Information Builders

Analytics in Healthcare

How Five Healthcare Providers Are Turning Data Into Value

A White Paper

WebFOCUS iWay Software Omni

Table of Contents

Introduction

Today's healthcare organizations (HCOs) are inundated with information in a variety of formats – external data, existing files, patient histories, clinical data, financial records, medical device data, social media content, and many other types. But they've only begun to turn that data into value. Only with a sound data strategy where data is timely, trusted, and transparent, can the true value of enterprise information be realized.

Siloed information forces people or departments to act on their problems in a vacuum, so it's easy to miss the impact a decision might have across the organization. Or, the effects of such decisions may be limited, because they aren't connected to upstream or downstream events. Multiple sources of internal and external data need to be combined to use analytics effectively, so healthcare firms require an integrated approach to enable the transition to value-based care. This journey begins by formulating a comprehensive data strategy to support the organization's long-term strategic goals. The approach must allow those on the front lines to focus on clinical and administrative effectiveness, rather than act as data jockeys, or wait for IT to generate reports. The right information should be available on demand.

The cost savings that can be achieved by harnessing and analyzing data are staggering. According to *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America*, a September 2012 report[1] from the Institute of Medicine, American healthcare delivery systems waste $750 billion per year on unnecessary services, inefficient care delivery, excess administrative costs, inflated prices, prevention failures, and fraud. That's almost 150 percent more than the 2015 Medicare budget of $532 billion.

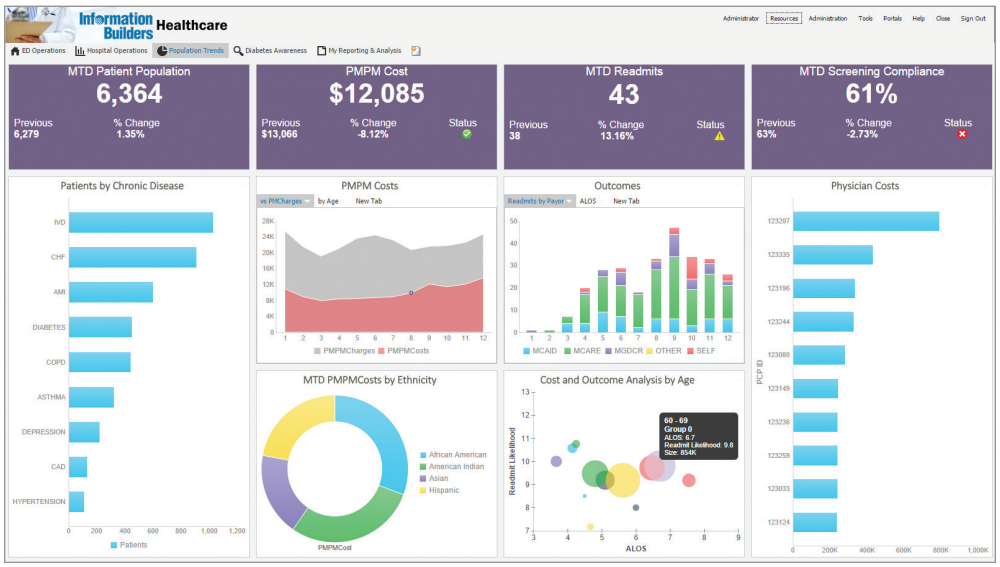
No doubt it is an exciting time to be in healthcare. Over $750 billion in waste leaves much room for improvement. An integrated approach to analytics not only helps providers practice better medicine, but also improves clinical outcomes, operational efficiency, and population health management – while reducing costs and increasing revenue.

The value-based and clinically-integrated business models of today make it necessary to manage complex interdependencies across four perspectives – clinical, operational, financial, and population health – and across many stakeholders. Therefore, healthcare organizations must have the fundamental ability to measure things, a management process around what they are measuring, and the ability to analyze and address breakdowns in performance. To achieve analytics success, healthcare organizations must understand that a data strategy is much more than an ETL tool or a data warehouse. They should implement self-service analytics with advanced capabilities, and promote use of those analytics beyond just analysts and power users.

About This Report

Five Information Builders healthcare customers recently participated in the company's Healthcare Collaborative, a forum for promoting best practices and developing innovative InfoApps™. InfoApps are custom BI apps that enable non-technical users to easily explore data via charts, graphs, reports, data visualizations, and other highly interactive analytic content.

