# Patient Safety and Quality Improvement 301

GLOBAL HEALTH CONFERENCE

NOVEMBER 2020

## Objectives

- To understand the components of an effective patient safety program
- •To understand how an "A3" can facilitate both administrative as well as clinical quality improvement projects
- To understand a healthcare Board's role in Patient Safety and Quality Improvement

## Patient Safety - Reliability

- •What if your hospital has an 80-90% institutional success rate? "Great"?
  - No, from an individual patients' standpoint, it is unacceptable
- •For the individual patient, reliability is an "all-or-none" matter

Optimal Patient Safety requires a framework for improving reliability

 standardized protocols for care that are evidence-based and widely
 agreed upon is essential

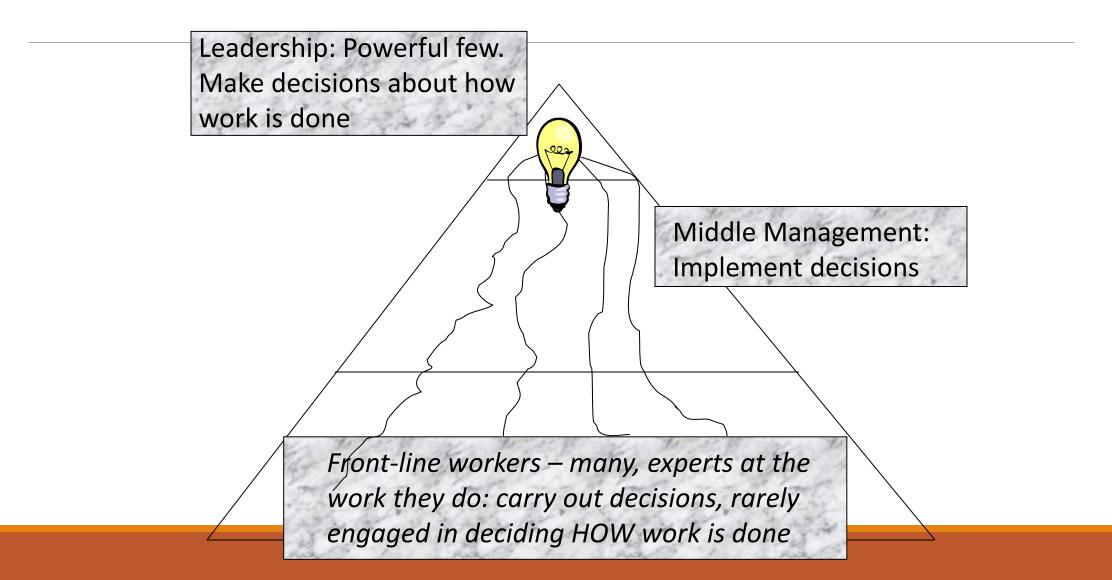
### Patient Safety / Quality Improvement = Culture Change

Culture: "The set of values, norms, mores and behaviors which create formal and informal networks within an organization"

Practical Definition: The way we "do things" around here

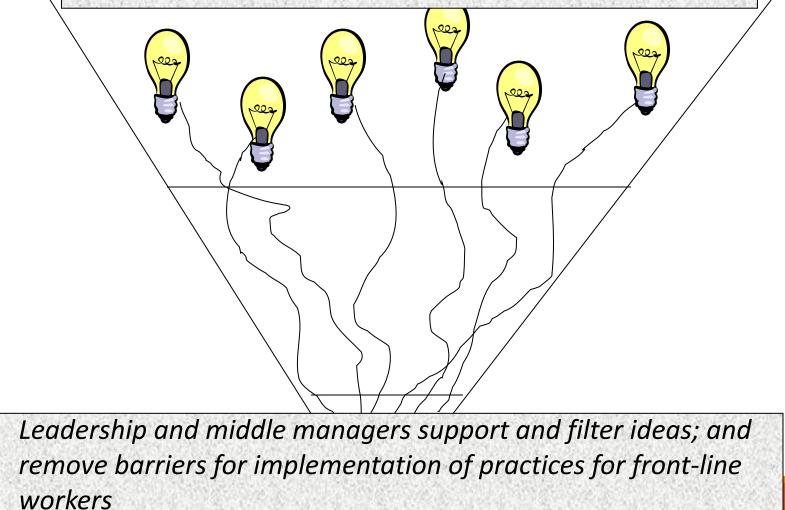
Remember, "Culture eats (QI) Change every day"

