

High reliability organising in healthcare: still a long way left to go

Christopher G Myers ^{1,2,3} Kathleen M Sutcliffe^{1,2,3,4,5}

¹Carey Business School, Johns Hopkins University, Baltimore, Maryland, USA

²School of Medicine, Johns Hopkins University, Baltimore, Maryland, USA

³Armstrong Institute for Patient Safety & Quality, Johns Hopkins Medicine, Baltimore, Maryland, USA

⁴Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland, USA

⁵School of Nursing, Johns Hopkins University, Baltimore, Maryland, USA

Correspondence to

Dr Christopher G Myers, Johns Hopkins Carey Business School, Baltimore, MD, 21202, USA; cmyers@jhu.edu

CGM and KMS contributed equally.

Accepted 3 June 2022



► <http://dx.doi.org/10.1136/bmjqs-2021-013938>



© Author(s) (or their employer(s)) 2022. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Myers CG, Sutcliffe KM. *BMJ Qual Saf* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bmjqs-2021-014141

Over 20 years ago, in its enduringly impactful report *To Err is Human*, the US Institute of Medicine (IOM) claimed that healthcare is not unique among high-risk, high-reliability industries, pointing out that it too is concerned with learning how to prevent, detect, recover and learn from mistakes and accidents.¹ That observation was based on research conducted by an interdisciplinary group at the University of California at Berkeley who were ‘curious about the seemingly theory-defying ability of some organizations to avoid catastrophic operational outcomes despite operating technologies that were fraught with exceptionally high levels of risk, uncertainty, hazard, and public intolerance of failures’.² Although functionally different, these ‘high reliability organizations’ (HROs) achieved exceptionally high and sustained levels of performance as a consequence of deliberate, ongoing, organisational efforts characterised by the five principles of: preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience and deference to expertise.³ HROs are adaptive organisational forms for complex environments; the ways in which they organise are considered to be a ‘dormant infrastructure for performance improvement in all types of organizations’.⁴ HRO-related research has proliferated in the last two decades and has had remarkable impact on research, policy and practice across multiple industries—especially healthcare.²

Interventions to improve healthcare quality and safety grounded on HRO theory have become commonplace, with professional governing bodies such as The Joint Commission, the accreditation agency for hospitals in the USA, going so far as to propose that all healthcare

institutions adopt HRO principles.⁵ Yet, little is known about how these interventions have fared, with a particular dearth in understanding the mechanisms of change that might explain more or less successful adoption. Organisational research on change in healthcare is more often focused on what has changed, rather than on how or why,⁶ and given that decades of change management research have consistently found that most change efforts fail,⁷ understanding the mechanisms by which these HRO principles originating from outside of healthcare are (or are not) successfully adopted is critically important.

The publication in this issue of a qualitative study exploring the enactment of a HRO-inspired set of interventions (called ‘Caring Safely’) at a Canadian hospital provides insight into both the processes of organising aimed at establishing high reliability via this specific intervention, and the dynamics of safety and change that affect the enactment of HRO principles in healthcare more generally.⁸ Through observations and interviews with a broad sample of professionals engaged in the intervention, Rotteau and colleagues explored how participants understood and experienced HRO principles, whether and how they observed their execution in practice and how the formal Caring Safely programme had facilitated their enactment.⁸ A thematic analysis revealed that, although there were inconsistent understandings and enactments of HRO principles across participants, the Caring Safely suite of interventions had largely taken hold, particularly among nurses. Participants acknowledged greater uptake of practices aimed at the three HRO principles of preoccupation with failure, reluctance to simplify

interpretations and sensitivity to operations. At the same time, participants reported significantly less improvement in behaviours aimed at strengthening flexible decision structures (based on the HRO principle of ‘deference to expertise’), and surprisingly did not seem to recognise these intervention efforts as improving the hospital’s commitment to resilience (the fifth HRO principle), despite the intervention’s various training programmes inherently promoting the competence, efficacy and growth that constitute resilient responding.

Beyond highlighting reactions to, and implications of, this specific bundle of interventions, these findings also highlight important gaps that remain more generally in the *depth* and *breadth* of HRO enactment in healthcare. Despite significant enthusiasm and acknowledgement of the value of adopting HRO principles and other tools for advancing patient safety, most efforts to enact these principles remain relatively superficial, isolated endeavours.⁹ Too often, we see attempts to enact HRO principles through a scattershot set of activities that are neither clear in their conceptual understanding of the fundamental building blocks of reliability nor consistent in their implementation across the various components of the healthcare system.

