

The Role of High Reliability Organization Foundational Practices in Building a Culture of Safety

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Background: High reliability organizations are designed to operate under complex conditions for extended periods by strengthening systems that help serious adverse events for patients. The US Department of Veterans Affairs formally began its enterprise-wide journey to high reliability in 2019. Four foundational practices were identified to advance a culture of safety across all Veterans Health Administration facilities. This article describes these practices, summarizes supporting evidence from the literature, and illustrates strong practices for improving safety.

Observations: A literature review was conducted from 2018 to March 2023 to identify recent evidence outlining the value

of implementing the 4 foundational high reliability organization practices to improve patient safety. This evidence was used to create and implement formal processes for the foundational practices. For each foundational practice, a representative example of a strong practice within the Veterans Health Administration is provided.

Conclusions: Effective and sustained application of the foundational organization practices described can support a health care organization's journey to high reliability. Collectively, the 4 foundational practices can be adopted and implemented by other organizations in the continued pursuit of high reliability in health care.

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Increasing complexities within health care systems are significant impediments to the consistent delivery of safe and effective patient care. These impediments include an increase in specialization of care, staff shortages, burnout, poor coordination of services and access to care, as well as rising costs.¹ High reliability organizations (HROs) provide safe, high-quality, and effective care in highly complex and risk-prone environments without causing harm or experiencing catastrophic events.²

Within the US Department of Veterans Affairs (VA), the Veterans Health Administration (VHA) operates the nation's largest integrated health care system, providing care to > 9 million veterans. The VHA formally launched plans for an enterprise-wide HRO in February 2019. During the first year, 18 medical facilities comprised cohort 1 of the journey to high reliability. Cohort 2 began in October 2020 and consisted of 54 facilities. Cohort 3 started in October 2021 with 67 facilities.³

Health care organizations seeking high reliability exercise a philosophy aimed at learning from errors and addressing system failures. High reliability is accomplished by implementing 5 principles: (1) sensitivity to operations (a heightened understanding of the current state of systems);

(2) preoccupation with failure (striving to anticipate risks that might suggest a much larger system problem); (3) reluctance to simplify (avoiding making any assumptions regarding the causes of failures); (4) commitment to resilience (preparing for potential failures and bouncing back when they occur); and (5) deference to expertise (deferring to individuals with the skills and proficiency to make the best decisions).² The VHA also recognized that a successful journey to high reliability—in addition to achieving a culture of safety—relies on the implementation of foundational HRO practices: leader rounding, visual management systems, safety forums, and safety huddles. This article describes an initiative for how these foundational practices were implemented in a large integrated health care system.

BACKGROUND

The VHA has focused on 4 foundational components as part of its enterprise activities and support structure to implement HRO principles and practices. These components were selected based on pilot activities that preceded the enterprise-wide effort, reviews of the literature, and expert consultation with both government and private sector health systems. To support

TABLE Sample Questions to Ask Staff During Leader Rounding

No.	Question
1.	How have you incorporated the high reliability organization theme of the month into your work?
2.	What are some examples of how this high reliability organization principle has been demonstrated?
3.	Do you have the necessary resources (eg, methods, equipment, supplies, and staff members) to perform the work expected of you?
4.	Have the processes and equipment worked as you expected them to?
5.	Can you share an example of a problem your unit has been working on and how you are working together to solve it?
6.	What are your ideas about improving your work, unit, or department?
7.	What worries you the most about safety?
8.	How comfortable are you speaking up with concerns if you see something that could negatively impact care? Please give an example.
9.	What are 3 things that are going well in your unit/department, and 1 that could be better?
10.	What are you most proud of within your work unit?
11.	Is there anyone you would like us to recognize for their efforts to improve patient safety?
12.	What innovative ideas do you have to improve processes to enhance patient safety?
13.	What else would you like me/us to know about you, your team, or your work?

the implementation of these practices, the VHA provided training, toolkits, HRO executive leader coaching, and peer-to-peer mentoring. As the VHA enters its fifth year seeking high reliability, we undertook an initiative to reflect on our own experiences and refine our practices based on an updated literature review.

As part of this enterprise-wide initiative, we conducted a literature review from 2018 to March 2023 seeking recent evidence describing the value of implementing the 4 foundational HRO practices to advance high reliability and improve patient safety. A 5-year period was used to ensure recency and value of evidence.

