



Letter from Home: A Newsletter for Direct Care Providers

Sepsis

August 2019

September is sepsis awareness month and as a result, this issue of the *Letter from Home* will focus on this serious condition. Sepsis is a major cause of death and disability in the US and 80% of sepsis begins outside the hospital, in the community. Every year, more than 1 million people are affected with sepsis in the U.S and 28-50% of those who develop sepsis will die from its effects. In fact, more people die from sepsis than from prostate cancer, breast cancer and AIDs combined!

Sepsis also affects children and more children die from sepsis daily than from pediatric cancer diagnoses. In the United States, more than 75,000 children develop severe sepsis each year. This works out to about 200 per day and the number is increasing by 8% every year. Unlike other leading causes of death and disability, many do not know much about sepsis or how to recognize or prevent it. Home care support workers who see their patients on a regular basis are well placed to recognize the signs of sepsis early and raise the alarm to enable prompt identification and treatment.

What is Sepsis?

Sepsis starts with an infection. The infection can be caused by any kind of infection: bacterial, viral, fungal or parasitic. If an infection does occur, the immune system will try to fight it, although medications such as antibiotics, antivirals, antifungals, and anti-parasitics can often help. However, for reasons researchers don't understand, sometimes the immune system stops fighting the infectious agent and begins to turn on itself. The process of sepsis is complicated, but when the body's immune response is affected, chemicals released into the blood to fight infections can trigger widespread inflammation. This surge in body inflammation leads to changes that may include blood clots and leaky blood vessels. The results, if left untreated, can cause lower blood flow resulting in less oxygen and nutrients getting to the body's organs and extremities. In the worst cases, blood pressure drops and the heart weakens, leading to septic shock and even death.

One primary reason for the high death rate in sepsis is that early signs and symptoms are very subtle and nonspecific, and are oftentimes overlooked even by healthcare professionals. Sepsis can occur very quickly and treatment delays can contribute to disease progression and worse outcomes. According to statistics from the Sepsis Alliance organization, the death rate from sepsis increases eight percent for every hour that antibiotic treatment is delayed in severe sepsis. It is thought that as many as 80% of deaths resulting from sepsis could be prevented with prompt diagnosis and treatment ("Sepsis Fact Sheet", 2016).

Oftentimes direct care workers may be the first to recognize the signs and symptoms of sepsis. It is important you have an understanding of what sepsis is and how to recognize the early warning signs, so that treatment for your patients is not delayed.

Sepsis Causes

It may be surprising to discover that some more common infections that are seen in our home care patients are ones that are the biggest contributors to sepsis; such as pneumonia and

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urinary tract infections. But sepsis can occur anytime when germs enter a person's body and multiply, which can cause illness, organ and tissue damage or even death.

Common infections that lead to sepsis are:

- Pneumonia
- Urinary tract infection (UTI)
- Abdominal infections
- Catheter-related infections
- Infected pressure ulcers
- Skin infections

While these are the most common sources for sepsis, there are other causes and sometimes the source is not known.

Who is at Risk?

Sepsis can affect anyone at any time but it does tend to strike more often people at the extremes of life, the very old and the very young. As a result, children, particularly premature babies and infants, can be more susceptible to developing sepsis. Elderly people are more prone to infection compared to younger adults due to alterations in the immune response that occur with aging. The immune system may be further impaired by other co-occurring conditions, making adults with chronic disease more prone to infections than those without them.

Those Most at Risk for Developing Sepsis:

- Adults 65 and older
- Infants and children
- People with weakened immune systems
- Patients with cancer
- Hospitalized with frequent infections and frequent use of antibiotics and steroids
- People with chronic diseases such as diabetes, heart failure, liver disease, AIDs,
- People with a recent surgery
- People with a recent hospitalization, especially within the last 30 days
- Patients with Foley catheters, PICC lines, central lines
- People with a severe burn or physical trauma

In addition to older age, diabetes may be an important sepsis risk factor for many in home care. In diabetes, the body has a harder time healing when there is a cut or other type of wound. This is a particular concern with wounds on the feet, because the blood circulation of the lower legs may be impaired. The longer it takes for a wound to heal, the higher the risk of developing an infection. Also, many people with diabetes lose some sensation in their feet. When this happens, patients may not notice if they have a sore at first. Paying attention to a patient's skin, especially the diabetic, is critical.



