggers a chain reaction throughout your body.

SPOT THE SIGNS

There is no single symptom of sepsis. Symptoms can include a combination of any of the following:

- Confusion or disorientation
- Fever, shivering or feeling cold
- Shortness of breath
- Fast heart rate
- Extreme pain or discomfort
- Clammy or sweaty skin

911 If you spot the signs of sepsis, call 911.

ACT FAST

80% of patients had symptoms of sepsis prior to hospitalization

Risk of death increases **8%** every **hour** that sepsis goes untreated

1 person every 2 minutes dies from sepsis in the U.S.

Only **55%** of U.S. adults have heard of sepsis

Spotting the signs of sepsis early and getting treatment **saves lives!**

If you suspect sepsis or have an infection that is not getting better or is getting worse, **seek medical care IMMEDIATELY!**

Source: www.cdc.gov/sepsis and www.sepsis.org

Quality Improvement Organizations Sharing Knowledge. Improving Health Care. CENTERS FOR MEDICARE & MEDICAID SERVICES

Great Plains Quality Innovation Network

This material was prepared by the Great Plains Quality Innovation Network, the Medicare Quality Improvement Organization for Kansas, Nebraska, North Dakota and South Dakota, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 11SOW-GPQIN-NE-SEP-3/1217

Signs of Infection and Sepsis at Home

I recently had an infection: _____.
Common infections can sometimes lead to sepsis. Sepsis is a deadly response to an infection.

Green Zone	• My heartbeat is as usual. Breathing is normal for me • I have not had a fever in the past 24 hours and I am not taking medicine for a fever • I do not feel chilled • My energy level is as usual • My thinking is clear • I feel well • I have taken my antibiotics as prescribed • I have a wound or IV site, it is not painful, red, draining pus or smelling bad	**Doing Great!** No action is needed.
Yellow Zone	• My heartbeat is faster than usual • My breathing is a bit more difficult and faster than usual • I have a fever between 100ºF to 101.4ºF • I feel chilled and cannot get warm. I am shivering or my teeth are chattering • I am too tired to do most of my usual activities • I feel confused or not thinking clearly • I do not feel well • I have a bad cough or my cough has changed • How often I urinate has changed. When I do urinate, it burns, is cloudy or smells bad • My wound or IV site has changed	**Take action today!** Call your **home health nurse:** _____ *(Phone number)* or call your **doctor:** _____ *(Phone number)*
Red Zone	• My heartbeat is very fast • My breathing is very fast and more difficult • My temperature is below 96.8ºF. My skin or fingernails are pale or blue • My fever is 101.5ºF or more • I have not urinated for 5 or more hours • I am very tired. I cannot do any of my usual activities • My caregivers tell me I am not making sense • I feel sick • My cough is much worse • My wound or IV site is painful, red, smells bad or has pus	**Take action NOW!** Call your **home health nurse:** _____ *(Phone number)* Or call your **doctor:** _____ *(Phone number)* Call your home health nurse before going to the Hospital Emergency Department

Sources: Sepsis Alliance, sepsis.org; Centers for Disease Control and Prevention (CDC), cdc.gov; and atom Alliance, atomalliance.org

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Integrating PFE Strategies into your Harms Reduction Efforts

