Lean in Health Care

Eric Dickson MD
UMass Memorial Medical Group
2.8 Trillion dollars spent on healthcare annually

What percentage of it do you think actually goes to improving the health of the patients we serve?
The Total Cost of Healthcare

The cost of value added activities + The cost of non-value added activities = The total cost of healthcare

Cost includes the space and materials necessary to perform activities
Value added Vs Non value added work

• Value added work = any work or service that the customer is willing to pay for.

• Non value added work = activities that do not contribute to the product or service and should be eliminated.

• Non value added but necessary work = activities that do not contribute to the product or the process, but are necessary to keep the value added work going.
Value added activities

• Appropriate diagnostic tests
• Delivering therapies that reduce pain and/or improve the health of the patient
• History and physical for a patient suffering from an acute illness or injury
• Therapies or education that prevent illness or injury
• Educating patients about their illness
• Acute hospitalizations that could not have been prevented
• What else?

“All the right care, but only the right care”
Brent James
What Percentage of Your Clinical Day is Spent Doing Value Added Work?
An Average Day for an Attending Physician at UMMMC

- Charting, 23%
- On Computer, 8%
- Patient Contact Alone, 16%
- Patient Contact With Resident, 10%
- Educating Resident, 20%
- On Phone, 4%
- Signing in/out, 7%
- Miscellaneous Waste, 11%
- Social, 3%
## Relationship Between Job Satisfaction and Performing Value Added Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Satisfaction 0-10</th>
<th>Percent of Time on Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Contact Without Resident</td>
<td>8.9</td>
<td>16%</td>
</tr>
<tr>
<td>Patient Contact With Resident</td>
<td>8.8</td>
<td>10%</td>
</tr>
<tr>
<td>Educating Resident</td>
<td>8.6</td>
<td>20%</td>
</tr>
<tr>
<td>Social</td>
<td>6.7</td>
<td>3%</td>
</tr>
<tr>
<td>Sign-out</td>
<td>5.3</td>
<td>7%</td>
</tr>
<tr>
<td>Time on Computer</td>
<td>3.7</td>
<td>8%</td>
</tr>
<tr>
<td>Phone Time</td>
<td>2.7</td>
<td>4%</td>
</tr>
<tr>
<td>Charting</td>
<td>2.6</td>
<td>23%</td>
</tr>
<tr>
<td>Looking For Things and Miscellaneous Waste</td>
<td>1.2</td>
<td>9%</td>
</tr>
</tbody>
</table>
Typical Waste in Healthcare

- Quality defects including hospital acquired infections and avoidable medical errors
- Time spent looking for things
- Time spent filling out forms
- Extra instruments on a surgical trays
- Any kind of rework
- Excessive administrative expenses
- Underutilized staff
- Underutilized space
- Use of a more expensive drug or device than is needed
- Use of any drug or therapy that is not needed
- Hospitalization that are unnecessary
- Hospital lengths of stay that are longer than are necessary
- Unorganized supply rooms with outdated inventories and unnecessary variety
- Confusing goals & metrics
- Underutilized human potential - skills, talents, and creativity
- PHYSICIAN MUDA
A win win situation for all parties

Improve the quality of care you deliver
Reduce the cost of the care
Improve the experience of receiving care
Improve the experience of giving care
Current Payment System
“What We Look Like Today”

Future Payment System
“The Great Unknown”

The Sweet Spot
Waste Elimination
Lean = The Operational Philosophy behind the Toyota Production System
Lean Philosophy

Lean is... “The endless transformation of waste into value from the customer’s perspective.”

Womack and Jones, *Lean Thinking*

Lean increases product value by removing waste and slowly driving a process towards perfection.
Does this salt shaker need to be filled?
What activity does Mr. Potato Head value?
Standardization must occur before you can have innovation and improvement
“It is impossible to improve any process until it is standardized. If the process is shifting from here to there than any improvement will just be one more variation that is occasionally used and mostly ignored. One must standardize the process before improvements can be made.”

Masaaki Imai
The first step in improving the treatment of any disease is standardizing its care. If the treatment of an acute or chronic condition within our system is variable, any effort at improvement will just be one more variation that is occasionally used and mostly ignored. We must standardize our care using evidence- or consensus-based pathways before we can improve it using discovery and innovation.

Based on work by Masaaki Imai in the book Kaizen
Why Lean?

- Psychology
- Theory of Knowledge
- Understanding Variation
- Systems Thinking
QS x AS = likelihood of success
Lean Managers move the staffs ideas from left to right
Idea Card Format

FRONT

Problem

Suggestion

Date Originated

Expected Benefits

Input Needed From

BACK

Implementation Steps

Results Verified?

New Method Standardized?

Completed Date

Slide Courtesy of Mark Graban
Nursing Units Storage Areas Standardization & Scanning Compliance
Rapid Process Improvement
Osborn Campus: OB Triage Supply Room

Before

After

$600,000 in supply savings

Courtesy of Abdul N. Mansour
Scottsdale Healthcare
TRUE NORTH METRICS

Safety/Quality
- Preventable Mortality
- Medication Errors

Customer Satisfaction
- Access
- Turnaround Time
- Quality of Time

People
- OSHA Recordable Injuries
- HAT Scores
- Employee Engagement Index

Financial Stewardship
- Operating Margin
- Productivity

Slide Courtesy of John Toussaint
We will focus first and foremost on the health and wellbeing of the Patients we serve.

**Our Patients**

**High Quality Efficient Integrated Care**
- Service Line Performance
- Preventable Mortality
- Patient Satisfaction
- PC Covered Lives
- Meaningful Use

**Engage and Empower our People**
- Physician Engagement
- Physician Recruitment and Retention

**Financial Sustainability**
- Net Income to Plan
- Academic Spend Rate
- MGMA Productivity %
Inflexibility is the greatest barrier to successfully applying Lean in health care and it is best overcome by Genchi Genbutsu
Lean Processes that Typically Exist in Hospitals

- Trauma Activations
- Code STEMI
- Code Stroke
- Central Line Bundle
- WHO Surgical Checklist
- Integrated Care Pathways
Lean managers bring structure to problem solving

- Define your improvement goal.
- Define the current state using a process/value stream map and measures specific to your goal.
- Redesign the process using ideas from the frontline staff (process redesign).
- Measure again to determine the effect of your intervention.
Title: What you are talking about?

I. Background
Why are you talking about it?

II. Current Conditions
Where do things stand today?
- Show visually using charts, graphs, drawings, maps, etc.
What is the problem?

III. Goals/Targets
What specific outcomes are required?

IV. Analysis
What is the root cause(s) of the problem?
- Choose the simplest problem-analysis tool that clearly shows the cause-and-effect relationship.

V. Proposed Countermeasures
What is your proposal to reach the future state, the target condition?
How will your recommended countermeasures affect the root cause to achieve the target?

VI. Plan
What activities will be required for implementation and who will be responsible for what and when?
What are the indicators of performance or progress?
- Incorporate a Gantt chart or similar diagram that shows actions/outcomes, timeline, and responsibilities. May include details on specific means of implementation.

VII. Followup
What issues can be anticipated?
- Ensure ongoing PDCA.
- Capture and share learning.
Lean improved physician productivity by > 50% in 3 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Work RVU per Clinical Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 05-06</td>
<td>4.00</td>
</tr>
<tr>
<td>FY 06-07</td>
<td>4.66</td>
</tr>
<tr>
<td>FY 07-08</td>
<td>5.87</td>
</tr>
<tr>
<td>YTD 08-09</td>
<td>6.42</td>
</tr>
</tbody>
</table>
Any Questions?