PERIOPERATIVE SERVICES EFFICIENCY: IMPROVING PATIENT THROUGHPUT

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12/14/12
Parent A3: Improving Patient Throughput

ISSUE

Perioperative delays resulting in 22.3% worked hours in overtime and decreased patient, staff and physician satisfaction.

BACKGROUND

• The OR is currently experiencing turnover times, first case delays & room to incision times that exceed the health system standard.
• Delays negatively impact patient, staff & physician satisfaction. It increases cost due to overtime & on call hours worked & limits ability to increase surgical volume.
• The hospital is looking to increase surgical volume and needs to strengthen their ability to improve current workflows & respond to future growing demand.

![Overtime Graph]

Target = 2.1%

![Patient Satisfaction Graph]

Target = 94.6%
Perioperative Services: Patient Throughput CVSM

- Define
- Measure
- Analyze
- Improve
- Control

**Control**

- EPIC

**Physician's Office**

- Order for Surgery

**Patient**

**Customer**

- 45 patients/day
- TAKT = 12.2 min

**Registration**

- Low utilization, incorporates customer service opportunities to role

**Scheduling**

- Resolves conflict, finalizes the schedule

**Billing**

- Payers

**Transport**

- To unit or care

**Waiting**

- 1
- FTE 1
- Setup 0
- P/T 10 min
- C/T 10 min
- U/B 82%

**Preop**

- 8
- FTE 4.25
- Setup 10 min
- P/T 60 min
- C/T 18.47 min
- U/B 110%

**OR**

- 10
- FTE 17.75
- Setup 30 min
- P/T 210 min
- C/T 13.52 min
- U/B 111%

**PACU**

- 2
- FTE 4.25
- Setup 5 min
- P/T 75 min
- C/T 18.8 min
- U/B 101%

**SS Sub-station rooms**

- SS mobile carts and control desk

**SS storage rooms**

- SS OR control desk

- Evaluate can levels/standardize stock in OR

**SS mobile carts, storage room and control desk**

- Discharge/ transfer to inpatient

**SS Utilization**

- 0.50 hrs
- 19 min

**TAKT**

- 18.6 min

**Total**

- 303 min

**Processe Time**

- 2.32 hrs
- 60 min
- 2.90 hrs
- 210 min
- 0
- 5 min
- 0.50 hrs
- 15 min
- 370 min
% On-Time First Case Starts

Target = 80%

Previous 12 Months

PACU Discharge to Out (min)

Target = 60 min

Turnover Time (min)

Target = 25 min

Previous 12 Months

Room to Incision Time (min)

Target = ??
Pervious 12 Months
TARGET CONDITION

- Match appropriate resources to services provided to balance utilization and achieve efficient, effective, high quality patient care
- Achieve top decile status in patient satisfaction (ASU 95%)
- Achieve top decile for job satisfaction by 2016 with a mean score of 80
- Improve financial performance by minimizing overtime to meet/exceed target
COUNTERMEASURES

- Establish a safe and organized workplace with visual control
- Create standard work instructions
- Focus on Room Turnover Process

