Getting More from Lean and Six Sigma Projects by Engaging Employees through Visual Communication

Lab Quality Confab 2014



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Today's Speaker

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Cedars-Sinai Medical Center

- One of largest not-for-profit medical center with 886 licensed beds
- More than 10,800 full-time employees, 2100 physicians on medical staff, 2800 nurses and more than 2000 volunteers, over 500 residents and fellows
- Annually, more than 6400 babies delivered, 32,000 operating room procedures, 83,000 emergency department visits, 49,000 admissions and 611,000 outpatient visits





Serving the Los Angeles community



Recognized as a Leading Hospital





2013/2014

CONSUMER CHOICE #1

NATIONAL RESEARCH Corporation



Department of Pathology and Laboratory Medicine

- 5 million tests
- 170 outreach requisitions
- Full service anatomic pathology services, including >1000 heart biopsies per year
- Core competency: Clinical Effectiveness
- Quality Systems, Lean and Six Sigma are core strategies for "Performance Excellence" (Value Creation & Delivery)



Lean and Quality Management Systems are complementary

	Structure		Process		Outcomes
1. 2.	Organization Facilities and	4. 5.	Equipment Purchasing &	9.	Occurrence Management
3.	Safety Personnel	6.	Inventory Process Control	10.	Assessments – internal & external
		7.	Documents and records	11.	Customer Service
		8.	Information Management	12.	Process Improvement

QMS based on CLSI guidelines



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QMS Provides Stability for Improvement



Stability in 4'Ms required

Today's Agenda

- > What is employee engagement?
- What is visual communication?
- What is visual management?
- Benefits of visual display
- > Examples of visual display

Engagement/Empowerment is a cultural enabler for Lean Culture.



Background

- Improvements in healthcare often involve developing organizational capabilities
- Communication with the workforce is essential for aligning improvement strategies to day-today operations
- Employee engagement is a critical factor that can determine success or

failure.



What is Employee Engagement?

- <u>Commitment</u>, both emotional and intellectual, to accomplish work, mission, and vision of the organization.
- Contributing factors are multifactorial such as trust, motivation, <u>communication</u>, development, recognition, etc.



Visual Communication

- Visual Communication is any device used in the work environment to tell us at a glance how work should be done and whether it is deviating from the standard i.e. gaps: target vs. actual
- What can we monitor visually? Almost anything:



Visual Management

- Step 1: Displaying goals and objectives in the workplace
- In this day of computerized reports, often communication is *ineffective*, with frontline employees having no link between activity and organizational objectives.
- Up-to-date "<u>Quality Corners</u>" communication board is a first step.



Visual Management in Lean

- <u>Visual Management</u> is taken to higher levels (not virtual).
 - An improvement tool that utilizes visual aids, for understanding at a glance.
- Visual Control. Any communication tool...that tells us at a glance how work should be done and whether it is deviating from the standard.

Visual Control: Toyota Way Principle #7



Communication with Visible Goals

- 5 year
- 1 year
- Hospital MBOs
- Department
- (1) Visual Display makes a Public Commitment, and Communicates.
- (2) Must connect people to the goals.
- (3) Leadership is a cultural enabler for Lean Culture.
- (4) Engagement requires communicating alignment.

Quality Strategic Plan



Visual Quality Awareness Modules

- Online training modules with quizzes
- 12 QSEs plus lean wastes
- Awareness training for all employees (1 module per month) for a year
- What is Quality in Health Care?
- Who is our Customer?
- What is a Process?
- What is a Nonconforming Event?

 (1) Without Knowledge/ Awareness you will NOT get Engagement (they will be detached)
 (2) Enlighten first with "WHY"

Visual Communication History

- Predates Lean to *cavemen*
- Link between visual graphs and efficiency noted early in the industrial age in the United States (1910-30), e.g., Gantt chart and Shewart charts
- Toyota mastered standardized procedures; and simple visual instructions at the workbench – 1930s-40s
- Ishikawa taught the Basic 7 QC Tools 1940s-50s
- Kanban, 5S, Andon 1950s

Humans are visually, tactilely and audibly oriented. Best visuals are right at the work site.



Prehistoric human caveman drawing 35,000 years ago



Armies carrying banners, prehistoric to 1900 AD

Visual Electronic Documents

- Visual procedures off the shelf and available at the point-of use
- Streamlined with redundant procedures eliminated
- Simple <u>visual instructions</u> for important procedures
- Used in Training
- Basis for Training Checklists (Visual Management)
- Enabler for better Forms (Visual Management)
- Simple visual instructions for important procedures approved as Attachment (Visual Management)



Three main categories of "Root Causes" of Error and Variations in Quality

Inadequate procedure

- missing, incomplete, poorly written or incorrect, outdated, etc.

