Baystates Postpones Unnecessary ED Expansion After MedModel Simulation

Baystates

Success Story

Healthcare

MedModel

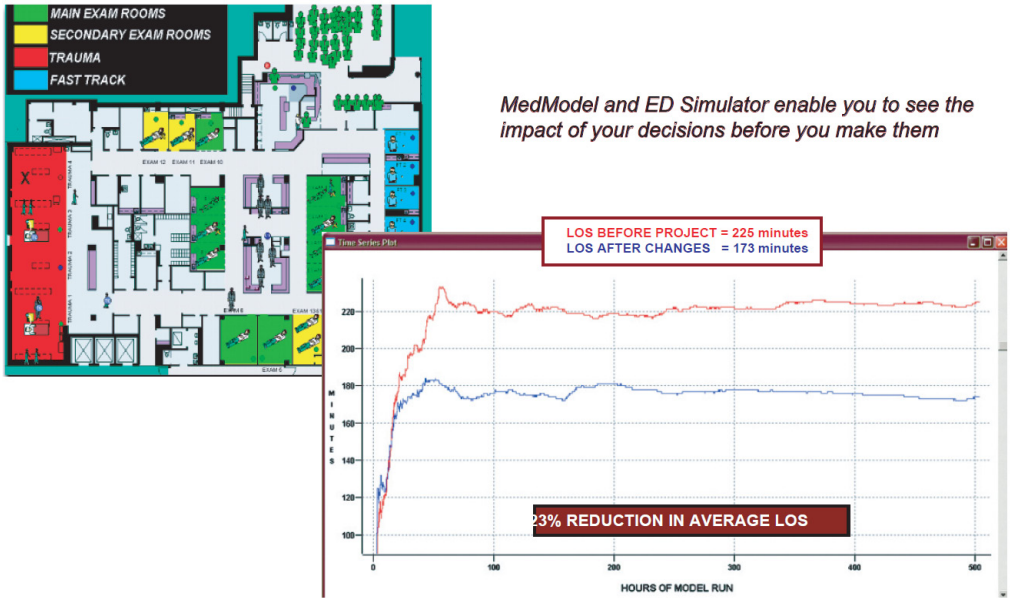
CHALLENGES

Patient volumes in the Emergency Department (ED) at Baystate Hospital had increased from their forecasted annual growth rate of 3% to almost 8%, creating serious operational challenges. After comprehensive review, administration determined that they needed more beds and more staff to ensure the highest levels of patient care and satisfaction. Faced with numerous challenges, including a virtually land-locked facility, management was considering a complex $1.2 Million ED expansion. Using the technology and experties of ProModel Healthcare Solutions Baystates was able to make some critical decisions.

RESULTS

The Model allowed them to achieve the following benefits:

- Reduced the Length of Stay in the main ED by 15%
- Reduced the Length of Stay in the GTA (Fast Track) by 33%
- Postponed the ED expansion indefinitely, avoiding a $1.2 million investment, and disruption to critical operations
- Furthermore, the estimated increase in patient admissions and throughput capabilities revealed the potential for an additional $900,000 in annual revenue



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SOLUTION

Baystate is a 700-bed teaching hospital located in western Massachusetts that provides level one-trauma services. The ED manages over 96,000 patient visits a year through its 32-bed unit and a General Treatment Area (GTA) provides fast track services for non-acute, non-urgent care patients.

First the project team created a dynamic simulation model of the entire ED, with MedModel to accurately replicate the existing department's operations. After the simulation model was validated and accepted by key hospital personnel, the project team utilized the model to identify areas for possible improvement:

- Developed and evaluated potential solution scenarios
- Identified capabilities of the current facility to support effective operations
- Projected the impact of continued growth on the department

A simple user interface served as a "front-end" to the model, enabling hospital staff to quickly assess the impact of changes to the number of rooms, staffing of various types, and other critical variables. The results were optimized to identify the specific changes that would provide the greatest improvement to patient throughput and reduced length of stay, in the most cost-effective manner.

Through simulation and analysis it was determined that the hospital did not require extra beds, but did need to increase staffing, at a cost of $85,000 annually. Because of personnel breaks and dinner hours, there was typically only 1 to 1.5 providers at any given time in the eight-bed GTA. The number would drop to one provider for the eight beds during dinner times when area traffic would peak, resulting in the patient waiting room filling up immediately and an underutilization of beds.

The main ED experienced similar problems as nurses were coming on shift to find a backlog of waiting patients. By moving the nursing shifts ahead 90 minutes, the hospital was able to relieve the backlogs and decrease the length of stay dramatically.

With these two changes, it was determined that the hospital could service the same number of patient visits, without additional beds, and realize a 60 minute+/- reduction to the current Length of Stay (LOS). It was also determined that twenty-five percent (25%) of the ED bed hours were being used by patients who were waiting an average of 8.8 hours to be admitted to the hospital. Without this constraint, the hospital could have turned those beds over four times, dramatically improving operations. A nearby under-utilized observation unit was identified and deployed to house patients waiting to be admitted. This freed ED beds for new patients and again decreased the length of stay. Furthermore, it was determined that these patients would be able to receive the same level of care, provided by less costly staff.

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