[1] Smith, Mark; Saunders, Robert; Stuckhardt, Leigh; McGinnis, J. Michael. "Best Care at Lower Cost: The Path to Continuously Learning Health Care in America", Institute of Medicine, September 2012.



The purpose of the Collaborative is to accelerate time-to-value for analytics by:

- Learning from others to gain early to market competitive advantage with cutting-edge analytics
- Sharing tips and techniques, applications, and application components
- Ensuring that latest technologies and best practice designs are leveraged
- Accelerating development and deployment of InfoApp™ templates

Alan Eisman, executive director, Healthcare Industry Solutions, Information Builders, moderated the forum. This report is a summary of the discussions and observations recorded during the session. The executives who participated in the first meeting were:

Dr. Tom McGill, CIO, vice president, Quality and Safety of Butler Health System in Butler, Pennsylvania.

Peter Papadakos, director of Decision Support, Privacy, and Analytics at Quinte Health Care in Belleville.

Nancy Vannest, director of Business Intelligence and Managed Care at Allegiance Health System in Jackson, Michigan.

Dr. David Graham, senior vice president, and CIO/CMIO at Memorial Health System in Springfield, Illinois.

Dan Foltz, program director of EDW and Analytics Development at St. Luke's Health System in Bethlehem, Pennsylvania.

These five healthcare firms are each currently focusing on different analytic initiatives, and will meet regularly to share their successes. Information Builders is confident that the Collaborative will help these organizations to achieve greater returns on their technology investments as they

expand their efforts into other areas. While each organization in Information Builders' Healthcare Collaborative may be using analytics in a unique way, all five share a common goal – to turn their data into value for organization-wide benefits.

Read on for an overview of how the organizations are using BI and analytics to drive organizational improvement.

❶ Butler Health System

Tom McGill serves as CIO for Butler Health System. A one-hospital system in Butler, Pennsylvania with 60 outpatient locations, Butler has approximately 500,000 outpatient visits, 50,000 emergency department visits, and 14,000 admissions per year. In addition to his role as CIO, Dr. Tom McGill also practices part time in infectious diseases.

Butler was one of Pennsylvania's early adopters of electronic infection surveillance. The state liked the consistency of an algorithmic approach to infections/infectious disease reporting and has made it a requirement for all hospitals and health systems.

When Butler's contract with its previous infection surveillance software provider ended, the renewal price was more than double. Dr. McGill decided to leverage his understanding of infectious disease and infection surveillance to build a new system.

Pennsylvania specifications for a qualified electronic surveillance system state that the healthcare provider must:

- Extract electronic data
- Transmit non-standard lab, pharmacy, and radiology data
- Provide clinical support, education, and training to nursing staff
- Provide feedback to the infection control practitioner about his/her processes
- Provide patient-specific data for the entire facility

Butler's electronic surveillance system was the first InfoApp they developed. "It really gave WebFOCUS and Information Builders credibility, especially with our finance people," reported McGill.

Every autumn, NHSN (CDC's National Healthcare Safety Network) revises the case definitions for all infections. "We make a logic tree for each infection using microbiology lab data, and adjust our code to reflect the new descriptions," said McGill. "Although the process for pneumonia is different, because often there is no culture and thus no lab data."

With this InfoApp, Butler's infection control practitioner is now spending very little time on surveillance, and can devote at least half of her time out on the floors training and gaining insights.

Additionally, Butler Health System can now identify changes in nursing practices to reduce infection rates, which has improved both patient and financial outcomes. "We can provide surgeon and nursing feedback based on patient responsibility for daily care," McGill added. "It's not just random

metrics. We have corporate goals related to cost, quality, and service, and provide feedback to improve attainment of those objectives. Because we are standardized device-wise with, for example, two types of central line catheters, we can analyze the data and determine which nurses and physicians are outliers based on their rates of patient infection."

"With physicians, we have sort of an early antibiotic stewardship program," said McGill. "We looked at patients with C.diff (Clostridium difficile), and many of them were on proton-pump inhibitors like Nexium and Prilosec, which are common treatments for patients with GERD in the U.S. These drugs are as big a risk factor for C.diff as a high-risk antibiotic. Now, when someone has a history of C.diff and the physician is ordering antibiotics, we have a little pop-up that says 'consider stopping proton-pump inhibitor.' But the data tells us that advice is not being followed, so we're going to give doctors more formal feedback about their use of proton-pump inhibitors.

