Healing our People: A Lean Healthcare Approach

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Dàaxudein

Tlingit/Alutiiq

Eagle Moiety

Shangukeidí

The House Lowered from the Sun

Dry Bay (Yakutat, AK)

Patrick M. Anderson

AB – Princeton University Woodrow Wilson School (1975)
JD – University of Michigan Law School (1978)
Executive Director – Chugachmiut (2003-2011)
President/CEO – Maniilaq (2013-2014)
Board Member – Sealaska Corporation (1989 to present)
Senior Fellow—Sealaska Heritage Institute
Parliamentarian – Alaska Federation of Natives
National Congress of American Indians
Member – American Indian/Alaska Native Task Force on Suicide Prevention
President – Native American Children's Alliance
Secretary – Alaska Native Brotherhood, Camp 33
Lean Coach/Sensei

The Roast Beef Story

Patrick's Story

Ask why

Question everything

Encourage Change

Eliminate Waste

"You can't have a better tomorrow if you are thinking about yesterday all the time."

Charles F. Kettering

"If you want things to be different, perhaps the answer is to become different yourself."

Norman Vincent Peale

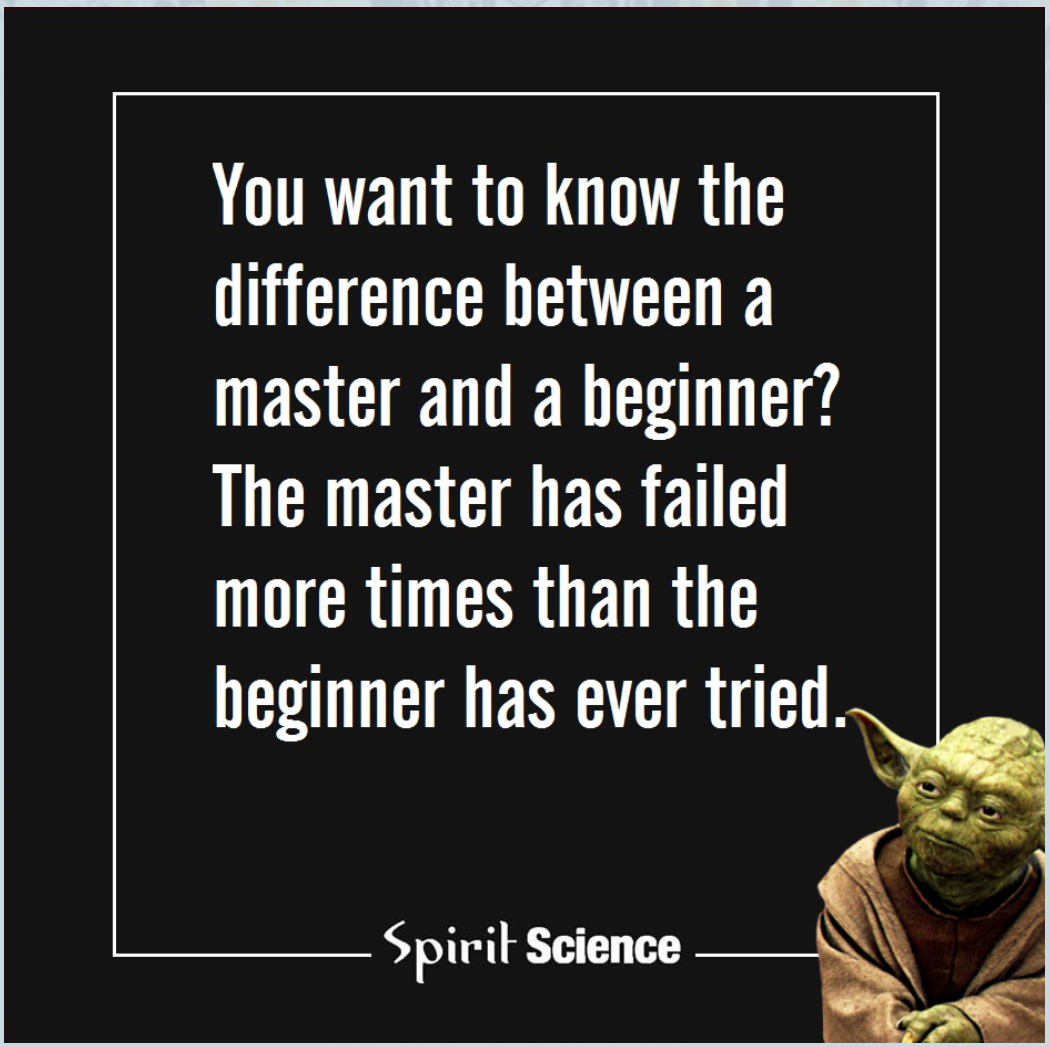
"It is not necessary to change. Survival is not mandatory."

W. Edwards Deming

The Infamous Quonset Hut

Located over 3 miles away from our offices.
120 feet long and 20 feet wide (2,400 sf)
Minimal security—padlock
Lack of environmental controls
Conex and 2 Sheds on same property
Poorly lighted with rodents and spiders everywhere
Disorganized—anything and everything was stored here
Nobody wanted the job of managing it
Dollar cost was about $600 a month. Waste cost: $$??

Brian Jones - Nypro Precision Plastics (2004)


You want to know the difference between a master and a beginner? The master has failed more times than the beginner has ever tried.
Spirit Science

Outliers

"The reasonable man adapts himself to the conditions that surround him... The unreasonable man adapts surrounding conditions to himself... All progress depends on the unreasonable man."

George Bernard Shaw

Different: Escaping The Competitive Herd

Youngme Moon, Ph.D.

"…a key argument in this final section of the book is that process drives outcomes; i.e., that the way people engaged in the practice of competition tends to cultivate conformity and convergence in business. This is why I believe we need a new praxis. We need to develop new habits, new disciplines, and new conventions around the exercise of competition. Most important, we need to build a new culture of competitive engagement that creates, at the very least, the possibility that an extraordinary outcome may emerge."

Sharing Knowledge

Not as easy as it sounds. Our minds are often closed to new knowledge. Jared Diamond asked: "Why did Eurasians conquer, displace or decimate Native Americans, Australians and Africans?"

Answer: Geography. Travel in Europe and Asia was East/West—natural travel corridors along similar conditions. Travel in North and South American—North and South.

Eurasian knowledge was far greater. They were used to travel, new equipment, different situations.

Stephen Spear, The High Velocity Edge (2009)

What is Quality?

"The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge."

Institute of Medicine (1991)

Defects

What are the defects you encounter in your work?

1.
2.
3.
4.
5.
6.

3 Forms of Waste

Mura or waste due to variation

Muri or waste due to overburdening or stressing people, equipment or the system

Muda also known as the “seven forms of waste”

The 8 Wastes
Toyota has 7

Transportation
Inventory
Motion
Waiting
Overprocessing
Overproduction
Defects
Talent (Non Toyota)

Focus is on delivering more value to the customer. If we remove a step in a process, will the customer miss it? If not, then the step is probably waste. Waste comes at a cost. Eliminating waste eliminates that cost.

Eliminating Defects

Requires a Vision

Leaders must lead, not delegate

Needs Focus

Existing culture has to change

Selfish attitudes have to go

Arrogance must be eliminated

Teamwork is required

More Money is not the Answer

Mrs. Mary L. McClinton

Even in death, Mary McClinton, a tireless advocate for the disabled, poor and Native Alaskans, will continue her legacy as a teacher.

McClinton, 69, died last year at Virginia Mason Medical Center after being injected with an unlabeled—and deadly—fluid during a procedure to fix a damaged blood vessel.

Mrs. Grant

Mrs. Grant had successful cardiac bypass surgery and was recovering in the intensive care unit. At 8:15 a.m. two days post-op, the day nurse who was just starting her rounds discovered Mrs. Grant suffering a full body seizure. A code was called, and Mrs. Grant was taken to Radiology to rule out a neurological source for the seizure. The radiological examination proved negative, but a blood test from the code included an undetectable serum glucose level. Efforts to raise her blood sugar were unsuccessful. Mrs. Grant fell into a coma, and died following withdrawal of life support.

To Err Is Human

"Health care in the United States is not as safe as it should be--and can be. At least 44,000 people, and perhaps as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented, according to estimates from two major studies. Even using the lower estimate, preventable medical errors in hospitals exceed attributable deaths to such feared threats as motor-vehicle wrecks, breast cancer, and AIDS."

To Err is Human: Building A Safer Health System
Institute of Medicine (1999)

Rhode Island Hospital

"'It felt like working in a war zone,' a nurse told me. 'There were TV reporters ambushing doctors as they walked to their cars. One little boy asked me to make sure the doctor wouldn't accidentally cut off his arm during surgery. If felt like everything was out of control.'"

The Power of Habit
Charles Duhigg

Organizational Routine

"These organizational habits—or 'routines,' as Nelson and Winter call them—are enormously important, because without them, most companies would never get any work done. Routines provide the hundreds of unwritten rules that companies need to operate."

