Carolinas HealthCare System

Advanced Analytics

Carolinas HealthCare System's advanced analytics capabilities enhance the value of healthcare by offering innovative tools that support providers in delivering the best possible care to patients and families. Carolinas HealthCare System has adopted integrated healthcare analytics for evidenced-based population health management, individualized patient care and predictive modeling.

Foreseeing a greater need for efficient, effective solutions to become more integrated and accountable, the System developed **Dickson Advanced Analytics (DA^2)** in 2012 to integrate clinical, financial and operational data across the healthcare continuum. By adopting advanced technologies and building collaborative relationships, DA^2 offers centralization and standardization of analytics, harnessing the System's capability for knowledge sharing and informed decision making for better patient care.

In 2013, Carolinas HealthCare System joined other healthcare systems and IT experts, such as IBM and Premier healthcare alliance, to launch **Data Alliance Collaborative**, a first-of-its-kind initiative aimed at improving population health through data analytics and business intelligence. The solutions allow health systems and providers nationwide to leverage the same data model and actionable information, adding value to patient care. The Collaborative combines data and resources from four geographically distinct systems, operating 100 hospitals and more than 1,600 non-acute sites caring for 28 million people.

Advanced Analytics Priorities

Carolinas HealthCare System is among the healthcare leaders in advanced analytics due to the following priorities:

- **Quality and Value.** Develop and deliver analytic packages to improve the health of employees and patients everywhere and to deliver measurable changes to their health profiles. DA² applies a balanced approach to understanding business needs, promoting data governance and integrity, analyzing routine and complex data, and providing relevant and targeted intelligence to solve problems. Quality of care is the cornerstone of the Carolinas HealthCare System business model, and DA² is fully aligned to support new and existing initiatives to improve quality.

- **Population Health.** Provide predictive analytics, using the full range of data available, to positively impact patient and community health. This is achieved by proactively delivering preventive healthcare services and interventions in the areas of readmission, patient compliance with evidence-based guidelines and enhanced care delivery models.

- **Performance Metrics.** Develop reliable, actionable leading indicators for clinical and non-clinical operational performance metrics. DA² applies advanced techniques and tools to the analysis of patient and health information, challenging status quo uses of information and raising the collective analytics IQ in healthcare. DA² capabilities are advancing the System's ability to perform cutting edge analytics and make vast amounts of data easier to digest across the board.

Integrated Technologies and Collaborative Relationships

The following technologies support Carolinas HealthCare System priorities, create value and promote the best patient experience:

- **Readmission Risk Analytics.** In Carolinas HealthCare System hospitals, analytics capabilities are helping transform the discharge process by providing a better understanding of each patient's risk for readmission. They can now help providers predict, with nearly 80 percent accuracy, a patient's risk for being readmitted within 30 days after being discharged by pulling electronic medical records data for 40 different patient variables deemed highly predictive of unplanned readmission.

- **Ambulatory Care Analytics.** Provides benchmarking in ambulatory (outpatient) care settings across the System. This tool offers the capability to conduct population analysis and provide patient centered medical home reporting through clinical (electronic medical record), billing and claims data. It can be used to compare, analyze and identify clinical best practices near real time.

- **Enterprise Data Warehouse**. Integrates System patient information within minutes from a wide range of sources, including clinical, billing and claims data. This intensive effort brought together information for more than 5 million patients into one repository that includes 10 terabytes of data – this is equivalent to storing the entire print collection of the Library of Congress.

- **Payor Claims Analytics.** Offers employer group claims data analysis, mostly for reporting. This capability is able to produce population, employer group and individual/episodic analysis, as well as practice pattern variation on claims data. Carolinas HealthCare System is one of the first provider organizations, without a health plan, to integrate claims and clinical data to demonstrate quality and value to various stakeholders. Such analytics can help determine the programs and medical practices effective in improving the health of employees and patients.

One Carolinas HealthCare System