Eligible literature was identified in PubMed, PsycINFO, the Cumulative Index to Nursing and Allied Health Literature, ScienceDirect, Scopus, the Cochrane Library, and ProQuest Dissertations & Theses Global. Inclusion and exclusion criteria were peer-reviewed interdisciplinary documents (eg, publications, dissertations, conference proceedings, and grey literature) written in English. Search terms included high reliability organizations, foundational practices, and patient safety. Boolean operators (AND, OR) were also used in the search. The search resulted in a dearth of evidence that addressed implementation of all 4 foundational practices across a health care system. Retrieved evidence focused on the implementation of

only 1 particular foundational practice in a specific health care setting. In addition to describing the formal processes for the implementation of each foundational HRO practice, a brief description of representative examples of strong practices within the VHA is provided.

To support the implementation of HROs, the VHA paired HRO executive leader coaches with select medical center directors and their leadership teams. Executive leader coaches also support an organization's HRO Lead and HRO Champion. The HRO Lead coordinates and facilitates the implementation of HRO principles and practices in pursuit of no harm across an organization. The HRO Champion supports the same as the HRO Lead, but typically has a different specialty background. For example, if the HRO Lead has an administrative background, the HRO Champion would have a clinical background.

Coaching focuses heavily on supporting site-specific implementation and sustainment of the 4 HRO foundational practices. The aim is to accelerate change, build enduring capacity, foster a safety culture, and accelerate HRO maturity. To measure change, HRO executive leader coaches track the progress of their aligned VA medical centers (VAMCs) using the Organizational Learning Tool (OLT). This tool was developed to provide information such as a facility summary and relationships

FIGURE 1 Organizational Learning Tool at Veterans Affairs Bedford Healthcare System

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between a medical center director, HRO Lead, HRO Champion, and the executive leader coach (Figure 1). The OLT also serves as a structured process to measure leader coaching performance against mutually agreed upon objectives that ultimately contribute to enterprise outcomes. It also collects data on the progress in implementing foundational practices, strong practices, needs and gaps, and more (Figure 2). Data collected from facilities supported by HRO executive leader coaches on whether foundational practices are in place are briefly described.

LEADER ROUNDING

Leader rounding for high reliability ensures effective, bidirectional communication and collaboration among all disciplines to improve patient safety. It is an essential feature of a robust patient safety culture and an important method for demonstrating leadership engagement with high reliability.^{4,5} These rounds are conducted by organizational leadership (eg, executive teams, department/service chiefs, or unit managers) and frontline staff from different areas. They are specifically focused on high reliability, patient and staff safety, and improvement efforts. The aim is to learn about daily challenges that may contribute to patient harm.⁴

Leader rounding has been found to be highly effective at improving leadership visibility across the organization. It enhances interaction and open communication with frontline staff, fostering leader-staff

collaboration and shared decision-making, as well as promoting leadership understanding of operational, clinical, nonclinical (eg, administrative, nutrition services, or facilities management), and patient/family experience issues.⁴ Collaboration among team members fosters the delivery of more effective and efficient care, increases staff satisfaction, and improves employee retention.⁶ Leader rounding for high reliability significantly contributes to the breakdown of power barriers by giving team members voice and agency, ultimately leading to deeper engagement.⁷

It is important that leader rounding for high reliability occurs as planned and when possible, scheduled in advance. This helps to avoid rounding at peak times when care activities are being performed.^{4,6} When scheduling conflicts arise, another leader should be sent to participate in rounds.⁴ Developing a list of questions in advance allows leadership to prepare messaging to share with staff as it relates to high reliability and patient safety (Table).^{4,6,8}

Closing the loop improves bidirectional communication and is critical to leader rounding for high reliability. Closed-loop communication and following up on and/or closing out issues raised during rounding empowers the sharing of information, which is critical for advancing a culture of safety.^{4,8} Enhanced feedback is also associated with greater workforce engagement, staff feeling more connected to quality improvement activities, and lower rates of employee burnout.⁷ It is

FIGURE 2 Leader Coaching Performance Data Collection Example

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important to recognize that senior leaders are not responsible for resolving all issues. If a team or manager can resolve concerns that are raised, this should be encouraged and supported. Maintaining accountability at the lowest level of the organization promotes principles and practices of high reliability (Figure 3).^{4,8}

