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AGILE INNOVATION

Reimagining the High-Reliability
Organization in the Age of AI

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AGILE INNOVATION

Reimagining the High-Reliability Organization in the Age of AI

While the COVID-19 pandemic highlighted the importance of key principles of high-reliability organizations, including teamwork and communication, transparency and identifying bright spots and scaling them, health care providers also faced novel situations in which they couldn't rely on previous experiences and protocols. Simply applying rules didn't work. An iterative or test-and-learn management approach helped providers navigate the unknown — introducing something new into the system, seeing the response and then changing. Hospital leaders participating in a virtual executive dialogue examined how to reconcile the cultural shift between incremental change and the need for high reliability with the need for adopting new ways of operating with artificial intelligence (AI) and machine learning (ML) as partners to individualize the patient experience.

KEY TAKEAWAYS

- 1** Hospitals and health systems have implemented the principles of high reliability to identify gaps in communication and prevent adverse events, which prepared organizations to operate effectively and meet many challenges of the COVID-19 pandemic.
- 2** Hospitals have to constantly adapt to rapid change. High reliability, however, assumes that teams can rely upon rules and protocols. In uncertain environments and novel situations, a different type of approach may be beneficial. Specifically, an agile or test-and-learn management approach allows teams to test new processes and protocols.
- 3** A test-and-learn approach may be particularly useful in helping organizations realize the full benefits of AI and ML in health care as the use of these technologies will result in the continual change of processes and protocols.

VIRTUAL PARTICIPANTS



Dawn Anuskiewicz

/ CHIEF OPERATING OFFICER

Reading Hospital and Medical Center | West Reading, PA



Jason Cohen, M.D.

/ CHIEF MEDICAL OFFICER

North Valley Hospital | Whitefish, MT



Nicholas Holmes, M.D., MBA

/ SENIOR VICE PRESIDENT AND CHIEF OPERATING OFFICER

Rady Children's Hospital San Diego | San Diego, CA



Mary Dale Peterson, M.D., MSHCA

/ EXECUTIVE VICE PRESIDENT AND CHIEF OPERATING OFFICER

Driscoll Children's Health System | Corpus Christi, TX



Kaveh Safavi, M.D., J.D.

/ SENIOR MANAGING DIRECTOR, GLOBAL HEALTH CARE

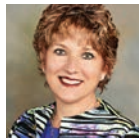
Accenture | Chicago, IL



Thomas Scott

/ SENIOR VICE PRESIDENT AND CHIEF OPERATING OFFICER

CentraState Healthcare System | Freehold, NJ



Sharon Toups

/ SENIOR VICE PRESIDENT AND CHIEF OPERATING OFFICER

St. Tamanny Health System | Covington, LA



MODERATOR: Lindsey Dunn Burgstahler

/ VICE PRESIDENT, PROGRAMMING AND INTELLIGENCE

AHA Center for Health Innovation, American Hospital Association | Chicago, IL

MODERATOR: (*Lindsey Dunn Burgstahler, American Hospital Association*): **Most hospitals and health systems approach their operations with high-reliability principles, such as reducing variation and eliminating error or failure, even if they don't explicitly use the term. What gains have your hospital or health system made by implementing high-reliability organization (HRO) principles? What limitations has your organization experienced with this approach?**

DAWN ANUSZKIEWICZ (*Reading Hospital and Medical Center*): HRO and high reliability are terms we use here at Reading Hospital. We've started using it with much more frequency and will be using the ORO 2.0 tool from the Joint Commission to move that journey forward to being a fully high-reliability organization. Every model has its pluses and minuses. I lean on the plus for the HRO model and like that concept of deference to the bedside expertise, deferring to the people who are delivering the work. It engages staff to create processes that work for both our patients and them, and reduces the number of workarounds.

JASON COHEN, M.D. (*North Valley Hospital*): North Valley Hospital is a Planetree organization, which has to do with not just how we treat patients, but also how we treat our staff. Everything we do is rooted in the core principles of HROs, focusing on eliminating failure being chief among them. We have a robust reporting system that reports all incidents at the medical staff committee level as well as departmental levels. Those failures go directly into prioritizing and identifying opportunities for improvement.

THOMAS SCOTT (*CentraState Healthcare System*): We were part of a New Jersey Hospital Association collaborative two years ago when we launched

our HRO initiative. It has ingrained the high-reliability culture into the organization. We set up our baseline and looked at serious safety events. When we initially started, we had around 2.65 events and now we are down to 0.2. The second metric is how many consecutive months we can go without a serious safety event. Right now, we're on a good trend and for six months we have not had a serious safety event. Part of our success is credited to establishing a daily huddle that operates seven days a week. Each of the administrative team members ends up leading this and it's opened up the lines of communication.