## Cultural Transformation: Business as Usual



## After Culture Transformation – Everybody Contributes!

Font-line Workers: experts at the work they do; decide HOW to do the work



## Common Patient Safety Challenges

 Diagnostic Errors: When a patient is not provided with a timely and correct diagnosis

 Medication Errors: can occur from the time the prescription is written to time of administration (it may or may not result in harm)

•Transition Errors: Change between inpatient and outpatient care (also between hospital units)

# Diagnostic Errors (DE)

 A DE is present when there was a missed opportunity to make the correct diagnosis

- •The rate of DE is about 10% most patient will be subject to DE at sometime in their life
- •DE are the leading cause of malpractice claims against most MDs
- DE's are multifactorial in origin with flawed cognitive clinical processes and Systems Issues both contributing

## Diagnostic Error Examples

 Premature Closure: accepting a Dx and discontinuing the diagnostic process before the data necessary to establish the Dx have been obtained

•Diagnostic Momentum: when a Dx is suggested early in the Dx process —and the process continues even if the data do not support it

 Confirmation Bias: the predisposition to seek evidence to confirm a suspected Dx without looking for evidence to disprove it

•Faulty application of knowledge: the clinician does not posses the underlying knowledge necessary to make the Dx- or does not apply the knowledge properly

## **Medication Errors**

Adverse drug event: harm experienced by a Pt as a result of exposure to a medication

- >100,000 hospitalizations per year
- Can be secondary to an accepted risk or the result of a Medication Error

#### **Risk Factors for Medication Errors:**

- Polypharmacy
- Advanced Pt Age
- Impaired renal or liver function
- Illegible handwriting
- Use of non-standard abbreviations
- "Look-alike" or "Sound-alike" names

## Measures to Reduce Medication Errors

•Computerized physician order entry (CPOE) systems

Medication reconciliation

•Better Labeling of meds with similar names

•Barcode-Assisted medication administration (BCMA)

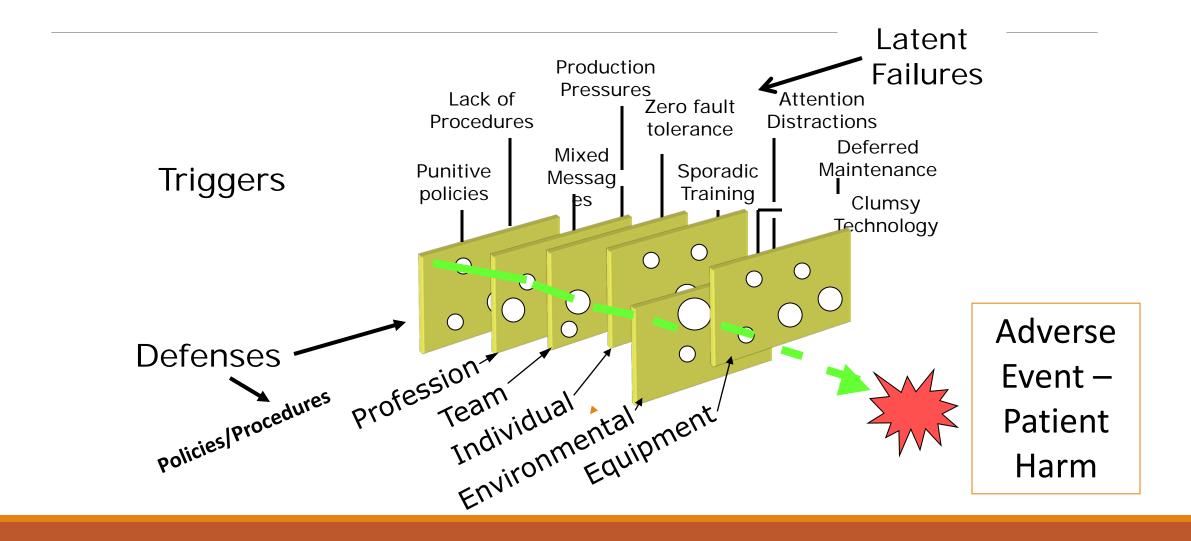
## "Human Error" = *Modus Operandi* in Current System