AHA CENTER FOR HEALTH
INNOVATION

Harm Topic	CHANGE IDEAS				
	POINT OF CARE Implementation Partners: Point of Care Providers, Medical Directors, Nurse Managers		**POLICY & PROTOCOL** Implementation Partners: Quality and Safety Leaders Medical Directors, Nurse Managers, Patient Experience Leaders		**GOVERNANCE** Implementation Partners: Board of Directors, C-Suite
	Metric 1	**Metric 2**	**Metric 3**	**Metric 4**	**Metric 5**
SEPSIS	Prior to discharge home, share information regarding signs and symptoms of infection and Sepsis at Home. Review key points regarding this info and what to be aware of and what to do if any are noticed by the patient and/or family. Be sure to provide phone numbers to call should action be necessary	Post a sepsis fact sheet in the patient room, addressing the importance of protecting yourself and family. Introduce it to the patient and family and inform them of any conditions that put the patient at higher risks for sepsis. Use teach -back to review things they can do to prevent sepsis. During daily rounds, ask the patient/family to report any potential signs/symptoms of sepsis they've noticed, as well as any preventative measures they've engaged in.	Select a member of your quality committee to spearhead a campaign emphasizing the importance of patient and family engagement in preventing sepsis. Ask the team member to highlight human impact by sharing patient and family stories as part of unit newsletters and during staff meetings. There are a collection of patient stories, FACES OF SEPSIS, on the Sepsis Alliance website	Engage your PFAC to review and redesign your signs of infection and sepsis at home materials to ensure it is personalized to your hospital and your target population. Keep what they like about the tool and use their feedback to improve the areas they feel should be changed.	Ask the team member spearheading the PFE campaign for sepsis to make a presentation to the Board - emphasizing not only the financial cost of sepsis, but underscoring the human impact, including lives lost and long term consequences to the patient and family. Invite a sepsis survivor who received care at your hospital to share his/her story, asking for the Board's support in prioritizing patient and family engagement as a key strategy for prevention.

GET AHEAD OF SEPSIS

KNOW THE RISKS. SPOT THE SIGNS. ACT FAST.

Sepsis starts outside the hospital in 80% of cases.
Your fast recognition and treatment can increase your patients' chances of survival.

IF ONE OR MORE OF THE FOLLOWING SIGNS AND SYMPTOMS ARE PRESENT AND INFECTION IS SUSPECTED, THEN CONSIDER SEPSIS:

Confusion or disorientation	**Shortness of breath**	**High heart rate**
Fever, or shivering, or feeling very cold	**Extreme pain or discomfort**	**Clammy or sweaty skin**

Gather the following information and communicate it to hospital healthcare professionals:

- **Medications**
- **Allergies**
- **Pre-existing conditions**
- **Other risk factors**

Learn more at **www.cdc.gov/sepsis**.

EMS

Sepsis education, just like education for trauma, STEMI and stroke can improve EMS provider recognition, assessment, alerts and treatment to improve sepsis patient outcomes.

CHART Mnemonic for Potential Sepsis:

C **Complaints**
Do the patient's complaints indicate infection or unexplained shock?

H **History**
Is the patient pre-disposed to infection or shock?

A **Assessment**
Check sepsis-specific criteria

R **Red Flags**
Put together clues and cues from the patient's complaints, history and assessment for a formal or informal sepsis alert

T **Treatment**
System and provider specific sepsis treatment recommendations

EMS Triage of a Patient with Suspected Sepsis:

- Sepsis is a time-critical diagnosis and EMS can play a key role in reducing time to intervention and impacting patient-centered outcomes.
- Direct Transfer to a Tertiary Care Center.
- Should EMS bypass Rural Care Facilities based on patient's sepsis screening?

Source: https://www.ems1.com/ems-products/capnography/articles/how-to-improve-sepsis-care-with-better-ems-education-MeYu8SRQHmfj1D5w/

Sepsis Alert:

If Sepsis is suspected based on assessment by pre-hospital staff, a sepsis alert can be created to alert hospitals of incoming patient.

Can lead to decreased time to treatment which leads to improved mortality rates.

Benefits of Involving EMS in the Care of Septic Patients:

Sepsis patients are transported by EMS more often than patients with acute myocardial infarctions and strokes.

First responders transport as many as 60 percent of patients with severe sepsis to the emergency department (ED).

Early recognition and initiation of treatment for sepsis are the cornerstones of patient management and improved outcomes. EMS plays a vital role in this process by recognition of suspected sepsis, initiation of treatment and advance notification to the receiving facility, allowing for more timely diagnosis and continued treatment upon arrival to the ED.

Establishing intravenous access in sepsis patients to facilitate ED interventions has shown to decrease mortality.

Initiation of fluid resuscitation by prehospital providers has been shown to decrease patient mortality rates.

