HIMSS Analytics

HIMSS Analytics Stage 7 Case Study

NorthShore University HealthSystem

Profile

Headquartered in Evanston, Illinois, NorthShore University HealthSystem (NorthShore) is a comprehensive, fully integrated healthcare delivery system serving the Chicago region. The system includes four hospitals: Evanston, Glenbrook, Highland Park and Skokie. NorthShore has annual revenues of $1.8 billion, employs about 10,000 people and has approximately 2,100 affiliated physicians. More than 800 of these physicians belong to the NorthShore Medical Group, a multispecialty group practice with 100-plus office locations.

As the principal teaching affiliate for the University of Chicago Pritzker School of Medicine, NorthShore is dedicated to excellence in medical education and research. Combined with NorthShore's established reputation for advanced information technology and its strong clinical environment, this affiliation represents an exciting advancement in patient care for the Chicagoland area. HIMSS Analytics Stage 7 Ambulatory EMR Adoption Model status was achieved in April 2013.

The Challenge

The core mission of NorthShore University HealthSystem (NorthShore) is to preserve and improve human life. This mission is supported and achieved through the provision of superior clinical care and focus on quality improvement. The landscape of healthcare continues to change and along with it, a new focus from volume to value-based care. With this, the goal was set to develop applications that transformed EMR data into actionable business intelligence that identified unwanted practice variation, supported quality improvement workflows, aided real-time clinical decision-making and evaluated the effectiveness of interventions.

NorthShore retained its focus on delivering superior care while facing this challenge before the changes to value-based care were defined or certain. The decision was made to pre-emptively leverage existing competencies in Analytics and Data Warehousing to embark on several transformational projects. These projects, Programmatic Evaluation Tools (PET) and Ambulatory Reporting Tools (ART), have resulted in considerable cost savings and more efficient population health management.

These tools allowed our Quality and Finance teams to rapidly evaluate questions about clinical and financial standardization in ways that were impossible in the past. The successful implementation of these tools placed NorthShore at the forefront of clinical analytics nationwide and allows us to supply our leaders and clinicians with real-time business intelligence and decision support that only a handful of organizations across the country have access to.

These projects involved a tremendous amount of work in both planning and execution. As a team, Quality, Clinical Analytics, Finance, and Data Warehouse groups worked collaboratively to define metrics, manage the project timeline and regularly assess their own progress. The group partnered closely to ensure fields were correctly identified, calculated, captured, validated and named to generate new summary tables and data marts that contain approximately 1,000 enriched fields newly available to consumers. These new fields are the product of complex calculations, some requiring thousands of lines of code.

Resulting Value / ROI

Tangible and intangible results achieved. Tangible results include savings (cost, time, resources), reduced medical errors, outcomes (i.e. patient quality and safety, financial or operational) and creative use of physical space formerly occupied by hard on-site files. Intangible results include such things as clinician and patient satisfaction, etc.

- Using IBMs Cognos™ tool, parameterized reports were developed that allow front-line decision makers in Quality and Administration to analyze and test hypotheses around practice variation, gaps in clinical care, and high utilization cohorts. Furthermore, this infrastructure provides a platform for integrating reporting back into our EHR. Using the ART infrastructure we have created a daily reporting mechanism that feeds our EHR's native reporting tool with our ART data and provides a daily panel of chronic disease patients that are in need of labs or follow-up that has significantly improved our ability to get patients in for necessary tests.

- Using the ART integrated EHR reporting system our administrative staff that supports our primary care physicians in contacting patients that are due for diabetic testing have experienced a significant increase in both efficiency and in patient compliance. The tool updates daily and captures the outcome of patient contacts that feed back into ART and adjusts the daily report accordingly. Compared to the previous paper reporting system that updated monthly, this more integrated data delivery system has shown an increased rate of compliance with less staff.

- Using the PET hypothesis testing tools, we have identified significant cost savings in our spinal fusion procedures related to unnecessary Doppler testing and changes in implants used. This platform led to the identification of major clinical practice variation in spine surgery and produced regular feedback for clinicians. This resulted in a reduction of the cost of 1-2 level spine surgery by $1,587; an annual cost savings of $714,150.

- This project, like many others NorthShore Heath I.T has implemented, reflects the collaborative nature of our interdisciplinary relationships, as well as our diligence and dedication to serve our patients

Lessons Learned

This project reinforced the need to draw from our extensive pool of expertise in order to create a cross-functional team of clinicians, analytics and health information technology professionals. Selecting the best individuals for this project from day one led to the production a superior end-product designed to meet the needs of the user community.