 Medicine has traditionally viewed errors as failings for which the individual at fault should be found and blame affixed

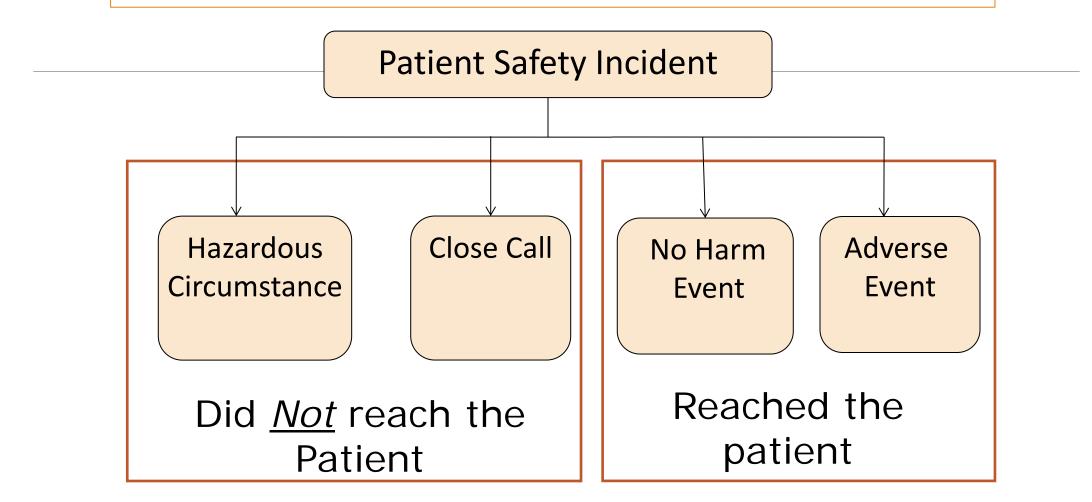
- "Train and Blame" methodology
- •Nursing Training has emphasized rules
- •Physician Training has emphasized knowledge

•Corrective actions have thus historically focused on the individual not the system

#### The Swiss Cheese Model (Reason, 1991)



# Defining a Patient Safety Incident



# Our Knee-Jerk (unthinking) Reaction?

•Go to the Sharp edge of action:

- The young staff member; the surgical team; the residents....
- Don't follow an unconscious protocol...

•However, a better way is to not automatically blame the caregiver(s)

- Thoroughly investigate the incident
  - Begin a "Root Cause Analysis"
    - A defined process that seeks to explore all of the possible factors associated with an incident by asking what happened, why it happened, and what can be done to prevent it from happening again

## Basics of a Root Cause Analysis

•Start with a prompt investigation – complete in a specific time

- Establish a timeline what happened? Who involved? Etc.
  - Review the Medical Record
  - Interview those involved
- Discuss Timeline findings with your multi-disciplinary RCA team
  - Do not settle for an easy answer
  - Ask Why? (the 5 why's) Goal: find the root cause of the incident
- End with a short document: [To be signed by CEO]
  - Issue and Actions to be taken to ensure it doesn't happen again
    - Who will do the action and Date each action to be completed

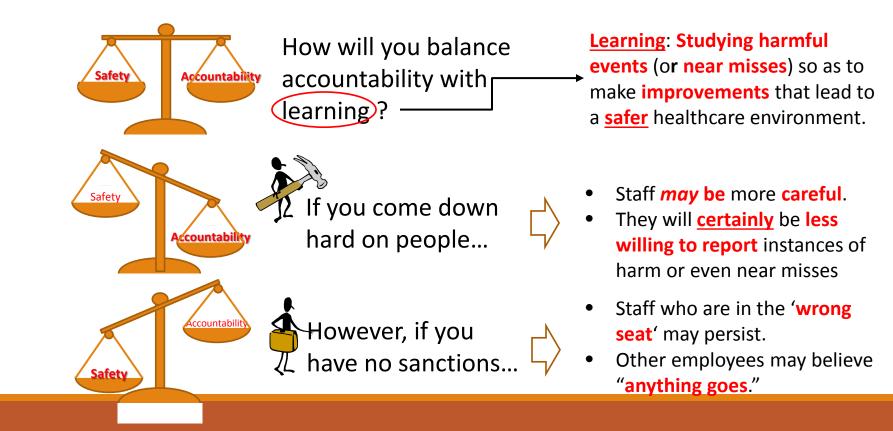
## Why do Staff not Follow Policies/Procedures?

