DATA AND ANALYTICS
FUEL POPULATION HEALTH EXPANSION

Analysis and in-depth discussion from healthcare leaders at the HealthLeaders Media Population Health Exchange in June 2015

An independent HealthLeaders Media report supported by sentry data systems
The rallying cry of population health analytics teams might as well be “show me the data.” Easier said than done. The teams thrown together to make population health work long have labored to assemble what data they could for their own narrower purposes, whether it be for the evaluation of physician performance or service line revenues. Sometimes their data agreed with that gathered by other teams. Sometimes not.

Now, quickly, that is changing as these teams recognize that consistent data and common analytical tools are essential to fulfilling the population health mission of the healthcare enterprise.

At HealthLeaders Media’s Population Health Exchange, held in June 2015 at the Park Hyatt Aviara in Carlsbad, California, 26 leaders drawn from various disciplines, with titles as diverse as chief medical officer, chief quality officer, and chief information officer, agreed that the mission begins with clean and consistent data, from the reception desk onward. But without agreed-upon common governance, the chances of getting that data are slim to none.

In small-group sessions, Population Health Exchange participants shared their perspectives on data governance, narrowing the analytics tool sets among key stakeholders, delivering the right data to the right users, data warehouse design considerations, and the promise of ever-increasing positive outcomes as these tools more thoroughly and more accurately capture aspects of population health management.

In a survey of healthcare leaders published in the April 2015 HealthLeaders Media Intelligence Report, *IT and the Analytics Advantage: Managing Data to Master Risk*, 88% of respondents said they currently use clinical analytics to improve clinical quality, 66% use it to identify gaps in care, and 58% do so to identify variations in care.

The explosion of data has just begun. Those healthcare organizations that identify data-driven opportunities quickest will gain crucial advantage over competitors. Those who can break down the governance and data silos standing in their way will make the fastest progress.
Most hospitals today would agree that they have data—and lots of it! But what they don’t have is actionable information to solve complex problems and drive population-specific improvements in patient care and financial performance.

In the past decade, we have seen accelerated adoption of healthcare information technology, including electronic health record and enterprise data warehouse solutions. Unfortunately, these advances have not been able to overcome the cost, quality, and revenue challenges facing our healthcare system today. In fact, this rapid transition to electronic healthcare data has actually spawned a whole new generation of issues that we must now address.

The current data, analytics, and population management challenges being faced by healthcare providers led to some lively discussion at the HealthLeaders Media Population Health Exchange, and Sentry Data Systems was proud to be a sponsor.

Over the past 12 years, Sentry has become a leading provider of complex data integration and decision support for more than 67 million patients at 5,800 hospitals, clinics, and pharmacies throughout the United States. The insights shared at this Exchange confirmed much of what our experience would suggest: As healthcare organizations seek to transform raw data into insights that will shape the future of population health management, the industry must continue to expand the boundaries of analytics capabilities. To establish an evolutionary foundation, leaders must first tackle some common challenges:

- **Transcend siloed data.** Organizations must be able to easily integrate data, regardless of where it resides, in order to find insights across the enterprise that can drive improved care and operational efficiency through enhanced interoperability and process automation.

- **Organize and stratify data.** It’s time to look at variability in costs, outcomes, and margin by physician, procedure, disease state, and other factors to reveal
Previously hidden truths and allow providers to focus on the highest-value opportunities.

- Reinvent self-service reporting. Perhaps most important, healthcare IT needs to put the power of the data into the hands of the users—with structured, intuitive analytics that don't require a team of analysts. Succeeding here will eliminate the age-old data integrity problem of “dueling spreadsheets.”

We at Sentry learned from the leaders at the Population Health Exchange that the data challenges facing the industry are significant, but the opportunities are even greater. We look forward to continuing to partner with healthcare organizations to deliver actionable insights that propel the industry to a new view of prosperity and population health.
Discussion

Laying the Analytics Foundation for Population Health

SCOTT MACE

No health system can help an entire population without the right data, and the analytics derived from that data will identify those in greatest need and suggest strategies.

“As we get more true financial risk, we’re going to have to use the analytics to really understand this and things we’re missing, like social determinants of care,” says Richard Vaughn, MD, chief medical information officer and system vice president for the Center for Clinical Excellence at SSM Health Care in St. Louis. “Where is our access point in the markets? If we have an underserved ZIP code, do we want to put more resources in that particular area?”

