



AHA TRANSFORMATION TALKS

STRATEGIES FOR REIMAGINING HEALTH CARE

How AI Patient Surveillance Can Improve Hospital Performance

Hospitals and health systems continue to face challenges in rapidly identifying and standardizing care of patients at risk for adverse events.

These events include sepsis as well as those related to medication use, health care-associated infections (HAIs) like *Clostridium difficile* and other causes of patient deterioration such as respiratory insufficiency and acute myocardial infarction. The opportunity for improvement in these areas is significant, as data have shown.

- On average, the Centers for Disease Control and Prevention reports, **one in 31 patients has at least one health care-associated infection.**
- **1 in five hospital deaths** in the U.S. are caused by sepsis according to a January 2020 report in *The Lancet*.

Traditional tools, such as electronic health records, can be used for surveillance to help address these situations, but they aren't enough. These tools lack the ability to continuously collect and analyze data essential for early warning of health deterioration.

Surveillance solutions using advanced technology, including artificial intelligence (AI), machine learning (ML) and natural language processing (NLP), can support the development of surveillance algorithms aimed at understanding disease risk factors and improving patient risk stratification.



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3 ways surveillance algorithms can support patient care



Detect patient deterioration earlier with more accurate alerts.



Expand available interventions to improve care and reduce costs.



Provide patient-specific guidance in a central view or at the point of care.

Data also can inform care teams about clinical components and protocols in line with quality measures. Armed with this knowledge, clinical leaders can drill down to view in-depth hospital performance, and spot care gaps and trends over time to identify opportunities to reduce length of stay and patient mortality.

In the case of sepsis, AI-driven early warning scores have shown their value in improved patient outcomes, decreases in mortality rates and lower costs. A 2020 systematic review and meta-analysis published in Internal Care Medicine showed that individual ML models could accurately predict sepsis onset ahead of time on retrospective data.

This approach illustrates the power and potential of leveraging advanced technology to improve care, reduce costs and save lives.

To learn more about how leaders are reimagining health care,
visit the AHA Transformation Talks [resources page](#).

Discussion Questions:

1. **What are some of the current limitations and challenges clinical teams face in making early and accurate detection of a patient's deteriorating condition? What are the clinical ramifications when accurate detection is delayed?**
2. **What demonstrated value do advanced technologies, like artificial intelligence, machine learning and natural language processing offer to clinicians in helping improve patient surveillance and achieve earlier detection and intervention?**
3. **What potential do AI and other technologies have for improving quality and reducing costs for hospitals and health systems?**
4. **What are the keys to successful implementation of advanced technologies to improve patient surveillance and reduce care variation?**
5. **What does the future frontier look like for applying AI and other tools to improve diagnostic accuracy and deliver actionable data to clinicians to improve outcomes?**