

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


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APF Fall Meeting, Detroit, MI

Richard J Zarbo, MD
Henry Ford Health System

Status Quo

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




Peter F. Drucker

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Toyota in the House of Ford



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LEAN = Deming (perfected by)



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THE W. EDWARDS DEMING INSTITUTE®

W. Edwards Deming

- 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

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DEMING'S 14 POINTS CREATE CULTURE

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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

W E Deming Out of the Crisis, 1982

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The Challenge

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

-Albert Einstein

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CULTURE OF CONTINUOUS IMPROVEMENT

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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)

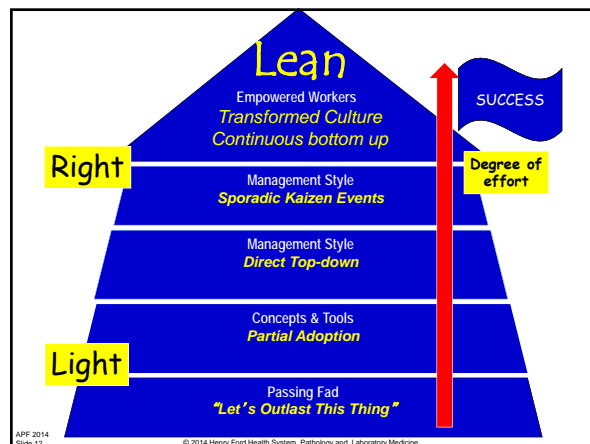
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One Quality Vision, Mission, Values

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

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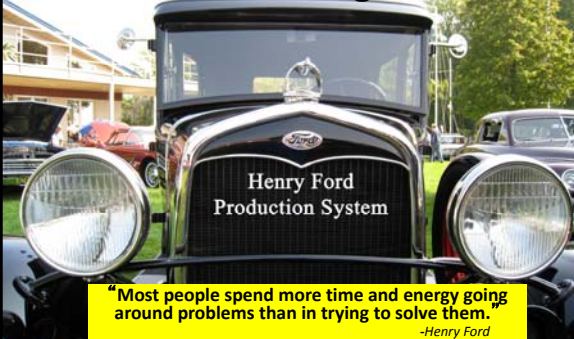


CULTURE OF EMPLOYEE EMPOWERMENT

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Common, Continuous Problem Solving Culture



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

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Foundations of Lean Production

VALUE
High Quality, Low Cost, Shorten Time
Toyota's "Lean" Production System

The System

Just-in-Time

Build in Quality (Jidoka)

The People

<p>Pull System Produce What is Needed, When Needed, In Quantity Needed One Piece Flow Continuous Flow Eliminate Man, Machine, Material, Method Problems Impacting Flow</p>	<p>Stop & Notify Abnormalities Immediate Quality Feedback Defects Visible at Source Call for Help. Quick Action to Fix Countermeasures to Not Pass Defect More Effective Use Human Resources</p>	
Production Leveling (Heijunka)	Standard Work	Continuous Improvement (Kaizen PDCA Cycles)

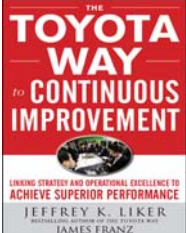
STABILITY

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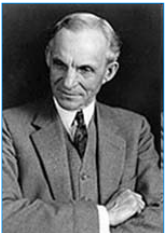
Continuous Improvement Culture

"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



"Relentlessly pursuing perfection!"

Chapter 9
Bringing Ford's Ideas Alive at Henry Ford Health System Labs through PDCA Leadership



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CHANGING CULTURE

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Deming


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

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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




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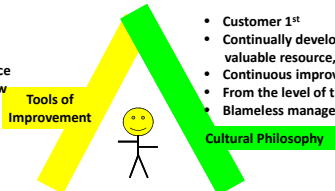
Philosophy of People 1st

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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



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

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Philosophy That Promotes People

HENRY FORD PRODUCTION SYSTEM

VALUE
Quality, Cost, Time

The Henry Ford Way

Respect for People Continuous Improvement


MANAGEMENT SYSTEM		HUMAN DEVELOPMENT QUALITY PHILOSOPHY		TECHNICAL TOOLS
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
STABILITY				

