

Miami Valley Hospital Labor & Delivery Unit Saves \$340,000 in Unnecessary Expenses

Miami Valley Hospital

Success Story

Healthcare

MedModel



CHALLENGES

William C. Johnson, Miami Valley Hospital (MVH), is the largest hospital in the Dayton metro area. It has 812 beds with every specialty imaginable. Because of its size and capability, the hospital also has the area's largest labor and delivery department. MVH currently accommodates approximately 60 percent of the market share for labor and delivery in the region. Between five and six thousand babies are delivered at MVH's free-standing women's pavilion each year.

MVH's Womens Pavillion had outgrown its original capacity. When the 5,000-capacity pavilion was built in 1990, an average of 4,000 births was projected annually. Over a five-year period, however, MVH saw demand increase from 4,000 births per year to over 5,000 (1990- 1995). It quickly became evident to administrators that the hospital's labor and delivery area was under more pressure than it could handle. While the hospital was still able to accommodate the babies' needs, there simply wasn't enough room to accommodate recovering mothers. They were running out of room for labor, delivery, and postpartum care. In addition, they were looking at women giving birth in non-birthing areas for at least 12 months until the problem was resolved.

Given this increase in volume, a change in the system was required, and the expensive option of adding rooms seemed the logical solution. The number of and type of rooms needed to be determined before the project could proceed. MVH went back to the drawing board to make these determinations. Old spreadsheets indicated that more of all types of rooms would need to be built, ranging from labor, to delivery, to postpartum. Management felt that these projections were unreliable. Therefore the hospital decided to model the maternity process with MedModel simulation software.

OBJECTIVES

A simulation tool that would accurately:

- Model and validate the current labor & delivery capacity
- Model scenarios of different levels of increased volume
- Model scenarios of increased lengths of stay
- Model scenarios discharging patients at night and different times of day

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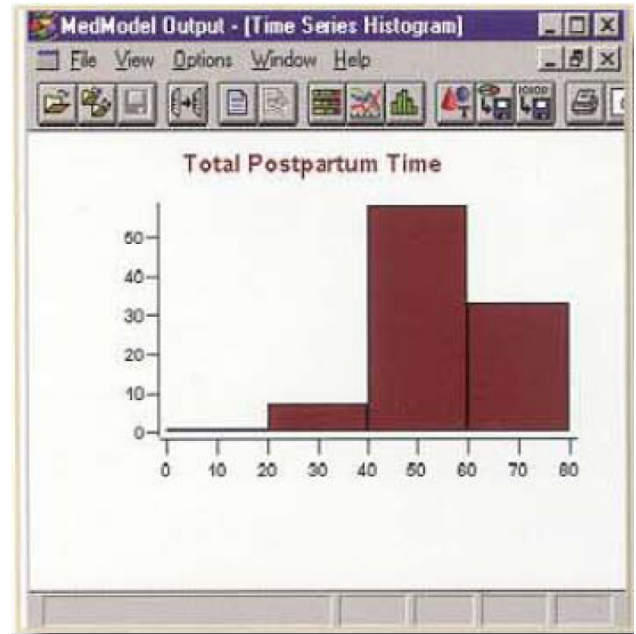
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SOLUTION

When the Initial model was completed and the first simulation was run by ProModel and MVH subject matter experts, management couldn't believe the resulting numbers. They thought the hospital was much busier than the model revealed. Further analysis validated that the numbers produced from the simulation model were indeed accurate. With a clearer picture of their current situation, the hospital ran scenarios on different levels of increased volume and different levels of increased lengths of stay. These scenarios did show that they were going to run out of capacity unless some measures were taken.

New Medicare laws regulating mother and baby length of stay had recently been enacted. MVH's average length of stay was near what the new laws required, but it was projected to soon increase by five to ten percent. Discharge times were also an issue. One third of the patients required lengths of stay longer than the customary 48 hours. They considered discharging patients at night, but the model indicated that this would have a minimal impact because demand for beds wasn't as high at night.

Hospital personnel knew that physically redesigning and adding rooms would be a very expensive alternative. So they tried running various scenarios. One of the most successful scenarios was the idea to implement a "parent transition area," a quasi-discharge lounge area which would free up some rooms, yet still accommodate those patients requiring a longer stay. The model showed that just four of these recovery lounge rooms would alleviate the capacity problem. The model animation allowed them to see where there was a problem and how large it was going to be. It was clear that the parent transition area was the best, most cost-effective solution.



VALUE PROVIDED

The parent transition rooms design addressed many of the problems that MVH was facing. 1,300 over their original capacity level, their experience with MedModel resulted in enormous savings for the hospital. Each additional room would have cost \$100,000, whereas the entire parent transition area cost \$60,000, and included all four rooms. The transition rooms weren't only less expensive, but the payoff was even greater since this extra service resulted in optimal patient satisfaction.

It was a win-win situation for everyone. Hospital management was somewhat skeptical about simulation in the beginning, now they are true believers.