Lean Management
A New Approach to Managing Healthcare Organizations
Many organizations are modifying from traditional to modern management approaches, including Lean management

- Loss of focus on the customer
- Failure to achieve efficiency in operations
- Poor quality of products or services
- Low employee morale and high turnover
- Poor coordination of work tasks
- Difficult to change work processes
Lean involves the development of a culture that enables an overall management system to create value for customers by eliminating waste, empowering frontline workers, and solving problems through the daily application of the scientific method in creating standard work.

Center for Lean Engagement and Research, UC Berkeley

Lean is the service organization version of the Toyota Production System (TPS) that was developed in the 1950s by the Toyota Automobile manufacturing company.

Lean is a management philosophy, a set of practices, and tools to help managers stay customer focused, reduce waste, and continuously improve quality.
Dr. W. Edwards Deming
1900 - 1993
Fayol’s 14 Management Principles of Traditional Management

• Division of work
• Authority
• Discipline
• Unity of command
• Unity of directive
• Subordination of individual interests
• Reasonable Remuneration

• Centralization
• Scalar chain
• Orderly use of resources
• Equity (ethical behavior)
• Stability (low turnover)
• Initiative (employee input)
• Morale
Deming’s 14 Points for Management

• Create constancy of purpose
• Leadership for change
• Cease dependence on inspection to achieve quality
• Minimize total cost – move toward single supplier for any one item
• Improve constantly
• Institute training on the job

• Institute leadership
• Drive out fear
• Break down barriers between departments
• Eliminate slogans and exhortations asking for more...
• Remove barriers to pride of workmanship
• Institute educational programs
• Transformation is everyone’s job
Lean has been adopted in many different environments since its creation.
Examples of Healthcare Organizations Using the Lean Management Approach

• Virginia Mason Hospital and Medical Center, Seattle, WA
• Carolinas Healthcare System, Charlotte, NC
• ThedaCare Regional Medical Center, Appleton, WI
• Mayo Clinic, Rochester, MN
• Lancaster Regional medical Center, Lancaster, PA
• Johns Hopkins Hospital, Baltimore, MD
• UCSF Medical Center, San Francisco, CA
• Zuckerberg San Francisco General Hospital, San Francisco, CA
• Kaiser Permanente, Oakland, CA
Lean focuses on work processes to reduce waste and improve quality.
Lean Philosophy Core Principles

• Respect for people
  • Employees know the work best
  • Participatory – not a top down approach

• Continuous improvement
  • Strive for zero defects

• Customers (i.e. patients) define value

• Improvements in processes achieved through the scientific method
  (Plan, Do, Study, Act – PDSA cycles)
Develop "True North" and align the organization to that pursuit.

Engage staff in surfacing and solving problems:
- Surface & Solve Problems using A3

Eliminate waste and make the right work easier to do:
- Design Good, Efficient Effective Processes using Kaizen
- Monitor with Visual & Daily Management
- Establish Leadership Standard Work

Develop and support all staff in continuous improvement:
- Coaching your team
- A3 Deployment
- Cadence of Review, Support and Accountability

The 4 "P's" of TPS:
- Purpose
- People
- Process
- Problem Solving
<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasted motion</td>
<td>Pharmacy technician spends 20 minutes looking in multiple places for a specific drug</td>
</tr>
<tr>
<td>Rework</td>
<td>X-ray technician has to reenter 10–20% of test requests because the wrong side of the body was indicated</td>
</tr>
<tr>
<td>Overproduction</td>
<td>7 of the 16 forms in an admissions packet are redundant</td>
</tr>
<tr>
<td>Excess inventory</td>
<td>Out-of-date medications are kept on the shelf because excess inventory was ordered</td>
</tr>
<tr>
<td>Wasted transportation</td>
<td>25% of patients admitted to one ward are transferred, within 36 hours of admission, to another ward that provides a similar level of care</td>
</tr>
<tr>
<td>Excess processing</td>
<td>Nurse has to record a patient’s respiratory rate on 4 different forms within the patient’s chart</td>
</tr>
<tr>
<td>Waiting time</td>
<td>Operating-room team must wait 20 minutes for a procedure to begin and is not free to do other tasks</td>
</tr>
<tr>
<td>Wasted intellect</td>
<td>Numerous improvement ideas are lost because no one is interested in them</td>
</tr>
</tbody>
</table>
Lean Practice Examples

• Senior leaders, employees, and stakeholders Establish *True North* (most important organizational goals)

• Managers walk *Gemba* regularly and “coach” employees

• Employees at the work level conduct *value stream mapping* for key work processes to identify waste from the *customer’s* perspective

