

Hospital Costs Associated with Sepsis Compared with Other Medical Conditions

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KEYWORDS

- Surviving sepsis campaign • Sepsis • Septicemia • Sepsis costs
- Hospital-acquired infections

KEY POINTS

- Sepsis affects millions of people annually, resulting in significant mortality. Sepsis is among the costliest conditions for hospital admissions and readmissions. Compared with the top 4 conditions (acute myocardial infarction, congestive heart failure, pneumonia, and chronic obstructive pulmonary disease) that are monitored by the Hospital Re-admission Reduction Program, sepsis remains the costliest condition.
- The Surviving Sepsis Campaign's aim is to decrease the morbidity and mortality of patients by the use of a set of guidelines. These guidelines are in a form of 3-hour and 6-hour bundles that focus on improving quality outcomes for patients with a sepsis condition.
- Various resources are available for health care providers when caring for patients with a sepsis condition. These resources include the sepsis or septic shock bundles, the Severe Sepsis Practice Alert by the American Association of Critical-Care Nurses, and the Agency for Healthcare Research and Quality (AHRQ) Quality Toolkit.

INTRODUCTION

Health care costs, access, and population health outcomes have been a priority for policy makers and regulators for years. Health care spending is a large component of the US gross domestic product, reaching 17.9% in 2016 compared with 17.7 in 2015.^{1,2} Furthermore, hospital care expenses are the largest component of health care costs, increasing 4.3% beyond spending in 2015, equaling 3.3 trillion dollars in 2016.^{1,2} Over the years, hospital-acquired infections (HAIs) have been a focus and continue to be a concern for health care organizations owing to the associated costs, mortality, and morbidity rates.³ Another condition, sepsis, has caught the attention of

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hospitals, insurers, regulatory agencies, and medical providers, and has become a major focus for hospitals. This focus is due to increased hospital costs and mortality, which are due to intensive care treatment and hospital readmissions of patients with sepsis conditions. This article compares the hospital costs for patients with sepsis conditions compared with other medical conditions.

Sepsis

Sepsis is among the chief reasons for increased health care costs, hospital readmission rates, and deaths in the United States. Annually, more than 1.5 million people are diagnosed with this condition, 250,000 people die from sepsis, and 1 in 3 deaths in hospitals is attributed to sepsis.⁴ More than 1.8 million emergency room visits were due to sepsis from 2009 to 2011.^{4,5} In April 2015, the Centers for Medicare & Medicaid Services (CMS) announced a new program for inpatient hospital reporting to improve the outcomes of patients with sepsis conditions.⁶ The *Early Management Bundle, Severe Sepsis/Septic Shock (SEP-1)*, states the sepsis measures that hospitals have been required to report since October 1, 2015.⁶ Agencies, including the Agency for Healthcare Research and Quality (AHRQ) and the National Quality Forum (NQF), have developed measures to monitor the outcomes of sepsis. The AHRQ developed the Patient Safety Indicator #13 (PSI 13) Postoperative Sepsis Rate as a provider-level patient safety indicator, which was adopted by the CMS as a composite measure of patient safety.⁷ In 2017, the NQF bundle for managing severe sepsis and septic shock (measure 0500) was included in the hospital inpatient quality reporting program.⁸ With the addition of these measures, it becomes apparent how widespread, serious, and costly sepsis is for the health care system. Important infection control practices, such as handwashing, decrease infections and possibly sepsis. The CDC reported that higher than 90% of adults and 70% of children who are diagnosed with sepsis presented with an underlying condition that may put them at risk, including specific infections sepsis, lung, urinary tract, gut and skin (<https://www.cdc.gov/vitalsigns/sepsis/>).⁴

Definition of Sepsis

Initially, sepsis was described as a systematic host reaction to an infection.⁹ Early in the 1970s, it was described as a type of blood poisoning.¹⁰ In 1992, the American College of Chest Physicians and Society of Critical Care Medicine (SCCM) jointly published a definition of sepsis, which was revisited in 2001.¹¹ In 2014, the European Society of Intensive Care Medicine and the SCCM met to reassess the definition of sepsis.¹² Sepsis was defined as a “life-threatening organ dysfunction caused by a dysregulated host response to infection.”^{12(p804)} The task force also reassessed the definition of septic shock, now defined as “a subset of sepsis in which underlying circulatory and cellular metabolism abnormalities are profound enough to substantially increase mortality.”^{12(p806)} The new definitions are designated as Sepsis-3, noting that the previous definitions used Sepsis-1 (1991) and Sepsis-2 (2001).¹²

Impact of Sepsis: Quality and Costs

The prevalence and incidence of sepsis varies between studies owing to various definitions, various types and causes, and individualized patient factors, such as age, comorbid conditions, race, ethnicity, and gender.^{13–16} Men have a higher rate than women, but Nonwhite have a higher incident of sepsis among nonwhite persons compared to white persons.^{14–18} It is known that many patients who die from infections will eventually die with sepsis and organ dysfunction.¹⁰ Martin¹⁰ commented that as researchers and physicians gain knowledge about the causes of sepsis, the

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