Analysis and Introduction

Effective Data Analytics for a Data-rich Industry

This is the ANALYSIS and INTRODUCTION from HealthLeaders Media Breakthroughs: The Promise of Healthcare Analytics
Effective Data Analytics for a Data-rich Industry

The healthcare business is data-rich, but many hospitals and health systems make poor use of data to improve how they practice healthcare. Leaders point to varying reasons: All healthcare is local, as the saying goes, so market comparisons have been unnecessary.

Healthcare historically hasn’t been price-sensitive or market-driven, so they haven’t needed to analyze operations. Technology investment has lagged at most institutions, so the tools to analyze data have been missing.
Yet the opportunity for business intelligence and data analytics in healthcare is very real. “Healthcare’s definitely a data-intensive business,” says Chad Brisendine, chief information officer for St. Luke’s University Health Network in Bethlehem, Pa. And the need to dig into that data is increasingly present, as healthcare leaders find themselves in a more competitive world, with declining reimbursements, accelerating IT implementations, and growing demands for proof of better care and return on investment from spending.

**Where to start**

Healthcare organizations can use data in manifold ways to improve clinical care, look for operational efficiencies, and better the bottom line. But the best place to start might be with the data nearest at hand. State and federal regulations require all hospitals to report a host of clinical information such as admissions and readmissions, emergency department visits and wait times, mortality, DRG codes for procedures, and much more. HCAHPS surveys collect the patient perspective on care. Hospitals that accept Medicare and Medicaid patients are subject to reporting requirements from the Centers for Medicare & Medicaid Services.

All this information adds up to rich strata for data mining. Healthcare leaders can see how they stack up against competitors; they can use those benchmarks to rally the organization for change. Clinicians can see where they need to improve. People throughout the organization can look for opportunities to drive efficiencies. Where data shows that an enterprise is truly outstanding, marketers can promote that fact using real evidence.

Brigham and Women’s Hospital in Boston created a series of cascading scorecards that combine feeds from clinical and financial data sources, an incident reporting database, a nursing quality measurement database, patient satisfaction surveys, and many others. The scorecards are based on the Balanced Scorecard model, which balances metrics for four broad areas: service, quality, people, and finances. Data is pulled from departmental systems and rolled up to a single, high-level scorecard for top leaders. Then more detailed scorecards break out data for department heads, clinical teams, and down to the level of individual physicians.

The scorecards have enabled Brigham and Women’s to identify, measure, and improve key metrics such as patient length of stay and on-time starts for surgeries, says Sue Schade, vice president and chief information officer. “In the airline industry, on-time departures are really important,” she says. “On-time starts for our surgical cases is very important for us to maintain the schedule. We do probably 100 to 120 surgeries on our busiest days here. Having that [start-time information] has led to improvements.”

**Technical basics**

To explore data, it helps to start with a digital data warehouse. Paper records have too long been the norm at too many hospitals. A filing cabinet full of paper is the ultimate information silo; the data it contains cannot be easily accessed, if at all, much less included in analysis.
Sophisticated analytics software can probe the contents of data warehouses. St. Luke’s now employs a team of eight analysts as an “analytics shop” to which parties across the organization can turn for problem-solving. The group uses analytics software to work on everything from improving quality metrics and benchmarks to shoring up computerized order entry and physician billing. The newest tool is predictive analytics software, which the analytics shop can use to test scenarios for resource allocation, readmissions, and even care for individual patients with chronic conditions.

Still, software alone isn’t sufficient for an analytics capability, nor can a group of analysts be expected to build an organizational mindset of data-driven management. Charleston (W. Va.) Area Medical Center drew on the Malcolm Baldrige National Quality Award application process to determine how the organization should use data. “We were our own consultants. ... We used the Baldrige framework to help us with our thinking about business intelligence,” says Executive Vice President and Chief Operating Officer Glenn Crotty Jr., MD. “Because quality management emphasizes starting with the needs of end users, we developed key requirements from the end users: Who’s using data, how often are they using the data, what do they need the data for? Do we have consistent definitions of it, how do we pull the data, where does it go?”

**Data for clinical quality**

Anyone, including patients, can use the federal Hospital Compare website to find a swath of data on patient safety and experiences, mortality and readmissions, and care processes and outcomes. Executives dread having their institutions show up on worst-of lists.

But leaders don’t have to wait for regulatory reports to find out how they stack up. Performance improvement is one of the leading outcomes of analytics. When Stanley W. Ashley, MD, chief medical officer at Brigham and Women’s Hospital, needed to pinpoint those units where hand hygiene was poor, he turned to the hospital’s scorecard. “It can be reported to us both on a unit or an ICU-specific basis, or on a service-specific basis, and we can identify areas where we need to focus our educational efforts,” he says.