NICHOLAS HOLMES, M.D., MBA (*Rady Children's Hospital San Diego*): We have used the term high reliability as an umbrella to our process improvement program since about 2008 when we converted from paper medical records to a complete electronic health record. We always had reliable processes, clinical pathways, bundles and checklists as part of our practice, but this elevated what we needed

to do next: focusing on culture, making sure that we had the proper governance, communication practices, and creating a safety coach program. Now we're at the level of making sure that we're focusing on how human factors impact our achievement of always being a high-reliability organization.

Being on this journey has allowed us to continue to be flexible, nimble and quick, especially in the face of the pandemic. In January, San Diego was one of the designated sites for evacuating the expatriates from Wuhan. Since we are the sole children's

hospital, we had to be prepared long before the rest of the country. We got our special infectious disease unit and testing up and running before most places.

"We're going to see emerging work experiences where a human and a technology [AI] work together in a dyad. ... The challenge is that this technology is, by its nature, not static. It keeps changing over time."

— Kaveh Safavi, M.D., J.D. —

MARY DALE PETERSON, M.D., MSHCA (*Driscoll Children's Health System*): We've also used the term high-reliability organization for a while. Our HRO journey focuses on the culture of the organization and making sure everybody feels safe and supported if they submit what we call a "kiss." That's either a good catch, a potential safety event or it could be a nonevent, but something that any person believes could be brought to our attention. We really looked at those and were able to quadruple the number into the thousands. As we did that, we saw a drop in our serious safety events. We present special pins to people to wear when they have reported something.

SHARON TOUPS (*St. Tammany Health System*): We started our journey to high reliability several years ago. The catalyst was the arrival two years ago of a new CEO who engaged us in using the principles and evaluating what our gaps were to achieve best practices in each of the domains. Previously, we had a safety huddle five days a week, and now it's seven days, led by the administrator on call for the week, attended in person by most of our clinical teams and via phone for those who are off-site. What has changed has been communication throughout the organization. We hear about potential issues and use it as an opportunity to recognize good catches and people who have identified safety issues in the organization, as well as to follow up on any safety concerns over the next 24 hours. We've excelled using the Just Culture model. One of our challenges is data management and trying to identify what data we want to monitor.

MODERATOR: It certainly sounds like high-reliability approaches have benefited your organizations in a number of ways. However, as we look to the future and the idea that a variety of technologies

will make care more personalized, I struggle with reconciling the idea of care and experience for an 'n' of 1 and an approach that relies heavily on predictable rules. Kaveh, I know this is something you and your team are thinking through. Perhaps other models, like test and learn, may be more heavily relied upon in the future.

KAVEH SAFAVI, M.D., J.D. (*Accenture*): The management model called test and learn has been around for a couple of decades and its methodology came out of complex adaptive systems. Complex adaptive systems think about problems from the spectrum of either known or unknown problems. Known problems typically are addressed simply by applying rules. However, there are two kinds of unknown problems: one is the known unknown, usually a forecasting or a predictive problem, and then, there's the unknown unknown, where the best management approach is a test-and-learn approach because you actually don't have any historical understanding of the system to model, so you introduce something new into the system, you see the response and then you change.

What has been driving the most recent conversations is the rapid introduction of technology and AI into health care. We're going to see emerging work experiences where a human and a technology work together in a dyad. The technology is taking over services that don't need the judgment of the human being. The challenge is that this technology is, by its nature, not static. It keeps changing over time.

MODERATOR: So there could be tension in being an HRO in nonstatic situations such as introducing a new technology. Is this tension something other organizations have experienced?

"Part of high reliability is using critical thinking through these processes — to question if something doesn't make sense."

— Nicholas Holmes, M.D., MBA —

PETERSON: This is a big challenge because psychologists tell us that 80% of people are concrete thinkers. They want things to be a certain way, so we can teach to that. There will be certain processes that are necessary in a higher-reliability organization and these won't change, but there may be other checklists that we have to be more creative about. The pandemic uncovered many of these challenges because we were dealing with so many unknowns. When guidance would come out, we would create our policy or procedure and then it would change the next week. It goes back to how many people get frustrated with this rapid type of change, so we had to overcommunicate to try to help people with that. In our communications, we mentally prepared people that we were adjusting as we learned more and the science changed. We said, "This is what we know, this is how we're going to do things today, and it could change tomorrow."

"Have we created a culture that allows people to be innovative and do we have a guardrail that keeps our staff, physicians and, just as importantly, our patients safe?"

