

The Changing Role of Healthcare Data Analysts—How Our Most Successful Clients Are Embracing Healthcare Transformation

by Dr. John Haughom, Paul Horstmeier, John Wadsworth, Russ Staheli, Leslie Hough Falk

The healthcare industry is undergoing a sea change, and healthcare data analysts will play a central role in this transformation. This paper explores how the evolution to value-based care is changing the role of data analysts, how data analysts' skills can best be applied to achieve value-based objectives and, finally, how Health Catalyst's most successful health system clients are making this cultural transformation happen in the real world.

HEALTHCARE TRANSFORMATION AND THE IMPORTANCE OF ANALYTICS

The focus on performance improvement in the healthcare industry has grown from a handful of demonstration projects to a nationwide movement. Significant drivers of this trend include:

- **Costs.** According to the Centers for Medicare and Medicaid Services (CMS), U.S. healthcare costs account for an estimated 17 percent of the gross domestic product (GDP)—and CMS predicts healthcare will increase to 20 percent of the GDP by 2020.
- **Quality.** Payers are moving from a fee-for-service to a value-based care model.

“The healthcare industry is undergoing a sea change, and healthcare data analysts will play a central role in this transformation.”

- *The aging population and longevity.* An aging population, combined with the prevalence of chronic diseases, contributes to higher healthcare costs.
- *Demand for healthcare value and transparency.* Consumers will continue to demand higher quality as they pay for a larger portion of their healthcare costs—and as quality, cost and satisfaction metrics become more transparent through digital and social media.
- *Population health management.* Providers are seeking to proactively manage entire populations of patients rather than simply treating those who present at the hospital or office with symptoms.

“Consumers will continue to demand higher quality as they pay for a larger portion of their healthcare costs—and as quality, cost and satisfaction metrics become more transparent through digital and social media.”

Every healthcare organization, without exception, is grappling with the challenges presented by the need to transform healthcare. At the core of healthcare transformation is data-driven quality improvement; therefore, a key tool these organizations are turning to is healthcare analytics. In fact, healthcare analytics is a prerequisite for all major performance improvement initiatives underway to address value-based care in an automated, cost-effective and efficient manner.

As a rule, healthcare organizations are aware of the vital importance of healthcare analytics in their efforts to improve performance. Health Catalyst® recently surveyed members of the College of Healthcare Information Management Executives (CHIME). Survey respondents—CIOs or other senior IT executives of U.S. healthcare organizations—provided a high-level view of the many competing priorities for IT investment that hospital leaders face in the era of value-based care. Here are some facts the survey revealed:

Healthcare analytics is the highest IT priority of the survey group. 54 percent of respondents rated healthcare analytics as their highest IT priority, followed by investments in population health initiatives (42 percent), ICD-10 (30 percent), accountable care/shared risk initiatives (29 percent) and consolidation-related investments (11 percent), as shown in Figure 1.

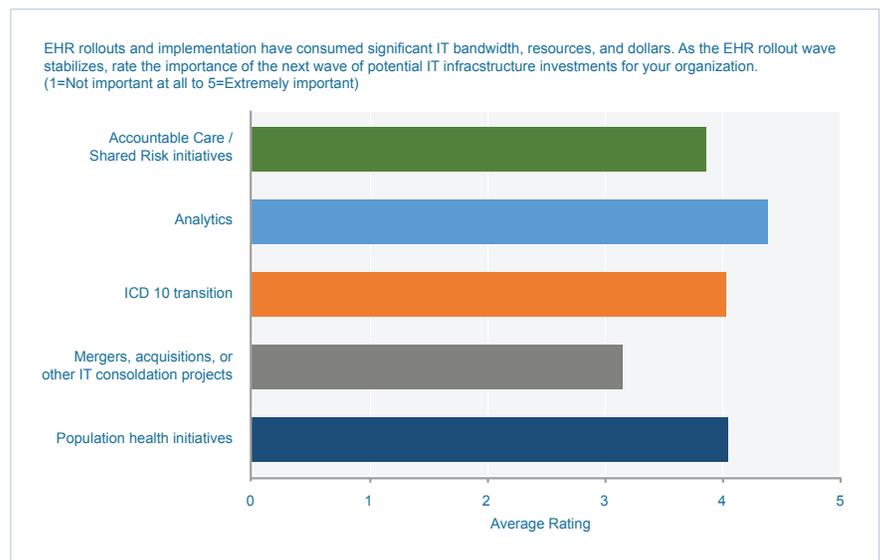


Figure 1: CHIMES survey results—IT infrastructure investments

The survey group overwhelmingly saw analytics as important to their organizations. More than 90 percent of the survey respondents view analytics as “extremely important” or “very important” to their organization within the next 1-3 years, when a combination of government requirements and market pressures will force many of these issues to the forefront (Figure 2).

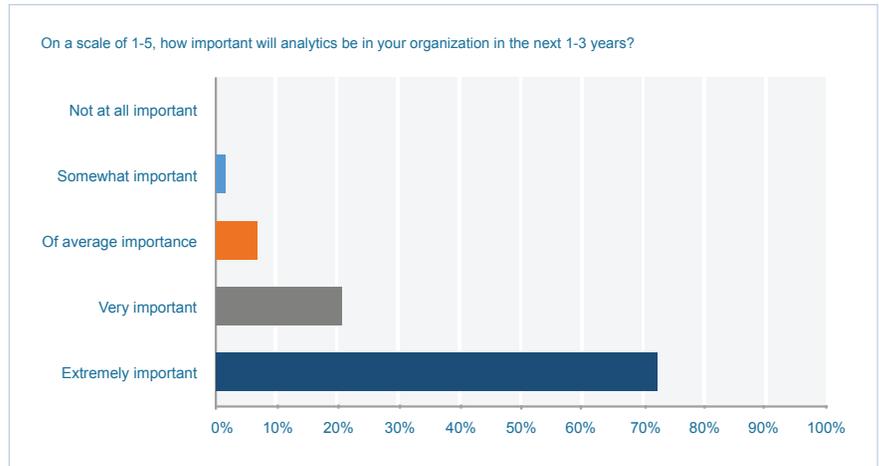


Figure 2: CHIMES survey results—the importance of analytics

Analytics is important for tackling a variety of healthcare trends. The respondents also rated the importance of healthcare trends that are accelerating the adoption of analytics. Survey takers ranked population health management highest at 84 percent, followed by quality improvement (79 percent) and accountable care (68 percent). Other important initiatives ranked by survey takers included the need for cost reduction (63 percent), for a “single version of the truth” (59 percent), for better reporting (54 percent) and for research (17 percent)—as illustrated in Figure 3.

