Interprofessional Collaboration to Improve Sepsis Care and Survival Within a Tertiary Care Emergency Department

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Contribution to Emergency Nursing Practice

- Building an interprofessional collaborative team around a disease-specific process, such as sepsis, was a successful strategy for solving a complex clinical problem.
- Creating and utilizing a sepsis management tool to guide practice for emergency department health care providers was the key to success.
- Implementing care in the emergency department according to the Surviving Sepsis Campaign recommendations improved patient outcomes.

Abstract

Problem: Sepsis is a leading cause of death in the United States; however, health care providers struggle with timely recognition, diagnosis, and treatment of patients. Both the Centers for Medicare and Medicaid Services and the National Quality Forum have identified this diagnosis as a priority. Presently, many patients with sepsis are identified late, resulting in significant morbidity and death.

Methods: In this project, a collaborative, interprofessional approach was created for screening and early identification of ED patients with possible sepsis. The department has 38 beds with annual patient volumes of more than 40,000 visits. Education was provided about the symptoms and treatment of patients with sepsis. A screening and management algorithm tool was instituted that consisted of early identification triggers and how to intervene according to Surviving Sepsis Campaign recommendations. The tool allowed for assessment of the patient by the ED team; the team worked to determine if sepsis was present and the extent of the illness.

Results: During the first 4 months after implementation, more than 240 patients were screened, assessed, and treated according to the algorithm. Project outcomes resulted in an increase in staff knowledge of sepsis, a decrease in length of stay by 3 hours, and a significant decrease in mortality when compared with the previous year's coded data.

Implications for Practice: This project demonstrates that sepsis education and team collaboration are an integral part of identifying and treating patients with sepsis. An interprofessional collaborative approach could be implemented in other institutions to combat the life-threatening complications of sepsis.

Key words: Sepsis; Infection; Evidence-based practice; Improvement

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Sepsis is a prevalent and devastating diagnosis resulting in more than 750,000 hospitalizations in the United States each year.[1,2] Despite the frequency of occurrence, providers struggle to recognize, diagnose, and treat patients with sepsis promptly, which can lead to serious complications and death. According to Martin,[3] approximately 200,000 deaths per year result from sepsis; thus, nearly 27% of all patients admitted for sepsis succumb to this devastating illness. Because sepsis is a national health care problem, the Centers for Medicare & Medicaid Services (CMS) began requiring hospitals to collect data related to management and treatment in 2015, and it is anticipated that in fiscal year 2017, CMS will use sepsis management in determining payment.[4]

Since 2004, persons affiliated with the Surviving Sepsis Campaign (SSC) have actively sought to publish evidence-based practice guidelines for the care of patients, with revisions to the initial guidelines made in 2008 and 2012. The guidelines include a 3-hour management bundle for sepsis and patients with severe sepsis and a 6-hour bundle for patients with septic shock.[5,6]

Most traditional definitions of sepsis describe the illness as the presence of infection with systemic manifestations.[5] Sepsis was further described by its severity to include systemic inflammatory response syndrome (SIRS), severe sepsis, and septic shock. SIRS was defined by a 1991 consensus conference as the complex pathophysiologic response to an insult such as infection, trauma, burns, pancreatitis, or a variety of other injuries[7] and was considered to be a hallmark sign of potential or present sepsis. If the symptoms progressed to the point of acute organ dysfunction with associated hypoperfusion and hypotension, the patient was experiencing severe sepsis.[3] Without definitive and aggressive treatment, patients experience profound, persistent, or refractory hypotension or tissue hypoperfusion despite adequate fluid resuscitation.[3] Septic shock included decompensation and lack of self-sustaining life.[8]

Recently, the definitions were further refined by a task force of members from the European Society of Intensive Care Medicine and the Society of Critical Care Medicine.[9] They noted that SIRS criteria were general and lacked the sensitivity and specificity for identifying sepsis and agreed that the term "severe sepsis" was redundant with "sepsis." Sepsis was defined as life-threatening organ dysfunction caused by a dysregulated host response to infection[9] with an increased Sequential Organ Failure Assessment score of 2 or more points as an indication of clinical deterioration. According to Singer et al,[9] septic shock was defined as sepsis with underlying circulatory and cellular metabolism dysfunction profound enough to substantially increase mortality. Clinical indicators of septic shock were the use of vasopressor therapy to maintain an adequate blood pressure and elevated serum lactate levels despite fluid resuscitation.[9]

Patients who present with sepsis may respond to early goal-directed therapy, but if symptoms progress to septic shock, the incidence of mortality increases.[5,9] Patients with sepsis who present to the emergency department should receive care according to the 3-hour bundle, which includes measuring the serum lactate level, obtaining blood cultures prior to administration of antibiotics, and administering broad-spectrum antibiotics and crystalloid fluids at 30 mL/kg for hypotension or a serum lactate level of 4 mmol/L or higher.[5]

Literature states initial rapid bolus of 30ml/kg, however, our pilot looked at bolus administration over 90 minutes, as our agreed time frame to provide a clear expectation of the nursing staff.

The purpose of this evidence-based quality improvement project was to decrease sepsis-related mortality in a 320-bed community hospital emergency department that had approximately 40,000 visits each year. According to the International Classification of Diseases (ICD)-9 coding structure, almost 600 patients admitted in the fiscal year 2015 met the sepsis coding criteria. This project was approved as a quality improvement project by the health care system and hospital quality committee.

Methods

CHAMPION TEAM

The SSC highlights the intricacies of identifying, diagnosing, and managing septic patients within the acute care setting. Interprofessional teamwork is vital in the care of patients with sepsis, and the ability to coordinate care can determine patient outcomes. In 2015, a Sepsis Champion Team was formed to ensure the appropriate implementation of the SSC guidelines. The team included representatives from the emergency department, critical care setting, medical-surgical nursing floors, pharmacy, laboratory, and leadership. The team chose the Iowa Model of Evidence-based Practice for Quality Care[10] to guide the project, and the Kurt Lewin Change Model[11] was used to plan the practice change. The team reviewed the literature regarding how to implement the SSC in the emergency department and performed a gap analysis between evidence-based best practices and current unit practice (Table 1).

MANAGEMENT ALGORITHM TOOL

As a result of the gap analysis, the team decided that sepsis screening of all ED patients and implementation of