The analytics are key to helping systems such as SSM know when to make significant investments in those resources, whether that is a new telehealth program or a new local clinic, Vaughn says.

Determining data governance

Assembling the right analytics governance, including knowing who owns the initiative, is a challenge providers must overcome before these initiatives can gain a solid footing. Understanding geographic challenges and opportunities is only a slice of the task.

“Two weeks ago, the organization just started to accept the idea of a data governance model, and they wanted to know how that was different than project governance,” says Sarah Richardson, chief information officer at NCH Community Health System in Naples, Florida. “So now I’m going down the education path of the difference because, to them, governance was just how projects get approved.” Instead, Richardson says the challenge is “introducing data governance into the organization. What’s fascinating is who should own it.” Finding answers requires looking at the entire business process. “It started with this discussion about why can’t the registration clerks both at the hospital and in the physician clinics do it the same way,” Richardson says. If that didn’t get solved, “then you’re getting all this duplication information and this clean-up, so in the end, I have to clean up all this dirty data.”

Reducing analytics silos

Another challenge: Different stakeholders in healthcare organizations already have existing—and typically incompatible—analytics tools of their own.

“Quality has their whole piece, and then the finance team does their piece, and then we have this great transformation department [using] Lean Six Sigma, and they’re newer guys to the team,” Richardson says. “So the analytics piece is floating out there as far as how to bring it all together. Do I really get data governance into the organization cleanly first and then put the standardization of analytics underneath that? I think the answer is yes.
"Isn't it now fascinating that we bought [data] warehouses to pull [in] things we knew about, and now we need like a warehouse to take our warehouses together?"

Part of the challenge is to reevaluate technologies that have loyal fans in pockets of the organization to determine their appropriateness as tools in a more enterprise-wide analytics strategy.

“We still have silos of data,” says Pam McNutt, FCHIME, LCHIME, FHIMSS, senior vice president and chief information officer at Methodist Health System in Dallas. “We have good old Trendstar as our decision-support system. It is just a workhorse, and nobody wants to give it up.”

Trendstar provides day-by-day looks at utilization and cost that allows Methodist to model contracts and monitor its product lines, McNutt says. “It was information we all needed operationally. But it doesn’t really provide deep clinical data.”

Other data silos at Methodist have their own stakeholders with their own rationale for each silo to continue to be used there. “Quality [leadership] has physician profiling tools, with national comparatives,” McNutt says. “Our ACO is using the Crimson system for their analytics right now, but we know we need more data than that offers.”

To break down the silos, Methodist has decided to spin off operational needs and only look at clinical ACO and quality needs, McNutt says. “I see some turf battles, in a healthy way, about who’s actually going to own that analytics function. I’ll tell you one thing, I don’t want it in IT. I think our role is to provide source system and interfacing support, specifically to help facilitate getting clean and accurate data into whatever system is chosen.”
Methodist’s progress now depends on challenging analytics vendors to bring together disparate sources of clinical and quality data from its many sources, pinpointing the discrete elements that are most useful.

“The notion of just interchanging C-CDAs [Consolidated-Clinical Document Architecture documents] is not going to work; that’s not going to give us the data that we need to do all the population health metrics,” McNutt says. “So now we’re going back to the vendors we are exploring to say, if we could tell you the 25 data elements that we need from every provider, could you take a batch feed of that and normalize it? This approach will move us forward while EHR adoption with [our] community continues to grow.”

Getting data to users

“We’re an Epic organization,” says Scott Joslyn, PharmD, senior vice president and chief information officer at MemorialCare Health System in Fountain Valley, California. “We’ve had Epic live for 10 years or so. We have all this massive data. As we move into population health, it’s been a challenge to expose this data and make it available to our end users. We’ve got this big, giant warehouse, but how do you get data out of the system into the
Which of the following best describes your current applications for working with large and/or complex data sets to reveal trends or specific insights? (Response from among those who use large/complex data sets.)

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Vendor's proprietary analytics software</td>
<td>25%</td>
</tr>
<tr>
<td>Our own in-house analytics software</td>
<td>17%</td>
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<tr>
<td>Open-source analytics software and utilities</td>
<td>2%</td>
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<tr>
<td>A combination</td>
<td>45%</td>
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<tr>
<td>No analytics-specific software or utilities</td>
<td>7%</td>
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<td>Don't know</td>
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SOURCE: HealthLeaders Media Intelligence Report, IT and the Analytics Advantage: Managing Data to Master Risk, April 2015; hlm.tc/1HxliLS

hands of users, and with what tool?"

