Lean Thinking In An Academic Medical Center – The Beat Goes On…
Using Experiments to Cross the Quality Chasm

MIT System Design and Management Webinar
December 2012

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Michigan Quality System:
med.umich.edu/mqs
sitemaker.umich.edu/jbilli

Michigan Quality System:
• Quality
• Safety
• Efficiency
• Appropriateness
• Service
Michigan Quality System & Lean References

Books:
- Womack, Jones. *Lean Thinking*. (An overview)
- 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 kanri*)
- Rother, Shook. *Learning to See*. (Value stream mapping)
- Baker, Taylor. *Making Hospitals Work*. (From Lean Enterprise Academy, UK)
- Graban. *Lean Hospitals*. (Applies Lean principles to health examples)
- Toussaint, Gerard. *On the Mend*. and *Potent Medicine* (ThedaCare’s lean journey)
- Kenney. *Transforming Health Care*. (Virginia Mason’s lean journey)

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)
- IHI. *Going Lean in Health Care* www.ihi.org/IHI/Results/WhitePapers/GoingLeaninHealthCare

Web:
- Michigan Quality System at UMHS: med.umich.edu/mqs
- Lean Enterprise Institute: www.lean.org webinars, books, meetings...
- Lean Healthcare Value Leaders Network www.healthcarevalueleaders.org
Burning Platform for Change?

or, “When we last left our story…”
Gaps at Michigan
“No problem” is problem...

- **Quality:** Not all coronary patients get statin, aspirin
- **Safety:**
  - Medication errors
  - Labs tests labeled with wrong patient name
  - Retained surgical objects
- **Efficiency:**
  - Nurse, doctor searching for equipment, patients…
  - Weeks waiting for appointment to the right physician
  - Higher Length of Stay: no bed available for admission
- ** Appropriateness:**
  - Antibiotics for resp. infection; MRI for low back pain
- **Service:** Patients lost, staff look too busy to help
The Ideal Patient Care Experience

- The IOM “Chasm” Report gives us a vision of where to go
- Lean Thinking gives us the holistic approach and business system to get there
The Ideal Patient Care Experience

• The IOM “Chasm” Report gives us a vision of where to go
• Lean Thinking gives us the holistic approach and business system to get there
Lean Thinking:
Grass-roots scientific problem solving

How can we fit these together?
We need a plan!

Adapted from J Womack, J Liker
How can we get all our people to do 4 things every day?

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

Modified after Spear
Uninformed optimism…
-Dave LaHote

• **Process Improvement**
  – “Let’s fix everything…”
  – Lots of *learning* projects led by coaches

• **People Development**
  – “Let’s train everybody…”
  – “Then they can fix everything!”

• *No matter where you start, it’s the wrong place*
• *Forget grand strategy, just get started*  
  -Jim Womack
Initial “Learning” Projects

- Facilitators from General Motors
- 3 day value stream mapping workshops
- Projects scattered like popcorn
  - Door to balloon for heart attack
  - Pre-Op – From “decision to incision” in surgery
  - Appoint, credential, enroll new physicians
  - Lab results sent to wrong clinician
  - Appointments in a Sports Medicine clinic
  - Radiation for patients with brain metastases
- We expected them to succeed, sustain.

Most did, but few spread
Initial Approach to Training

- Anyone could “pull” training
- Singly or in groups
- 1 hour, 4 hours, 4 days…
- “Hope you use it when you get back…”
- Created “islands of lean in a sea of waste”
  - “Not sure what to do”
  - “No one around me knows what I’m doing”
  - Some efforts lost steam
Initial Results from the Michigan Quality System

Getting Lab Results to the Right Physician
• From 13% with no ordering physician
• To < 2% (over 4 years)

Door to Balloon Time for MI (heart attack)
• From 75% within 90 minutes
• To 91% (mean time now 56 minutes)

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
Drawer: Pre-5S
Drawer: Post- 5S
Saved each nurse an hour a day
Engaged team: front line workers and managers
Reflections on Initial Approach

A plan is an experiment you run to see what you don’t understand about the work. -Spear