IMPLEMENTATION PLAN

1. Value Stream Mapping Workshop
   Periop PI Workgroup
   1/12/2012

2. Go to Gemba: Establish Overall Current State
   Periop PI Workgroup
   1/26, 2/9, 2/16, 2/17/2012

3. 5S Workshop
   Periop PI Workgroup
   3/8/2012

4. Go to Gemba: Identify 5S Opportunities
   Periop PI Workgroup
   3/15, 3/22/2012

5. Project Overview
   Senior Leadership/ Mgmt Engineering
   4/23/2012

6. Kaizen: 5S 2nd Floor Storage Room
   Periop PI Workgroup
   4/3/2012

7. Project Overview
   OR Committee
   5/4/2012

8. Go to Gemba: Establish Current State Turnover
   Periop PI Workgroup
   5/21, 5/24, 6/12012

9. Standard Work and Balancing Workshop
   Periop PI Workgroup
   6/8, 6/11, 7/6, 7/19/2012

10. Visual Management Workshop
    Periop PI Workgroup
    10/4, 10/10, 10/11/2012

11. Kaizen: 5S Periop Tech Workroom
    Periop PI Workgroup
    10/19/2012

12. Standard Work: Turnover Process
    Periop PI Workgroup
    10/25, 11/2, 11/19/2012 & ongoing

13. Hoshin Plan Workshop
    Senior Leadership

CONTROL

<table>
<thead>
<tr>
<th>Ongoing Measurement</th>
<th>Frequency</th>
<th>Target</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Satisfaction</td>
<td>Daily</td>
<td>94.6%</td>
<td>Discharge Phone Calls</td>
</tr>
<tr>
<td>Staff Satisfaction</td>
<td>Daily</td>
<td>90%</td>
<td>Daily Rounding/ Staff Meetings</td>
</tr>
<tr>
<td>Overtime</td>
<td>Weekly</td>
<td>2.1%</td>
<td>Staffing Report</td>
</tr>
<tr>
<td>Utilization Rates</td>
<td>Weekly</td>
<td>Balanced Load</td>
<td>Evaluate Productivity. Discuss at Staff Meetings.</td>
</tr>
</tbody>
</table>
Baby A3: Improving room Turnover

**ISSUE**

OR turnover times are exceeding the Health System target by 5 minutes per turnover (totaling 3 hours of potential value added time per day), 67% of the time. This is significantly contributing to Perioperative delays.

**BACKGROUND**

The OR is currently experiencing turnover times that exceed the health system standard. Turnover delays result in the loss of valuable OR time, dissatisfaction by patients, families, surgeons, anesthesia staff, nursing and support staff. They can also cause disruption to the entire OR schedule, as well as additional staff overtime.

**CURRENT CONDITION**

<table>
<thead>
<tr>
<th>Target for reduction</th>
<th>Future State</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Minutes</td>
<td>25 Minutes</td>
</tr>
</tbody>
</table>

**Includes:**
- Calling for help
- Gathering supplies
- Cleaning room
- Transporting patient
- Interviewing the next patient
- Searching for next case items
- Removing/replacing proper equipment
- Verifying staff readiness
- Transporting the next patient

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**External**

**Internal**

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Define

Measure

Analyze

Improve

Control

Measure

**PROBLEM ANALYSIS**

- 1,350 minutes/day is spent getting the operating rooms ready for the next surgery
- This is 21% of the total available time/day
COUNTERMEASURES

- Develop standard work for room turnovers/ room prep
- Improve compliance of standard communication during the sign-out; to include potential delays, barriers, and team member point of contact between cases (involving ALL team members).
- Evaluate space for potential 5S opportunities to optimize the availability of frequently used items between cases.

<table>
<thead>
<tr>
<th>Action Plans</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5S PACU Storage Room</td>
<td>• Motion</td>
</tr>
<tr>
<td>5S 2nd Floor Storage Room</td>
<td>• Overproduction</td>
</tr>
<tr>
<td>5S Periop Tech Workroom</td>
<td>• Inventory</td>
</tr>
<tr>
<td>Visual Boards Preop &amp; Turnover OR</td>
<td>• Defects</td>
</tr>
<tr>
<td>• Expose Waste by Enhancing Visual Management</td>
<td>• Waiting</td>
</tr>
<tr>
<td>• Simplify Training</td>
<td></td>
</tr>
<tr>
<td>• Increase Efficiency</td>
<td></td>
</tr>
<tr>
<td>• Improve Staff Satisfaction</td>
<td></td>
</tr>
<tr>
<td>Gemba: Turnover/ Room Prep Process</td>
<td>• Defects</td>
</tr>
<tr>
<td>• Bring Clarity to a Complex Process</td>
<td></td>
</tr>
<tr>
<td>• Highlight non-value Added Processes</td>
<td></td>
</tr>
<tr>
<td>Standard Work/ Balancing Workshop</td>
<td>• Motion</td>
</tr>
<tr>
<td>Periop Tech Room Prep</td>
<td>• Overproduction</td>
</tr>
<tr>
<td>Turnover Process</td>
<td>• Inventory</td>
</tr>
<tr>
<td>Daily Huddles</td>
<td>• Defects</td>
</tr>
<tr>
<td>• Provides Clearly Defined Roles</td>
<td>• Waiting</td>
</tr>
<tr>
<td>• Facilitates Consistent Training</td>
<td></td>
</tr>
<tr>
<td>• Decreases Errors</td>
<td></td>
</tr>
<tr>
<td>• Establishes Virtual “Roster Stability”</td>
<td></td>
</tr>
<tr>
<td>• Increases Efficiency</td>
<td></td>
</tr>
<tr>
<td>Control:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Target</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Accountability/ Ownership</td>
<td>Daily</td>
<td>100% utilization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Audit Daily Accountability Board</td>
</tr>
<tr>
<td>Following Standard Work</td>
<td>Daily</td>
<td>100% utilization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gemba/ Observation of Daily Huddle/ Weekly Meeting</td>
</tr>
<tr>
<td>Staff Satisfaction</td>
<td>Daily</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff feedback, NDNQI results, discussion during huddles</td>
</tr>
</tbody>
</table>
**Workplace of Choice**

