Transforming health care from a volume-based system that treats disease to a value-based system focused on population health and wellness requires access to real-time patient data. Data analytics is reshaping care delivery, enhancing efficiency and improving outcomes. Risk stratification and predictive analytics capabilities can help clinicians develop tailored interventions, enabling hospitals and health systems to enhance the health of the communities they serve. This executive dialogue explores the biggest opportunities and pain points organizations have encountered with analytics. It also examines what measures hospitals are using to monitor clinical and operational performance, and what hospitals and health systems can do to sustain their results.
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MODERATOR (Suzanna Hoppszallern, American Hospital Association): Please share a little about your roles and organizations and then talk about your key performance indicators right now.

STACEY COFFEE (Atrium Health): I am the clinical informatics coordinator for Atrium Health and the coordinator of the Exchanged Quality Data for Rehabilitation (EQUADR). This is our national database for rehabilitation facilities, designed to drive quality improvement by sharing information, ideas and best practices. We have about 38 member organizations from across the nation that submit data, including freestanding rehabilitation hospitals and inpatient rehabilitation units. We provide data analysis and hold educational webinars. We’re measuring a number of things — catheter-associated urinary tract infections, methicillin-resistant Staphylococcus aureus, fall rates and discharges to acute care settings. We’ve seen a decrease in fall rates across all EQUADR members, as well as with pressure ulcers.

POONAM SHARMA (Atrium Health): I’m a senior clinical data scientist at Atrium Health, focused on the hospital side. Danelle Higgins, who is with me today, heads our patient safety organization (PSO), which captures adverse events, and we also conduct the measurements and data analysis. The majority of our hospitals are part of the PSO, and we are using the data to come up with weightage on the best practice solutions. We look at readmission rates across our hospitals and we’ve developed a PSO dashboard that shows real-time data that can be viewed by all hospitals in the PSO. It drills down to the unit level, so it’s a valuable resource to our hospitals.

LESLIE MARSH (Lexington Regional Health Center): I’m the CEO of Lexington (Neb.) Regional Health Center. I have a nursing background, so quality improvement has always been top of mind. We’ve been looking at all the hospital engagement network (HEN) measures for a number of years. These include adverse drug events, central line-associated bloodstream infections and ventilator-associated pneumonia, among other things. We’re doing a lot of readmission work, coordinating care and looking at risk stratification as people come into the emergency department (ED). We participate in the Medical Expenditure Panel Survey, as well. The board sees our results on a dashboard, but we have a smaller dashboard that’s more functional and it highlights key things that impact care and quality.

MARTY FATTIG (Nemaha County Hospital): We’re a county-owned, critical access hospital (CAH) about 65 miles south of Omaha, Neb. Quality and patient safety are the top agenda items at our board meetings. The board is deeply involved in quality and patient safety. We are certified by the ISO 9001 Quality Management System. It’s a yearly survey and a performance-based improvement process. Whatever they find during the survey becomes one of our critical measures, because we need to improve those before the next survey. It’s always relevant to the patient, and delivering high-quality care is our top priority.

MORGAN O’HARE (Northwell Health): We are the largest private employer in New York state with over 69,000 employees. We have 23 hospitals, about 750 outpatient facilities, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hofstra Northwell School of Graduate Nursing and Physician Assistant Studies, Center for Learning and Innovation, and the Feinstein Institutes for Medical Research within our health system. Our hospitals are divided into regions — I work for the SVP, Regional CFO and SVP Regional Executive Director of the Central Region (6 hospitals). From a system-perspective, we have a key performance scorecard that highlights perioperative metrics, patient experience, throughput, finance and quality.

TIFFANY KENNER, R.N. (Henry County Hospital): We’re a DNV GL-certified CAH in Ohio. Some of the measures we look at closely are patient experience, readmissions, HEN and length of stay. Our
managers oversee catchball projects, which are performance improvement-based. The managers identify something they want to take a closer look at and identify potential solutions. They involve front-line staff and then findings are presented to the administration. It’s a good learning experience.

MODERATOR: All of you are collecting a lot of data. How are you using these data to prioritize improvement efforts? What moves something up to the top of the list?

FATTIG: As I mentioned, we’re a small, rural hospital. Because we have low-volume, errors are infrequent but near misses are not infrequent. We track near misses and encourage all staff to report them. We conduct a root cause analysis (RCA) on near misses when we see the need. It’s helpful in identifying ways to prevent potential harm.

