

ROUNDTABLE: MAXIMIZING BIG DATA



BIG DATA IS SHAPING HEALTHCARE FINANCE

The most effective, modern healthcare leaders acknowledge the necessity to not only analyze their data, but also understand it. Whether the aim is to be more cost-effective, improve patient outcomes, or gain a head start on the push to value-based care, big data is crucial to their success.

Hospital leaders are no strangers to the obstacles that stand in the way of maximizing their data operation, and they have already begun to explore the most efficient methods of utilizing big data to their advantage.

In this *HealthLeaders* Roundtable, the panel discussed the future of big data, from the opportunities presented by a burgeoning area of the healthcare experience, to the challenges of implementing these measures on a large-scale operation.



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HIGHLIGHTS

HealthLeaders: *Let's start by getting a sense of how big data fits into your health system's strategic goals. Neville?*

Neville Zar: As for most large health organizations, it is a big priority for us. We have built our own integrated data sets using the multiple EHRs and different systems to create our own large data sets. But while we have created a data-rich environment, we had been lacking information to perform operations. Over the last three or four years, we've really invested in the ability to use data and metrics to drive operational discipline. Because at the end of the day, you have these large data sets, but if they don't create this point of accountability for operating 36 hospitals, they're kind of useless.

Jim Heffernan: The data piece is really the third leg of a three-legged stool: First were the ERP systems; second were the clinical and revenue cycle systems; and the third are the data systems. Trying to bring them together has been key. I would say that in an academic setting, it has another challenge. It's not necessarily more difficult, but you have a lot of research databases that have more discreteness than the business systems that we think about. Our goal in the movement was to get everything into structured data fields, but you lose the element of the discreteness in the data or the continuity of the data as you put them into structured fields. And so, the challenge for us is to take advantage of the data that's in registries and research databases as well as the business systems that we have.

Tanya Arthur: Our organization is a patient-centered population health management organization that provides integrated and coordinated care. As a result, data and analytics become even more foundational to our strategy. ... Our strategy is to drive care coordination across the healthcare continuum to deliver on the quadruple aim of improving the health of populations, enhancing experience, reducing healthcare costs, and creating improved work-life balance of care providers. We've begun the journey of building the architecture around that vision and recently implemented visual analytics capabilities.

HealthLeaders: *Lynn, how do you frame the opportunities in data for your clients?*

Lynn Wiatrowski: Our top strategic priority, which is consistently articulated by our CEO [Brian Moynihan], is "responsible growth." This supports our company's overarching vision, which is to help make financial lives better through the power of every connection. That includes the financial lives of our healthcare clients, their patients, and their employees. Data helps us find opportunities to serve our clients better—to proactively present better solutions



in a sustainable way within our risk framework. We have a wave of "smart solutions" that leverage data in new ways to benefit our clients and make their financial lives better. Our consistent focus on responsible

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growth supported by data is certainly a relevant strategy for the healthcare industry, and just resulted in us being named the World's Best Bank [by Euromoney].

HealthLeaders: *How do you apply that to a customer? What are some examples?*

Wiatrowski: I mentioned smart solutions that leverage data. The

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development of ERICA, an artificial intelligence–driven app that offers personalized, proactive guidance to help our consumer clients optimize cash flow and stay on top of their finances, is a great example. For companies, we integrate bank-side and client-side data to create “smart forecasts” to improve working capital on both the payment and receipts side, and we are investing in artificial intelligence for revenue cycle to automate and streamline complex processing. We see significant potential benefits from combining data our clients have in their accounting systems with data in our environment which represents the broader global market. We also leverage data to understand

where healthcare clients and prospects need us the most. Big data allows us to make smarter, more strategic resource deployment decisions.

HealthLeaders: *If you begin with the strategic priority of maximum value from data, how does that translate into skills and people?*

Heffernan: I probably should have pointed out that in the last year, we’ve recruited and named

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“OUR CONSISTENT FOCUS ON RESPONSIBLE GROWTH SUPPORTED BY DATA IS CERTAINLY A RELEVANT STRATEGY FOR THE HEALTHCARE INDUSTRY..”

a chief data and analytics officer, so that sort of fills out the third leg of the stool relative to having a senior person. We had to go outside the provider industry to find somebody.

