



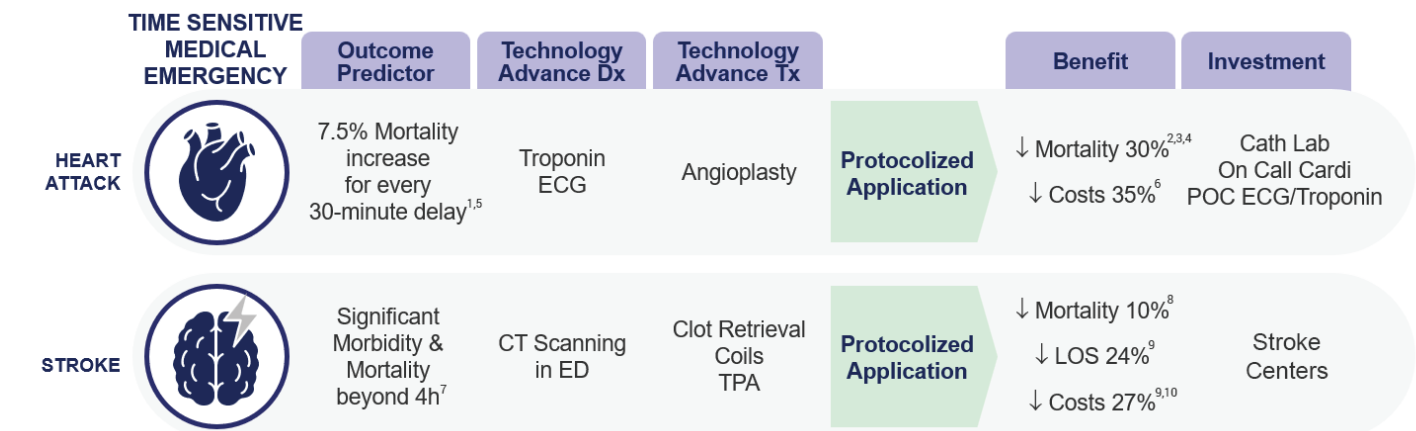
# Sepsis Protocols Coupled with Rapid Host Response Technologies are the Key to Improving Patient Outcomes

Robert Scoggins, MD, PhD • March 2024

Patients come into the emergency department (ED) with symptoms, not diagnoses. That’s when time is of the essence. Clinicians must quickly triage patients and establish an appropriate care pathway to obtain the best possible outcome. Most patients entering the ED are time-sensitive, requiring clear protocols for care. However, even some of the deadliest conditions still lack the necessary data, tools, and standards to quickly diagnose and effectively treat patients.

Over the last two decades, there have been significant advances in diagnostic technology and protocolized care for emergent conditions such as stroke and STEMI. Today, when a patient enters the ED and shows symptoms of STEMI, physicians readily have access to electrocardiogram (ECG), and troponin levels can be checked with a simple blood test. Physicians can rapidly identify a heart attack and prioritize the patient for balloon angioplasty, which can improve mortality rates and reduce the cost of care for these patients.

For stroke patients, advances in computed tomography (CT) imaging combined with new treatment modalities, such as clot retrieval, coils, and tissue plasminogen activator (tPA) therapy, have led to the establishment of stroke centers, which have similarly reduced mortality and cost of care.



Yet for sepsis, which represents twice as many cases in the ED as stroke and heart attacks combined, there is no standardized care pathway for clinicians to objectively and definitively diagnose potentially septic patients. There is a huge opportunity for more research and technology advancements to fill the gap in sepsis management and give clinicians a protocolized approach to sepsis screening.

