

A Quality Improvement Project to improve early sepsis care in hospitalized patients



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Background

- Sepsis is defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection.
- If not recognized early and managed promptly, it can lead to septic shock, multiple organ failure and death.
- Sepsis continues to be a leading cause of death and disability worldwide.
- In the US alone, more than a quarter million adults hospitalized with sepsis die each year.
- Clinicians, patients, regulators, and quality improvement advocates recognize the necessity of doing more to prevent sepsis and improve sepsis outcomes

Objectives

- Develop quality information leading to improved future patient outcomes, achieve further efficiency in delivery of quality and evidence-based medical care resulting in reduced mortality, post sepsis morbidity and healthcare costs
- Examine clinical outcomes pre and post intervention regarding early diagnosis and treatment of sepsis
- Measure compliance to established sepsis bundle
- Examine overall effects of intervention on sepsis mortality across both campuses

Statistical analysis

- All results from pre and post assessment were summarized using descriptive statistics. Categorical variables (age, gender, race, comorbidities, and mortality) were reported as means and percentages (% change). There were no continuous variables analyzed nor inferential statistics performed.
- The CH guideline for sepsis was adapted from the Centers for Medicare and Medicaid Services (CMS) Severe Septic Shock Early Management Bundle known as SEP-1 and calls for the identification/diagnosis, initial workup inclusive of initial serum lactate determination, pre-antibiotic drawing of blood cultures, determination of cardiovascular status, initiation of appropriate intravenous fluids, and suggested administration of broad-spectrum intravenous administration of antibiotics.

Materials and Methods

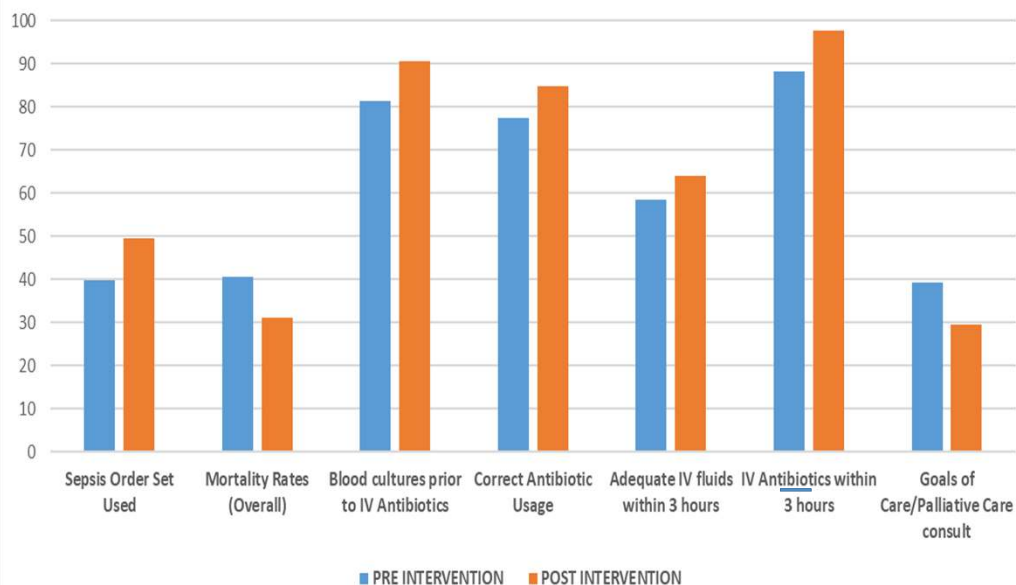
❖ A pre-post study was designed by resident physicians and undertaken at Capital Health Regional Medical Center and Hopewell Medical Center campuses between August and December 2021 and August – December 2022 that investigated chart-reported data on comparative clinical processes and outcomes in **253** emergently hospitalized patients diagnosed with sepsis. This study was supported by residents of Capital Health's Departments of Internal Medicine, Transitional Year, Family Medicine and Emergency Medicine.

- A data collection instrument was used to extract the following information:
- Deidentified patient information (age, gender, ethnicity, weight, co-morbidities, preferred language, code status, length of stay, and goals of care discussion).
- Number of patients where the sepsis order set (bundles 0-3 hour and 3-6 hour) was used
- Adequacy of IV fluids administration and measurement of serum lactate
- Blood cultures drawn before antibiotic administration; including choice of appropriate antibiotic therapy
- Number of patients with septic shock requiring vasopressors

Interventions:

- Enhancement of Sepsis-specific order sets in the electronic medical record
- Comprehensive multidisciplinary team discussions, including medical residents, Sepsis Coordinator, and Clinical Documentation Specialists were conducted biweekly. Concurrent sepsis cases were discussed utilizing clinical reasoning and facilitating peer to peer discussion, analyzing bundle compliance and appropriate clinical documentation
- Didactic educational sessions on appropriate antibiotic selection were conducted by Infectious Disease specialists/hospital epidemiologist and ID pharmacist
- Goals of care discussion workshops were conducted by residents in both hospitals
- Two workshops on bundle compliance were conducted by Sepsis Coordinator and Clinical Documentation Specialist
- Assessment of the residents' medical knowledge and system-based practice of recognition and management of sepsis and septic shock were conducted

Outcomes



Results

- Our analysis revealed a 23% decrease in mortality in the post-group compared with the pre-group
- The use of sepsis order sets increased by almost 25%
- Implementation of multidisciplinary efforts also showed an 11.2% improvement in obtaining blood cultures prior to antibiotic administration
- Selection of correct antibiotics and timely administration improved by 9.7%
- Administration of antibiotics within 0-3 hours increased by 10.7% compared with the pre intervention assessment
- There was no improvement noted in the rate of cases with goals of care discussion documented

Conclusion

A multidisciplinary approach to emergent treatment of sepsis has the potential to positively impact sepsis outcomes, including mortality.

References

- Klompas et al. "The Importance of Shifting Sepsis Quality Measures From Processes to Outcomes" JAMA. 2023;329(7):535-536. doi:10.1001/jama.2023.0340