**GOAL:**
Achieve top decile for job satisfaction by 2016 with a mean score of 80.

- Charge nurse
- Staff nurses
- PCAs
- UCAs
- Sitters
- Nursing students/ instructors

Suggestions for improvement
To be determined, NDNQI results due in August

**Quality**

**GOAL:**
Improve clinical outcomes by reducing harm to patients and meet top decile performance on publicly reported measures, ongoing.

- Antibiotic Start Times
- Infection Rates

**Productivity & Efficiency**

**GOAL:**
Match appropriate resources to services provided to achieve efficient, effective, compassionate care, ongoing.

- First Case Delays
- Turnover Times

**Financial Performance**

**GOAL:**
Generate positive financial margin to fund continued investment in capital & academic mission, ongoing.

- # of cases
- Overtime

**Service & Reputation**

**GOAL:**
Achieve top decile status in patient satisfaction by 2012.

- Service Recovery
- Discharge Phone Calls

**Innovation & Strategic Growth**

**GOAL:**
Increase & continue UHE nursing based research & educational initiatives, ongoing.

- Clinical Ladder
- Current Research Studies

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**Target Condition:** Tier 1

**Audience:** All unit front line staff: (led by “team lead”...position rotated weekly)
<table>
<thead>
<tr>
<th>Potential Issue</th>
<th>Countermeasure Description</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Lack of accountability</strong></td>
<td>Identify the accountability for collecting the data</td>
<td>↓ Inventory ↓ Overproduction ↓ Motion ↓ Defects ↓ Waiting ↑ Utilization of talent</td>
</tr>
<tr>
<td></td>
<td>▪ Performance tracking will be done daily by the staff member doing the work, completed between 6am-7am daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Accountability of these tasks will be visualized on the Daily Accountability Board, completed between 6am-7am daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ The “team lead” for that week will be held accountable for collecting and updating the data, completed between 6am-7am daily. This position will be rotated weekly to involve all staff.</td>
<td></td>
</tr>
<tr>
<td><strong>B. Lack of follow-up/resolution when problems arise (escalation protocol)</strong></td>
<td>Identify the flow of resolution when problems occur</td>
<td>↓ Inventory ↓ Overproduction ↓ Motion ↓ Defects ↓ Waiting ↑ Utilization of talent</td>
</tr>
<tr>
<td><strong>C. Lack of standard work</strong></td>
<td>Develop standard work for the Tier 1 daily huddle</td>
<td>↓ Inventory ↓ Overproduction ↓ Motion ↓ Defects ↓ Waiting ↑ Utilization of talent</td>
</tr>
</tbody>
</table>

### “Team Lead” (position rotated weekly) - Daily Elements:
- Lead the huddle
- Complete daily accountability board task assignments
- Update pareto charts
- Gemba walk with the Nurse Manager
- Report action plans/ follow-up items from huddle to the Nurse Manager

### “Team Lead” - Multiple times a day elements:
- Observe standard work on the unit
- Update performance tracking
- Train staff as needed