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Signs and Symptoms

Common early symptoms of sepsis are fever, chills, rapid breathing and heart rate, rash, confusion, and disorientation. Some patients may just “seem different than normal”. They may require more assistance with ADLs, complain of new or worsening pain, have mood/behavior changes, or be more fatigued than normal. As you can see, these symptoms can be caused by a multitude of reasons, even the flu. Doctors diagnose sepsis using a blood test to see if the number of white blood cells is abnormal. They also do lab tests that check for signs of infection. Worsening the issue of early recognition is that elderly patients often have atypical symptoms for infection. Some older adults may not have a fever, particularly if their temperature commonly runs low. Other elders may not have urinary urgency or pain with a urinary tract infection (UTI), which are typical symptoms for many adults. It is important, then, to know what is normal for your patient, particularly if their normal temperature usually runs low but suddenly rises. Also, older adults may often show early signs of infection by changes in behavior, mood, or cognition. So, it is important to pay attention to anything that is not normal for your patient and report these changes, no matter how subtle, to your supervisor or nurse manager.

People with sepsis are usually treated in hospital intensive care units. Doctors try to treat the infection, sustain the vital organs, and prevent a drop in blood pressure. Many patients receive oxygen and intravenous (IV) fluids. Other types of treatment, such as respirators or kidney dialysis, may be necessary. Sometimes, surgery is needed to clear up an infection.

Importance of Early Recognition

As discussed earlier, recognizing sepsis can be challenging because the symptoms are often subtle, which can lead to delayed treatment. Many times, symptoms of sepsis mimic other lesser severe conditions and often the patient’s situation escalates quickly. Also, because sepsis can occur due to so many different reasons, it makes it all the more difficult to recognize. To assist you in recognizing the early symptoms, sepsis.org has a mnemonic to help. Look for and report the following observations:

S-E-P-S-I-S

- S** Shivering, fever or very cold
- E** Extreme pain or general discomfort (often described as the worst pain ever experienced)
- P** Pale or discolored skin
- S** Sleepy, difficulty to rouse, confused
- I** “I feel like I might die”
- S** Shortness of breath

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Children may have slightly different symptoms. In children, you should be concerned about possible sepsis if you observe a child who:

- Feels abnormally cold to touch
- Looks mottled, bluish or has very pale skin
- Has a rash that does not fade when you press on it
- Is breathing very fast
- Has a seizure
- Is very lethargic or difficult to wake up

For a child under 5 who:

- Is not eating
- Is vomiting repeatedly
- Has not urinated in 12 hours

If you see one or more of these symptoms in your adult or child patients, contact your supervisor immediately and tell them you are concerned about sepsis. Timely reporting is very critical with sepsis and every minute matters.

Your role in Sepsis Prevention

Many infections can be prevented simply by good, consistent standard infection control practices. Others can be prevented through vaccinations. Not all infections can be prevented, so not all cases of sepsis can be prevented. But by following these basic guidelines, you can help your patients decrease their risk.

1. **HAND WASHING.** Washing hands is a simple task done every day, several times a day. Good handwashing is the key to stopping the spread of infection. For hand washing to be effective, it needs to be done properly. To wash your hands, use running water to help wash the debris from your hands, lather your hands well making sure to rub between each finger and under your nails, and dry your hands thoroughly with a clean towel. If you are using a hand sanitizer, use the same motions as when using soap and water. Your hands should be dry before touching anything. Hand sanitizers are good for when hands are not visibly dirty, but you know they need to be cleaned. It is also important to wash your hands before or after touching anyone or anything that may be contaminated.
2. **ENCOURAGE VACCINES.** Vaccines developed for viruses such as flu, pneumonia, chicken pox, and tetanus, trick the body into thinking that it has been infected by the virus and this makes a person immune to the illness.
3. **OBSERVE SKIN FOR OPEN AREAS OR WOUNDS.** Every break or opening in the skin can allow germs to enter the body. Watch for signs of infection: redness around the wound, skin around wound warm to touch, pain, or discharge from wound. Notify your supervisor or case manager if you observe signs of infection. Pay particular attention to