VIEWING HRO WITH A SHALLOW DEPTH OF FIELD

HRO interventions in healthcare frequently (and often exclusively) make use of formal training efforts to alter individuals’ perceptions and practices. Although didactic training familiarises individuals with the language of high reliability organising, it often fails to fundamentally alter behaviour and can lead to shallow, simplistic understanding of the mere ‘words’ of high reliability, rather than their essential meaning. This shallow engagement can fuel a dismissal of fundamental concepts that have proved effective in other settings. This was revealed in Rotteau and colleagues’ findings when respondents rejected HRO concepts such as reluctance to simplify (‘We definitely don’t have a reluctance to simplify’) or preoccupation with failure (‘Preoccupation with failure, I think, needs to be reworked’), perceiving them to be incorrect or irrelevant.⁸

This lack of depth stems in part from healthcare’s insularity and tepid engagement with ideas coming from outside disciplines. To reject outright a concept such as preoccupation with failure or confidently claim to not have (or want) a reluctance to simplify implies a lack of interest in learning from wisdom honed in other fields, and reflects a broader trend of discounting ideas or solutions simply because they were not created within the medical professions.¹⁰ Safe, reliable performance is not a concern unique to healthcare, and so safety and reliability practices cannot be considered ‘special cases’ of medical

care. Rather, medical care is a special case of safety and reliability, which arise in a range of settings where there is high interdependence of organisational system components and where the environment is continuously changing. Failure to recognise the value of learning from outside disciplines has stifled progress in patient safety,⁹ particularly when compared with other industries such as US commercial aviation (which reduced fatalities 95% in the past two decades¹¹). Rather than working together with those in the organisational and social sciences, human factors or systems engineering, we frequently observe healthcare organisations opting for a medical, scientific-bureaucratic model of safety and reliability under the control of clinician administrators.⁹ By contrast, aviation has long adopted multi-institutional and multidisciplinary approaches to safety: it would be unimaginable for an aircraft accident to be reviewed and analysed solely by an in-house team of flight crew members, in the way we have come to accept in medical error or adverse event analyses.

At the same time, healthcare’s relatively shallow engagement with HRO is reflected in the focus of many interventions on training *individuals* as the locus of resilience and reliability, at the expense of more systemic capacity building. One of the most central conclusions of the 20-year-old IOM report was to focus on the system rather than on individuals. Yet, there remains a strong emphasis on individuals as both the source and solution of reliability failures and errors. Perhaps this is not surprising—the report is titled ‘To Err is *Human*’ (emphasis added), not so subtly spotlighting individual humans (and their errors), despite the report’s emphasis on broader systemic or cultural challenges to safe, reliable performance. The roots of resilient performance are not purely individualistic—nor purely systemic—but rather emerge in the myriad interactions among people, processes and practices that emerge as performance is enacted every day in organisations. Superficially engaging with resilience as solely an individual’s tenacity or resistance to ‘burnout’ ignores the reality that resilience is not a personality trait, but rather a collective achievement: it is not something people *have*, but something people *do*.¹²

ENACTING HRO FROM A NARROW VANTAGE POINT

In addition to the superficial engagement with research and insight on high reliability, HRO principles within healthcare are often narrowly enacted within particular silos. Interventions aimed at increasing reliability in healthcare are often bounded by the borders of a particular unit, department or specialty domain, with relatively little attention to developing common interpretations and

implementations across the range of professions that make up modern healthcare. Rotteau and colleagues highlight the differential uptake of HRO concepts across professions among their interviewees, and the nature of the Caring Safely intervention points to a fragmented approach to delivering this content, with different components restricted (either by design or by enrolment) to particular professional groups.⁸ Without consistent exposure or intervention, it is highly unlikely that a common understanding and shared vision of HRO will emerge across professions.

Inconsistent application not only dilutes implementation efforts, but also contributes to the perception that reliability is the purview of one profession but not others. More specifically, there is a risk of HRO principles being defined as a ‘nursing’ concept, rather than a broader concern for all health professionals. Consistent with Rotteau and colleagues’ observation of greater engagement with HRO principles among nurses,⁸ efforts to improve patient safety and reliability in healthcare also seem to be increasingly concentrated among non-physician health professionals, and to be driven predominantly by women. Indeed, a recent analysis of individuals certified by the Certification Board for Professionals in Patient Safety showed that more than 86% of certificants were women.⁹ These trends are no doubt structurally related, as nursing and other non-physician health professions tend to have a higher percentage of women working in them, but this over-representation of certain health professionals—and the noted absence of others—presents a challenge to the broad adoption of concepts necessary for safe, reliable care. These demographic trends raise the possibility that delivering safe, reliable care is being categorised as a more stereotypically ‘feminine’ concept (ie, aligned with stereotypes of women as caring, nurturing or emotional), which would be less well aligned with the professional competencies and norms associated with physicians, historically defined by more stereotypically ‘masculine’ traits.¹³ Moreover, that adoption of these HRO practices is over-represented in historically lower status healthcare professions¹³ suggests that enacting these concepts may not be viewed as high-priority, status-enhancing efforts. Though the health professions are continuing to progress towards more equitable balances across demographic and status characteristics, narrowly associating HRO principles with any one group or profession will limit the widespread adoption of the kinds of practices and interactions necessary to deliver safe, reliable patient care.

