Lean Approach In Health Systems

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Greatness is not a function of circumstance. Greatness, it turns out, largely a matter of conscious choice and discipline.”
- Jim Collins, Author

Is there a perfect storm

- American Healthcare
  - Worse outcomes
  - Higher cost
  - Significant inefficiencies to improve
    - Result in missed opportunities
    - Higher waste
    - Harm to patients

How to improve
- Require a nimble healthcare system
- Constantly, systematically and seamlessly improve
- Avoid past mistakes
- Adopt new found successes

Burning Platform
Burnning Platform

- Stagnancy leads to disaster
- Seek out hidden crises
  - Often nearby
  - Often unnoticed until sentinel event
  - Improve processes to decrease future crises

Lean Process

- Developed by Toyota executive
  - Taiichi Ohno
- Method for Toyota to continuously improve and innovate
- Since been used throughout various manufacturing and business sectors
- Recently has been adopted into healthcare industry

5 Steps for Lean Process

- 1) Identify value
- 2) Map the value stream
- 3) Create flow
- 4) Establish pull
- 5) Seek perfection

Toyota Terminology

- Muda – futility, idleness, uselessness
- Kaizen – Continuous, incremental, structured improvements to decrease waste
- Jishuken – intentional workplace focused activity (scheduled ‘super-kaizen’)

4 P Model of Toyota Way

4 P Model of Toyota Way

What forced improvements in automotive?

- Higher quality products imported from Japan
  - Forced American companies to improve quality of domestic products to stay competitive
- Healthcare is local, not imported
  - Foreign competition doesn’t drive local change
Why do we need a change in healthcare?

- Gap in care
  - 89 million (36.3% of Americans age 4-64) uninsured for at least one month from 2004-2007
  - Of these people
    - 12 million were continually uninsured
    - 11 million were uninsured but gained coverage at some point
    - 11.5 million insured, then lost coverage
    - 14 million experienced single gap in coverage
    - 6 million had temporary coverage, otherwise uninsured

- Quality issues
  - Up to 98,000 Americans die each year as a result of medical errors; more than motor vehicle accidents, breast cancer and AIDS
  - Ethnic/Racial minorities and low income are less likely to receive recommended care
  - Automotive and manufacturing companies have made quality improvements over 10-15 year period
  - Can healthcare evolve?
    - Many obstacles in the way

Common issues for health systems

- Efficiency
  - Patients waiting to get a test done
- Safety/Quality
  - Patient Falls
  - Decubitis ulcers
  - Wrong site surgery
  - Medication errors
    - not all patients with cardiac issues are on aspirin
    - Inconsistent use of medication prescribed throughout various healthcare settings

- Financial issues
  - Cost of health care rising
  - Many uninsured throughout system
- Healthcare workers Stress:
  - PT's, OT's, RN's, Physician's
    - Increased hours
  - Less time with patients
  - Therapist and healthcare worker shortage

What is our goal

- Improving the patient experience of care (including quality and satisfaction)
- Improving the health of populations
- Reducing the per capita cost of health care.
Crossing the Quality Chasm: A New Health System for the 21st Century

- "to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States."
- Institute of Medicine

Six aims for improvement are built around the core need for health care to be:

- **Safe**: avoiding injuries to patients from the care that is intended to help them.
- **Effective**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit.
- **Patient-centered**: providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions.
- **Timely**: reducing waits and sometimes harmful delays for both those who receive and those who give care.
- **Efficient**: avoiding waste, including waste of equipment, supplies, ideas, and energy.
- **Equitable**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status

Best Care at Lower Cost: The Path to Continuously Learning Health Care in America

- U.S. healthcare system demands a change
- Current path of healthcare will:
  - Underperform
  - Cause unnecessary harm
  - Strain budgets
- Actions required will be:
  - Notable
  - Substantial
  - Sometimes disruptive
  - Necessary

Stakes are high

- Responsibility of everyone
- Estimated almost 75,000 preventable deaths in 2005
- If every state performed like top performing state
- $750 billion in unnecessary health spending in 2009
Average Annual Growth Rates for Health Spending and GDP Per Capita

**Source:** Historical data from Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group.

Projected

Average Annual Worker and Employer Contributions Premiums and Total Premiums for Family Coverage

**Source:** Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2002-2012.

Per Capita Total Current Health Care Expenditures, U.S. and Selected Countries, 2010

**Notes:** Amounts in U.S.$ Purchasing Power Parity, see www.oecd.org/std/ppp; includes only countries over $2,500. OECD defines Total Current Expenditures on Health as the sum of expenditures on personal health care, preventive and public health services, and health administration and health insurance; it excludes investment.


IOM Findings

- We have experienced an explosion in knowledge, innovation, and capacity to manage previously fatal conditions
- We still fall short on fundamental issues such as quality, outcomes, cost, and equity.

IOM recommendations

- The Government needs to accelerate payment reform
- Employers need to move beyond shifting costs to employers, and begin demanding accountability from providers
- Healthcare professionals need to engage more in collaboration with their peers

What else can we learn from other industries?
Lessons to learn

• There are simultaneous demands for standardization and personalization, and both must be met. Examples: Retail, restaurant and hospitality industries.