Nurses communicated about Doctors with different colors to communicate Doctor arrogance. "Blue meant 'nice,' red meant 'jerk,' and black meant, 'whatever you do, don't contradict them or they'll" take your head off.'"

The Power of Habit
Charles Duhigg

What is Lean Thinking

"All we are doing is looking at the time line, from the moment the customer gives us an order to the point when we collect the cash. And we are reducing the time line by reducing the non-value adding wastes."

Taiichi Ohno

Taiichi Ohno

At Least Try

"Byrne-san, If You Don't Try Something, No Knowledge Will Visit You"

Chihiro Nakao

Shingijitsu Sensei

Sensei Nakao

"See it from a child's point of view"

Lean Definition

"Lean is the permanent struggle to better flow value to each customer."

Mike Rother (Author of multiple books on Lean)

Presentation Outline

Presentation covers:

- Definition of Lean Thinking
- Outcomes
- Implementation Process
- Barriers
- Challenges
- Enablers

Administration Benefits from Lean Thinking

Administration is a Pull system from Health Care

We have lots of support staff

- Admissions
- Reception
- Billing & Coding
- Planning
- Administration
- Housekeeping
- Patient Records
- Human Resources
- Finance & Accounting
- Quality Control
- Maintenance & Janitorial

Going to the Gemba Exercise

Desk at front counter – deliver documents to 7 stations
- Station 1 – 3 documents
- Station 2 – 5 documents
- Station 3 – 2 documents
- Station 4 – 3 documents
- Station 5 – 7 documents
- Station 6 – 4 documents
- Station 7 – 3 documents

Return (backtrack) to each station to pick up documents
- Fax Machine – stop and pick up contents

Return to desk at front counter

CALCULATE TOTAL TIME

Going to the Gemba Exercise

Time calculated

- Multiply by 750 (3X day for 250 workdays annually)
- Multiply by 13 (number of units performing the task)
- Calculate total hours spent annually
- Multiply by $30 per hour

My results (actual Gemba walk)

- 15 minutes X 750 = 11,250 minutes
- 13 X 11,250 = 146,250
- 146,250 / 60 = 2,437.50
- $30 x 2,437.50 = $73,125

Going to the Gemba
Exercise 2

Surgical Operatory
Walk to Storage Area
Assemble Surgical Kit
Return to Surgical Operatory
CALCULATE TOTAL TIME

Cost Savings

Cost savings are not a worry in my experience. They naturally accrue from a successful Lean Healthcare implementation. And they are substantial. They come from everywhere a value stream is improved.

What Can You Expect

THE IMPACT OF APPLYING LEAN PRINCIPLES IN INDUSTRY.

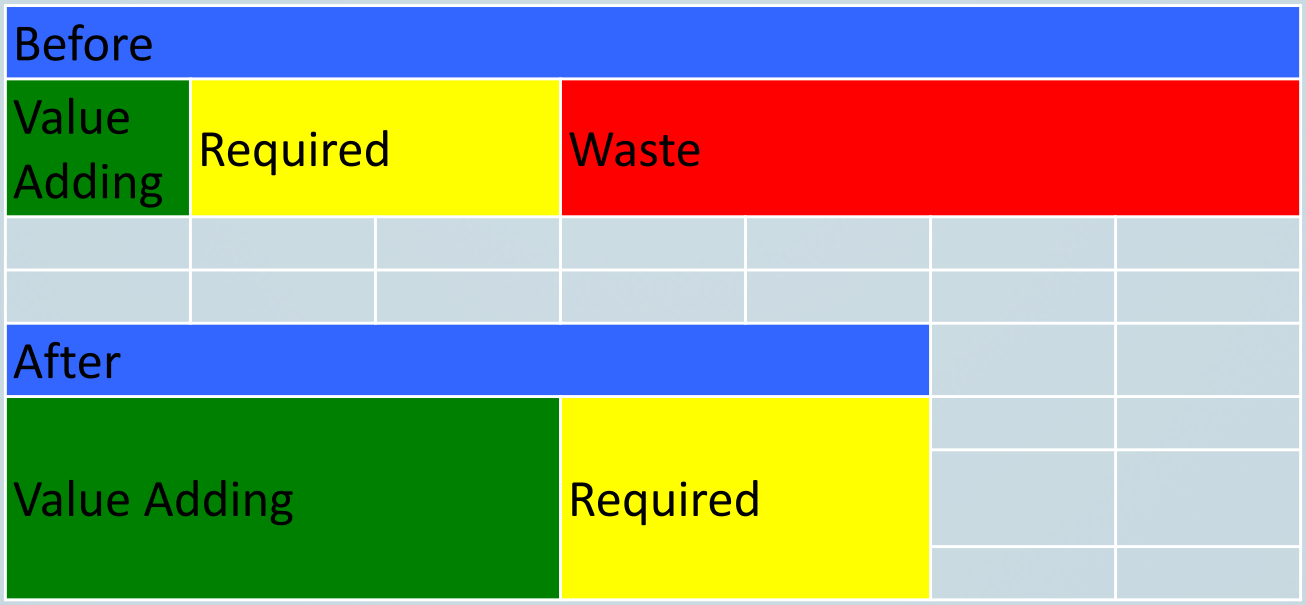
Industry Averages	
Direct Labor /Productivity Improvement	45 – 75%
Cost Savings	25 – 55 %
Space Reduced	35 – 50%
Inventory Reduced	60 – 90%
Rework time reduced (redundant)	50 – 90%
Delivery Improvement	60 – 90%

Source: Virginia Mason Medical Center

Summarized results, subsequent to a 5 year evaluation from numerous companies. Companies ranged from 1 – 7 years in lean principles application/execution.

Lean Goal

Elimination of waste and creation of value is an every day requirement of lean. Each employee must "refuse to pass on defective work." At Toyota, this means an employee who experiences a problem or finds defective work must address the problem or defect immediately. Every employee shares responsibility, and accountability, for improvement. It's a culture, not a fad or flavor of the day.



Fujitsu Outcomes

The effectiveness of our Lean Healthcare approach, already implemented in many healthcare institutions in North America, is evidenced by the following sample results:

- Increase productivity by 15% – 50%
- Increase capacity by 20% – 75%
- Reduce waiting lists by 25% – 100%
- Reduce patient waiting times by 25% – 80%
- Reduce workload and employee stress
- Reduce operating costs by 10% – 30%
- Reduce floor space needs by 5% – 25%
- Reduce stock by 10% – 40%
- Enhance teamwork and job atmosphere
- Improve critical improvement use by 25% – 100%

Profero Client Results

Anatomic Pathology Lab - freed up 40% of the space in an storeroom by applying 5S and visual controls, reduced the amount of inventory carried, eliminated expired product, increased the number of deliveries per week

Phlebotomists - reduced errors in specimen draw mistakes by over 80% by applying standard work and batch size reduction

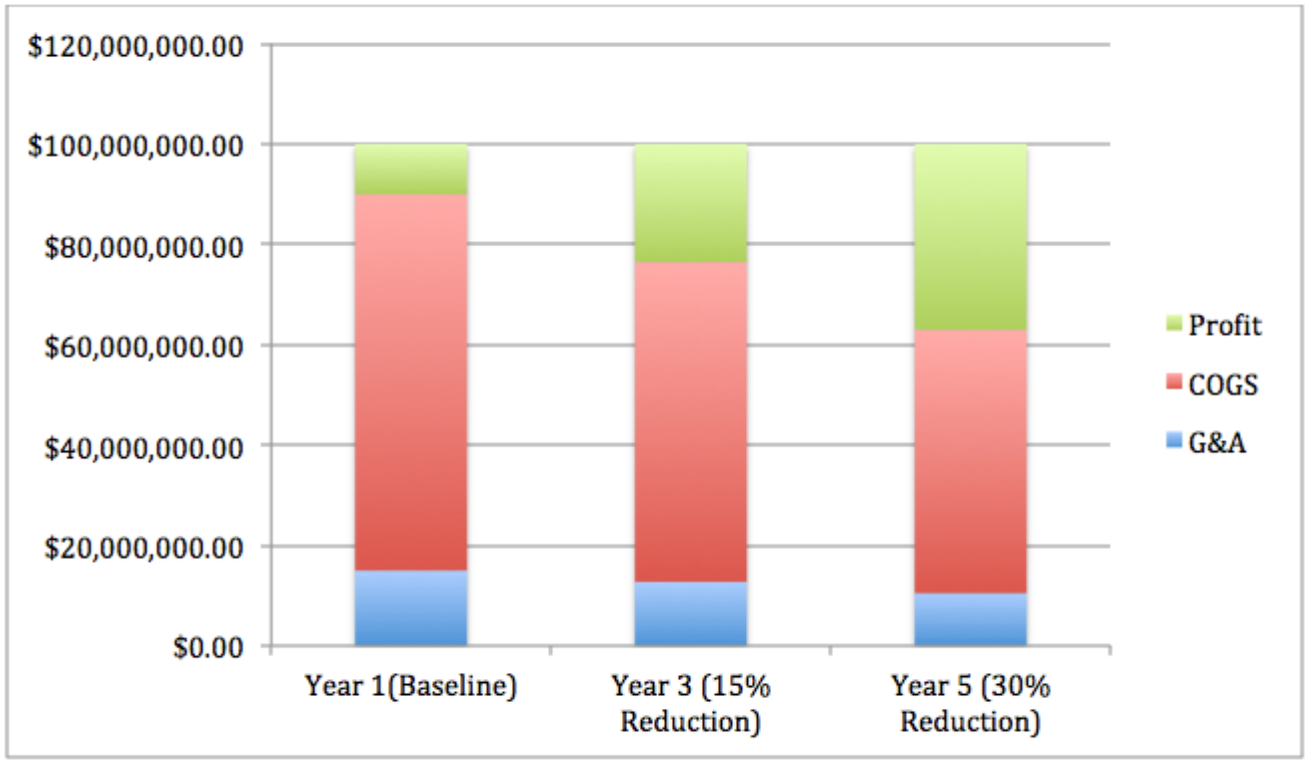
Laboratory - Reduced the average time per requisition from 3 minutes, 52 seconds to 1 minute 28 seconds and reduced training time from 9-12 weeks to 4-6 weeks by using streamlined layout, standard work and batch size reduction