“In banking, analytics has moved to how it translates to the individual customer … for example, what is the propensity of a particular customer to use a particular product. I could see that potentially happening with patients.”

Jan Heller, executive vice president of finance, St. Luke’s University Health Network
BlueCross BlueShield of North Carolina worked with healthcare provider Caromont Health to use analytics to scrutinize quality outcomes in expensive procedures such as knee and hip replacements. The review has uncovered new treatment methods, says Maureen K. O’Connor, BCBSNC’s executive vice president and chief strategy officer. “I asked the question, two or three months in, ‘Any surprises?’ The answer was that mental health hadn’t been considered. They found that people who go through a surgical procedure actually have a high incidence of depression, because they can’t engage in normal activities. That led to a more efficient way of designing the care.”

The business of healthcare

Healthcare has a noble mission, but it is also a business. With pay-for-performance reimbursement looming, business fundamentals will become even more important. “We’re really getting to a crossroads of an unsustainable cost model,” says Patrick Getzen, vice president and chief actuary at BCBSNC.

Health insurers are on the front line of the shift in reimbursements, squeezed between hospital providers and clients (employers and individuals). Like other types of insurers, health payer companies use data to analyze their risk pools. Beyond that step, BCBSNC also evaluates provider performance data. “We look at the quality and efficiency of the providers in our network to understand who are the highest-quality and most efficient doctors, and we’re using that information to help inform our network management area in contract negotiations,” says Daryl Wansink, PhD, director of healthcare research and evaluation.

Business intelligence software could help with running the business of healthcare. “Healthcare is probably just starting to scratch the surface of analytics,” says Jan Heller, St. Luke’s executive vice president of finance, a former banker. “In banking, analytics has moved to how it translates to the individual customer … for example, what is the propensity of a particular customer to use a particular product. I could see that potentially happening with patients. For instance, a patient with diabetes. Data could be used to improve the quality of care . . .”

In short, data can be used to improve the quality, practice, and bottom line of healthcare. Read the four case studies in this Breakthroughs report and the transcript of the live Roundtable panel among healthcare leaders to find lessons for your organization.
Build the Capability for Enterprise Intelligence

Healthcare leaders are under an amazing amount of pressure to meet current regulatory demands and anticipate new ones while still managing margins, controlling costs, improving quality, sustaining capacity, and engaging their workforce. The ability to use data to make better and faster decisions has become a pressing business imperative. Yet many organizations continue to struggle with information silos, poor data quality, inadequate tools, and lack of skills to analyze data and drive strategic and operational decision-making.

Traditional business intelligence derives from tools used by business managers at a departmental level to measure and monitor performance and identify areas that need improvement—a function of charts, graphs, and rows and columns of numbers produced on a monthly basis. In today’s economy, however, healthcare organizations need to not only know how they are performing on a daily basis, but they also need to anticipate performance one, three, and five years in the future in order to sustain margins and continue to serve the community. And this requires a complete transformation of the way stakeholders consume and act on information—in essence, expanding business intelligence to the enterprise.
**Introduction | Build the Capability for Enterprise Intelligence**

**PROJECT THE FIVE-YEAR FINANCIAL IMPACT OF VALUE-BASED PURCHASING ON YOUR BOTTOM LINE**

**Medicare Payment at Risk**

<table>
<thead>
<tr>
<th>Name</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tr>
<td>VBP Revenue Withheld</td>
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<td>2.37M</td>
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<td>3.80M</td>
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<td>0.52</td>
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<td>1.47M</td>
<td>1.72M</td>
<td>1.96M</td>
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<tr>
<td>Penalty Amount</td>
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<td>(1.15M)</td>
<td>(1.37M)</td>
<td>(1.60M)</td>
<td>(1.83M)</td>
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<tr>
<td>Potential Leftover Share</td>
<td>1.82M</td>
<td>2.28M</td>
<td>2.73M</td>
<td>3.19M</td>
<td>3.64M</td>
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**Hospital Performance by Metric**

