CSPD Case Cart Completion Project

MetroHealth Medical Center
Shelley Belak
Gabrielle G. Hubbard RN
Terri Savage RN
Cheryl Jakovcic RN - Champion
Executive Summary

- The goal of this project is to provide the operating room with accurate case carts for the procedures they requested.
- The OR staff, including surgeons and nurses, will benefit from accurate case carts.
- Successful completion of the project will decrease delays in OR start times and improve patient safety.
Project Charter

**PROJECT INFORMATION**

<table>
<thead>
<tr>
<th>PROJECT TITLE:</th>
<th>CASE CART COMPLETION PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS UNIT:</td>
<td>CSPD</td>
</tr>
<tr>
<td>DATE:</td>
<td>2/26/2015</td>
</tr>
</tbody>
</table>

**PROJECT DEFINITION**

**Business Case:**
- Several gaps have been identified in the current process for case cart completion. Areas of opportunity include decreasing redundancy of work flow and improving accuracy thus ultimately improving patient safety.

**Objectives (Primary Metric with Goal and Secondary Metric):**
- Primary - Defect monitoring - completed case cart survey forms that had missing soft goods or top off items
- Secondary - Labor cost for assembling completed case carts cannot increase
# TEAM MEMBERS

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAMPION</td>
<td>Cheryl Jakovcic RN</td>
</tr>
<tr>
<td>LEADER</td>
<td>Terri Savage RN</td>
</tr>
<tr>
<td>FACILITATOR</td>
<td>Shelly Belak</td>
</tr>
<tr>
<td>RECORDER</td>
<td>Gigi Hubbard RN</td>
</tr>
<tr>
<td>CROSS FUNCTIONAL MEMBERS</td>
<td>Ella Gjerazi (SSS)</td>
</tr>
<tr>
<td></td>
<td>Wilonia Bradford (CSPD)</td>
</tr>
</tbody>
</table>

# PROJECT BOUNDARIES & SCOPE

**Boundaries** – Start with a clean empty case cart, and finish when the completed case cart is wheeled into the OR for use.

**In Scope** – CSPD and SSS staff compiling the case cart based on the established lists generated on the pick sheets

**Out of Scope** – Items that might contain bioburden or inaccurate instruments.

Trays are sealed and closed, this project is not responsible for the content of the trays

Operational Definition -
Numerator - # defect carts
Denominator – Total # of OR cases per day
ANTICIPATED RESOURCES REQUIRED

AUDIT tools – time to monitor
Time for group to meet to work on project – group are in salaried positions.
Time for data collection from OR/SSS staff – include in their job responsibilities.
Time for implementing change process – for 2 (8hr) shifts for 2 CSP/SSS staff @ avg $17/hour = $544
2 (8hr) shifts for Mgr @ $35/hr = $560
TOTAL - $1104

EXPECTED DURATION AND TIME LINE

Green sheets (defects) Tray Quality surveys are already being generated.
March: Anticipate time needed to generate report, metrics from data already processed
Interventions: May
Final Completion Report – June 30, 2015
### Voice of the Customer - Critical to Quality (CTQ)

<table>
<thead>
<tr>
<th>Voice of Customer</th>
<th>Customer Issues</th>
<th>Critical Customer Requirements</th>
<th>CTQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I want everything listed on the pick sheet to be on the case cart&quot;</td>
<td>Need the items to complete the OR, lose time fetching missing items</td>
<td>Everything must be there when I need it</td>
<td>Percent of case carts that do not have all of the soft goods and top off items</td>
</tr>
</tbody>
</table>

### Voice of the Business - Critical to Process (CTP)

<table>
<thead>
<tr>
<th>Voice of the Business</th>
<th>Business Issues</th>
<th>Critical Business Requirements</th>
<th>CTPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor cost for putting case carts should not increase</td>
<td>How many work hours are devoted to case cart assembly?</td>
<td>No added FTE to this process</td>
<td>This should be able to be fixed without additional full time employees (FTE)</td>
</tr>
</tbody>
</table>
Relationship Map