MARSH: We’re also ISO 9001-certified. As we began the process, we quickly realized that we needed to create a systemwide approach to quality to achieve the certification. We needed a way to pull all the data together. We found that many people were using quality indicators on the floors, and in different areas, but not making much progress, because they were working in isolation. Our quality council oversees our data and shares it with the board. We work together to develop action plans and we monitor our progress closely.

As I mentioned, we are focused on care coordination. We have a care transition team that works with our patients and community organizations. For a small community, we are diverse. We have sizable Hispanic and Somali populations. Some staff on our transition team are fluent in Spanish and Somali and help people navigate the care delivery system. We’re working with at-risk and chronically ill patients, primarily the diabetic population, to manage their conditions. We’re also looking more closely at our at-risk contracts to make sure we are meeting those metrics.

O’HARE: Amongst several competing metrics and areas of focus, our focus has been largely on the Centers for Medicare & Medicaid Services’ (CMS) star ratings. We have a care management organization — Northwell Health Solutions — that oversees our value-based care programs. Our patient navigators work within this area and help patients manage their care and, ultimately, reduce unnecessary readmissions. The dashboard that we use is fantastic because you can look at data on a site-by-site basis, by condition and by risk-adjusted score. We can become inundated by data, and calculate readmission percent.

KAYLA PELEGRI, M.D. (3M): How do your navigators or community coordinators in consumer roles prioritize care and decide which patient populations to focus on? With so much information available, how do you figure out which patient population to prioritize?

MARSH: It’s different in rural communities because we truly know our patients. But we find that there are things patients are unwilling to share with their health care providers that they will share with a community health worker. For example, we’ve had patients without a working refrigerator so they
can’t store their insulin properly, nor have access to healthful foods. This is something they didn’t share with their physicians, but they told the coordinator. Coordinators are able to develop a personalized approach to help patients with their needs, because they are out in the community and know the patients’ support systems. We wouldn’t be able to do that if we were larger.

SHARMA: At Atrium Health, we have a dashboard with admissions information on patients with such chronic conditions as asthma and diabetes. We are able to develop a list of high-risk patients based on CMS criteria and the likelihood of any one of those patients being readmitted to the organization. We also can view the data based on ZIP code. For example, we know which ZIP codes have high readmissions for chronic conditions and which have low readmission rates. We are able to concentrate our work in the areas with patients at higher risk. It’s real-time data, so we can act quickly.

HIGGINS: Through our RCA process, we have developed a culturally preventable score. We’re looking not just at serious events, but the precursor events. And we look at near misses. We’re now at the point where we’re starting to proactively prevent harm. We’ve identified that the precursor is often a cultural issue. If we fix our culture, we can fix our care delivery. About 65% of our incidents are culturally preventable.

MODERATOR: How are you using that to intervene then, if there are leadership or team conflicts?

HIGGINS: We take all of the information and identify four or five areas of focus and then we educate not only our front-line staff, but our leadership. That gives us the biggest bang for our buck. Like many organizations, we have morning safety briefings. That’s a great way to engage leadership and provide accountability. All the PSO safety alerts are discussed in the briefings.

KENNERK: We’re actually just starting with safety huddles, planning on what we want to cover, etc. We’ve done several mock go-lives and each time we’ve made adjustments to our safety board in terms of what we want the focus to be. At first, we thought we wanted leaders to participate in the briefing, but we soon realized that we needed input from our house supervisors because they know everything that’s going on in the facility. In terms of prioritization, our managers do a good job of managing our performance-improvement efforts and understanding what needs to be done. For being small, it’s quite impactful to see the managers truly own their processes in their units.

MODERATOR: How are you engaging clinicians and leadership in the process? What are some of the difficulties that may arise and how are you handling that?

COFFEE: Our EQUADR database is a great platform. We’ve had members attest to improvements in fall rates, for example, due to what they’ve learned as being part of EQUADR and the shared best practices. We’re proud of that. It’s driven by the members and through the metrics. In terms of engagement, we form a consensus work group every year that meets several times a month. This is a multidisciplinary group. We review our current metrics to determine whether they are still relevant. And then we discuss what new metrics should be added and whether we are able to
collect and use that information. I can’t say we changed the metrics a lot because we have the core metrics that everybody wants to see. But we do add new things. Last year, we added pediatric benchmarking and this year, we’ve added metrics specific to the oncology population.

