

# SEPSIS

## A Review for Home Healthcare Clinicians

Sepsis is a life-threatening response to infection that affects over 1.7 million people annually in the United States. Although sepsis can strike healthy and active people of all ages, those at highest risk are older adults, infants, and people with chronic illnesses or an impaired immune system. Many people who had sepsis recover and resume life as it was before. However, others require some level of postdischarge home healthcare. Up to 60% of survivors, particularly of severe sepsis and septic shock, are left with cognitive and/or physical limitations. About one-third of all sepsis survivors and more than 40% of older survivors are rehospitalized within 3 months of the initial sepsis diagnosis, most commonly due to a repeat episode of sepsis or another infection. Quality home healthcare follow-up of sepsis patients is paramount in lowering readmission rates, preventing reoccurrence of sepsis, and assisting patients and families during the postsepsis phase of healthcare.

**A**ccording to Sepsis Alliance (2020), sepsis is “the body’s overwhelming and life-threatening response to infection which can lead to tissue damage, organ failure, and death.” Clinicians who work in home healthcare are well placed to recognize signs and symptoms of infections and sepsis among their patients, and either refer them to other healthcare professionals or initiate early treatment themselves. Whether patients live with one or more chronic conditions, have experienced an acute illness, or have recently been discharged from the hospital after treatment for sepsis, these early interventions could mean the difference between life and death.

According to the most recent statistics available, every year about 1.7 million people in the United States are hospitalized with sepsis (Centers for Disease Control and Prevention, 2019). It is estimated that each year, emergency medical service providers in the United States provide care to 60,000 more patients with severe sepsis than those who have had heart attacks or strokes, combined (Seymour et al., 2012). Many are newly septic while others are readmitted after a recent hospital discharge. Although it is not uncommon for people to think of sepsis primarily as a hospital issue, it is much more than that. As many as 87% of sepsis cases begin in the community (Rhee et al., 2017). Although sepsis can and does strike people who were healthy and active prior to becoming ill, those at highest risk are older adults, infants, and people with chronic illnesses or an impaired immune system. It is also not uncommon for patients recovering from surgical or invasive procedures to contract an infection that could lead to sepsis.

### Sepsis Survivors at Home

Many people who had sepsis recover and resume life as it was before. However, others require some level of postdischarge home healthcare. Up to 60% of survivors, particularly of severe sepsis and septic shock, are left with cognitive and/or physical limitations (Iwashyna et al., 2010). Older adults who survive may experience, on average, one or two new limitations in their activities of daily living (Prescott et al., 2018). The frequency and quality of home healthcare after a sepsis hospitaliza-

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tion is especially important given the high number of sepsis-related readmissions. About one-third of all sepsis survivors and more than 40% of older survivors are hospitalized within 3 months of the initial sepsis diagnosis, most commonly due to a repeat episode of sepsis or another infection (Prescott et al.). Other causes for readmission include increased risk of stroke and myocardial infarction, particularly among adults younger than 45 years (Abu-Kaf et al., 2018).

A recent study by Bowles et al. (2019) found that survivors of septic shock, the body's toxic and often life-threatening response to infection, had "the greatest illness burden profile" among all sepsis survivors. These patients had the most severe comorbidities, including fluid and electrolyte disorders and congestive heart failure, among others. In this study, over 20% of all sepsis survivors were readmitted to the hospital or admitted

to hospice within 30 days of their discharge. Of those, over 6% were readmitted within 1 week. The authors also identified several risk factors associated with early readmission. Among the nonmodifiable risks were previous hospitalizations, fluid and electrolyte disorders, dyspnea at rest, inability to perform activities of daily living, and home intravenous infusions. Modifiable risk

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factors included dyspnea, pain, depression, and frailty, among others (Bowles et al.). Knowing these risk factors exist can help home healthcare clinicians be more aware of the potential for sepsis recurrence.

Children are not immune from postsepsis issues. Thirty-one percent of pediatric sepsis survivors are discharged from the hospital with some disability, including cognitive or physical impairments, skin graft, amputation, or hearing loss (Boeddha et al., 2018). Approximately one-third of readmissions following a sepsis hospitalization among children occur within 2 weeks of their initial discharge, and more than half of these readmissions are related to recurring sepsis or infection (Prout et al., 2019).

### Preventing Readmissions

Good home healthcare follow-up of sepsis patients is paramount in lowering readmission rates. The 30-day readmission rate for sepsis survivors drops by 7 percentage points if the patients are seen at home by a nurse within 48 hours of discharge and again a week later, followed by a follow-up with an outpatient provider. However, according to Bowles et al. (2019), less than a third of sepsis survivors (28.1%) receive this type of follow-up care. For this reason, it is essential that acute care and rehabilitation facilities arrange for appropriate follow-up care upon discharge, and that home healthcare agencies admit the patient and follow through in a timely manner.

## Preventing Sepsis Among Home Care Patients

Whether home healthcare patients are recovering from surgery or an acute illness, or they live with chronic diseases, the potential for an infection triggering sepsis exists. Quick recognition of sepsis signs and symptoms can reduce the risk of sepsis progressing, particularly if the patients receive proper sepsis care within an hour of identification. According to Bowles et al. (2020), who looked at 165,228 sepsis survivors, the most common causes for sepsis are kidney infections and urinary tract infections, followed by pneumonia. These infections are common among patients who receive home care services. Up to 70% of these patients also had hypertension and 40% had diabetes mellitus, prior to becoming ill.

