



Proposed Hospital Surgery Expansion/Renovation Area

PROJECT SUMMARY

The Surgery Expansion / Renovation simulation study was conducted to analyze the traffic flow through corridors and to determine required aisle capacities within the proposed Surgery expansion/renovation areas. The main performance criterion used was the patient and hospital staff routing information and operation times.

SYSTEM DESCRIPTION

The hospital facility provides comprehensive spectrum of both inpatient and outpatient services including medical and surgical care. In the facility, inpatients and outpatients are actively flowing through corridors on gurneys or wheelchairs. In addition, hospital staff (doctors, nurses, and others) supply mobile medical equipment, while the public (with two staff members accompanying each outpatient) are the other contributors to traffic flow moving through the aisles and corridors. Inpatients will be taken to the inpatient hold area before the operation. They will wait there for 30-45 minutes. Then, they will be carried to the one of the operating rooms. Outpatients will first come to the reception desk for the check-in process. One nurse will take the outpatient to the Pre-Op Room for preparation. Next, two nurses will carry them by gurney to one of the operating rooms. After the operation is over, it is assumed that 10% of the outpatients will be moved to the Stage 1 Recovery (a) area, and 90% of the inpatients will be taken to the Stage 1 Recovery (b) area. Then, all of the outpatients will be taken to the Stage 2 Recovery room. After Stage 2 Recovery process, the outpatient will be carried to the reception desk on the wheelchair for checkout and to/down the elevator.

OPPORTUNITY

Hospital administration wished to determine which aisles were the most and least congested. As patients, staff, and equipment are routed through the Surgery Expansion / Renovation area, the goal was to determine how much traffic was flowing through that particular area.

APPROACH

The overall objective of the study was as follows:

- Develop an animated simulation model using the AutoMOD simulation package
- Analyze the traffic flows through corridors and determine required aisle capacities within the proposed MCO Surgery expansion/renovation areas
- Identify potential bottleneck areas along these routes, measure occasions and frequency of crossover points for different traffic types
- Use the animation of patient, public, supply, and hospital staff to help gain valuable insight about the system being studied.

SOLUTION

In this study, it is observed that some corridors used by hospital staff to move the equipment and patients have higher congestion rates than other segments. Based on this information, it is suggested that these corridors can be enlarged or the route of some entities can be changed to balance the traffic.

BENEFIT

By determining the congested aisles, and intersection points, the hospital could increase utilization of resources and cut costs (fixed and variable) per patient while minimizing patient waiting time and travel time.