

Reducing Sepsis Mortality: Strategies for Success in Hospitals



Sepsis, a severe and often fatal reaction to infection, poses a significant global health challenge. In the United States alone, it accounts for over 1.7 million hospitalisations and more than 350,000 deaths annually. Effective management of sepsis requires timely diagnosis, targeted treatment and system-wide interventions to address the complexities of this condition. Two health systems, Providence Health System and Our Lady of the Lake Regional Medical Centre, have demonstrated notable success in reducing sepsis mortality through a combination of standardised care protocols and advanced technology. Their approaches highlight the transformative potential of evidence-based practices, early intervention and equitable care delivery.

Advancing Standardised Care Protocols: Providence Health System

Providence Health System has achieved significant progress in sepsis care by implementing standardised protocols aimed at improving diagnosis and treatment efficiency. A key element of their strategy is the adoption of a standardised order set, which includes comprehensive blood work, timely administration of antibiotics, intravenous fluid resuscitation and effective management of hypotension. By increasing the use of this order set to 76% of sepsis patients, with a target of 80%, Providence has reduced mortality rates across its hospitals over the past three years.

Timely antibiotic administration has also been a focus, with clinicians now meeting the goal of administering the first dose within one hour of diagnosis in 77% of cases. These initiatives have contributed to a measurable improvement in Providence's observed-to-expected mortality ratio, reducing it from 1.11 in 2021 to 0.90 in 2023. Last year alone, the health system saved an estimated 1,250 lives.

Providence is now broadening its efforts, addressing care gaps identified through benchmarking against the Centers for Medicare & Medicaid Services' sepsis bundle expectations. These include early antibiotic use, blood culture timing, fluid resuscitation and hypotension management. Moreover, by incorporating health equity into their strategy, the health system aims to address disparities in sepsis outcomes among vulnerable populations, such as Black and Hispanic patients, who historically experience worse outcomes.

Leveraging AI for Early Detection: Our Lady of the Lake Regional Medical Centre

Advanced technology, particularly artificial intelligence (AI), is becoming a cornerstone in sepsis management. Our Lady of the Lake Regional Medical Centre in Baton Rouge, Louisiana, has successfully integrated IntelliSep, an AI-driven diagnostic tool, into its sepsis care protocol. IntelliSep assesses immune system activation to determine the likelihood of sepsis and predict progression to septic shock. The system has proven highly accurate, correctly identifying patients without sepsis 98% of the time, which supports clinicians in ruling out unnecessary treatments and focusing resources on those in need.

The benefits of IntelliSep's implementation are substantial. The hospital has reported a 20% reduction in sepsis mortality and a two-day decrease in the length of ICU stays for sepsis patients. Additionally, there has been a significant drop in the number of blood cultures conducted, lowering overall costs and reducing the burden on laboratory services. IntelliSep is one of several emerging AI tools, including the Targeted Real-Time Early Warning System and Sepsis Immunoscore, that demonstrate how technology can revolutionise sepsis care by enabling early detection and intervention.

Bridging Gaps in Care Through Equity and Early Intervention

Reducing sepsis mortality requires not only clinical excellence but also a commitment to equity and early intervention. Disparities in sepsis outcomes are well-documented, with Black and Hispanic patients experiencing higher mortality rates than their white counterparts. Providence Health System is addressing these inequities through culturally and linguistically tailored educational tools designed to overcome language barriers and engage diverse patient populations more effectively.

Early detection of sepsis is critical to reducing complications and improving survival rates. Key settings such as emergency departments and

urgent care centres are pivotal points for identifying at-risk patients. Providence is leveraging electronic health records (EHRs) to monitor vital signs, including blood pressure, heart rate and respiratory rate, and provide clinicians with early warnings of sepsis onset. Additionally, the system ensures that hospitalised patients diagnosed with sepsis secondary to another condition receive timely and appropriate care, further mitigating the risks associated with delayed intervention.

The fight against sepsis requires a comprehensive approach that integrates standardised care protocols, technological innovation and a commitment to equitable healthcare. The achievements of Providence Health System and Our Lady of the Lake Regional Medical Centre demonstrate the profound impact of these strategies. By prioritising early intervention, addressing health disparities and continuously improving clinical practices, hospitals and health systems can significantly reduce sepsis mortality. These initiatives not only save lives but also improve overall patient outcomes and contribute to more sustainable healthcare systems.

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