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Blameless

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



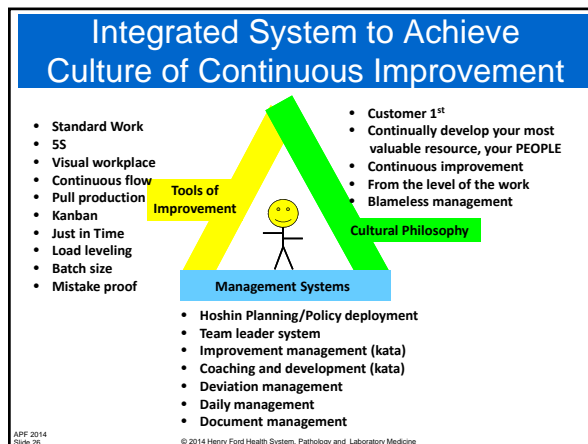
“On the internet, nobody knows you’re a dog.”

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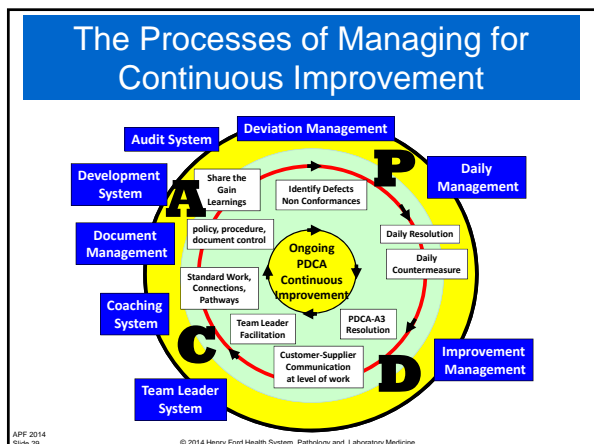
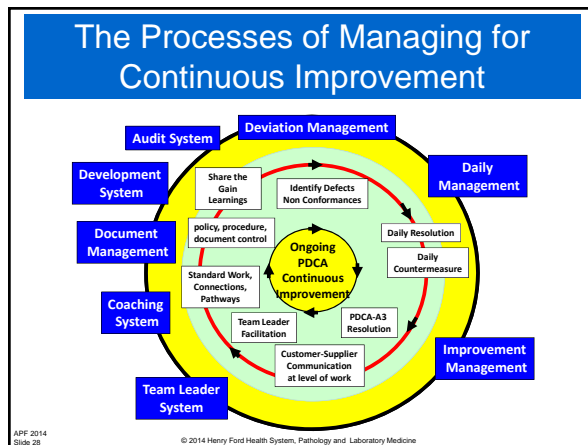
Management Systems for Continuous Improvement

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EMPOWERING SUB-SYSTEMS

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Educate to Work Differently

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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

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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

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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

Process Focused
Incremental Improvements

Specific Ideals, Rules,
Operational Principles

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4 Rules of Work Design

Decoding the DNA of the Toyota Production System: Spear & Bowen Harvard Bus Rev Sept-Oct 1999

- **Rule 1- STANDARD ACTIVITIES**
 - Specifications document all work processes (include content, sequence, timing, location & expected output) (how do you do your work)
- **Rule 2- STANDARD CONNECTIONS**
 - Connections with customer & supplier (directly link every customer & supplier response)
- **Rule 3- STANDARD WORK**
 - Every process step involves a predefined, single, simple & direct flow (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

STANDARDIZATION
REDUCE VARIATION

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EMPOWERING STRUCTURE

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Structure for Change

Worker Driven Continuous Improvement

The diagram illustrates a worker-driven continuous improvement structure. At the top, three Group Leaders oversee three teams. Each team has a Team Leader and shared members. Below the teams are five workcells (Workcell 1 to Workcell 5) and three silos (Silo 1 to Silo 3). The workflow flows from left to right through the workcells and silos, eventually leading to the Work Product. A red arrow points to 'Customer-Supplier Interaction' at the bottom, indicating its role in the process.