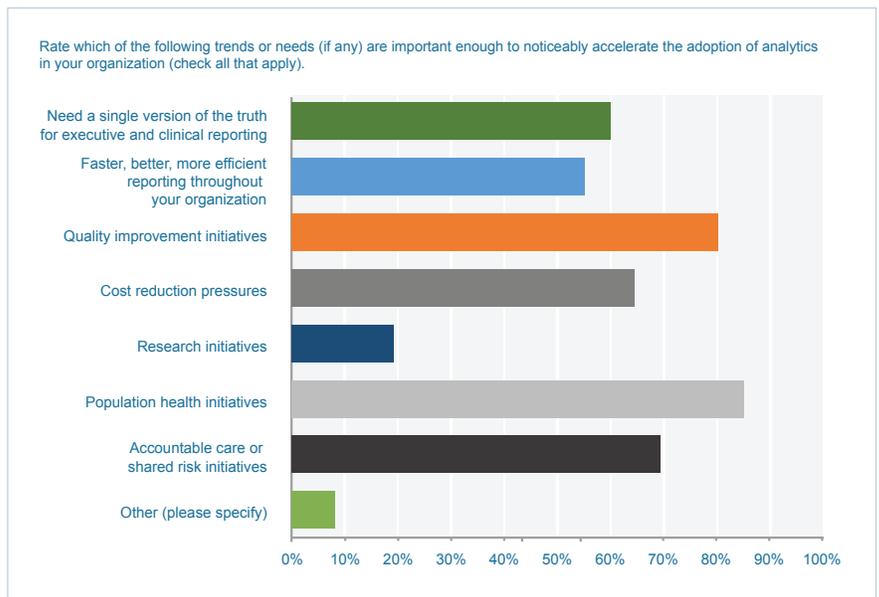


Figure 3: CHIMES survey results—analytics drivers

TRANSFORMATION OF THE HEALTHCARE DATA ANALYST’S ROLE

As analytics is increasingly recognized as a critical enabler of healthcare transformation, the role of data analyst has taken center stage. Health Catalyst conducted a recent survey of attendees at the Healthcare Analytics Summit (HAS) Session: *Getting the Most out of Your Data Analyst*. The survey data showed how important data analysts are to their organizations.

Ninety percent of respondents claimed that the role of data analyst is either very important or important, as displayed in Figure 4.

At the same time, the survey revealed just how little time these analysts are able to spend fulfilling their job title: analyzing data. In fact, 79 percent of data analysts spend more than half of their time gathering versus analyzing data (Figure 5).

For data-driven healthcare transformation to succeed, this paradigm must shift. To deliver their true value, analysts need to spend the majority of their time analyzing data. The flow of data is becoming the lifeblood of organizations—and deriving meaningful insights from this data will be the key to survival in a changing industry.

The Future Role of the Healthcare Data Analyst

Healthcare data analysts will become an even hotter commodity as their role becomes more central to quality improvement strategies of healthcare organizations. Historically, data analysts in health systems have not played visible roles. They have spent their days sifting through long report queues, and the flood of report requests has meant they don't have time to do much else. Healthcare organizations can no longer afford to have analysts simply develop static reports from queues.

Today, analysts need to move from gathering and collecting data to analyzing data and being part of performance improvement teams, where they will serve as data experts. Their role will be to work on collaborative, multidisciplinary teams with clinicians and operational leaders to review and analyze data

