

Sepsis Prevention & Early Recognition

Train the Trainer Manual for the Nursing Home Setting

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Created by
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About Train the Trainer

This manual serves as a guide to support in-house training of healthcare professionals in the State of Maryland on prevention and early recognition of sepsis. This manual will provide you and your trainees the knowledge and techniques necessary to conduct sepsis prevention and management within the nursing home setting. Use this manual to plan and prepare for successful training events, and as a reference tool once training has been completed.

Each topic within this manual includes Power Point slides which can be printed and distributed among participants should you as the trainer wish to do so. Additionally, a script is included with each slide to better support the trainer during delivery of the training.

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A. Sepsis Epidemiology

Introduction

Sepsis is the body's extreme response to an infection which induces a systematic inflammatory response. This is an inflammatory response that moves from a local response to one that involves multiple parts of the body and multiple organ systems. Sepsis is clinically defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection (Rudd et al., 2018). It places a significant burden on our healthcare system. Each year the United States has annual costs of over \$24 billion dollars related to sepsis (Sepsis Alliance, 2019).

Globally, 1 in 5 deaths are a result of sepsis, and in the U.S., sepsis is the most common cause of death in the hospital (World Health Organization, 2020). Anyone can get sepsis, but it occurs more commonly in the elderly and in people with chronic health conditions. Due to our aging population and the longer lives people with chronic diseases are living, sepsis will continue to be a growing problem.



In Maryland, sepsis is one of the leading causes of mortality and hospital readmissions. Sepsis claims about 1,100 lives in Maryland each year. Sepsis is the 9th leading cause of death in the state of Maryland.

To enable a better understanding of sepsis and particularly its effects on elderly nursing home residents, it is necessary to briefly explore the epidemiology of sepsis. This topic starts with gaining an insight into national and local statistics and concludes by highlighting various resources to gain more knowledge on this topic.

Key Points

Sepsis is a major public health burden and responsible for up to 50 percent of hospitalizations that result in death.

Nearly 50 percent of hospitalizations that result in death are sepsis related hospitalizations. Furthermore, patients with preexisting chronic health conditions, and people who are older are particularly prone to developing severe sepsis. A recent study found that the average length of stay in the hospital for those diagnosed with sepsis was

five days (Armstrong-Briley et al., 2015) with an average daily spend of \$55,616,438 on sepsis care (Centers for Disease Control and Prevention, 2015).

- Every year, at least 1.7 million adults in the USA develop sepsis.
- Nearly 270,000 Americans die as a result of sepsis.
- 1 in 3 patients who dies in hospital has sepsis.
- Louisiana has the highest rate of sepsis deaths followed by New Jersey and Alabama.
- Sepsis is present in 30% to 50% of hospitalizations that end in death.
- 1/3 of sepsis survivors are re-hospitalized within 3 months of initial sepsis.

Sepsis is one of the leading causes of hospital readmissions

17.5 percent of patients diagnosed with sepsis upon admission were readmitted within 30 days of their initial admission (Gadre, Shah, Mireles-Cabodevila, Patel, & Duggal, 2019). Data from 2013 to 2014 on Medicare's Hospital Readmission Reduction Program (HRRP) gave an estimated annual cost of more than \$3.5 billion for sepsis readmissions. This is more than half the cost of all HRRP's conditions combined which totaled \$7 billion. The other conditions are congestive heart failure, acute myocardial infarction, chronic obstructive pulmonary disease, and pneumonia.



inability to bathe, feed and dress independently, cognitive impairments, anxiety, depression, and other mental health problems. Thus, the cycle of costly hospital encounters and readmissions persists.

Between 2013-2017 a total of 123, 880 sepsis readmissions occurred among Maryland residents. Today, there are approximately 6 million residents of Maryland thus this would amount to a sepsis prevalence in Maryland of 21 per 1,000 population.

60 percent of patients are re-hospitalized following an initial sepsis occurrence

Upon discharge from hospital, many sepsis survivors experience severe and persistent impairments to their health that often result with them ending up back in the hospital. These impairments include functional limitations such as an



Risk factors include older age, presence of an indwelling catheter, and prolonged hospitalization

Some people are more susceptible to sepsis than others. These include those with preexisting chronic conditions such as diabetes, kidney disease, and obesity. Older adults are also at an increased risk. Other risk factors include residence in long term care facilities, use of prosthetic devices, presence of an indwelling catheter or use of immunosuppressive medication. (Mayr, Yende, & Angus, 2014).

Resources

CDC Nursing Home Infection Prevention Training Course

<https://www.cdc.gov/longtermcare/training.html>

CDC Core Elements of Antibiotic Stewardship in Nursing Homes

<https://www.cdc.gov/longtermcare/pdfs/core-elements-antibiotic-stewardship.pdf>

CDC Infographic on Preventing Sepsis

<https://www.sepsis.org/files/sepsis-fact-sheet.pdf>

CDC Infographic on PPE Sequence

<https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf>

WHO Sepsis Prevention video

<https://www.youtube.com/watch?v=GKRQm0i5JdI>

B. Sepsis and its Effects on the Body

Introduction

Sepsis is a complex disease that comprises of several components. Successful early prevention and treatment of sepsis can be better facilitated if there is a better understanding of the disease process and its effects on the body. Sepsis starts with an infection which leads to inflammation, organ dysfunction, organ failure, septic shock and ultimately death. As such, understanding the mechanisms of this complex syndrome is key to enabling early recognition and saving more lives. This module focuses on how sepsis affects the body and seeks to create an insight into the immune responses to an infection.

Key Points

Sepsis starts with an infection that triggers the immune system's infection fighting cells

Sepsis can occur after the body has been invaded by a pathogen, such as a virus, fungi, or bacteria for example. These pathogens trigger a response that can manifest with clinical signs such as a fever, rapid heart rate, or even low blood pressure. Clinical signs of an infection are dependent upon the type of infectious organism (bacteria, virus, etc.), as well as the site and size of the infectious pathogen (Daniels & Nutbeam, 2010). Normally, in response to such an invasion the body launches an immune response to fight off the pathogens. When that immune response spreads from a local site of infection throughout the body, normal cells that are essential are damaged or killed.

Illustration 1: Immune Response in Blood Vessels

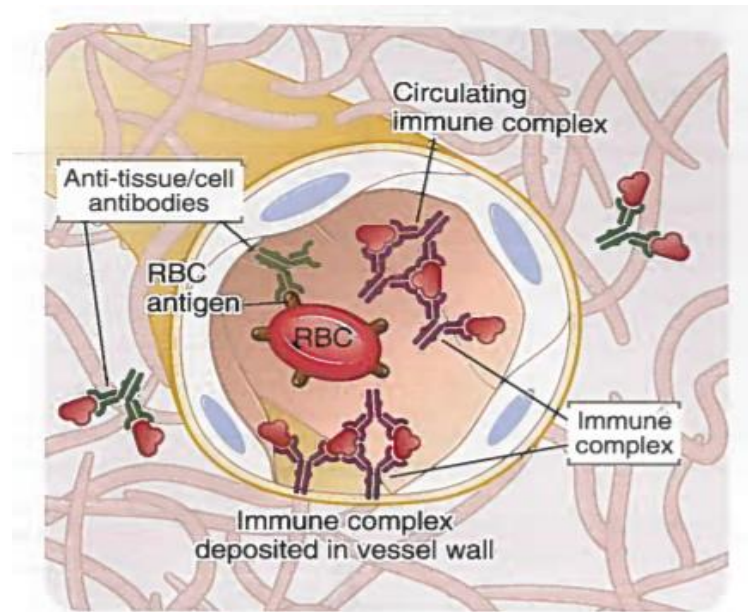
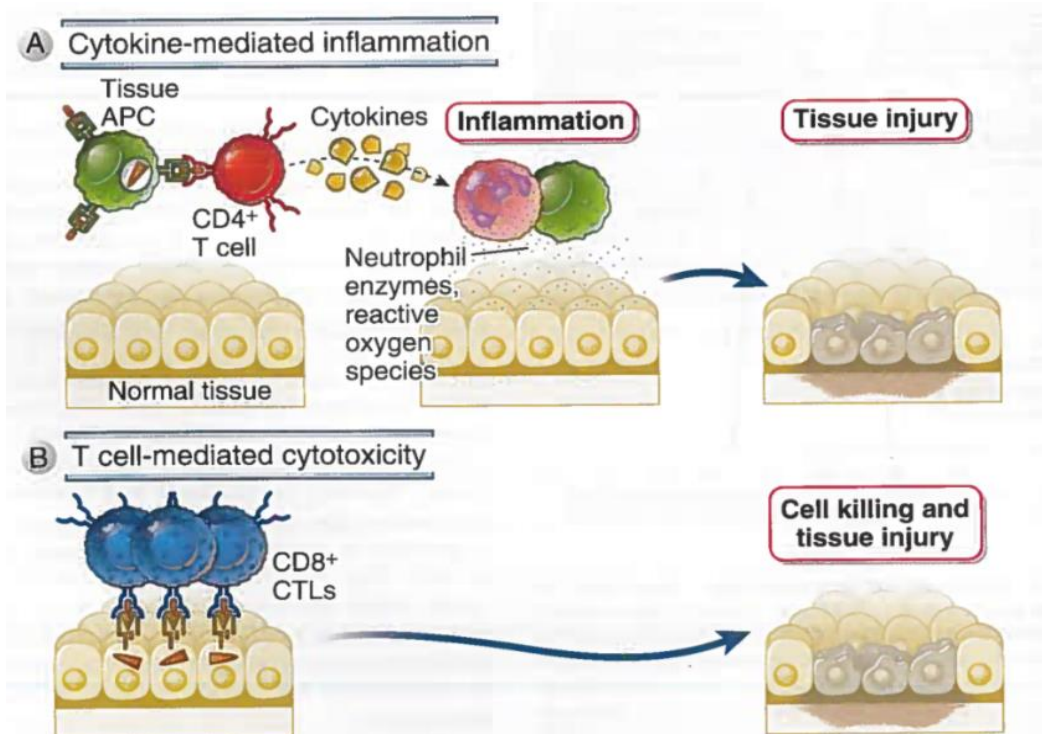


Illustration 2: Tissue damage from Sepsis



As the body fights off the infection, local damage may occur

When the body is fighting off an infection, white blood cells are usually the first mechanism of defense initiated by the immune response. White blood cells release chemicals into the blood stream that signal to the body that it has been infected. These chemicals travel to the site of infection and trigger blood vessels to dilate (vasodilation), which triggers blood leaks into the area surrounding the site of infection from small blood vessels. These leaks cause tissue damage from infection fighting cells which kill both infected and normal cells and due to lack of perfusion to cells.

Blood clots form as the body tries to wall off the infection, however if these small clots form in organs it can lead to organ failure and septic shock

Capillary leakage—which is the loss of blood and fluids from small blood vessels—is caused by vasodilation in response to an infection. This leakage causes a drop in blood pressure (hypotension) which in turn causes swelling. Blood clotting is the body's attempt at preventing further loss of blood and fluids; however, in doing so it decreases blood supply to other organs outside of the site of infection. When blood clots form in organs, they are deprived of the oxygen that they need to properly function. The slowing of blood flow to the organs is a hallmark sign of sepsis. This can lead to organ failure.