Sepsis First Responders video from the Sepsis Alliance
https://www.youtube.com/embed/Upf8C7xSPdk

Source: https://www.sepsis.org

SEPSIS: ADULT

[ABC's]
Treat/Secure as needed

[Assessment]
Vital Signs
Past/Present History
Time of Onset
Physical Exam

[Oxygen]
{As needed}
Nasal Cannula 2-6 LPM
Non-Rebreather 12-15 LPM
Bag Valve Mask 15-25 LPM

[Maintain SPO2 & ETCO2]
{As needed}
90% Medical | ETCO2
95% Trauma | 36-45 mm/hg

SEPSIS: EMR / EMT

[EMR]

- Apply Cardiac Monitor (as directed)
- Obtain 6 second strip

[Transport]
- Prepare patient for transport
- Place in position of comfort
- Detailed physical exam
- Contact incoming EMS unit

** INITIATE SEPSIS ALERT **

[EMT]

- Apply Cardiac Monitor (as directed)
- Obtain 6 second strip

[Transport]
- Place in position of comfort
- Detailed physical exam
- Transport to appropriate facility
- Contact receiving facility

** INITIATE SEPSIS ALERT **

AEMT / PARAMEDIC

[AEMT]

- Apply Cardiac Monitor (as needed and document)

- Consider IV fluids
- Follow your Sepsis protocol

[Transport]
- Place in position of comfort
- Detailed physical exam
- Transport to appropriate facility
- Contact receiving facility

** INITIATE SEPSIS ALERT **

[PARAMEDIC]

- Apply Cardiac Monitor (as needed and document)

- Consider IV fluids
- Consider Pressors
- Follow your Sepsis protocol

[Transport]
- Place in position of comfort
- Detailed physical exam
- Transport to appropriate facility
- Contact receiving facility

** INITIATE SEPSIS ALERT **

SEPSIS ALERT CRITERIA: Emergency Medical Services

Activate a Sepsis Alert if the patient is positive for SIRS, hypotensive and at least "Yes" to one of the infection criteria.

1. **SIRS (Systemic Inflammatory Response Syndrome):** SIRS positive if meets ≥ 2 criteria listed below.
   - Temperature > 100.4F or < 96.8F
   - Pulse > 90 beats/minute
   - Respiratory rate > 20 breaths/minute

2. **Hypoperfusion:** ≥ 1 of the following:
   - Systolic BP < 90
   - MAP < 65
   - Altered mental status

3. **Infection:** ≥ 1 of the following:
   - **Infections (documented or suspected):** Pneumonia, UTI, Wound Infection, Cellulitis, Decubitus Ulcers
   - **High Risk Criteria:** Nursing home, recent surgery, immuno-compromised, indwelling device, currently on antibiotics
   - **Symptoms/Exam:** cough; shortness of breath; purulent wound drainage; urinary pain/frequency; abdominal pain, distention, or firmness; stiff neck

** INITIATE SEPSIS ALERT **

State "we suspect Sepsis" and provide:
- **Age of patient**
- **Chief complaint**
- **Glasgow Coma Score (GCS)**
- **SIRS and infection criteria**
- **Time of onset**
- **Estimated time of arrival (ETA)**

Provide ED with accurate amount of fluid administered to patient. Include time each bag was started.

SEPSIS: SPOT THE SIGNS

- Confusion or disorientation
- Fever, shivering or feeling cold
- Shortness of breath
- Fast heart rate
- Extreme pain or discomfort
- Clammy or sweaty skin

[Criteria/Definitions]

SIRS (Systemic Inflammatory Response Syndrome): two or more of the following:
- Temperature >100.4 F or <96.8 F
- Heart rate >90 beats per minute
- Respiratory rate >20 breaths per minute
- White blood cell count: >12000/mm^3 or <4000/mm^3 or 10% immature bands

Sepsis: ≥ two or more SIRS criteria plus a suspected or confirmed infection

Severe sepsis: sepsis plus organ dysfunction and/or organ failure

Septic shock: a subset of sepsis in which particularly profound circulatory, cellular and metabolic abnormalities are associated with a greater risk of mortality than with sepsis alone.