**MD** identifies procedure to be scheduled

Order generated via EPIC

Pick sheets are generated in both areas

CSPD staff adds all soft goods to the cart

CSPD

Operating room staff, RN and Techs evaluate cart for defects

Operating Room for use by MD

Defect repaired

**DEFECT NOTED**

SSS staff adds all top-off items and surgical trays to the cart

SSS
Current state process map

This initial process flow map was used to evaluate the entire scope of the case cart process. Based on data collected from the customer surveys, a FMEA was completed. The scope was narrowed to the process that is in the red framed area.
# MUDA Walk Form

<table>
<thead>
<tr>
<th>Type of Waste</th>
<th>Observations</th>
<th>Means to Eliminate Source of Waste or Obstacle to Eliminating Waste</th>
<th>Savings / Benefit from Eliminating the Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation</strong></td>
<td>No issue for building case carts</td>
<td>None at this time</td>
<td>None at this time</td>
</tr>
<tr>
<td><strong>Inventory</strong></td>
<td>• Many items with multiple errors in location.</td>
<td>• Complete inventory of current items with location and product name changes documented</td>
<td>• Reduction of defects</td>
</tr>
<tr>
<td></td>
<td>• Bins are not clearly labeled</td>
<td>• Rearrange stock for more efficient usage based on frequency of use</td>
<td>• Increased customer satisfaction</td>
</tr>
<tr>
<td></td>
<td>• New products not updated on sheets</td>
<td></td>
<td>• Designated areas allow for faster assessment of par levels</td>
</tr>
<tr>
<td></td>
<td>• Items move location based on space availability then are not changed on sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motion</strong></td>
<td>• Repeated trips around the warehouse area for each cart</td>
<td>• Rearrange stock for more efficient usage based on frequency of use</td>
<td>• Less movement used to compile carts</td>
</tr>
<tr>
<td></td>
<td>• Largest items furthest away from central picking area</td>
<td>• Move larger items closer to central picking area</td>
<td>• Less time running to areas multiple time</td>
</tr>
<tr>
<td><strong>Under-used intellectual assets</strong></td>
<td>• Employees unable to do double checks because names of items on pick sheets don’t match names on actual items</td>
<td>• Complete inventory of current items with location and product name changes documented</td>
<td>• Accurate product name will provide a “double-check” mechanism for accuracy</td>
</tr>
<tr>
<td><strong>Waiting</strong></td>
<td>No issue for building case carts</td>
<td>None at this time</td>
<td>None at this time</td>
</tr>
<tr>
<td><strong>Overproduction or excess capacity</strong></td>
<td>No issue for building case carts</td>
<td>None at this time</td>
<td>None at this time</td>
</tr>
<tr>
<td><strong>Over processing</strong></td>
<td>• Case carts are often duplicated or not needed due to cancelled cases</td>
<td>• PARKING LOT</td>
<td>• PARKING LOT</td>
</tr>
<tr>
<td><strong>Defects</strong></td>
<td>• Pick sheets have inaccurate information</td>
<td>• Inventory current locations and update spreadsheets that feed database for locations</td>
<td>• Reduction of defects</td>
</tr>
</tbody>
</table>
Measurement System Analysis

• The case cart must be ready and have all of the requested items present, this is paramount for the customer (OR).
• The Case cart survey form covers all of the areas that contribute to achieve 100% case cart completion.
• The carts are either 100% complete and accurate, or they are considered defective
• Trained OR staff, that specializes in the procedures requesting the items are responsible for evaluating the carts based on the pick sheets.
• If anything listed on the pick sheets is missing or wrong, the entire cart is deemed defective.
• It is a PASS/FAIL option, there is no judgment call or reason to question accuracy or bias on the part of the inspector.
Project Description

- The key questions for the primary metric that we are asking are:
  1. What are the majority of defects?
  2. Of those defects, at what point during the assembly of the case carts did the defects occur?

To answer this question, we developed an audit tool to be filled out by the OR nurses.

- The key question for the secondary metric is:
  1. How much time is put into the assembly of each case cart?