• Process Improvement
  – “Let’s fix everything…”
  – Lots of learning projects led by coaches
  – What did we learn???
  – What did they learn???
  – “Lean done in projects by coaches”

• People Development
  – “Let’s train everybody so they can fix everything”
  – Training ahead of need is… Inventory!
  – How can we train Just-In-Time?
Evolving Strategy

*We began in the basement of two buildings*

People Development ↔ Process Improvement

- Individual learning
- Point improvements
Learning to see – as a team

• The goal is 20,000 problem solvers
• “Opportunity is missed by most people because it is dressed in overalls and looks like work.” Thomas Edison
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
Who owns the problem??

- “A nurse, a pharmacist, and a resident physician walk into a patient room…”
- “If we don’t know who owns the problem, it won’t get solved.” John Shook
University of Michigan Health System

Is *this* any match…

Executive VP
Medical Affairs

Michigan Health Corporation

Hospital and Health Centers

Medical School / Faculty Group Practice
Older patients experience complex care

For this?????
Patient Journeys

Who owns the problem??

Acute Medical (unscheduled)

Ambulatory

Primary Care

Medical Clinics

Surgical Clinics

ED

Obs Unit

Medical Inpatient

Home or ECF

Surgical (scheduled)

ORs

Surgical Inpatient

Home or ECF
What kind of organizations can do this?

• Size is not the answer…
• Structure is not the answer…
• Power or control is not the answer…
• Do we have agreement?
  – On the vision?
  – On the problems? On their owners?
  – On their root causes?
  – On which experiments to try first?

Pull-Based Authority (A3 problem solving)

Chief Engineer Model (responsibility without authority – *the shusa model*)
Title: Return to work placements are less than ideal

Background:
1. Lose trained staff
2. Not meeting SPE Commitment
3. Cost of paying unemployment
4. Time spent trying to place cases

In the 90's the practice charged for employee having to find their own position/placement where it used to be that HR could place the employee.

Previous return to work programs have failed.

Current Situation:
Supervisors were willing to accommodate work restrictions.

Un-addressed Performance Issues:
Open Positions:

Goal: 100% placed

Analysis:

Recommendations:
- Collect data
- Determine potential root causes
- Brainstorm counter measures

Random Selection & view
- Rapid return
- Slow return

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<thead>
<tr>
<th>Who</th>
<th>How</th>
<th>When</th>
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<tr>
<td>HRC</td>
<td>Collect data, analyze plan, questionnaires, interviews</td>
<td>within 60 days</td>
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<tr>
<td>Supervisor</td>
<td>Provide data, assess employee, questionnaires &amp; interviews</td>
<td>within 60 days</td>
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<tr>
<td>WC</td>
<td>Provide data, restrictions, questionnaires</td>
<td>within 60 days</td>
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<tr>
<td>Employer</td>
<td>Provide data &amp; feedback, questionnaires &amp; interviews</td>
<td>within 60 days</td>
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Followup: Develop action plan based on the outcomes of the data

Sign off: J. Mulcrone
**Title:** What we are talking about.

**Background**
Of all our problems, why are we talking about this one? The “ugly story”… Historical/organizational/business context...

**Current Situation**
Where do we stand? What is our current performance? Trend chart, current state value stream map

**Goal**
What is the target condition or performance improvement you want now? Measurable, by when?

**Analysis**
What are the root causes of the problem? (Fishbone, 5 Whys, Pareto)
What requirements, constraints and alternatives need to be considered?

**Recommendations**
What are your proposed countermeasures, strategies, alternatives? Do they link directly to the root cause? Include options (some needing no resources)
Future State Value Stream Map?

**Plan**
What, Who, When? What activities will be required for implementation and who will be responsible for what and when?

**Follow-up**
How will we know if the actions have the impact needed? What remaining issues can be anticipated? When/how will we follow up?

