Use Case: Actionable Measures to Unlock Hospital Performance

Regional Medical System
Industry - Healthcare

Client – Large Integrated Health System
Hospital Sisters Health System (HSHS) speeds identification of actionable measures to unlock quality and performance, starting with hospital acquired infection.

Challenge
Healthcare executives need actionable measures within reach of their budget that are locally relevant and predictive, not just recent or timely. HSHS decided to test the Gray Matter Analytics approach starting with hospital acquired infections.

Within weeks, Gray Matter Analytics performed multivariate analysis and was able to show that employee turnover, patient satisfaction, and halogen scores predict hospital acquired infection rates.

Healthcare today is under pressure from value-based care requirements, and finding tools that extend beyond univariate and bivariate analysis has proved difficult. Valid insights are scarce. Expertise and predictive technology costs time and money that small to mid-size hospitals do not possess, and large systems could better deploy.

HSHS seeks to surpass descriptive bivariate analysis and use multivariate predictive analysis to further improve patient safety. Beginning with hospital acquired infections and clostridium difficile (C. diff), HSHS seeks to make data-driven improvements faster and within its budget constraints.

In most provider systems, key operational and clinical data is spread across various practice groups. But disorganized data sets are often incomplete and therefore incomparable. Data silos have developed around localized needs, but fail to scale across other silos. There is no shortage of data in healthcare and HSHS did not need more data. It needed less – specifically to know which data mattered and to put that data to work.

HSHS is proud to offer high-quality patient-centered care. But complex data and the unwieldy traditional resources needed to tease out the story produced frustration. If a patient contracts a C. diff infection *outside* the hospital, the system may still be held accountable where an institution with deeper pockets may have been able to prove otherwise using predictive technology.

Actionable Measures
Gray Matter Analytics met with HSHS chief quality officer Dr. Andrew Bland, a member of the national Agency for Healthcare research and Quality (AHRQ) Standing Working Group. HSHS data was found to originate from multiple diverse sources, technology platforms, and information assets. The value the client would derive from common business rules, taxonomies, and data management quickly became apparent for HSHS and their constellation of sites.

Gray Matter Analytics is supporting HSHS's analysis of data from multiple sources; clinical, operational, and financial; guiding operations and resourcing to support the expansion of high quality outcomes. Gray Matter has discerned the need for cloud-native analytics solution capable of processing large

amounts of data in a time- and cost-effective manner with machine learning, analytics data mastering and modeling, and visualization capabilities: CoreTechs®.

Solution

Gray Matter Analytics is deploying end-to-end analytics with a solution that reduces complexity and optimizes performance using real-world insights and predictive outcomes to introduce industry standard taxonomies, data dictionaries, and models that close overlaps and data gaps with the CoreTechs® analytics solution. CoreTechs® develops insights from multivariate analyses at a patient, population, and condition level available across a healthcare enterprise. Using a consolidated data analysis strategy, Gray Matter Analytics has the potential to help HSHS align staff, processes, and patient safety, further validating the hospital's reputation as a data-driven, patient-focused institution. Specific components of this successful solution will include:

- Introduction of quality strategy and standardization
- Assessment of data/ data management capabilities
- Development of a roadmap for an enterprise data analytics system
- Utilization of data and analytics applied to implement strategic safety improvement

Results Matter

Benefits for the client include:

- Validation of perceived gaps in data management, processes and technologies
- Summary of information assets with key gaps and documented redundancies
- Implementation of a strategy for a future oriented, enterprise-level roadmap
- Data-driven insights to enable effective transition to value-based care

Key outcomes can include:

- Improving safety outcomes, employee engagement and patient satisfaction
- Predictive insights providing impact at various levels of the hospital, derived from clinical, administrative and financial data
- Health risk assessment, risk stratification, patient segmentation and care management
- Identifying inconsistent systems of record for similar information
- Opportunities to unify fragmented master and reference data
- Discovering business rules inconsistent with enterprise strategy and standard practices
- Surfacing availability gaps needed for high-performing analytics