Business intelligence and reporting at SETMA:

Improving quality, outcomes and clinical practices

Introduction

"Find something you're passionate about, give something back to the community and get started with electronic patient records," is sage advice from James L. Holly, M.D., CEO and Managing Partner of Southeast Texas Medical Associates, LLP (SETMA).

Committed to making SETMA the premier private, primary healthcare group in Southeast Texas, Dr. Holly's utilization of data to audit and improve care processes is providing insight and motivation to both providers and patients to improve care quality and patient health. In this case study, you'll learn how SETMA is leveraging business intelligence (BI) and reporting to transform healthcare at the point of care by:

- Auditing care practices at the point of service
- Providing clinicians with access to daily reports before, during and after patient encounters to ensure care standards are being met
- Requiring each provider to personally examine their performance at the point-of-service by leveraging over 300 quality metrics
- Delivering access to comparative data at a click of a mouse—instead of waiting 36 hours for reports
- Eliminating any uncertainty over whether national quality standards are being met

Measuring, auditing and improving care quality

A 2005 Ambulatory Care Davies Award of Excellence recipient, SETMA had focused on disease management during its implementation of electronic patient records. The SETMA group practice was founded in 1995 with the goal of designing a healthcare delivery system that would integrate all of the various components of a family's health needs in a multi-specialty setting.

Since then, the practice has grown to become a multi-specialty clinic with three clinical locations and a secure electronic medical record system for all patients. Clinical support services have expanded to include a clinical laboratory, mobile x-ray services and a physical therapy department, as well as several specialty clinics.

SETMA was recently recognized by the National Committee for Quality Assurance (NCQA) as a Tier III Patient-Centered Medical Home, a cornerstone to the philosophy of the practice to utilize data to improve performance.

With the support of data tracking, SETMA has received the NCQA Diabetes Recognition Program designation for excellence in the care of diabetes and has formalized an affiliate agreement with Joslin Diabetes Center, a teaching and research affiliate of Harvard Medical School. From Dr. Holly's perspective, "Quality in healthcare remains an elusive quest from the standpoint of definition, determination and demonstration. In quality metric design—whether process or outcomes—the piece which is most often missing is a combination of tracking and auditing."

Overcoming "treatment inertia"

"One of the problems facing healthcare is that the human condition doesn't like change," said Dr. Holly. "Most people are very uncomfortable with change and the more dramatic the change, the more discomfort it causes. As a result, even in healthcare with very fine providers, there's often a reluctance to change treatment regimens. This has been identified in healthcare literature as 'treatment inertia', the inclination not to change treatment. Because diseases aren't causing the patient any pain and most providers aren't caused any discomfort during the daily clinic schedule, treatment inertia can set in."

He continued, "We wanted providers to be able to track their performance in the care of each patient at the time of the patient encounter, and we wanted to be able to audit provider performance on panels of patients. We wanted to be able to post the results of those audits internally and externally, so providers can see their performance on an individual patient, on a panel of patients or on the entire population of patients they have seen. We also wanted to be able to give that information to each patient at the time of their clinic visit, and post this information publicly without the patient name or identifiers so that the community can see the kind of care they are receiving at SETMA and so that patients can understand what they need to do to improve their health."

"Auditing care practices at the point of care can create discomfort in both the provider and the patient, which can lead to a willingness by both to change their conduct to improve wellness. Hypertension will not cause you pain until you have a heart attack or stroke," said Dr. Holly. "Unfortunately, the damage is done far before you become uncomfortable or far before you have actually begun to experience any consequences of the neglect of your health. After starting this auditing and reporting program, we have discovered that auditing performance, posting aggregated wellness information publicly and sharing individual results with patients makes a huge difference in the attention the provider and the patients give to the processes and to the outcomes of healthcare delivery. That's what motivated us to implement BI; to improve the quality of the care we give."

From that fundamental commitment to constantly measure, audit, analyze and improve the quality of care for its patients, SETMA established what the organization refers to as the "Cognos Project." This initiative enabled SETMA to leverage the data from its electronic health records and equip their practice with the essential BI tools for clinical data analysis, performance measurement and reporting.

Key goals and outcomes

Dr. Holly describes the goals of the Cognos Project as follows:

1. "We wanted to know what we are doing. Without auditing our performance, we would never know how we are performing. The Cognos Project allows us to objectify our performance. We will no longer just think we are doing well; we know if we are doing well."

2. "We wanted to improve what we are doing. Evidenced-based medicine with the treatment targets established by science can tell us where we want to be. If we know where we are and if we know where we want to go, we can design a way to get there."