Reviewed By: Date:

*Modified from Verble, Shook, LaHote, Billi*
<table>
<thead>
<tr>
<th>A3 - A Template For Structured Problem Solving...</th>
<th>...Does this sound familiar??</th>
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<tr>
<td><strong>Title:</strong> What we are talking about.</td>
<td>Date: Owner:</td>
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<tr>
<td><strong>Background</strong></td>
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<tr>
<td>Of all our problems, why this one?</td>
<td>Recommendations</td>
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<td>The “ugly story”…</td>
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<tr>
<td><strong>Current Situation</strong></td>
<td></td>
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<tr>
<td>Where do we stand?</td>
<td>Plan</td>
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<tr>
<td><strong>Problem Statement:</strong></td>
<td></td>
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<tr>
<td><strong>Goal</strong></td>
<td></td>
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<tr>
<td>What is the specific change we want to</td>
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<td>accomplish now?</td>
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<tr>
<td><strong>Analysis</strong></td>
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<td>-What are the root causes, requirements,</td>
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<td>constraints?</td>
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<td><strong>Follow-up</strong></td>
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<tr>
<td>How we will know?</td>
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<tr>
<td>What remaining issues?</td>
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Modified - Verble/Shook.
**New Patient H&P**

**Name of Patient:**

### History
- Chief Complaint
- History of Present Illness
- Past Medical & Surgical History
- Medications and Allergies
- Family and Social History
- Review of Systems

### Physical Exam
- General Appearance, Vital Signs
- HEENT
- Heart & Lungs
- Abdomen
- Extremities
- Neuro

### Impression - Diagnoses
1.
2.
3.

### Plans
- **Diagnostic:**
  1, 2, 3,
- **Treatment:**
  1, 2, 3,

### Follow-up
- Monitor x, y, z
- Return visit:

### Date: 

### Clinician: 
Selected Results: Phase 2
Michigan Quality System
Beginnings of Flow and A3 Thinking

Better Discharge Planning pilot – appointment “in hand”
• Decreased readmissions by 33%; ER visits by 81%

CT scheduling and throughput for inpatients
• Like dry-cleaners: *In by 9AM, out by 5 PM* for inpatients

Cardiac Surgery Length of Stay (LOS) – ventilator wean protocol
• Standard work handoffs: 2 day decrease in LOS

Neurosurgery ICU and floor
• Better rounding with nurses: 1 day reduction LOS for inpatients
Front line workers fixing problems…

Early Mobility in Intensive Care (ICU)

• Collaboration: nursing & physical therapy

Goal: ICU patients on their feet, walking

Results:
• Reduced Medical ICU length of stay for ventilator patients from 8.4 to 6.4 days
• Reduced hospital length of stay from 22 to 16 days

Spread:
• To Neurosurgery and Surgery ICUs
Early Mobilization of ICU Ventilator Patients

Physical Therapist

Nurse

Grandson

Pull-Based Authority

A3
Current Strategy – Balance & Align Efforts

People Development ↔ Process Improvement

- Learning organization
- Departmental transformation plans
- Work group learning (Lean in Daily Work)
- Individual learning

- System level
- Flow improvements (Value Streams) (Visual Hospital)
- Point improvements

2 sides of the same coin...
Current Strategy – Balance & Align Efforts

People Development
- Learning organization
- Dept. transformation
- Work group learning (Lean in Daily Work)
- Individual learning

Process Improvement
- System level
- Flow improvements (Value Streams) (Visual Hospital)
- Point improvements

Where are the stairways, the hallways, the connectors??