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- older patient's feet and areas which are more prone to breakdown (over bony prominences, areas with edema, skin folds)
4. **ASSIST PATIENT WITH BATHING.** Keeping the skin clean can decrease the chance for infection.
 5. **KNOW WHO IS AT RISK FOR SEPSIS.** For example, if a patient has difficulty swallowing or chokes on food, they may have a higher risk of developing aspiration pneumonia, which can lead to sepsis. Patients with tubes or drains in are also at a higher risk for sepsis. Other high risk patients are children and those with diabetes or other chronic diseases.
 6. **THINK SEPSIS.** Know the signs and symptoms of sepsis to identify and treat patients early. Share the information below in the box from sepsis.org and Sepsis Alliance with your patients and their families.

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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Researchers are exploring new ways to diagnose, reverse, or prevent this serious and costly condition. Treatment for sepsis is most successful if the condition is spotted early and then treated quickly with antibiotics to fight the infection and fluids to maintain blood pressure.

After Sepsis

Post-sepsis syndrome (PSS) is a condition that affects up to 50% of sepsis survivors. Sepsis survivors often are left with physical and/or psychological long-term effects, such as post-traumatic stress disorder, chronic pain and fatigue, organ dysfunction and amputations. The risk of having post-sepsis problems is higher among people who were admitted to an intensive care unit (ICU) and for those who have been in the hospital for extended periods of time. Post-sepsis syndrome (PSS) can affect people of any age, but a study from the University of Michigan Health System, published in 2010 in the medical journal *JAMA*, found that older severe sepsis

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survivors were at higher risk for long-term cognitive impairment and physical problems than others their age who were treated for other illnesses. Their problems ranged from no longer being able to walk to not being able to participate in everyday activities, such as bathing, toileting, or preparing meals. Changes in mental status can range from no longer being able to perform complicated tasks to not being able to remember everyday things. (Sepsis.org)

For some patients, the cause of their PSS is obvious. Blood clots and poor blood circulation while they were ill may have caused gangrene and the need for amputations of fingers, toes, or limbs. Damage to the lungs can affect breathing. Another study, published in 2012 in the journal *Shock*, researchers found that sepsis survivors may be more vulnerable to developing viral respiratory (lung) infections. Other organs may be damaged as well, such as the kidneys or liver. (Sepsis.org)

These lasting physical issues can be explained, but there is more to PSS that cannot yet be explained, such as the disabling fatigue and chronic pain that many survivors experience. Others complain of seemingly unrelated problems, like hair loss that may occur weeks after their discharge from the hospital. (Sepsis.org)

Other long-term effects of sepsis include:

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

Many children who survive sepsis are left with long-term problems. More than 1 in 3 children (34%) who survive are left with a change in cognitive skills still at 28 days following their discharge from the hospital. Nearly half (47%) need to be readmitted to the hospital at least once after surviving sepsis.

Conclusion

Sepsis is a true health care emergency and is a leading cause of death in US hospitals. Sepsis comes on quickly with often vague symptoms. Studies have shown that early recognition and prompt treatment can reduce death rate as well as lessen many of the common effects of sepsis. Direct care providers are positioned to influence the early identification of sepsis and care of those post-sepsis home care and hospice patients.

Resources:

Sepsis.org



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Sepsis Quiz

1. The real challenge with sepsis is:
 - a. Recognizing it, because symptoms may be vague
 - b. The use of too many antibiotics
 - c. Unvaccinated children
 - d. All of the above

2. The most common risk factors for development of sepsis include all EXCEPT:
 - a. Chronic illness
 - b. Older age
 - c. Immunosuppressive diseases, such as cancer
 - d. Too many supplements

3. The longer the delay in treatment for sepsis is, the higher the survival rate. (Circle the best answer)
 - a. True
 - b. False

4. Common sepsis symptoms include:
 - a. Shivering
 - b. Confusion
 - c. Extreme pain
 - d. All of the above

5. When you observe a patient who has signs of possible sepsis, what do you do first: (select the best answer)
 - a. Advise patient to drink fluids
 - b. Notify your supervisor/nurse case manager immediately
 - c. Record your observations and submit with your routine paperwork
 - d. Wait a few days to see if further signs of sepsis develop