CREATING THE REQUISITE VARIETY NEEDED FOR HIGHER RELIABILITY IN HEALTHCARE

The occasion of Rotteau and colleagues’ paper provides a window into the process of enacting

HRO principles in a hospital, but also an opportunity to reflect on the challenges of depth and breadth that remain to be overcome if these principles are to be more fully integrated into healthcare more broadly. Going forward, it is incumbent on scholars and healthcare leaders to aid the field in developing the requisite variety—the rich, multifaceted understanding and diverse, widespread application—necessary for more effectively enacting HRO principles. We highlight three directions that seem fruitful in building this variety.⁹ First, healthcare needs more research to understand how things go right in the course of everyday work. Although aspects of HRO are aimed at anticipation and prevention, the essence of high reliability organising is resilience and adaptability. Things go awry in the course of everyday work and health professionals are constantly making small adjustments in their actions and interactions to catch and correct issues (often without even knowing it). What are the practices, habits, routines and ideas that are contributing to an organisation’s collective abilities to adapt and make things go right? Second, there is a need for more diversity—of both health professions and outside disciplines—in tackling these problems. We must take seriously that medical mishaps and adverse events are problems in need of insight from psychology, organisation theory and engineering, not just from medicine.¹⁴ Engaging expertise from a broad variety of disciplines and creating sustained interdisciplinary partnerships will enhance the field’s understanding of how people in complex systems make sense of unfolding events at work. Third, healthcare has historically privileged small system changes to improve reliability and safety—with many positive results. But going forward, researchers and leaders need to be looking not just at activities occurring at the clinical level, or even the level of a single organisation. There are large classes of hazards that require industry-wide, social-political changes in healthcare, such as the issue of look-alike and sound-alike drugs or issues of technology interoperability. There is still a long way to go in the quest for higher reliability in healthcare organisations, and we must do more to understand the nature of healthcare work processes, the operation and interaction of high-level system elements and the capabilities of healthcare and its professionals to successfully cope and recover from adversities as they unfold.

Twitter Christopher G Myers @ChrisGMyers and Kathleen M Sutcliffe @KMSutcliffePhD

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Commissioned; internally peer reviewed.

ORCID iD

Christopher G Myers <http://orcid.org/0000-0001-7788-8595>

REFERENCES

- 1 To err is human: Building a safer health system, 2000. Available: <https://pubmed.ncbi.nlm.nih.gov/25077248>
- 2 Ramanujam R, Roberts KH. *Organizing for reliability: a guide for research and practice*. Stanford University Press, 2018.
- 3 Weick KE, Sutcliffe KM. *Managing the unexpected: sustained performance in a complex world*. John Wiley & Sons, 2015.
- 4 Sutcliffe KM. Mindful Organizing. In: Ramanujam R, Roberts K, eds. *Organizing for reliability: a guide for research and practice*. Palo Alto, CA: Stanford University Press, 2018: 61–90.
- 5 Chassin MR, Loeb JM. High-reliability health care: getting there from here. *Milbank Q* 2013;91:459–90.
- 6 Mayo AT, Myers CG, Sutcliffe KM. Organizational science and health care. *Acad Manag Ann* 2021;15:537–76.
- 7 Burnes B. Introduction: why does change fail, and what can we do about it? *J Change Manage* 2011;11:445–50.
- 8 Rotteau L, Goldman J, Shojania KG, *et al*. Striving for high reliability in healthcare: a qualitative study of the implementation of a hospital safety programme. *BMJ Qual Saf* 2022. doi:10.1136/bmjqs-2021-013938. [Epub ahead of print: 01 Jun 2022].
- 9 Wears R, Sutcliffe K. *Still not safe: patient safety and the Middle-managing of American medicine*. Oxford University Press, 2019.
- 10 Myers CG, Sutcliffe KM, Ferrari BT. Treating the "Not-Invented-Here Syndrome" in Medical Leadership: Learning From the Insights of Outside Disciplines. *Acad Med* 2019;94:1416–8.
- 11 FAA. Out front on airline safety: Two decades of continuous evolution. [Internet], 2018. Available: <https://www.faa.gov/newsroom/out-front-airline-safety-two-decades-continuous-evolution>
- 12 Barton MA, Christianson M, Myers CG, *et al*. Resilience in action: leading for resilience in response to COVID-19. *BMJ Leader* 2020;4:117–9.
- 13 Adams TL. Gender and feminization in health care professions. *Sociology Compass* 2010;4:454–65.
- 14 Senders JW. Medical devices, medical errors, and medical accidents. In: Bogner MS, ed. *Human error in medicine*. Hillsdale, NJ: Lawrence Erlbaum Associates, 1994: 159–77.