2 sides of the same building...
Agreed on Common Patient Journeys

With Chief Engineers

**Acute Medical (unscheduled)**

- ED
- Obs Unit
- Medical Inpatient
- Home or ECF

**Ambulatory**

- Primary Care
- Medical Clinics

**Surgical Clinics**

- ORs
- Major Procedure Rooms
- Surgical Inpatient
- Home or ECF

**Surgical (scheduled)**
Surgical Services Value Stream

Surgical Services Value Stream Opportunity List
Overall OR Oversight Ranking

<table>
<thead>
<tr>
<th>#</th>
<th>Opportunity</th>
<th>Description</th>
<th>Overcoming Barriers</th>
<th>Root Cause</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Practice capacity - OR capacity</td>
<td>Not enough beds for current surgery volume</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Delay discharge - Day of discharge and also LOS</td>
<td>Discharge planning of time surgeon is scheduled.</td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Declined/Canceled hospital to hospital transfer</td>
<td>Hospital to hospital transfers canceled because of avoidable preventable reasons.</td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Variable surgical ADP volume</td>
<td>Variation in ADP volume - 40-60 ADP capacity. No system to scale ADP volume.</td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Inefficient OR treatment planning process from start to finish</td>
<td>Problem in planning.</td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>Patients waiting longer than needed in the PACU due to no inpatient capacity</td>
<td>Patients waiting longer than needed</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>Insufficient outpatient appointments</td>
<td>Insufficient outpatient appointments available within 4 weeks</td>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>8</td>
<td>Delayed communication with outside hospital</td>
<td>Billing issues delayed, unable to communicate.</td>
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<td></td>
<td>80</td>
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<tr>
<td>9</td>
<td>Variation in scheduled vs. actual surgical case times - OR scheduling availability, staff overtime</td>
<td>Variation in scheduled vs. actual surgical case times.</td>
<td></td>
<td></td>
<td>90</td>
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<tr>
<td>10</td>
<td>Delays in FIO due to lack of equipment</td>
<td>Equipment delays in filling orders.</td>
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<td>100</td>
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</tbody>
</table>

Surgical Services Value Stream Project Planning Gantt Chart

<table>
<thead>
<tr>
<th>Project 1: Surgical Service Stream Transformation Strategy</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td></td>
<td>\textbf{Following steps lead to better future for surgery patients and staff.}</td>
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</tbody>
</table>
**Visual Hospital Design:**

- All beds coded according to discharge categories/progress
- Updated by care team at defined interval throughout the day
- Barriers/delays/pending actions are communicated and made visible

**With accurate status:**

- Support teams can prioritize work
- Nurse staffing decisions are made easier
- Referral ?’s answered — “Can we take this patient?”

**Impact/Result:**

- Shorten referral lead time and accuracy
- Reduce surgery provisional cases
- Reduce ED/PACU wait time
- Patients home earlier in the day
- Improve Patient, Staff, Faculty satisfaction
Visual Hospital: Need for Alignment

Currently:

Moving to:
Lean in Daily Work

• Intact work teams train together
• Select their value metrics
• Create standard work
• Use daily huddles with visual controls
• Workers identify problems, propose countermeasures, run experiments (*not a suggestion box!*)
  • Everyday Lean Ideas (ELIs): 4 box problem solving
Hourly / daily key operational metrics and targets

Daily team huddles at visual board

Daily leadership walks in the gemba (also wkly/mthly)

Monthly review & problem prioritization by team leads

Triage based on problem complexity

"Just Do It" no written plan needed

"Everyday Lean Ideas" structured form (8.5"x11")

Share learning from experiments across UMHS

"A3 Problem Solving" structured form (11"x17")
Lean Idea Summary: **Blue Folder**

**Picture of Problem:**

**Description of Problem:**
Packets received from programs incomplete and held together by paperclips. Couldn't tell entire packet was present without going item-by-item. Disorganized!

**Impact of Problem:**
Some paperwork got misplaced or lost. Caused extensive batched filing work after credentialing cycle completed. Paperwork handled multiple times instead of once or twice. Reviewed, re-reviewed... A time-wasting process

**Reporter of Problem:** GME—Lynn and Claudia

**Picture of Implemented Idea:**

**Description of Idea:**
GME provided blue folders with a set of index tabs and a completed folder to follow as an example. Programs were instructed to bring paperwork latched down in blue folder for review session.

**Impact of Idea / What Did We Learn?**
Huge timesaver for GME team, most program coordinators satisfied with process. Easy to find and file documents.