• When provided with more convenient delivery options that do not compromise quality, consumers change habits in a heartbeat. Example: Retail industry and media.

• Consumers expect risk management and security innovations in new delivery platforms. Example: Banking industry.

• Precision and excellence in basic tasks may influence consumer satisfaction more than elaborate amenities. Example: Hospitality industry.

• Industries must adopt new communication tactics when performance information goes public. Example: Education.

Atul Gawande – New Yorker 8/2012

• “In medicine, too, we are trying to deliver a range of services to millions of people at a reasonable cost and with a consistent level of quality. Unlike the Cheesecake Factory, we haven’t figured out how. Our costs are soaring, the service is typically mediocre, and the quality is unreliable. Every clinician has his or her own way of doing things, and the rates of failure and complication (not to mention the costs) for a given service routinely vary by a factor of two or three, even within the same hospital.”

The Cheesecake Factory

• Serves 80 million people per year
• Menu has more than 100 items
  • Wasabi-crusted Ahi tuna
  • Buffalo wings
  • Miso salmon
  • Chianti-braised short ribs
  • Flourless chocolate espresso cake
  • And many more...
• The cheesecake is one of the few things not made on site
  • Made in factory in California

The Cheesecake Factory

• Provides variety and quality at a reasonable cost
• Complete items in a timely manner
• Uses size of company for buying power
• Centralizes common functions
• Adapts to innovation much faster than smaller, independent operations

What about healthcare?

• Strive to deliver a wide range of consistently high quality, affordable services to millions of people

• Understands there is a problem, but little has been done to change the process or implement ideas

• In healthcare there is no standardization, it is filled with inconsistencies and inefficiencies

What needs to change?

• The way we do our work
• With whom we do our work
• How we report results

• Incorporating quality improvement, innovation, and communication.

• Translate scientific outcomes to bedside results
Needed healthcare changes

- Information
  - Entering information repeatedly
  - Missing information
- Process
  - Rework, work-arounds, approvals and waiting
  - Repeated consent forms and bed moves
  - Medication errors
  - Wrong procedures
  - Blood re-draws
  - Re-stocking

Needed healthcare changes (cont.)

- Time
  - Waiting for appointments and results
- Inventory
  - Abundance of pharmacy stocks, lab supplies and assistive devices
  - Worker motion
  - Searching for patients, supplies, paperwork, etc.

How can Toyota’s lean process benefit healthcare

- More efficient
- Increased value of services
- Decreased rate of errors
- Improved inventory control

Common issues for therapists

- Inefficiencies
  - Cancellations/No shows
  - Patient not available for therapies
  - Patient not medically stable
  - Documentation/chart review

Common issues for therapy department

- Delayed scheduling
- Financial issues
  - Increasing cost/Decreased funding of healthcare
    - Increase supply and labor cost
    - Reimbursement write offs
    - Uninsured or underinsured
    - Insurance Restrictions
      - Not authorized for treatment
      - How to increase the number of visits?
      - Difficult for patients to receive concurrent OP and Home care
- Healthcare workers’ stress:
  - PT’s, OT’s, RN’s, Physician’s, etc.
    - Increased labor hours
    - Less direct patient care
    - Increased insurance documentation demands
    - Therapist and healthcare worker shortage
      - Therapist and healthcare worker shortage

Opportunities for improvement

- Safety/Quality
  - Prevalence of patient falls
  - Decubitus ulcers prevention
  - Inappropriate treatment techniques
  - Appropriate precautions not followed:
    - Weight bearing restrictions
    - Range of motion restrictions
    - Lifting restrictions
  - Standards of care
  - Poor medication reconciliation between settings

http://physicaltherapyjournal.com/content/63/7/1108.full.pdf
Where are our opportunities

• How do we add value?
• Impact on LOS
• Reduce complications
• Improve HCAHP Scores
• Patient satisfaction
• Improve AHRQ Scores
• Employee satisfaction

High Value Health Care Initiative
Cleveland Clinic, Dartmouth-Hitchcock, Denver Health, Intermountain Healthcare, Mayo Clinic

• 11,000 patients with a TKA across five systems, considerable differences noted:
  • A difference of more than one full day in length of stay between the system with the shortest average length of stay (3 days) and that with the longest (4.2 days);
  • A difference of 25 minutes in the time spent in surgery, ranging between 80 and 105 minutes;
  • Independently home vs. home with homecare
  • A rate of readmissions ranging from 2.2 percent to 4.6 percent

http://content.healthaffairs.org/content/early/2012/04/30/hlthaff.2011.0935

IHC improvements

• Intermountain Health Care (IHC)
  • Leader in quality improvements for over a decade
  • Consists of 22 hospitals and 2,200 physicians
  • Impressive gains with reduced medication errors
  • Enhanced outcomes for patients with diabetes, pneumonia and respiratory failure
  • Brent James has established an education program on quality improvement for physicians and clinicians

Delay in patient care

Time and Motion Study

• 767 nurses involved
  • Three subcategories accounted for 75% of time
    • Documentation – 35.3%, 147.5 minutes
    • Medication administration – 17.2%, 72 minutes
    • Care coordination – 19.6%, 86 minutes
  • Patient care activities
    • Accounted for 19.3%, 81 minutes, of nursing practice time
    • 7.2%, 31 minutes, of total time dedicated to patient assessment and vital signs

http://www.rwjf.org/content/dam/web-assets/2008/07/a-36-hospital-time-and-motion-study

Time and Motion Study (cont.)