Wiatrowski: Maximizing the value of data requires hiring for and/or developing a whole new skill set. We’ve added data roles that never existed in the company before, such as “data scientists.” We are also working cross-functionally; our technology, operations, and product teams are talking today more than ever to co-develop solutions and ensure maximum access to the skills necessary to leverage our data. Our “data as a service” policy has encouraged this cross-functional engagement and is focused on how we turn these vast amounts of raw data into information that can be turned into insight and then into action. It is all about leveraging data in new ways to create solutions that deliver insights that clients can act upon.

Zar: There’s a constant challenge in healthcare, because like the banking industry, we are sitting on billions of transactions. But it’s very regulated in terms of what data you can share and how the data is shared. We have a duty bound by regulations and have earned our patients’ trust to protect that

data. So you have to figure out how to analyze that data: Do you use third-party software or build it internally? In our organization, we use a mix of both. Some organizations have a prejudice to build, while other organizations tend to buy. We look for the best wherever it can be obtained. Those data scientists or those data models typically come from the outside with the view of bringing it in-house over time once our organization is getting the skills around that.

Arthur: We’re in the process of designing an analytics model to create an integrated center of excellence comprised of an ACO, health plan, and delivery. At the center of the model is the ability to leverage the right technology, a right data governance structure, and ensuring we have the right skills to rationalize data and mine insights across our complex healthcare ecosystem. In order to be successful, organizations must secure the right talent, including data architects, scientists, and analysts with deep clinical financial knowledge.

Heffernan: There are two layers to the governance issue. One is that internal siloes developed historically convey a feeling of ownership as people feel they built their own database. The second layer is the privacy issues of protecting

information from getting outside. When you have a diverse network that includes people that are not part of the integrated group, you have some issues.

What's the real positive part of it? We do a lot of work around quality and safety. You can imagine the number of measures that we have in an organization our size. In the past, some of these metrics were measured by sampling techniques. As we get into the data science techniques that are available today, we can begin to test the quality and safety of the care we're rendering for everybody. When we apply it to some of the clinical data, we can test every patient and not just a sampling of 10 or 15 or even 100 patients a month. So that has me enthused about where we are going. It is a data governance issue, but we must realize that it's in everybody's interest to have that data available to be sure that we're providing the best care possible.

Arthur: Providing real-time information, analytics, and AI has boundless possibilities for driving wellness and improvements in care quality, coordination, and health consumer outcomes. For example, tests or procedures ordered by providers must be authorized by the health plan.

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The health plan has the analytical capability to evaluate that information in terms of the best value (outcome/cost). If that information was shared real time, our industry could not only lower healthcare cost, but improve outcomes for those we serve. While analytics has much promise and endless potential to improve healthcare, today's compliance and regulation models also present barriers.

HealthLeaders: *The privacy issues are beyond the regulations themselves. There is a real philosophical balance between how far privacy limits the ability to dive into the data. How do you begin to structure that balance?*

Wiatrowski: Some data must be intensely protected because it is intensely private. If you think about the personal data most critical to you, it's your health and your financial information.

There are lots of similarities in how we leverage data, such as predictive analytics around loan defaults in banking compared to the risk of hospital readmission in medicine. There are ways to integrate data points but still protect individual or company identity when it comes to analysis of trends or best practices in the market at large.



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Only by sharing data across silos can we unleash the power of big data and artificial intelligence, and this must always be done in a compliant and privacy-respecting way.

Heffernan: I think the credit model on the banking side is actually quite relevant to some of these discussions, because while you build the model using very discrete, very specific data on hundreds of thousands of clients, what you should distribute out to people are the algorithms and coefficients that they can use to test whether or not the next person that's in front of them is going to be likely to default or be a good credit risk. The same thing might happen with a readmission rate. We can look at our whole data history to begin to build the algorithm, but that doesn't get shared with anybody. You take that algorithm and the coefficients, and then you apply it to the next

patient in front of you to determine whether that patient is likely to be readmitted, and in doing so, you improve the care of that patient because of meeting their needs. We're not quite there, but we've got some research going on that is potentially going to get us there.