To answer this question, the audit tool also included an area for the SSS and CSPD staff to document the ‘start and stop’ times they assembled each cart.
## Data collection plan

<table>
<thead>
<tr>
<th>Measure</th>
<th>Type of Measure</th>
<th>Operational Definition</th>
<th>Define How to Measure</th>
<th>Data Tags Needed to Stratify the Data</th>
<th>Data Collection Method</th>
<th>Person(s) Assigned</th>
<th>What?</th>
<th>Where?</th>
<th>When?</th>
<th>How Many?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of parameter or condition to be measured</td>
<td>X or Y continuous or discrete data, product or process data</td>
<td>Clear definition of the measurement defined in such a way as to achieve repeatable results from multiple observers</td>
<td>Visual inspection or automated test? Test instruments are defined. Procedures for data collection are defined.</td>
<td>Data tags are defined for the measure. Such as: time, date, location, tester, line, customer, buyer, operator, etc.</td>
<td>Manual? Spreadsheet? Computer based? etc.</td>
<td>State who has the responsibility?</td>
<td>What measure is being collected</td>
<td>Location for data collection</td>
<td>How often the data is collected</td>
<td>The number of data points collected per sample</td>
</tr>
<tr>
<td>Random Case Cart defects</td>
<td>continuous data, product</td>
<td>Number of defective carts including any missing trays, soft goods, peel packs, or top off items</td>
<td>Visual inspection of cart for items listed on pick sheet. Performed by OR nurses prior to case</td>
<td>Stratified selection of 1st case carts on Tuesdays and Wednesdays for 4 weeks</td>
<td>Manual survey, Spreadsheet</td>
<td>OR nurse in each room for data. Ella or Gigi or designee to collect completed forms</td>
<td># of defective carts over total # of carts inspected</td>
<td>OR room</td>
<td>Tuesdays &amp; Wednesdays after 1st OR cases of the day completed</td>
<td>First cases of the day - max 20 day, 2 days a week for 4 weeks</td>
</tr>
</tbody>
</table>
Operational definitions:

- **CSPD**: Central Sterile Processing Department
- **SSS**: Surgical Support Specialist
- **Case cart**: Enclosed metal portable cart used to place all required items on for an OR procedure.
- **Pick Sheet**: List of all items needed for each procedure. List is generated from Epic, based on physician requirements.
- **Soft goods**: All items used for a specific procedure that the CSPD staff places on the case cart.
- **Trays**: Sterile processed trays that contain surgical instruments required for a procedure
- **Soft goods**: All items used for a specific procedure that the SSS staff places on the cart.

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CASE CART / TRAY QUALITY SURVEY

CSPD PERSONNEL TO FILL OUT
NAME: ____________________________

DATE: ________________
TIME: ________________
SURGEON: ________________________
SERVICE: ________________________

PICKED BY (INITIALS): ________________ DATE: ________________

CART NUMBER: ________________ ROOM: ________________
TIME START: ________________ TIME COMPLETED: ________________

SSS PERSONNEL TO FILL OUT
NAME: ____________________________

SSS COMPLETING TOP OFF: ____________________________
TIME START: ________________ TIME COMPLETED: ________________

ANY ISSUES OR DELAYS: ____________________________


OR PERSON TO FILL OUT
NAME: ____________________________

__ PICK SHEET MISSING ITEM
__ SOFT GOODS INCORRECT
__ SOFT GOODS/INCORRECT ITEM
__ SOFT GOODS MISSING/NOTED
__ SOFT GOODS MISSING/NOTED
__ PICK SHEET INCORRECT FOR PROCEDURE

COMMENTS:________________________


__ MISSING TRAY
__ WRONG TRAY FOR CASE
__ TOP OFFS: WRONG ITEMS
__ TOP OFFS: MISSING ITEMS
__ PICK SHEET INCORRECT FOR PROCEDURE

COMMENTS:________________________


PLEASE PLACE COMPLETED FORMS IN THE BASKET ON THE FRONT DESK.
Measure Phase summary

- During the measurement phase we were able to develop a survey tool that standardized the inspection of the carts.

- By using a standardized form, there is minimal room for discrepancies in inspection.

- The surveys contain detailed options to chose from that will identify specific areas for improvement.

- Data collected will influence to scope of this project.
QUESTION: At which point are the case cart defects happening? To answer this, the team grouped the gathered data into one of two areas of production.