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

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EXPECTATION OF MANAGERS

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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."

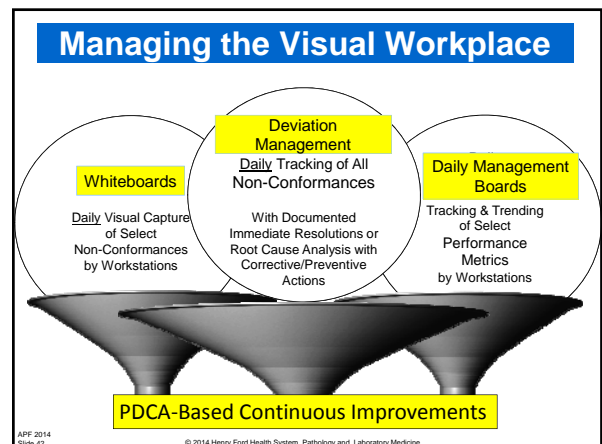
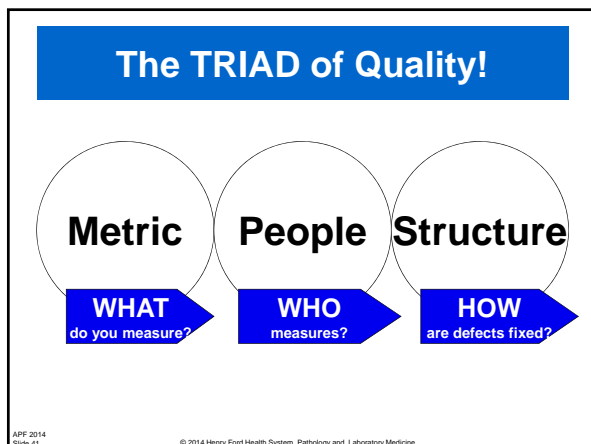
The Deming-style manager must-ensure a **system's consistency and reliability**, by bringing level of **variation in its operations within predictable limits**, then by **identifying opportunities for improvement**, by enlisting the **participation of every employee**, and by **giving subordinates the 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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"If you can't measure it, you can't improve it"

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Visual Workplace "No Problem is a Problem"

7 Wastes	5 Why's	4 Work Rules	Process	Leader
7 Types of Waste Inventory - material that sits around Defects - process & product mistakes Transport - unnecessary movement Processing - more than needed Use - unnecessary material used Motion - unnecessary movement of people Waiting - stand at workbench	Root Causes 1. Lack of training 2. Lack of information 3. Lack of resources 4. Lack of authority 5. Lack of communication	4 Rules of Visual Control 1. Make it visible 2. Make it understandable 3. Make it self-explanatory 4. Make it self-correcting	APF Process Improvement Procedures 1. Identify the problem 2. Analyze the problem 3. Plan the solution 4. Implement the solution 5. Check the results 6. Standardize the solution	Wednesday's Words of Quality

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

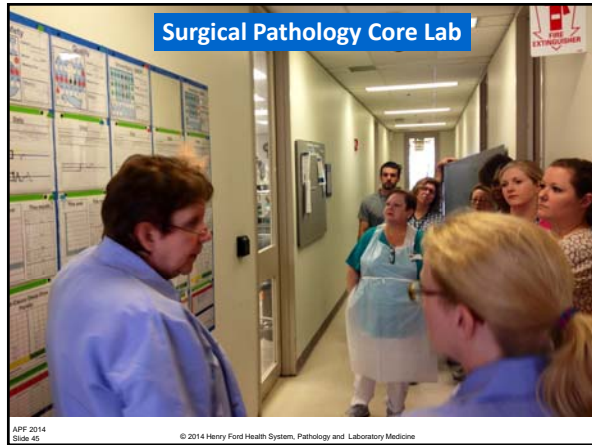
Rapid (Defects corrected on the spot)

A3 (PDCA analysis and customer-supplier involvement)