PEDIATRIC SEPTIC SHOCK

** INITIATE A SEPSIS ALERT IF: **

Known or suspected infection and the patient meets ≥ 3 or more of the 8 clinical criteria (vital signs and exam abnormalities)

OR

Known or suspected infection and the patient meets the high-risk criteria and meets ≥ 2 of the 8 clinical criteria (vital signs and exam abnormalities)

VITAL SIGNS

	<1 month	≥1 to 3 months	≥3 to 12 months	≥1 to 2 years	≥2 to 4 years	≥4 to 6 years	≥6 to 10 years	≥10–13 years	>13 years
Heart Rate	>205	>205	>190	>190	>140	>140	>140	>100	>100
Respiratory Rate	>60	>60	>60	>40	>40	>34	>30	>30	>16
Systolic BP	<60	<70	<70	<70+ (age in years x 2)	<70+ (age in years x 2)	<70+ (age in years x 2)	<70+ (age in years x 2)	<90	<90
Temperature	< 96.8F or > 100.4F				< 96.8F or > 101.3F				

EXAM ABNORMALITIES

	COLD SHOCK	WARM SHOCK	NON-SPECIFIC
Pulses (central vs. peripheral)	Decreased or weak	Bounding	
Capillary refill (central vs. peripheral)	≥ 3 seconds	Flash (< 1 second)	
Skin	Mottled, cool	Flushed, ruddy, erythroderma (other than face)	Petechiae below the nipple, any purpura
Mental Status			Decreased mental status, irritability, confusion, inappropriate crying or drowsiness, poor interaction with parents, lethargy, diminished arousability, obtunded

HIGH RISK CONDITIONS

High Risk Conditions	Malignancy, asplenia (including sickle cell disease), bone marrow transplant, central or indwelling line/catheter, solid organ transplant, severe developmental disability, cerebral palsy, immunodeficiency, immunocompromised or immunosuppression

Sources:
1. Davis et al. (2017). American College of Critical Care Medicine Clinical Practice Parameters for Hemodynamic Support of Pediatric and Neonatal Septic Shock. Critical Care Medicine, 45, 1061-1093. doi: 10.1097/CCM.0000000000002425
2. Singer et al. (2016). The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). JAMA, 315(8), 801-810. doi: 10.1001/jama.2016.0287

Quality Improvement Organizations — Sharing Knowledge. Improving Health Care. CENTERS FOR MEDICARE & MEDICAID SERVICES

Great Plains — Quality Innovation Network

Long Term Care

Residents in a long-term care facility have opportunities to interact with many people, from other residents and visitors to the facility employees. However, the more people who come and go, the more chances there are spread of infections.

Common types of bugs that cause infections in long-term care facilities can include:

- MRSA
- C. Difficile
- Vancomycin-resistant Enterococcus.

Infections; that may occur within a facility can include

- Gastroenteritis
- Influenza
- Colds

When people reside in long-term care facilities, they may need to be transported and/or admitted to a hospital if they become too ill for the long-term care facility to handle. The five most common infections that require a transfer and admission to the hospital are:

- Pneumonia
- Urinary tract infections
- Wound infections
- Meningitis
- Endocarditis

Older individuals are at an increased risk of developing sepsis. In the case of nursing homes, sepsis may come about as a result of an infected bed sore, and then may be worsened by a resident's other health issues. If not dealt with properly and promptly by nursing home personnel, sepsis may worsen and compromise the life of a resident.

To improve the clinical outcomes for their patients and based on research shows admissions from nursing homes are more likely to be for septicemia, hospitals are beginning to partner with skilled nursing (SN) and long-term care (LTC) to improve the early recognition and intervention for signs and symptoms of sepsis.

Over four million Americans are admitted to or reside in nursing homes and skilled nursing facilities each year and nearly one million persons reside in assisted living facilities. Data about infections in LTCFs are limited, but it has been estimated in the medical literature that:

- 1 to 3 million serious infections occur every year in these facilities.
- Infections include urinary tract infection, diarrheal diseases, antibiotic-resistant staph infections and many others.
- Infections are a major cause of hospitalization and death; as many as 380,000 people die of the infections in LTCFs every year.