### Daily Huddle Standard Work:
1. Gather and update data for huddle, between 6am-7am.
2. Huddle begins promptly at 7am, daily.
3. Led by the “Team Lead” (Initially this will be the Charge Nurse or Unit Leadership Council Rep, until all front line staff have been trained to lead the huddle.
4. Flow of conversation will follow a standard sequence, moving left to right on the board.
5. Least experienced staff will be asked for feedback first.
6. The leader will save comments/ feedback for last.
7. The huddle will not exceed 12 minutes in length.
8. Discussion items that need more detailed focus will be added to the parking lot, and added to the weekly staff meeting agenda.
9. High priority items that need immediate action will be escalated to the appropriate Nurse Manager for further discussion, immediately following the huddle.
10. The huddle will honor sterile communication. There will be no sidebar conversations or distractions.
11. All participants will maintain an open minded and respectful attitude.
## Implementation Plan: Tier 1

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timeframe</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Training</td>
<td></td>
<td>Tier 2 participants</td>
</tr>
<tr>
<td>Write standard work for creating a visual management board (VMB)</td>
<td>December 2012, January 2013</td>
<td>Tier 2 participants</td>
</tr>
<tr>
<td>Determine location for the VMBs</td>
<td></td>
<td>Nurse Managers</td>
</tr>
<tr>
<td>5S current unit data/ message boards</td>
<td></td>
<td>Nurse Managers/ Unit Leadership Council</td>
</tr>
<tr>
<td>Determine the baseline for improvement, unit specific</td>
<td></td>
<td>Nurse Managers/ Unit Leadership Council</td>
</tr>
<tr>
<td>Develop the VMBs</td>
<td></td>
<td>Tier 1 participants</td>
</tr>
<tr>
<td>Develop the Daily Accountability Boards</td>
<td></td>
<td>Tier 1 participants</td>
</tr>
<tr>
<td>Write standard work for maintenance of the VMB</td>
<td></td>
<td>Unit Leadership Council</td>
</tr>
<tr>
<td>Write standard work for facilitating the daily huddle</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation Date: First Unit T10</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: N5</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: N5</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: T6</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: T6</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: T5</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: T5</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: PCU</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: PCU</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: ICU</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: ICU</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: ED</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: ED</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: Periop</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: Periop</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Go to Gemba, observe daily huddles and receive training: Talbot</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Implementation: Talbot</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
<tr>
<td>Daily Leader Rounding: Gemba</td>
<td></td>
<td>Unit Nurse Manager</td>
</tr>
</tbody>
</table>
**ISSUE**

Inefficient utilization of PACU storage room; resulting in decreased staff satisfaction and increased process times due to clutter, lack of defined item locations, multiple storage locations, frequently used items out of reach and excessive amounts of inventory.

**BACKGROUND**

The PACU storage room is currently being used for much more than its intent (patient care supplies). Often times equipment, wheelchairs, IV poles and patient belongings are crammed in this already tight space to avoid visual clutter in patient care areas. Current par levels exceed daily demand to enable a once a month evaluation of inventory levels.

**CURRENT CONDITION**

**Results**

<table>
<thead>
<tr>
<th>Metric Results</th>
<th>Before 5S</th>
<th>After 5S</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of storage spaces</td>
<td>4</td>
<td>1</td>
<td>Reduced by 3</td>
</tr>
<tr>
<td>Time spent searching</td>
<td>6 minutes</td>
<td>10 seconds</td>
<td>Gained 5 minutes 50 seconds</td>
</tr>
<tr>
<td>Staff Satisfaction</td>
<td>100% Dissat.</td>
<td>90% Sat.</td>
<td>100% Satisfaction</td>
</tr>
<tr>
<td>Supply Inventory</td>
<td>Over 1200 items</td>
<td>559 items</td>
<td>Reduced by 47%</td>
</tr>
<tr>
<td>Labor Savings</td>
<td></td>
<td></td>
<td>$2,745 (based on each nurse going to the storage room once per patient…this most likely occurs more often)</td>
</tr>
</tbody>
</table>

**COUNTERMEASURES**

- Create one, organized, usable PACU storage room
- Reduce supply inventory
- Reduce time spent searching for needed items
- Find space for “other” items
- Utilize bar code scanning to monitor inventory

**IMPLEMENTATION PLAN**

1. Identify Storage Space for “other” items 04/09/2012
2. 5s PACU Storage Room 05/03/2012
3. Develop control plan May 2012