Eight Full Time Employees (FTEs) were freed up over a one year lean implementation and were redeployed in understaffed areas

Nurse recruiting - by using Value Stream Mapping the nurse recruitment process lead-time was cut by 50%

Resource planning – reduced the average time for capital requests from over three months to 30 days or less

Pencils Out @30%/2



	Baseline	Year 3	Year 5	Savings
Profit	$10,000,000	$23,500,000	$37,000,000	+$27,000,000
COGS	$75,000,000	$63,750,000	$52,500,000	-$22,500,000
G&A	$15,000,000	$12,750,000	$10,500,000	-$4,500,000

Systems Cost Reductions

Mark Graban – Lean Hospitals

Reducing "never events" (falls, infections…);

Supply chain improvements;

Delayed or cancelled expansion;

Reduced overtime;

Reducing length of stay;

Reduce unnecessary testing & diagnostics;

Reduce errors & delays in billing.

Virginia Mason Nursing Improvements

Walking: reduced from 5,818 steps to 846 steps (4 hour measure)

Cycle of Care setup time: reduced from 20 minutes to 3 minutes

Cycle of Care: reduced from 240 minutes to 126 minutes

Call lights: reduced from 5.5% to 0%

RN Non Value Adding time: Reduced from 68% to 10%

Hyperbaric Center Patient Capacity

When the Virginia Mason Center for Hyperbaric Medicine could no longer accommodate all the patients needing treatment, many assumed the solution was a new building to house larger chambers. Instead, Virginia Mason used VMPS tools to design and build a new hyperbaric center in existing hospital space, which saved $2 million in construction costs and increased capacity from two to three patients at a time to as many as 20

Central Line Infection Reduction

"… Lean intervention used in two intensive care units at one hospital, Allegheny General. There, the medical director, Dr. Richard Shannon, was transformed after completing a class on Lean/Toyota methods. He set the audacious goal of eliminating CLABs in the MICU and CCU within 90 days. The difference: it was not a program or campaign; it did not involve exhortation or blame. Instead, the frontline workers, with support from Dr. Shannon, redesigned the way the work was done, relying on low-cost, low-tech visual cues (stickers, posters, labels), standardized work, organized materials, and continuous training in the correct placement and dressing of lines. It became easy to do the right thing every time, and difficult to do the wrong thing.

As a result, within 90 days, both units cut their CLAB rate to near-zero and sustained it for four years now. The CCU, in the third year of the Lean redesign, posted 18 months without a single CLAB.

Standardized Work

"Let whoever is in charge keep this simple question in her head (not, how can I always do this right thing myself, but) how can I provide for this right thing to be always done?"

Florence Nightingale

Notes on Nursing for the Labouring Classes (1859)

Lean Principles + Integrated Delivery = Project Savings

Sutter Health, architect SmithGroup and general contractor HerreroBoldt agreed to use Integrated Project Delivery, a process that allows owners, designers, contractors, and trade partners to collaborate under one roof from project inception to completion, as opposed to traditional delivery where each project team member has a separate agreement with the owner. The 40-firm IPD team's initial validation study resulted in a smaller, 914,000-sf design that takes better advantage of the site and unites two of CPMC's existing campuses in one city block. The new patient tower and medical office building will house 555 beds when it's completed in 2015. The new design delivers 90% of the original's program in 70% of the space, is targeting a LEED-Gold rating from the U.S. Green Building Council, and is projected to cost $960 million, about $200 million less than its original price tag.

Strategic Direction

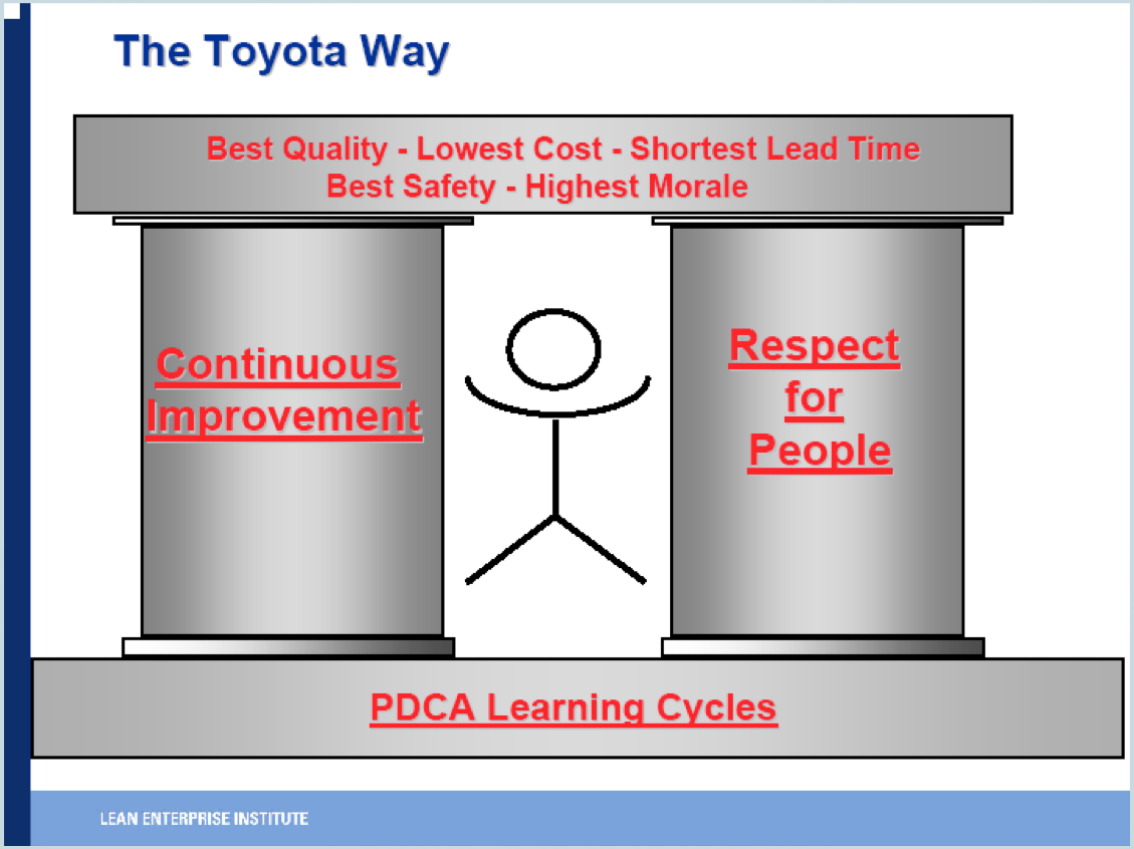
Lean is the Strategy

Lead from the top

Transform people

Cultural Foundation

Based on the Toyota Way Twin Pillars.



Implementation Process

Lean Thinking starts with an understanding of:

RESPECT FOR PEOPLE

CONTINUOUS IMPROVEMENT

Respect for People

Team Building

Empowerment

Training & Cross Training

Hoshin Kanri

Relationship with suppliers and partners

Focus on customer value

Eliminate fear from the workplace (Deming)

Using Employee Time Savings

Adopt a hierarchy for redeployment of staff when time is freed up is emphasized.

1. Assigned to reduce the backlog of work.
2. Workload increased as existing work is eliminated or time reduced.

    -Reduce outside contracts

3. Assign to more participation in improvement events, eventually moving to facilitation of events held within work area.

    -Kaizen

    -5 S

    -More experienced assigned to Lean Government Department

    -Perhaps loaned to partners to help assist their efforts

4. Redeploy to other jobs.
5. Reduce through attrition (replace 1 of every 2 to 4 departures).

No Blame

Overwhelmingly, individuals are not to blame for these problems (Berwick, 1990; Leape, 1997). These problems tend to result in part from the immense amount of new knowledge about what works to improve health and what does not (Chassin, et al., 1998). Physicians do not have ready access to all the data that would be useful to them as they care for patients. In large part, quality problems result because health practitioners do not have delivery systems that assist in providing error-free care and in bringing to them timely and relevant information about the patients they care for. It should be emphasized that the object of quality measurement should not be to fix blame on organizations or individuals but to find opportunities to improve health and prevent harm.