3. "When we know that a patient is not treated to target or to goal, we want to know why. Our Cognos Project allows us to know if evidenced-based standards of care are being employed. If they are—and if the patient is still not to goal—it allow us to address hindrances and/or obstacles to the patient getting to goal."

4. "We wanted to change provider behavior and overcome treatment inertia. We believe that comparing provider performance and publishing that performance internally by patient and externally as an aggregate practice performance can motivate providers to change."

5. "We wanted to change patient behavior. SETMA uses patient data to create discomfort in patients to make them address deteriorating health before it is too late."

6. "We wanted to examine patterns of care and outcomes using statistical methodologies."

7. "We wanted to achieve the highest level of recognition by NCQA as a Patient-Centered Medical Home."

Dr. Holly believes that auditing is essential to improving care quality. "The one thing that is missing in most efforts to improve quality is auditing. If you don't audit, and if you don't look at patient performance over a patient population, you're not going to know whether you are doing any good and you won't make changes in your treatment practices. Quality metrics are important and should be paid attention to, but without business intelligence and auditing capabilities you can never get much better because you don't know what 'better' is."

Selecting the right business analytics infrastructure

When SETMA began evaluating BI and reporting tools, it had over a dozen years of patient information in its existing electronic patient care database. Generating the type of quality reports required for provider auditing typically took days, and SETMA sought the ability to generate fresh reports daily.

"The analysis of patient encounter data may seem simple until you consider that our patient database is huge, and it would typically require 36 hours to run the reports we require to continuously improve patient care," Dr. Holly explained. "If you want to report on something every 24 hours but it takes 36 hours to produce the reports, you can see that you have to do things differently."

SETMA's Chief Information Officer led the search for the BI infrastructure and the organization selected IBM Cognos BI, which provides the complete range of BI capabilities needed, including reporting, analysis, dashboarding and scorecards based on a single, service-oriented architecture (SOA).

Designing the Cognos Project

According to Dr. Holly, "The objective of the Cognos Project was to take us to another place in the practice of medicine, from meeting national standards—which we were already doing for individual patients—to measuring treatments across broad populations. We wanted to understand whether we had ethnic disparities in our patient care, and whether women were getting as good care as men, and whether children were getting as good care as adults."

He added, "When we originally started our group practice and generated reports, I realized that the data I requested was appropriate for the old adage, 'garbage in-garbage out'. I'd receive wonderful spreadsheets but as I looked at them I'd realize the data was inaccurate. So when we designed the Cognos Project, we wanted to be able to audit valid information in real-time."

SETMA sought to audit results and enable real-time tracking by individual patients, and with the ability to analyze results by populations of patients. Dr. Holly explained, "We wanted the ability to audit results based on accurate and timely information, and we wanted the ability to aggregate information so we could do public reporting that we could post on our website and make available to other organizations—so we could continuously put that pressure on ourselves to do a better job."

The audit system was designed based upon several hundred data elements out of the millions of data points they collected. "We wanted to audit something that's going to make a difference," he explained. 'We knew we wanted to make a change in the way we looked at our data and the way that we looked at our practice, and we knew that if you're going to make a change, it better make a difference."

SETMA engaged LPA Systems (www.lpa.com) to design and develop an enterprise data warehouse that serves as a stable and reliable foundation for enabling the reporting, dashboarding and analytical capabilities of IBM Cognos BI. The data is then utilized to develop standardized reports to address the functional areas of not only the Healthcare Effectiveness Data and Information Set (HEDIS) but also other metrics such as the Physician Quality Reporting Initiative (PQRI) and the Diabetes Consortium Data Set. Dashboards are created using IBM Cognos BI software to allow providers to contrast their performance on quality measures with results from the clinics or from selected groups of providers.

Once the data mart was built, a series of structured healthcare provider performance audits were built so that SETMA could report to providers, staff and ultimately the public the quality of care that patients were receiving. The quality measures tracked and reported were compliant with the NCQA's HEDIS, which measures the quality of preventive care, acute care and chronic conditions.

"Few if any other medical practices measure and report their own performance data, and SETMA gives our healthcare providers the opportunity to evaluate their performance on NCQA's HEDIS measures every day, on every patient, at every encounter," said Dr. Holly. SETMA also audits quality metrics against measures established by the National Quality Forum (NQF), the American Medical Association and the Centers for Medicare and Medicaid's Physician Consortium for Performance Improvement (PCPI). SETMA also tracks performance on quality measures defined by PQRI, Bridges to Excellence (BTE) and the Ambulatory Care Quality Alliance (AQA).