Source: http://www.cdc.gov/longtermcare/

Screening for Sepsis

Infection suspected:
- Fever/chills
- Currently on antibiotics
- Cough/shortness of breath
- Cellulitis/wound drainage
- Weakness
- Pain/burning on urination
- Recent change in mental status

No → Proceed with **STOP and WATCH**

Yes ↓

Check for SIRS

Systemic Inflammatory Response Syndrome:
- Temperature greater than or equal to 100.4 or less than or equal to 96.8 F
- HR greater than 90 beats/minute
- Respiratory rate greater than 20 breaths/minute
- Systolic blood pressure <90 mmHG

No →

Yes ↓

If two above are checked, patient screened positive for sepsis:
- Nurse to notify physician, and then nurse to assess for **organ dysfunction**

Organ dysfunction:
- *Respiratory*: SAO2 less than 90 percent or increasing O2 requirements
- *Cardiovascular*: SBP less than 90mmHg OR 40mmHg less than baseline
- *Renal*: Urine output less than .5ml/kg over last eight hours
- *CNS*: Mental status changes
- *Labs*: (Do not use lab results older than 24 hours)
- Platelets less than 100,000
- INR greater than 1.5
- Bilirubin greater than or equal to 4mg/dl
- Serum lactic acid greater than or equal to 2mEq/l

**If one or more, implement sepsis protocol and call physician

STOP and WATCH:

S – Seems different than usual
T – Talks or communicates less
O – Overall needs more help
P – Pain, new or worsening; participated less in activities

a – Ate less
n – No bowel movement in three days or diarrhea
d – Drank less

W – Weight change
A – Agitated or nervous more than usual
T – Tired, weak, confused or drowsy
C – Change in skin color or condition
H – Help with walking; toileting more

*If less than two checked = negative screen for sepsis. No need to proceed; complete **STOP and WATCH** and continue to monitor resident

Notify physician with SBAR; state suspected sepsis:

Situation — Inform physician if resident is currently being treated for a known infection; share which organ system has dysfunction
Background — Share VS and SaO2 (pulse ox)
Assessment — Blood cultures; CBC; lactic acid (if not previously drawn); IV antibiotic
Recommendation: Request order for the following — Decreased BP, fluid bolus 30ml/kg over one hour or faster if systolic blood pressure is less than 90mmHg until hypotension resolved

**If resident does not respond to fluids within one hour, send to ER

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Comagine Health

nevada sepsis coalition

ACT FAST!

Early detection of SEPSIS requires fast action

If resident has suspected infection AND two or more:

- Temperature >100°F or <96.8°F
- Pulse >100
- SBP <100 mmHg or >40 mmHg from baseline
- Respiratory rate >20/SpO2 <90%
- Altered mental status

Plan for:

- Review advance directive
- Contact the physician
- Contact the family

If transferring resident to hospital:

- Prepare transfer sheet
- Call ambulance
- Call in report to hospital
- Report positive sepsis screen

If resident stays in facility, consider options below that are in agreement with resident's advance directives:

- Labs: CBC w/diff, lactate level (if able)
- UA/UC, blood cultures, as able from 2 sites, not from lines
- Establish IV access for IV 0.9% @ 30ml/kg
- Administer IV, PO or IM antibiotics
- Monitor for worsening in spite of treatment, such as:
  - Urine output <400ml in 24 hours
  - SBP <90 despite IV fluids
  - Altered mental status
- Comfort care:
  - Pain control
  - Analgesic for fever
  - Reposition every 2-3 hrs
  - Oral care every 2 hrs
  - Offer fluids every 2 hrs
  - Keep family informed
  - Adjust care plan as needed
- Consider transferring to another level of care such as palliative care, hospice or hospital

Every hour a resident in septic shock doesn't receive antibiotics, the risk of death increases 7.6%

Call the doctor!

Is their **temperature** *above* 100?