"We have done a lot of work with antibiograms, too. An antibiogram is a list of every organism that can cause an infection and the antibiotic sensitivity pattern. You then take the demographics about who had the infection and compile those into tables. So if a patient came from the community with a urinary tract infection, for example, I know what the most likely germ is and can pick an antibiotic that I can be assured will work. Almost all the physicians use it, and we do outreach to most of the nursing homes in our county. We update this every day at midnight, so the physicians and nursing homes have an up-to-the-minute antibiogram to use when treating their patients. It has helped us get and maintain business, and dramatically improved the reputation of our lab," McGill stated.

"Our goal is to compete on outcomes and low costs, and we've had excellent results," concluded McGill. "We have become more effective in infection control. Additionally, the work we've already done with WebFOCUS applications has covered our initial cost, everything else we plan to do is just icing on the cake."

❷ Quinte Health Care

Peter Papadakos is the director of Decision Support at Quinte Health Care. Quinte, based in Ontario, Canada, provides a wide range of high-quality healthcare and diagnostic services through four hospitals. With 1,600 staff and 300 physicians, Quinte oversees four emergency departments, operating rooms at three hospitals, a rehabilitation day hospital, a children's treatment center, ambulatory care clinics, and community mental health programs. It manages more than 285 inpatient beds for acute medical patients, intensive care, obstetrics, pediatrics, mental health, complex continuing care, rehabilitation, and surgery.

As it moved from global funding to patient-based funding, Quinte needed to identify revenue opportunities through volume analysis, cost analysis, benchmarking, revenue analysis, and partnerships.

"We've gone from global funding, where we would be guaranteed a check for hundreds of millions of dollars indexed to inflation every year, to patient-based funding," explained Papadakos. "Only 30 percent of our revenue now comes from global funding, with another 30 percent from

quality-based procedures such as hip replacements. The other 40 percent of our revenue is the health-based allocation model (HBAM), which is based on population, demographics, projected population growth, and so on. The HBAM portion negatively impacts those areas where the population isn't growing rapidly. In other areas, the population is growing, so they receive more money. With quality-based procedures, all healthcare providers are now competing for a price point. For example, if the average cost of a hip replacement is $10,000, then that's what the funding will be. If an organization's costs are lower, they could make some money, but if costs are higher, they will lose money on that procedure. Additionally, all of the costs are recalibrated every year, so you have to move fairly quickly to stay competitive."

Faced with a budget cut of nearly $10 million, Quinte needed an integrated, data-driven approach to value-based care – a solution that would allow it to do more with less.

The organization's approach focuses on five areas: environment overview; identifying opportunities; investigating opportunities; supporting initiatives; and monitoring metrics, performance, and progress.

Using WebFOCUS, Quinte created a number of InfoApps that allow it to analyze acute inpatients across various programs and services. It can also look at patient activity by modality – emergency room visits, inpatient visits, where the patients come from, their age, and so on. This data can be sliced and diced to understand who patients are and what services they are using. "We've developed these very easy-to-use applications for our end users. They can drill to their site or department to see where there might be opportunities," explained Papdakos.

From a costing perspective, Quinte has reports that "flag" cases that are more or less expensive than the provincial average. They can compare those findings to other metrics such as length of stay. "The more these flags pop up, the more we need to look at that particular patient cohort. If we want to start drilling deeper into the different patients, we can use a cube where we can slice and dice the data, drill into it further, and pull in relationships on the fly. This helps to understand why we were above cost in certain areas and where we can improve."

Quinte also uses WebFOCUS to support various initiatives within the organization. One of those is using pathways for patients. "We started by defining clinical pathways for chronic obstructive pulmonary disease, chronic heart failure, and pneumonia. With the support of various reports, we've seen pathway options increase greatly. And, that's the predictive piece of what people use every day. They don't even realize they're using a predictive model, but they are," noted Papadakos. "Users can access data through simple dashboards or more complicated applications where they build their own metrics," he added.

