

**Quality Improvement: A Review of a Nurse-Led Sepsis Protocol Implementation in the
Emergency Department**

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Houser (2023) defines quality improvement as "the systematic, data-based monitoring and evaluation of organizational processes with the end goal of continuous improvement (p. 11)." In healthcare, quality improvement aims to improve organizational workflows, systems, and processes, with the end benefactor being the patient (Houser, 2023). To expand on quality improvement, Quality and Safety Education for Nurses [QSEN Institute] (2020) created six "QSEN Competencies," which include patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. The QSEN Institute's (2020) competency of quality improvement expands the purpose of quality improvement to add that nurses should have the knowledge, skills, and attitudes to improve the systems they work in to benefit the patient. Overall, quality improvement is integral to continuously improving healthcare systems and delivery.

The National Institute of General Medical Sciences [NIGMS] (2021) describes sepsis as a systemic, body-wide immune response to an infection or injury, among other causes. Sepsis is commonly caused by bacterial infections but can also be viral in nature (NIGMS, 2021). The impact of sepsis on the body is significant – the condition can develop rapidly and lead to shock, multiple organ failure, and can quickly result in death (NIGMS, 2021). The overall impact of sepsis in the United States is undeniable – according to the Centers for Disease Control and Prevention [CDC] (2022), approximately 1.7 million adults will develop sepsis annually, and approx. three-hundred and fifty thousand cases are fatal or discharged to hospice care. According to Yealy et al. (2021), emergency departments are no strangers to sepsis, with over eight-hundred

and fifty thousand individuals presenting to emergency departments for sepsis-related symptoms annually. Nurses in the emergency department are first-line identifiers of sepsis and play a crucial role in initiating sepsis treatment. Early identification and treatment of sepsis are vital to improving sepsis-related outcomes and can potentially save over ninety thousand lives annually (Moore et al., 2019). This review aims to illustrate the importance of nurses in sepsis-related treatment in the emergency department.

Article Summary

This article examines the implementation of evidence-based, time-sensitive sepsis treatment protocols by nurses in the emergency department. According to Moore et al. (2019), the protocols consisted of a detect, act, reassess, and titrate (DART) nursing protocol based on sepsis care guidelines from the Centers for Medicaid and Medicare Services (CMS) Inpatient Quality Reporting (IQR) program. The DART protocol implementation significantly improved lactate levels, blood cultures, and antibiotic administration time compared to baseline figures (Moore et al., 2019). Additionally, emergency department length of stay and hospital length of stay both decreased when compared to baseline figures (Moore et al., 2019). The DART nursing protocol significantly improved sepsis-related care in the emergency department.

Introduction

The article by Moore et al. (2019) was published in the peer-reviewed Journal of Emergency Nursing. The research examines the nurse-led implementation of the DART sepsis protocol in a level-2 trauma center emergency department (Moore et al., 2019). The DART protocol implementation significantly improved sepsis-related care metrics, length of stay, and

IQR program compliance (Moore et al., 2019). The research article is linked to sepsis identification and treatment initiation as it examines nurse-led protocols concerned with both issues. The article provides rationales to show that emergency department nurses are an integral part of the care team and play a crucial role in sepsis treatment.

Overview

The article directly shows the importance of nurses in early sepsis identification and treatment. The research indicates that the nurse-implemented DART protocols positively impacted patient outcomes and hospital-related metrics (Moore et al., 2019). The research completed by Moore et al. (2019) on sepsis protocols in the emergency department relates well to QSEN Institute's competency of quality improvement. QSEN Institute (2020) described quality improvement as using "data to monitor the outcomes of care processes and use improvement methods to design and test changes to continuously improve the quality and safety of health care systems (table 4)." The research conducted by Moore et al. (2019) met all of QSEN Institute's criteria – the study used data to monitor the outcomes of the DART sepsis protocol implementation and compared this data to baseline figures, allowing for insights to alter the process as needed. The article is an excellent example of connecting QSEN Institute's competency of quality improvement with real-world application.

Quality Improvement

While the sepsis protocols implemented by Moore et al. (2019) only examined one facility's emergency department, the positive findings indicate that the DART protocols could benefit other organizations. Because the DART protocols focused on early sepsis identification and treatment, the protocols could be implemented in other acute care settings, urgent care

clinics, and other emergency departments. Before initiating the project, Moore et al. (2019) outlined the resources needed for a successful intervention. According to Moore et al. (2019), before implementing the DART protocols, a protocol checklist was developed, and all ED staff received education on sepsis and the DART communication checklist (p. 692). During implementation, the research team collected continuous feedback from care team members regarding positive and negative experiences (Moore et al., 2019). After implementation, the research team disseminated surveys to the care team to examine their thoughts on the project (Moore et al., 2019). Implementing the DART protocols in other settings would require various resources. Resources, including a protocol checklist, team member education, and feedback system, would benefit a facility looking to collect resources for all stages of project implementation. With these resources, the new facility can follow the processes described by Moore et al. (2019).