Measuring the Quality of Health Care, IOM (1999)

Eliminate Fear

Dr. W. Edwards Deming 14 Points

Allow people to perform at their best by ensuring that they're not afraid to express ideas or concerns.
Let everyone know that the goal is to achieve high quality by doing more things right – and that you're not interested in blaming people when mistakes happen.
Make workers feel valued, and encourage them to look for better ways to do things.
Ensure that your leaders are approachable and that they work with teams to act in the company's best interests.
Use open and honest communication to remove fear from the organization.

Continuous Improvement

Improvement like a jigsaw puzzle-requires effort

Recognize, identify and solve problems immediately to eliminate “waste”

Train employees on scientific improvement process

- PDCA
- A 3 thinking

Standardize work

- Train to standard work
- Refuse to pass on defective work

What We Talk About

Takt Time—Opportunities faced in a time period

Flow—how a product or service moves

Pull System—Flow required input

Standard Work—most effective way to do things now

Flow: 4 Concepts

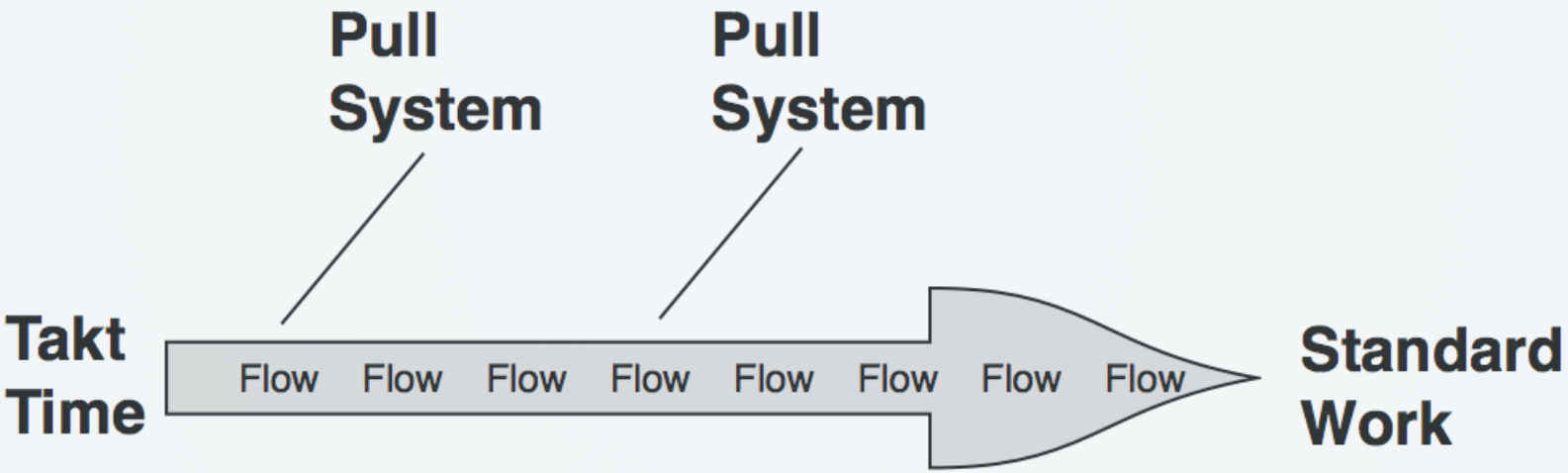
Takt Time: How much output is needed to meet customer demand.

Flow: Ideal production is one piece flow, proven to improve value

Pull: During flow, support should be "pulled" to the process when needed.

Standard Work: Determined to be the most effective way of doing work (least waste)

Flow Graphic



Customer Value

Customers don't want to pay for waste

Customers have a voice—Learn to Listen

Customers usually have choices

Internal and External Customers

Partners are also customers (vendors, suppliers, consultants, investors)