Other applications include automated compliance reports that are sent out to stakeholders in the clinical decision unit, and a family/internal medicine scorecard that is automatically sent to physicians. "It appears in their e-mail," said Papdakos. "It's a great way to reach out to them, to get them more involved and encourage them to start asking questions because we can't do too much more to decrease length of stay or to improve outcomes to save money. We really need to engage physicians to look at their practice to see if they can do anything better. And it's working.

"They can look at various metrics such as average acute length of stay, 30-day re-admission rate, death rate, average level of co-morbidities, discharge disposition, and so on. If they want more detailed information, they can log onto the portal, drill into specific patients, and look at the various costs. They can see the lab work, diagnostic imaging and pharmacy information," explained Papadakos.

Additionally, Quinte issues a daily email to all patient flow staff and other stakeholders in the organization. It is an alert that gets updated every five minutes, providing a snapshot of how many beds are available and the patient census across the hospital. This helps determine how to best move patients around.

These examples – just some of the applications in use – clearly illustrate the depth of analytics at Quinte Health Care, and how the organization is turning their data into value.

❸ Allegiance Health System

Nancy Vannest is the director of Business Intelligence and Managed Care at Allegiance Health in Jackson, Michigan. Allegiance, a 411-bed acute care hospital that is community-owned and locally governed, has been serving the community since 1918. It has a clinically integrated network of private practice and W-2 physicians, and a single community-based clinical electronic health record (sub-state HIE). Other services include long-term care hospital, hospice home, and home care/home medical.

"We have a single community-based electronic health record, where the majority of patients are on one record – whether the patient goes to the emergency department, a specialist, or the primary care physician. This allows us to look at a patient in real time from an ambulatory perspective," said Vannest. "The robustness of the real-time registry within the electronic medical record (EMR), developed by the Information Systems team at Allegiance Health, puts us ahead of the game. This streamlines the gathering of data from the multiple sites and providers of care in our community for registries. It also puts our Information Systems team in a position to better support our BI team's information needs. One such registry supports our clinically integrated network by providing gaps in care metrics related to chronic conditions to our providers and office staff at the practice, provider, and down to the patient level. Pairing this with an automated calling system has allowed us to significantly improve the quality of care in our community."

Allegiance has developed several critical objectives and priorities:

- Increase access and market share, as well as improve service line profitability and growth
- Improve financial management and reduce costs with regard to resource utilization, supply chain, patient length of stay, and case management
- Improve quality outcomes, patient safety, and satisfaction through process improvement, reduction of readmissions, and minimization of hospital-acquired conditions
- Enhance population health through effective coordination of patient care, adherence to evidenced-basic medicine guidelines, implementation of predictive analytics, and development of a master patient/provider index

Allegiance Health's initial assessment for its current BI and analytics initiatives revealed that clinicians, abstractors, and analysts were spending the majority of their time hunting for and gathering data, rather than understanding and interpreting it. To provide more time for effective analysis, the organization would need:

- Better organizational standards and processes for analytics
- Dynamic operational dashboards to manage patient care and improve outcomes
- Accelerated data preparation and cleansing, so that more time can be spent on analysis
- Analytical capabilities that align with Allegiance Health's priorities
- An integrated platform to maintain consistent analytics and reporting

According to the Chief Information Officer Aaron Wootton, "Building out BI capabilities requires a progressive approach, and there is no magic bullet. We're very lucky to have some key staff with knowledge that is difficult to find in today's market. This has laid the foundation for our efforts, and the hard work of the staff has given us a starting point. At its core, this starting point is a good project approach, which produces a final product to enable the business-critical priorities. We're excited about solving the complex problems in the future as we add depth to the team and improve the iterative process over time."

"We have developed a phased timeline that addresses all of our analytics and reporting needs. The first phase, led by the Information Systems team, is to create an integrated platform for the entire enterprise. This includes a centralized BI and analytic architecture, data captured from all primary data sources, enterprise key performance indicators (KPI), and automated external reporting. Data models and governance will be put in place to establish common policies, standards, centrally managed KPIs, and security. Phase two will add advanced analytics through a self-service infrastructure, allowing for predictive, prescriptive, and evidence-based analysis. The final phase will address the integration of big data from the web, patient, genomic, and other external sources," Vannest explained.

