Transforming Care: The Value of Lean for Physicians

PCPI Webinar

Jack Billi, M.D.
University of Michigan Health System
jbilli@umich.edu

Michigan Quality System:
www.med.umich.edu/mqs

Mark Graban, M.S., M.B.A.
Constancy, Inc. / KaiNexus
Mark@MarkGraban.com

Books, Blog, etc.:
www.MarkGraban.com

Twitter:
@Mark Graban
TOYOTA PRODUCTION SYSTEM

Organizational Culture
An Integrated System

Philosophy

People Development

Managerial

Technical
What problem are we trying to solve?
Lean Thinking = Scientific Problem Solving by everyone on the team
The endless transformation of waste into value from the customer’s perspective.

Womack and Jones, *Lean Thinking*
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Womack and Jones, *Lean Thinking*

Providing the greatest value to the customer, consuming the fewest resources, by using the creativity of the workers.

Dave LaHote, Lean Enterprise Institute
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Womack and Jones, Lean Thinking

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Dave LaHote, Lean Enterprise Institute

All teammates take initiative to find and fix root causes of most important problems daily. Leaders help.

John Shook, Lean Enterprise Institute
Teaching Physicians Scientific Problem-Solving Should Be Easy!

- All physicians learn one model in Med School:
  - The “problem” is a patient’s medical issue
  - I bet you could do an H&P on any patient!
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• This is a skill you can use on any problem!
  – A population (a group of patients you follow)
  – A safety or quality problem
  – A throughput or workflow problem
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• You can also help your staff learn to do this
  – Solve problems together
  – Help them remove the obstacles that get in the way of a good day at work
Lean Thinking is the Scientific Method Applied to Daily Work

Scientific Method
- Observation
- Hypothesis
- Intervention
- Results/reflection
- Revise hypothesis
- New intervention…
- Structured abstract

Lean Thinking
- Go see, ask why, respect
- Plan P
- Do D
- Check/reflect C
- Adjust A
- Repeat PDCA cycle…
- A3, Value Stream Map
Lean Thinking -  
*Just like great medical care*

Tackle work problems with the rigor, investigation, and systematic thinking we use for patient problems.

Help every worker become an expert clinician.
Lean Thinking is Like Great Medical Care for Daily Work

Great Medical Care
- Collect data personally, systematically, at the bedside (H&P)
- Impression and plans
- Tests and treatments
- Assess results & reflect
- Revise impression & plan
- Std write-up, presentation

Lean Thinking
- Go see, ask why, respect
- Plan P
- Do D
- Check/reflect C
- Adjust A
- Value Stream Map, A3
“Equally Important Pillars”

THE TOYOTA WAY

CONTINUOUS IMPROVEMENT | RESPECT FOR PEOPLE
What is Lean Healthcare?

• Lean is built on three bedrock concepts:
  1. respect for people
  2. scientific method to seek perfection
  3. clear purpose: to align systems, strategy, and performance to yield customer value as the result.

Source: John Toussaint, MD
Lean Respects & Supports Staff

- Ensure people have what they need to do the work
- Don’t put people in a broken process
- Doesn’t drive cost cutting through layoffs
- Not blaming people for systemic errors
- Don’t overburden people
- Have proper staffing levels
- Listen and engaging people in improvement
- Give help and support when needed
- Allow people to do meaningful work
- Work to your level of licensure
“everybody improving, everywhere, and every day”
1989 NEJM Article

SOUNDING BOARD
CONTINUOUS IMPROVEMENT AS AN IDEAL IN HEALTH CARE

Kaizen = “the continuous search for opportunities for all processes to get better”

Dr. Donald Berwick
See videos at www.leanblog.org/franciscanvideos
“The culture here is staff input into everything. They want staff figuring out how to fix things. What can we do to make our job easier? They allow us to implement things to see if it will work.”

See videos at www.leanblog.org/franciscanvideos
P-D-C-A Cycle

GRASP the SITUATION

ACTION
CHECK
STUDY

PLAN
DO

ADJUST
TRY

HYPOTHESIS

J Shook
P-D-C-A Cycle

**ACTION**
- GRASP the SITUATION: Vaccine vials expire: wastes money, pt risk
- REFLECT: No expired vials; inventory costs lower

**PLAN**
- HYPOTHESIS: Staff stock new vials in front, use front first, not the old ones in back
- TRY: Load new vials into back; First In, First Out (FIFO) Like milk in the ‘fridge

**DO**
- **CHECK**

Where else?
Lidocaine?
Test strips?

