

Principles of a High Reliability Organization

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The principles of High Reliability (HR) were developed to mitigate risk in high-hazard, complex environments. Examples of these environments include aviation and nuclear energy plants, where one failure can cause devastating outcomes. For military aircraft, safety is maintained in an environment of multiple variables: personnel of varying authority, constantly changing conditions, and tight take-off/landing times occurring every 48–60 seconds.¹ Healthcare operates in a similar environment, yet medical errors are the third leading cause of death in the US.² Recognizing the impact medical practice, not just treatment, can have on patient outcomes has driven great interest in adopting HRO principles to healthcare. Literature has demonstrated that the adoption of HRO principles in an organization can help “develop best practices, identify barriers and facilitators to implementation, measure progress, identify knowledge gaps, and spread implementation initiatives to other systems.”² High Reliability Organizations encourage all organization team members to continually focus on five key principles¹:

- 1) Preoccupation with failure: the persistent awareness and consideration of what could go wrong in any situation. By looking for errors, mistakes, and misses through review of a current process, intervention can occur to correct systemic weaknesses before harm can take place.

Example: A nurse starts a patient’s oxytocin for induction just before nursing change of shift. The oncoming nurse checks the IV lines, oxytocin dose settings on the pump and ensures correct documentation. The oncoming nurse does not assume the prior nurse had everything correct and instead checks for errors.

- 2) Reluctance to simplify: recognizing that the organization’s work is dynamic and complex; though standardization can provide efficiency it is also important to respect the diversity in people, operations and teams. According to this principle, personnel take the time to truly understand the multi-step workflows and, for near misses and harmful events, the various systemic weaknesses that allowed the error to happen.

Example: A root cause analysis (RCA) was completed after an incorrect dose of misoprostol was given for a labor induction. After assessment of each step in the treatment process, the RCA recommended multiple preventative measures to reduce the risk of future harm including creation of specific order sets for different indications for misoprostol use (term labor induction, postpartum hemorrhage, etc.) and improved nursing and provider education regarding varying dosages for different indications. This education also specified that term labor induction will never require more than a portion of a single tablet.

- 3) Sensitivity to operations: striving to maintain situational awareness of operational conditions in any environment to anticipate evolving circumstances that increase vulnerability to errors.

Example: To ensure safe surgical care, the L&D unit utilizes scheduled huddles to review patients' labor courses and fetal tracings, discuss OR availability, confirm staffing numbers, and identify other higher risk patients on the labor floor who could emergently need an OR. All huddles include key team members – OB, Anesthesiology, L&D Nurses, and OR personnel.

- 4) Deference to expertise: de-emphasizing the hierarchy to appreciate the person(s)/roles with the most expertise in each situation: those who can give the best advice and provide insight about threats to safety.

Example: A pregnant patient is admitted for trauma to the abdomen. However, she distrusts the medical system, has a known untreated psychiatric disorder, and refuses all monitoring. A medical assistant of the same ethnic background volunteers to become part of this patient's care team and successfully develops a rapport with the patient. The medical assistant participates in all clinical discussions with the patient and provides culturally congruent explanations to the patient, helping her understand the medical team's recommendations and make decisions consistent with her values and goals for care.

- 5) Commitment to resilience: designing systems with adequate inherent flexibility and redundancy to meet unpredictable demands and prevent and recover from failure. In healthcare, demands on a system can change quickly and system failures are inevitable and unpredictable. Establishing surveillance and reassessment strategies enables team members to quickly recognize and adapt to new demands and mitigate potential harm from system failures.

Example: Following a local hospital closure, neighboring hospitals experience significant surges in ED patient volumes. To expedite patient admissions from the ED, small flex units are created where, within 4 hours, the unit can switch specialty services.

References:

1. High Reliability. PSNet [internet]. Rockville (MD): Agency for Healthcare Research and Quality, US Department of Health, and Human Services. 2019. <https://psnet.ahrq.gov/primer/high-reliability>
2. Veazie S, Peterson K, Bourne D. Evidence Brief: Implementation of High Reliability Organization Principles. Washington (DC): Department of Veterans Affairs (US); 2019 May. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK542883/>