- AMI-8a Primary PCI Recd in 90 Min
- HF-1 Discharge Instructions
- PN-3b Blood Cultures in ED Prior to Antibiotic
- PN-6 Initial Antibiotic Selection
- SCIP-Card-2 Perioperative Beta-Blocker for Card Su...
- SCIP_Inf-1a Antibiotic Recd in 1 Hour of Surgery
- SCIP_Inf-2a Appropriate Antibiotic Selection
- SCIP_Inf-3a Antibiotics DC in Target Time
- SCIP_Inf-4 Controlled Postop Blood Glucose
- SCIP-VTE-1 Recommended DVT Prophylaxis Ordered
- SCIP-VTE-2 Appropriate DVT Prophylaxis Recd
- IN_CMS_23 Overall Hospital Rating
- IN_COMP_ENV Environment Clean and Quiet
- IN_COMP_INFO Information Recd at Discharge
- IN_COMP_MD Physician Communication
- IN_COMP_MEDS Medication Explanations
- IN_COMP_PAIN Pain Management
- IN_COMP_RESP Staff Responsiveness
- IN_COMP_RN Nursing Communication

**VBP Incentive Amount Earned and Potential Leftover Share**

<table>
<thead>
<tr>
<th>Year</th>
<th>VBP Incentive Amount Earned</th>
<th>Potential Leftover Share</th>
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<tr>
<td>1</td>
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<td>1.72M</td>
</tr>
<tr>
<td>5</td>
<td>5.61M</td>
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</table>

Source: McKesson Performance Analytics™

Enterprise intelligence is the ability to assimilate and transform data in a way that makes it actionable by any stakeholder within his or her appropriate span of control. For example, to the hospital executive, enterprise intelligence may mean a dashboard reflecting key strategies and benchmarks that clearly illustrate performance against goals. For the nurse manager, it may be a real-time message predicting a pending safety problem based on barcode scanning trends. For the caregiver, it may be a visual cue that indicates the next step in evidence-based care of stroke patients or a hard stop that redirects the process. The secret to this organizational capability? It all starts with the data that is created as a byproduct of care. Enterprise intelligence combines technology, information, and behaviors to accelerate data-driven decisions to help your organization address new challenges before they become problems.
Introduction | Build the Capability for Enterprise Intelligence

Is this complex? Yes, but complexity doesn’t have to equal chaos. We follow three principles: learn, predict, and hard-wire. Learn from the data you already have to better understand where you have seen success and why. This means measuring trends and variability in all aspects of care: cost, quality, safety, reimbursement, variability in care, and satisfaction. Be willing to learn from this process rather than rationalize. Predicting your business performance requires the ability to mine data, model assumptions, and predict future outcomes. Once relegated to hard-core analysts, interactive analysis tools can now be used by even the “amateur” analyst, creating self-sufficiency and reducing the burden on your already stretched IT staff.

Source: McKesson Performance Visibility™
Most BI solutions stop here. We believe there is another step: to
**hard-wire** best-practice processes. Sustaining improvement means
you need to embed improvement into the workflow. Everybody
comes to work intending to do the right things at the right time, but
intent without action doesn’t incite change. Visibly hard-wiring
clinical and operational processes creates shared accountability
and demonstrates an ability to foster change.

A few pockets of real innovation notwithstanding, healthcare
systems have mostly achieved only incremental improvement
over the past 20 years. Healthcare now needs rapid, large-scale,
sustainable improvement if we are to pass on a legacy of health
and wealth to the next generation. To accomplish that, you need to
impact behavior at the point of decision—whether clinical, financial,
or operational. Executives must have the will to cultivate a culture
of excellence and transparency, the tenacity to execute on the ideas
that can change behavior, and the fortitude to hard-wire proven
processes to achieve sustainable performance improvement.

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**“Sustaining improvement means you need to embed improvement into the workflow. Everybody comes to work intending to do the right things at the right time, but intent without action doesn’t incite change. Visibly hard-wiring clinical and operational processes creates shared accountability and demonstrates an ability to foster change.”**

Connie Moser, MBA
Vice President, Enterprise Intelligence,
McKesson Provider Technologies

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About McKesson
McKesson Corporation, currently ranked 15th on the FORTUNE 500, is a healthcare services and information technology company dedicated to making the business of healthcare run better. We partner with payers, hospitals, physician offices, pharmacies, pharmaceutical companies and others across the spectrum of care to build healthier organizations that deliver better care to patients in every setting. With this 360° view of healthcare, McKesson has a unique perspective on what it takes to solve the complex issues facing our customers and all healthcare providers, now and throughout this decade. Throughout our Better Health 2020™ initiative, we are committed to helping healthcare systems use IT strategically to enable better business, better care and better connectivity. Health systems have unprecedented access and ability to learn from their data, predict based on anticipated trends and hardwire process change for ongoing improvement. The McKesson Enterprise Intelligence™ solution is designed to help healthcare leaders instill a culture of excellence by measuring clinical effectiveness, managing operational capacity, maintaining shared accountability and monitoring patient safety initiatives, with the goal of improving patient outcomes and financial results.

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