Quality Improvement with Lean Methodology

TPCA Leadership Conference
October 24, 2013

Terri D. Crutcher, DNP, RN, NCQA CCE
Clinical / QI Director TPCA

Objectives

At the end of the workshop participants will be able to:
1. Understand how the Toyota Lean principles can be applied to healthcare
2. Identify the eight wastes (Mudas) in healthcare
3. Learn various Lean tools and how they can be used to improve processes in healthcare
4. Understand the role of leadership in Lean methodology problem solving initiatives

What is Lean

Lean is a philosophy and a rigorous improvement system designed to transform waste into value from the customer/patient perspective (Kim, Spahlinger, Kin, & Billi, 2006)
Lean is Not...

- Complex or difficult to learn
- An end state
- A set of isolated practices
- Specialized knowledge held by a few people
- Designed to make people work faster
- Just about making cars

Lean Concepts

Literature reveals these concepts related to Lean

- Organizational transformation
- Organizational innovation
- Organizational efficiency
- Quality improvement

Why Lean in Healthcare

- According to IOM, healthcare system falls short of care that is safe, efficient, effective, patient-centered, timely and equitable healthcare (Vest & Gamm, 2009)
- The Lean Methodology Model with a focus on waste reduction is now being adapted as a method with application to healthcare
- Rapidly adjust to meet changes
- Healthcare organizations must be willing to change to improve in order to survive

“It is not necessary to change. Survival is not mandatory.” – W. Edwards Deming
Lean Methodology in Healthcare

- A common problem in healthcare settings is the lack of standardization due to a high degree of variation in practice that contributes to inefficient and ineffective delivery of patient care (Young & McClean, 2006)

The Value of Lean

- Lean methodology can provide the tools to improve the workplace environment, reduce turnover, lower costs, and improve health outcomes for patients
- Lean methodology's team approach may improve communication and collaboration and lead to a willingness to evaluate and reinvent how work is organized and accomplished (Kimball & O’Neill, 2002)
Core Concepts and Principles

Waste - Muda

14 Toyota Way Principles
14 Toyota Way Principles

Add Value to the Organization by Developing Your People

9. Grow leaders who thoroughly understand the work, live the philosophy, and teach it to others.
10. Develop exceptional people and teams who follow your company’s philosophy
11. Respect your extended network of partners and suppliers by challenging them and helping them improve

Continuously Solving Root Problems Drives Organizational Learning

12. Go and see for yourself to thoroughly understand the situation (genchi genbutsu)
13. Make decisions slowly by consensus, thoroughly considering all options; implement decisions rapidly (nemawashi)
14. Become a learning organization through relentless reflection (banseki) and continuous improvement (kaizen)

Ideal

• Exactly what the patient needs, defect free
• One by one, customized to each patient
• On demand, exactly as requested
• Immediate response to problems or changes
• No waste
• Safe for patients, staff, and clinicians; physically, emotionally, and professionally

Rules of Use

1. Activities – all work should be highly specified as to content (what the work is), timing (how long it should take), and outcome (what result is clearly expected – standardized work)
2. Connections – every customer-supplier connection must be direct (no middle man) and there must be an unambiguous (yes/no) way to send requests and receive responses
3. Pathways – every product and service must be simple (involving as few people and steps as possible) and direct, no forks or looping
4. Improvement – any improvement must be in accordance with the scientific method (PDSA), direct response to a problem, and by those doing the work who can innovate and stay ahead of the competition (Spear & Bowen, 1999, p 98)
Challenges

• Getting teams engaged
• Obtaining data that are meaningful and valid
• Sustaining change

Opportunities

• Seeing the process
• Seeing the waste
• Building value
• Having tools that can be applied immediately

Lean Tools

• Visual Management System
  – 5S / Visual Controls
  – Spaghetti Diagrams
• Standardized Work
• Kaizen Event
• Value Stream Maps
• A3
• Observation
• Gemba
• Mistake Proofing (Poka Yoke)
5S

Sort

Sustain

Standardize

Straighten

Shine

5S Before and After

Visual Controls/5S

- Show what is right / when things are missing
- Nothing extra / not needed
- Operating room cleanliness
- Easy to determine normal/abnormal
- A place for everything and everything in its place
Visual Controls

• An indicator established to differentiate normal from abnormal work area conditions at a glance which might include zoning, photos, diagrams, etc.