FATTIG: The majority of hospitals in Nebraska are critical access hospitals. We work together at the state level so we can have sufficient data to work with and share best practices. We’re all about compromising and getting along, rather than competing. We would rather collaborate than compete. We’ve done work on swing beds and bundled payments, for example. What we are not able to do, currently, is identify at-risk patients before they come to the hospital. We don’t employ any physicians, so we don’t have access to that level of data.

HIGGINS: We have a Quality and Patient Experience goal-setting day once a year when we bring in all the hospital CEOs and Chief Nursing Officers, as well as Quality and other leaders from across the system. It includes our ambulatory and Continuing Care teams. We select about 10 goals that we want to work on across the system. We used to be more inpatient focused, but it’s shifted. We’re now looking at transitions and continuing care. It helps to drive our quality initiatives into our ambulatory areas. And it helps us find ways to reach patients before they get to the hospital.

PELEGRIN: With the shift to population management, how easy is it to work with community physicians who are not employed by your health system? What are some of the things that you’re experiencing?

SHARMA: It is a challenge. We capture data differently and it’s more difficult to analyze as a result. We use a tool — REDcap — to develop a database to share patient information with our affiliated physicians and community health care services. REDcap is a secure platform to collect and assess data. But there are gaps and some providers may not be able to use it effectively. However, the data we receive helps us build a good understanding about our patients and communities. We know where the patient has been for health care services.

O’HARE: Theoretically, it should be seamless for me to go to a doctor’s office and have my history available when I get to the hospital if it’s within our health system. Integration is our biggest challenge.
Some of our electronic health records weren’t built for what we want them to do. Some things are still being done on paper, so they aren’t in the electronic record yet.

**FATTIG:** We have a dynamic health information exchange (HIE) in Nebraska. We’ve created an interoperable community that allows every provider to share data. It encompasses long-term care, physicians and pharmacy. We’re able to share patient data through the HIE. Patients at rural hospitals tend to travel back and forth between our facility and larger tertiary care hospitals because there are many services we are unable to provide. The tertiary care facilities are also on the HIE, so their data are in there and it’s good. They’re starting to combine all the clinical data with claims data to look at the total picture of what’s happening with patients by ZIP code or service area. It’s coming together, and we’re also working on data analytics.

**COFFEE:** We have some access to records for patients who come from outside our network. It’s limited; we don’t have access to the entire record, but we do get a snapshot of what’s going on with the patient. We are working to expand access with other facilities. Getting our skilled nursing facilities on our EHR will be helpful. It’s important for maintaining the continuum of care.

**MODERATOR:** We’ve talked about benchmarking and many of you referenced your own dashboards. How does accountability play out in your organization? Are we making true progress here?

**HIGGINS:** Our CEOs and presidents are responsible for achieving our quality goals at their entity or business unit. It goes all the way to the top. All the results are reported to our system board on a quarterly basis. At the local level, our quality initiatives are run through internal collaboratives known as Quality and Safety Operations Councils (QSOC). These councils are focused on specific issues like infections or falls prevention. Each QSOC is responsible for related quality goals across the system. The QSOC is comprised of a leader and representatives from every hospital. In that smaller group, we track hospital-specific results.

**COFFEE:** I’m a member of the rehabilitation QSOC. It’s comprehensive; we look at everything. The group consists of educators, managers, wound care nurses, etc. We look at all our quality data closely and when an issue arises, we work with the educators to determine how to address it.

**FATTIG:** For our ISO certification, we have to conduct internal audits during which every department is audited by individuals from a different department. It’s revealing and helpful to have that outside perspective. More importantly, it’s not a punitive process. People are helpful and work well together. It’s one of the best tools we’ve put in place.

**MARSH:** Culture is extremely important. We have a “just culture” that encourages open and honest communication among staff. As Marty referenced, this should not be a punitive process. Everyone on our staff has goals that tie into the organization’s goals. We’re looking at certain measures and that’s going to determine what my compensation looks like all the way down to the staff nurse. We are all accountable for our results. A current focus for us is hand hygiene. We started out by highlighting that we’ve gotten out of the habit of handwashing before every patient encounter. If it continues, we’ll have to take some action that will make them accountable.

**KENNERK:** We are focused on zero harm. If an incident, or near miss, occurs, it’s easy to determine whether it’s an isolated event or part of a bigger trend because of our size. It’s an interactive, multidisciplinary process. I’ll often come in and the nurses will approach me with a problem and the solution they think will address it. Currently, we’re focusing on home medications coming into our facility and making sure they get back to the patient at discharge. We have a Patient Service Council that leads most of our quality initiatives. Because
we’re a small facility, we can get all the necessary staff together and it’s easy to communicate with everyone quickly.