"We have implemented a nursing and emergency department dashboard that provides quicker insights into daily census, a patient's length of stay, the number of patients in isolation, overall capacity, readmissions, emergency room frequent visitors, and emergency department throughput barriers. There are graphs available with drill downs by department, patient type, and by nursing unit, and self-service capabilities for the emergency department to slice-the-dice the data as needed," said Vannest. Previously, nurses would access information from up to six different systems to answer complex questions to support improved patient flow and safety. Now they use a single InfoApp that provides everything they need in one place.

"We have already seen many benefits within the nursing and emergency department areas as a result of these new tools. These include better and more consistent patient care, better assessment of readmissions, closer monitoring of patient adherence to discharge orders, and enhanced management of fall risk. In addition, we have better financial reporting and can more tightly control our overall capacity across all of our facilities," she concluded.

❹ Memorial Health System

Memorial Health System (MHS), based in Springfield, Illinois, is a community-based, not-for-profit organization with about 7,000 staff members, approximately 27,000 annual discharges, a 500-bed academic teaching center, a 100-bed community hospital, and 2 critical access hospitals. MHS focuses on five main goals, according to Dr. David B. Graham, M.D., senior vice president and CIO/CMIO:

- Great patient outcomes
- Great physician partnerships
- Great regional presence
- Great place to work
- Great financial stewardship

"Working toward those goals, we became aware that we were data rich, but analysis poor," said Dr. Graham. "We had about 40 metrics incorporated into numerous dashboards that had a unified look. But they were very time-consuming because people used data from spreadsheets and were often manipulating data outside of the source system to create the dashboards. Consequently, the dashboards were not accurate. In addition, once produced, these dashboards were static and about as useful as a PDF."

According to Dr. Graham, the information services goals at MHS all tie into the organizational goals:

- Achieve a single version of the truth to ensure that everyone makes decisions based on timely, reliable, actionable data across the continuum of care delivery
- Enable predictive analytics and self-service point-of-care usability

He noted that MHS has now been elevated to the level where they're interested in the analytics. "They now also understand that in order to leverage data to improve performance, they need to get beyond descriptive analytics to predictive and prescriptive analytics," noted Dr. Graham.

To provide the organization with consistent, reliable data, Dr. Graham recognized the need to combine numerous data sources and data structures using a solid, proven, reliable approach. Tackling this master data management project themselves would require at least 36 months of cobbling together a lot of different data structures. So MHS selected to use Omni-Patient™, an enterprise master data application that combines an enterprise master patient index (EMPI) with pre-packaged models. This provides full patient identity management, and helps to easily achieve a 360-degree view of key entities, with a single golden record for each patient, provider, payer, workforce, and facility.

MHS defined its key metrics for success:

- No production downtime
- Development of a five-year BI road map
- Project completed in a timely manner
- Project costs not to exceed Board-approved amount
- Development of metrics to monitor use of application and identify opportunities for further improvement to promote increased utilization and improve patient health

"The real importance," Dr. Graham explained, "is in developing the metrics and how we will use them to improve the health of the people in the communities we serve and to become a national leader for excellence in patient care. We had to identify those opportunities for improvement and promote increased utilization, so it doesn't become just another web link on everyone's desktops."

Dr. Graham also identified business strategies within the organization's goals. These included good clinical performance; increased entrants into risk-based contracts; positive patient outcomes; a strong regional presence (being the provider people choose over others); maturity around data and technology; and the ability to leverage data to improve performance. "We also wanted flexibility for the end user and a really robust platform that allowed deeper drill down," he said. "Of course, in the process, we did not want performance deficits in any of our source systems. To ensure that the production databases would not be impacted and that maintenance requirements were minimal, we implemented a Pivotal (an EMC company) Greenplum appliance to serve as the platform for our application and analytics environment."

MHS calls Omni-Patient its Data Analytics Services Hub (DASH). Driving this implementation was the need to leverage data to improve performance, and the understanding that access to timely, reliable, actionable data across the continuum of the partners and care delivery systems for analytics efforts was imperative. DASH will be key to moving Memorial Health System from descriptive analytics to predictive and prescriptive analytics.

"Right now," said Dr. Graham, "we have so many different data sources that are about 30 days old, and most data is 45 to 180 days old. Quality data is available at the national level, but by the time we get it, it is too outdated to react to. It is not useful for making clinical decisions. We are working toward a refresh rate of 12 to 24 hours at the most so we can make real-time decisions. This requires us to have our own data, similar to the national model. We have actually been building our own source for things like central line infections, urinary tract infections from catheters, and other things we need to be measuring ourselves against. It's not going to be exact because we're not doing a risk model, but we know the national means that we can measure ourselves against."