**ADJUST**
P-D-C-A Cycle

Diabetics miss preventive care

Docs focus on today’s symptoms, may not know gaps

MA works a list of gaps while rooming patient (A1c, UMA, foot exam…)

Some gaps require order, some docs miss these…

Many gaps closed; MA feels more useful; doc less stressed

GRASP the SITUATION

ACTION

CHECK

PLAN

STUDY

DO

TRY

HYPOTHESIS

REFLECT

ADJUST
P-D-C-A Cycle

GRASP the SITUATION

Many patients miss flu vaccine

ACTION

Can we spread to Advance Directives, Prevnar, …

PLAN

Doc has to remember, order, tell MA…

CHECK

Flu shots increase; pt tells doc “Got it!”; MA proud – “painless”

STUDY

DO

TRY

Standing order: every adult “offered” flu shot

ADJUST

HYPOTHESIS
How can we help all our people do 4 things every day?

• Do our work every day in a standard way that we created
  – Not just the way the work evolved!
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- Be alert to things going wrong
  - They always do!
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• Fix the problem now
  – For this patient or co-worker
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• Fix the problem now
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• Find and fix the root causes of the problem
  – So it never happens again!

Modified after Spear
Be alert to things going wrong
Be alert to things going wrong.

Cost to Fix Error

Likelihood of Finding Root Cause

Error Occurs  Next Station  End of Process  Error Hits Customer

John Shook
How do we help workers remove obstacles to a good day at work?

Lean Thinking In One Slide. Modified from Dave LaHote with permission
The Scientific Method (PDCA Cycle)

Grasp the Situation

Plan (Hypothesis)

Do (Try)

Check (Reflect)

Act (Adjust)

Countermeasures implemented as Experiments
The Scientific Method (PDCA Cycle)

- **Plan**(Hypothesis)
- **Do**(Try)
- **Check**(Reflect)
- **Act**(Adjust)

Grasp the Situation

Countermeasures implemented as Experiments
A Quick Summary of Scientific Problem Solving

• Go and See
• Ask Why
• Show Respect
A Quick Summary of Scientific Problem Solving

1. Go and See
   • Like an H&P: observe the actual work!
   • What’s happening v. what should be happening?
   • Draw a map or a diagram. Do we all agree?
Learning to See Waste
Value Stream Mapping: 
*Learning to See...Together*

- "Ah ha" moments:
  - I never knew this is how it worked!
  - I can’t believe what a mess this process is!
  - No wonder we’re frustrated!
  - It’s a miracle a patient (investigator, trainee, grant, bill...) ever gets through it!

- *All heard from physicians, nurses, staff, managers*
The Broken Office Visit
Psychiatry Referral Process

Current State Map

Brilliant people
Broken processes
Mediocre results

-Fujio Cho
A Quick Summary of Scientific Problem Solving

1. Go and See
   - Like an H&P: observe the actual work!
   - What’s happening v. what should be happening?
   - Draw a map or a diagram. Do we all agree?

2. Ask why
   - Like a Differential Diagnosis
   - What might be causing the problem? (root cause analysis)
   - Methods, Materials, Machines, Men and Women?
   - What do we know? How do we know it?
   - What do we need to know? How will we find out?
A Quick Summary
of Scientific Problem Solving

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3. Show respect
   • Don’t jump to solutions; don’t tell people what to do!
   • Trust those closest to the work; help them try their ideas.
   • If it doesn’t work, ask what they learned and what they want to try next.
Reducing Podiatrist Walking

- Created standardized cart
- Along with standardized rooms, eliminated the need to leave the room during patient encounters
“All hands on deck”

Every worker applying the scientific method to every part of daily work.

Turn all daily work into an experiment and every worker into an investigator. - Steven Spear
What Do We Know About Plans, Experiments and Failure?

- Plans are useless, planning is essential. (Eisenhower)
- No battle plan survives first contact with the enemy. (von Moltke the Elder)
- Nothing ever goes according to plan. (LaHote)
- Half the plans you make are wrong...you just don’t know which half (Billi).
- A plan is an experiment you run to see what you don’t understand about the work. (Spear)
- Most experiments fail...to prove the hypothesis. (LaHote)
- I never failed. I found 10,000 ways that don’t work. (Edison)
- The only experiment that fails is one you don’t learn from. (Billi)
Lean in Daily Work

- Intact work teams trained by their leader
- Select and monitor their value metrics
- Create standard work
- Huddle daily with visual controls
- Workers identify problems, propose countermeasures, run experiments (*not a suggestion box!*)
  - Everyday Lean Ideas (ELIs): 4 box problem solving
### Key Measures
(Ambulatory Care True North Measures)