Spaghetti Diagram

• A spaghetti diagram is a visual representation using a continuous flow line tracing the path of an item or activity through a process. The continuous flow line enables process teams to identify redundancies in the work flow and opportunities to expedite process flow.

  (http://asq.org/learn-about-quality/process-analysis-tools/overview/spaghetti-diagram.html)
Standardized Work

• Establishes an agreed upon method for the best known way to perform a process with the least amount of waste, providing the best patient care (Healthcare Performance Partners, 2011)
• Describes the sequence of activities necessary to accomplish the work, the time required to complete each task, and verifies that the work is being performed in accordance with the patient/customer demand
• Begins as a baseline that is continuously improved (Healthcare Performance Partners, 2011)

Kaizen Event

• “Kai” – to change “Zen” – for the good of all
• Small, low-risk, low cost improvement event that can be implemented in 2 – 5 days by a multidisciplinary team to dissect a process and implement process change
• Involves staff from point of care/service
• Focuses on wastes exposed in Value Stream Map
• Rapid idea generation and testing (Healthcare Performance Partners, 2011)

Value Stream Map

• High level view to see how the work flows
• Graphic representation of process activities occurring from the time a request is made until the moment the request is satisfied
• All activities are defined as value added or non-value added
• Identifies where in the process there are inconsistencies or delays
Value Stream Map

A3

• Method and report for specific problem solving
• Hand drawn — 11" X 17" paper (A3 in Europe/Asia)
• View with microscope
• Tool for drilling down into variation the process
• Documentation of problem solving activities
• Tells the story visually
(Healthcare Performance Partners, 2011)
Observation

• Observing with “new eyes” – see the reality
• First hand
• One person at a time
• A structured process
• Documenting the work exactly as it is being performed
• What is vs. what should be

Gemba

Lean is a full contact activity; it can only be accomplished at the gemba

• Gemba – Japanese 1. the actual place; 2. the place where the work is done; 3. the crime scene (Healthcare Performance Partners, 2011)

99.9% Performance

• 2 unsafe plane landings each day at O'Hare
• 16,000 pieces of mail lost by Postal Service each hour
• 500 incorrect operations each week
• 50 newborns dropped at birth by doctors each day
• 22,000 checks deducted from the wrong bank account each hour (Healthcare Performance Partners, 2011)
Mistake Proofing – Poka Yoke

- Any method that can help caregivers avoid mistakes
- Promotes defect prevention vs. detection
- Recognizes that people forget and make errors
- Respects the intelligence of workers by taking the judgment out of repetitive tasks where errors are likely to occur
- Utilizes people working in the process to mistake proof the work because they own the work

(Healthcare Performance Partners, 2011)

The Role of Leadership

- Healthcare has become so complex that “command and control” no longer works
- We have the most educated staff of all industry yet we do not take advantage of their wisdom.
  - Timothy Porter-O’Grady
- Leaders must develop those for whom they are responsible so that the organizational capacity to be self-correcting, self-improving, and self-innovating is distributed and practiced widely and consistently.
  - Steven Spear

Change Concepts for Practice Transformation
Three Attributes of Lean Leadership

- **Go see**: Visit the point where value is actually being created; verify the situation
- **Ask why**: What is the problem? What are possible solutions?
- **Show respect**: Assign clear responsibility for every process and problem; ask questions about people's work

Fujio Cho: Chairman Toyota Motor Company

(Healthcare Performance Partners, 2011)

LEAN

- Leadership
- Eliminate Waste
- Act now
- Never-ending

Thank You

- Charles Hagood – Healthcare Performance Partners
- Susie Leming-Lee DNP, RN
References