• Hold *Kaizen events* with relevant employees to redesign work processes to eliminate as much waste and improve performance as much as possible

• Employees establish new *standard work* processes in writing

• Test the new process using the *PDSA (plan, do, study, act) cycle* to see if waste has been reduced and/or quality improved

• Chart/depict revised processes and measures assessing achievement of performance objectives (waste reduction targets/quality improvement targets) – *visual management* – post on a wall

• *Daily huddles* of relevant managers and staff to review visual charts and progress reports
Lean Tools and Methods Examples

- Value stream process map (spaghetti diagram)
- Fishbone diagram (root cause analysis)
- Lean A3 plan
- Scatter Plots
- Pareto Charts
- Regression analysis
- Kanban cards
- PDSA (plan; do; study; act)
- 5s (sort, straighten, shine, standardize, sustain: redesign of physical workspace to improve efficiency)
The System of Continuous Improvement: Interlocking Responsibilities and Development

Management
- Mgmt Standard Work
  - Situational Awareness
  - Visual & Daily Mgmt.
  - Gemba & Observation
  - Surface problem
  - Develop Your People
    - Coach team to solve them

Staff
- Do the Standard Work
  - Surface and Solve Problems: A3
  - Improve the Standard Work

Executive
- Executive Standard Work
  - Align to Strategy
  - Develop Management Systems
    - System and Support Structures
    - Gemba and Coaching
    - Staff

Performance Improvement, Decision Support, HR, I.T. Facilities

Improve Process & Performance while Developing People: “Learn by Doing”
MUSINGS FROM A LEAN THINKER

The Optimist: The glass is half full.

The Pessimist: The glass is half empty.

The Lean Thinker: Why is the glass twice as big as it should be?
Is there evidence that Lean works in healthcare organizations?
<table>
<thead>
<tr>
<th>Problem Addressed</th>
<th>Number and Type of Health Care Organizations</th>
<th>Measure</th>
<th>Before (%)</th>
<th>After (%)</th>
<th>Relative Improvement (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand hygiene</td>
<td>8 hospitals</td>
<td>Hand hygiene compliance&lt;sup&gt;a&lt;/sup&gt;</td>
<td>47.5</td>
<td>81</td>
<td>71</td>
</tr>
<tr>
<td>Handoff communication</td>
<td>10 hospitals</td>
<td>Ineffective handoffs at care transitions&lt;sup&gt;b&lt;/sup&gt;</td>
<td>41</td>
<td>18</td>
<td>56</td>
</tr>
<tr>
<td>Wrong-site surgery risks</td>
<td>5 hospitals, 3 ambulatory surgery centers</td>
<td>Risk of wrong-site surgery&lt;sup&gt;c&lt;/sup&gt;</td>
<td>39</td>
<td>21</td>
<td>46</td>
</tr>
<tr>
<td>Scheduling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>p = 0.000</td>
</tr>
<tr>
<td>Preoperative area</td>
<td></td>
<td></td>
<td>52</td>
<td>19</td>
<td>63</td>
</tr>
<tr>
<td>Operating room</td>
<td></td>
<td></td>
<td>59</td>
<td>29</td>
<td>51</td>
</tr>
<tr>
<td>Colorectal surgical-site infections (SSI)</td>
<td>7 hospitals</td>
<td>Cases with an SSI&lt;sup&gt;d&lt;/sup&gt;</td>
<td>15.8</td>
<td>10.7</td>
<td>32</td>
</tr>
</tbody>
</table>

*Notes:* Robust Process Improvement is a combination of three complementary process improvement methods: lean, six sigma, and change management.

<sup>a</sup>Percentage of times that caregivers cleaned their hands before walking into or out of a patient’s room.

<sup>b</sup>Percentage of handoffs that failed to provide complete information necessary to patient care.

<sup>c</sup>Percentage of cases with any risk of wrong-site surgery.

<sup>d</sup>Percentage of colorectal surgery cases with any surgical-site infection.

Lean: It works if you drink from the fountain of knowledge. Most organizations just gargle.

Article

Lean interventions in healthcare: do they actually work? A systematic literature review

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Conclusion: While some may strongly believe that Lean interventions lead to quality improvements in healthcare, the evidence to date simply does not support this claim. More rigorous, higher quality and better conducted scientific research is required to definitively ascertain the impact and effectiveness of Lean in healthcare settings.
Sustaining Lean Management Over a Long Period of Time is a Challenge
How do we prevent slippage in our improvement efforts?
Thank You!

Find out more about Lean Management in Healthcare at https://clear.berkeley.edu/