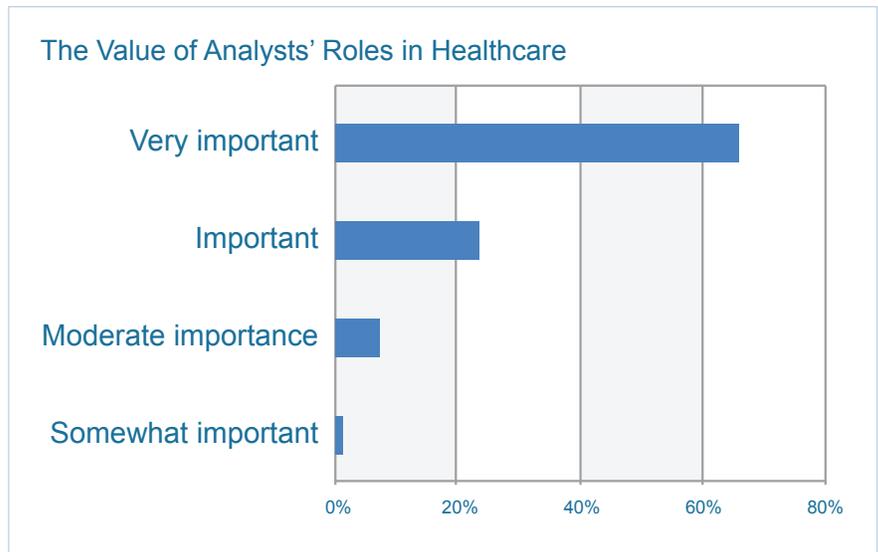


Figure 4: HAS survey results—the value of data analysts' roles

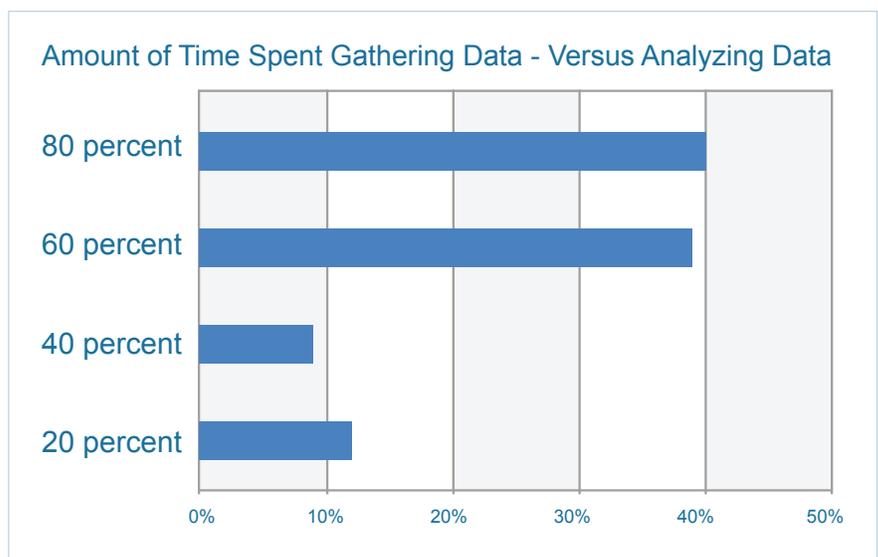


Figure 5: HAS survey results—amount of time analysts spend gathering data

and to help develop the best presentation of the data for consumption across the organization. As part of these teams, data analysts will also gain an understanding of workflows and evidence-based practices, which will help them in their analyses and recommendations.

These data analysts will sit down with clinical experts, technical experts and workflow experts, reviewing analyses and visualizations that show statistically significant patterns. They will analyze data on a daily basis to understand which processes are working well and which processes are in need of improvement. Their analyses will help identify gaps and include recommended actions that help drive improved performance outcomes.

“Today, analysts need to move from gathering and collecting data to analyzing data and being part of performance improvement teams, where they will serve as data experts”

An assessment similar to the previously cited HAS survey, administered via Health Catalyst’s weekly newsletter, revealed that most business intelligence leaders and data analysts support this future vision.¹ Figure 6 shows that the majority of these professionals think the ideal time for analysts to spend in frontend work—analyzing data and being part of performance improvement teams—is 75 percent or more.

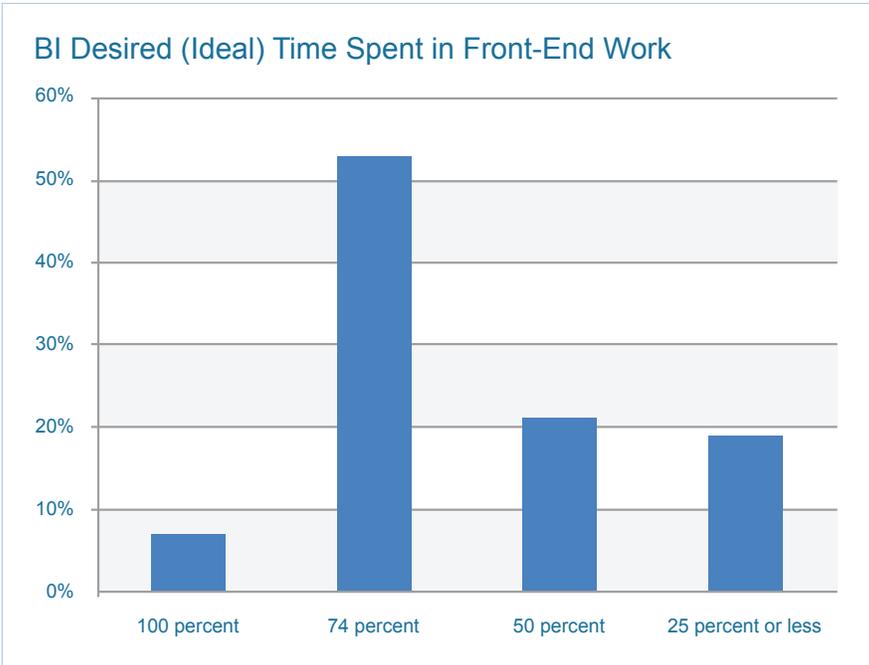


Figure 6: Newsletter survey results—BI and data analysts’ responses to ideal time spent in front-end work

In fact, Health Catalyst’s most successful clients have demonstrated that hospital systems that no longer segregate but rather embrace collaboration between technical and clinical experts consistently achieve better outcomes. In these same organizations, data analysts that embrace this change are finding their job is much more interesting and rewarding—and they can see the direct impact of their work.

The newsletter survey asked respondents to describe a time when they or their team used data and analysis to make a positive impact on a patient or a process. It also asked them what they thought about their work because of this impact. Here are some verbatim examples of the feedback received:

Can you describe a time where you or your team used data and analysis to make a positive impact on a patient or a process?	What inspired you?
We are currently using BI data for population health and outreach calls.	Getting patients the care that is needed
We measured and ultimately reduced heart failure readmissions. We developed daily operational patient follow-up views to enhance communication between 64 teams to ensure patients receive timely follow up care.	Able to see the relief of patients when they knew they had the critical medication information clarified by a pharmacist during a medication reconciliation encounter
We showed the team data and trend lines to assess effectiveness of their intervention to reduce readmissions.	Getting buy-in from those most resistant to change
We often provide data used for analysis by performance improvement teams to help them develop better workflows.	We frequently discovered things happening that were surprises
I began investigating our encounters (the percentage of encounters with claims vs. the percentage of encounters without claims). I found out that a big percentage of our encounters did not have claims created, which meant we couldn't bill for those encounters. So we had our clinical coordinator meet with providers with the largest percentage of these encounters and found that in some cases the E&M codes were not assigned; the CPT were not coded; HPI were missing a few items—to name a few. We saw a tremendous increase in our receipts because billing had increased and, in return, a higher return from payers. Also, we were able to reduce our untimely filing rate.	How using data to examine the ROI and the impact of making adjustments to a few processes could yield tremendous results. Additionally, getting providers to understand how what they do or don't do may impact the bottom line.
We were working on a sepsis program and we provided data that was used to help with predictive analytics.	The knowledge that we were saving people's lives and helping our organization succeed
Utilized data points to improve moving the patient through delivery of care	Improved staff and patient satisfaction
Recent orthopedic project where devices, blood usage, CPM usage and Foley catheter removal issues were analyzed and reductions in cost were received	Ability to analyze provider practices that weren't evidence-based
Tracking compliance with best practices around pressure ulcer minimization	The actual measurable direct impact that BI had on patient care
Reducing the defect rate on patient home medication lists has greatly impacted patient safety in general and allowed competency feedback and improvement to front line staff.	Seeing happy faces on patients, nurses, pharmacists, physicians. As the project produced positive results, senior leadership became more engaged and enthusiastic.
Chronic disease management and monitoring tools with data-driven modeling to: (1) identify non-compliance, not at goal parameters and at-risk populations, (2) help create population health-based care delivery processes to improve outcomes, and (3) create processes to help align workflows at the point of care.	Enhancing patient and provider experience in healthcare delivery methods via improved technological interfaces
Improving outcomes for diabetic patients	The patients' appreciation



Not only are analysts happier with their roles and pleased with their contributions, clinicians are happier as well. Clinicians are key members of the multidisciplinary teams, and they value the healthcare data analysts and the role they play.

A major satisfier for clinicians—and a factor that impacts clinicians' perception of the data analyst role—is trusted information. Trusted information enables clinicians to act confidently on the information they receive from the data analyst. Patients receive improved care and a better experience—and data analysts find meaningful value in their work. When asked in the survey how analysts are helping the teams, we received numerous examples, including:

- Our Patient Centered Medical Home team gets data and identifies gaps in care. We are reaching out to patients in need. Many, if not most, are thrilled!
- We have implemented a team admission process through analytics. We reduced readmission rates and improved length of stay for most frequent diagnoses.
- We pull data from patient satisfaction tools to monitor our improvement in communication with patients and families about delays.

Technology Solutions for Healthcare Data Analysts

Of course, data analysts can't fill this new role without technology that can take over the heavy lifting of gathering and disseminating data. That's why many organizations are evolving their technologies and processes to make this possible. Analytics platforms—like the [Health Catalyst Late-Binding™ Data Warehouse](#) and [analytics applications](#)—have opened new frontiers for data analysis.

BI teams and data analysts are aware of what these platforms can deliver—and they have high expectations for the problems an analytics solution can solve. In the Health Catalyst newsletter survey, we asked respondents to identify what they expected from a healthcare analytics system (see Figure 7). In rank order, the expected benefits are:

- Identifying and correcting data quality issues
- Moving their roles into front-end roles as part of a performance team

“BI teams and data analysts are aware of what these platforms can deliver—and they have high expectations for the problems an analytics solution can solve.”

- Spend less time pulling data (by enabling them to get data from one system versus multiple systems)
- Meeting the demand of users by being able to deliver the data faster and in a scalable fashion
- Providing insights to users in the form of trends lines, graphs, etc.

Our most successful clients are helping data analysts and BI teams achieve these benefits by implementing foundational analytics tools such as:

- *Source systems that support SQL queries.* These allow data analysts to get to the data at a granular or atomic level themselves. They are no longer constrained by the canned reporting from a source system. A data analyst can go directly to the underlying tables that store the data.
- *A healthcare enterprise data warehouse (EDW).* An EDW is a powerful analytics foundation that aggregates all source system data into a single source of truth for the organization—which means that analysts can truly spend their time analyzing data. The right EDW architecture is a scalable platform that can start small and then grow as needed.
- *Business intelligence development tools to build meaningful visualizations.* BI tools such as Cognos, Crystal Reports, Tableau and Qlikview run on top of an EDW and enable data analysts to create visualizations that make data easily understood and consumed by a variety of audiences.

Common Concerns of Healthcare Data Analysts

Despite the availability of these new and powerful tools, many data analysts have trouble reconciling the enticing new vision of their role with the current realities of their workload. Many analysts feel like they can hardly keep their heads above water as they tackle their report queues.