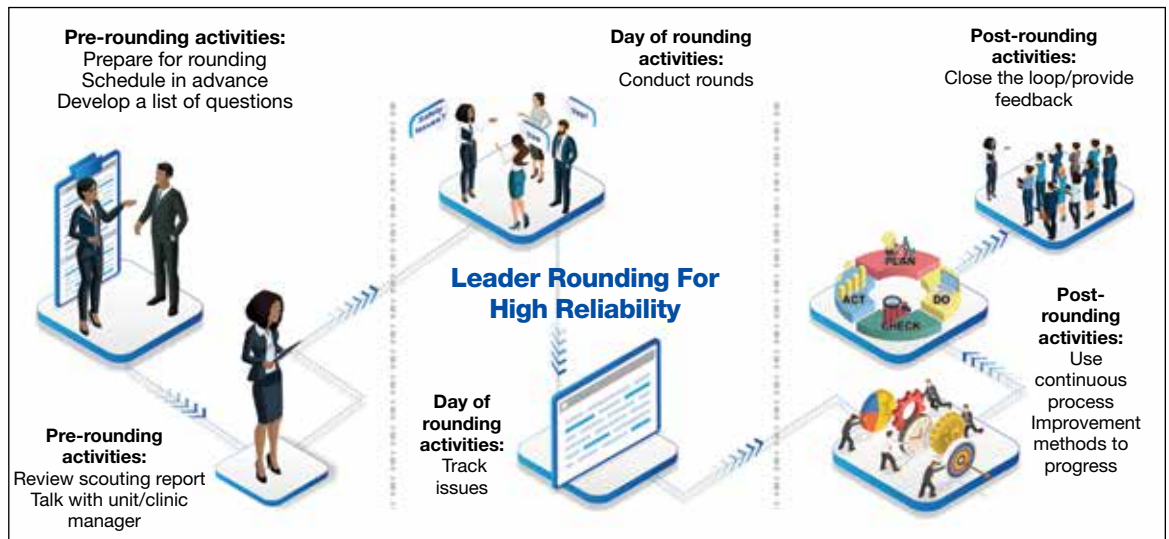
The VA Bedford Healthcare System created and implemented a strong practice for leader rounding for high reliability. This phased implementation involved creating an evidence-based process, deciding on an appropriate cadence, developing a tracking tool, and measuring impact to determine the overall effectiveness of leader rounding for high reliability.⁴

Visual Management Systems

A visual management system (VMS) displays clinical and operational performance aligned with HRO goals and practices. It is used to view and guide discussions between interdisciplinary teams during tiered safety huddles, leader rounds for high reliability, and frontline staff on the current status and safety trends in a particular area.^{8,9} A VMS is highly effective in creating an environment where all staff members, especially frontline workers, feel empowered to voice their concerns related to safety or to identify improvement opportunities.^{8,10} Increased leader engagement in patient safety and heightened transparency of information associated with the use of a VMS improves staff morale and professional satisfaction.¹⁰

A VMS may be a dry-erase or whiteboard display, paper-based display, or electronic status board.⁸ VMSs are usually located in or near work settings (eg, nurses' station, staff break room, or conference room).⁸ Although they can take different forms and display several types of information, a VMS should be easy to update and meet the specific needs of a work area. In the VHA, a VMS displays: (1) essential information for staff members to effectively perform their work; (2) improvement project ideas; (3) current work in progress; (4) tracking of implemented improvement activities; (5) strong practices that have been effective; and (6) staff recognition for those who have enhanced patient safety, including the reporting of close calls and near misses.

The VHA uses the MESS (methods, equipment, staffing, and supplies) VMS format. This format empowers staff to identify whether proper procedures and practices are in place, essential equipment and supplies are readily available in the quantity needed, and appropriate staffing is on hand to provide safe, high-quality patient care.⁸ Colored magnets are used as visual cues in a stop-light classification system to identify low or no safety risks (green), at risk (yellow), or high risk (red). Green coded issues are addressed locally by a manager or supervisor. Yellow coded concerns require increased staff and leadership vigilance. Red coded issues indicate that patient care would be impacted that day and therefore need to be immediately escalated and addressed with

FIGURE 3 Leader Rounding for High Reliability Process

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senior leaders to mitigate the threat.^{4,11} Dayton VAMC successfully implemented a VMS, using both physical and electronic visual management boards. The Dayton VAMC VMS boards are closely tied to tiered safety huddles and leader rounding for high reliability.