Training

Lean 101—know the basics

Learn by doing—Kaizen

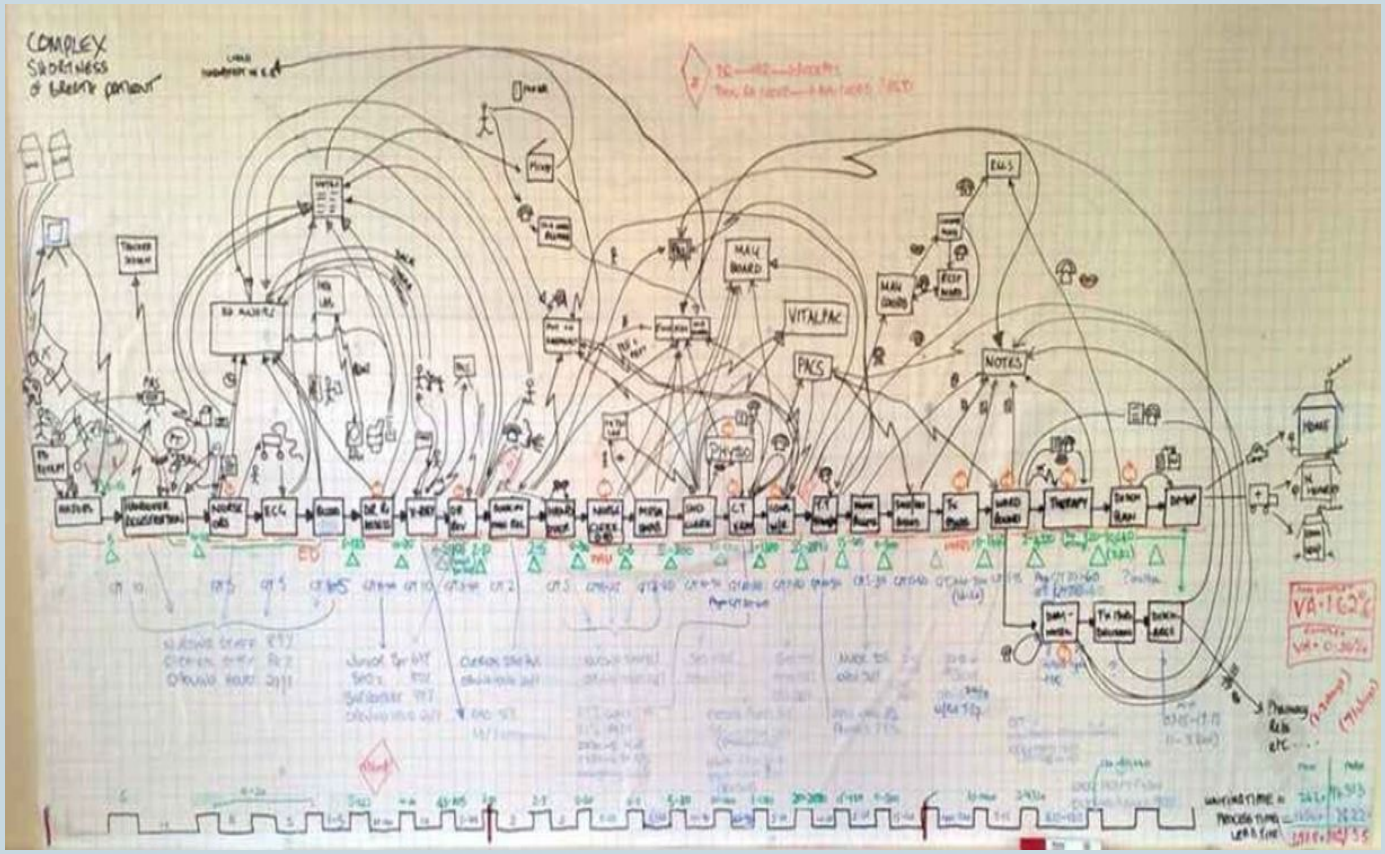
Leaders as Coaches and Mentors

Training Within Industry

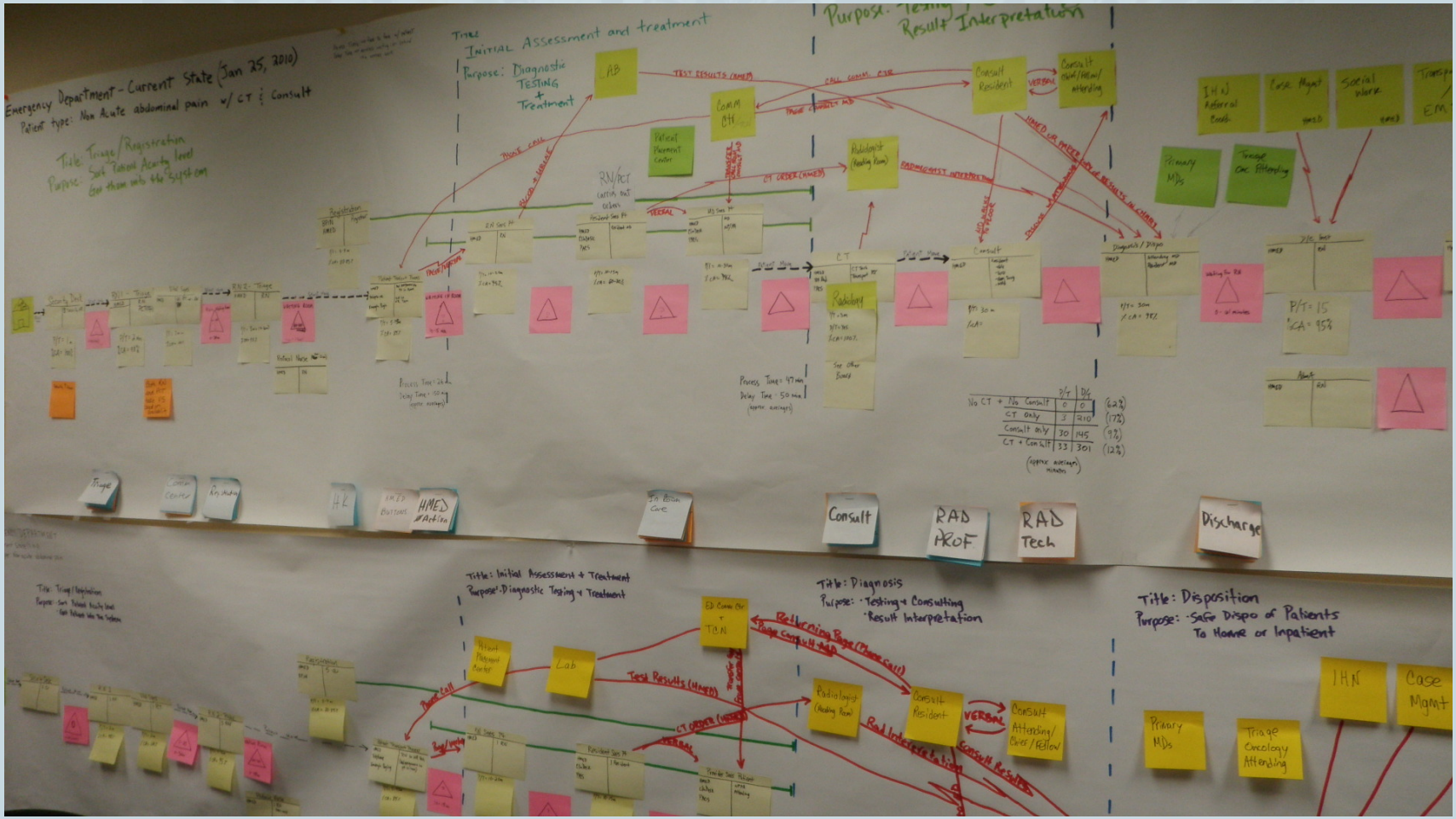
Standard Work

Online resource materials

Value Stream Mapping


COMPLEX
VITALPAC
PACS
NOTES
EMS

Value Stream Mapping



Barriers

No leadership buy in

Delegating improvement

Resistance to change

Fear

Lack of vision

Cost Reduction focus

Add lots more possible excuses

Self Diagnostic Systems

"…velocity of discovery—the speed at which the company improves, innovates and invents."