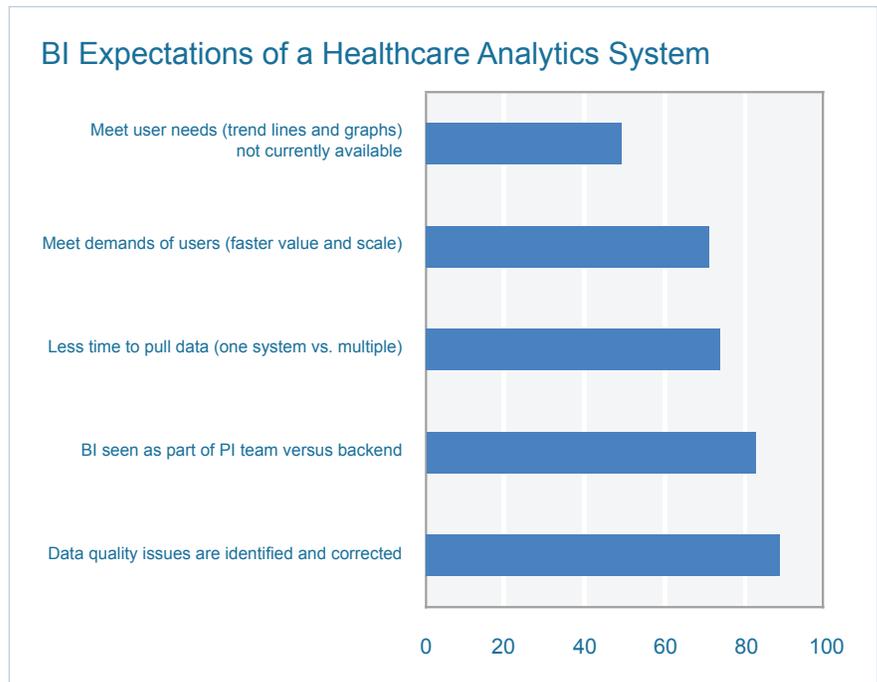


Figure 7: Newsletter survey results—expectations of analytics systems

Despite the availability of these new and powerful tools, many data analysts have trouble reconciling the enticing new vision of their role with the current realities of their workload

Adding new responsibilities seems impossible. Others simply feel uncertainty in the midst of change. The following are common concerns data analysts express:

We will address each of those concerns here.

Architecture won't scale

It is entirely understandable that data analysts and other BI professionals would worry that the analytics system they are being asked to rely on will not scale. This concern has historically been justified and validated, because traditional

EDWs have been built using [dimensional or enterprise architectures](#) that present significant challenges in a healthcare environment. Here is a brief overview of why these architectures have not scaled well in healthcare:

- Enterprise model: In this approach, the goal is to model the perfect database from the outset—determining in advance everything the organization would like to be able to analyze to improve outcomes, safety and patient satisfaction. This is the right approach if the organization is building a new system in a vacuum from the ground up. But in the reality of healthcare, organizations are not building a net-new system when they implement an EDW. They are building a secondary system that receives data from systems already deployed. This model tends to disregard the realities of the data a healthcare organization actually has available. Furthermore, the model binds data to rules and vocabularies very early, and once data is bound, it becomes very difficult and time-consuming to make changes. In healthcare, business rules, use cases and vocabularies change rapidly. An effective EDW must be flexible to allow change.
- The dimensional (or independent data mart) approach to data warehouse design is an approach where organizations start small, building individual data marts as they need them. If the organization wants to analyze revenue cycle or oncology, they build a separate data mart for each, just bringing in data from the handful of source systems that apply to that area. This model has three major drawbacks. First, with all of these isolated data marts in place, the organization doesn't

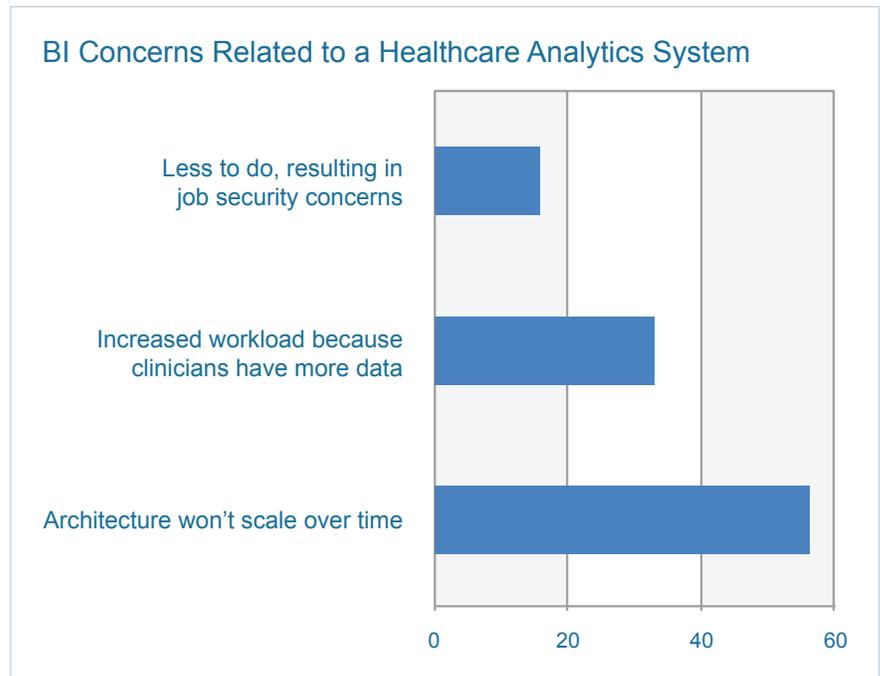


Figure 8: Newsletter survey results—common BI concerns

have an atomic-level data warehouse from which to build additional data marts in the future. Typically, data marts do not contain data at the lowest level of granularity, so it becomes impossible to dig deeper to discover the root cause of data trends. Second, this model bombards source systems repeatedly and unnecessarily, and it requires the IT team to build redundant feeds from each source system to feed these data marts. Finally, like the enterprise model, this approach binds data quite early in the process. As data is brought into each independent data mart, it is mapped into the predefined data model—inhibiting the adaptability of the analytics solution.

Fortunately, an EDW architecture has now been developed for healthcare that avoids these pitfalls and allows the system to scale easily.

Fortunately, an EDW architecture has now been developed for healthcare that avoids these pitfalls and allows the system to scale easily. This model—called a late-binding EDW—is an adaptive, pragmatic approach designed to handle the rapidly changing business rules and vocabularies that characterize the healthcare environment (Figure 9). This architecture takes data in its atomic form from source systems and brings it into source marts within the EDW. In the source marts, data is only bound to core data elements that are fundamental to any analytic use case, such as patient and provider identifiers. Data is only bound further when a specific business driver or use case calls for it. Specifically, more volatile rules and vocabularies are bound as late as possible. This late-binding approach enables not only scalability but also the pragmatic, incremental development of an analytics system.