Safety Forums

Safety forums are another foundational practice of VHA health care organizations seeking high reliability. Recurring monthly, safety forums focus on reinforcing HRO principles and practices, safety programs, the importance and appreciation of reporting, and just culture. The emphasis on just culture reminds staff that adverse events in the organization are viewed as valuable learning opportunities to understand the factors leading to the situation as opposed to immediately assigning blame.¹²

Psychological safety is another important focus. When individuals feel psychologically safe, they are more likely to voice concerns and act without fear of reprisal, which supports a culture of safety.¹³ Safety forums are open to all members of the health care organization, including both clinical and nonclinical staff. Forums can be conducted by an HRO Lead, HRO Champion, Patient Safety Manager, or even executive leadership. Rotating the responsibility of leading these forums

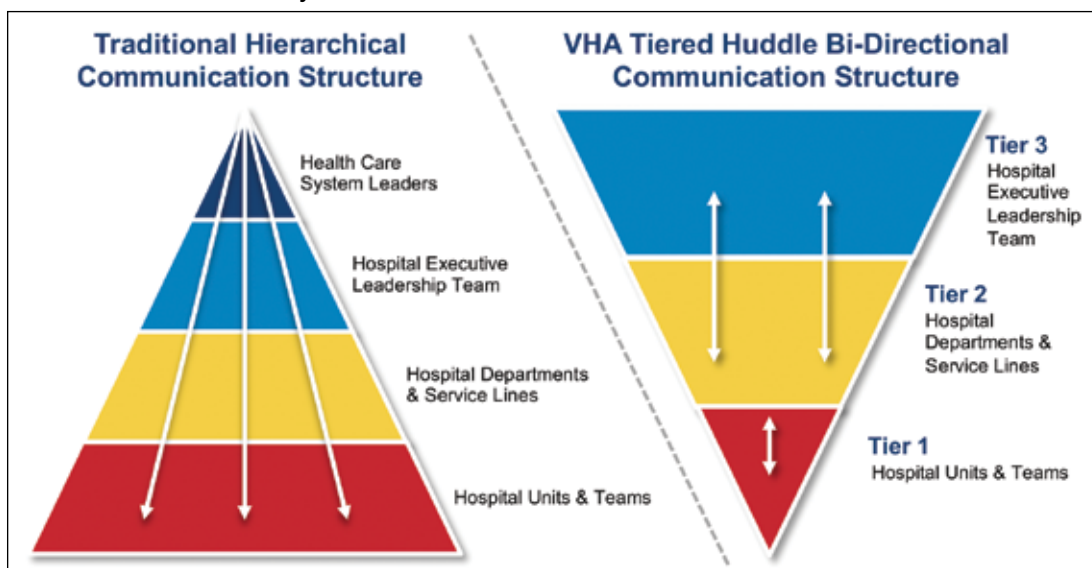
demonstrates that high reliability and safety are everyone's responsibility.

Safety forums publicly review and discuss errors, adverse events, close calls, and near misses. Time is also spent discussing root cause analysis trends and highlighting continuous process improvement principles and current projects. During safety forums, leaders should recognize individuals for safety behaviors and reward reporting through a safety awards program.¹⁴ All forums should conclude with a question-and-answer session. Forums typically occur in virtual 30-minute sessions but can last up to 60 minutes when guest speakers attend and continuing education credit is offered.

The Jesse Brown VAMC in Chicago developed an interactive monthly safety forum appealing to a broad audience. Each forum is attended by about 200 staff members and includes leader engagement and panel discussions led by the chief medical officer, with topics on both patient and team safety connecting with HRO principles. A planning committee prepares guest speakers and offers continuing education credits.

Tiered Safety Huddles

Based on the processes of high reliability industries like aviation and nuclear power, tiered safety huddles have been increasingly adopted in health care. Huddles (health care, utilizing, deliberate, discussion,

FIGURE 4 Tiered Safety Huddle Structure Within the Veterans Health Administration

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linking, and events) are department-level interdisciplinary meetings that last no more than 15 minutes.¹⁵ Their purpose is to improve communication by sharing day-to-day information across multiple disciplines, identify issues that may impact the delivery of care (eg, patient and staff safety concerns, staffing issues, or inadequate supplies) and resolve problems.