Stephen Spear

The High Velocity Edge

Process of incessant discovery

Ability & responsibility to see problems

Authority to fix problems

Challenges

Understanding the Current State

Envisioning the Future State

Changing a Culture of Good Enough

Becoming process scientists

Developing Standard Work

Eliminating Silos and Strict Oversight

Sharing Responsibility and Accountability

Hoshin Kanri

Setting objectives for the business

Communication Strategy for alignment

Focus on what is important

Prioritizing resources allocation

Measuring progress

Push strategic thinking as far as feasible

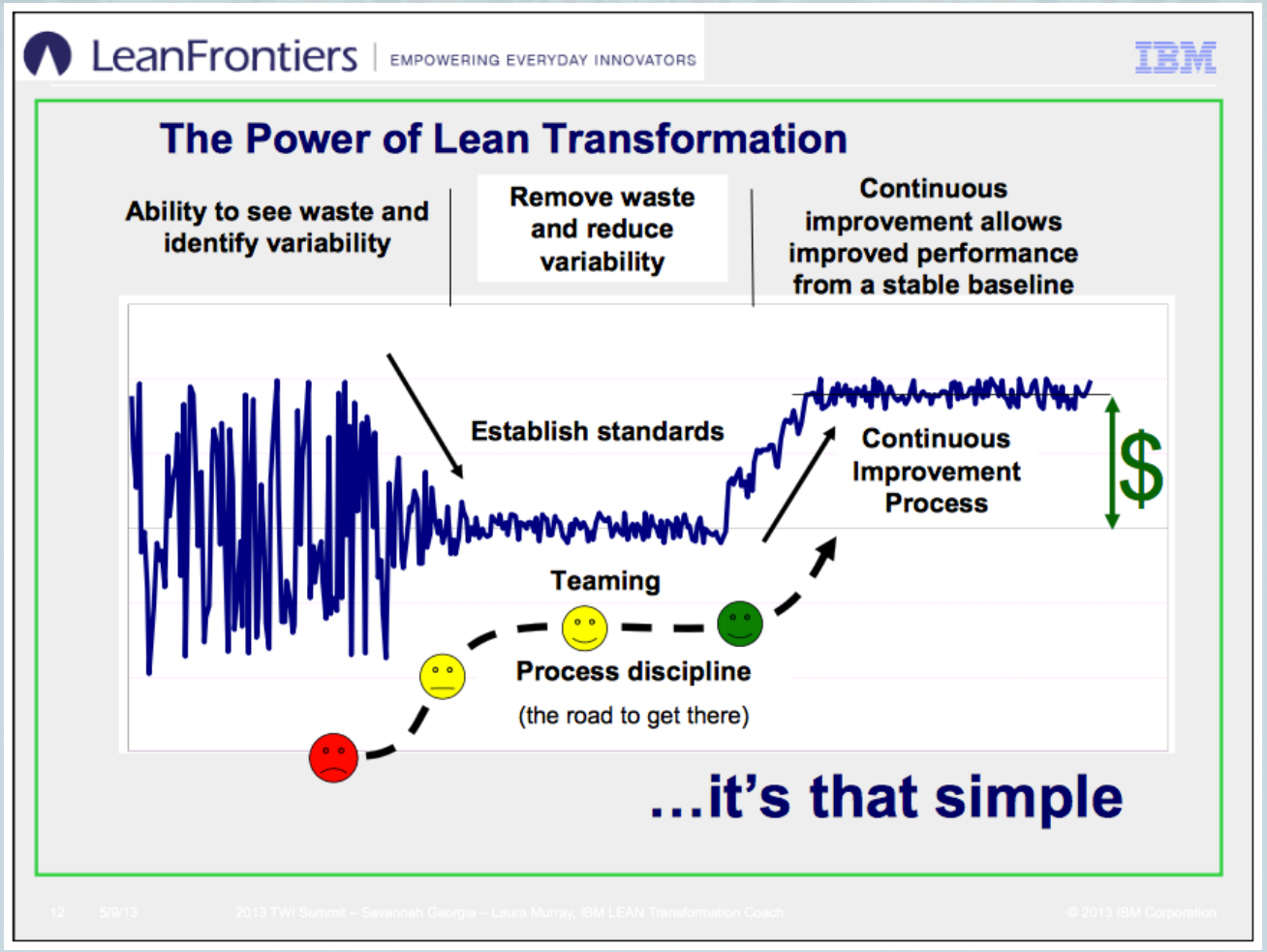
Know where you are, where you are going

Variation

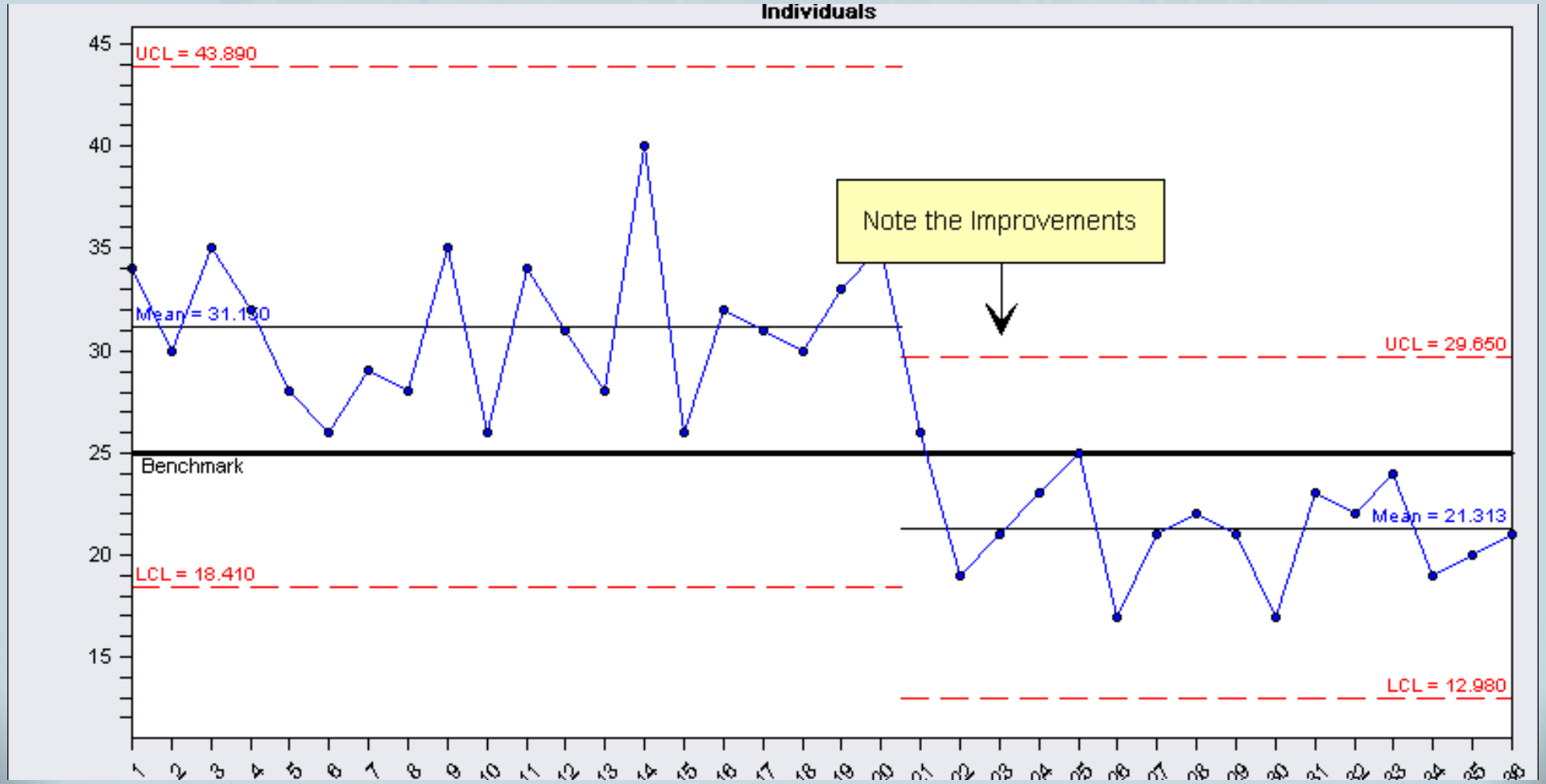
Defined as a statistical range of different results achieved when you repeat the same process many times.

Variation is visible in a “Control Chart” that shows a straight line (average) with an Upper and Lower Control Limit defined by a 3 sigma range each. (UCL-3 sigma) (LCL-3 sigma)

Changing Variation



Control Chart



Scientific Improvement Process

PDCA Cycle
- Plan
- Do
- Check
- Adjust

A 3 Thinking

Every employee becomes a scientist identifying problems and eliminating waste. The Culture of Continuous Improvement uses scientific tools like PDCA and the A 3 to identify waste and improve value ratio.

Standard Work

GRANT/PROGRAM CLOSEOUT CHECKLIST

PROGRAM NAME:
DIVISION:

STAKEHOLDER	PRE-CLOSEOUT	POST CLOSEOUT
☐ C&FS ☐ E&T ☐ FAD ☐ Health ☐ SG & HR ☐ Other	Closeout Team invited to meeting (via Outlook) ☐	Standardized memo sent to staff, BOD, and Village Councils Notify vendors & other stakeholders ☐
☐ C&FS ☐ E&T ☐ FAD ☐ Health ☐ SG & HR ☐ Other	Program Management Tasks: ☐ Obtain current YTD & detail budget reports ☐ Complete all Trip Reports ☐ Pay all outstanding Invoices ☐ Review Professional Service Agreement and Short Term Contracts ☐ 5S+2 office space	
☐ C&FS ☐ E&T ☐ FAD ☐ Health ☐ SG & HR ☐ Other	Final Budget revisions submitted to Finance ☐	Budget deactivated & notice sent to Division Director and Program Manager ☐
☐ C&FS ☐ E&T ☐ FAD ☐ Health ☐ SG & HR ☐ Other	Final Reports ☐ Narrative ☐ Fiscal ☐ Other (list)_____	
☐ C&FS ☐ E&T ☐ FAD ☐ Health ☐ SG & HR ☐ Other	Administration Notified: ☐ Office space ☐ Leased space ☐ N/A ☐ IT Equipment ☐ Ext. forwarded to DD ☐ E-mail forwarded to DD	5S+2 Completed ☐ Lease Terminated ☐ Codes & Keys collected ☐ IT account deactivated & access given to DD ☐ Records collected ☐

Grant Closeout

Who Must Adopt This Process:
Describe roles and types of work units

Takt Time:

GOAL: List key quality and lean targets

STEP	OPERATOR	TASK DESCRIPTION	TOOLS/ SUPPLIES REQUIRED	CYCLE TIME
Programmatic	PROGRAM MANAGER	60-90 days before end of grant: 1. Complete a budget evaluation. 2. Complete an action plan status update. 3. Review the action plan status with the external granting program manager. 4. Complete a final grant narrative and submit to finance for submission with final Financial Report. 5. Complete a quarterly program performance report.	1.Budget evaluation checklist 2. & 3. Action Plan 4. & 5. Reporting forms and formats	2-4 hours
Finance	FINANCE MANAGER/ FACILITIES MANAGER	1. Develop the final financial report, attach final narrative, and submit. 2. Complete the final disposition of inventory and ship to appropriate facility for use or storage. 3. Complete an analysis of the program facility and terminate lease or reassign space to another program.	1. budget adjustments from program manager 2. Inventory list 3. lease agreement	2-4 hours
Administration	DIVISION DIRECTOR/ OR PROGRAM MANAGER	Close out of all program documents and submit to central records.	Email or mail the documents	½ hour
Information Technology	I.T. MANAGER	Provide access to all electronic files related to the project to the Division Director.	Internet	1 hour

A 3

A3-T

Proposed team charter Theme:

PROBLEM STATEMENT

PROPOSED ACTION

TARGET STATEMENT

IMPLEMENTATION PLAN

Action	Responsibility	Date

ANALYSIS

CHECK AND ACT (verification and follow up)

Date: Reporting Unit:

Problem Statement

Define the problem

- Be critical of the system, not people in it
- Gather available data (facts, not opinions)
- Seek a "Root Cause" for the problem
- "Ask Why 5 Times"
- Don't get more complex than experience allows
- Limit statement to 3 or 4 sentences
- Don't leap to solving the problem

Current Condition

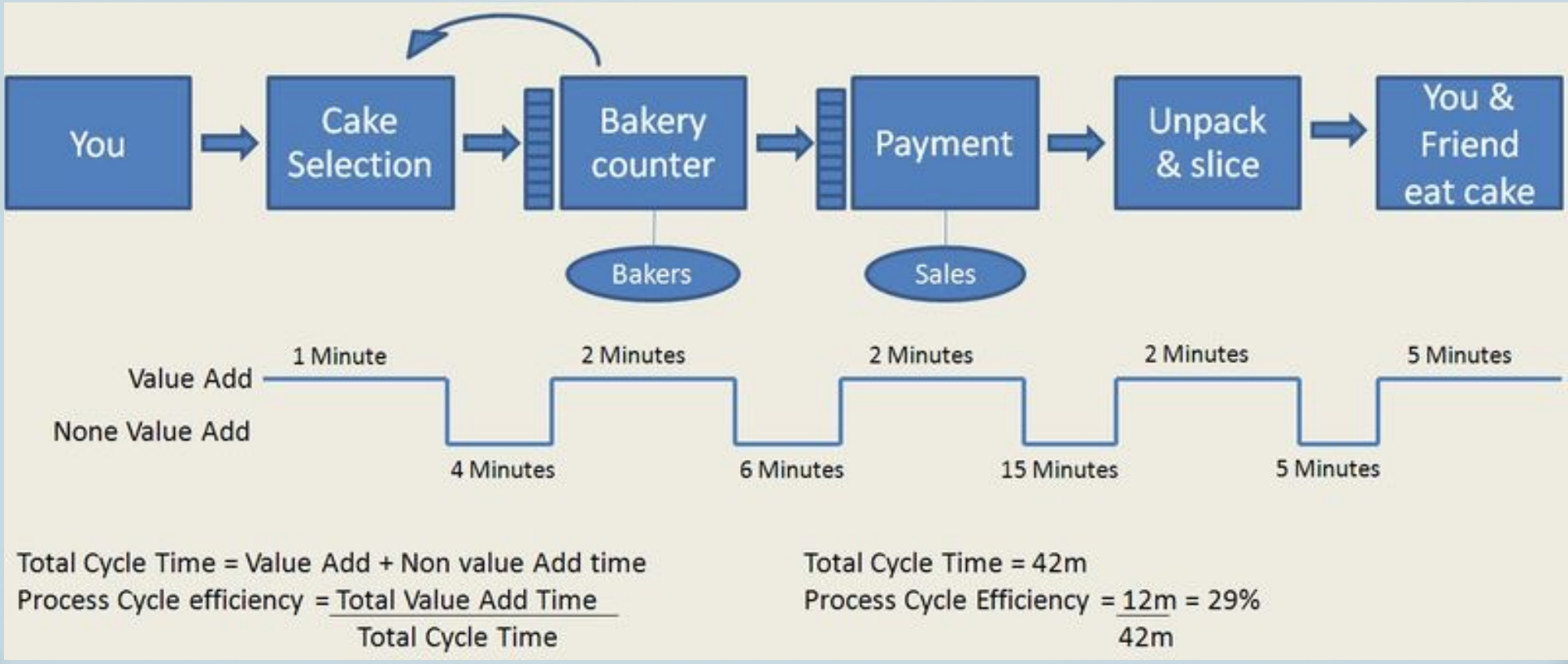
Describe the existing process

- Use a Value Stream Map
- Be honest. Chaos and Randomness are normal
- Perfection is not the goal. Huge improvements will occur any way.
- Tools exist to help you. Don't fall in love with the tools.
- Learn "Value Adding" and "Lead time" concepts.