— Dawn Anuszkiewicz —

HOLMES: With all the changing guidelines for COVID-19, people may be overly relying on technology to address uncertainty. That brings in a human factor where people think technology is never wrong. How do you straddle between being able to provide clear communication with the challenge of staff saying, "This is what the monitor told me to do?" Part of high reliability is using critical thinking through these processes — to question if something doesn't make sense.

ANUSZKIEWICZ: As we think about how we incorporate AI, which is ML, into our care, it really comes down to applying critical thinking to the patient for whom you are caring. It's making sure our teams use AI at the bedside, or the person on the phone who's scheduling them has the ability to apply crit-

ical-thinking skills. Then, we create a structure in which they're free to do that.

COHEN: HROs aren't about standard protocols as much as they are a standard process for how we implement, how we look for best practices, and then how we communicate across our organization. In terms of guidance, last year the Food and Drug Administration (FDA) came out with its 510(k) approach to regulating software as a medical device. It recognizes that software in the AI world is going to be changing constantly as algorithms are updated with new training sets. The FDA advises that you don't have to keep coming back every time the underlying algorithm changes, but you must have a set of processes and principles in place for how you update that algorithm. That needs to be our approach as we look at more rapid change in our hospitals. Individual protocols are going to have to change, but as we adapt to new technology, we need a set of principles and processes to follow for how it

gets rolled out and how we communicate that with our employees.

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MODERATOR: Are there parts of your organization where you see test-and-learn approaches more necessary than others?

SAFAVI: One of the ways to think about this is that not everything we do in health care will result in harm to a patient. There are lots of things we could innovate without ever worrying about the bedside, so part of it is being able to have the sharpness and clarity to not use the language of quality in every single process, allowing us to manage those separately. Most of the adoption of AI and ML in health care are not bedside issues or clinical

judgment issues at all. There's so much opportunity in health care that has nothing to do with that.

ANUSZKIEWICZ: We are constantly innovating within health care. When we start applying Lean principles and process improvement in our workflows, we're asking people to have a hypothesis and test it. You need to reimagine how you do X, whatever X may be. A lot of it doesn't directly impact the patient's care in real time, so there are safeguards to reduce waste.

SCOTT: One of the challenges we've had has been from the staff's perspective. It's hard for them to give up things. What we find ourselves doing is piling on one thing after another and it's additive. We're finding more staff burnout, particularly after going through the COVID-19 experience. I keep trying to challenge staff, managers and leaders to say, 'When you're thinking through this, if something new is coming in, what can you give up?'

ANUSZKIEWICZ: How we get people to give things up is really hard. We need to create a space to fail, fail fast, fail often and fail spectacularly, or we have to change the mindset. Inherently in health care, we're afraid to fail because it could impact our patients negatively. We're always hunting for the defect and what's wrong. And when we find it, 'that's a defect or an error.' The language we use is important. We need space to create when it's a celebration. Have we created a culture that allows people to be innovative and do we have a guardrail that keeps our staff, physicians and, just as importantly, our patients safe?

COHEN: Part of our culture, both as physicians and as hospitals, has become accustomed to incremental change. The PDSA [plan, do, study, act] cycle and the change methodologies we are accustomed to are comfortable when we make a small

change; we see how it works out, measure it, and then try to reinvent or improve it. One of the challenges we'll likely face with AI and ML is that there's going to be a limit to what we can achieve and what we can take advantage of by incrementally changing our current processes. We will be able to squeeze some more juice out of operations by real-time data analytics, but at some point, we're going to get to a place where we have to reinvent how hospitals function and how people take care of each other. It's going to require a fundamentally different patient flow to fully realize the benefits of AI

and ML, and I don't know that any of us culturally is equipped to do that. Imagine a theoretical hospital that from the ground up is built to take advantage of both individualization of care as well as change management. I don't know that our current culture can get us there, because it's too much of a leap.

HOLMES: I would agree because medical schools don't teach that. We have a whole generation of health care workers who don't operate in that particular space, as well as hospital administrators. Another issue is overly relying on technology. What if the technology goes down with a cyber-attack? There is going to be a cadre of people who will be functionless. They're not going to know how to take care of a patient or how to dictate flow through a hospital. There are some pluses and minuses about fully embracing AI.

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— Jason Cohen, M.D. —

An aerial photograph of a city skyline, likely New York City, with a network of white lines and dots overlaid on the image, suggesting a digital or data network. The network lines connect various points across the city, with some points highlighted in a glowing blue. The city buildings are in shades of blue and grey, and the sky is a light blue.

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