<table>
<thead>
<tr>
<th>Improvement Category</th>
<th>Potential Connecting Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>- Hand Hygiene</td>
</tr>
<tr>
<td></td>
<td>- Falls (infusion / procedure areas)</td>
</tr>
<tr>
<td>Quality</td>
<td>- Patient Satisfaction</td>
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<tr>
<td></td>
<td>- Care Quality Measure</td>
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<tr>
<td>Timeliness</td>
<td>- New Patient Access</td>
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<tr>
<td></td>
<td>- Clinical Encounter Time</td>
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<tr>
<td>Financial Stewardship</td>
<td>- Margin</td>
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<tr>
<td></td>
<td>- Charge Reconciliation</td>
</tr>
<tr>
<td>People</td>
<td>- Faculty &amp; Staff Engagement</td>
</tr>
</tbody>
</table>
Daily Huddle:
To get us all on the same page

- Cardiac Rehab Clinic
  - Daily Huddle, <10 minutes
  - What happened in past 24 hours?
    - A cardiac arrest team went to wrong room
    - A “Red Call” (emergency) handled well
  - Who owns the problem? Next step?
  - Are we ready for today’s business?

- Cardiac Rehab Clinic Huddle
Description of Problem: Folding Chairs being hung the wrong way in patient rooms
Impact of Problem: Lowers potential risk of someone getting hurt on the hook
Reporter of Problem: Wendy Tow, Tim Mysliwski

Description of Idea: Put a picture above the chairs showing the proper way they should be hung
Impact of Idea / What Did We Learn? Photo above the chairs will help everyone to know the correct way to hang them
Date Idea Implemented: 6/12/15
Problem/Solution Summary

Description of Problem:
Currently each team member has a box of recycling that has to be individually fed into a slot in the main recycle bin. The process is time consuming.

Impact of Problem:
The time it takes to feed the documents one at a time takes the team away from performing value added work for our customers. Leads to waste of motion and overproduction.

Reporter of Problem: Payment Posting Team

Description of Solution:
Payment Posting requested and received their own key to the recycling bin allowing each team member to simply dump their box into the recycle bin.

How do we know it works?
Completed the recycling in 5 seconds versus 2-4 minutes.

Date Solution Implemented: 10/13/09
Lean Learning / Solution Summary

Picture of Problem:

Description of Problem:
Medical staff and check-in staff frustrated when patients forget to return to Ortho check-in after X-rays.

Impact of Problem:
Results in clinic delays; frustrated staff and upset patients.

Reporter of Problem:
Clinic – Front End Team

Picture of Solution:

Description of Solution:
Laminated card given to patient by Radiology as reminder to check in at Ortho reception desk to complete visit.

Impact of Solution / What Did We Learn?
Still in pilot phase – patients returning to check in more frequently – should help reduce clinic visit delays

Date Solution Implemented:
April 7, 2010
Lean Idea Summary (4-Box)

Description of Problem:
When collecting shot sheets, the labels are randomly placed and it is difficult to verify patient information for billing.

Reporter of Problem: Deanna Curran

Description of Idea:
Place labels on a form in an organized fashion.

Impact of Idea / What Did We Learn?
Made billing for shots clear and simple to read.

Date Idea Implemented: 9/29/15
Description of Problem: Release of Information forms being given to PSA’s w/o TEAM MA’s being notified. Some forms not being imaged and requests lost.
Impact of Problem: Pt. information not getting sent from other facilities due to no ROI or no paper trail for ROI.
Reporter of Problem: Danielle Burton

Description of Idea: Place a basket in staff room for forms to be placed and collected by TEAM MA.
Impact of Idea / What Did We Learn? This will help TEAM MA’s when providers ask about ROI’s so that they know if the ROI was signed and what the status is.
Date Idea Implemented: 7/21/15
**Lean Idea Summary** (4-Box)

**Picture of Problem:**

![Stop Sign](image1)

**Description of Problem:** Patients are exiting inappropriate doors, going to signs that say exit.

**Impact of Problem:** Patients are leaving out of employee only exits, or others and not checking out.

**Reporter of Problem:** Heather Simkiss

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**Picture of Implemented Idea:**

![Exit Sign](image2)

**Description of Idea:** Have signs make that state it is for employees and it’s not a patient exit.

**Impact of Idea / What Did We Learn?**

Patients will know what door to exit through.

