

Patient monitoring systems for sepsis—mixed results on patient outcomes

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Automated patient monitoring systems (PMSs) have been designed to reduce delays in diagnosis of sepsis in hospitalized patients. But so far, studies evaluating these systems have shown inconsistent effects on mortality rates and other patient outcomes, according to an evidence review in a special September supplement to the *Journal of Patient Safety*, which was funded by the Agency for Healthcare Research and Quality (AHRQ).

"AHRQ funded this special supplement to help the field better understand and apply the latest research on [safety issues](#) related to eight important [patient safety](#) harm areas, including infections, sepsis, adverse drug events, inappropriate opioid use, and failures in teamwork and communication," said Jeff Brady, MD, MPH, Director of [AHRQ's Center for Quality Improvement and Patient Safety](#).

[The new supplement presents a cross-section of reviews from AHRQ's long-awaited *Making Healthcare Safer III \(MHS\)* report](#): an ongoing series dedicated to providing reliable information for improving the safety and quality of patient care.

Automated Monitoring Improves Sepsis Outcomes in Some Studies

Sepsis is a common and serious condition, estimated to occur in six percent of all hospital admissions in the United States. It has one of the

highest [mortality rates](#) of any hospital condition, estimated at 15 to 30 percent. Delayed diagnosis and recognition of sepsis—leading to delays in starting treatment—are a key contributor to the high mortality from sepsis. "Automated sepsis PMSs have the potential to improve sepsis recognition and outcomes, but current evidence is mixed on their effectiveness," according to the report by Bryan M. Gale, MA, and Kendall K. Hall, MD, MS, of IMPAQ International in Columbia, Md.

Many hospitals are now using automated electronic PMSs, which continuously analyze data from patient monitoring devices and/or electronic health records and send clinical alerts when criteria for sepsis are met. In their [systematic review](#), Mr. Gale and Dr. Hall gathered and analyzed evidence on how these monitoring systems affect mortality and other important outcomes. The analysis included data from 19 papers, including four previous systematic reviews.

Twelve studies provided data on [patient outcomes](#)—in eight of these, PMSs led to improvement in at least one outcome. Six studies provided evidence of reduced mortality: in one study, risk of death was nearly 50 percent lower in patients screened using the PMS.

Several studies also reported improvements in key processes of care with the use of PMSs—in eight out of nine studies, time to starting antibiotic treatment was significantly reduced. "[M]ore high-quality studies are needed to help to understand the effects of sepsis PMS on important process and outcome measures in different hospital units," Mr. Gale and Dr. Hall conclude.

More information: Sarah Shoemaker-Hunt et al, Advancing Patient Safety: Reviews From the Agency for Healthcare Research and Quality's Making Healthcare Safer III Report, *Journal of Patient Safety* (2020). [DOI: 10.1097/PTS.0000000000000761](https://doi.org/10.1097/PTS.0000000000000761)

Bryan M. Gale et al. The Use of Patient Monitoring Systems to Improve Sepsis Recognition and Outcomes: A Systematic Review, *Journal of Patient Safety* (2020). [DOI: 10.1097/PTS.0000000000000750](https://doi.org/10.1097/PTS.0000000000000750)

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