"We built out all the data and data models. Around 170 million data points have been filtered through, mastered, and put together in the same spot," said Dr. Graham. "We started with our Cerner inpatient EHR in our academic teaching center. But our critical access hospitals use CPSI data across the board. TouchWorks is the ambulatory solution for our physician practice, and we have an ambulatory patient billing system and an inpatient billing system. Our workforce component is Lawson. Those are the first seven we wanted to put together. We want to bring in the EPSI Cost Accounting System as the next component. And, we recently acquired a 100-bed hospital, so we have to start bringing in a lot of McKesson data from them. We have a roadmap for how we want to unify those different data sources. DASH was the first step."

The first InfoApp in DASH provides users with access to that elusive single source of truth. "The data is now more accurate, more timely, and more actionable," he added. The application provides users with basic descriptive analytics in a format easier to use than the monthly operations dashboard used in the past. Users now have interactive dashboards where they can select different timeframes, do trend analysis, and see spark lines or stop light indicators. "That was the first chance for them to see they could get something different and more useful."

All operational leaders at MHS now have quick access to data that they can view by month or quarter. They can view bar graphs, line graphs, or pie charts. "We wanted to get this in the hands of the leaders first and foremost," Dr. Graham explained. "We plan to roll it out broadly to all managers of the 400 different departments across the health system very soon. And we need to continue to improve on our predictive and prescriptive analytics capabilities."

To leverage data to improve performance, MHS has also created a team-based incentive program that incorporates all MHS employees and outside providers. The four incentive criteria include patient satisfaction, patient outcomes, financial stability, and employee engagement. "We want to compensate based on performance by tracking all associated metrics."

Through Dr. Graham's sharing of Memorial Health System's analytics efforts, Information Builders Healthcare Collaborative got an organizational perspective, as well as a process and performance improvement perspective on using analytics to manage the complex interdependencies of value-based care. MHS is now turning data into value – making information more operational to answer questions and collaborate. The process ultimately results in making better decisions.

"I'm lucky that MHS has such visionary leadership and that the Board was willing to approve the investment so we could get our data working for us in the quickest and most effective way," concluded Dr. Graham. As a result of what has been accomplished to date, the data that MHS can provide today is more accurate, actionable, and drillable on an operational basis. This is having a significant positive impact on patient care and revenue.

❺ St. Luke's University Health Network

St. Luke's University Health Network (SLUHN), based in Bethlehem, Pennsylvania, is a non-profit, regional, fully integrated, nationally recognized network providing services at more than 200 sites. St. Luke's is recognized as one of the nation's 100 Top Hospitals® by Truven Health Analytics™ for 2015. It reports net operating revenue of $1.238 billion and 9,356 employees in fiscal year 2015.

Amanda Mazza is director of Analytics and BI and Dan Foltz, a consultant, is program director for the implementation of the Enterprise Data Warehouse (EDW) for the network.

SLUHN is pursuing a number of strategic objectives including:

- Expansion of health services across the care continuum that includes the construction of a seventh hospital campus
- Replacing core hospital systems with Epic
- Participation in CMS's bundled payments program
- Providing a patient-centered medical home

With guidance from Mary Jane McKeever, a vice president of Finance, and Christine Brutschea, the associate CIO, SLUHN embarked on building a business case to implement an Enterprise Data Warehouse and BI platform and to evaluate end-to-end platform options. The goal was to approach data and analytics as strategically as possible to become a more data-driven healthcare

organization. This included looking at strategic needs to leverage data to create value and to include the full set of capabilities (i.e., people, process, technology, and data required to make this goal a reality).

"We approached the business case from a top-down enterprise perspective to identify strategic needs across the network, and a bottoms-up perspective to identify proof points of tangible opportunities to create value," Foltz said. The process included extensive interviews with executives across the organization to get their top-down viewpoints and an inventory of the current state. "We also did many proofs of concept where we integrated hospital and ambulatory data and conducted continuum of care analytics to identify target benefits in an empirical, quantitative way."