Communication & Education

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

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Q	T	I	P	S	Visual Management At-a-Glance DAILY Gemba Rounds with workers • Each square has all days of month • Color each per performance • RED: METRIC FAILED THRESHOLD • GREEN: METRIC MET THRESHOLD				
Quality	Time (Delivery)	Inventory or Work in Process	Productivity	Safety					
Work Group Specific Metrics					Trendlines • Trend challenging metrics • Day, week, month, year... • BLUE: THRESHOLD • RED: TIME OF FAILURE • GREEN: TIME PASSING THRESHOLD				
Root Cause Analysis					Pareto Charts, RCA etc. <table border="1" style="width: 100%; border-collapse: collapse; font-size: 6px;"> <tr> <td style="width: 50%;">What</td> <td style="width: 50%;">When</td> </tr> <tr> <td>Why</td> <td>How</td> </tr> </table>	What	When	Why	How
What	When								
Why	How								
Corrective Actions		Preventive Action Plan PDCA Improvements			Countermeasures: Corrective & Preventive Actions Assign responsibility and Accountability for completion Associated PDCA - A3 Projects				

EXPECTATION
OF
WORKERS

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CQI = Daily
Team Sport

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LESSON

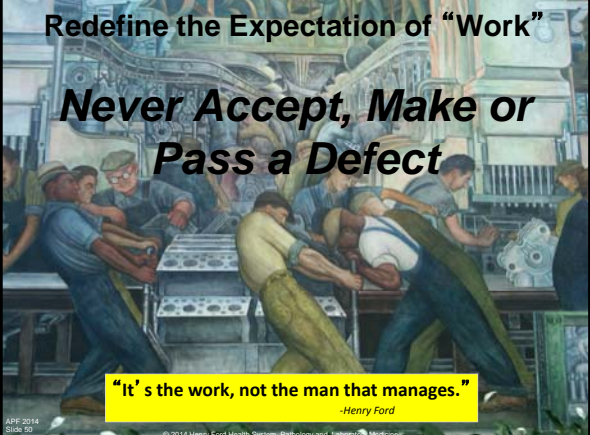
“Getting good players is easy. The hard part is getting them to play together.”

*Casey Stengel
Baseball manager and philosopher*

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Redefine the Expectation of “Work”

Never Accept, Make or Pass a Defect



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

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The Engaged Worker

Transform approach to work

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

Culture

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

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**VISUAL
WORKPLACE
-DEFECTS-
BLAMELESS CULTURE**

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What is a defect?

Poor quality of service or product that makes you:

- Stop your work
- Reject it
- Return it to supplier
- Delay your process to fix it yourself
- Not produce what you could be better

Measures of Variation

= WASTE

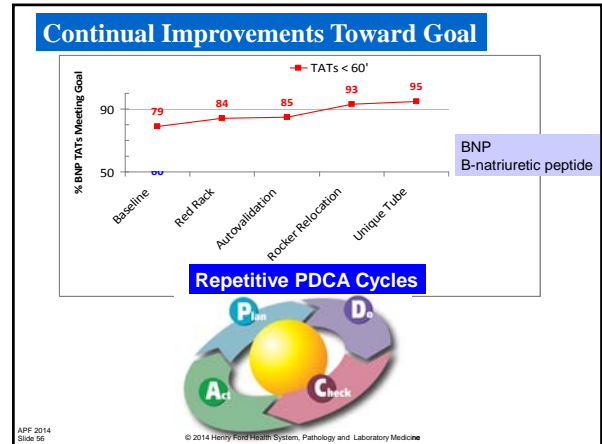
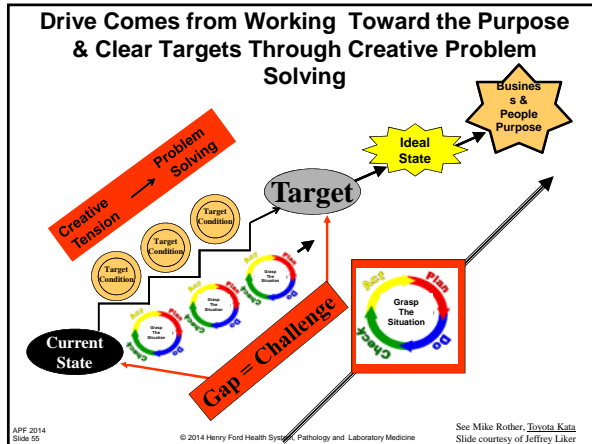
= REWORK