**Date Idea Implemented:** 5/28/2015
Removing barriers that get in the way of people having a good day at work. (LaHote)
Results from the Michigan Quality System

Getting Lab Results to the Right Physician
- From 13% with no ordering physician
- To < 2%

Door to Balloon Time for Heart Attack
- From 75% within 90 minutes
- To 91%

Speed to Begin Radiation for Patients Referred for Brain Metastases
- From 3 visits over 5 days (consult, simulation, treatment)
- To 95% of patients start treatment within 24h, most on same day

Scheduling to Sports Medicine Clinic
- From 23 days (27 minutes of work)
- To 2 ½ minutes - first phonecall for 90% of patients

PICC (Long-Dwelling IV Line) Placement for Inpatients
- From 35% placed in 12 hours
- To 71% in 12 hours; 46% fewer needed Interventional Radiology
PICC Line Supply Cart 5S
Drawer: Pre-5S
Drawer: Post- 5S
Saved each nurse an hour a day!
Engaged team: front line workers and managers
Rapid Antibiotics in Febrile Pediatric Oncology Patients in the ED

- Developed a clinical practice guideline (standard work) for high risk patients independent of blood counts
- Involved physicians, nurses, pharmacists, families
- Antibiotic ordered before the patient arrives at the ED
- Anesthetic applied to skin over infusion port at home
- Family has supply kit for accessing port at local ED - Patients no longer pass another ED to start treatment
- Time between ED triage and treatment start was reduced from 207 to 100 minutes, still dropping

Consensus on standard work v. individual memory and judgment
Tacrolimus dosing in kidney transplant

– Developed protocol for tacrolimus target levels
– Built on consensus among nephrologists on dosing and use of single preferred generic
– Dosing algorithm (job aid) used each time
– Standardized medication teaching at discharge and post-op visits
– Provided discharge meds
– Standardized the frequency and process of lab follow-up

Multiple countermeasures, rapid cycle experiments, pushing the “frontier of knowledge”
Q&A – Transforming Care: The Value of Lean for Physicians

AMA Webinar

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Tools alone are not enough...

What is your *management system* for:
- Identifying problems (or goals)
- Prioritizing
- Clarifying who is responsible
- Approving their plan
- Aligning the organization around the plans
- Deploying the plan
- Checking progress to the plan
- Adjusting the plan based on the check
- Calling for help ASAP when off the plan (andon)
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Overburden (*Muri*)
The cork helmet problem...

Multiple top priorities…
“The camel can always carry another straw…”
Michigan Quality System & Lean References

Books:
- Womack, Jones. *Lean Thinking*. (An overview)
- Liker, Meier, Hoseus, Convis. *Toyota Way; Toyota Way Fieldbook; Toyota Culture; Toyota Leadership*
- Shook. *Managing to Learn*. (Best book on leadership in a lean organization and A3 use)
- Sobek, Smalley. *Understanding A3 Thinking*. (Problem solving and detailed A3 guide)
- Dennis. *Getting the Right Things Done*. (Strategy deployment or hoshin planning)
- Rother, Shook. *Learning to See*. (Value stream mapping)
- Graban. *Healthcare Kaizen; Lean Hospitals*. (Applies Lean principles to health examples)
- Toussaint, Gerard. *On the Mend; Potent Medicine* (ThedaCare’s lean journey); *Management on the Mend*
- Barnas, Adams. *Beyond Heroes*. (ThedaCare’s management system)
- Kenney. *Transforming Health Care*. (Virginia Mason’s lean journey)
- Worth, Shuker, Keyte. *Perfecting Patient Journeys*. (value stream approach)
- Martin. *The Outstanding Organization*. (build clarity, focus, discipline, engagement in your organization)
- Spear. *The High Velocity Edge*. (operational excellence examples across industry and healthcare)

Articles:
- Early ICU Mobility: uminsideview.org/2271/moving-toward-a-culture-of-mobility/
- Spear. (all Harvard Business Review) *Fixing Health Care from the Inside, Today* (9/05); *Learning to Lead at Toyota*. (4/04); *Decoding the DNA of Toyota Production System*. (9/99)

Web:
- Michigan Quality System at UMHS: med.umich.edu/mqs
- UMHS MQS Virtual Lean Resource Center (internal UMHS only): med.umich.edu/i/quality/tools/lean_assist.html
- Lean Enterprise Institute: www.lean.org webinars, books, meetings…
- Lean Transformation Model video (John Shook, “House video”) www.lean.org/common/display/?o=2763
- Lean Healthcare Value Leaders Network: createvalue.org/networks/healthcare-value-network
- AMA StepsForward module: Intro to lean in office practice: www.stepsforward.org/modules/lean-health-care
- IHI. *Going Lean in Health Care* www.ihi.org/IHI/Results/WhitePapers/GoingLeaninHealthCare
- Kaplan: Lean Health Care: Safety, Quality, Cost: iom.edu/Global/Perspectives/2012/LeanApproach.aspx

1/8/2016