Using BI, dashboards and reports to identify patterns

Through SETMA's use of data and BI, the organization has eliminated any uncertainty about whether or not SETMA is meeting national quality standards. Before a patient is seen, their chart is searched to determine if all HEDIS, NQF, PQRI, PCPI, AQA or NCQA standards have been met.

At the time of the patient's visit, nurses independently initiate the completion of preventive and screening services according to age requirements. "Cognos software allows every provider to personally examine their performance at the point-of-service on over 300 quality metrics, including age-appropriate screening and preventive care needs," Dr. Holly stated.

IBM Cognos software allowed SETMA to create dashboards that display outcomes that show seasonal patterns. For example, SETMA was able to identify trends that showed diabetes patients were less healthy from October to January, and was able to take steps to address this issue.

"We realized what was happening—diabetes patients were losing control during the holiday season," Dr. Holly stated. "As Thanksgiving, Christmas and New Year's approached, diabetics became less disciplined in their diets and exercise, and they took their medications less regularly." Further analysis allowed SETMA to discover that the frequency of visits went down during the holiday season, and the frequency in which diabetics came in for tests similarly declined during the holiday season.

SETMA saw this pattern across the practice—and with every provider—and designed an intervention plan based on their reports that encourages diabetics to come in for checkups during the holiday season so SETMA can educate them on the issues and help them better manage their health during the holidays. Dr. Holly explained, "We would never have been able to address this issue by just by looking at individual care of patients, but dashboards allow us to identify trends so we can make the changes to our policies that make a difference to our patients."

Disease-specific dashboards allow physicians to quickly analyze patients who are treated to goal versus those who are not, allowing providers to recognize differences between the two groups and take steps to ensure that more patients achieve their treatment goals.

Implementing the SETMA Model of Care

SETMA tracks measurement sets and provides each healthcare provider the ability to evaluate his-or-her own performance at the point of service. SETMA also audits each of these quality measurement sets. The difference in tracking and auditing is that tracking is done one patient at a time, while auditing looks at a group of patients. Using the Cognos Project, SETMA analyzes treatment data with statistical analysis to evaluate the validity of its treatment methods. This analysis allows SETMA to identify disparities of care, gaps in care, opportunities for improvement of care and which providers may need additional training. The SETMA Model of care is based on the following points:

1. Tracking is done by individual provider and individual patient, and it's done at the point of care in the examination room with the patient at the time they're receiving care.

2. Auditing is done over a population of patients to look for patterns of care and identify opportunities to change procedures or process to improve care.

3. Analyzing through statistical methodologies allows SEMTA to understand the meaning of SETMA's process and outcomes measures

4. Public reporting motivates improved performance by providers and increased confidence among patients. Reports are available at www.setma.com, and the website also provides access to SETMA quality reports, articles and newsletter columns on quality.

5. Quality initiative planning and program execution is enabled by access to data based on meaningful metrics.

Dr. Holly explained, "The SETMA Model of Care provides us with a framework for analyzing patient care and for making informed decisions to continuously improve the quality of care."

IBM Cognos dashboards can also display reports on hospital discharges so SETMA can analyze patient-centric measures in hospital admissions to reduce preventable re-admissions to the hospital. "We wanted to look at the characteristics of those patients who did not require re-admissions to detect patterns so we can drive down our re-admittance rates," said Dr. Holly.

> ***"We chose to deploy IBM Cognos BI rather than hiring an additional 30 people to perform the kind of analytics that we needed."***

SETMA has been capturing quality metrics for over 13 years but historically, drilling into the data to analyze results was time-consuming. "In the past, analytics took a lot of time," said Dr. Holly. "And now we want to analyze quality results and deliver daily reports, and we want to deliver reports on every patient and every provider every day—as well as on populations of patients. Quality metrics can unveil patterns, but this requires the ability to analyze complex information quickly. You could have a big quality department performing this analysis, or you could have the right tools. We chose to deploy IBM Cognos BI rather than hiring an additional 30 people to perform the kind of analytics that we needed."

Continuously improving the quality of care

Patient care metrics are tracked to ensure that SETMA is continuously improving the quality of care, and every day a report is generated on every patient that is designed to ensure that each patient is receiving superb care. Healthcare providers are able to review a detailed report before a patient arrives for a visit so they can know exactly what that patient needs to be brought up to SETMA's standards for quality of care.

