Optimizing UMHS Block Scheduled OR’s & Inpatient Beds with 4 New Adult UH OR’s
Sachin Kheterpal, MD, Mary Duck and Jennifer Pardo
University of Michigan Health System

2015 Healthcare Engineering and Patient Safety Symposium

Problem Statement
Why Adding Rooms

Effects of Block Schedule
Increased OR Inpatient Cases with 4 new OR’s

Solution Approach

How are Beds & ORs Organized?

Impact/Results

Optimal Model vs Chosen

Conclusions and Future Work

Key Issues

Increased surgical patient volume requires planning to address:
1. High Variability in Bed & OR Needs
2. Day-to-day (inpatient occupancy ranges from 75% to 95% based on DOW and month variation)
3. Among units & services (surgical patients are placed on specialized units, these units will experience occupancy increases to a greater degree than the hospital as a whole)
4. High Capacity in Bed (85%) & OR (87%) Needs

To address the OR congestion, 4 new ORs set to open in July 2016

Surgical services receiving additional OR
• Ortho
• Minimal impact on current block schedule
• Uro
• Neuro
• Plastics
• GSA

Destination /
• Oto
Among units &
• Ortho
• GSA
• Oto

Future work includes monitoring data every 3 months to adjust and plan as needed.

Average 75 cases per day with 10% variability

Data led to objective discussions on prioritization of OR block scheduling and bed needs.

Minimizes impact on peak inpatient census.

Approach

GE Hospital of the Future simulator: used to test the impact of changes in block allocations on inpatient occupancy

OR case volume analysis: used to identify the impact of changes in block allocations on OR and PACU case variability

Step 1: 28 block allocation scenarios were tested in HOF simulator to find the scenarios that minimized impact on peak inpatient census.

Step 2: Of the top performers, the scenario that minimized the increase in case volume and case hour variation across days of the week was identified. This ensures that the OR and PACU will remain “balanced”, which is important for staffing and equipment and supplies considerations.

The distribution of volume across the week is edited according to block scenarios and specific to the surgeon-based patient type. Note in scenario A, Orthopedic census increases Tuesday, Thursday, Friday, and in scenario F, there is a dramatic increase on Monday and a small increase on Thursday

Comparing the impact of the increase in surgical volume on PACU DOW variation between 2 potential scenarios

Multiple considerations for determining success:
✓ minimizes impact on inpatient census
✓ minimal impact on OR case variation across days of week
✓ minimal impact on OR case schedule
✓ ensure surgeons receive the appropriate room type and size

Over 20 potential scenarios were eliminated as infeasible. Chosen scenario shown at right

1. Data led to objective discussions on prioritization of OR block scheduling and bed needs.
2. Go Live July 1, 2016
3. Future work includes monitoring data every 3 months to adjust and plan as needed.