1. Any soft goods defects will be entered as CSPD defects.
2. Any top off item defects will be entered as SSS defects.

The key opportunities for improvement will be with the area that has the most defects.
Analyze Phase

This chart demonstrates the % of defects per case cart, on the observed day that can be directly attributed to CSPD error.

The Upper Control Limit UCL is as high as 40%
The Lower Control Limit LCL is 0% - No errors.
The average, or mean, is 12%.
Baseline performance data
Primary metric

<table>
<thead>
<tr>
<th>DEFECT</th>
<th>Number of Defects</th>
<th>Cumulative Defects</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noted missing soft goods</td>
<td>5</td>
<td>5</td>
<td>16.7</td>
</tr>
<tr>
<td>Soft Good incorrect</td>
<td>4</td>
<td>9</td>
<td>30.0</td>
</tr>
<tr>
<td>Pick sheet missing item</td>
<td>3</td>
<td>12</td>
<td>40.0</td>
</tr>
<tr>
<td>Not noted missing soft goods</td>
<td>3</td>
<td>15</td>
<td>50.0</td>
</tr>
<tr>
<td>Pick sheet incorrect for procedure</td>
<td>3</td>
<td>18</td>
<td>60.0</td>
</tr>
<tr>
<td>Top Offs: Missing items</td>
<td>3</td>
<td>21</td>
<td>70.0</td>
</tr>
<tr>
<td>Pick Sheet Incorrect for Procedure</td>
<td>3</td>
<td>24</td>
<td>80.0</td>
</tr>
<tr>
<td>Soft goods / incorrect items</td>
<td>2</td>
<td>26</td>
<td>86.7</td>
</tr>
<tr>
<td>Missing Tray</td>
<td>2</td>
<td>28</td>
<td>93.3</td>
</tr>
<tr>
<td>Top Offs: Wrong Items</td>
<td>2</td>
<td>30</td>
<td>100.0</td>
</tr>
<tr>
<td>Wrong tray for Case</td>
<td>0</td>
<td>30</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Projected observations: 160
Actual observations: 115 (Due to cancellations and scheduling)

The initial pareto chart showed that missing or incorrect soft goods were responsible for the majority of defective carts. At this point, the team was alerted to focus on the soft goods component of the case carts.
Evaluation of the second pareto chart confirmed the CSPD component was the biggest contributing factor in the defective case carts. From this information, the team was able to focus their attention on the staff concerns and storage area they worked in.

Baseline performance data
Primary metric

<table>
<thead>
<tr>
<th>Defect</th>
<th># of defects</th>
<th>cumulative defects</th>
<th>cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSPD ERROR</td>
<td>14</td>
<td>14</td>
<td>46.7</td>
</tr>
<tr>
<td>SSS ERROR</td>
<td>10</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>PICK SHEET ERROR</td>
<td>6</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Projected observations: 160
Actual observations: 115 (Due to cancellations and scheduling)

CSPD DEFECT RATE: 12%    SSS DEFECT RATE: 9%    PICK SHEET DEFECT: 5%
An important part of this plan was to ensure that there is no additional financial requirement. To monitor this, we will compare the baseline data with the post intervention data. The average time spent assembling case carts should not increase.

Based on the data above, the average time spent on case cart assembly by CSPD person was 5.23 minutes per cart. With the average FTE making $16.90 per hour, this amounts to $1.47 per cart.
Going to Gemba

• A trip to the actual site where the case carts are assembled.

• While there, the team spoke directly with the staff member assembling the case carts.

• We utilized the 5 Whys to do a quick Root Cause Analysis.

<table>
<thead>
<tr>
<th>DEFECT</th>
<th>REASONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>What DEFECT occurred?</td>
<td>“The case cart was wrong again”</td>
</tr>
<tr>
<td>1. Why did THAT occur?</td>
<td>“It had a podiatry pack on it, but the surgery was a craniotomy!!”</td>
</tr>
<tr>
<td>2. Why did THAT occur?</td>
<td>“We put exactly what was on the list on the cart”</td>
</tr>
<tr>
<td>3. Why did THAT occur?</td>
<td>“We follow the lists to know what bins the items are located in”</td>
</tr>
<tr>
<td>4. Why did THAT occur?</td>
<td>“The lists are not right. Seems like most of the items aren’t where the pick sheets say they are supposed to be”</td>
</tr>
<tr>
<td>5. Why did THAT occur?</td>
<td>“Things get moved and nobody updates the computer with the correct location.”</td>
</tr>
</tbody>
</table>
Using this tool enabled the team to focus on the two areas of failure that would yield the most reward if improved.
Solution options