MODERATOR: When it comes to data and performance improvement, what are some opportunities you see for the future?

HIGGINS: We have an incredible amount of data. We spend hours and hours running reports to make it easily accessible to the right audiences. We try to present the data through infographics. We’ve found infographics to be one of the easiest ways to get people interested. A 24-page report isn’t effective. We did one study for which we produced, and distributed, a 24-page report to all our hospitals. We also handed out a one-page infographic summary. Guess which one they looked at and took to every meeting? That was a tough lesson for us. We had spent months on that report. We are finding ways to present our information in short, digestible pieces. I’ve found that to be one of the greatest challenges.

SHARMA: Our organization is committed to quality and patient safety. We analyzed our incident reports and investigated safety events, including near misses, over a five-year period, and identified our biggest areas for concern. We’ve highlighted areas of focus for each hospital. Everyone is excited to have access to that level of information. Many members of our team have told us that they were not receiving any feedback or information after an incident report is filed. Now they can see what we’re doing. It’s important to have transparency.

We are focused on developing a culture where everyone speaks up to prevent harm. We’ve worked with our leaders and patient safety coordinators across our organization to change the culture and focus on continuous improvement. It’s a systemwide goal. We are providing lots of data and we anticipated some pushback. But, instead, we are getting demands for more real-time data. It’s often hard to keep up with the requests.

O’HARE: It’s a matter of efficiency and developing a process to create the most user-friendly, meaningful, and effective dashboards for stakeholders within our organization. We have to have the right people involved, the right committee to support the effort and excellent communication from the top leadership to front line team members. It’s hard work, but I think we’ve done a good job.

We have patient care services dashboards by unit. All of our nursing managers have access to it, and they are responsible for results. We have collaborative care councils, and we have many great things going on.

We have an opportunity to better standardize our best practices and drive change throughout our sites. For example, we have a current project dedicated to discharge planning. One of our metrics is excess days and trying to reduce those excess days. We have an industrial engineer overseeing the project and she has visited each site and conducted process maps on the patient discharge process. It differs quite a bit, depending on location. We’re looking at our medical units first to see if there’s a better way to standardize the discharge process and reduce crowding. Of course, every
patient is different, and we need to address the social determinants of health. But there should be some level of standardization to enhance efficiency and effectiveness. I think this is one of our biggest opportunities.

**FATTIG:** Our biggest opportunity is expanding our culture to incorporate outpatient care providers. We’ve done a tremendous job with our culture, but we’re trying to work on the culture of our outpatient area. We have a new director of surgery services who will help to accomplish this. We have great patient satisfaction scores in all areas except outpatient services. This is something we need to do. Cultural change is one of the hardest things to tackle, but it also gives the most reward and drives the organization the farthest. When everyone is fully engaged in the process, they’ll take you places you can’t even dream of. So, I’m hoping we can correct that piece and get everyone moving in the same direction.

**MARSH:** I agree that culture is important. As I mentioned, we have a just culture. In health care, it’s easy to work in silos. Radiology employees work well as a team, for example, but they touch all areas of the hospital and need to share their work and successes. We’re working to break down the silos. We have multidisciplinary book clubs for management and other relevant topics. It means getting everyone talking, enhancing communication. We’re working to get to the point where we can share more real-time data and work across the organization to improve quality and safety.

**PELEGRI:** It comes down to culture and communication, as all of you have shared. Without those two things, organizations can have all the benchmarks in the world, but will not have the ability to effectively enact change. We know that culture change is hard. And sometimes addressing culture, from the department level or a systemwide level, doesn’t work. I like the idea of book clubs and trying to create that personal connection. That makes it easier to have a discussion.

**KEY FINDINGS**

1. Use of data analytics for population health management is hampered by the lack of interoperability among providers across the care continuum. Web-based platforms and other information technology solutions are enabling secured data exchange and analytics across multiple sites.

2. Communication and transparency are critical components to enhancing clinical and operational performance. Organizations need to develop ways to share data and best practices in meaningful, actionable ways.

3. Sorting through vast quantities of data in a timely, accurate manner remains a challenge for many hospitals and health systems. When it comes to data analytics, it’s important to start small and build on successes and capabilities.
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