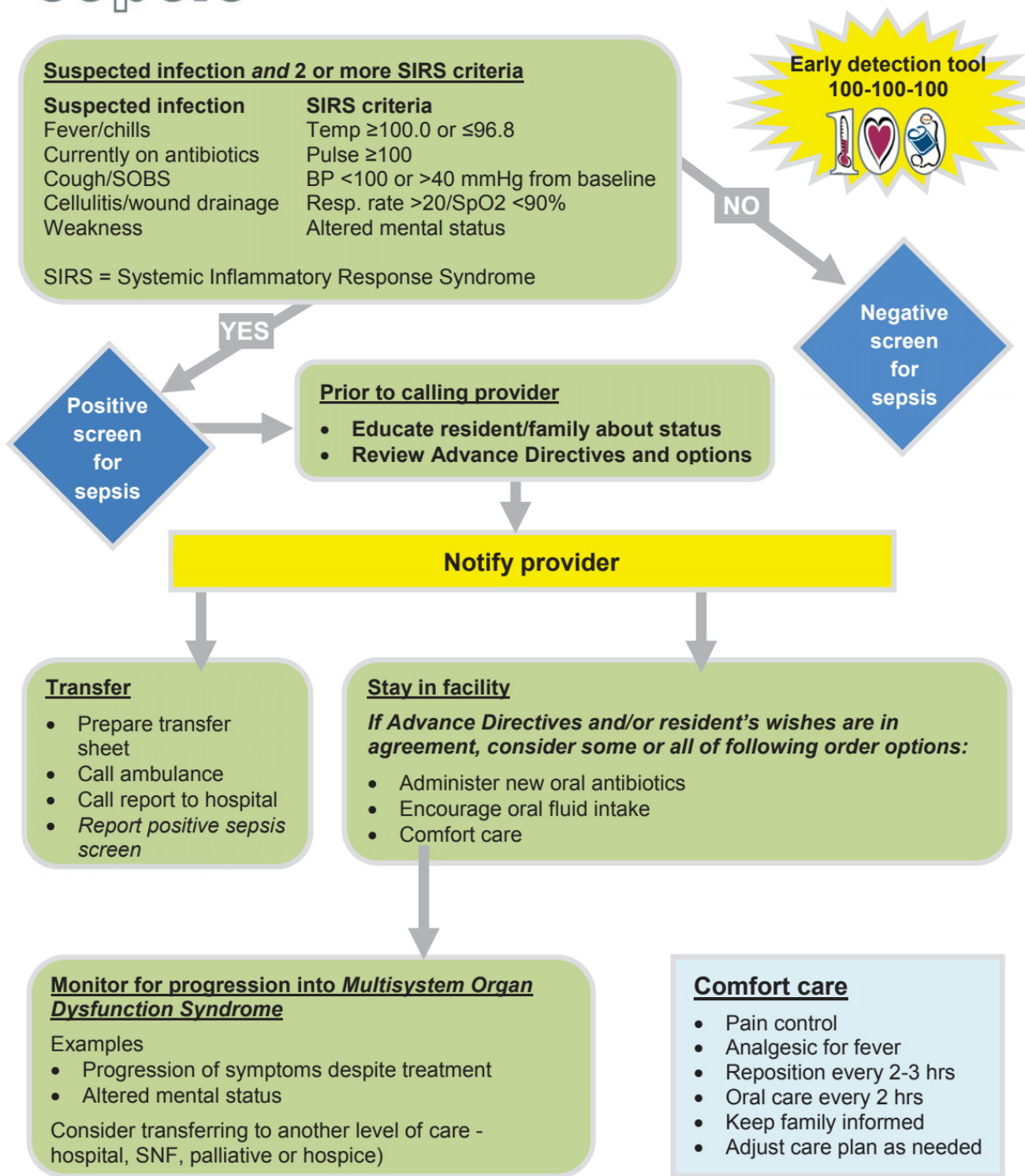Is their **heart rate** *above* 100?

Is their **blood pressure** *below* 100?

And does the resident just not look right? Tell the nurse, screen for sepsis and notify the physician immediately.

Courtesy of Minnesota Hospital Association

seeing sepsis

Intermediate care and assisted living algorithm for adults

Early detection tool
100-100-100

Suspected infection *and* 2 or more SIRS criteria

Suspected infection	**SIRS criteria**
Fever/chills	Temp ≥100.0 or ≤96.8
Currently on antibiotics	Pulse ≥100
Cough/SOBS	BP <100 or >40 mmHg from baseline
Cellulitis/wound drainage	Resp. rate >20/SpO2 <90%
Weakness	Altered mental status

SIRS = Systemic Inflammatory Response Syndrome

NO → **Negative screen for sepsis**

YES → **Positive screen for sepsis**

Prior to calling provider
- **Educate resident/family about status**
- **Review Advance Directives and options**

