

## Licking Memorial Hospital Saves 120 Patient Lives (and Counting) with iatricSystems™ Visual SmartBoard™ for Sepsis



**OBJECTIVE:** Like many hospitals, Licking Memorial Hospital (LMH) sought to reduce its high sepsis mortality rates. This would require addressing the dangerous characteristics of sepsis that are often confused with other, less serious conditions, and it can escalate quickly without prompt intervention.

**SITUATION:** Licking Memorial is a 227-bed community hospital in Newark, Ohio. At 27.1%, their sepsis mortality rate was well above the statewide mean of 19.4%. Staff were using a sepsis management tool provided by their EHR vendor; however, it relied on data collected upon admission and then once per nursing shift, and that data was incomplete. (Lab results — vital for an accurate diagnosis — had to be gathered separately.) The multi-disciplinary team recognized an opportunity for improvement in reducing sepsis-related complications and patient mortality.

**SOLUTION:** LMH deployed iatricSystems™ Visual SmartBoard™ for Sepsis which continually examines relevant criteria for all hospital inpatients and prioritizes the information by sepsis level in real time. The color-coded SmartBoard provides clinicians a complete view of patient status that is far more accurate and easier to use than the previous approach. The SmartBoard also issues real-time alerts for patients with severe sepsis and septic shock, which helps clinicians manage CMS three and six-hour bundle treatment requirements.

**RESULTS:** Early sepsis detection and treatment are now a reality at LMH. The Hospital's sepsis mortality rate plunged from 27.1% to 8.9% in 2016 (the first full year data was available). Even more impressive, LMH has sustained these gains, holding at 9% through 2017 and into 2018 (far below the 14.9% goal of Ohio's Surviving Sepsis Alliance). Behind the numbers are patient lives: 62 lives saved in 2016, at least 59 in 2017, and many more in 2018.

"Information Technology is a crucial aspect of our healthcare organization. We prioritized this project to significantly impact patient safety, and ultimately, save lives. I'm especially proud of all the employees who demonstrated such strong commitment to the success of this initiative which reflects our mission: To Improve the Health of the Community."

— Rob A Montagnese  
President and CEO  
Licking Memorial Hospital



Licking Memorial Hospital (LMH) in Central Ohio faced a challenge familiar to many hospitals: how to reduce an alarming sepsis mortality rate. For CIO Sallie Arnett, who lost her dad to sepsis, the challenge hit home. The initiative that she and her team put in place has reduced sepsis mortality at LMH by 70%, saving more than 120 lives in its first two years of operation. "The reduction of sepsis related deaths is an area where we can really make a difference," Sallie observed.

To be successful, LMH would have to tackle aspects of sepsis that make it the deadliest condition in U.S. hospitals. Onset can be subtle, and it can escalate rapidly. Early detection and treatment are critical, but symptoms are similar to less serious conditions. Physicians have to evaluate a number of factors to make an accurate diagnosis, and start treatment promptly in compliance with CMS treatment bundles. While their EHR system had some limited sepsis management capabilities, there were many false positives and minimal impact on patient outcomes. "It was a good start, but we knew we could do better," Sallie said.

## Transforming Sepsis Care

The team defined key requirements, including the ability to accurately detect sepsis in real time, send real-time alerts for at-risk patients, and leverage existing technology. To achieve these goals, they use iatricSystems Visual SmartBoard™ for Sepsis which provides 24x7 sepsis surveillance of all hospital inpatients. Color-coding in the application allows clinicians to quickly see each of the sepsis statuses at a glance, from negative through septic shock. Behind the scenes, the SmartBoard algorithm evaluates all relevant criteria (including vital signs, labs, problem lists, and clinician documentation), and classifies patients by sepsis stage in real time. The algorithm is finely tuned: in a 3-month LMH study, the SmartBoard detected sepsis, severe sepsis, and septic shock with 100% accuracy.

"Visual SmartBoard takes a huge burden off our front-line staff," says Heather Burkhart, Vice President Acute Care Services. "It helps us identify sepsis patients much sooner and stop their progression to severe sepsis and septic shock." The ability to aggregate information from multiple IT systems and evaluate it in real time has transformed sepsis care at LMH, enabling earlier detection and treatment. Rather than gathering information manually, clinicians simply log on to the SmartBoard for an overview of each patient and their sepsis status, and then can drill down for details. "There's a huge amount of data available," Sallie noted. "We're capturing it, collapsing it, and making it very easy for care providers to view."

## Real-Time Alerts and Managed Interventions

Real-time physician alerts are another key element for positive outcomes, leveraging messaging technology in place at LMH. The Sepsis Visual SmartBoard integrates with the Hospital's Imprivata® Cortext® secure texting platform to alert physicians on their smart phones when a patient meets CMS criteria for severe sepsis or septic shock. (Nurses receive a similar alert on their status board.) Visual SmartBoard then tracks required interventions to make sure these occur within critical three and six-hour time windows, and reminds the physician to document their re-assessment on the Sepsis Progress Note after the fluid bolus is completed.

## Improvement Numbers — and the Lives behind Them

Since going live, sepsis mortality at LMH has plunged—from 27.1% to 8.9% in 2016 (the first full year of data). The improvements have been sustained, holding steady at 9% through 2017 and into 2018. Beyond these dry percentages are much more meaningful numbers: 62 lives saved in 2016, and an additional 59 lives saved in 2017. "A lot more people are able to go home to their families," Sallie says. "At the end of the day, that's why we're in this business."

"We've seen phenomenal improvements in our sepsis mortality and more patients able to return home to their families."

– Sallie Arnett  
Chief Information Officer  
Licking Memorial Hospital

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