**Date Idea Implemented:** April, 2012

Lean Idea Summary: **Credentialing Issues Approval Flow**

**Picture of Problem:**

**Unresolved Credentialing issues**

**Picture of Implemented Idea:**

**Credentialing Issues Approval Flow**
Lean Idea Summary: **Credentialing Checklist**

**Picture of Problem:**
- **Old credentialing checklist:**
  - GME notes: Missing items, issues
  - GME had one checklist and the programs had another
  - Multiple calls/emails from programs with questions
  - Re: credentialing guidelines

**Description of Problem:**
- Checklist did not list enough specifics for Program Coordinators to understand exactly what information was necessary to properly review resident application materials

**Impact of Problem:**
- Incomplete applications submitted to GME. Incomplete items submitted piecemeal afterwards.
- Caused excessive rework, reviews, credentialing delays, additional GME/program filing
- **Reportor of Problem:** Surgery Education Office

**Picture of Implemented Idea:**
- **New credentialing checklist:**
  - Used by Programs/GME, Credentialing Committee
  - More detail—Provides detail to all re: guidelines
  - Workflow: GME checks program work and does primary source verification, CC checks overall quality. Document supports workflow

**Description of Idea:**
- Detailed list of specific documentation necessary for credentialing approval

**Impact of Idea / What Did We Learn?**
- **Less** information on the tool is not necessarily better—Everyone needed to know what the specific expectations were.
- Faster credentialing process, fewer phone calls with questions, fewer errors in packets/folders. Greater PC satisfaction (10% improvement). Credentialing Committee: Faster process to review folders

**Date Idea Implemented:** April, 2012

Lean Idea Summary: **Blue Folder**
Lean Idea Summary: **Application Data into MedHub**

**Problem:**

MedHub Entry of all Application Packets:

Once applications were approved, they then needed to be entered into the MedHub Database. Batching made this a difficult task.

Description of Problem:

After credentialing meetings, the packets would be kept in the GME offices until they were inserted into the blue folders and then entered into MedHub.

Until credentialing staff could complete entry of approximately 350-400 packets, they would be piled wherever possible at GME. This not only made for a very crowded situation but also created the real possibility of materials getting misplaced and/or lost.

Reporter of Problem: GME Staff

**Implemented Idea:**

Immediate Entry of all Packets Once Approved by the CC and by ECCA:

Trina and Christine entered the data from each packet into MedHub after we receive the results from the ECCA meetings. Since the programs inserted the materials into the blue folders, this no longer needed to be done by GME credentialing staff.

Description of Idea:

Immediate entry of each application packet into MedHub as soon after each ECCA meeting as possible.

Impact of Idea / What Did We Learn?

When the last packet was approved by ECCA, very few packets still hadn’t been entered into MedHub.

Since this no longer would tie up the credentialing staff, they were now free to pick other work where needed in the office and thereby helping to alleviate others heavy workloads.

Date Idea Implemented: April, 2012
Moonlighting Pymt Goals = Zero Timesheet Returns

- June 2012: 6/3
- July 2012: 4/1
- May 2012: 8/1
- April 2012: 5/4
- March
- Feb
- Jan
- Oct
- Sept
- Aug 2012: 8/1

Go Blue

University of Michigan Health System

First Name: [Name]
Number of Timesheets Submitted: [Number]
Second Name: [Name]
Number of Timesheets Submitted: [Number]
License Verification for House Officers

“But I haven’t been to lean training yet…”
<table>
<thead>
<tr>
<th>CLINIC</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
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<tr>
<td>CLERK</td>
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<tr>
<td>DAILY PROBLEMS</td>
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</table>

- **CLINIC**: Schedule for days of the week.
- **MA**: Medical Assistant.
- **PA**: Physician Assistant.
- **RN**: Registered Nurse.
- **CLERK**: Administrative staff.
- **DAILY PROBLEMS**: Notes on daily issues.
- **USA Account**: Notes on account receivables.
- **Meeting**: Monthly staff meeting.
- **No Power**: Power outage notice.