Because they...

- Don't know them (knowledge deficit)?
- Can't find them (P&P not readily available)?
- Staff don't have the time?
- Can get away with not following them?
- Are careless and/or reckless?

## Just Culture

-"How can you justly deal with the individual who was involved, while also ensuring that your organization learns as much as it can from the event?" Sidney Dekker

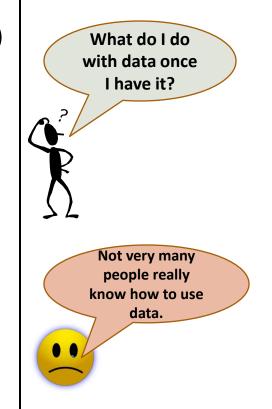


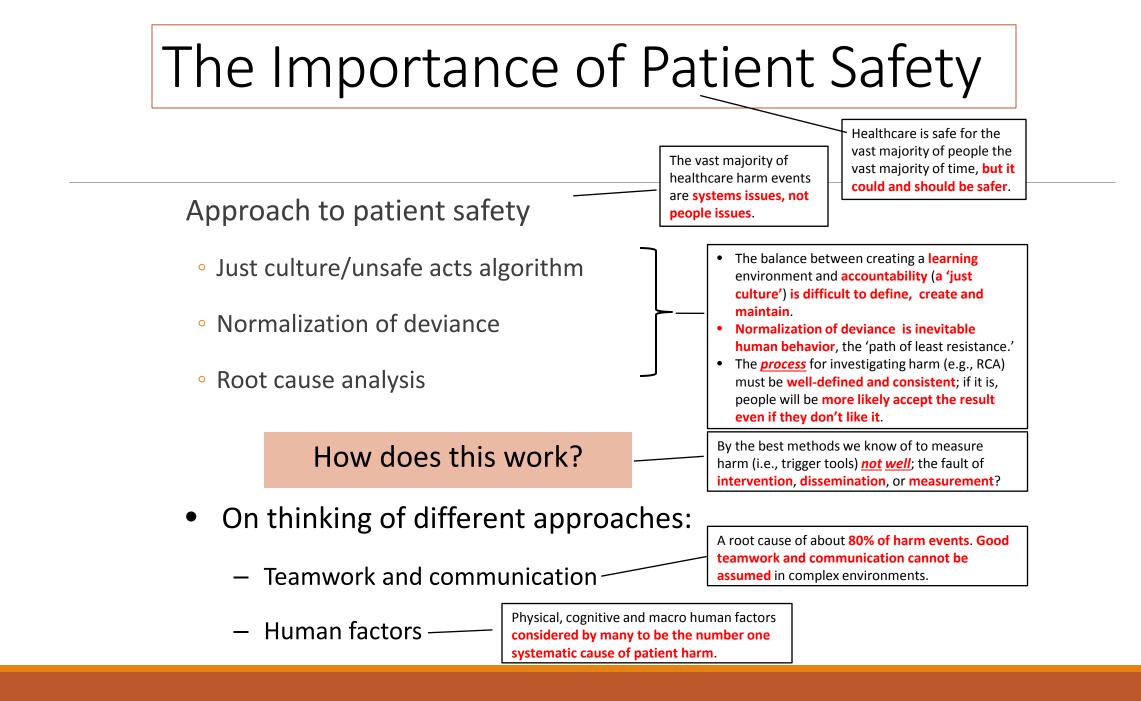
## Basic Pt Safety Structure & Function

- •Implementing and Managing an **incident report system**
- Understanding and analyzing data
- •Connecting leadership with front line staff
- •Implement frontline activity to improve patient safety
- •Analyzing major errors and sentinel events to prevent reoccurrence
- •Qualifications and training of the Patient Safety Officer
- •The role of the **patient safety committee**
- •Engaging physicians in patient safety
- •Board engagement in patient safety

