Lean Culture- Strategies for Simplification and Structure: A Sound Vessel to Weather the Healthcare Storm

“Quality is doing it right when no one is looking.” - Henry Ford

Toyota in the House of Ford

LEAN = Deming (perfected by)

THE W. EDWARDS DEMING INSTITUTE

- Quality focus - customer requirements
- Quality control
- Measurement (Shewhart-Deming cycle PDCA)
- Knowledge of variation, process stability
- Value of worker, PDCA at worker level
- New focus and role of the leader/manager
- Continuous improvement
- Long term plan

DEMING’S 14 POINTS

CREATE CULTURE

Status Quo

“The only things that evolve by themselves in an organization are disorder, friction and malperformance”

Peter F. Drucker

DEMING 14 POINTS

CREATE CULTURE
Deming’s Way

14 Points for Management

1. Create constancy of purpose for improvement—customer focus
2. Adopt the new philosophy
3. Cease dependence on mass production
4. End the practice of awarding business on price alone
5. Constantly & forever improve systems of production & services
6. Institute modern methods of training on the job
7. Institute modern methods of supervision & leadership
8. Drive out fear
9. Break down barriers between departments
10. Eliminate numerical goals for workforce
11. Eliminate work standards & numerical quotas
12. Remove barriers to pride of workmanship
13. Institute a vigorous program of education & training for everyone
14. Create a structure in top management that will push every day on the above 13 points

We cannot solve our problems with the same thinking we used when we created them.”

- Albert Einstein

The Challenge

Toyota Culture

“The process improvement tools and techniques, while important, are not the key for successfully transitioning from conventional manufacturing to LEAN manufacturing.

The key is the culture – that supports and stimulates continuous growth and improvement.”

(J. Womack)

One Quality Vision, Mission, Values

HENRY FORD PRODUCTION SYSTEM

- Best in Class
  - Every Life Deserves World-Class Surgical Services
- Culture of continuous improvement
  - Relentlessly Pursuing Perfection
- Culture of worker empowerment for change
  - Never Make, Accept, or Pass a Defect
- Deming management principles
  - Our People Are Our Experts & Most Valuable Asset
- Lean work rules & principles
  - Variation and Poor Communication Are Our Enemies

Empowered Workers

Transformed Culture

Continuous bottom up

Management Style

Sporadic Kaizen Events

Management Style

Direct Top-down

Concepts & Tools

Partial Adoption

Passing Fail

“Let’s Outlast This Thing!”

Degree of effort
CULTURE OF EMPLOYEE EMPOWERMENT

Common, Continuous Problem Solving Culture

"Most people spend more time and energy going around problems than in trying to solve them."

—Henry Ford

Continuous Improvement Culture

"We know from the changes that have already been brought about that far greater changes are to come, and that therefore we are not performing a single operation as well as it ought to be performed."

—Henry Ford

 CHANGING CULTURE

"Start as soon as possible to construct with deliberate speed an organization to guide continual improvement of quality."

Deming
Integrated System to Achieve Culture of Continuous Improvement

- Standard Work
- 5S
- Visual workplace
- Continuous flow
- Pull production
- Kanban
- Just in Time
- Load leveling
- Batch size
- Mistake proof

Philosophy of People 1st

Customer 1st
- Continually develop your most valuable resource, your PEOPLE
- Continuous improvement
- From the level of the work
- Blameless management

Philosophy That Promotes People

HENRY FORD PRODUCTION SYSTEM

Respect for People

Continuous Improvement

QUALITY, Cost, Time

The Henry Ford Way

Each patient & customer first
MOTIVATED & TRUSTED PEOPLE solving problems in empowered teams

Continuous improvement from the level of the work
Assume nothing
Go and see!
Never pass a defect

Blameless

“Don’t find fault, find a remedy; anybody can complain.”
-Henry Ford

“On the internet, nobody knows you’re a dog.”
Management Systems for Continuous Improvement

Integrated System to Achieve Culture of Continuous Improvement
- Standard Work
- 5S
- Visual workplace
- Continuous flow
- Pull production
- Kanban
- Just in Time
- Load leveling
- Batch size
- Mistake proof

Tools of Improvement
- Customer 1st
- Continually develop your most valuable resource, your PEOPLE
- Continuous improvement
- From the level of the work
- Blameless management

EMPOWERING SUB-SYSTEMS

The Processes of Managing for Continuous Improvement
- Deviation Management
- Daily Management
- Document Management
- Improvement Management
- Ongoing PDCA
- Continuous Improvement
- Daily Resolution
- PDCA-A3 Resolution
- Customer-Supplier Communication at level of work
- Policy, procedure, document control
- Identify Defects Non Conformances
- Team Leader Facilitation
- Standard Work, Connections, Pathways
- Container Supplier Communication at level of work
- Audit System

The Processes of Managing for Continuous Improvement
- Education
- To Work Differently
What is my role and what do you want me to do?