HealthLeaders: *But even with a view of the patient record and a readmission risk score, that's still just part of the picture. Ultimately, the real value would be in having a complete data picture of that patient's health. What are the continuing barriers there?*

Heffernan: The disintegration of the systems adds to the data

problem, but it isn't a data problem to begin with. We often think that the insurance company has the source of truth in terms of information. The issue is that, like many of us, I have different cards for my medical benefits, pharmacy benefits, vision, and dental. All of those relate to my overall health, so when we start to think about data from a population health management standpoint, you've got four different views that are separated so that nobody has the whole picture. Now, as we start to build vertically integrated systems, we will have a better picture of all the care a patient receives in the long run. It's an advantage that we're starting to learn from population health that we previously didn't observe.

HealthLeaders: *Do you have some examples?*

Heffernan: We did a Medicare high cost case management pilot. It was 5% of patients that were 50% of the cost—very high-risk patients. It was in our interest to try and bring all the data together on those patients. When we discovered that 80% of these high-risk patients had depression, or anxiety, or both related to their conditions, the psychiatrist said, "We've been telling you that for years," but nobody ever had the data in one place.

HealthLeaders: *What did that experience teach you?*

Heffernan: We did a pilot and shared it with Medicare. It taught us a lot about information, and we had a good opportunity to bring that information together in a useful way. But one of the issues about big data is we still don't know what we don't know. I have hundreds of KPIs [key performance indicators] that we live with. I'm not sure they're really the leading indicators for our business.

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Zar: Yeah. But part of it is you're never done. There are endless amounts of data to analyze, and it's really about having some intelligence to ask, "What is the ROI and what are we trying to achieve here?" because ...

Wiatrowski: It's the business problem.

Zar: It's the business problem, because you can spend an inordinate amount of money with little relationship to your deliverables. In our organization, we're prescriptive in asking, "What is the problem we're trying to solve? What's the timeline to solve the problem? What are the assigned resources to it?" We don't want to just be writing a new report or supporting an EMR. It's tempting to want to do the cool stuff, but that can be a distraction for the core operations.

HealthLeaders: *How do you have discipline on what you are gathering and sharing?*

Heffernan: We've moved towards having financial and clinical and safety measures on the same dashboards. So even if they're not directly related, we're putting them at the same level in the organization. I think that makes a big difference in how people view it.


The finance people do see the quality measures. But the MGH has a dashboard that includes measures of access, including how long it takes to get an appointment, which is relevant because access is both a patient and a financial issue. For now, there is value having all these measures on the same dashboard, but I think over time we'll get better at distinguishing the most relevant ones.

HealthLeaders: *Where do executive teams have the biggest misunderstandings about how data can transform the organization?*

Zar: I think it's the speed to obtain the data and aggregate the data. Our leadership has a strong view that if it's there, it's available immediately, which should be the case. The expectation is there. Unfortunately, that's not all the case when you're dealing with disparate EMRs or data systems. The data normalization exercise takes a little bit longer than we all want it to be. However, we have learned that don't let perfection be the enemy of good.

Arthur: With the rapid advancements in analytics capabilities, leaders don't always appreciate the power and strategic value of their data. Many organizations

are experts at creating volumes of operational reports and dashboards, while overlooking the potential for the data itself is to inform strategy, drive growth, and create consumer engagement. It is imperative that healthcare leaders embrace a new world view about data, analytics, and its role in defining the future of healthcare.

Heffernan: There are some misconceptions. Executives may ask, "How did we spend billions of dollars on new electronic record systems that don't do this?" We oversold the possibility of this level of data analysis these systems could do. The other is a skill issue. Most of us grew up in an Excel world, and we think, "OK, we can do that level of technology." They don't appreciate the kind of technologies that have become available and the higher skill set that we must recruit to make it happen. It's a significant educational commitment to get the value out of big data on the technology side and engineering side. You can't solve it with a quick training program. I don't think we've made the case for that shift yet. It means that we've got to hire a new skill set that we don't necessarily have in our organizations—and oh, by the way, it's got to be a bit of an investment. 

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