How Real-Time Situational Awareness Improves Patient Outcomes
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“Situational awareness” isn’t a commonly used or defined term in circles of clinicians or healthcare professionals. It’s a phrase you’re more likely to hear in high-reliability industries such as aviation, military operations and nuclear engineering. Being situationally aware means you have an understanding of what’s going on around you and are using that information to mitigate risk.

For example, think back to the “Miracle on the Hudson.” On January 15, 2009, airline captain Chesley Sullenberger was forced to make an emergency landing on the Hudson River after US Airways Flight 1549 was struck by a flock of geese and lost all engine power. Captain Sullenberger only had seconds to process the situation, react and make a decision.

“Even though this was an unanticipated event for which we have never specifically trained, I was confident I could quickly synthesize a lifetime of training and experience, adapt it in a new way to solve a problem I had never seen before and get it right the first time, and so that’s what I did. In 208 seconds,” Captain Sullenberger told *Newsweek* in 2015. “I wasn’t sure at the outset exactly what steps I would take, but we didn’t have a lot of ambiguity: I knew what happened. I didn’t have to waste time with the ‘what happened?’ phase. I was able to go right to the ‘how do I fix this?’ phase.”

Captain Sullenberger’s awareness of the situation and ability to react quickly meant the difference between a successful flight and a failed one. Though there were injuries, no one died on the flight or during the emergency landing.

Though clinicians and nurses aren’t faced with split-second decisions like where to land a plane in an emergency, they daily face life-and-death situations and emergency events that require quick on-their-feet thinking and a keen sense of awareness. The concept of situational awareness is gaining traction in the healthcare industry, as clinicians and industry leaders begin to understand the important link between awareness—i.e. understanding what’s happening with a patient and what’s likely to happen in the future—and clinical decision-making.
Clinical leaders are inundated with data that could potentially improve patient care. But outdated technologies and the lack of interoperability between healthcare IT systems have made it difficult to actually use this data to make decisions, communicate and coordinate care. Fortunately, a new set of technologies—called the real-time health system (RTHS)—may be just what hospitals and healthcare systems need to analyze and use this data to become more situationally aware.
“In practice, situational awareness is about knowing where people (for example, patients, clinicians and care team members) and resources (for example, medical devices, wheelchairs and surgical equipment, capacity, and partners) are at any point in time. In some cases, it provides awareness of their state, within the context of patient care, achieving an objective, managing a crisis or other,” according to Gartner. “Situational awareness involves sensing, collecting, analyzing and contextualizing activity and event data to improve healthcare provider care delivery, operations and performance.”  

In their book *Building a High-Reliability Organization: A Toolkit for Success*, authors Gary L. Sculli and Douglas E. Paull explain that healthcare leaders “need to understand how teams develop situational awareness and be prepared to clear any and all obstacles that impede that process.” The authors also have a tall order for executive leaders and service line leaders close to the bedside, urging them to “scrutinize models of care delivery currently in use and be sure that these models enhance a clinician’s ability to capture patient information, easily communicate that information to other team members, and use an engaged and functional team to manage clinical situations likely to occur.”  

That’s why achieving situational awareness in the healthcare setting is so critical: “Comprehensive situational awareness begets sophisticated operational intelligence,” Gartner says.  

“A healthcare provider can be considered an RTHS to the extent that it has mastered situational awareness and the means to take advantage of the operational intelligence derived from it.”

– Gartner
3 Building Blocks to Situational Awareness

Engineer Mica Endsley, Ph.D., former chief scientist for the U.S. Air Force, is one of the leading voices on the advantages of situational awareness, authoring more than 200 scientific articles and reports on situation awareness and decision-making. She delineates three levels to situational awareness:

**Level 01: Perception**
Perception of the elements in the environment: You perceive information by examining patients, reading medical charts, conversing with team members or reviewing data.

**Level 02: Comprehension**
Comprehension of the current situation: You take the details you perceive and analyze that information, work to understand it and use it to form your decisions.

**Level 03: Projection**
Projection of future status: You’re now able to project events that may occur based on the information you perceived and analyzed and the decisions you’ve made.

Within healthcare organizations, these three levels are critical to being proactive, rather than reactive, when unexpected events or emergencies occur in the clinical setting.
How Amplion Alert Drives Situational Awareness

Gartner predicts that a new care team collaboration ecosystem is on the horizon. Characterized by a convergence of point-of-care solutions such as clinical communication tools, nurse call, and alarms and notifications platforms, this new ecosystem possesses the characteristics of the RTHS.