As the blood flow slows, cells in critical organs that are deprived of oxygen don't have the energy needed to function properly. This can be detected by an increase in lactate levels and is an indication that cells in critical organs are not getting the oxygen they need.

Septic shock is a subset of sepsis and associated with a higher risk of mortality

When sepsis is not responding to treatment (fluid bolus and/or antibiotics) septic shock can occur. Septic shock is clinically defined by persisting hypotension requiring



vasopressors to maintain a mean arterial pressure of 65 mm Hg or higher and a serum lactate level greater than 2 mmol/L (18 mg/Dl) despite adequate volume resuscitation (Singer et al., 2016).

Several studies indicate a mortality rate for septic shock in the range of 24 percent to 80 percent (Kalil & Bailey, 2020), (Paoli, Reynolds, Sinha, Gitlin, & Crouser, 2018), in comparison to sepsis and severe sepsis mortality rates of 10 percent to 40 percent (Paoli, Reynolds, Sinha, Gitlin, & Crouser, 2018).

Remember that sepsis starts with an infection and that infection can be viral in origin. COVID19 is an infectious respiratory disease caused by the virus SARS-CoV-2. If a patient has a severe infection with COVID-19, it may lead to sepsis. That can occur when many organ systems are adversely affected. Many patients infected with COVID-19 who are admitted to the intensive care unit exhibit a dysregulated immune response, characterized by hyperinflammation and alterations to coagulation, such as occurs with sepsis (Beltrán-García et al., 2020).

Resources

What is Sepsis?

<https://www.cdc.gov/sepsis/what-is-sepsis.html>

Sepsis and Covid-19

<https://www.global-sepsis-alliance.org/covid19>

Sepsis Alliance video on COVID-19 and Sepsis

<https://www.youtube.com/watch?v=UGjJG5OtDew>

C. Integrating Sepsis Prevention Into Infection Prevention and Control

Introduction

One in ten patients gets an infection while receiving care. Furthermore, each year residents of long-term care facilities develop one to three infections per year on average. The most frequent sites for those infections are the lungs (pneumonia) and the bladder and kidneys (urinary tract infections).

Most common sites of infection that lead to sepsis:

- Pneumonia
- Urinary Tract Infections
- Gastrointestinal Infections
- Skin and Soft Tissue Infections

Sepsis starts with an infection, and any infection can lead to sepsis, however, if getting an infection is prevented then sepsis is also prevented. This topic examines the importance of infection prevention in the nursing home and highlights key measures that facilities should take to establish and maintain an infection prevention culture.

Key Points

Many types of microbes can cause sepsis, however bacteria are the most common cause

Sepsis can be caused by viral, bacterial, fungal, or parasitic infections. Bacterial infections, however, are the most common cause of sepsis. One of the most frequently isolated bacteria in sepsis is *Staphylococcus aureus* (*S. aureus*). *Staphylococcus aureus* is a spherically shaped bacterium that is often the cause of skin infections and pneumonia. These bacteria can also spread through the blood stream.

S. aureus is usually present in the nose of about 30 percent of healthy adults and on the skin of about 20 percent of those. Percentages are higher for people who work in healthcare or are patients in a hospital. These organisms are often implicated in healthcare acquired infections.

The most common organisms causing sepsis:

- Staphylococcus
- E. Coli
- Streptococcus

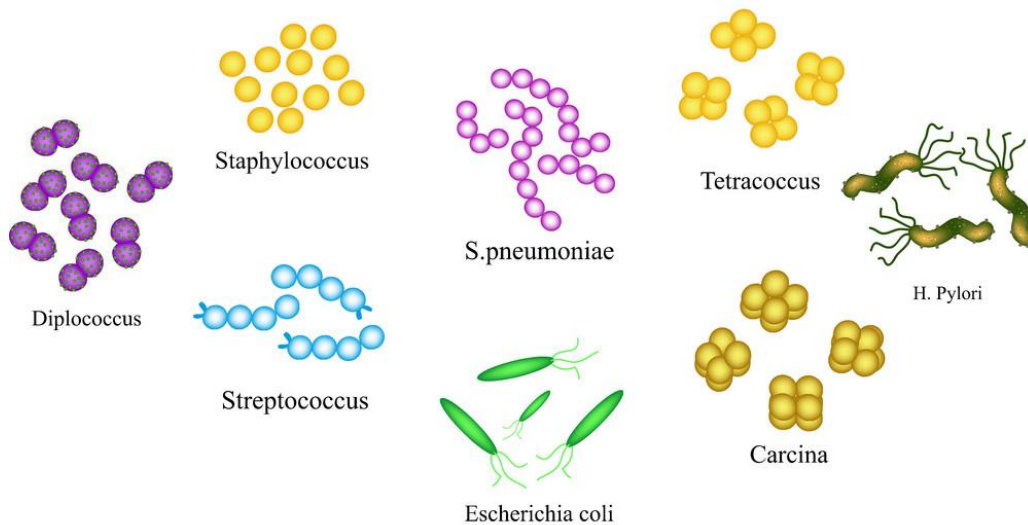
Common types of infection associated with sepsis are as follows:

MRSA

Methicillin-resistant Staphylococcus aureus or MRSA is an infection of *S. aureus* that has become immune to many types of antibiotics. Antibiotics are widely used in healthcare, thus healthcare workers, particularly hospital staff, can carry resistant strains. MRSA can be potentially deadly because this type of bacteria can send out a toxin, known as Alpha Toxin (AT) which causes an extreme immune response that can lead to sepsis and kills 30 to 50 percent of people who develop it. This is because during sepsis caused by a MRSA infection, as the amount of toxin in the bloodstream increases, it causes platelets to aggregate to form clumps which can deposit in the liver and kidneys, causing serious damage and organ failure (Surewaard et al., 2018).

Illustration 3: Bacteria

BACTERIA



Difficile

Clostridioides difficile, formerly known as *Clostridium difficile* and often called *C. difficile*, is a type of bacteria that causes severe diarrhea and inflammation of the colon known as colitis (Centers for Disease Control and Prevention, 2020). Illness from *C. difficile* most commonly affects older adults in hospitals or in long-term care facilities and typically occurs after use of antibiotic medications. Sepsis develops as the body tries to fight the infection.

Vancomycin resistant Enterococci

Enterococci are a group of bacteria that normally resides in the intestinal tract and usually does not cause infection. Illnesses caused from these bacteria include bloodstream infections, wound infections, skin infections and abdominal abscesses. Vancomycin resistant enterococci are enterococci that have become resistant to the antibiotic vancomycin. Infection is more likely in people with chronic diseases, or patients who have recently received antibiotics. It is also more common in patients with indwelling devices like intravenous lines or urinary catheters and those with compromised immune systems.



Collecting Data on Sepsis in Your Facility

The Centers for Disease Control and Prevention (CDC) recommends both electronic and manual data collection for effective sepsis surveillance. Electronic data collection involves the use of the electronic medical record. It is recommended that all departments use a uniform system to enable ease of record sharing.

Manual data collection is usually performed by the CNA, LPN, or RN in the nursing home who is able to observe changes in the resident with suspected sepsis. This information is usually reported in a logbook that is accessible to staff assigned to the patient. Data to determine the presence of sepsis include, vital signs data, blood culture collection date, serum, lactate, bilirubin, platelet, and serum creatinine data.

Data that can aid in epidemiologic analysis and prediction of higher risk patients includes, patient demographics, details of comorbidities, record of surgeries, procedures, and indwelling devices such as central venous catheters, and patient outcomes.

Identifying Sepsis as a Quality Control Focus

Identification and management of sepsis within the nursing home is challenging. Part of the challenge is that organ dysfunction can be caused by other elements (such as from an autoimmune disease or as the result of a chronic illness like cancer or dementia) and not sepsis alone. Furthermore, many guidelines were developed for use in the ICU/ hospital setting and not in long term care settings.

Several studies have indicated a disproportionate number of nursing home residents in hospital emergency departments presenting with sepsis, often transferred in critical condition due to insufficient management of their condition prior to transfer, as well a lack of information in their medical record on their condition.

To help alleviate this concern, a number of hospitals and healthcare organizations developed screening tools, quality improvement tools, and communication tools targeted at early recognition of sepsis in the nursing home setting. These tools not only aim to enable prompt recognition of sepsis in the nursing home, but they also aim to improve quality control of sepsis, by aiming to improve on early detection of sepsis, and thus the response time of administering treatment prior to hospital transfer. These tools will be explored further in the training that accompanies this manual.

Resources

Sepsis Alliance Training on Antimicrobial Stewardship and Sepsis

<https://www.sepsisinstitute.org/content/antimicrobial-stewardship-and-management-sepsis-two-sides-same-coin-0>

CDC resource on Core Elements of Antibiotic Stewardship in the Nursing Home

<https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>

Free Course by the CDC on Nursing Home Infection Prevention

https://www.train.org/cdctrain/training_plan/3814

D. Using Bedside Personnel to Identify Sepsis

Introduction

In skilled nursing home facilities certified nursing assistants (CNAs) may be the first to recognize the signs and symptoms of sepsis. Equipping CNAs with education on the risk factors, early signs and symptoms of sepsis will help to ensure prompt recognition of signs and symptoms of sepsis and improve the outcomes. Training for CNAs should ensure their familiarity with tools that allow them to communicate effectively to supervisors and to the physician on call. Hands on training should address the use of sepsis screening tools as well as simulations to build skills and confidence (e.g., STOP AND WATCH, SBAR) provided.