Job security concerns

As the CHIME survey introduced at the beginning of this paper shows, healthcare analytics is on the rise, and executives see data analysts as playing a valuable role in data-driven healthcare transformation. Removing

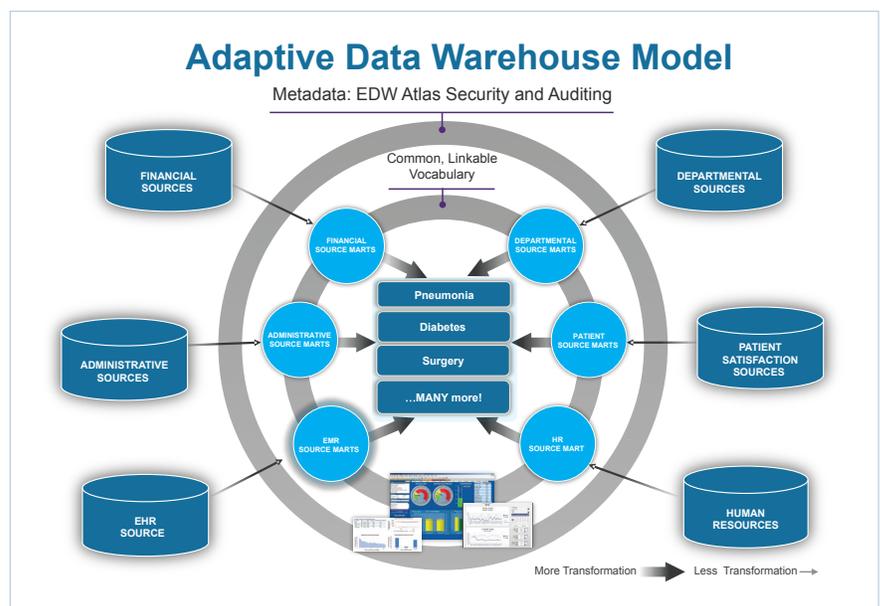


Figure 9: Adaptive data warehouse model

the report queue from their duties will not put data analysts out of work. Instead, analysts have a tremendous opportunity to move from gathering, collecting and provisioning data to being part of multidisciplinary teams and applying their skills to improving performance outcomes.

Increased workload because clinicians have more data

The potential for an increased workload may seem daunting. Fortunately, the combination of a late-binding EDW and easy-to-use visualizations will take a lot of pressure off of healthcare data analysts. These technologies enable self-serve analytics—clinicians can look at the data themselves, including drilling down into the data and filtering information. Therefore, instead of demanding numerous reports from analysts, these clinicians can simply turn to a single analytics application to find the answers they need. This will allow analysts to work on more interesting and sophisticated analytical needs.

MAKING CULTURAL TRANSFORMATION HAPPEN

Tools and technologies alone cannot single-handedly transform the role of the healthcare data analyst. Real cultural transformation is required, but cultural change and organizational transformation are never easy. So how does an organization make positive change happen?

The following examples—one from the healthcare sector and the other from a Fortune 10 IT company—provide advice and insight about successful change management in analytics.

Tools and technologies alone cannot single-handedly transform the role of the healthcare data analyst. Real cultural transformation is required.

Changing Care Delivery in a Large Health System

The first example is shared by Dr. John Haughom, currently a senior advisor at Health Catalyst. Dr. Haughom was senior vice president of safety and quality and, later, CIO for a health system that spanned three states in the Northwest. His job was to support 23,000 physicians and 11,000 employees.

Dr. Haughom led a 400-person department, 70 percent of whom were IT. During his tenure, the health system began to implement analytics technology to drive better quality. Before implementing the technology, his group was producing tens of thousands of reports. A large percentage of these reports went into binders that nobody looked at—not an effective use of his team's resources nor of valuable data.

To make the new analytics technology and strategy successful, Dr. Haughom had to change his organization's culture so that reports, and

the analysts who understood them, were integral parts of teams affecting patient care on the frontlines. Every member of the care improvement team—including the healthcare data analysts—needed to share a common goal focused on improving the quality, safety, efficiency and cost of care being delivered to patients. The improvements needed to be scalable and sustainable. This necessitated an approach and a structure that could assure these goals.

To accomplish this, he implemented a [three-system approach](#) throughout the enterprise. The three systems approach involves implementing:

- 1 An analytics platform, which includes the technology and the expertise to gather data, make sense of it and standardize measurements
- 2 Evidence-based content to standardize decision-making at key points in the care delivery
- 3 An organizational structure for implementing change, including multidisciplinary frontline teams and a governance structure

Dr. Haughom shares the following insight about his experience implementing this approach:

“It can be a hard slog introducing that kind of change. It certainly was for us until our analysts crystallized their role. The light bulb clicked on for our analysts as they started to see improvement projects succeed because of the support they were offering: direct correlation between the data they provided and clinicians saving and improving lives. Clinicians couldn’t do this without them, and clinicians began to recognize and acknowledge that reality. When the teams started to gel in that way, it was very exciting.”

There are several change theories and models for leading change. One model that Dr. Haughom has found particularly helpful is John Kotter’s eight-stage process for transformational change. Kotter’s process comprises the following stages: 1) establishing a sense of urgency, 2) building a guiding coalition, 3) developing a vision and strategy, 4) engaging stakeholders, 5) enabling action by removing barriers, 6) generating short term wins, 7) consolidating gains and producing more change, and 8) sustaining acceleration. Kotter (1996) contends that all eight stages are essential, that change is dynamic and messy, and that effective leadership is critical to successful change. He describes engagement and building relationships in

“The light bulb clicked on for our analysts as they started to see improvement projects succeed because of the support they were offering: direct correlation between the data they provided and clinicians saving and improving lives.”

the second and fourth stages of his model, as shown in Figure 10.