All providers within the practice can access updated reports on patients daily to make sure the patient receives the appropriate treatment, and they can also create their own reports as needed. For example, a doctor in an examination room can review an updated report on each patient, and can compare a patient's results to the entire population—and share the results with the patient.

"Patients love to see information about themselves," Dr. Holly explained. "I will often bring a patient over to the computer when we do the Framingham Cardiovascular Risk Calculator's Analysis to show them the results. There are 12 different risk scores that we generate, and it would take a doctor 30 minutes to sit down and calculate those by hand. We do it electronically and it takes only one second. The American Academy of Family Practice has recently recommended that the family physician calculate these values every five years, and SETMA does it at every encounter. This allows the patient and physician together to discuss behavioral changes and to agree upon a plan of care and a treatment plan. Easy access to accurate reports based on valid data makes a difference in changing the behavior of both patients and physicians."

> ***"We know that if we can get patients the care they need, the medications they require and education on healthcare issues we can make a difference in their lives—and we can prove it with data management reports."***

Dashboards provide SETMA with insights that help it improve care to the patient community. "We take care of a lot of very fine people who have financial challenges," said Dr. Holly. "Many of them do not have health insurance or are under-insured, and we wanted to track how we are serving those folks so my partners and I initiated the SETMA Foundation, a not-for-profit organization that pays for the care of patients who cannot afford it. For example, we had a patient that needed a colonoscopy but could not afford the co-pay. The SETMA Foundation paid his co-pay and sure enough he had colon cancer, but it was detected early enough that that the treatment saved his life."

He added, "We've had other patients who couldn't afford medicines, or couldn't afford gas to drive to health education courses or medical visits, so we've waived the co-pays and distributed gas cards to enable patients to get the care they need. And we're able to help the community because of our ability to analyze the data. We know that if we can get patients the care they need, the medications they require and education on healthcare issues, we can make a difference in their lives—and we can prove this with data management reports."

Next steps

Planned phases for SETMA's Cognos Project include analyzing outcomes with financial metrics with a focus on improving operational results. "We're a private practice, and we fund everything strictly on the income the practice generates," said Dr. Holly. "Going forward, we will increasingly use BI to analyze financial metrics so we can find ways to decrease our costs while maintaining or improving the quality of care. This will allow us to treat more patients with the same revenue stream. If we're ever going to change the trajectory of the costs of healthcare, it's going to have to be with information and with data because without that, we're not going to be able to control the costs while maintaining the quality of care and improving patient satisfaction and patient outcomes."

Transforming healthcare

Since SETMA is able to analyze results daily on patient populations, it can easily compile information to comply with reporting requirements and enhance patient care. "IBM Cognos BI software allows SETMA to be ahead of the curve in analyzing patient information," said Dr. Holly. "For example, we used to develop diabetes care quality metrics based on results from 25 or 36 patients, but now we generate those quality metrics based on the entire population of diabetes patients we treat, which now totals over 7,600 patients."

He continued, "IBM Cognos software allows us to deliver care intentionally, rather than coincidentally. Often, preventive care or screening care is done coincidental to seeing a patient for an acute care problem, but when we see a patient with a master plan already designed based on an analysis of their data, we can intentionally intervene to make a positive difference in their lives even when they made an appointment for a totally different reason."

The ability to audit results and report on critical metrics contributed to the NCQA recently awarding SETMA the prestigious Diabetes Recognition Program Designation, and SETMA leveraged its reporting capabilities to recently achieve NCQA's Tier III recognition as a Patient-Centered Medical Home. Due to SETMA's standard of care, the organization has also recently become an affiliate of Joslin Diabetes Center, a teaching and research affiliate of Harvard Medical School.

Insights that make a difference

From Dr. Holly's perspective, SETMA is just at the start of its information journey in gaining insight into practice and care patterns. "I've started a lot of things I didn't finish in my life, but I've never finished anything I didn't start," he explained. "I encourage healthcare professionals to find something that you're passionate about, give something back to the community and get started with electronic patient records—and just get better every day. Auditing electronic patient records provides us with insights that make a difference. We've learned a lot since we deployed IBM Cognos BI; we're doing some pretty exciting things. But I think they're meager compared to what we will be doing in five years to analyze patient care and improve the quality of care we provide to our patients."

Read more about IBM Business Analytics for healthcare. For demos, white papers, case studies, analyst reports and more please visit **www.ibm.com/cognos/healthcare**. For more information on SETMA, including Cognos quality reports, newsletters, articles and more, please visit **www.setma.com**.

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