Error = hurts someone

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**Structure &
Process for
CQI from
“shop floor”**

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Expected Outcomes of Cultural Change

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- ### Expected Outcomes
- Reduction in rework
 - Throughput
 - Timeliness
 - Unused capacity
 - Productivity and efficiency
 - Patient and Employee Safety
 - Regulatory deficiencies
 - Job satisfaction
 - Customer satisfaction
 - Cost and Profitability
- APF 2014 Slide 58 © 2014 Henry Ford Health System, Pathology and Laboratory Medicine

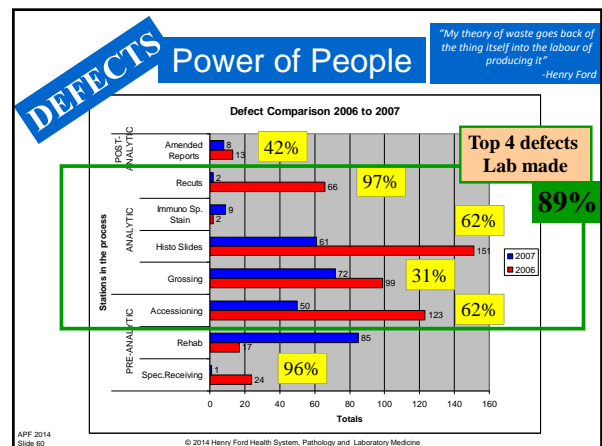
Eliminate Rework Surgical Pathology

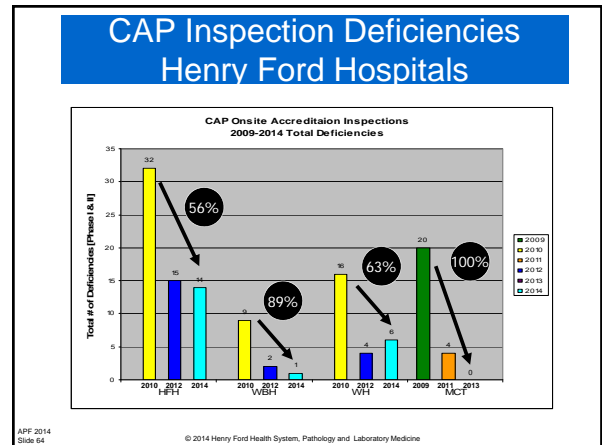
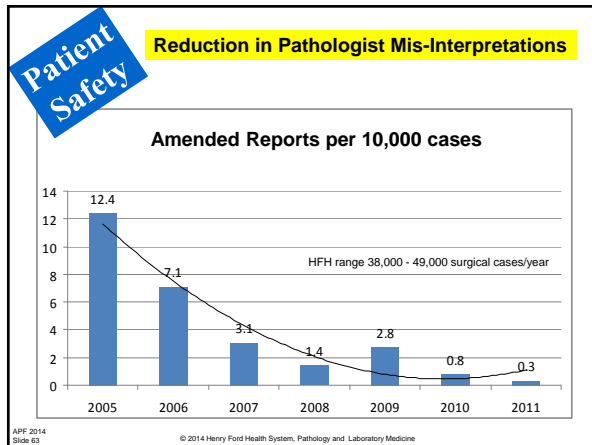
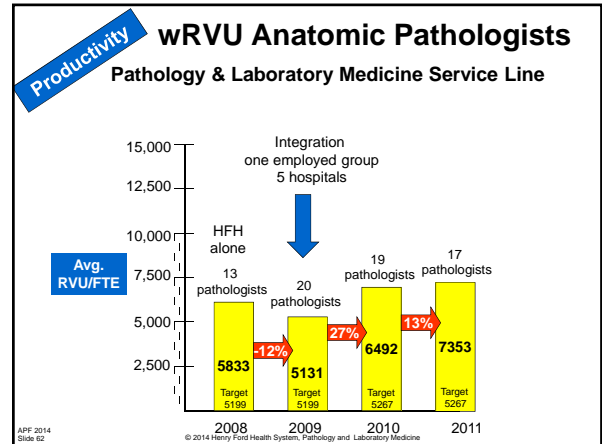
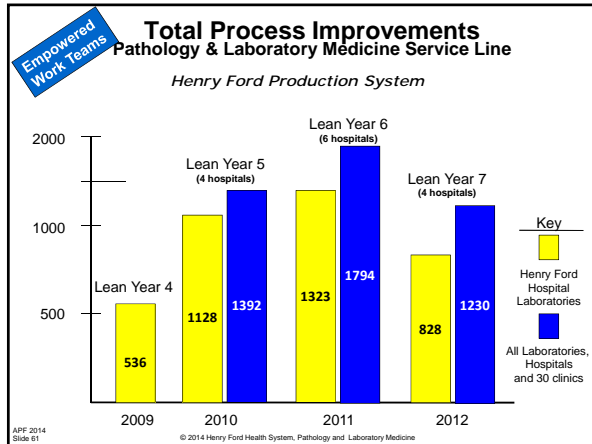
Rework WASTE