Notify provider

Transfer
- Prepare transfer sheet
- Call ambulance
- Call report to hospital
- *Report positive sepsis screen*

Stay in facility
If Advance Directives and/or resident's wishes are in agreement, consider some or all of following order options:
- Administer new oral antibiotics
- Encourage oral fluid intake
- Comfort care

Monitor for progression into *Multisystem Organ Dysfunction Syndrome*

Examples
- Progression of symptoms despite treatment
- Altered mental status

Consider transferring to another level of care - hospital, SNF, palliative or hospice)

Comfort care
- Pain control
- Analgesic for fever
- Reposition every 2-3 hrs
- Oral care every 2 hrs
- Keep family informed
- Adjust care plan as needed

Courtesy of Minnesota Hospital Association

Severe sepsis and septic shock
Care of the resident

OUTCOME	DEFINITION DISTINCTIONS

Symptom Identification	• Initiate the 100, 100, 100 rule staff screen.
	• Symptoms: Just don't look right. Resident weak, more confused, and have other symptoms of infection
	    ○ Urinary Tract = frequency, urgency, burning on urination, or pain
	    ○ Respiratory = cough, shortness of breath, increase in sputum
	    ○ Skin = draining wound, redness, swelling, and warm to touch
	    ○ Neurologic = confusion, headache, stiff neck and sensitivity to light
	• Notify the Registered Nurse
	• Identify Advance Directive Wishes
	• Notify the Physician
	• Call Family

Advance Directives	• Verify Resident Wishes
	    ○ No treatment
	    ○ Treat and do not transfer
	    ○ Comfort Care

Initial LTC bundle Based off Level of Care and Ability	• Obtain Cultures and Blood for Lactate Level • Start IV and give fluids • Start Antibiotics

Transfer Trigger	• Identify resident /family wishes to treat in acute care hospital
	• Transfer Triggers
	    ○ Lactate greater than 4
	    ○ Persistent hypotension despite fluid resuscitation
	    ○ Evidence of organ dysfunction
	    ○ Progression of symptoms

PROCESS
Surviving Sepsis Campaign's 3- and 6-hour Bundles:

WITHIN 3 HOURS:	Advance Directive Bundle:

• Measure lactate level.
• Obtain blood cultures prior to administration of antibiotics.
• Administer broad spectrum antibiotics.
• Administer 30 ml/kg crystalloid (0.9% Sodium Chloride) for hypotension or lactate ≥4mmol/L.
• Identify resident wishes to be transferred for care.
	• Treatment status
	• Code Status
	• Comfort Care Status
	    ○ Analgesic for fever
	    ○ Pain Control

ADDITIONAL PROCESSES
• Percent antibiotics administered w/in 1 hour of triage (= first set of vital signs) or w/in 1 hour of Code Sepsis activation. • Serum lactate w/in either 3 hours of triage or w/in 3 hours of Code Sepsis activation. • Adherence to Sepsis Transfer Protocol within appropriate time frame. • Adherence to Sepsis Trigger Tool. • Advance Directive.

Courtesy of Minnesota Hospital Association

Tools for Community Education

Great downloadable, free resource for community education via Sepsis Alliance at www.sepsis.org.

- Sepsis Alliance
- www.sepsis.org
- Event checklist
- Posters to advertise
- PowerPoint presentation
- Presentation script
- Attendee quiz, survey

Source: https://sepsis.org/?s=Sepsis+911+community+education+presentation

Resources:

American College of Emergency Physicians DART

https://www.acep.org/DART/

CDC Healthcare Professional Information

https://www.cdc.gov/sepsis/education/hcp-resources.html

https://lhatrustfunds.com/toolkit/sepsis-toolkit/

CDC Sepsis Information

https://www.cdc.gov/sepsis/

CDC Hospital Toolkit

https://www.cdc.gov/sepsis/pdfs/Sepsis-Surveillance-Toolkit-Aug-2018_508.pdf

CMS Measures Inventory Tool - Severe Sepsis and Septic Shock: Management Bundle

https://cmit.cms.gov/CMIT_public/ViewMeasure?MeasureId=1017#tab1

EMS Resource: two sepsis videos provided by CDC

https://www.cdc.gov/sepsis/education/hcp-resources.html

EMS Sepsis Alert

https://www.jems.com/2016/08/31/sepsis-early-recognition-and-treatment-in-prehopsital-setting-vital-for-patient-outcomes/