Transforming Analysts' Roles in a Fortune 10 Technology Company

The second example comes from the technology sector where Paul Horstmeier, currently the chief operating officer and a senior vice president at Health Catalyst, served as a senior vice president for Hewlett-Packard. He oversaw a large organization of 720 people in 78 different countries with over 2,000 distributed IT systems. In a very complicated technical environment, Paul led his organization through a series of transformations, including restructuring the role of analysts.



Figure 10: Kotter (2104). The 8-step process for leading change

When Paul took over the analyst group, he was dissatisfied with the traditional ticket-oriented, report-queue model in which they operated. The group was isolated as an all-purpose utility resource and was drowning in producing reports.

This situation concerned Paul for several reasons. He worried that those requesting the data from his team were turning the accountability for making sense of the data to those creating the reports. He also knew that spending all their time creating the reports kept the analysts from doing any actual analysis. Finally, he was concerned that, because of the reporting backlog, his analysts were becoming irrelevant—it took so long to produce reports that people simply went around them or stopped asking for reports. As a result of this backlog, the group's constituents' satisfaction was very low.

What he found was a complete disconnect between the reporting his team was doing and the actual use of data to make a difference. He decided to change the situation by putting his analysts on teams so that everyone involved in working with the data was accountable for making a difference. That way his analysts could play a role that had a specific business impact.

The first step in driving this change was to create a better technology infrastructure. His group implemented a self-service OLAP tool that enabled people with simple data requests to get the information on their own. At first, his analysts felt threatened by this technology and worried what they were going to do with their time. To help them use their time more effectively, he put them on teams. Working on these teams, his analysts were able to apply their data expertise directly to business problems.

However, getting the rest of the organization to use the infrastructure they had implemented and to bring the analysts on board presented a challenge. He had to make a clear business case to get leaders in the organization to think holistically—and to see the value of the new infrastructure and processes. These are the steps Paul took to overcome this challenge:

- 1 He found a senior leader who was empathic to the big picture (in a healthcare setting, this might translate to finding an executive sponsor in a clinical or operational department with a holistic mindset). He explained his vision to her, and she became invested in pulling his team members in to work with her group.
- 2 He worked with this senior leader to refine his vision and to create a compelling message for those who would be involved. They first identified the people on her team who would be most receptive to the change and then targeted their message to them. They tried to think from these individuals' perspective: Why would the business be better if we did this? Importantly, their message focused on the positive. They did not declare, "You have to do this." Rather, they created a compelling enough case for change that these team members would at least be interested in trying it.
- 3 He piloted the new system with this group and made sure they had a good experience. He and his team went overboard to make sure the group still received the same level of service or better.
- 4 He made sure that the group they worked with became the heroes of the project—even at times when his own analysts did 80 percent of the work. This helped the group believe they could make the change work. When they saw their success, they became evangelists to other groups about the success of the new approach.

At that point, Paul knew they had successfully ignited change. But that didn't stop challenges from popping up. Even when he thought he had sold the approach up and down the chain of the organization, someone would suddenly raise an objection. He had to keep feelers out for these situations and be ready to address them. Positivity, repetitiveness and results were key to driving the change forward and making it stick.

TEXAS CHILDREN'S HOSPITAL: USING AN EDW AND MULTIDISCIPLINARY TEAMS TO DRIVE CHANGE

One Health Catalyst client that is having considerable success using analytics technology and multidisciplinary teams to improve quality, patient experience and cost is [Texas Children's Hospital](#). To address the challenge of the impending transition to value-based reimbursement, Texas Children's Hospital launched a quality and safety initiative in 2006 to develop a comprehensive and integrated enterprise-wide data management infrastructure. The first step was to implement an electronic health record (EHR) to collect raw clinical and financial data from across the enterprise.

Although the EHR proved tremendously valuable as the means of digitizing care across the hospital, Texas Children's IT leaders soon discovered that the newly digitized clinical data was hard to extract and combine with other data sources in a timely manner. Clinicians and quality teams still lacked access to meaningful information they could use to guide clinical quality interventions and improvements.

“Our clinicians thought that the EHR would be a silver bullet to get the data they needed for quality improvement and operational reporting, and they blamed IT when the information wasn't forthcoming,” recalls Texas Children's Senior Vice President of Information Services Myra Davis, M.E. “The comment I would hear is, ‘I can't get the right data from them,’ or ‘they don't understand what I need from them.’ It created nothing but frustration.”

For her part, Davis was frustrated that the IT department was quickly becoming a “report factory” for the rest of the hospital.

Beginning in September 2011, the hospital worked with Health Catalyst to implement a healthcare EDW designed to unlock meaningful data trapped in the EHR and other applications to meet clinicians' expectations. Today, Texas Children's IT team uses the EDW to create near real-time reports from data aggregated from a range of clinical and business systems.

With the EDW in place and self-serve analytics rolled out to clinicians, the IT department receives fewer report requests and experiences faster reporting times—which has made a world of difference for that team. Rather than spending all their time responding to an endless queue of report requests, department analysts now are able to function in their intended role – uncovering patterns in data to reveal the most productive operational and

“Rather than spending all their time responding to an endless queue of report requests, department analysts now are able to function in their intended role – uncovering patterns in data to reveal the most productive operational and clinical improvements.”

clinical improvements. Thanks to these improvements, business partner satisfaction with the IT department has increased dramatically.

With this infrastructure established, Texas Children's has been able to dedicate data analyst resources to multidisciplinary quality improvement teams. Healthcare data analysts are serving as the data experts on these teams to tackle clinical and operational projects effectively. They are successfully:

- Improving clinical care outcomes
- Driving labor cost savings and eliminating capital expense
- Implementing better processes for rolling out evidence-based guidelines
- Streamlining operations and care delivery in the radiology department
- Integrating their patient satisfaction data to deliver better care and improved operational efficiencies
- And more

While reaching this level of success with analytics may seem like an overwhelming task to organizations just starting out along the path of healthcare transformation, it doesn't have to be. With the right technological infrastructure as a foundation and with organizational structures that make data analysts key members of multidisciplinary improvement teams, healthcare organizations can successfully and sustainably improve quality and cost and meet the challenges of value-based care. ♪

REFERENCES

American Hospital Association. (2014). Price transparency efforts accelerate: What hospitals and other stakeholders are doing to support consumers. Retrieved from <http://www.aha.org/research/reports/tw/14july-tw-transparency.pdf>.