"Our organizational data was very siloed," Mazza explained, "We created a proof-of-concept database that integrated ambulatory clinical, ambulatory billing, inpatient encounter data, and cost accounting data, as well as census data and some epidemiological data for comparative purposes. We ran multiple analyses. From St. Luke's perspective, we were looking at patient touch points across the network." Being able to look at specific opportunities to improve clinical, financial, and operational performance in a proof-of-concept environment was used to highlight the benefits of a scaled-up approach to performance improvement using an EDW and analytics program.

The proof-of-concept database provided quick wins. "We knew we needed a network-wide home for data across the continuum of care. And, it had to be patient-centered rather than facility or care setting-centered. From our proof-of-concept analyses, we saw several opportunities to improve network performance," explained Mazza.

"Additionally," reported Foltz, "a Leveraging Data Steering Committee co-chaired by McKeever and Ray Midlam, vice president of Network Development, was established to set business priorities for leveraging data to create value. This committee is a senior leadership team that comprises about 15 senior executives drawing from operational, clinical, financial, and IT leadership. This group serves as champions for the organization."

"We also created a data governance program focused on setting priorities for building and improving our data assets," said Mazza. "We have both an executive council and data stewardship working groups that will deal with data and metric standards and master data management." The Leveraging Data Steering Committee strategically sets the stage for turning data into value and builds a shared vision for the network around data. The committee established 10 strategic priorities. Among them:

- Understand population needs
- Get people who need care into the system
- Deliver consistent care and reduce unnecessary utilization/waste

"We're using a milestone-based approach for this implementation," said Foltz. From a developer perspective, we're using a hybrid waterfall/agile methodology. So as a parallel to loading and mastering data, we'll be building and testing analytics. Some of our early InfoApps will use data that's not been fully mastered, but there is a lot of data integration/cleansing work that happens

as part of the loading process. The data will be more organized than our current data, but it won't be fully mastered. That approach is intentional because we want to shrink a typical timeline for implementing an EDW from 18-24 months down to a series of 6 milestones where something is delivered every 3-4 months.

"We chose Information Builders for several reasons: First they were the only ones that had a fully integrated healthcare platform that could address our enterprise requirements. Many platforms are lacking key components including robust master data management and data quality tools. Other platforms are geared to support population health management, but not the entire healthcare enterprise. Equally important, Information Builders really demonstrated that they were listening and able to respond to our strategy with a strong partnering value proposition," concluded Foltz.

Conclusion

Grappling with enormous amounts of data in myriad formats, healthcare organizations today are all facing similar challenges as they deal with getting that data to the people who need it. The cure is turning that data into value with an integrated platform to improve clinical outcomes, operational efficiency, and population health management, while reducing costs and increasing revenue. Organizations are realizing that leveraging analytics is critical to transitioning to value-based care and achieving long-term goals. That's why, as part of an effective data strategy, Butler, Quinte, Allegiance, Memorial, and St, Luke's are all implementing Information Builders' BI and analytics to drive organizational improvement – and achieving greater returns on their technology investments.

About Information Builders

Information Builders helps organizations transform data into business value. Our software solutions for business intelligence and analytics, integration, and data integrity empower people to make smarter decisions, strengthen customer relationships, and drive growth. Our dedication to customer success is unmatched in the industry. That's why thousands of leading organizations rely on Information Builders to be their trusted partner. Founded in 1975, Information Builders is headquartered in New York, NY, with offices around the world, and remains one of the largest independent, privately held companies in the industry. Visit us at informationbuilders.com, follow us on Twitter at @infobldrs, like us on Facebook, and visit our LinkedIn page.

Next Step

Learn how Information Builders' Omni-Patient data management solution can help your organization use data more effectively to achieve goals. Run our Healthcare demo and see how.