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Existing Process</th>
<th>Change locations of bins</th>
<th>Change computer to reflect current</th>
<th>Label individual items by Lawson number</th>
<th>Color code bins</th>
<th>Importance Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of new equipment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-3</td>
<td>-9</td>
<td>4</td>
</tr>
<tr>
<td>Labor cost</td>
<td>0</td>
<td>-3</td>
<td>1</td>
<td>-9</td>
<td>-9</td>
<td>4</td>
</tr>
<tr>
<td>Speed of completion</td>
<td>0</td>
<td>-9</td>
<td>1</td>
<td>-9</td>
<td>-9</td>
<td>4</td>
</tr>
<tr>
<td>Ease of completion</td>
<td>0</td>
<td>-3</td>
<td>1</td>
<td>-9</td>
<td>-3</td>
<td>3</td>
</tr>
<tr>
<td>Retraining of established staff</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>-3</td>
<td>-3</td>
<td>3</td>
</tr>
<tr>
<td>Effect on customer</td>
<td>-9</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Sum of Positives</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sum of Negatives</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Sum of Sames (zeros)</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Weighted Sum of Positives</td>
<td>0</td>
<td>5</td>
<td>14</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Weighted Sum of Negatives</td>
<td>-45</td>
<td>-67</td>
<td>-11</td>
<td>-120</td>
<td>-126</td>
<td></td>
</tr>
</tbody>
</table>

Based on the highlighted results on this design matrix, option C is the most feasible solution for this project.

Rate criteria 1 to 5 where:
5 = Very important
1 = Little importance

Rate impact of solution on criteria:
9 = Very high positive impact
3 = Significant positive impact
1 = Some positive impact
0 = Same as current process
-1 = Some negative impact
-3 = Significant negative impact
-9 = Very high negative impact
We met as a group and developed a time line for the improvements.
Solution Implementation Plan

- What actions will be taken, by whom, when?

<table>
<thead>
<tr>
<th>ACTION TO BE TAKEN</th>
<th>RESPONSIBLE TEAM MEMBER</th>
<th>CONSULT/ASSIST</th>
<th>DEPARTMENT/Title</th>
<th>DEADLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data list of current items with location</td>
<td>Terri Savage RN</td>
<td>Donna Barr</td>
<td>OR Material Manager</td>
<td>6/6/2015</td>
</tr>
<tr>
<td>Linkage of pick sheet to Lawson System</td>
<td>Terri Savage RN</td>
<td>Chris Jones</td>
<td>Inventory Management</td>
<td>6/7/2015</td>
</tr>
<tr>
<td>Inventory of stock room</td>
<td>Gigi Hubbard RN</td>
<td>Dennis Kraicirik, Rachael Bolton, Wilsonia Bradford</td>
<td>Coordinator OR Materials Coordinator OR Materials</td>
<td>6/10/2015</td>
</tr>
<tr>
<td>Data entry of changes</td>
<td>Shelley Belak</td>
<td></td>
<td></td>
<td>6/11/2015</td>
</tr>
<tr>
<td>Computer changes into Lawson system</td>
<td>Terri Savage RN, Gigi Hubbard RN</td>
<td>Donna Barr</td>
<td>OR Material Manager</td>
<td>6/25/2015</td>
</tr>
<tr>
<td>Physical changes for better flow</td>
<td>Shelley Belak</td>
<td>Dennis Kraicirik, Rachael Bolton</td>
<td>Coordinator OR Materials Coordinator OR Materials</td>
<td>6/25/2015</td>
</tr>
<tr>
<td>Diagram of Shelving Location</td>
<td>Gigi Hubbard RN</td>
<td>Dennis Kraicirik, Rachael Bolton, Wilsonia Bradford</td>
<td>Coordinator OR Materials Coordinator OR Materials</td>
<td>6/25/2015</td>
</tr>
<tr>
<td>In-service staff on changes</td>
<td>Gigi Hubbard RN</td>
<td>Vicki Jenkins RN</td>
<td>CSPD Manager</td>
<td>6/26/2015</td>
</tr>
</tbody>
</table>