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

Fix Real-time

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Employee Engagement

Gallup Q12 Survey

12 items
Max score 5

GrandMean (of all 12 items)

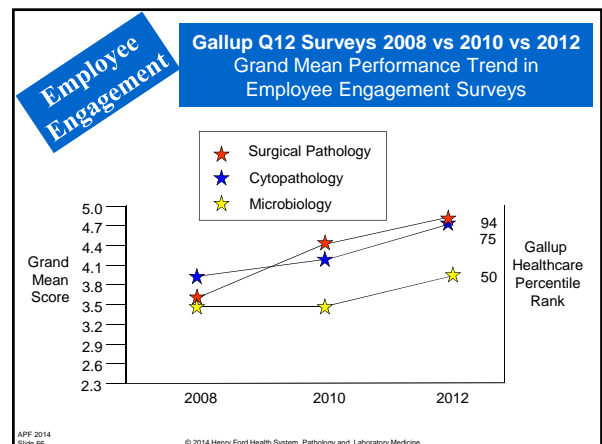
Overall satisfaction

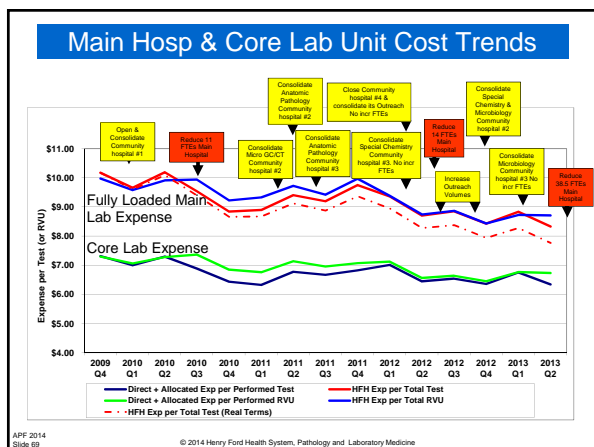
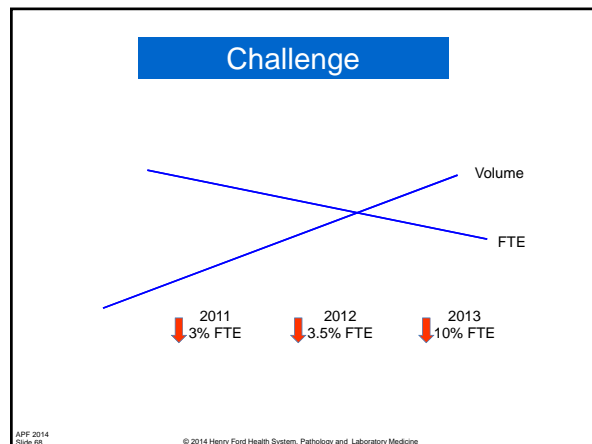
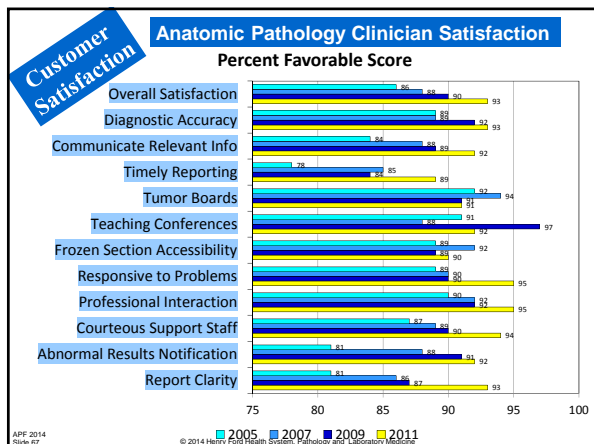
- I know what is expected of me at work
- I have the materials & equipment I need to do my work right
- At work I have the opportunity to do what I do best everyday
- In the last 7 days, I have received recognition or praise for doing good work
- My supervisor or someone at work, seems to care about 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