- Inadequately followed procedure
 - lack of training, inaccessible procedure, multiple versions, etc.
- Inadequate system

Standard Operating Procedures (SOPs)

- Procedures should have Step-by-Step Instructions.
- It is better to use a <u>table format</u> in your SOPs

Step	Action			
1	Turn power off.			
2	Open front door.			
3				
4				



Basic Quality Control Tools

- No heavy statistics required:
 - 1. Flowchart aka "Process Flow Map (PFM)"
 - 2. Cause & Effect Fishbone aka "Ishikawa Diagram"
 - 3. Check Sheet
 - 4. Graph

for example, Run Chart

- 5. Histogram
- 6. Pareto Chart
- 7. Control Chart
- 8. Scatter Diagram





Quality Corners in Lab Sections



(1) Humans are motivated by work that keeps them informed about how their efforts affect the outcome; (2) GOALS and METRICS are Top Motivators for human beings.

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Quality Corners, cont



Visual Dashboard



Visual Instructions

Visual Quarterly Report-Outs

- Visual PowerPoint Presentations
- Facts and data required
- Focus becomes IMPROVEMENT
- Helps Accountability
- Recognition for the "doers" (not bosses)
- Platform for Information Sharing <u>(Yokoten)</u>
 - = "best practice sharing"



Visual Graphs and Charts

Total Scheduled Staf

WeekdayAvg - IP WeekdayAvg - OP & OR WeekdayAverage Accession Oyde Time (minu Full Time Equivalent (50 mi

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40 40 40

44 74

300

250

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Receiving Inapter

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Weekend Avg - IP Weekend Avg - OP



Intra-Operative Blood Ordering Workflow

Phlebotomist Staffing-by-Workload

💳 Total Scheduled Staff 📼 Total Calcualted Staff 🖛 Weekday Average

4am 5am 6am 7am 8am 9am 10am 11am 12om 1om 2om 3om 4om 5om 6om 7om 8om 9om

45.0

40.0

35.0

30.0 E

25.0 9

20.0

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Weekeind Alverage

Lean Six Sigma Yellow Belt Course

 Employees learn to identify waste, read/make charts and graphs, PDSA





Visual Management using White Boards

- In Lean, all forms of visual aids are used: electronic dashboards, checklists and whiteboards.
- A different kind of pilot was started in CSMC Anatomic Pathology using whiteboards.
- It's not about boards!
- It's how they are used....



It's Not about the Boards



Thedacare Daily Huddle Board Pilot



	Rounding Follow-up March 2010
	Completed These are opportunities that we answered right away. Purchased two new scanners
Ŏ	Work in Progress: These are opportunities that we couldn't answer right away, but are working on. <u>Hire two staff positions (By 6/15/10—in interview</u> process now
Ŵ	We can't do now and here is why: These are requests that we cannot of at this time and the reason why. Need additional parking (New structure to be completed in 2013)

Rounding on Staff is an excellent tool to teach managers to talk to staff (based on Studer).

Visual Management involves and aligns the team and compels action





Hour-By-Hour Boards

Time	Target (Goal) Blocks Cut	How many blocks were cut today?
10am	245	200
11am	369	375
12pm	495	500

	Time	Good at at bler	Actual # inesedded	Time	of these of	Actual #	+ Processor	God	+ bills
	8:30 pm	43	21	11:00pm	50	23		150	121
		86	_ 8/	12:00pm	90	45	4:00 m		88
	H-30 pm	127	153	1:000m	150		5:00 pm	100	32
	12 30am	270	220	2:00au	220	112.	6:00pm		268
	7:30 am		269	3:00 au		176	7:00 pm	100	Law attas
	2:30 aus		315	4:00am	400	203	8:00 pm	130	107
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	11:30mm			1:00pm	940			A	-

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Refined White Board – Grossing Room Voice of Operations

1	WOR	K CELL	PRODUC	TIVITY	LEAN	PROJECT
		MON	THES	WEP 4-24	THURS 40	FRI 4-26
	2	150	46	252	101	127
	4	77.	82	64	146	67
r	5	70	116	33	38	38
15mm	6	69	190	200	143	190
0	7	-	47	13	44	42
-	8	89	182	147	104	127
-	10	134	44	135	02	124
-	//		-	57	72	24
SA	NALLS	116	142	21	49	79
8	IGS	473	565	229	163	181
10	TAL	589	707	672	554	
HOK.	- SUKVOSE (suga	-)	107	401	717	741

Intangible Benefits seen in AP

Teamwork:

- Unity/constancy of purpose
- Alignment & Shared Mental Models
- Communication & Situational Awareness