Patients and their caregivers should be educated on the signs and symptoms of infection and on infection prevention, be it for bacterial, viral, or fungal infections. A quick review of the home environment may raise some red flags for the clinician, who might identify potential risk sources, such as unhygienic areas where dressing changes are performed, poor hygiene overall, pressure injury risks, poor nutrition options, or the presence of children who might bring home viral or bacterial illnesses. Patients and their caregivers can be educated regarding effective infection prevention, but they should also be educated about sepsis and what to do if they suspect sepsis. The signs of sepsis include hypotension, rise or drop in body temperature, and a change in mentation.

Simple tools, like Sepsis Alliance's *It's About Time*™ campaign, are short and direct (Figure 1). The letters of TIME stand for: **T**: Temperature higher or lower than normal; **I**: Infection signs or symptoms; **M**: Mentation changes (sleepy, difficult to arouse); **E**: Extremely ill (severe pain or discomfort). You can provide patients and family members with Sepsis Alliance brochures, such as *Sepsis and Aging* and *Sepsis and Surgery*, which can be downloaded from the Sepsis.org website.

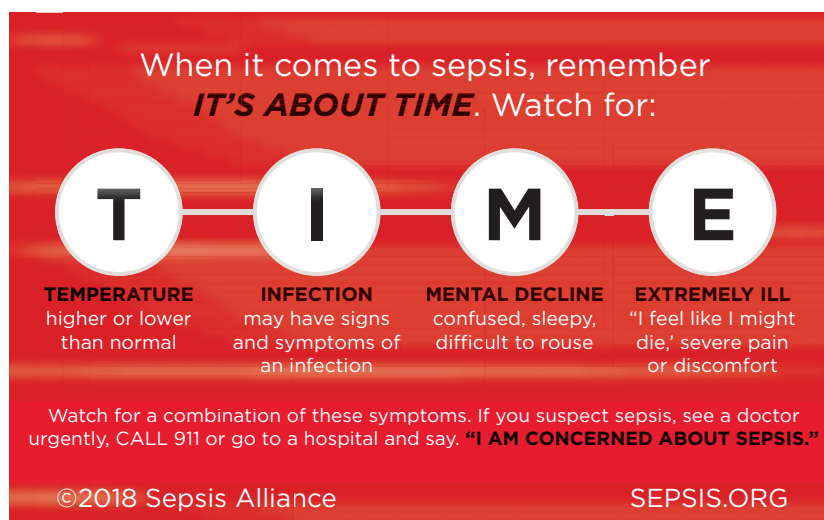


Figure 1. Sepsis Alliance's *It's About Time*™ tool.





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## Postsepsis Syndrome

Postsepsis syndrome is a combination of health problems related to a sepsis or septic shock diagnosis. It includes problems such as posttraumatic stress disorder, chronic pain, chronic fatigue, cardiovascular disease, hair loss, depression, anxiety, organ dysfunction, amputations, and more. Unfortunately, many clinicians are unaware of or don't understand the long-lasting effects that sepsis can leave behind. It is only within the past 2 decades that the term postsepsis syndrome has been used (Mostel et al., 2020). Researchers are looking at various treatments that could target postsepsis syndrome issues, such as gut dysbiosis, which could increase the risk of infection. However, the long-term effects postsepsis are broad and differ between patients, making research more difficult. Because it is not possible to tell ahead of time who will be affected with postsepsis syndrome, effective treatment planning can be challenging. Home healthcare providers who understand that sepsis and septic shock patients often don't "bounce back" after their discharge are better placed to help their patients along the road to recovery.

## Assessing Postsepsis Issues

When assessing patients who were diagnosed with sepsis or septic shock, it's not only important to assess various levels of functioning, from cognitive abilities to physical status, but to also acknowledge that all may not be well. Often, just having a healthcare provider recognize that more healing is needed can help patients move forward. Because sepsis is so poorly understood by the public, survivors often live in a bubble, feeling like they are the only ones to go through the experience. This is emphasized if their primary care provider or other healthcare providers don't take their complaints seriously. Some may benefit from a referral to a

psychologist, someone with difficulty digesting regular food may need a nutrition consult, and those who are physically debilitated may benefit from a referral to physical and occupational therapy. A team approach is needed to help sepsis survivors reach their maximum recovery potential.

It is important that those close to the patient understand that discharge from the hospital does not mean that everything will automatically return to normal. If a patient is experiencing postsepsis issues, he or she may display behaviors that are out of the ordinary. They may lash out, withdraw into themselves, and be unable to cope with everyday issues. Some survivors cannot return to their own caregiving or parenting role right away, and may be unable to return to work, affecting the family's financial situation. Teaching the family or caregivers about these possible issues may help them understand that their loved one still has healing to do.

Healthcare providers also shouldn't forget that the stress surrounding the hospitalization and recovery of a patient who had a serious illness like sepsis is not limited to the patient—the family and caregivers have also gone through a traumatic event and may continue to experience stress as the patient recuperates at home. Caregivers of patients who have survived critical illness are at risk for poor mental health outcomes, with 67% of caregivers reporting high levels of depressive symptoms (Cameron et al., 2017). Sepsis and septic shock in children also takes a toll on family and caregivers. Parents of children who survived critical illnesses report a higher rate of posttraumatic stress disorder and symptoms of deteriorating physical and mental health, such as headaches, fatigue, and anxiety (Syngal et al., 2018).

Home care provides a vital role in helping recognize early sepsis, particularly among the most vulnerable. It is also important in helping reduce the chances of readmissions related to sepsis and

reducing the impact of postsepsis syndrome in vulnerable patients. ■

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