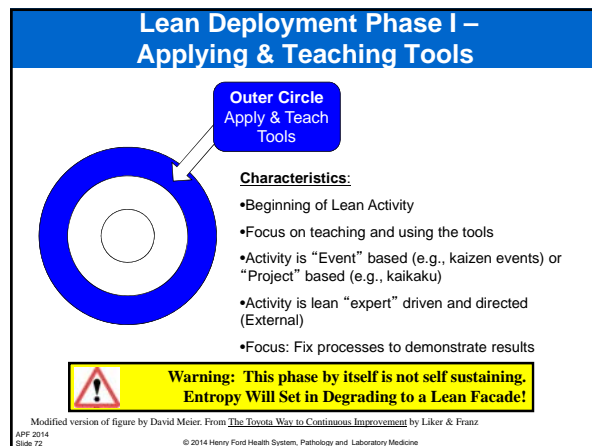
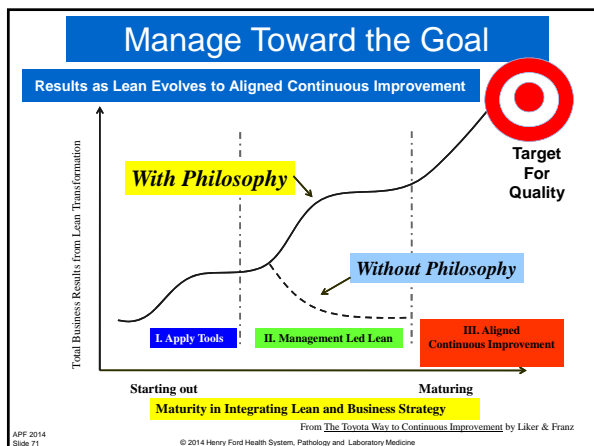
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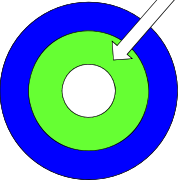
LEAN is SLOW
So you can get **FAST**

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Lean Deployment Phase II – Management-Led Lean

Middle Circle
Management-Led Lean



Characteristics:

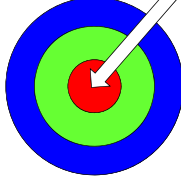
- Local ownership of lean by managers of the core operations
- Evidence of lean thinking in middle management
- Periodic adjustment by middle and senior management (with staff expert support)
- Activity Driven by local leader (takes responsibility)
- Focus: Involve Middle Managers in Improvement

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

APF 2014 Slide 73 Modified version of figure by David Meier. From *The Toyota Way to Continuous Improvement* by Liker & Franz © 2014 Henry Ford Health System, Pathology and Laboratory Medicine

Lean Deployment Phase III – Aligned Continuous Improvement

Inner Circle
Aligned Continuous Improvement



All three layers are necessary!

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!

APF 2014 Slide 74 Modified version of figure by David Meier. From *The Toyota Way to Continuous Improvement* by Liker & Franz © 2014 Henry Ford Health System, Pathology and Laboratory Medicine

Quality as Teamwork



The Best Team Wins!
-Danaher Business System

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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!

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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

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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

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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

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