Reduction of IV Room Waste
A Case Report Utilizing Lean Principles

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Disclosure

• The content of this presentation has been created by the presenter and does not necessarily reflect the views of Baxter Healthcare Corporation

• Baxter has provided an honorarium for this presentation to St. Rita’s Medical Center in support of pharmacy education.
Learning Objectives

• Review key concepts of Lean methodology
• Review the IV room waste project at St. Rita’s Medical Center and discuss how Lean concepts were applied
St. Rita’s Medical Center

Image used with permission - St. Rita’s Medical Center; Courtesy Nancy Rampe
St. Rita’s Medical Center

- 450 bed, level II trauma center
- Non-profit community hospital – part of CHP health-system
- Pharmacy practice environment includes decentralized model, clinical dosing and monitoring services, robotic distribution, and affiliations with Ohio Northern University and University of Findlay Colleges of Pharmacy.
Operational Excellence

- Lean/Six Sigma program at SRMC in existence since 6/2007
- 1 Blackbelt, 2 Greenbelts, and 69 trained Lean Leaders on site
- Currently, 75% of management team is trained in Change Acceleration Process (CAP) and Work Out (WO)
- Goal of 100% of management team to be trained in Lean Awareness
What is Lean?

- Lean...the relentless pursuit of the perfect process through waste elimination...
- Increases customer value by eliminating waste throughout the value stream\(^1\)

Lean Thinking

Providing a way to do more and more with less and less – less human effort, less equipment, less time, and less space – while coming closer and closer to providing customers with exactly what they want

Steps in Lean²

- Define actual performance
- Define desired performance
- Gather and analyze data
- Identify root causes
- Remove root causes
- Change procedures to sustain gains
- Standardize

The Basic Concept

As you facilitate, you will follow the basic divergent and convergent processes. Both steps are needed for effective solutions.

Opening and Set-up

Diverge
- Think Freely

Converge
- Selecting

Issues and Barriers

Diverge
- Think Freely

Converge
- Selecting

Solutions

Report out / Wrap up
On average, the pharmacy at SRMC wasted around $10,000 to $12,000 monthly due to inefficiencies in the IV room.

Yearly impact of over $140,000 in avoidable cost to the organization.

It was decided that the department would hold a 4-hour Lean event to combat the problem.
The Lean Team!

Image used with permission - St. Rita’s Medical Center; Courtesy Nancy Rampe
The Lean Team!

- Nurses
- Pharmacist
- Pharmacy Technician
- IT
- Pharmacy Student
Goals and Objectives of the Event

- Reduce waste from our IV room by 60% within the first 3 months
- Stretch goal to reduce waste by 90% by the end of 2010
- Objective: positively impact the financial status of the organization as well as maintain proper inventory of medications for our patients
Voice of the Customer

- VOC is the sum total of the needs expressed by all customer groups.
- VOC data collection tools include:
  - Focus groups
  - Interviews
  - Surveys
  - Complaints and suggestions
Why is VOC Important?

- Customer behavior is a key input to strategy and process design.
- VOC is a tool used to discover what customers care most about; it’s a way of collecting data about your customers’ needs and desires.
## Voice of the Customer

<table>
<thead>
<tr>
<th>Customer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>Wasting medications leaves the potential for reduced supply when needed. May not have available for the next patient when needed</td>
</tr>
<tr>
<td>Physician</td>
<td>If medication not available will waste physician time trying to decide on an alternative regimen</td>
</tr>
<tr>
<td>Patient</td>
<td>Wasting medications will reduce SRMC supply which may in turn affect whether or not the next patient is eligible to receive the medication</td>
</tr>
<tr>
<td>Technician</td>
<td>Missing doses having to be re-made which takes away time; wasted doses take time to credit to patient and then waste</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>Missing doses having to be re-made which takes away time</td>
</tr>
<tr>
<td>SRMC</td>
<td>Wasted medications in turn means wasted dollars which negatively impacts the financial status of the Medical Center</td>
</tr>
</tbody>
</table>
SIPOC

- Suppliers
- Inputs
- Process
- Outputs
- Customers
<table>
<thead>
<tr>
<th>Supplier</th>
<th>Input</th>
<th>Process</th>
<th>Output</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Drugs</td>
<td>IV label prints</td>
<td>IV Admixture</td>
<td>Patient</td>
</tr>
<tr>
<td>B</td>
<td>IV Solutions</td>
<td>Obtain drug</td>
<td></td>
<td>Nurse</td>
</tr>
<tr>
<td>C</td>
<td>Admixture</td>
<td>Obtain supplies</td>
<td></td>
<td>Pharmacist</td>
</tr>
<tr>
<td></td>
<td>Supplies</td>
<td>Tech compounds</td>
<td></td>
<td>Technician</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RPh checks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sent to floor or delivery by tech or sent via tube</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RN receives IV admixture</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Current State Process Map

Current Process Map for IV Room

Order sent from nursing unit to pharmacy.

Pharmacist receives order and enters into computer.

Label prints and technician makes/prepares medication.

Pharmacist checks medication.

Checked medication placed in blue bin in pharmacy.

Medication Tubed to nursing unit.

Clerk gets out of tube.

Nurse gets out of tube.

Volunteer gets out of tube.

Meds placed in COW or server.

Meds placed in bin/drawer.

Meds placed on counter.
Brainstorming Problems!

- Various tools available to use through Lean training
- Develop a parking lot
- Narrow your focus
Brainstorming Problems!

- Medications made too far in advance — may be discontinued or changed
- Lost medications
- Patient’s discharged report
- High dollar medications
Brainstorming Resolutions!

- Change to 4-hour IV batches
- Secure tube high dollar medications
- Label for discontinued patients
- Report for discharged patients
- Staff education – both nursing and pharmacy
Data on file, St. Rita’s Medical Center
2010 IV Room Improvement

% Improvement

January February March April May June July August September October November December

Data on file, St. Rita’s Medical Center
Net projected savings for SRMC in 2010 is over $65,366!!!!
Conclusions

• Lean philosophy can be applied to multiple scenarios in healthcare to improve processes and reduce waste.

• The pharmacy department at SRMC has participated in multiple Lean events in 2010 including: reducing missed cath lab charges, many LOS projects, pharmacy late charges/credits, pain improvement project.