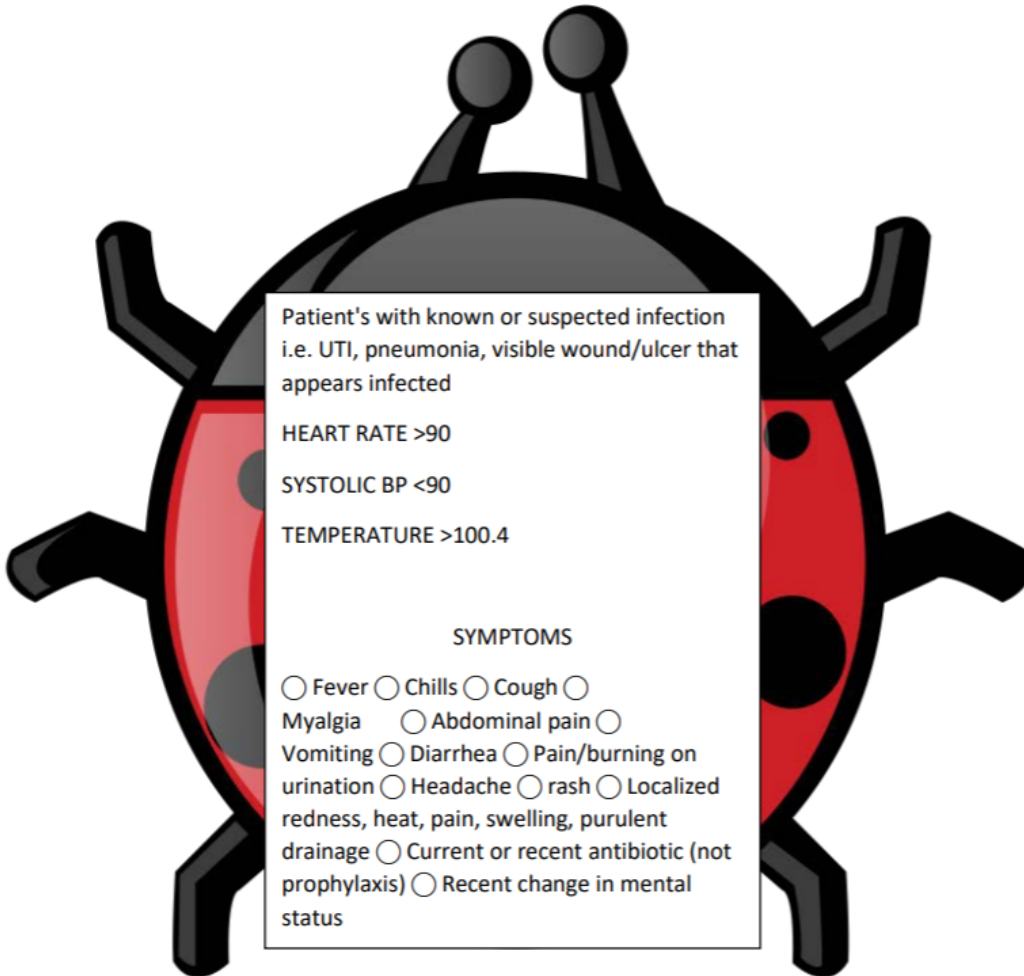
Key Points

CNA or LPN as a First Responder in Early Recognition of Sepsis

CNA's can perform initial screening at bedside and should be equipped to respond in the event they observe a patient with suspected sepsis or a change in condition (Nevada Sepsis Coalition, 2017). CNA's should be trained to understand that anyone who has an infection is at risk for developing sepsis. Thus, communication is the key to early diagnosis and treatment and engaging additional care team. Open communication between the CNA and more highly trained personnel in the skilled nursing facility should be seamless. There should be no barriers that might cause the CNA or LPN to hesitate to report or to respond to signs or symptoms of sepsis. CNA's should tell the nurse or charge nurse right away if they think the patient has sepsis and why (e.g., risk factors, current infection). For example, they could communicate the following information:

- “Mr. Smith has pneumonia (infection), and he seems more confused (altered mental status) than yesterday. I think he might be septic.”
- “I think this patient may be septic. They have a UTI (infection), and they are having trouble breathing (difficulty breathing) now.”

Illustration 4 SIRS Bug



Below is a helpful tool developed by the Nevada Sepsis Coalition that can prompt CNAs or LPNs about abnormal vital signs associated with sepsis.

Nevada Sepsis Coalition. Systemic Inflammatory Response Syndrome (SIRS) CRITERIA (STARFORUM BUG)

CNA or LPN role to recognize signs and symptoms of sepsis as they are assisting with ADLs, and monitor vital signs

CNA's role in the event the patient is septic includes initiating insertion of peripheral IV to administer meds or initiate IV fluids under the supervision of an RN. A registered nurse must be on site or available by telephone when IVs are inserted. Additional support interventions the CNA can pursue include:

- Lab work
- Frequent vital signs
- Oxygen support

The CNA should continue to work with the nurse to monitor the patient for any changes in condition.

CNA or LPN role in reporting signs and symptoms of sepsis

CNAs should report any abnormal vital signs to the nurse immediately. For any or all of the following:

- Temperature < 96.8 or > 100.4
- HR > 90 bpm
- RR > 20
- Systolic BP < 90

CNA or LPN role in reporting signs and symptoms of sepsis

Other signs that should be shared with the nurse include if the patient has:

- Measured urine output has decreased,
- sudden confusion/altered mental status,
- lethargy/more tired than the last time you saw them,
- difficulty breathing or SOB,
- sharp pain.

Chart 1: Sepsis Screening Tool Comparison Chart

Tool	Temp Elevation	Temp Depression	BP Hypotension	BP Hypertension	HR	RR	O2 Sat	Mental Status	White Blood Cell
SIRS	> 100.4F	<96.8F	< 100 or > 40 mmHg		> 90 bpm	20 or Pco2 < 32		Altered mental status	>12,000 or < 4,000 or 10% bands
qSOFA	Biomarker not assessed	Biomarker not assessed	< 100 mmHg					Glasgow coma scale < 15	
Minn	> 100	< 96.8	< 100 mmHg		> 100 bpm	20 or Pco2 < 32		Altered mental status	>12,000 or <4,000 or 10 % bands
Atlantic	N/A	N/A				> 22		Glasgow coma scale < 13	> 12,000 or < 4,000 or 10% bands
INTERACT	> 100.5		< 90 or greater than 200 systolic	> 200 Systolic	> 100 or < 50 bpm	> 28 or Pco2 < 10	< 90%	Altered mental status	> 14,000 or neutrophils > 90%

Note: The above chart compares several tools designed for use by bedside personnel in skilled nursing facilities to identify signs and symptoms of sepsis.

- a. paCO2 partial pressure of carbon dioxide (**PaCO2**) is one of several measures calculated by an arterial blood gases (ABG) test often performed on people with lung diseases, neuromuscular diseases, and other illnesses. **PaCO2** specifically evaluates carbon dioxide (CO2) levels in the blood.
- b. Glasgow Coma Scale is used to evaluate mental status as part of the qSOFA.

CNAs can utilize tools such as SBAR to begin the notification process in the event they observe signs and symptoms reflective of sepsis.

S – Situation: A concise statement of the problem (what is going on now).

B – Background: Pertinent and brief information related to the situation (what has happened).

A – Assessment: Analysis and consideration of options (what you found/think is going on).

R – Request: Ask for/recommend action (what you want done).

Form 1: SBAR Example

Example SBAR Scenario Script (UCLA Health SBAR Phone Script):

- Situation:** "Patient _____ has screened positive for sepsis at _____ (Time of presentation.) The last time that Sepsis bundle was activated was _____ hours ago.
- Background:** "Patient has ____
- _____ (confirmed infection) OR "Patient has a suspected infection of _____ (source of infection)."
"And he/she has _____ (2 or more of the following criteria)"
 - Temp > 101.5 F
 - Temp < 96.8 F
 - HR > 90
 - RR > 20

	Acute change in mental status (neuro)
	SBP < 90mmHg (cardiovascular)
	Increased FiO2 demand / Need for mechanical ventilator or BiPAP (respiratory)
	Creatinine >2 or Urine Output < 0.5ml /kg/hr. over 2 hours (renal)
	PLT <100,000 or INR >1.5(not on Warfarin) or a PTT > 60 sec (hematologic)
	Bilirubin >2.0 (hepatic)
	Lactate >18mg/dl

- WBC > 12,000 or WBC < 4,000
- Assessment:** "The charge nurse and I assessed the patient together and found _____ (list applicable data below), which may indicate potential organ dysfunction due to severe sepsis."
- Recommendation:** "Would you like to activate, or request order for (insert intervention)?"

CNA or LPN role in monitoring and documenting abnormal signs

The CNA can initiate STOP and WATCH (INTERACT) for early identification of sepsis to alert the licensed nurse that a resident has potential change in condition that needs further clinical evaluation. The charge nurse should be notified immediately, and the CNA should continue to observe and document the patient's status. An assessment checklist can be utilized to document change in symptoms. Nurse management should establish clear guidance about what and when to report. Care managers need to take reports from the CNA seriously and act upon them according to established protocol. Feedback to CNAs is valuable quality improvement for ensuring quality response in all cases.

Case Study 1: Early Recognition

Using Early Recognition tools developed by the Nevada Sepsis Coalition, a quality improvement initiative was developed for use in a skilled nursing facility in Reno, Nevada. Nursing staff received a one-hour training program in sepsis education, and administration of a pre-test and post-test for knowledge. A quality improvement team advised the facility about ways to incorporate ongoing sepsis training for staff and to make early recognition of sepsis a goal for quality improvement for the facility. The goals of the QI initiative were to improve early awareness of signs and symptoms of sepsis to reduce the incidence of sepsis and to reduce sepsis related readmissions.

Tools for recognition of sepsis were adapted for use at the facility. Significant improvements in knowledge resulted from the training. There was a decrease in sepsis related admissions to acute care. There was improvement in the ability to administer sepsis treatment to residents prior to transfer including intravenous fluid resuscitation, administration of broad-spectrum antibiotics, as well as drawing appropriate laboratory studies and blood cultures. The development and implication of nurse driven protocols was important to the implementation of the QI initiative. They helped to overcome some of the common barriers that may make it more difficult for similar programs to be implemented in other skilled nursing facilities.

Barriers to implementation of similar programs in skilled nursing facilities include:

- Inability to reach an on-call physician.
- Delays in laboratory and pharmacy services.
- Inability to obtain stat lab orders (ideally labs should come back in less than 4 hours).
- Unavailability of broad-spectrum antibiotics for prompt administration.
- Turnover of staff necessitating frequent repetition of training.
- Reluctance of medical staff to authorize standing orders.

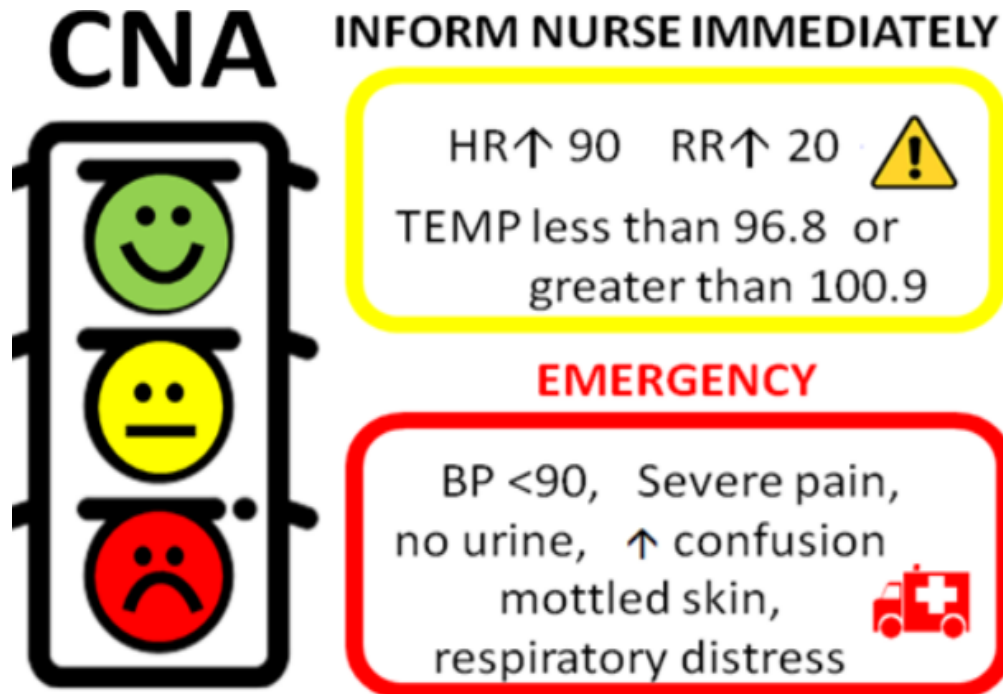
The INTERACT. Stop and Watch tool is commonly used in skilled nursing facilities.