Plus:

- Employee Involvement
- •Employee development

Tangible Benefits seen in AP

- Employees are engaged and working together:
 - 1. Employee Commitment scores (how content): Improved on survey
 - 2. Employee Engagement scores (how engaged): Improved on survey
- Work Cell Productivity Project Accomplishments:
 - Increased Productivity by 15%
 - Reduced budget by 2 FTEs
 - Improved Biopsy Turn Around Time by 57%
 - Site Errors Reduced 57%
 - Specimen ID Errors Reduced 35%



Visual Display and Controls: Quality Improvement Initiative

 Designed visual controls to slow down staff and document employee verification of specimen identity information throughout the lab processes

Lean Paradox: Be More Like the Tortoise Than the Hare



AP Approach: Accessioning

Improving accuracy of computer Data Entry step (Accessioning)

- Defined current state: 6% error rate
- Defined goal: below 2%
- Engaged Staff through Visual Communication
- >Unannounced quarterly audits

Visual Controls: Accessioning

Data Entry

Tech highlights or places "√" mark on requisition next to:

- ✓ Date of Service
- ✓ Patient name
- ✓ MRN
- ✓ Ordering & cc MD
- ✓ Specimen Source
- Provided visual controls to see at a glance that data entry verification steps were made and accurately entered into the computer system



Results: 70% reduction in errors; process implemented permanently.

Visual Controls: Slide Labeling

Example: Histology

Tech places "dots" on slide label next to:

- case number
- patient name
- Provided visual controls to see at a glance that specimen labeling verification steps were made



Results: Practically ZERO errors in slide labeling errors; procedures implemented permanently until bar-code read system

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Specimen Labeling Visual Controls: Grossing Room

GROSS:

A. BIOPSY BLADDER TUMOR POSTERIOR WALL Labeled with the patient's name, labeled "biopsy bladder tum a soft pink-tan tissue fragment measuring 0.4 x 0.3 x 0.2 cm. A1. 1

Before

B. LEFT BLADDER BASE Labeled with the patient's name, labeled "left bladder base", a tissue fragment measuring 0.3 x 0.2 x 0.2 cm. Entirely submi B1. 1

GROSS: A. DUODENAL BX Labeled with the patient's name, (Smith, Jane), designated "duodenal bx", seven pieces of soft, tan-pink tissue ranging in size from 0.1 to 0.4 cm in gr submitted. A1 7

After

B. ANTRAL BX

Labeled with the patient's name <mark>(Smith, Jane),</mark> designated "<mark>antral bx</mark>", and pieces of soft, tan-pink tissue measuring 0.3 and 0.4 cm in greatest dimens B1. 2

Visual Control in Mistake-Proofing

One type of Mistake-Proofing:

- Inspections involving self-checking and successive checking (by downstream process)
- Simple, informative and very effective
- MYTH BUSTER: Lab people often mistake this to be "inefficient"; some plants conduct 100% successive inspection of priority processes.
- Provides quick detection and containment of defects (Jidoka pillar)

"Built-In Quality": includes Mistake-Proofing by workcell employees

AP Celebrating Successes through Visual Recognition Systems

- Staff Meetings: PowerPoint Presentations
- Luncheons
- AP Community Board Postings
 - Standing Ovations
 - Lab Exemplar Award
 - Safety Star Award
 - Massage Therapy
 - Spot Bonuses

Other Visual Tools in Lean

• 5S (to visually see the abnormality)

- In Immunopathology, excessive waste of motion reduced and 2 FTEs were redeployed to other tasks
- Kanban (a visual "sign")
 - Successive inventory system in Immunopathology
 - Under consideration for several areas
- One-Page PDSA form (A-3 reporting)
 - (for problem solving and visual communication)
- Color Coding, Andon lights, tape on floor, etc. (visual cues)



CONCLUSIONS from AP

- Visual Communication using Whiteboards is a valuable tool to improving **communication** and increasing **teamwork** in the medical laboratory.
- Visual Display is essential to quality and performance improvement initiatives.
- Dashboards and White boards are complementary (not competing) tools

Lessons Learned

VISUAL MANAGEMENT (Enabling)	ALTERNATIVE
Transparency	Information held in the boss' office
Discipline for correct procedure	Blame-and-shame, yelling
Continuous Improvement	Status quo or major capital investment
Visual aids for job facilitation	No help for workers
On-the-job effective training	Ineffective training – waste of time
Shared ownership	Management dictation
Management by facts	Subjective judgment, wishful thinking
Unification, constancy of purpose	Fragmentation, local optimization, fiefdoms, silos, etc.

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The Power of Visual Communication through Infographics



From: The Toyota Way

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THANK YOU!

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