Definition of Value Stream

A "Value Stream" consists of the People, Information, Materials and Equipment that work together to produce a product or service. Customer flow through a Bakery are in a Value Stream. Patients visiting their Doctor, automobiles on an assembly line and standing in line to get a drivers lines are all systems. Systems can be analyzed.

Value Stream Map



Total Cycle Time = Value Add + Non value Add time

Process Cycle efficiency = $\frac{\text{Total Value Add Time}}{\text{Total Cycle Time}}$

Total Cycle Time = 42m

Process Cycle Efficiency = $\frac{12m}{42m}$ = 29%

Mapping 1

Mapping photo: Lean Hospital Group

Mapping 2

Kaizen

A 5 day improvement event (traditionally)

Day 1: Training and education about Lean

Day 2: Current condition defined

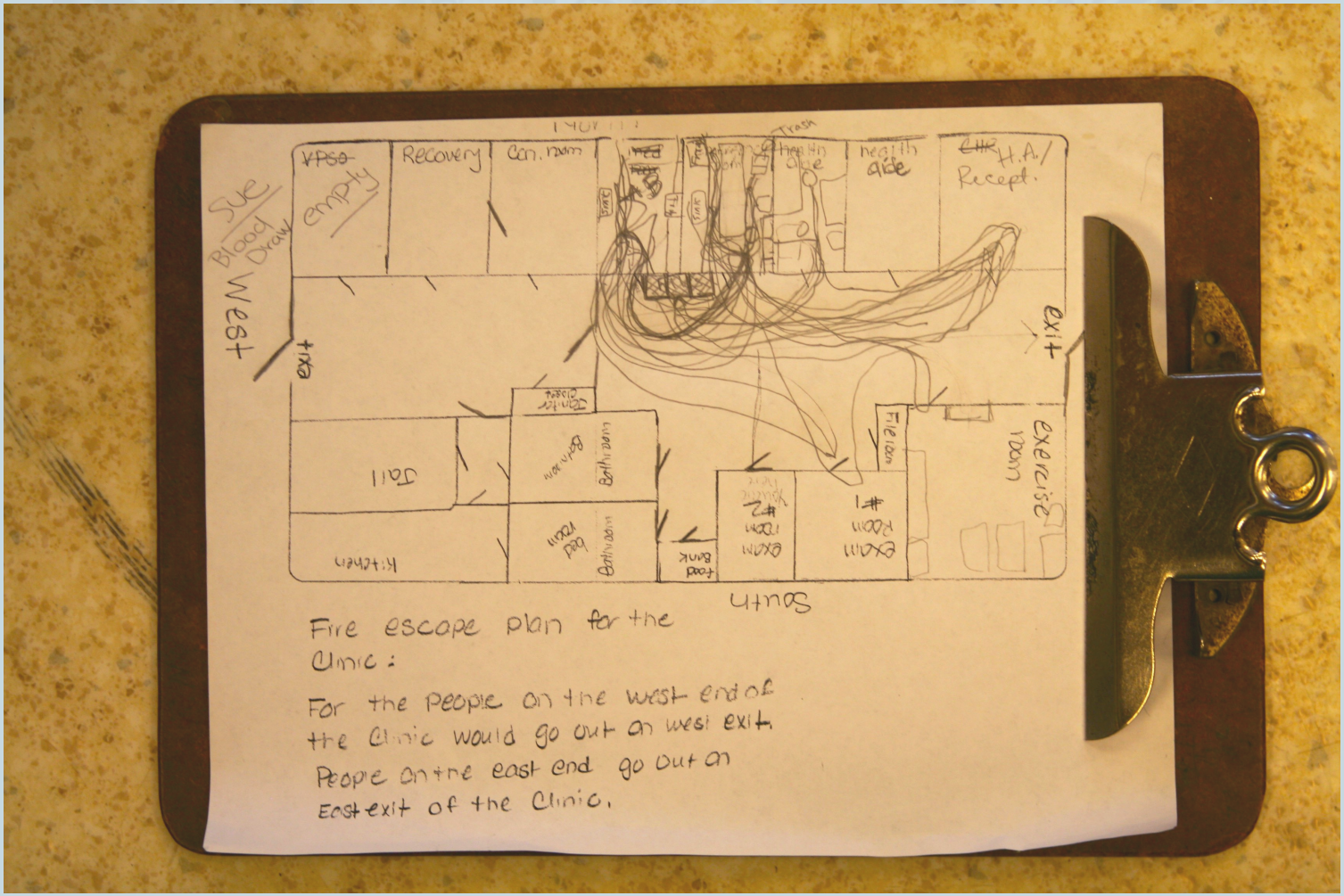
Day 3: Future state and improvements

Day 4: Implementation of improvements

Day 5: Finish improvements and report out

Hands on event. Same team all week. Should include leadership.

Spaghetti Diagram



Future State

Dream what is possible in the Future beyond your level of understanding

- What is the Next Target Condition (2-3 years)

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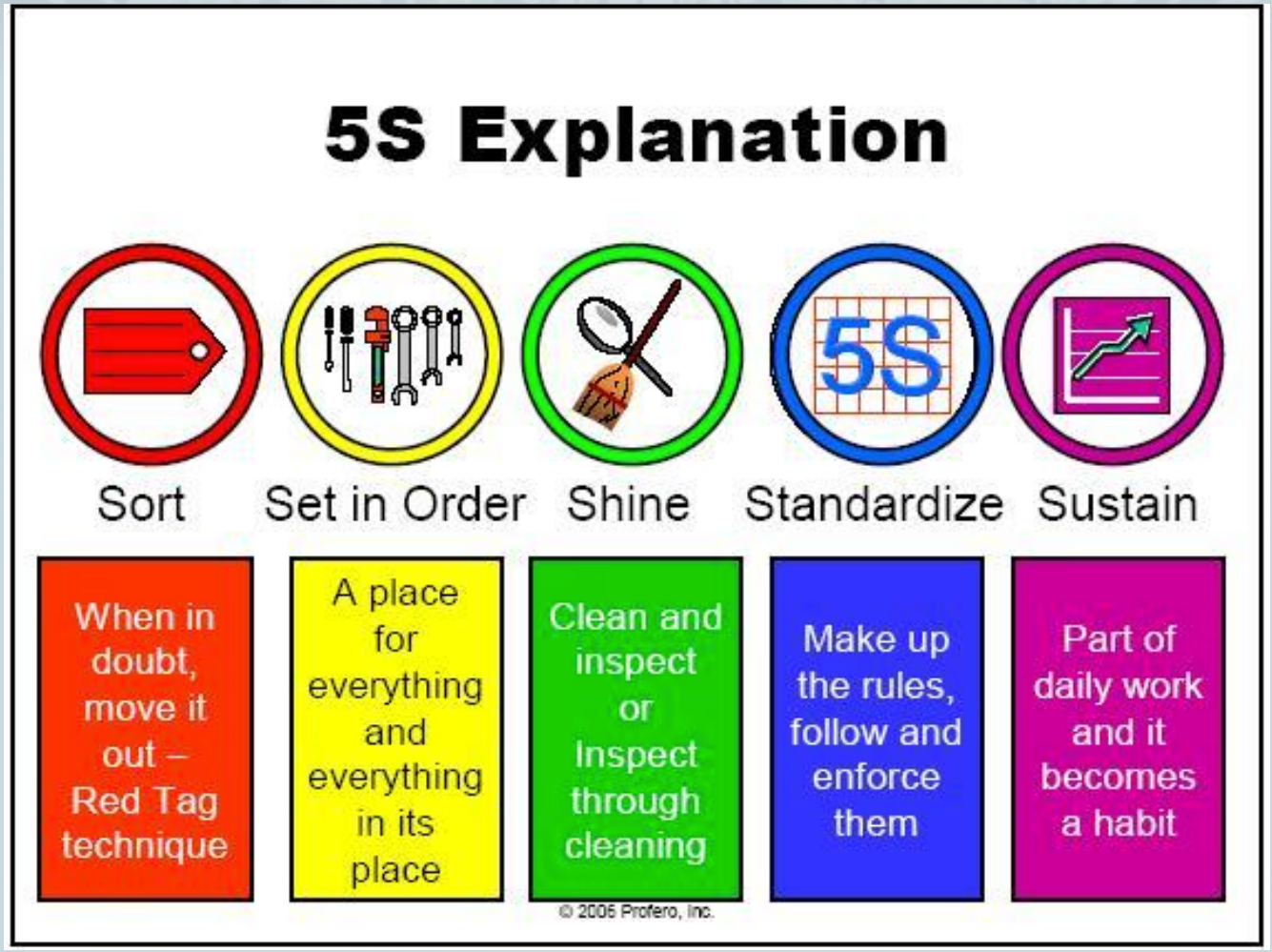

5S Explanation
5S
Sort
Set in Order
Shine
Standardize
Sustain
When in doubt, move it out – Red Tag technique
A place for everything and everything in its place
Clean and inspect or Inspect through cleaning
Make up the rules, follow and enforce them
Part of daily work and it becomes a habit
© 2006 Profero, Inc.