- How will we validate that the solution works?
Repeat surveys will be sent out on every case cart the day after the change to evaluate if the improvements have been successful.
Evidence of solution result
Primary metric

<table>
<thead>
<tr>
<th>Defect</th>
<th># of defects</th>
<th>cumulative defects</th>
<th>cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSS ERROR</td>
<td>2</td>
<td>2</td>
<td>66.666666667</td>
</tr>
<tr>
<td>CSPD ERROR</td>
<td>1</td>
<td>3</td>
<td>100.0</td>
</tr>
<tr>
<td>PICK SHEET ERROR</td>
<td>0</td>
<td>3</td>
<td>100</td>
</tr>
</tbody>
</table>

Projected observations: 45
Actual observations: 33 (Due to cancellations and time constraints)

CSPD DEFECT RATE: 3%      SSS DEFECT RATE: 6%      PICK SHEET DEFECT: 0%

Based on the information from the post-intervention surveys, there was a 9% decrease in the amount of defects per cart. Based on 50 operational weeks a year, 5 days a week, with an average of 45 cases a day, there are an estimated 11,250 OR procedures a year. This will eliminate an estimated 1,012 defective carts a years.
Evidence of solution results

Secondary metric

An important part of this plan was to ensure that there was no additional financial requirement. To monitor this, we compared the baseline data with the post intervention data.

Based on the data above, the average time spent on case cart assembly by CSPD person is now 2.51 minutes per cart. With the average FTE making $16.90 per hour, this amounts to $0.71 per cart. This is a 48% decrease in time spent. Based on 50 operational weeks a year, 5 days a week, with an average of 45 cases a day, there are an estimated 11,250 OR procedures a year.

Original labor cost spent on building carts per year = $1.47 X 11,250 cases = $16,537.50
Improved labor cost spent on building case carts per year = $0.71 X 11,250 = $ 7,987.50
Savings per year = $ 8,550.00
Evidence of solution results

Cost-Benefit Analysis (CBA)

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<td>Program Total Costs By Year</td>
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**Late start benefit is based on:**

50 operative weeks X 5 days X 45 cases a day = 11,250 cases a year

11,250 X 9% = 1,012 improved/not defective carts per year

1,012 carts with 5 min late start = 5060 minutes

5,060 minutes X $64.20 (estimated cost per OR minute) = $324,852

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<td><strong>Late start</strong></td>
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</tbody>
</table>

| Confidence Factor | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |


| Program Grand Total Benefit | $3,332,300 |
Improve Phase summary slide

What did we do?
The team was able to implement a plan that improved the accuracy of the case carts supplied to the Operating Room.

How well did it work?
Not only did it improve customer satisfaction, it also proved to be a financial gain for the facility with estimated savings of over $30,000 a year in labor costs.

What were the results compared to our project objectives?
The team accomplished and exceeded the project objectives.
Control tools used

- **Standardized Work:** A revised Work Instruction that details step by step instructions and expectations was implemented and posted in the room to serve as a visual reminder of the process.

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**MetroHealth Central Sterile Processing Work Instructions**

**Work Instruction: Case Cart Assembly in CSPD**

I. **PURPOSE:**
   To establish a consistent method of assembling case carts in CSPD and proper documenting of items missing on case carts.

II. **SCOPE:**
   This work instruction applies to CSPD staff and is to be completed daily until all case carts are assembled and recorded. A reasonable time to assemble a case cart in CSPD is 6 minutes per cart for a trained staff member who regularly performs the activity.

III. **DEFINITIONS:**
   A. **Pick Sheet:** Detailed sheet generated by Epic that lists all items required for a surgical case.
   B. **OR Schedule (Surgery Schedule):** Schedule of all cases for the next day surgery.
   C. **Late Posts:** Surgical cases added after the OR schedule has been printed.
   D. **Case Cart Worktable:** A worktable where case cart pick sheets can be found.