INTERACT Stop and Watch Tool

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 3 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, transferring, toileting more than usual

Graphic 1: Early Identification Tool

Additional Sepsis Resources for CNAs



Resources

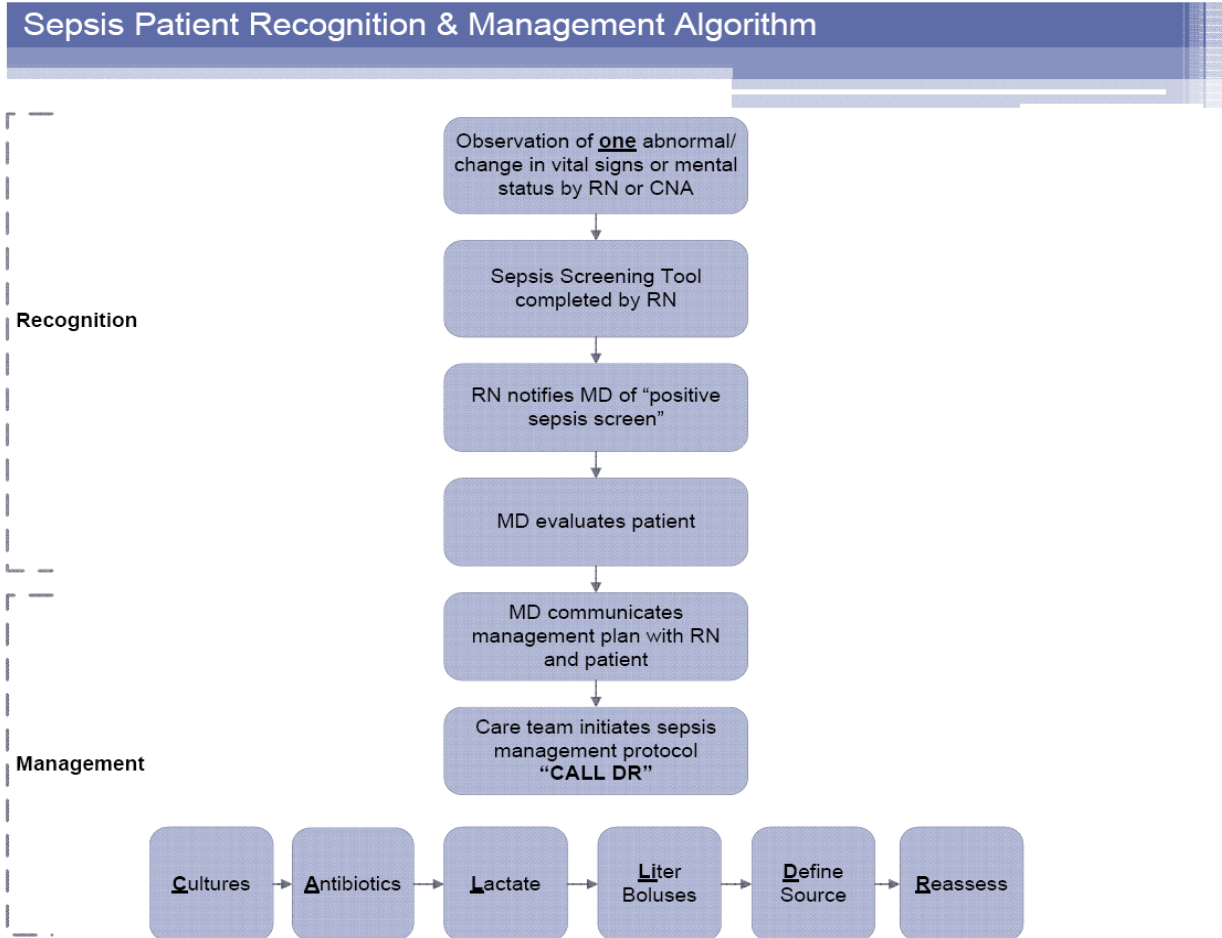
Maury Regional Health. CNA Badge Card Resource

<https://www.mauryregional.com/media/file/CNA%20IP%20Sepsis%20Training.pdf>

Boston Medical Center CAN Vital Signs Reference Card

<http://www.bumc.bu.edu/im-residency/files/2011/07/Sepsis-Intern-Noon-conference.ppt>

Diagram 2: Algorithm for Introducing CNA into Sepsis Early Identification



Source: Boston Medical Center, 2013

Chart 2: CNA Vital Signs Reference Card

CNA Vital Signs Reference Card

Notify RN immediately, if patient has any of the following new findings:

Vital Sign	Less Than (<)	Greater Than (>)	Change
Temp	36°C 96.8°F	38.3°C 101°F	N/A
HR	50	90	Increased by 20 from baseline
BP (Systolic or Mean)	SBP 90 MAP 65	SBP 160 MAP 115	SBP decreased by 40 from baseline
RR	12	20	New O2 requirement
O2 Sat	92	N/A	New O2 requirement
Any change in mental status (confusion, sleepiness, slurred speech, unable to follow commands, difficulty moving/ambulating)			

Resources

INTERACT

<https://pathway-interact.com/interact-tools/interact-tools-library/interact-version-4-0-tools-for-nursing-homes/>

- You need to create an account to be able to access their tools.
- Select 'Interact Tools' at the top of the page
- Then select 'Tools for 'SNFs/Nursing Homes' from the section on the right of the page entitled ' Interact Tools Library'

Atlantic:

https://atlanticquality.org/download/AQIN_Nursing_Facility_Sepsis_Care_Pathway.pdf
<https://atlanticquality.org/initiatives/sepsis-initiative/tools-and-resources/>

Atlantic: For access to the sepsis screening tool for SNFs please visit

https://atlanticquality.org/download/sepsis/508_NY-TskSIP-SEPSIS-16-23-SNF-Flowchart.pdf

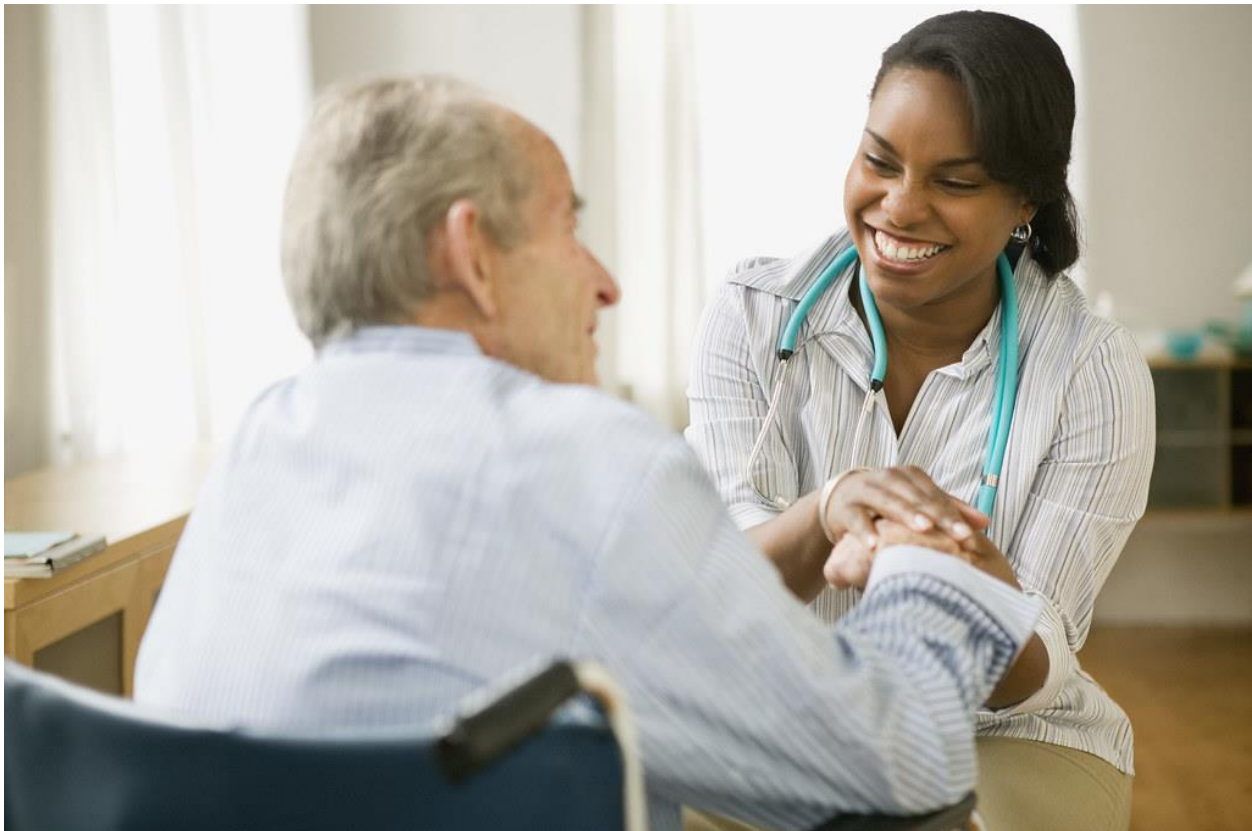
Minnesota Hospital Assoc. 100:100:100

<https://www.mnhospitals.org/Portals/0/Documents/ptsafety/SeeingSepsisLTC/1.%20Seeing%20Sepsis%20-%20LTC%20Poster.pdf>

SBAR Communication Tool

This tool is intended to help structure and improve nurse to physician communication. Once a change in condition has been identified and it has been determined that a physician needs to be notified, a nurse completes the SBAR (Situation, Background, Assessment, Recommendation).

https://pathway-interact.com/wp-content/uploads/2018/09/INTERACT-V4-SBAR_Communication_Form-Dec_June-2018.pdf



E. Nursing Supervisors and On Call Physicians

Introduction

Skilled nursing personnel who care for residents at the bedsides are in the best position to recognize sepsis and best equipped to train frontline personnel to identify early signs of sepsis. Early identification of patients with sepsis is dependent upon acceptance of the work by bedside nurses and nursing assistants. The aim of the routine screening done by nurses is to facilitate early sepsis identification to avoid preventable clinical deterioration. The key to successful implementation is creating motivation to incorporate standard and routine screening for sepsis as the standard of care in your skilled nursing facility. Reviewing data collected on actual patients the team knows and providing feedback on caregiver performance on a continuous and routine basis is an important part of building a successful sepsis recognition and treatment program.

Key Points

Ensure personnel are trained to recognize signs and symptoms of sepsis

Education is essential for frontline staff and nurses to become accustomed to the screening processes and to ensure that sepsis screening is routinely performed by nurses at every level of care. Early diagnosis and rapid treatment to improve outcomes. Education should focus on pathophysiology and early identification of sepsis, effective communication with the provider, and preparing for and giving timely treatments. In addition, education about the early signs of organ failure is helpful. Training related to specific checklists, screening tools, and communication protocols enhances the program.

Empowering personnel includes ensuring they:

- Develop expertise in identifying and treating patients with sepsis.
- Quickly call for help in managing a deteriorating patient.
- Are able to articulate the change in the resident's condition.
- Monitor the patient's response to treatment if recommended.

