Driving Sepsis Mortality Down

Emergency Department and Critical Care Partnerships

Kristine K. Powell, MSN, RN, CEN, NEA-BC[a,*],
Rita J. Fowler, MSN, RN, CCRN, NE-BC[b]

KEYWORDS

• Septicemia • Sepsis • Septic shock • Sepsis mortality • Surviving Sepsis Campaign
• Performance improvement

KEY POINTS

- Sepsis is a complex condition that occurs in the complex systems of the human body.
- Improvements in sepsis care can be difficult in the complex system of health care.
- A continuous quality improvement approach with active engagement of administrative and clinical personnel at all levels is needed to improve sepsis care.
- Rigorous and transparent reporting of metrics based on evidence-based protocols provides motivation for continued improvement.
- Improved compliance with sepsis protocols can reduce sepsis mortality across a health care system.

INTRODUCTION

Since the early 2000s, much effort has gone into reducing morbidity and mortality associated with severe sepsis and septic shock. In 2001, Rivers and colleagues[1] published the sentinel article on early goal-directed therapy in treating severe sepsis and septic shock. In 2002, the Surviving Sepsis Campaign was introduced to raise awareness and improve care of patients with sepsis.[2] In 2004, the *Journal of Critical Care Medicine* published the Surviving Sepsis Guidelines for Management of Severe Sepsis and Septic Shock to improve care and outcomes of critically ill patients with

Disclosures: The authors have nothing to disclose.
[a] Office of the Chief Nursing Officer, Baylor Scott & White–North Texas, 2001 Bryan Street, Suite 600, Dallas, TX 75201, USA; [b] Department of Critical Care, Baylor University Medical Center at Dallas, 3500 Gaston Avenue, Dallas, TX 75246, USA
* Corresponding author.
E-mail address: KrisP@baylorhealth.edu

Crit Care Nurs Clin N Am 26 (2014) 487–498
http://dx.doi.org/10.1016/j.ccell.2014.08.005 **ccnursing.theclinics.com**
0899-5885/14/$ – see front matter

sepsis.[3] In response to these evidence-based guidelines, hospitals and health care providers began implementing recommended sepsis care bundles to improve recognition, treatment, and outcomes of severe sepsis and septic shock. Despite these efforts, hospital death rates for septicemia as a primary diagnosis increased 17% between 2000 and 2010 (13.9 deaths per 100 admissions in 2000 compared with 16.3 deaths per 100 admissions in 2010), whereas overall hospital death rates have decreased.[4] For patients with severe sepsis, the mortality rate is still almost one out of every three patients.[5] In 2010, sepsis was recognized as the 11th leading cause of death in the United States[6] and was one of the top 10 leading causes of death in the younger age groups from birth to 14 years and the age group of 55 years or older.[7] Septicemia also has severe economic consequences and was identified as the most expensive condition to treat in US hospitals, accounting for 5.2% of total aggregate costs.[8]

SEPSIS AND HEALTH CARE: A SYSTEMS VIEW

Sepsis and the Human Body: A Systems View

Sepsis is recognized as a complicated and dynamic disease state involving multiple processes and physiologic responses within the human body.[9] Understanding and predicting the pathophysiology of sepsis in any one patient is difficult because the human body is also a complex adaptive system.[10] At the Merinoff Symposium on Sepsis in Fall 2010, a group of international stakeholders developed consensus on public and molecular definitions of sepsis as "a life threatening condition that arises when the body's response to an infection injures its own tissues and organs," which occurs as a result of "unbalanced activation of innate immunity."[11] This definition provides a more accurate description of sepsis as a complex disease syndrome that occurs within the complex processes of the human body.

Performance Improvement in a Complex Adaptive System

Baylor Health Care System (BHCS) is a large health care system of multiple facilities, departments, services, and staff, all with multiple and important priorities in the areas of quality, service, people, and finance. Reducing sepsis mortality across this complex health care system requires a systems approach to performance improvement (PI). Tsasis and coworkers[12] report that change in integrated care processes is difficult in health care systems because of a lack of understanding of complex adaptive systems and suggest that "health systems integration requires policies and management practices that support relationship building and information-sharing across organizational and professional boundaries, and that recognize change as an evolving learning process rather than a series of programmatic steps."

Kottke and coworkers[13] identified five rules that can create value in health care systems: (1) identification of measurable goals that are aligned among stakeholders, (2) transparency in public reporting, (3) adequate and available resources, (4) alignment of incentives with goals, and (5) engaged leadership. Funk and coworkers[14] described the need for a multidisciplinary approach to improving sepsis care, which calls for active involvement of executive leadership and direct caregivers within a program of continuous assessment and reporting of outcomes. In *Achieving STEEEP Health Care*, Luquire[15] cites the importance of strong nursing leadership, a shared governance model, and standardization of care to best practices. In the journey to drive a reduction in sepsis mortality, the BHCS has demonstrated a robust systems approach to PI following the principles outlined in **Box 1** and by deploying a variety of strategies and tactics.