Worldwide Offices

Corporate Headquarters

Two Penn Plaza
New York, NY 10121-2898
(212) 736-4433
(800) 969-4636

United States

Atlanta, GA* (770) 395-9913
Boston, MA* (781) 224-7660
Channels (770) 677-9923
Charlotte, NC (980) 215-8416
Chicago, IL* (630) 971-6700
Cincinnati, OH* (513) 891-2338
Dallas, TX* (972) 398-4100
Denver, CO* (303) 770-4440
Detroit, MI* (248) 641-8820
Federal Systems, D.C.* (703) 276-9006
Florham Park, NJ (973) 593-0022
Houston, TX* (713) 952-4800
Los Angeles, CA* (310) 615-0735
Minneapolis, MN* (651) 602-9100
New York, NY* (212) 736-4433
Philadelphia, PA* (610) 940-0790
Pittsburgh, PA (412) 494-9699
San Jose, CA* (408) 453-7600
Seattle, WA (206) 624-9055
St. Louis, MO* (636) 519-1411, ext. 321
Tampa, FL (813) 639-4251
Washington, D.C.* (703) 276-9006

International

Australia*
Melbourne 61-3-9631-7900
Sydney 61-2-8223-0600

Austria Raffeisen Informatik Consulting GmbH
Wien 43-1-211-36-3344

Brazil
São Paulo 55-11-3372-0300

Canada
Calgary (403) 718-9828
Montreal* (514) 421-1555
Ottawa (416) 364-2760
Toronto* (416) 364-2760
Vancouver (604) 688-2499

China
Peacom, Inc.
Fuzhou 86-15-8800-93995
SolventoSOFT Technology (HK) Limited
Hong Kong 852-9802-4757

Estonia InfoBuild Estonia ÖÜ
Tallinn 372-618-1585

Finland InfoBuild Oy
Espoo 358-207-580-840

France*
Suresnes +33 (0)1-49-00-66-00

Germany
Eschborn* 49-6196-775-76-0

Greece Applied Science Ltd.
Athens 30-210-699-8225

Guatemala IDS de Centroamerica
Guatemala City (502) 2412-4212

India* InfoBuild India
Chennai 91-44-42177082

Israel SRL Software Products Ltd.
Petah-Tikva 972-3-9787273

Italy
Agrate Brianza 39-039-59-66-200

Japan KK Ashisuto
Tokyo 81-3-5276-5863

Latvia InfoBuild Lithuania, UAB
Vilnius 370-5-268-3327

Lithuania InfoBuild Lithuania, UAB
Vilnius 370-5-268-3327

Mexico
Mexico City 52-55-5062-0660

Middle East
Barmajiat Information Technology, LLC
Dubai 971-4-420-9100
■ Bahrain ■ Kuwait ■ Oman ■ Qatar
■ Saudi Arabia ■ United Arab Emirates (UAE)

Innovative Corner Est.
Riyadh 966-1-2939007
■ Iraq ■ Lebanon ■ Oman ■ Saudi Arabia ■ UAE

Netherlands*
Amstelveen 31 (0)20-4563333
■ Belgium
■ Luxembourg

Nigeria InfoBuild Nigeria
Garki-Abuja 234-9-290-2621

Norway InfoBuild Norge AS c/o Okonor
Tynset 358-0-207-580-840

Portugal
Lisboa 351-217-217-400

Singapore Automatic Identification Technology Ltd.
Singapore 65-69080191/92

South Africa InfoBuild (Pty) Ltd.
Johannesburg 27-11-064-5668

South Korea UVANSYS, Inc.
Seoul 82-2-832-0705

Southeast Asia
Singapore 60-172980912
■ Bangladesh ■ Brunei ■ Burma ■ Cambodia
■ Indonesia ■ Malaysia ■ Papua New Guinea
■ Thailand ■ The Philippines ■ Vietnam

Spain
Barcelona 34-93-452-63-85
Bilbao 34-94-400-88-05
Madrid* 34-91-710-22-75

Sweden
Stockholm 46-8-76-46-000

Switzerland
Wallisellen 41-44-839-49-49

Taiwan
Azion Corporation
Taipei 886-2-2356-3996
Galaxy Software Services, Inc.
Taipei 886-2-2586-7890, ext. 114

United Kingdom*
Uxbridge Middlesex 44-20-7107-4000

Venezuela InfoServices Consulting
Caracas 58212-763-1653

West Africa InfoBuild FSA
Abidjan 225-01-17-61-15

* Training facilities are located at these offices.

Information Builders

Corporate Headquarters Two Penn Plaza, New York, NY 10121-2898 (212) 736-4433 Fax (212) 967-6406 DN7508224.0116
Connect With Us informationbuilders.com askinfo@informationbuilders.com

Copyright © 2016 by Information Builders. All rights reserved. [133] All products and product names mentioned in this publication are trademarks or registered trademarks of their respective companies.