

MedModel Delivers New Maternity Process for Miami Valley Hospital

Vertical

Genre

Client

Author

Manufacturing	Pharmaceutical	Healthcare	Portfolio	Logistics	Financial	Government	Business
Case Study	Project Review	White Paper	Value Proposition				

Miami Valley Hospital

William C. Johnson, Miami Valley Hospital

Miami Valley Hospital 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. Between five and six thousand babies are delivered at MVH's freestanding women's pavilion each year.



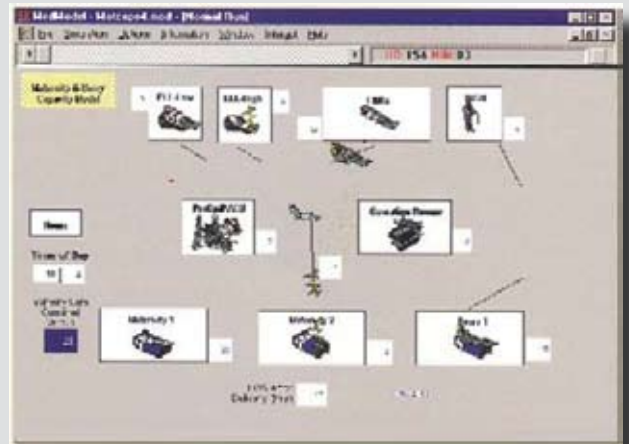
The problem was...

The last thing that new mothers want to worry about is being forced out of the hospital before they are ready. Miami Valley Hospital in Dayton, Ohio was recently staring this prospect in the face when it outgrew its original capacity.

When the 5,000-capacity women's pavilion was originally 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 MVH administrators that the hospital's labor and delivery area, as constituted at the time, 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. We were basically running out of room for labor, delivery, and postpartum care. In addition, we were looking at women being forced to give labor in non-birthing areas for at least 12 months until the problem could be rectified.

The scope of the project...

Given this increase in volume, a change in the system needed to be made. Though expensive, adding more rooms seemed to be the logical solution. The hospital looked into how many extra rooms would need to be added to alleviate this situation. How many extra rooms and which type 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, so the hospital began modeling the problem with ProModel Corporation's MedModel simulation software.



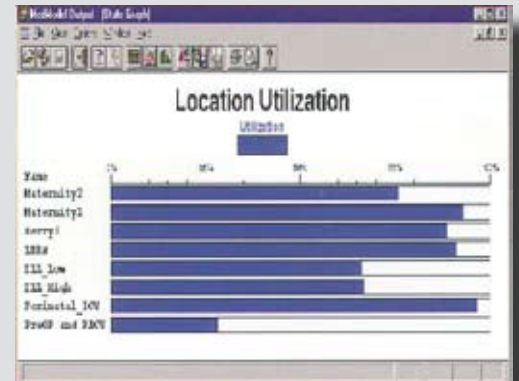
Maternity Capacity Model

Initially we ran a model using the available financial data, and management couldn't believe the resulting numbers. Management was of the opinion that the hospital was much more busy than the model showed. But further analysis showed that the numbers produced from the simulation model were indeed accurate. Now that we had a better idea about our current situation, the hospital ran scenarios on different levels of increased

volume and different levels of increased lengths of stay. Our scenarios showed that we 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 we projected that it would soon increase by five to ten percent.

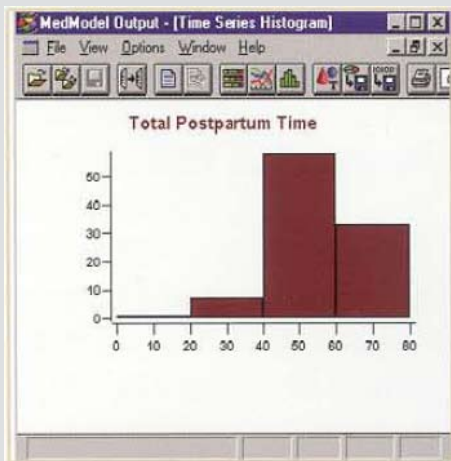
Discharge times were also an issue. We found that one-third of our patients were requiring longer lengths of stay than the customary 48 hours. This further complicated an already complicated situation. We talked about discharging people at night, but the model showed this would have a minimal effect since demand for beds wasn't high at that time. We likewise knew that physically redesigning and adding additional rooms would be an expensive alternative.



After running various scenarios on MedModel, we came up with the idea of implementing a “parent transition area,” a quasi discharge lounge area. This would enable us to free up rooms, yet still accommodate those patients requiring longer lengths of stay. The model showed that just four of these recovery lounge rooms would alleviate our growing capacity problem. The animation in the model allowed us to see where there was a problem and how large it was. It was clear that the parent transition area was the best, most cost-effective solution.

The results were...

The parent transition rooms addressed many of the problems we were facing at the time. Not only did they provide us with the means to continue to monitor patients, but they also served as a waiting room of sorts for mothers whose babies needed prolonged attention. The transition rooms also accommodated patients requiring odd discharge times, such as those who gave birth in the early morning hours as well as single mothers who had to wait for a ride home. In addition, we found that this transition area took off some of the pressure caused by our busy C-section schedule.



In the end, our delivery rate peaked at 6,300 births annually, 1,300 over our original capacity level. Our experiences 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 much cheaper than normal rooms, but the payoff was even greater since this extra service resulted in optimal patient satisfaction.

It's normal for people to feel some anxiety when they find out that they are going to require a longer length of stay. Insurance rarely covers these extra costs. By adding the parent transition area, we've made strides in eliminating some of those concerns. People don't want to hear, “You can stay longer, but your insurance won't pay it.” We say, “You can stay longer, and don't worry — it's free. And if you want dinner, that's fine too — it's free as well.” While we don't charge people to stay in the parent transition rooms, we no longer run into over capacity issues, so it's a win-win situation for everyone.

Whereas hospital management was somewhat skeptical in the beginning about simulation, they're true believers now. They want to simulate everything.