Amplion Alert, the healthcare industry’s first Care Assurance Platform, meets these characteristics. Amplion’s software-based platform takes the features of the RTHS and care team collaboration ecosystem to help clinical leaders access and use data to attain situational awareness, improve care team communication and drive accountability. Amplion Alert’s next-generation nurse call system, care team collaboration tools, alarm management capabilities and data analytics make Amplion uniquely qualified to provide hospitals and healthcare organizations with the tools they need to achieve situational awareness.
Alarm Management

The cacophony of hospital alarms and bedside machines can lead many nurses and clinicians to experience alarm fatigue, or worse, desensitization. This negatively affects a caregiver’s ability to be situationally aware. With Amplion Alert, alarm input devices are installed in every patient room to message the caregiver with the appropriate skillset, within the appropriate timeframe when a device is alarming.

Advanced Messaging

Amplion Alert's advanced messaging functionality helps caregivers communicate their availability to respond to a patient. If a clinician is unable to respond to a patient request, the system will reroute the request to a different, predesignated caregiver. Care Assurance Stations are installed in every patient room, allowing clinicians to set reminders for hourly rounding and turns and verify delivery of care.

Data Analytics

More data does not necessarily mean more information, explains Mica Endsley, Ph.D., in her book, *Designing for Situation Awareness*. "In the face of this torrent of 'information,' many of us feel less informed than ever before," she writes. "This is because there is a huge gap between the tons of data being produced and disseminated, and our ability to find the bits that are needed and process them together with the other bits to arrive at the actual needed information." 7

With Amplion Alert's real-time* reporting portal, it's easy to get the data you need to diagnose issues and take immediate action. Clinical leaders can monitor activity within five minutes of real-time occurrence, as well as drill down for a more detailed analysis to identify trends and measure activity by floor, device, room or caregiver. Plus, clinical leaders can access Amplion Alert's reports anytime and anywhere, from a desktop computer to a mobile device.

* Within five minutes of patient room activity
Better Awareness Equals Better Outcomes

**Picture this fictional scenario:**
Anne W., RN, is halfway through a very busy 12-hour shift. The unit is crowded; every bed is full. Anne’s patient, Mary, a fresh post-op from an extensive abdominal surgery, is in room 409. Mary has hit the nurse call button twice, but Anne is actively engaged with another patient three doors down from room 409. When Anne arrives at Mary’s room 15 minutes later, she finds her patient with shortness of breath, an elevated heart rate and extremely agitated. Her family members are frustrated and anxious and believe their loved one is not receiving good care. Sound familiar?

**Could this event be prevented?** Greater situational awareness makes it much more likely. Consider the same scenario from a different perspective—using Amplion Alert’s point-of-care solutions.
Mary is a patient in room 409. She's a fresh post-op. She is able to press a specific pain button on her Amplion Alert nurse call handset to directly communicate to her nurse that she is in pain.

Nurse Anne gets the alert notification on her mobile device; however, she's with another patient and can't respond right away.
Anne knows she can’t respond to Mary’s request immediately, so she hits “unable.” With Amplion Alert’s advanced messaging functionality, the request is then escalated to another appropriate provider in the care team.

That care team member receives the request on their mobile device and heads to room 409 to help Mary. Once the care is delivered, receipt of care is confirmed while the clinician is still in the patient’s room. The alert then disappears from the Amplion Alert system as an outstanding patient need. The care team knows the patient has been taken care of, and the system has assured care was delivered to the patient.
Mary got the care she needed before her pain escalated and triggered additional consequences.

Nursing leaders can use Amplion Alert's real-time reporting portal to evaluate care activity by room, better assess staffing, and make adjustments to improve staff workflow and workload to prevent patient safety errors and reduce caregiver stress. Analytics on the activity occurring in each patient room also provides data to mitigate risk in service recovery.
Summary

Clinicians are constantly faced with situations that require on-the-spot thinking and response. Achieving situational awareness—understanding what’s happening around you and using that information to mitigate risk—takes practice. By utilizing point-of-care solutions such as the Amplion Alert Care Assurance Platform, it’s easier than ever for nurses and bedside caregivers to be proactive rather than reactive when caring for patients.

The result?
- Better patient outcomes
- Improved patient satisfaction
- Fewer patient safety errors
- Increased nurse retention and satisfaction

References

1. Gartner, “Maturity Model for the Real-Time Health System,” Barry Runyon, Steven Lefebure, Gregg Pessin, 21 May 2018


3. Gartner, “Maturity Model for the Real-Time Health System,” Barry Runyon, Steven Lefebure, Gregg Pessin, 21 May 2018


At Amplion, we’re changing the way hospitals leverage nurse call. The Amplion Alert Care Assurance Platform combines advanced nurse call capabilities, care collaboration tools, alarm management, reporting and data analytics in a single system to track, manage and confirm care delivery for every patient. These analytics drive situational awareness and create accountability within clinical teams. The Amplion Alert Care Assurance Platform gives clinicians the tools they need to provide safer, smarter patient care.

Contact us today to learn how Amplion Alert can improve your hospital’s situational awareness and patient outcomes.

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