Centers for Medicare and Medicaid Services. (n.d.). Readmissions reduction program. Retrieved from <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>.

Centers for Medicare and Medicaid Services. (2010). National health expenditure projections. Retrieved from <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/downloads/proj2010.pdf>.

Curley, A.L., & Vitale, P.A. (2012). Population-based nursing: Concepts and competencies for advanced practice. New York, NY: Spring Publishing.

Hall, H.R., & Rousell, L.A. (2014). Evidence-based practice: An integrative approach to research, administration, and practice. Burlington, MA: Jones and Bartlett Learning.

Health Catalyst. (2014). Survey of CHIME members ranks analytics the number one IT priority. Retrieved from <http://www.healthcatalyst.com/news/analytics-outweighs-accountable-care-population-health-icd-10-as-an-it-priority-say-health-system-execs/>.

Institute for Healthcare Improvement (IHI). (2014). IHI Triple Aim Initiative: Better care for individuals, better health for populations and lower per capita costs. Retrieved from <http://www.ih.org/Engage/Initiatives/TripleAim/Pages/default.aspx>.

Kotter International. (2104). The 8-step process for leading change. Retrieved from <http://www.kotterinternational.com/the-8-step-process-for-leading-change/>.

Kotter, J.P. (1996). Leading Change. Harvard Business School Press.

NOTES

1. The newsletter respondents included CIOs and other executives, as well as vice presidents, directors and analysts in BI departments.

CONTRIBUTING AUTHORS



John Haughom, MD, Senior Advisor, Health Catalyst

Dr. John Haughom is a healthcare executive with proven expertise in technology-enabled innovation, development of results-oriented strategic plans, leading multifaceted organization-wide change and directing complex operations. He has a proven record of turning vision into effective strategies and successfully implementing initiatives resulting in value including higher quality and safer care at the lowest possible cost. His broad knowledge of healthcare and emerging healthcare technologies is coupled with his recognized leadership abilities. Dr.

Haughom's passion is engaging peer clinicians in creating the new era in healthcare.



Paul Horstmeier, Senior Vice President, Health Catalyst

Mr. Horstmeier brings 25 years of Fortune 500 and small business operations and general management experience to Health Catalyst. He co-founded HB Ventures and filled senior executive roles at HB Ventures portfolio companies. Within Hewlett-Packard, Mr. Horstmeier launched and grew three different businesses, including co-founding HP's commercial e-commerce business which later expanded to include the management of the data systems and infrastructure for marketing operations across the company.

As Vice President of HP.com, Paul headed up a 700-person organization that received nearly every industry award for quality and innovation during his tenure. Mr. Horstmeier holds an MBA and a Bachelor of Science in Computer Science from BYU.



John Wadsworth, Vice President, Technical Operations, Health Catalyst

John is the Vice President of Technical Operations for Health Catalyst. John was one of the early members of the Health Catalyst technical team, joining in September 2011 as a senior data architect, and has supported numerous data warehousing and analytics projects at various health systems. Prior to Catalyst, he worked for Intermountain Healthcare and for ARUP Laboratories as a data architect. John has a Master of Science degree in biomedical informatics from the University of Utah, School of Medicine.



Russ Staheli, Vice President, Analytics, Health Catalyst

Russ is the Vice President of Analytics for Health Catalyst. He worked as outcomes analyst at Intermountain Healthcare in the Institute for Health Care Delivery Research supporting the advanced training program (ATP) for executives & quality improvement leaders and the primary care clinical program. Before coming to Catalyst, Russ worked as a management engineer programmer analyst for the Duke University Health System in their performance services department supporting their infection control and epidemiology efforts. While there, he also worked as an external consultant to advance the analytical work of the Duke Infection Control Outreach Network (DICON), a collaborative of over 30 community hospitals. Russell holds a Master of Public Health in Health Policy and Administration from the University of North Carolina Chapel Hill and a Bachelor's degree in Health Services Research from the University of Utah.



Leslie Falk, RN, Vice President, Health Catalyst

Prior to joining Health Catalyst, Leslie held positions as a Nurse Informaticist, Director of Biomedical Engineering, Clinical Engineer for Kaiser Permanente-Northern Region and as a Pediatric ICU nurse. Ms. Falk also worked with Hewlett-Packard in several clinical, marketing, sales and support leadership roles. She holds a Master of Science degree in Community Counseling from Seattle Pacific University as well as an MBA and Bachelor of Science in Engineering from the University of Nevada, Las Vegas. Ms. Falk is also a certified Project Management Professional (PMP), Lean Green Belt and Information Privacy Professional (CIPP/CIPP IT).



ABOUT HEALTH CATALYST

Health Catalyst is a mission-driven data warehousing and analytics company that helps healthcare organizations of all sizes perform the clinical, financial, and operational reporting and analysis needed for population health and accountable care. Our proven enterprise data warehouse (EDW) and analytics platform helps improve quality, add efficiency and lower costs in support of more than 30 million patients for organizations ranging from the largest US health system to forward-thinking physician practices. Faster and more agile than data warehouses from other industries, the Health Catalyst Late-Binding™ EDW has been heralded by KLAS as a “newer and more effective way to approach EDW.”

For more information, visit www.healthcatalyst.com, and follow us on [Twitter](#), [LinkedIn](#), [Google+](#) and [Facebook](#).

3165 East Millrock Drive, Suite 400
Salt Lake City, Utah 84121
ph. 800-309-6800