• Conclusion
  • Three main targets identified
    • Documentation
    • Medication administration
    • Care coordination
  • Possible improvements
    • Improved technology
    • Improved work processes
    • Improved unit organization and design
  • Can result in improved nursing efficiency and safe delivery of care
Lean Works

- Lean works wherever there is waste.
- Look around your work area....

Lean Waste

- Lean solutions
  - Observing the processes
  - Breaking them down into step by step parts
  - Eliminating waste.
- Waste is an important concept in lean thinking
  - Especially as it relates to time and motion
  - Transform waste into value

Lean waste (cont.)

- Lean in healthcare is about reducing inefficiencies in processes needed for that care, by transforming waste into value
- Lean can cut down on medical errors and improve standard care

Claims data for HPSO

2001-2008 Claims

- Main Allegations for Claims:
  - Improper management over course of treatment
  - Failure to supervise or monitor
  - Improper performance using therapeutic exercises
  - Improper performance using of manual therapy
  - Inappropriate behavior by a PT
  - Equipment Related
  - Improper performance using a physical agent

Standard Care – Septic Shock

- Septic Shock
  - A condition of acute organ dysfunction due to severe infection
    - Mortality of up to 50%
  - Improved survival rate with a standard care
  - Standard of care developed by
    - International Sepsis Forum
    - The European Society of Intensive Care Medicine
    - The Society of Critical Care Medicine
  - Improvement of treatment and management through standard of care guidelines
    - Created global standard of care
    - Reduced mortality from sepsis by 25% over five years

Standard Work - Cart Pit crew
Inconsistent standard of care in low back pain

- The mean number of visits to physical therapists in one study was 15.6 visits.
  
  Janet K. Freburger, Timothy S. Carey, George M. Holmes, Physical Therapy April 2011 vol. 91 no. 4 484-495

- Akpala et al reported an average of 6 visits to physical therapists.

- Ehrmann- Feldman et al reported an average of 25 visits to physical therapists per episode of LBP, and all subjects in their study were receiving Workers’ Compensation.

Kaizen approach

- Previous model was meeting over period of time with little progress requiring input from multiple people

- Kaizen model adjust/modify program as issues arise
  - Perfection is not immediate, rather occurs over time
  - Empowerment of staff to create and implement

Kaizen rules

4 Rules

- Low cost
- Low risk
- Easy to implement
- Easy to reverse

Rehabilitation Kaizens

- Problem
  - Difficult to obtain key for locked equipment area
  - Therapist traveled to staff room (10 minute round trip) to obtain key

- Solution
  - Key placed on floor in designated secure location
  - Eliminated travel time to staff room

- Problem
  - Exercise programs stored in staff room (10 minute round trip)
  - Program in staff room too generic, not applicable to specific patient populations

- Solution
  - Create exercise program for each individual floor/patient population
  - Exercise program stored on designated floor

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Rehabilitation Kaizens

Problem
- Patients not be mobilized early on in their hospital stay
- A year and a half worth of meetings to problem solve how to implement program with minimal impact

Solution
- With support of leaders, program started by dedicating therapist to an ICU floor
- Problems solved as they arose
- Within two months program was embraced, culture was shifting, outcomes showed improvements

Leadership's steps to be lean

- Ask the team to observe the process – hear less, see more. Believe less of what you hear
- Educate people on problem solving skills
- Measure what is meaningful
  - To the stakeholders
  - Transparency
  - Make it visible, especially problems
  - Involve the people who are close to the process to solve issues

Leadership role

- Observe
  - Visit the area where value is created and verify.
- Ask Why
  - What is the problem
  - What are the solutions to resolve (the “5 Whys”)
- Responsibility
  - Assigned for every process
  - Assigned for every problem

Successful lean culture

- What is ‘Lean’?
  - Create and implement processes to become more efficient and standardized
  - Implementation is only a part of the lean culture
- Leadership roles
  - Establish inter-divisional governance arrangements
  - Support long-term vision of organization
  - Hold all employees accountable
  - Create a ‘lean’ mindset

http://www.drmannlean.com/pdfs/The%20Missing%20Link_Lean%20Leadership_DWMann.pdf
How to maintain

• PDCA cycle

Act

Plan

Check

Do

Individualization

• Lean is definitely not a set of cookie-cutter procedures

• Each department has its own bottlenecks and waste points

• Lean is a way of finding them and finding a customized correction for them

Possible Kaizens

• Orientation
• Intake
• Scheduling
• Billing
• Other ideas

Break-out session