While Epic continues to evolve its data warehousing strategies, MemorialCare turned to analytics tools such as SAP’s HANA, and even made an investment in a data modeling tool from Health Care Dataworks.

Intermountain Healthcare System, based in Salt Lake City, has turned to some IBM tools, specifically IBM’s Business Glossary, says chief health information officer Sameer Badlani, MD, FACP. "That’s a very important part when you operationalize analytics," he says. "How do you define various elements? For example, how do you define what constitutes an ambulatory visit, or an in-hospital stay versus a hospital-based clinic?"

Apache Solr, an open-source ad-hoc querying tool, is something Intermountain is exploring, Badlani says. "When you are interacting with physicians and discussing data analytics, Solr allows you to do ad hoc adjustments for alternate methods

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of calculation and how the analysis would change,” he says.

At Gundersen Health System in La Crosse, Wisconsin, “We have a very robust team in IT that built a data warehouse so everything is coming together, allowing us to pull information in and out no matter what vendors [and] tools are in place,” says Jean Krause, chief safety and quality officer. “We have Lawson in our finance and HR division, and we use Truven’s CareDiscovery tool for our quality inpatient analysis, as well as some other databases.”

Gundersen’s goal is for all data to flow in and out of the warehouse. “Today, there’s probably a gap of connecting the dots completely,” Krause says. “We are working to build Epic Cogito as the data warehouse. I have got an amazing quality analyst that can actually mirror the kinds of reports and comparisons in the inpatient care discovery tool. We pull in the state all-payer database, so we can do some of the comparisons internally.”

Helping Gundersen are the major payers in Wisconsin, who came together to pool their data via the Wisconsin Health Information Organization. “So we have most of

What does your organization use clinical analytics for now?

<table>
<thead>
<tr>
<th>Use of Clinical Analytics</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Improve clinical quality</td>
<td>88%</td>
</tr>
<tr>
<td>Identify gaps in care</td>
<td>66%</td>
</tr>
<tr>
<td>Identify variations in care</td>
<td>58%</td>
</tr>
<tr>
<td>Lower cost of care</td>
<td>51%</td>
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<tr>
<td>Assess population health needs</td>
<td>47%</td>
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<tr>
<td>Risk stratification</td>
<td>42%</td>
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<tr>
<td>Populate registries</td>
<td>32%</td>
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<tr>
<td>Not performing clinical analytics now</td>
<td>4%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2%</td>
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the payer side data, except Medicare, allowing analysis around episodes of care,” Krause says. “It’s always difficult getting the government to allow us to use their data set [paid claims], but that’s in process.

“We try to attribute providers to episodes of care so you can do analysis with drill-down to an actual provider level, allowing us to see the variation. Attribution always is an issue, and with more team-based care it might be more appropriate to look at clinic-level analysis and variation,” she says.

One participant reporting positive outcomes from analytics initiatives is Ascension. “We use products from Optum in combination with dbMotion to try to create real-time and predictive alerting around what may be going on,” says Timothy D. Stettheimer, PhD, FACHE, FCHIME, CHCIO, CPHIMS, vice president and regional chief information officer of Ascension’s South and Central region.

“Over a six-month period, we saw a 21% reduction in mortality with patients with sepsis diagnosis” at Ascension’s Saint Thomas Health, based in Nashville, Stettheimer says. “The total number of our ministries now live with [alerting] is five. Six more are in process, and then the rest will be coming on over the course of the next 12 months. So we’re deploying that fully.”

**Adding societal factors**

Vaughn notes the potential for broader data sets to pinpoint societal factors that determine the health of a population.

“Our tools allow us to risk-stratify and segment the population to do the same kind of thing everybody is trying to do in terms of hot-spotting,” he says. “If you look at social determinants of care, maybe they can’t afford their medicine. They don’t have transportation. They have adverse living conditions. Right now, we’re not as interested in it, but as we move toward being fully responsible for that care, we’ll start solving those problems and investing in what we need to make sure those social determinants of care are addressed.”

“We have all this massive data. As we move into population health, it’s been a challenge to expose this data and make it available to our end users.”

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