Implementation of the DART protocols could benefit an institution in multiple ways. According to Moore et al. (2019), statistical cost analysis resulted in statistically insignificant savings compared to baseline. Although the cost savings were statistically insignificant, the savings were still identified and could benefit hospitals over a more extended period. While Moore et al. (2019) did not collect information on patient satisfaction, the DART protocols were associated with improving various metrics, including length of stay and treatment initiation, which may positively benefit patient satisfaction. Moore et al. (2019) collected data regarding care team satisfaction. They noted that 80% of nurses responded that the DART protocols were more straightforward to use than the previous facility protocols and allowed them to initiate treatment faster (Moore et al., 2019). On a related note, it is worth noting that the staff survey had a low response rate, with only 9% of the care team completing the survey (Moore et al.,

2019). Lastly, the potential impact on patient safety and nurse safety is unknown. While the sepsis protocol implementation did show positive care-related changes, this does not directly relate to current patient or nurse safety. The question of how the protocol could impact safety in the emergency department needs to be examined further in another protocol implementation project. The DART sepsis protocols could provide substantial benefits when implemented in another institution.

Application to Nursing

As important as research is, another equally important component is the research's application to modern nursing practice. The sepsis protocols implemented by Moore et al. (2019) are based on treatment recommendations from leading experts in sepsis care and have a real-world application in nursing practice. In addition, this review provided insights indicating a gap in research and practice regarding sepsis education and points to a need for future studies of educating healthcare staff on sepsis-related care. Lastly, this review identified areas of further research related to established sepsis guidelines and implementing technology in sepsis protocols. Sepsis research is crucial, and a thorough review of the research contributes to the quality improvement process.

Practice

The International Surviving Sepsis Campaign (SCC) largely determines modern sepsis care practices and guidelines, and CMS used the SCC recommendations to create their IQR bundled care guidelines (Moore et al., 2019). The Society of Critical Care Medicine (SCCM) and the European Society of Intensive Care Medicine (ESICM) collaborate to create the SCC sepsis

guidelines (SCC, n.d.). According to Evans et al. (2021), the SCC guidelines were last updated in 2021 and include recommendations and rationales on various aspects of sepsis identification and treatment, including but not limited to screening, treatment initiation, time to antibiotics, antibiotic duration, critical care admittance, and hemodynamic management. There is a large volume of recommendations, with various recommendations applying closely to nursing practice and others to medical management. One guideline that applies to nursing practice is initiating antibiotic therapy as quickly as possible, ideally within one hour of suspected sepsis diagnosis (Evans et al., 2021). Another guideline that applies to nursing practice is the limited use of intravenous (IV) access sites and the removal of IV access sites that have the potential for infection (Evans et al., 2021). Overall, the SCC provides robust and thorough guidelines and rationales for organizations to base sepsis care on.

Education

Currently, there are no guidelines regarding staff education on sepsis identification and treatment. According to Evans et al. (2021), the SCC provides guidelines and rationales for educating patients and families on sepsis, but the guidelines include no staff education information. While sepsis will likely be part of any nursing or medical education curriculum, this lack of guidelines indicates that the SCC should evaluate adding staff education when new guidelines are released. According to Moore et al. (2019), the DART protocol implementation included staff education on sepsis before project initiation. The use of sepsis education by Moore et al. (2019) in a successful sepsis protocol implementation indicates a research opportunity for other institutions planning sepsis protocol implementations and is a project area that could use further investigation.

Research

There are various priorities for the future study of sepsis treatment and initiation in the ED. One research priority is examining the changes the new 2021 SCC guidelines bring to sepsis protocols. The sepsis protocol implementation evaluated by Moore et al. (2019) examined the former SCC guidelines. It was addressed in the article that the DART protocol checklist would likely have alterations when new guidelines were published (Moore et al., 2019). Another priority of future study includes using electronic and computer-based tools in sepsis protocols. According to Moore et al. (2019), using a paper checklist was a limitation of the DART protocol. Moore et al. (2019) explained that using the paper checklist was due to differing information in the facility's electronic medical record (EMR). Future research on sepsis protocol implementation should examine the use and benefits of EMR tools for sepsis identification and treatment and the feasibility of regularly updating these tools. The study by Moore et al. (2019) provided vital insights into important topics, including sepsis identification, treatment, and protocol implementation. However, more sepsis research is needed to determine best practices fully.

Conclusion

Quality improvement is an integral part of modern healthcare practice and is an essential factor in determining and implementing best-practice standards in all aspects of healthcare. Nurses play a crucial role in quality improvement, and the process relies on all nurses using their knowledge, skills, and attitudes to promote positive changes in their work environments and systems (QSEN Institute, 2020). Sepsis identification and treatment is a crucial topic for quality improvement and is the subject of regularly studied and updated guidelines. The article by Moore et al. (2019) examined an evidence-based sepsis identification and treatment protocol that

improved sepsis-related statistics. Continuing research on sepsis identification and treatment is vital to determining best practices regarding sepsis care. Future research has the potential to save or improve thousands of lives in the United States and around the world.

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