- Physicians, Leaders, Managers, Supervisors, Coordinators
- Quality Team Leaders
- All employees

1. Be engaged
2. Own it
3. Improve it
4. Everyday

Continually Strive to Create the IDEAL Work Condition

- Delivery of products & services should pursue the Ideal Production that is:
  - Defect Free (goal is zero, meets customer expectation)
  - On demand (supplied when you want it, in right version)
  - Immediate (now, no waiting)
  - One at a time (single piece flow, batch size of 1)
  - Continuous flow (no batches, queues)
  - Minimal waste (materials, labor, energy, other resources)
  - Safely for every employee

Basics of LEAN

Specify Value Desired by Customer
- Identify value stream & challenge all wasted steps
- Manage towards perfection (zero defects)

Reduce & Eliminate Waste, Continually
- Overproduction
- Time waiting
- Transportation
- Processing
- Stock on hand
- Movement
- Defective products

4 Rules of Work Design

- Rule 1: STANDARD ACTIVITIES
  - Specifications document all work processes to include content, sequence, timing, location & expected outcome (how do you do your work)
- Rule 2: STANDARD CONNECTIONS
  - Connections with clear YES/NO signals directly link every customer & supplier (requests & responses)
- Rule 3: STANDARD PATHWAYS
  - Every product & service travels a predefined, single, simple & direct flow path (no looping or forking)
- Rule 4: IMPROVEMENT & WORKER EMPOWERMENT
  - Workers at level where work is done, guided by a teacher, improve their own work, using data

Structure for Change

Worker Driven Continuous Improvement

1. Create organizational structure for authorized change
2. Identify group & team leaders by workstations
3. Align in path of workflow for horizontal management

EMPOWERING STRUCTURE
**EXPECTATION OF MANAGERS**

**Deming’s Redefinition of Management**

“In companies that have embraced Deming’s vision, management’s job is to ‘work on the system’ to achieve continual product and process improvement.”

The Deming-style manager must:
- Ensure a system’s consistency and reliability, by bringing level of variation in its operations within predictable limits, then by identifying opportunities for improvement, by enlisting the participation of every employee, and by giving subordinates the practical benefit of his experience and the help they need to chart improvement strategies.”

(A. Gabor)

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**Managers Weekly Checklist**

“You get what you inspect not what you expect”

1. Know and understand the variation in your work via metrics
2. Engage the workforce in quality improvements, develop your people’s skills
3. Deviations/Non-conformances outliers and trends
4. Temp humidity checks - completeness of documentation, root cause and corrective actions
5. 5S activity documentation
6. Posted job aides and all visuals reviewed and updated
7. New or revised procedures reviewed with staff and staff competencies verified
8. New problems of risk (mis-ID, safety) and resolutions discussed
9. White Board review leading to interventions and process improvements
10. Ongoing and planned process improvements reviewed
11. Inventory and kanban check
12. Lead then delegate “Share the Gain”

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**The TRIAD of Quality!**

**Metric**
- WHAT do you measure?

**People**
- WHO measures?

**Structure**
- HOW are defects fixed?

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**Managing the Visual Workplace**

- PDCA-Based Continuous Improvements
- Deviation Management
- Daily Tracking of All Non-Conformances
- With Documented Immediate Resolutions or Root Cause Analysis with Corrective/Preventive Actions
- Daily Management Boards
- Tracking & Trending of Select Performance Metrics by Workstations

- Whiteboards
- Daily Visual Capture of Select Non-Conformances by Workstations
Visual Workplace “No Problem is a Problem”

- 7 Wastes
- 5 Why’s
- 4 Work Rules
- Process
- Leader

Capture Daily Defects
1. Wrong patient identification
2. Ran out of gloves- size medium
3. Not enough specimen collected for lab test

Daily Resolution of Defects
Rapid (Defects corrected on the spot)
A3 (PDCA analysis and customer-supplier involvement)

Communication & Education
All shifts
(New policy, standard work, hours, competency, quality tool)

Surgical Pathology Core Lab

EXTRACTION OF WORKERS

CQI = Daily Team Sport
LESSON

“Getting good players is easy. The hard part is getting them to play together.”

Casey Stengel
Baseball manager and philosopher

The Engaged Worker

Transform approach to work
- Not just showing up for work, but arriving to do the work better

Empowered workers who see their daily work in the context of:
- Continually learning
- Constantly communicating
- Making effective process improvements
- Designed and tested by scientific method

Empowered Personnel, Correcting One’s Own Errors, Accountable For Solving Problems in Teams & Creating Standard Work

What is a defect?

