

High Reliability

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Background

[High reliability organizations](#) (HRO) are organizations that operate in complex, [high-hazard domains](#) for extended periods without serious accidents or catastrophic failures. The concept of high reliability is attractive for health care, due to the complexity of operations and the risk of significant and even potentially catastrophic consequences when failures occur. Sometimes people interpret high reliability as meaning effective standardization of health care processes. However, the principles of high reliability go beyond standardization: high reliability is better described as a condition of persistent mindfulness within an organization. High reliability organizations cultivate resilience by relentlessly prioritizing safety over other performance pressures. A classic example is that of the military aircraft carrier: despite significant production pressures (aircraft take off and land every 48–60 seconds), constantly changing conditions, and hierarchical organizational structure, all personnel consistently prioritize safety and have both the authority and the responsibility to make real-time operational adjustments to maintain safe operations as the top priority.

Characteristics of High Reliability Organizations

High reliability organizations use systems thinking to evaluate and design for safety, but they are keenly aware that safety is an emergent, rather than a static, property. New threats to safety continuously emerge, uncertainty is endemic, and no two accidents are exactly alike. Thus, high reliability organizations work to create an environment in which potential problems are anticipated, [detected](#) early, and virtually always responded to early enough to prevent catastrophic consequences. This mindset is supported by five characteristic ways of thinking: [preoccupation](#) with failure; reluctance to simplify explanations for operations, successes, and failures; sensitivity to operations (situation awareness); deference to frontline expertise; and commitment to [resilience](#). (Table)

Table. Characteristics of High Reliability^{1,2,3,4}

Characteristic	Description
Preoccupation With Failure	<p>Everyone is aware of and thinking about the potential for failure. People understand that new threats emerge regularly from situations that no one imagined could occur, so all personnel actively think about what could go wrong and are alert to small signs of potential problems. The absence of errors or accidents leads not to complacency but to a heightened sense of vigilance for the next possible failure. Near misses are viewed as opportunities to learn about systems issues and potential improvements, rather than as evidence of safety.</p>
Reluctance to Simplify	<p>People resist simplifying their understanding of work processes and how and why things succeed or fail in their environment. People in HROs understand that the work is complex and dynamic. They seek underlying rather than surface explanations. While HROs recognize the value of standardization of workflows to reduce variation, they also appreciate the complexity inherent in the number of teams, processes, and relationships involved in conducting daily operations.</p>
Sensitivity to Operations	<p>Based on their understanding of operational complexity, people in HROs strive to maintain a high awareness of operational conditions. This sensitivity is often referred to as "big picture understanding" or "situation awareness." It means that people cultivate an understanding of the context of the current state of their work in relation to the unit or organizational state—i.e., what is going on around them—and how the current state might support or threaten safety.</p>
Deference to Expertise	<p>People in HROs appreciate that the people closest to the work are the most knowledgeable about the work. Thus, people in HROs know that in a crisis or emergency the person with greatest knowledge of the situation might not be the person with the highest status and seniority. Deference to local and situation expertise results in a spirit of inquiry and de-emphasis on hierarchy in favor of learning as much as possible about potential safety threats. In an HRO, everyone is expected to share concerns with others and the organizational climate is such that all staff members are comfortable speaking up about potential safety problems.</p>
Commitment to Resilience	<p>Commitment to resilience is rooted in the fundamental understanding of the frequently unpredictable nature of system failures. People in HROs assume the system is at risk for failure, and they practice performing rapid assessments of and responses to challenging situations. Teams cultivate situation assessment and cross monitoring so they may identify potential safety threats quickly and either respond before safety problems cause harm or mitigate the seriousness of the safety event.</p>

Current Context

Despite the growing focus on achieving high reliability, few studies report the impact of high reliability principles on patient safety. A regional health system in Canada reported a decrease in adverse events such as falls, pressure injuries, and healthcare-acquired infections one year after implementing a [five-point strategy](#) to achieve high reliability. A [safety net](#) hospital also reported a reduction in healthcare-acquired infections after establishing systems for high reliability through leadership, safety culture, and process improvements. Encouraging frontline employees such as nurses to recommend [organizational](#) change was associated with fewer medication errors and patient falls.

It is important to recognize that standardization is necessary but not sufficient for achieving resilient and reliable health care systems. High reliability is an ongoing [process](#) or an organizational frame of mind, not a specific structure. AHRQ has outlined practical strategies for health care organizations aiming to become highly reliable in their [report of practices](#) employed by hospitals in the High Reliability Organization Learning Network. The Joint Commission suggests that hospitals and health care organizations work to create a strong [foundation](#) before they can begin to mature as high reliability organizations. Such foundational work includes developing a leadership commitment to zero-harm goals, establishing a positive safety culture, and instituting a robust process improvement culture. The Joint Commission also provides [programs, training, and tools](#) for assessing the maturity of an organization's leadership, safety culture, and process improvement culture as preconditions to high reliability.⁵

References

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