Chart 3: Potential Screening Tools for Sepsis in Suspected/Proven Infection

SIRS	qSOFA	3-100s
2 or more of the following	2 or more of the following	2 or more of the following
1. RR > 20/min 2. Temp > 38 C or < 36 C 3. HR > 90/min 4. WBC > 12,000 or < 4,000	1. RR \geq 22/min 2. Altered mentation (Glasgow Coma Scale Score \leq 13) 3. Systolic BP \leq 100 mmHg	1. Temp > 100 F 2. Pulse > 100/min c. Systolic BP < 100 mmHg

Source: Mylotte, 2019

Treatment plans for patients

Sepsis is a medical emergency and early treatment is associated with better outcomes. For early recognition and appropriate treatment to occur, bedside nursing staff must have the proper training to identify sepsis early and initiate the appropriate interventions. In clinical settings The Hour-1 Bundle, developed with the Surviving Sepsis Campaign (SSC) is an evidence-based tool for initial resuscitation for sepsis and septic shock. Six bundled SSC recommendations for early recognition and treatment of patients with sepsis: measure serum lactate within 6 hours, obtain two blood cultures before starting antibiotics, take a chest radiograph, take urine for urinalysis and culture, start antibiotics within 3 hours, and hospitalize or discharge the patient within 3 hours. Nurses should be prepared and confident to comply with the SCC recommendations for patients meeting SIRS criteria, based off the triage sepsis screening tool.

In clinical and skilled nursing facility settings bedside personnel should alert the Nurse Practitioner or on call Physician for initiation of sepsis standing orders and transfer to hospital setting

Failure to communication or delay physician response to call for assistance; inadequate communication between caregivers is a major circumstance surrounding failure to rescue patient clinical decline due to sepsis.

The following factors can make it difficult to recognize sepsis in SNF residents:

- *Mental Status Changes:* Many residents have cognitive deficits making it difficult to recognize a cognitive decline.
- *Increased respiratory rate:* Conditions such as asthma or COPD are common and can cause increased respiratory rate.

- *Hypotension:* Medications given for hypertension, heart failure and psychological disorders can all lower blood pressure.
- *Tachycardia:* Beta blockers or cardiac conduction disorders can cause tachycardia
- *Fever:* Some residents don't exhibit fever when they are infected. Older people may have lower baselines temperatures than younger people.

Coordinate treatment of sepsis in the Nursing Home

Clinical presentation of infection tends, at times, to be atypical in SNF residents making it more difficult to identify sepsis. Nursing staff are critical to making both a diagnosis of infection and management of sepsis; therefore, education of staff regarding infection presentation and sepsis is key to early recognition and management. Finally, nursing homes function as an environment for early response in recognizing sepsis in residents.

Fluid resuscitation

Fluid resuscitation is a priority. Examples of fluids used to resuscitate include crystalloids, colloids, albumin, plasmanate, and blood. Fluid boluses must be of volume to cause a detectable change. The average severe sepsis patient requires 4-6 L of fluid within the first 6 hours of treatment. Up to 10 L within 24 hours is common.

Standing Orders for medication

Many facilities have standing order bundles that include the following if sepsis is confirmed with a screen and a follow up assessment.

Blood cultures

A minimum of 2 sets of blood cultures is needed to identify an infectious organism (anaerobic and aerobic). It is recommended that blood cultures be drawn before starting antibiotics. Sterilization of blood cultures can occur within a few hours of the 1st antibiotic dose.

Laboratory orders

You may need to obtain laboratory studies to identify the source of infection and to confirm sepsis. Patients with sepsis can present in a variety of ways making sepsis very difficult to diagnose. Examples of labs commonly drawn to help identify patients at high risk for organ failure and sepsis include the following which are often part of a set of standing orders for sepsis.

Standing Order Example

- Lactate
- Blood cultures
- UA/UC
- Electrolytes
- BUN
- Creatinine
- PT/INR



Chart 4: Sepsis: A Look at Lab Values

Below is an illustration of normal laboratory values and abnormalities associated with sepsis. Chart 1 Sepsis Lab Values

SEPSIS: A Look at Lab Values

The following lab abnormalities may be seen in sepsis and septic shock. These are indicators of inflammation and organ dysfunction and are not meant to diagnose sepsis. Please refer to your specific hospital laboratory reference ranges, which may differ slightly.

Lab Value (normal range)	Changes in sepsis
Lactate (0.5-2.0 mmol/L)	>2 mmol/L (hyperlactatemia) >4 mmol/L (lactic acidosis)
Partial pressure of oxygen/fraction of inspired oxygen (PaO ₂ /FiO ₂ > 400)	<300 (arterial hypoxemia)
Creatinine (0.7-1.3 mg/dL)	Increase >0.5 mg/dL
Total bilirubin (0.3-1.2 mg/dL)	>4 mg/dL
Serum glucose (70-105 mg/dL)	>140 mg/dL (in the absence of diabetes)
White blood cell count (4,000-11,000 uL) ¹	> 12,000 uL ³ (leukocytosis) or < 4,000 uL ³ (leukopenia) or normal range with >10% immature forms
Platelets (150-350 x 10 ³ /uL)	<100 x 10 ³ /uL (thrombocytopenia)
aPTT (25-35 seconds)	>60 seconds
INR (< 1.5)	>1.5
Procalcitonin (<0.15 ng/mL)]	>2 standard deviations above normal
Plasma C-reactive protein (0-10 mg/L)	>2 standard deviations above normal

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Timing of Identification/Monitoring/Early Treatment

Early detection of sepsis requires fast action. Nursing facilities that recognize and initiate early management of sepsis can improve outcomes through a swift response. That prompt recognition can mean a resident arrives in a more stable condition after being transported to the emergency room or avoids an emergency room visit entirely. A screening tool is recommended (e.g., INTERACT, SIRS or the Minnesota 3-100s tool) followed by an assessment for infection and determination of vital signs, signs and symptoms. It always important to evaluate advance directives, contact family members to alert them to the resident's conditions. The physician on call will help to make the decision about transfer for hospitalization or treating in the NH. Many things can be done in a skilled nursing setting e.g. blood cultures, laboratory tests, insertion of a peripheral intravenous catheter, and administration of intravenous (IV) fluids and broad-spectrum antibiotics.



Diagram 3: Minnesota Hospital Association. ACT FAST!

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!

100 seeing sepsis



100 ↑ Is their temperature above 100?



100 ↑ Is their heart rate above 100?



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.

Hour-1 bundle

The hour-1 bundle is typically done in clinical settings like an emergency room or an intensive care unit. For critically ill patients with sepsis or septic shock, time is of the essence. Although the starting time for the Hour-1 bundle is recognition of sepsis, both sepsis and septic shock should be viewed as medical emergencies requiring rapid diagnosis and immediate intervention.



The hour-1 bundle encourages clinicians to act as quickly as possible to obtain blood cultures, administer broad spectrum antibiotics, start appropriate fluid resuscitation, measure lactate, and begin vasopressors if clinically indicated. Ideally these interventions would all begin in the first hour from sepsis recognition but may not necessarily be completed in the first hour. Minimizing the time to treatment acknowledges the urgency that exists for patients with sepsis and septic shock. The elements of the bundle are:

Measure Lactate level: Serum lactate can be a surrogate for tissue perfusion (4,5). Studies have shown a significant reduction in mortality via lactate-guided resuscitation (6-10). If initial lactate is $>2\text{mmol/L}$, the guidelines recommend remeasurement within 2 to 4 hours to guide resuscitation to normalize lactate (6).

Obtain blood cultures before administering antibiotics: Optimizing the identification of pathogens to improve outcomes is crucial. Because cultures can be sterilized within minutes of delivery of the appropriate

antimicrobial (11,12), cultures should be drawn before antimicrobials are introduced.

Appropriate blood cultures include at least two sets (aerobic and anaerobic).

Administration of appropriate antimicrobials should not be delayed. The SSC Guidelines consider this a best practice statement.

Administer Broad Spectrum Antibiotics: One or more intravenous antimicrobials should be started immediately (13). Once pathogen identification and sensitivities are established, empiric antimicrobial therapy should be narrowed or discontinued if the patient does not have an infection. The consideration of early administration of antibiotics for suspected infection and antibiotic stewardship are essential to high-quality sepsis management. The SSC Guideline is a strong recommendation, moderate quality of evidence.

Administer IV Fluid: Initial fluid resuscitation should begin immediately upon recognizing a patient with sepsis and/or hypotension and elevated lactate. The guidelines recommend a minimum of 30 mL/kg of intravenous crystalloid fluid to be completed within 3 hours of recognition. Observational evidence supports this volume (1,14). Fluid administration beyond initial resuscitation should be carefully monitored to ensure that the patient remains fluid responsive. The SSC Guideline is a strong recommendation, low quality of evidence.

Apply Vasopressors: Restoration of adequate perfusion pressure to the vital organs is essential. Vasopressors should be started within the first hour to achieve MAP of ≥ 65 mm Hg if initial fluid resuscitation is not adequate. The SSC Guideline is a strong recommendation, moderate quality of evidence.

Resources

Hour-1 Bundle Pocket Card & Infographic

<https://www.sccm.org/getattachment/SurvivingSepsisCampaign/Guidelines/Adult-Patients/Surviving-Sepsis-Campaign-Hour-1-Bundle.pdf?lang=en-US>