Poor quality of service or product that makes you:
- Stop your work
- Reject it
- Return it to sender
- Delay your work to fix it yourself
- Not pleased, could be better

Error = hurts someone

Structure & Process for CQI from “shop floor”

Redefine the Expectation of “Work”

Never Accept, Make or Pass a Defect

“It’s the work, not the man that manages.”

VISUAL WORKPLACE -DEFECTS- BLAMELESS CULTURE

What is a defect?

= WASTE
= REWORK

Measures of Variation
Drive Comes from Working Toward the Purpose & Clear Targets Through Creative Problem Solving

- Current State
- Vision
- Mission
- Purpose
- People involved
- Core Challenge
- Target

Continual Improvements Toward Goal

- B-natriuretic peptide
- Repetitive PDCA Cycles

Expected Outcomes of Cultural Change

- Reduction in rework
- Throughput
- Timeliness
- Unused capacity
- Productivity and efficiency
- Patient and Employee Safety
- Regulatory deficiencies
- Job satisfaction
- Customer satisfaction
- Cost and Profitability

Eliminate Rework

- Surgical Pathology

<table>
<thead>
<tr>
<th>Defects</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
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<tbody>
<tr>
<td>Total SP Cases</td>
<td>1690</td>
<td>1791</td>
<td>1000</td>
</tr>
<tr>
<td>Cases with Defects</td>
<td>472</td>
<td>223</td>
<td>24</td>
</tr>
<tr>
<td>Total Defects</td>
<td>494</td>
<td>288</td>
<td>24</td>
</tr>
<tr>
<td>1 of 3</td>
<td>1 of 8</td>
<td>1 of 40</td>
<td></td>
</tr>
<tr>
<td>Defective Case Frequency</td>
<td>27.9%</td>
<td>12.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>30/day</td>
<td>30/day</td>
<td>5/day</td>
<td></td>
</tr>
<tr>
<td>Defect reduction</td>
<td>55%</td>
<td>91%</td>
<td></td>
</tr>
</tbody>
</table>

Top 4 defects Lab made

- Fix Real-time
- Top 4 defects
- 42%
- 97%
- 62%
- 89%

Power of People

- My theory of waste goes back of the thing itself into the labour of producing it
- Henry Ford

Defect Comparison 2006 to 2007

- Total SP Cases: 2006 - 1690, 2007 - 1791, 2008 - 1000
- Defective Case Frequency: 2006 - 27.9%, 2007 - 12.5%, 2008 - 2.5%
- Defect reduction: 2007 - 55%, 2008 - 91%

Expected Outcomes

- 91% Eliminate Rework
- Total SP Cases: 2006 - 1690, 2007 - 1791, 2008 - 1000
- Defective Case Frequency: 2006 - 27.9%, 2007 - 12.5%, 2008 - 2.5%
- Defect reduction: 2007 - 55%, 2008 - 91%
**Total Process Improvements**
Pathology & Laboratory Medicine Service Line

**Lean Year 4**
- 2009: 536
- 2010: 1,120
- 2011: 1,392
- 2012: 1,335

**Lean Year 5**
- 2009: 1,120
- 2010: 1,392
- 2011: 1,335
- 2012: 536

**Lean Year 6**
- 2009: 1,120
- 2010: 1,392
- 2011: 1,335
- 2012: 536

**Lean Year 7**
- 2009: 1,120
- 2010: 1,392
- 2011: 1,335
- 2012: 536

**Key**
- Henry Ford Hospital Laboratories
- All Laboratories, Hospitals and 30 clinics

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**wRVU Anatomic Pathologists**
Pathology & Laboratory Medicine Service Line

**Integration**
- 2008: 7,363
- 2009: 7,500
- 2010: 7,500
- 2011: 7,500

**Average RVU/FTE**
- 2008: 5,833
- 2009: 7,500
- 2010: 7,500
- 2011: 7,500

**Target**
- 2008: 5,131
- 2009: 6,923
- 2010: 7,363
- 2011: 7,363

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**Patient Safety**

**Reduction in Pathologist Mis-Interpretations**

**Amended Reports per 10,000 cases**

- 2005: 12.4
- 2006: 3.1
- 2007: 1.4
- 2008: 2.8
- 2009: 0.8
- 2010: 0.3

**HFH range**
- 38,000 - 49,000 surgical cases/year

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**Employee Engagement**

**Gallup Q12 Survey**

- 12 items
- Max score 5

**Grand Mean (of all 12 items)**

- Overall satisfaction
- I know what is expected of me at work
- I have the materials & equipment I need to do my work right
- At work I have the opportunity to do what I do best everyday
- In the last 7 days, I have received recognition or praise for doing good work
- My supervisor or someone at work, seems to care about me as a person
- There is someone at work who encourages my development
- At work, my opinions seem to count
- The mission or purpose of my company makes me feel my job is important
- My associates or fellow employees are committed to doing quality work
- I have a best friend at work
- In the last 6 months, someone at work has talked to me about my progress
- This last year, I have had opportunities to learn and grow

