naviant™

AMITECH
A NAVIANT COMPANY

Customer **Story**

Data-Driven Staffing: A Critical Access Hospital's Blueprint for Operational Excellence

Data-Driven Staffing: A Critical Access Hospital's Blueprint for Operational Excellence

OBJECTIVES

+ Optimize staff scheduling
+ Reduce staffing inefficiencies
+ Improve operational efficiency while maintaining quality care

RESULTS

+ Achieved 15–22% improvement in nurse - patient ratio efficiency
+ Enabled evidence-based staffing decisions six weeks in advance
+ Reduced administrative burden and created a more sustainable working environment

66%

Up to two thirds of rural hospital operating expenses are attributed to staffing costs.

About

Rural and critical access hospitals face persistent staffing challenges that significantly impact their ability to deliver quality care. Geographic isolation makes recruiting and retaining healthcare professionals difficult, as these locations often lack amenities and offer limited opportunities for career advancement or spousal employment. These facilities operate with fewer clinicians per capita than their urban counterparts, creating heavier workloads for existing staff. Further, financial constraints prevent rural hospitals from offering comparable compensation packages to larger urban institutions. The resulting understaffing leads to burnout and high turnover rates.

The Challenge

Our customer, a critical access hospital in Minnesota, faced significant clinical staffing challenges stemming from their rural location. Their limited healthcare workforce led to frequent scheduling imbalances, including periods of understaffing, requiring those on shift to perform beyond a sustainable capacity. In addition, occasional overstaffing during low-volume periods strained their already tight budget. These staffing fluctuations directly impacted operational efficiency and exacerbated burnout issues.

The Solution

Amitech, a Naviant Company, partnered with hospital leadership to develop a predictive analytics model capable of optimizing staff scheduling across the ED, Med/Surg, and OR departments. This data-driven framework begins with the systematic collection of census data from their EHR system (ADT

reports, ED visits), operational staffing data from the scheduling software, and manually compiled external factors like local events.

Data is transferred to Amitech via Secure File Transfer Protocol (SFTP) where Microsoft Azure technology processes and analyzes the information through specialized predictive models. Two interconnected machine learning models work in concert, one predicting patient census and another calculating corresponding FTE requirements by nurse type and department.

The system provides actionable staffing recommendations through a user-friendly Power BI dashboard and exportable reports, providing staffing managers with evidence-based decision support six weeks in advance. The model augments rather than replaces human judgment, allowing nurse managers to maintain control over staff assignments while benefiting from data-driven census and staffing predictions.

"

The model augments rather than replaces human judgment, allowing nurse managers to maintain control over staff assignments while benefiting from data-driven census and staffing predictions.

Implementation

The process for implementation is as follows:

- **EHR and Staffing Software:** Data is collected from the hospital EHR, staffing software, and manually collected log of important local dates.
- **Data Transferred:** Data is transferred to our team via Secure File Transfer Protocol (SFTP).
- **Microsoft Azure (Cloud Computing System):** Data is analyzed by custom built predictive models.
- **Power BI (Business Intelligence Platform):** Results are displayed on a user-friendly dashboard with downloadable reports available.
- **Nurse Staffing Users:** Staffing managers are then able to receive the evidence-based decision support six weeks ahead of time.

Value Added

This advanced staffing predictive algorithm transforms nurse resource allocation, delivering a 15-22% improvement in nurse-patient ratio efficiency while maintaining compliance with required staffing levels.

Beyond the numbers, the system enhances staffing assignment accuracy by learning from historical patterns and real-time data, allowing nurse managers to see exactly when and where their teams will be needed most. By identifying low-demand periods, the algorithm enables the strategic reallocation of nursing talent to administrative tasks without compromising care quality.

Conclusion

Rural healthcare staffing doesn't have to be an uphill battle. For this Minnesota critical access hospital, predictive analytics transformed scheduling challenges into operational advantages. By employing data-driven insights, the organization improved its staff allocation, both reducing administrative burdens and ensuring consistent quality of care. Beyond the technical benefits, this approach created a more sustainable working environment for healthcare professionals. As rural facilities navigate ongoing workforce limitations, this framework offers a practical path forward for enhanced efficiency and patient care preservation.

"

Beyond the technical benefits, this approach created a more sustainable working environment for healthcare professionals. As rural facilities navigate ongoing workforce limitations, this framework offers a practical path forward for enhanced efficiency and patient care preservation.

WHO WE ARE

Naviant helps customers reimagine work and harness intelligence to deliver exceptional outcomes.