Guidance on the Guidelines & Bundle

<https://www.youtube.com/watch?v=KyXm2jV5j4A>

Hour-1 Bundle Teaching Slides

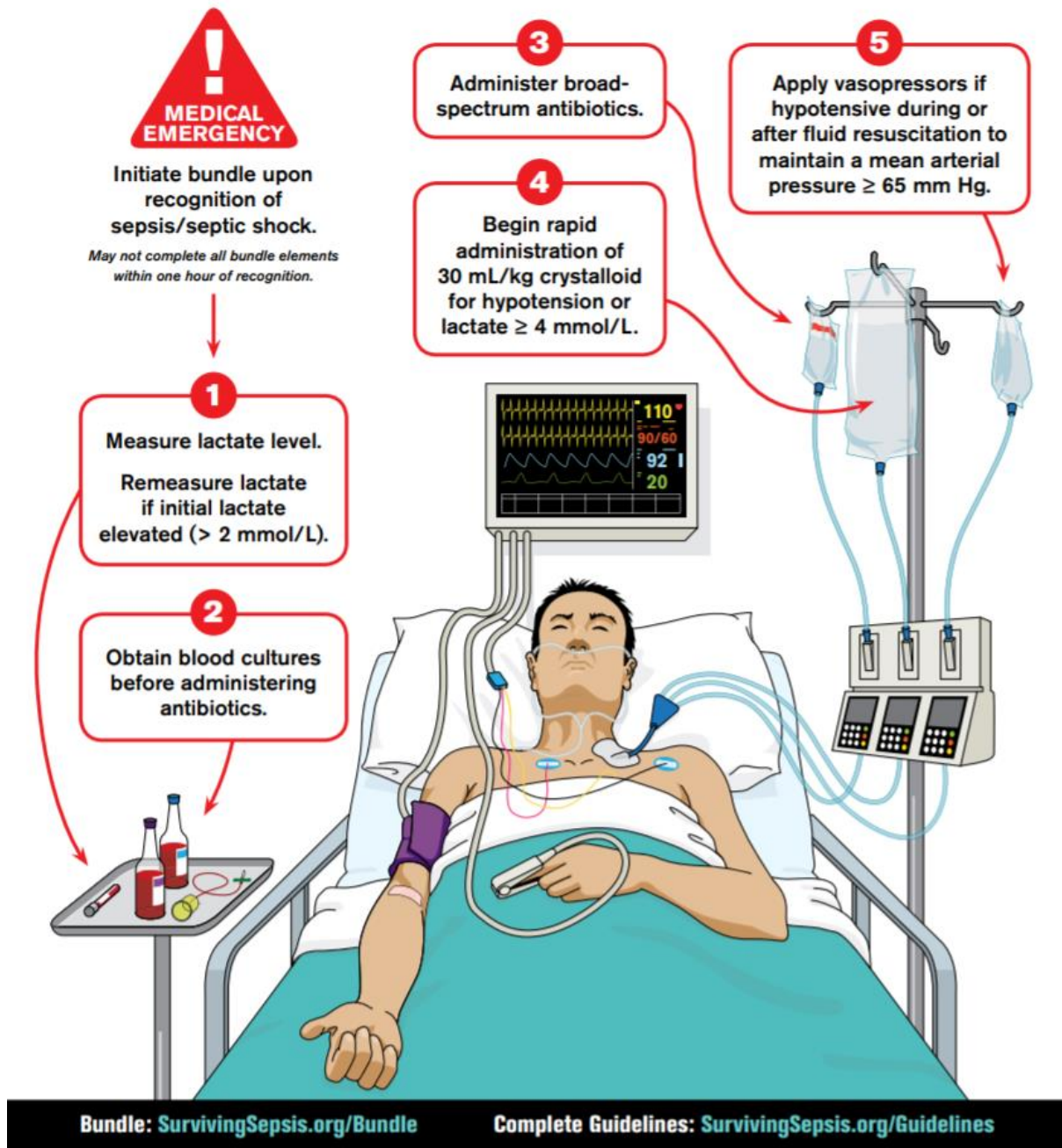
<https://www.sccm.org/LearnICU/Resources/Surviving-Sepsis-Campaign-Hour-1-Bundle-Teaching-S>

Diagram 4: Hour-1 Bundle

Hour-1 Bundle

Initial Resuscitation for Sepsis and Septic Shock

Surviving Sepsis Campaign



3-hour bundle

Source: Health Catalyst, 2015

The 3-hour bundles contain interventions that can be administered in a skilled nursing setting:

- Measure lactate level within first hour
- Obtain 2 blood cultures prior to antibiotic administration (if antibiotics not delayed > 1 hour); consider cultures from other potential infection sites (e.g., urine, CSF, sputum)
- Give broad-spectrum antibiotics within 1 hour of recognition
- If hypotensive or lactate > 4 mmol/L, provide fluid resuscitation with 30 mL/kg crystalloid; consider albumin if large volume of crystalloids needed
- Obtain labs for organ dysfunction or inflammation: e.g., creatinine, bilirubin, INR, platelets, CRP, procalcitonin
- Target resuscitation to achieve normal lactate level
- Do timely transfer



Key steps for initiating 3-hour bundle

Source: Washington State Hospital Association, 2016

The 3 Hour Bundle is a protocol more suitable for implementation in skilled nursing facilities.

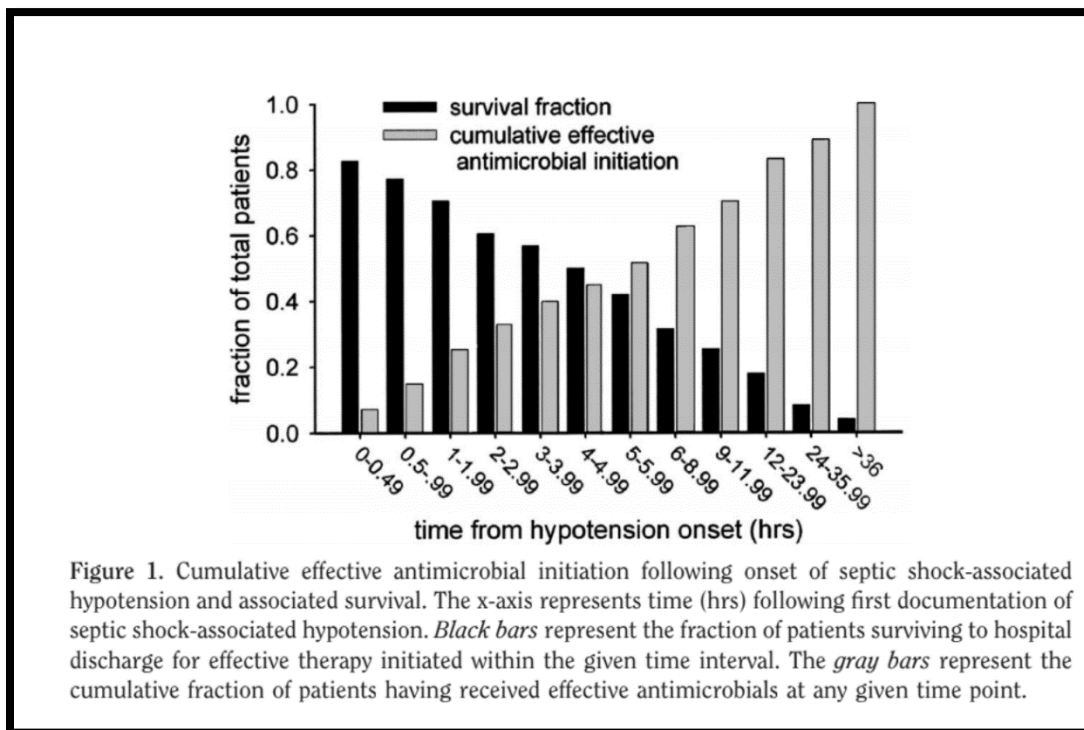
- Consider nurse-initiated protocols – including lab orders and initiation of fluid resuscitation – for patients with a positive sepsis screen.
- Develop processes to expedite resulting of lactate levels. Assure the lab staff are alerted when lactate specimens are collected. Consider instituting use of point of care testing for lactate results that are emergently needed to drive decisions for care.
- Institute a standard protocol for immediate notification of the provider for a lactate level greater than 4 mmol/L.
- Consider developing order sets that bundle lactate level and blood culture orders.
- Ensure trained staff are available to draw blood cultures prior to initial administration of antibiotics.

- Utilize the healthcare facility’s pharmacy protocol to determine the most effective broad-spectrum antibiotic for administration. Use this antibiotic as the first line of defense. Develop protocols and order sets in which the recommended antibiotics are embedded.
- Assure that the protocol-recommended antibiotics are available in the pharmacy to allow for rapid administration.
- Identify and reinforce the appropriate order for antibiotic administration ensuring patients receive the broadest and most rapidly infused antibiotic first
- Develop protocols and order sets for rapid fluid administration.
- Consider use of a balanced fluid for fluid resuscitation.
- Consider using a standardized hand-off tool for communication between personnel responsible for care to assure continuity in sepsis resuscitation.

Prudent use of antibiotics is essential in ensuring antibiotic stewardship within the skilled nursing facility

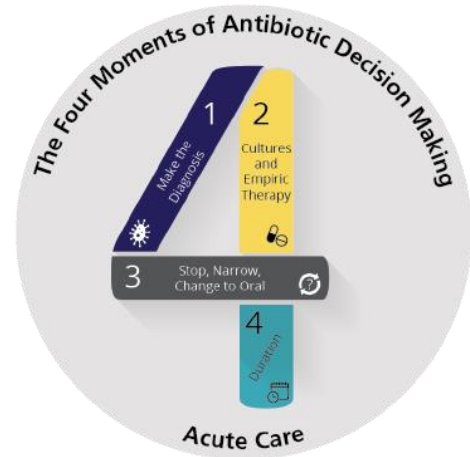
Concern has been raised that administration of antibiotic therapy in the absence of cultures makes subsequent management difficult in terms of identifying the etiology of infection as well as lack of information about organism antibiotic susceptibility.

Chart 5: Title Kumar Survival Prediction for Sepsis



Patients with suspected sepsis should have blood cultures drawn before antibiotics are administered whenever possible. Remember that two sets of blood cultures (as in two sets of aerobic and anaerobic bottles) should be drawn from different sites and an adequate volume of blood should be obtained—usually 10cc per bottle. If the patient’s history and physical exam suggest a source of infection, additional cultures from relevant sites should also be obtained, also ideally before antibiotics are administered.

Consider the use of Agency of Healthcare Research and Quality Four Moments of Antibiotic Decision-making framework. The four moments include:



Moment 1: Does my patient have an infection that requires antibiotics?

Moment 2: Have I ordered appropriate cultures before starting antibiotics? What empiric therapy should I initiate?

Moment 3: A day or more has passed. Can I stop antibiotics? Can I narrow therapy or change from intravenous to oral therapy?

Moment 4: What duration of antibiotic therapy is needed for my patient’s diagnosis?

Narrower regimens should be considered when you are concerned about infection, but the patient is not demonstrating severe illness—for example, a patient who has a rapid response to fluids (or does not require fluids at all), has no vasopressor requirement, and/or barely meets the sepsis definition. Most clinicians are likely to err on the side of broad-spectrum therapy when a patient is critically ill. This is very appropriate, but it is important to reconsider this decision during Moment 3. Remember to obtain information about prior antibiotic exposure, as recent exposure to an agent increases the risk that the patient carries an organism that is resistant to that agent. For example, in one study of 140 patients with a current *P. aeruginosa* infection resistant to piperacillin-tazobactam, 37 percent of patients had received piperacillin-tazobactam in the previous month. The patient’s travel history and exposure history are also important.

Collecting Data on Sepsis in Your Facility

The Centers for Disease Control and Prevention (CDC) recommends both electronic and manual data collection for effective sepsis surveillance. Electronic data collection involves the use of the electronic medical record. It is recommended that all departments use a uniform system to enable ease of record sharing.

Manual data collection is usually performed by the CNA, LPN, or RN in the nursing home who is able to observe changes in the resident with suspected sepsis. This information is usually reported in a logbook that is accessible to staff assigned to the patient. Data to determine the presence of sepsis include, vital signs data, blood culture collection date, serum, lactate, bilirubin, platelet, and serum creatinine data.

Data that can aid in epidemiologic analysis and prediction of higher risk patients includes, patient demographics, details of comorbidities, record of surgeries, procedures, and indwelling devices such as central venous catheters, and patient outcomes.

Identifying Sepsis as a Quality Control Focus

Identification and management of sepsis within the nursing home is challenging. Part of the challenge is that organ dysfunction can be caused by other elements (such as from an autoimmune disease or as the result of a chronic illness like cancer or dementia) and not sepsis alone. Furthermore, many guidelines were developed for use in the ICU/hospital setting and not in long term care settings.

Several studies have indicated a disproportionate number of nursing home residents in hospital emergency departments presenting with sepsis, often transferred in critical condition due to insufficient management of their condition prior to transfer, as well a lack of information in their medical record on their condition.