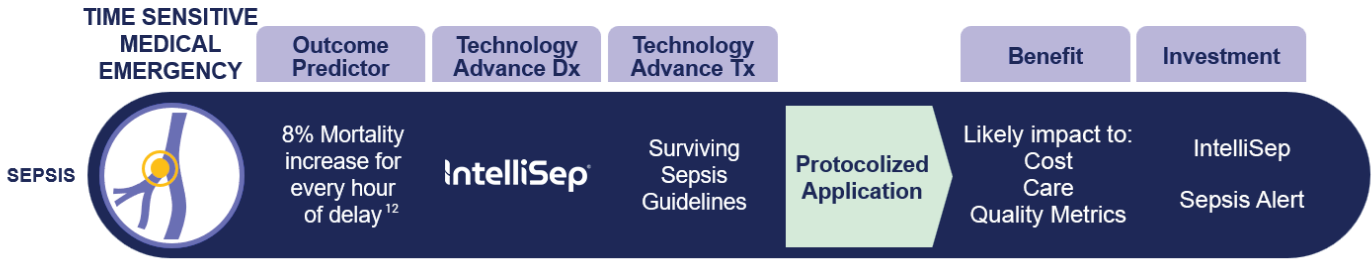
As former chief of staff and ICU medical director at Kootenai Health in Coeur d’Alene, I am the medical director of the sepsis program, and our hospital sees septic patients on a daily basis. The ED is the first line of defense, considering 80 percent of septic patients initially present to the ED. Yet, septic patients often present with complex and varied histories, signs, and symptoms, making the diagnosis difficult, which is why sepsis is the most deadly, costly, and complex condition facing hospitals.

A recent peer-reviewed study in the Journal of Personalized Medicine<sup>11</sup> revealed that provider assessment of sepsis risk varied between 10 percent and 90 percent when evaluating the exact same patient cases. Such variability in provider assessment can lead either to delays in needed aggressive treatment and poor patient outcomes or overtreatment of antibiotics, which can result in unnecessary costs and antimicrobial resistance.

## Host response technology to support faster, more accurate sepsis identification

One of the biggest challenges faced in the ED is the recognition of sepsis. Only in the last decade has the medical community come to understand that sepsis is not in itself an infection but rather the interaction between a pathogen that causes an infection and the way in which the patient, or “host,” responds to that pathogen. The symptoms themselves are self-reported by the patient and subjective, and as the study noted, provider opinions on the risk of sepsis can vary widely. The problem with sepsis is that these symptoms are not specific, and by the time a diagnosis of sepsis is clear, it is likely very late in the disease progression and becomes a life-threatening situation.

ED providers need an objective test centered around the interrogation of the host response that can be implemented within a standard protocol to improve risk stratification and hasten care for sepsis patients earlier in the care pathway. Our Lady of the Lake Regional Medical Center in Baton Rouge, LA, is one of the first to implement such an approach. Previously relying mainly on symptoms and vital signs, Our Lady of the Lake adopted a recently FDA-cleared rapid sepsis diagnosis test that interrogates the host immune response to identify which patients have the highest risk for sepsis. This diagnostic, which can be performed with a regular blood draw in the ED, takes around 8 minutes to deliver results and offers providers additional insights on sepsis risk earlier. Implementing the test in a protocolized fashion within their ED has enabled this site to not just cut through clinical uncertainty, see the medical emergency, and make better-informed treatment decisions, but do so consistently.



### Taking action at a federal level

Sepsis results vary widely across hospitals, which is why federal agencies are taking steps to formalize initiatives to standardize and improve sepsis management. Last fall, the Centers for Disease Control and Prevention (CDC) issued its new Hospital Sepsis Program Core Elements, which provides guidance on developing a multidisciplinary approach. The core elements also guide staff across multiple departments and identify resources to reduce sepsis rates and increase survival.

Similarly, the Centers for Medicare & Medicaid Services (CMS) has taken steps to drive hospital compliance with the Severe Sepsis and Septic Shock Management Bundle (SEP-1). The inclusion of SEP-1 in Medicare’s Hospital Value-Based Purchasing Program (VBP) and the shift in treatment from a reporting metric to a financial metric adds additional pressure on centers to provide a bundle of care to all patients with possible sepsis within three hours of recognition.

While imperfect, these recent government initiatives related to sepsis have resulted in increased awareness about sepsis management and the importance of early identification. But in order to truly impact sepsis care, especially for patients that present to the ED, hospitals need standardized protocols, as well as the appropriate technology and tools that address the crux of sepsis – an innate immune overreaction, to support a faster path from triage to treatment. A protocolized approach coupled with the right diagnostic tools are the keys to removing the guesswork, enabling providers to more quickly and accurately determine a patient’s sepsis risk and provide the appropriate care to improve outcomes and save lives.

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