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**CAP Inspection Deficiencies**

**Henry Ford Hospitals**

**CAP Onsite Accreditation Inspections**

**2009-2014 Total Deficiencies**

**HFH WBH WH MCT**

**Total # of Deficiencies [Phase I & II]**

- 2009: 201
- 2010: 32
- 2011: 9
- 2012: 16
- 2013: 4
- 2014: 15

**HFH range**
- 38,000 - 49,000 surgical cases/year

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**Employee Engagement**

**Gallup Q12 Surveys 2008 vs 2010 vs 2012**

**Grand Mean Performance Trend in Employee Engagement Surveys**

**Gallup Healthcare Percentile Rank**

- Surgical Pathology
- Cytopathology
- Microbiology

**2008**
- 4.7
- 3.5
- 3.8

**2010**
- 4.8
- 3.6
- 3.9

**2012**
- 4.9
- 3.7
- 4.0

**54**
- 50

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11/6/2014
**Anatomic Pathology Clinician Satisfaction**

- **Percent Favorable Score**
  - Overall Satisfaction
  - Diagnostic Accuracy
  - Communicate Relevant Info
  - Timely Reporting
  - Tumor Boards
  - Teaching Conferences
  - Frozen Section Accessibility
  - Responsive to Problems
  - Professional Interaction
  - Courteous Support Staff
  - Abnormal Results Notification
  - Report Clarity

**Challenge**

- **Volume vs. FTE**
  - 2011: 3% FTE
  - 2012: 3.5% FTE
  - 2013: 10% FTE

**Main Hosp & Core Lab Unit Cost Trends**

- **Expense per Test (or RVU)**

**LEAN is SLOW So you can get FAST**

**Manage Toward the Goal**

- Results as Lean Evolves to Aligned Continuous Improvement
  - **With Philosophy**
  - **Without Philosophy**
  - Starting out: Maturity in Integrating Lean and Business Strategy
  - **Target For Quality**
  - **With Philosophy**
  - **Without Philosophy**

**Lean Deployment Phase I – Applying & Teaching Tools**

- **Outer Circle**
  - Apply & Teach Tools

**Characteristics**
- Beginning of Lean Activity
- Focus on teaching and using the tools
- Activity is “Event” based (e.g., kaizen events) or “Project” based (e.g., kaikaku)
- Activity is lean “expert” driven and directed (External)
- Focus: Fix processes to demonstrate results

**Warning:** This phase by itself is not self-sustaining. Entropy Will Set in Degrading to a Lean Façade!
Lean Deployment Phase II – Management-Led Lean

Characteristics:
• Local ownership of lean by managers of the core operations
• Evidence of lean thinking in middle management
• Periodic adjustment by middle and senior management (with staff expert support)
• Activity Driven by local leader (takes responsibility)
• Focus: Involve Middle Managers in Improvement

Warning: Management Led Lean can arrest entropy, but expect Episodic improvement

Lean Deployment Phase III – Aligned Continuous Improvement

Characteristics:
• Local ownership of lean by team members and leaders
• Clear evidence of lean thinking in work groups
• Activity is continuous (team & individual focus)
• Activity is aligned with business goals (hoshin kanri)
• Leadership chain responsible for kaizen & coach kaizen
• Focus: Achieve business goals while building Continuous improvement culture top to bottom

Warning: This is an ideal vision you will never fully achieve and requires a life-long commitment!

Quality as Teamwork

The Best Team Wins!
-Danaher Business System

Failure Points in Lean Adoption

- Poor leader commitment, engagement, support
- Poor communication of the vision
- Poor manager buy in and engagement of employees
- Lack of education and facilitation of employee involvement
- Lack of structure to enable people to work collaboratively
- Persistent silos of control or finance that preclude people from redesigning proper approaches to work
- Focus on just financial gain
- Persistence of a “blame” culture
- Fear of losing one’s job
- The usual resistance to change- make the case!

Take Home Messages

• Leadership commitment is key. Move beyond tools
• Leaders & Managers Own It or Fail
• Create management systems and structures
• Communication, effective and often is required
• Empower the worker to voice ideas and develop improvements related to daily problems
• Customer-Supplier meetings to discuss requirements
• Create a Lean organizational structure so employees have structure to succeed in the new work expectation of continuously improving the work

The Bottom Line

The real challenge is to expand beyond understanding lean as a set of tools, and more aggressively pursuing an understanding of the comprehensive approach to managing organizations so they are capable of self-diagnosis, learning, and relentless internally generated improvement and innovation.

-Steven Spear 2010
As Leader, this is your JOB #1

“Our system of management is not a system at all; it consists of planning the methods of doing the work as well as the work.”

-Henry Ford