To help alleviate this concern, a number of hospitals and healthcare organizations developed screening tools, quality improvement tools, and communication tools targeted at early recognition of sepsis in the nursing home setting. These tools not only aim to enable prompt recognition of sepsis in the nursing home, but they also aim to improve quality control of sepsis, by aiming to improve on early detection of sepsis, and thus the response time of administering treatment prior to hospital transfer. These tools will be explored further in the training that accompanies this manual.

Resources

AHRQ Nursing Home Antimicrobial Stewardship Guide Toolkit

<https://www.ahrq.gov/nhguide/index.html>

Atlantic Quality Improvement Network Skilled Nursing Facility Care Pathway Symptoms of Sepsis and Septic Shock

https://atlanticquality.org/download/AQIN_Nursing_Facility_Sepsis_Care_Pathway.pdf

CDC Nursing Home Infection Preventionist Training Course

<https://www.cdc.gov/longtermcare/training.html>

INTERACT STOP AND WATCH

https://pathway-interact.com/wp-content/uploads/2018/09/INTERACT-Stop-and-Watch-v4_0-June2018_June-2018.pdf

INTERACT Guidance on Management of Possible Sepsis

<https://pathway-interact.com/wp-content/uploads/2017/11/INTERACT-Guidance-on-Possible-Sepsis-November-8-2017.pdf>

Minnesota Hospital Association Seeing Sepsis Tool

<https://www.mnhospitals.org/Portals/0/Documents/ptsafety/SeeingSepsisLTC/1.%20Seeing%20Sepsis%20-%20LTC%20Poster.pdf>

Nevada Severe Sepsis Screening Tool

<https://healthinsight.org/tools-and-resources/send/367-sepsis/1387-severe-sepsis-screening-tool-for-nursing-homes>

F. Early Identification and Treatment in the Nursing Home

Introduction

Many skilled nursing facilities have set goals for improving their ability to identify early signs and symptoms of sepsis and to provide some initial treatment when sepsis is recognized. This involves training all personnel to recognize early signs and symptoms. Ancillary staff e.g., physical therapists and food service personnel should be included and receive some form of training on early signs and symptoms of sepsis. The level of training should be adapted based on the educational level of the recipient. In addition to providing training, managers of skilled nursing facilities should ensure that the tools, supplies, and equipment are in place and available for use for a resident who triggers a sepsis screen.

Prior to transfer determine if the patient record indicates that acute care is part of the treatment plan. Some residents and family members would prefer that they not be transferred to an acute care facility. There may be a do not resuscitate order (DNR) in place. Regardless of the orders or wishes on record, it is a good idea to get family members alerted to the possibility that the resident has a potentially life-threatening condition. Family members should be consulted early in the decision-making process, if possible.

Key Points

Some initial treatment of Sepsis in SNF settings can be done.

In order to provide initial treatment of sepsis in skilled nursing facilities you need the ability to get laboratory results quickly. Ideally, your laboratory should be able to provide laboratory results within 4 hours or less.

It can take time to reach on call physicians, so some facilities have used standing orders for fluid resuscitation and administration of broad-spectrum antibiotics as well as laboratory studies. This allows the nursing supervisor to move quickly when a sepsis screen is triggered.

Supplies and Medications Needed

In addition to standing orders, some equipment and supplies is needed. This equipment should be accessible to staff who are administering sepsis screens. Staff need to be available who are familiar with the equipment and trained to use it.

- *Durable Medical Equipment:* Automated Digital BP, Pulse oximeter, Thermometer
- *Supplies:* Supplemental Oxygen, IV Catheter Kits, Blood Drawing Equipment, Urinary Catheter Kits to Monitor Output; PPE, Sterile Crystalloid Fluid, Gloves, Dressing Supplies
- *Lab Supplies:* Blood Culture bottles (aerobic and anaerobic); sterile containers for urine, sputum, stool; bacterial culture swabs
- *Antibiotics:* Both Oral and Intravenous

Coverage/Monitoring

As part of capacity building to improve the ability for early detection of signs and symptoms of sepsis, staffing coverage must be examined. The skilled nursing facility should have adequate staff coverage so that vital checks can occur at least hourly for patients with early signs and symptoms of sepsis.

Tools to assist with monitoring should systematically record signs and symptoms, clinical interventions, and the response of the resident to those interventions. This can be done using the electronic health record or using paper tools. Whichever method is chosen, the tools should address who should be alerted and the timeframe for those alerts if abnormal findings occur and during the monitoring.

Protocols and Standing Orders

Your skilled nursing facility will need to determine the best way to ensure that alerts occur, and that information is passed along to personnel who can take prompt and appropriate action. Many skilled nursing facilities have protocols so that all personnel who are involved with resident care understand what is expected of them if they notice an early sign or symptom of sepsis.

There are examples of these protocols included in the text and in the resource sections of this manual. Whether alerts are programmed into the electronic health record or whether paper tools are used, a system for ensuring alerts take place is needed. That system also needs regular monitoring to ensure that staff are adhering to the protocols and that the system is functioning. The Infection Prevention manager is often the person at a skilled nursing facility who is responsible for this review and monitoring of systems.

Timelines for notification are important because sepsis can progress rapidly from early signs and symptoms to multiorgan failure. Clear timelines must be described in the protocols you use, and all staff should agree on those timelines so that information can be communicated in a timely manner to facilitate the decision for treatment and/or transfer.

Resources

INTERACT Guidance on Management of Possible Sepsis

<https://pathway-interact.com/wp-content/uploads/2017/11/INTERACT-Guidance-on-Possible-Sepsis-November-8-2017.pdf>

Minnesota Hospital Association Seeing Sepsis Tool

<https://www.mnhospitals.org/Portals/0/Documents/ptsafety/SeeingSepsisLTC/1.%20Seeing%20Sepsis%20-%20LTC%20Poster.pdf>

Nevada Severe Sepsis Screening Tool

<https://healthinsight.org/tools-and-resources/send/367-sepsis/1387-severe-sepsis-screening-tool-for-nursing-homes>

G. When and How to Transfer to Acute Care

Introduction

Communication gaps or omissions that occur when residents are transferred between the skilled nursing facility and the Emergency Department center around the lack of patient medical history, a clear record of what was done at the SNF, what prompted transfer, and a lack of vital signs and laboratory data from the time period at least 12 hours prior to hospital transfer.

In a 2018 study of patient transfers from the nursing home to the Emergency Department (ED), 19% of patients arrived at the ED with inadequate information from their facility to enable a seamless transfer.

Another study found that residents transferred from skilled nursing facilities to the emergency room with information gaps had longer stays when compared to a group of patients without missing information.

This section of the manual provides guidance on how nursing homes can ensure an effective transfer of residents from the nursing home to an acute care setting and discusses communication tools to enable an efficient transfer that permit the clinical staff on the receiving end to have the information they need to properly assess and treat the transferred resident. This includes complete records for what was done prior to transfer, screening tools administered, laboratory studies ordered, medication administered, the timing of those interventions and contact information for laboratories with pending studies. This should also include a point of contact at the transferring facility who is familiar with what happened that led to transfer.

Key Points

Prior to transferring a resident to an acute care setting ensure that their medical record indicates that acute care is part of their treatment plan

The skilled nursing facility team should ensure that the resident's treatment plan and medical records are up to date. Some residents have indicated they do not want to be transferred to an acute care facility. These resident wishes should be documented. Prior to transfer of the resident from the nursing home to an acute care setting, records should be reviewed to ensure that decisions regarding treatment and/or transfer are in accordance with resident and family wishes.

Determine if there is a DNR on record

A Do Not Resuscitate (DNR) is a medical order written by a doctor at the request of the patient that provides specific instructions on what the patient wishes to occur if they need resuscitation. The healthcare team must respect the wishes of the patient and family members and comply with the DNR in accordance with the patients' rights. The DNR paperwork should be signed by the Medical Director or an attending physician and incorporated into the resident's electronic medical record to enable easy access in the event that signs of sepsis emerge and your facility is contemplating transfer to an acute care setting.

Discuss the acute care transfer with their provider/nursing and medical staff

The team at the skilled nursing facility should review records and consult with family members and with the resident about the acute care transfer prior to the transfer occurring. Residents may have questions prior to the transfer, and it's important that a patient is aware of the steps involved with their transfer. Furthermore, staff should document the transfer in the resident's medical records, so it is important to ensure that everyone agrees for the transfer to take place. After discussing the transfer internally, a point of contact should be made between the nursing home and the hospital in case hospital staff or nursing staff (or both) have questions. There have been many times when residents are transferred without a record of screening data that prompted transfer, a record of interventions that occurred at the SNF, or laboratory work ordered and/or received or medications administered.

Inform Family Members

Family members should always be kept informed about the status of their loved one. Nursing home residents are a vulnerable population, and often their family members are key decision makers of the treatment and care received by the resident. Furthermore, family members are an important link for communication between the resident and the nursing home, as well as between the nursing home and the hospital.

Ensure sharing of lab results and the patient's EMR with the acute care facility to facilitate a smooth transfer

Long term care facilities should ensure all laboratory results, whether positive or negative are sent to acute care facility preferably through a shared EMR, or by fax or email. Additionally, they should ensure that the acute care facility has contact information for the lab so that they can discuss results if needed.

Transfer Protocols:

- Make sure a complete record of symptoms, treatment, response to treatment by resident accompanies them to acute care.
- Make sure all laboratory results, whether positive or negative are sent to acute care facility preferably through a shared EMR but if not by fax or email.
- Make sure acute facility has contact information for the lab so they can discuss results if needed.
- Provide contact information for POC at LTC so that acute care staff can contact if they have questions about the transferred patient.



Case Study 2 (Part 1): Sepsis in a Skilled Nursing Facility

Case study of patient who displays signs and symptoms of sepsis in a skilled nursing facility.

Sepsis Case Study for Small Group Exercise

PART ONE:

The time is 0900 pm. Deborah is a 73-year-old female who has chief complaints of weakness, dizziness, fever, and chills. She had great difficulty standing this afternoon when she tried to go to dinner. It required two staff members to assist her. She is a full code. Her medical history includes heart failure and hypertension. She is a one pack per day smoker. She has lived at the nursing facility for two years since her husband died. Her current weight is 230 pounds. She has no known drug allergies. She has had limited oral intake over last two days due to nausea and decreased appetite. Her skin is pale and moist. Respirations are labored. No family has yet been notified of her condition.

Initial assessment

Blood pressure: 84/52

Note: A blood pressure with a systolic value below 100 is a flag on one of the Sepsis screening tools.

Pulse: 145 – sinus tachycardia

Note: A pulse higher than 100 is a flag on one of the Sepsis screening tools.

Temp: 101.5

Note: A temperature greater than 100 is a flag on one of the Sepsis screening tools.

Oxygen saturation: 86% on room air

Respirations: 22, labored

NOTE: A respiratory rate higher than 20 is a flag on one of the Sepsis screening tools.

Lung sounds: coarse crackles

NOTE: Lung sounds could indicate infection.

Mental State: Confused. Patient states, “I feel terrible.”

NOTE: Confusion is a flag on one of the Sepsis screening tools.