IV. **PROCESS STEPS:**
   A. **Assign a person, reviews pick sheets (11AM-M-F) against the OR schedule to ensure all pick sheets have been printed.
   B. **Pick sheets are sorted and arranged by case time and placed on the case cart worktable.
   C. **Each item to be picked and added to the cart has six columns listed:**
      1. Column One – Lawson number, for ordering/purchasing
      2. Column Two – Item description. Used as a second check for accuracy
      3. Column Three – Manufacturer number, for ordering/purchasing
      4. Column Four – Location. Used to denote location of item
      5. Column Five – Number of items needed for case to be opened by OR
      6. Column Six – Number of items to be on stand-by, unopened by OR
   D. **Staff members that are assigned to case carts are to picks items for each case by utilizing the Column Four of the sheets. CSPD personnel are responsible for all items that start with a ‘Z.’ Initial and date the top of the sheet.
   E. **To determine quantity needed, add Column Five and Column Six together.
   F. **When the proper amount has been picked, this is to be noted on pick sheet by placing a check mark next to the item.
   G. **All efforts should be made to have 100% accuracy of case carts, in the event the item is not available or not located in the area that Column Four states, please notify a Supervisor. Highlight the pick sheet to alert the OR staff.
   H. **The completed pick sheet is taped to the top of case cart and the case cart number is written on the master OR schedule.
   I. **Attach a copy of the Case Cart / Tray Quality Survey.
   J. **Take the case cart up to the SSS staff waiting to complete the cart in the OR.**

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MetroHealth Medical Center, Center for Quality

Date Revised: 6/23/2015
Leverage actions identified

1. **Wasted Inventory** - Re-stocking Unused Items:
   - One major opportunity to apply solutions beyond the original project scope is in the area of re-stocking the items that were unused in the OR.
   - It was learned that inadequate education was provided to the staff on how to do this.
   - Staff placing the items in the wrong bins may have been another separate issue that caused defective case carts.
   - Using the inventory sheets we have from this project, our plan is to build a master file of inventory based on an alphabetical listing of the products.
   - This will allow even an inexperienced staff member to consult the list to find the proper location to return the item to.

2. **Wasted Motion** – Store room Overhaul:
   - Even with the improved accuracy of the bins, the spaghetti diagram details the wasted movement of staff members in the stock room.
   - Working with materials management to list the items needed in order based on the location of the item would cut down on wasted movement.
   - Currently evaluating a plan that allows more frequently used items to be closer to the staging area.
Summary of Project

1. What were the results compared to our expectations for the project?
   • Initially, The expectation was that most case cart errors/defects were related to the SSS part of the assembly phase.
   • However, the surveys determined that the area that needed improvement was the CSPD part of the assembly.

2. What value have customers gained from our project?
   • The customer (the OR staff) have benefited from this project because there has been a marked decrease in the amount of defective case carts.
   • Since all of the carts are more accurate, there is less time spent looking for missing items. This will help to decrease the amount of “late starts” that the OR incurs.
   • Late starts cost the facility approximately $64.20 per minute.
   • ***It would be an interesting metric to monitor is this change has provided a significant decrease in this are!
Summary of Project

3. What value has the organization gained from our project?
   • Sharing the lessons learned with other parts of the organization.
   • Working directly with the OR Materials Management team on this project has enabled both departments a better opportunity to have a more controlled inventory system.
   • It is suggested that CSPD and the SSS team will evaluate the location of the other items that are listed on the pick sheets to mirror this project.
   • The staff was immediately receptive to the changes, and enjoyed participating as they were frustrated with the constant errors and difficulty locating the proper items.

The project has provided an opportunity to foster a better working dynamic between all departments involved in the production of the case carts. This ensures that not only are the customers happy, ultimately the patients are safer!!
Appendix

Table of contents

- CASE CART / TRAY QUALITY SURVEY FORM
  G:\periop\CSPD\2014 FORMS\CASE CART SURVEY

- WORK INSTRUCTIONS CASE CART
  G:\periop\CSPD\2014 Work Instructions\2014 Case Cart Assembly

ALL other forms and charts can be accessed here:

http://mhsharepoint/Departments/QM/SixSigma/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fDepartments%2fQM%2fSixSigma%2fShared%20Documents%2fCase%20Carts%20Project