The man in the picture is pointing to the board, likely discussing the schedule or issues noted on it.
<table>
<thead>
<tr>
<th>Date</th>
<th>%</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/8</td>
<td>73% (71)</td>
<td>50% (16), 61% (37), 57% (23)</td>
</tr>
<tr>
<td>10/9</td>
<td>56% (79)</td>
<td>63% (14), 53% (42), 63% (25)</td>
</tr>
<tr>
<td>10/10</td>
<td>34% (90)</td>
<td>41% (18), 26% (49), 57% (27)</td>
</tr>
</tbody>
</table>

- Mandatory bldg. evac.
- Used space at South main to R/S, Image, etc.
- Lashon-eli pour outage
- Gillian-eli pdf for pa student
- Patti-eli
- EKG + Flushots?
- Busy bunched up - long wait? Newgrids? My PA position?

2 ma's in am. Several am late pts due to traffic. *No Flu Vaccines*
ELI has been approved.
Team to discuss @ huddle.
ELI moves to "doing it" after discussing @ huddle.

Team "doing" ELI.
ELI will then move to "Done" detailing success or failure of idea, discuss outcome, then create 4 box.

Please complete 4 box.
Where are we now?

Slow, steady progress toward 20,000 problem solvers:

- Lots of workers and managers running experiments
- Focused on local problems
- Using local approaches to scientific problem solving
Where are we now?

This year’s results:

- **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
Where are we now?

• **Decreasing Pressure Ulcers in the ICU**
  - Formulated a phased mobility protocol for every patient in SICU – 3x/day
  - Only achieved partial (60%) compliance first cycle
  - Partnered with families to help with mobility
  - Compliance improved to 85+%; substantial decrease in PU rates

*Actively engaging families*
Where are we now?

- **Fluid resuscitation of burn patients**
  - Decision-tree for fluid resuscitation of burn patients
  - Nurses input clinical information into flowsheet, calculate fluids, adjust treatment immediately
  - Eliminated need to page Fellow or Attending
  - Reduced ventilator time from 16 days to 8 days, mortality by 15%

“Doctor Proofing” quality through use of evidence-based protocol
Where are we now?

- **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”*
“The improvement work is the people development strategy”  John Shook

• Developing People while Improving Processes
• Broad-reaching experiments:
  – Major Patient Journey Value Streams
    • Medical, Surgical, Ambulatory, Children’s
  – Visual Hospital experiments
    • Adult, Children’s, Cardiovascular Center
  – Lean Facility Design
• Integrating experiments
  – Lean in Daily Work (intact work teams)
  – Interval Train-the-Trainer
  – Managing to Learn – master A3 problem solving workshop
• “Every day, a little up.
  Some days, big up”
“The improvement work is the people development strategy” John Shook

- Developing People while Improving Processes
- Integrate broad experiments into a Management System:
  - Strategy Deployment:
    - Using A3s for Robust “Check and Adjust”
  - Major Patient Journey Value Streams:
    - Medical, Surgical, Ambulatory, Children’s
  - Visual Hospital experiments:
    - Adult, Children’s, Cardiovascular Center
  - Lean in Daily Work: intact work teams
  - Interval Train-the-Trainer: for project work on flows
  - Managing to Learn: master A3 problem solving workshop
  - Lean Facility Design: for new Neurosciences Hospital
- “Every day, a little up… Some days, big up”
Developing People *while* Improving Processes

- **Lean in Daily Work** – intact groups of frontline workers mentored daily on experiments to solve their local problems
- **Interval Training** – intact workgroups mentored on value stream mapping to improve a horizontal flow
- **Managing to Learn** – management pairs mentored in A3 Problem Solving on a real problem over 8 weeks
Where are we now?

- Workers and leaders still have variable knowledge, skill
- Not enough gemba, not enough catchball
- The cork helmet problem…
Overburden (muri)

*The cork helmet problem…*

Multiple top priorities…
“The camel can always carry another straw…”
PDCA - Adjust…
Where do we need to go?