5S

Use 5S to…

Mistake Proof *(improve quality & safety)*

Before:

Inpatient Unit
Respiratory cabinet

After:

Workplace Organization
5S

Use 5S to…

Reduce Searching

Before:

After:

Charged and easy to locate

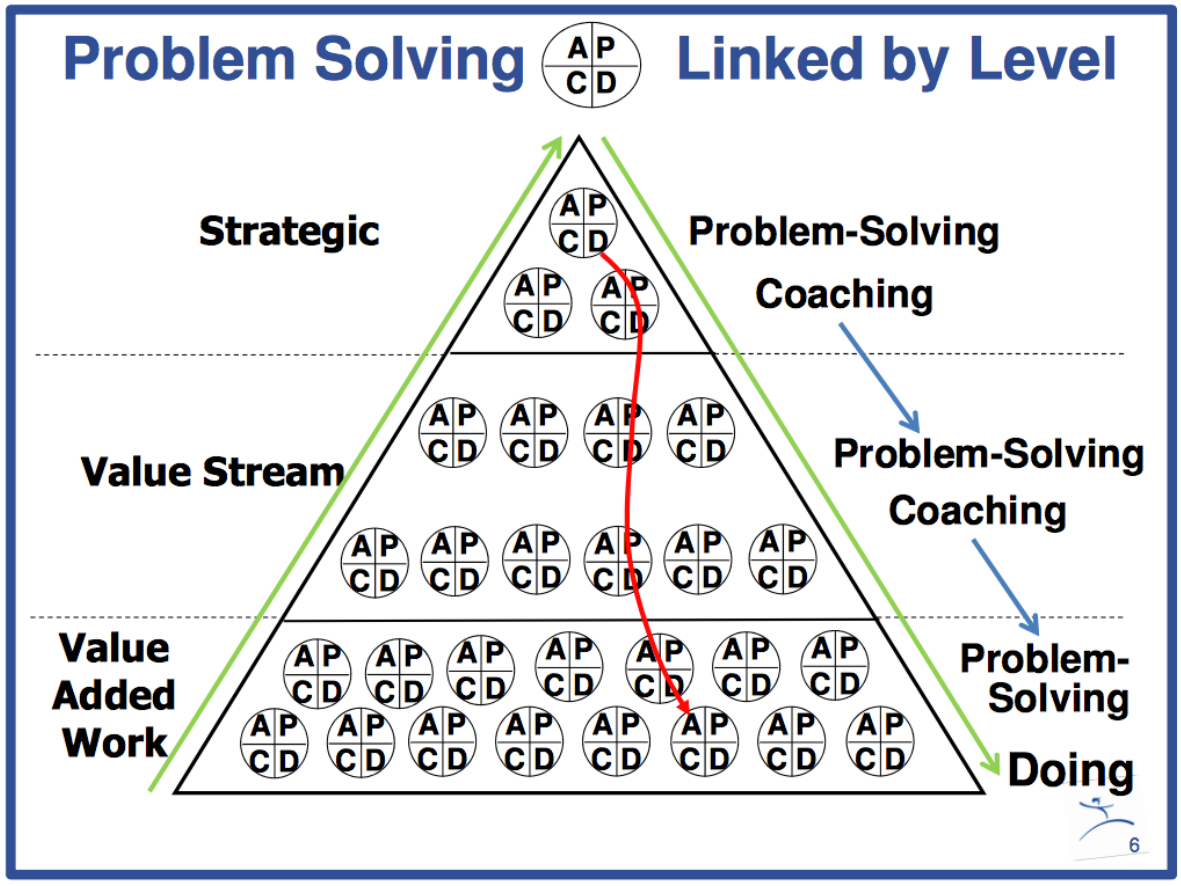
11 Reisman: *Designated an address & home to all clinical equipment*

Workplace Organization

Alaska Airlines 5S Results

Visual Controls

Leader Standard Work



Leader Standard Work

Gemba Walks

Huddling (reflection gathering)

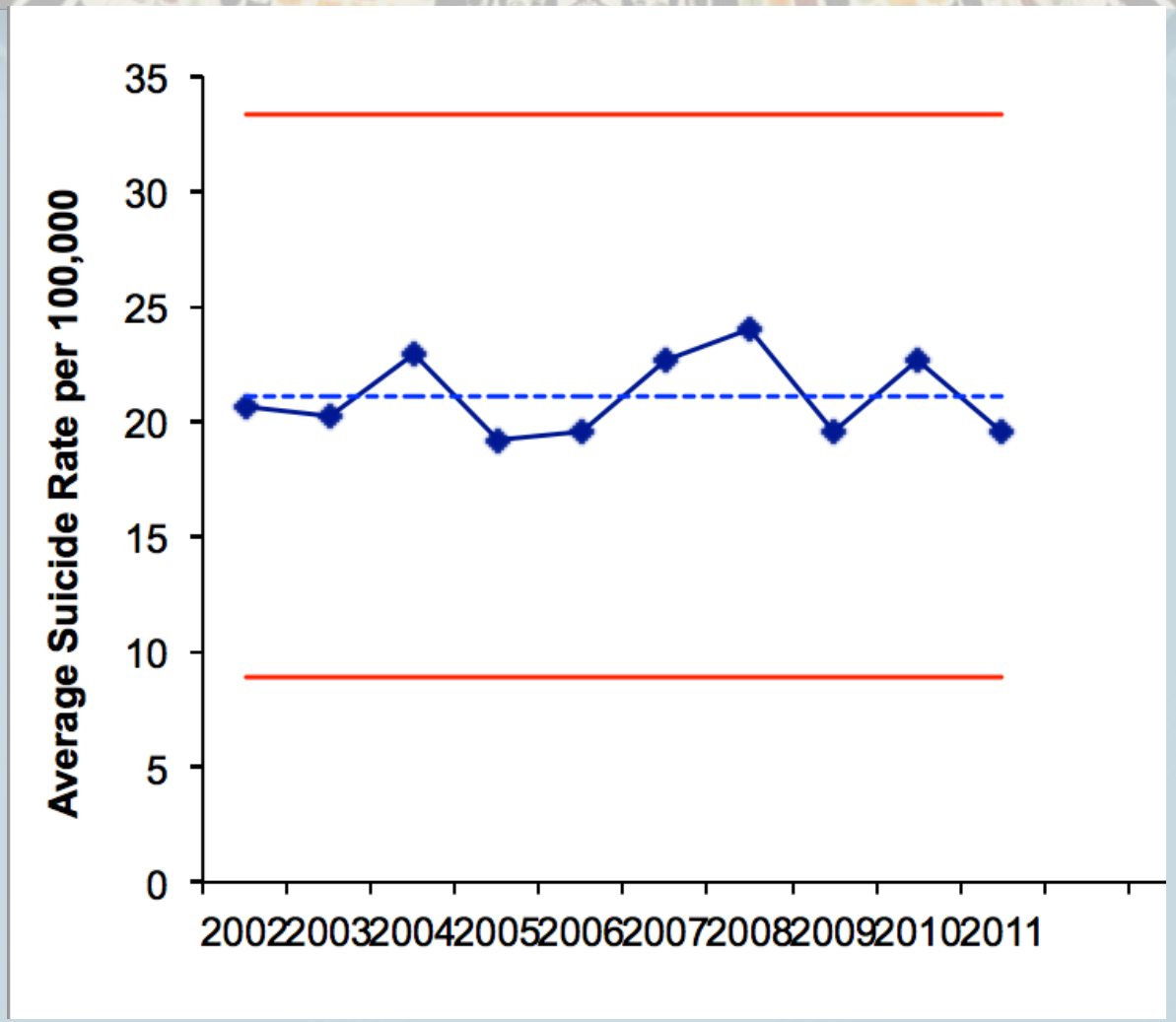
Andon Response

Visual Management (Accountability)

Coaching and Mentoring

Hoshin

Suicide Control Chart



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