Tiered safety huddles are gaining popularity, especially in organizations seeking high reliability. They are more complex than traditional huddles because of the mechanics of elevating safety issues (eg, bedside to executive leadership teams), feedback loops, and sequencing, among other factors.^{15,16}

Tiered safety huddles are focused, transparent forums with multidisciplinary staff, including frontline workers, along with senior leadership.^{15,16} When initially implemented, tiered safety huddles may take longer than the suggested 15 minutes; however, as teams become more experienced, huddles become more efficient.¹⁵ The goal of tiered safety huddles is to proactively identify, share, address, and resolve problems that have the potential to impact the delivery of safe and quality patient care. This may include addressing staffing shortfalls, inadequate allocation of supplies and equipment, operational issues, etc.^{8,15} Critical to the effective utilization of tiered safety huddles is

the appropriate escalation of issues between tiers. The most critical issues are elevated to higher tiers so they are addressed by the most qualified person in the organization.

Deciding on the number of tiers typically depends on the size and scope of services provided by the health care organization or integrated system. For example, tiered huddles in the VHA originate at the point of service (eg, critical care unit). Tier 1 includes staff members at the unit/team level along with immediate supervisors/managers. Tier 2 involves departments and service lines (eg, pharmacy, podiatry, or internal medicine) including their respective leadership. Tier 3 is the executive leadership team. This process allows for bidirectional communication instead of the traditional hierarchical communication pathway (Figure 4). Issues identified that cannot be addressed at a particular tier are elevated to the next tier. Elevated issues typically involve systems or processes requiring attention and resolution by senior leadership.¹⁵ Tier 4 huddles at the Veterans Integrated Services Network level and Tier 5 huddles at the VHA Central Office level are being initiated. These additional levels will more effectively identify system-level risks and issues that may impact multiple VHA facilities and may be addressed through centralized functions and resources.

Tiered safety huddles have been found to be instrumental to ensuring the flow of information across organizations, improving multidisciplinary and leadership engagement and collaboration, as well as increasing accountability for safety. Tiered safety huddles increase situational awareness, which improves an organization's ability to appropriately respond to safety concerns. Furthermore, tiered safety huddles enhance teamwork and interprofessional collaboration, and have been found to significantly increase the reporting of patient safety events.¹⁵⁻¹⁹

The VA Connecticut Healthcare System tiered huddles followed a pilot testing implementation process. After receiving executive-level commitment, an evidence-based process was enacted, including staff education, selecting a VMS, determining tier interaction, and deciding on metrics to track.¹⁵

Implementing Foundational Practices

To examine the progress of the implementation of the 4 foundational HRO practices, quarterly metrics derived from the OLT are reviewed to determine whether each is being implemented and sustained. The OLT also tracks progress over time. For example, at the 27 cohort 2 and lead sites that initiated leader coaching in 2021 and continued through 2022, coaches observed a 27% increase in leader rounding for high reliability and a 46% increase in the use of VMSs. For the 66 cohort 3 sites that began leader coaching in 2022, coaches documented similar changes, ranging from a 40% increase in leader rounding for high reliability to a 66% increase in the use of safety forums. Additional data continue to be collected and analyzed to publish more comprehensive findings.

DISCUSSION

Incorporating leader rounding for high reliability, VMSs, safety forums, and tiered safety huddles into daily operations is critical to building and sustaining a robust culture of safety.⁸ The 4 foundational HRO practices are instrumental in providing psychologically safe forums for staff to share concerns and actively participate. These practices also promote continual, efficient bidirectional communication throughout

organizational lines and across services. The increased visibility and transparency of leaders demonstrate the importance of fostering trust, enhancing closed-loop communication with issues that arise, and building momentum to achieve high reliability. The interconnectedness of the foundational HRO practices identified and implemented by the VHA helps foster teamwork and collaboration built on trust, respect, enthusiasm for improvement, and the delivery of exceptional patient care.

CONCLUSIONS

Incorporating the 4 foundational practices into daily operations is beneficial to the delivery of safe, high-quality health care. This effective and sustained application can strengthen a health care organization on its journey to high reliability and establishing a culture of safety. To be effective, these foundational practices should be personalized to support the unique circumstances of every health care environment. While the exact methodology by which organizations implement these practices may differ, they will help organizations approach patient safety in a more transparent and thoughtful manner.

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