DISCUSSION QUESTIONS

Spend 15 to 20 minutes responding to these questions.

This exercise can be done in small groups. Each group should choose someone to RECORD key points from the discussion and REPORT back to the full group.

1. What concerns would you have as a nursing supervisor about Deborah?
2. What steps should the CAN take to document Deborah’s change in condition?
3. What tools might be used in your facility to assist with documenting the change in condition?
4. Who should be alerted and how should they be alerted to Deborah’s change in condition?

Case Study 2 (Part 2): Sepsis in a Skilled Nursing Facility

Case study of patient who displays signs and symptoms of sepsis in a skilled nursing facility.

Sepsis Case Study for Small Group Exercise

PART TWO

Deborah received a fluid bolus and was reassessed a couple of hours after her labs were drawn:

Vital signs following fluid bolus:

Blood pressure: 78/46 (Initial Value 84/52)

Pulse: 150 (Initial Value 145)

Temp: unchanged

Oxygen saturation: 88% on 2L

Respirations: 20 – shallow (initial value 22)

Mental State: Remains confused – verbal, but answers questions inappropriately.

Two hours later her laboratory results come back:

Lactate: 4.2

WBC: 2.0

Hemoglobin: 9.2

Creatinine: 2.4

INR: 2.1

Preparations are made to transfer her to acute care. She expires during transport.

Because of what happened with Deborah, your facility is concerned and wants to improve the speed with which sepsis is recognized. A targeted surveillance effort has been collecting data about sepsis infections and the rates are higher than expected. You have been asked to work with colleagues to design a Performance Improvement initiative that addresses the following elements:

- Training for Family Caregivers, CNAs, Non-Clinical Staff about Sepsis Early Recognition
- Collection of process and outcome data to monitor the impact of the initiative.
- Conforms with current infection control policies and procedures.
- Proposed decision support tools that should be considered for addition to the electronic health record to assist with implementation.

Your Quality Improvement Committee will be meeting in a couple of months and you need to present the proposal to them. What would you include that will be responsive to the desire to drive down the rates of sepsis and improve early identification of sepsis?

Discussion Questions

1. What elements can you incorporate into your proposal that will meet the requirements outlined?
2. Your QAA has representation from Clinical Staff, Pharmacy, Rehabilitation Services, Facility Management etc.
3. Who is likely to raise objections to standing orders for fluid resuscitation and broad-spectrum antibiotic administration if they are proposed as part of the initiative?
4. How will you counter these objections?
5. What other barriers do you anticipate to your proposal being accepted and implemented?

Resources

INTERACT Tool to use for Transfer from a Skilled Nursing Facility to a Hospital.

<https://www.nehca.org/wp-content/uploads/INTERACT-SNF.NF-to-Hospital-Transfer-Form.pdf>

The Acute Care Transfer log is a quality improvement tool to enable better record keeping and a more efficient transfer of residents from the nursing home to the hospital setting. It is a worksheet that enables staff to record information such as the time of transfer, name of the hospital, name of the nursing home, details of the resident, as well as the reason for the transfer.

Please note that the INTERACT site requires you to register before you can access their tools. Registration is free.



H. Patients at Increased Risk for Sepsis

Introduction

Approximately 270,000 people die each year from sepsis in the U.S – this equates to one person every two minutes. Moreover, 1 in 3 patient deaths in the hospital are as a result of sepsis. Sepsis begins with an infection and may end in one of two ways, survival, or death. Some people are more susceptible to sepsis than others. This module explores the factors involved that place some groups of people at a greater risk for sepsis.

Key Points

Anyone can get an infection and any infection can lead to sepsis

In response to an infection, our immune system launches an attack on the invading microbes in order to rid our body of the infection. Sometimes in doing so, the immune system response spreads throughout the body after beginning in a localized site of infection. This extreme response may result in multiple organ failure, and death. Some people are at greater risk for this than others.

Below are some groups of people that are at greater risk for sepsis than others

Older adults

Sepsis has been the tenth leading cause of death in patients over the age of 65 in the US since 2001. Older people make up a greater proportion of sepsis patients, and both incidence and mortality rates are significantly greater among older adults.

Patients who have been previously hospitalized

In a recent study among 500 hospitals in the U.S, many patients that had been diagnosed with sepsis and who survived were readmitted with the same diagnosis within 90 days after discharge. The risk was greater among patients who had received antibiotics (65 percent) than in those without antibiotic exposure.

Chronic diseases

People with chronic disease are at an increased risk for developing sepsis. One study found that incidence of sepsis was highest among older adults. Furthermore, chronic diseases that were associated with a higher incidence of sepsis included chronic lung disease, peripheral artery disease, chronic kidney disease, myocardial infarction, diabetes, stroke, and coronary artery disease. Sepsis risk increased with the number of chronic medical conditions.

Immunocompromised people

It is estimated that approximately 4 percent of the U.S. population are immunocompromised. Examples of persons with weakened immune systems include those with HIV/AIDS; cancer and transplant patients who are taking certain immunosuppressive drugs; and those with inherited diseases that affect the immune system.

Previous sepsis diagnosis and surviving is also a risk factor for sepsis

Many sepsis survivors have residual immunosuppression as a result of their previous diagnosis of sepsis. This contributes to risk of reinfection, not only of sepsis, but of other recurrent infections. Moreover, physical, and psychological effects on sepsis survivors can have a devastating impact on quality of life after sepsis. Effects can include cognitive and functional impairments; increased risk of hospital readmission; increased risk of mortality. More than 50 percent of survivors of sepsis experience these effects.

Sepsis infection rates were highest among those with Type II diabetes

More than 34 million Americans have diabetes (about 1 in 10), and approximately 90-95 percent of people with diabetes have Type II, which most often develops in people aged over 45. Furthermore, 1 in 4 adults aged over 65 have been diagnosed with Type II diabetes. Sepsis infection rates are highest among those with Type II diabetes, this is because diabetes causes a functional immune deficiency that directly reduces immune cell function. As a result, patients display diminished bactericidal clearance, and increased complications.

Resources

CDC Sepsis Resources

<https://www.cdc.gov/sepsis/index.html>

Maryland Hospital Association Sepsis Resources

<https://www.mhaonline.org/transforming-health-care/healthy-hospitals-healthy-communities/complications/sepsis>

Sepsis Alliance Information Guides

<https://www.sepsis.org/education/resources/sepsis-information-guides/>

INTERACT Tools for SNFS/Nursing Homes

<https://pathway-interact.com/interact-tools/interact-tools-library/interact-version-4-0-tools-for-nursing-homes/>

Minnesota Hospital Association Sepsis Screening Tool

<https://www.mnhospitals.org/quality-patient-safety/quality-patient-safety-improvement-topics/sepsis#/videos/list>

- ❖ Scroll down halfway for the screening tool.
- ❖ See this link also

<https://www.mnhospitals.org/Portals/0/Documents/ptsafety/SeeingSepsisLTC/1.%20Seeing%20Sepsis%20-%20LTC%20Poster.pdf>

Atlantic Quality Improvement Sepsis Tool

https://atlanticquality.org/download/AQIN_Nursing_Facility_Sepsis_Care_Pathway.pdf

I. Family Members and Ancillary Personnel

Introduction

There is a role for family members and caregivers in sepsis prevention and early identification. Family members and caregivers can be trained, using simple tools like Stop and Watch, to recognize changes in their loved ones that are signs and symptoms of sepsis. They need to be encouraged to report what they see and educated about what to look for as well as how to alert staff when they see something that may be an indication of serious illness. Skilled nursing facilities should harness the resource of family members and caregivers to assist with spotting early signs.

Key Points

Family Engagement

The plan to involve residents should begin with the creation of material or resources that can help them to learn about sepsis. This can be done by creating opportunities for them to receive training and to review materials in the skilled nursing facility and/or by referring them to websites or other educational resources where they can learn more about sepsis including its' risks, prevention, early detection. The training and resource material should also include information about how sepsis is managed and what outcomes can result e.g., transfer to acute care, intensive care stays and possible death.

Family members should understand their role in prevention and early detection with clear guidance about what changes in their loved one should be reported, to whom and in what time frame. Family members should understand the protocols in place for managing residents with suspected sepsis so that they understand what should happen if signs and symptoms develop.

Steps in a Family Engagement Protocol

- Coordinate with family or caregiver to reduce sepsis risk factors and identify clinical indicators at first sign
- Disclose all sepsis related events with family members in real time
- Provide an explanation to family members as to why/how the sepsis occurred;
- Explain how the effects of sepsis will be minimized; and
- Discuss/state steps that the skilled nursing facility will take to prevent recurrences of sepsis

Ancillary Personnel in the Nursing Home

Just as family members can be part of the sepsis prevention team, so can ancillary personnel. Ancillary personnel include staff working in food service, occupational and physical therapy and housekeeping staff. Using simple tools, these staff can be trained to recognize early signs and symptoms of sepsis. Skilled nursing facilities should create opportunities for ancillary personnel to receive training about sepsis including its' risks, prevention, early detection. The training and resource material should also include information about how sepsis is managed and what outcomes can result e.g., transfer to acute care, intensive care stays and possible death.

As part of a sepsis prevention and early recognition program in your skilled nursing facility you should consider taking the following steps:

Developing a team approach to implement a protocol for early sepsis identification and treatment including representation from Administration, Nursing, Medical Director and Pharmacy.

- Creating a sepsis dashboard for your organization's leadership.
- Implementing a Sepsis Rapid Response Team or incorporating early detection of sepsis into your existing teams.
- Formalizing processes to screen patients for signs of sepsis throughout the entire institution.
- Implementing an effective monitoring and screening system to accomplish continuous monitoring and early detection by all skilled nursing facility staff regardless of occupation.

Leadership for improving the facility's ability to detect sepsis earlier and prevent the progression to severe disease must come from the Medical Director and Nursing supervisors. It is implemented, however, by all personnel within the skilled nursing facility.

The following are tools that can assist as you engage all staff in a concerted effort to prevent sepsis.

- Leverage your electronic health record to serve as a data collection tool and repository for predicting risk of sepsis for patients.
- Create a system that makes data collection easy and allows for continuous analysis and surveillance.
- Consider implementing an automated electronic screening process which documents processes of care based on existing data (SIRS criteria, or any other warning system being used).
- Design workflows specific to the level of alert and to the type of personnel using them

Leveraging the Electronic Health Record

- Prompts in Electronic Health Record that alert for additional monitoring.
- Prompts in Electronic Health Record for order sets.
- Prompts for high-risk patients for sepsis.
- Ability to auto populate vital signs and labs to trigger alerts for clinical staff.

Resources

Stop and Watch Poster:

https://www.nyrah.org/Materials/NYRAH_StopWatch_poster.pdf

Video on Sepsis in Older Americans:

Alliance for Aging Research. Sepsis in Older Americans: Saving Lives through Early Recognition. (2018). Retrieved March 18th, 2021 from

<https://www.youtube.com/watch?v=k1mCpc3xwRM> on

Video on Faces of Sepsis:

Sepsis Alliance. (2014). Faces of Sepsis. Retrieved from

<https://www.youtube.com/watch?v=12Qbnn6XfH0>

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Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health: Sequence for Putting On Personal Protective Equipment: <https://www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf>

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