• Continue to learn from major experiments
  – Major Patient Journey Value Streams
  – Lean in Daily Work (Lean Implementation Teams)
  – Departmental Transformation Plans

• Leaders learning by doing
  – Go see, ask why, respect people
  – Master workshop in problem solving & mentoring
  – Strategy deployment
  – De-selection to reduce overburden
  – Integrate into a Management System
Leadership…

- Sometimes UMHS feels like a place where mandatory programs are optional…

- Quotes from John Shook:
  - “UMHS may have the highest complexity per worker of any place I have seen.”
  - “A critical role for the leader is to reduce overburden”
  - “How can I get my people to do this?”
    “You must do this”
Three Keys to Lean Leadership

Go See.
  • “Sr. Mgmt. must spend time on the plant floor.”

Ask Why.
  • “Use the “Why?” technique daily.”

Show Respect.
  • “Respect your people.”

-Fujio Cho, Chair of the Board, Toyota
Thanks!
Supplemental Materials
**Title:** What we are talking about.

**Background**

Of all our problems, why are we talking about this one? The “ugly story”... Historical/organizational/business context...

**Current Situation**

Where do we stand? What is our current performance?
Trend chart, current state value stream map

**Goal**

What is the target condition or performance improvement you want now? Measurable, by when?

**Analysis**

What are the root causes of the problem? (Fishbone, 5 Whys, Pareto)
What requirements, constraints and alternatives need to be considered?

**Recommendations**

What are your proposed countermeasures, strategies, alternatives? Do they link directly to the root cause?
Include options (some needing no resources)
Future State Value Stream Map?

**Plan**

What, Who, When? What activities will be required for implementation and who will be responsible for what and when?

**Follow-up**

How we will know if the actions have the impact needed? What remaining issues can be anticipated? When/how will we follow up?

**Reviewed By:**

*Modified from Verble, Shook, LaHote, Billi*
### Shift Mental Models

<table>
<thead>
<tr>
<th>Old Mindset</th>
<th>New Mindset</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autonomy</strong> (<em>my way</em>) valued</td>
<td><strong>Standard work</strong> (<em>our way</em>) valued as basis for improvement &amp; creativity</td>
</tr>
<tr>
<td>Command &amp; control</td>
<td><strong>Engaged employees</strong> 20,000 problem solvers</td>
</tr>
<tr>
<td>Specialists mainly do improvement, using complex methods</td>
<td>Everyone’s job (workers &amp; managers) is improvement, using simple methods whenever possible</td>
</tr>
<tr>
<td>Cutting budgets = efficiency</td>
<td><strong>Creating capacity</strong> by increasing throughput through existing resources</td>
</tr>
</tbody>
</table>
Michigan Quality System
Quality – Safety – Efficiency – Appropriateness – Service

Just-in-Time
- Pacing by Demand
- Continuous Flow
- Pull Systems

Built-in Quality
- Error Proof
- Surface Problems
- Stop and Respond to Abnormalities
- Solve Problems at Root Cause

Customer Defines Value

Leveled Workload  Continuous Improvement (P–D–C–A) and Learning  Standardized Work

Make Value Flow by Eliminating Errors and Waste

MQS House – Master version (All Missions) Sources: J. Shook, J. Billi, J. Liker, S. Hoeft, J. Womack, Park-Nicollet /jmk 06.23.07
Problem and PDCA Tools for different levels

Key to success: The Mid-management and First Line Supervisory Level

- HK – hoshin kanri
  - policy alignment
  - policy deployment
- Muri – overburden
- Mura – uneven workload
- Muda – waste

Shook
People development-
A little help from our friends…

• GM
  – Early coaches, intro to John Long and John Shook

• Lean Enterprise Institute
  – Courses, workshops, webinars
  – LEI Partners:
    • Coca Cola, Textron, Cardinal Health, Medtronic, UMHS
    • Workshops, gemba visits, experienced mentors

• Lean Thinkers series – site visits to UMHS
  • Womack, Shook, Liker, Jones, Toussaint, Bennett, Gruner…

• Gemba visits to ThedaCare, Virginia Mason…

• Healthcare Value Network (gemba, shared learning)

• Experimenting with courses:
  – Intact work-teams on real problems
  – Managing to Learn: 3 ½ d over 8 weeks