Health Research & Educational Trust – Hospital Improvement Innovation Network

http://www.hret-hiin.org/

https://www.youtube.com/watch?v=0KtR93zhkhU#action=share

Hospital Toolkit for Adult Sepsis Surveillance

https://www.cdc.gov/sepsis/pdfs/Sepsis-Surveillance-Toolkit-Mar-2018_508.pdf link only

HRET HIIN – Early Identification of Sepsis: A Community Commitment Resource

http://www.hret-hiin.org/resources/display/early-identification-of-sepsis-a-community-commitment

HRET HIIN Postop Sepsis Discovery Tool

http://www.hret-hiin.org/resources/display/postop-sepsis-process-improvement-discovery-tool

HRET HIIN Sepsis Mortality Reduction Change Packet

http://www.hret-hiin.org/Resources/sepsis/18/sepsis-and-septic-shock-change-package.pdf

HRET-HIIN Sepsis Podcasts

http://www.hret-hiin.org/resources/display/sepsis-podcasts

HRET HIIN sepsis resources and tools

http://www.hret-hiin.org/topics/sepsis.shtml

Long-Term Care Sepsis Toolkit

https://healthinsight.org/component/jdownloads/send/367-sepsis/1795-sepsis-toolkit-guide-for-skilled-nursing-and-long-term-care

Nurse-Driven Protocol for Sepsis

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5225612/

https://www.uclahealth.org/sepsis/materials-resources-for-clinicians

Sepsis:

https://www.who.int/news-room/fact-sheets/detail/sepsis

Sepsis Alliance

https://www.sepsis.org/

Sepsis Alliance Patient and Family Resources

https://www.sepsis.org/education/patients-family/ link

Sepsis Alliance – Post Sepsis Syndrome

https://www.sepsis.org/sepsis-basics/post-sepsis-syndrome/

Sepsis Alliance Resources

https://www.sepsis.org/education/resources/

Sepsis Alliance Webinar Series

https://www.sepsis.org/education/providers/webinar-series/

Sepsis Coordinator Network

https://www.sepsiscoordinatornetwork.org/

Sepsis Practice Collaborative Model

https://www.sepsiscoordinatornetwork.org/wp-content/uploads/2018/09/Sepsis-Gap-Analysis-Results-and-Next-Steps-at-Your-Facility-Aug-2018AllSlides.pdf

Sepsis Rapid Response Teams

https://www.ncbi.nlm.nih.gov/pubmed/29482904

Surviving Sepsis Campaign Resource Library

https://www.sccm.org/SurvivingSepsisCampaign/Resources/Resource-Library

Sepsis Toolkit for Skilled Nursing and LTC

https://healthinsight.org/component/jdownloads/send/367-sepsis/1795-sepsis-toolkit-guide-for-skilled-nursing-and-long-term-care

World Health Organization. (2019, January 11). World Health Organization. Retrieved from Factsheets Detail

Carmen Polito, MD, Polito, C.C. MD. 2016 Southeastern Critical Care Summit. (2016). Prehospital identification and management of sepsis. Available at https://www.youtube.com/watch?v=pk1CNflC-WU28   link to video

The following video boldly illustrates the potential severity and lasting effects of Sepsis:

https://www.youtube.com/watch?v=0KtR93zhkhU#action=share   16 min video of experience of Jay and Sue Stull and narrated by Dr Steven Simpson MD, Professor of Pulmonology & Critical Care Medicine, University of Kansas

COVID-19 Resources

Sepsis Alliance

https://www.sepsis.org/education/resources/coronavirus-covid-19/

Society of Critical Care Medicine

https://www.sccm.org/getattachment/SurvivingSepsisCampaign/Guidelines/COVID-19/SSC-COVID-19-Guidelines.pdf?lang=en-US

Surviving Sepsis Campaign

https://sccm.org/SurvivingSepsisCampaign/Guidelines/COVID-19

Notes

Notes