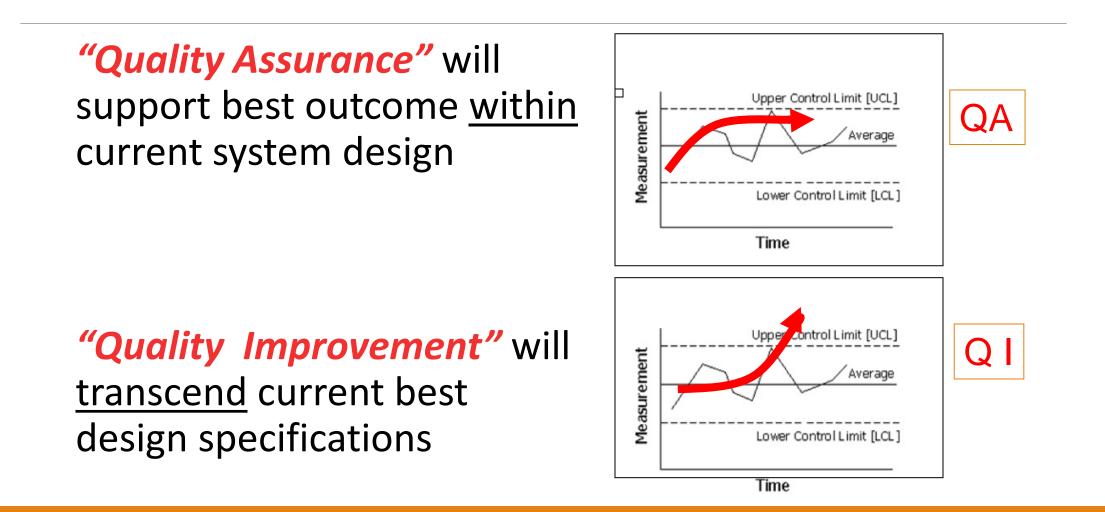
## Patient Safety Measurement

- The 'basics' include:
  - Data from **voluntary incident report** system
  - Data from **trigger tools** (and results of chart review)
  - Real time surveillance: e.g., CLABSI, CAUTI
  - Key outcome data: e.g., risk-adjusted mortality
  - Key process/structural data: e.g., CPOE use
  - NQF serious reportable events
  - Malpractice claims and payouts
  - Accreditation/licensing data from areas of concern
  - Serious patient complaints
  - Data from M & M conferences
  - Results from patient experience surveys
  - Results from safety culture surveys
  - Data from executive walk-rounds/focus groups





Why "Quality Improvement" not "Quality Assurance" Activities?



## Basis for "Quality Improvement"

 The key element in the "Quality Improvement" is the premise that quality is a system property

•Therefore, what primarily determines the level of performance is the **design** of the healthcare **system** 

## Overuse/Overtreatment

 Definition: Patients receiving services from which they will not benefit

 Example: Giving Antibiotics for "colds"/URI [>30% of children receive excessive antibiotics for ear infections]

•Why a Problem: exposed to the risk of adverse effects of this treatment without the possibility of benefit

## Underuse/Undertreatment

 Definition: Patients not receiving services from which they would benefit

#### •Example: Heart Failure patients not treated with ACE inhibitors

•Why a Problem: desired outcome is reduced because they do not realize the health benefits of these treatments

## Misuse

•Definition: Appropriate health services are provided ineptly [~ 7% of hospital patients experience a serious medication error]

•Example: patients with renal insufficiency who require aminoglycoside antibiotics but receive doses that are not reduced to match their renal function

•Why a Problem: the probability of a good outcome is diminished by the added risk of avoidable complications

## "Community of Scientists"

The Basic Sciences of Quality/Pt Safety

Use Evidence-Based **Management** Principles (HC Delivery) to Improve Healthcare Organizations as "Systems"

Change from the "Why" do this to "How" to do it!

## System Attributes

- "We must accept human error as inevitable and design around that fact." - Don Berwick, M.D.
- "The Search for zero error rates is doomed from the start"

## •If You Want a New Level of Performance?

#### Design a New System!

## Apply a "Quality Improvement" Methodology

To Improve (Change) Your HC Delivery System

"The Science of Improving Healthcare Delivery" [Evidence-Based HC Management]

## A Transformed [Highly Reliable] Healthcare System

["A Place where you want to be..."]

A Framework

- 1. No Needless Deaths
- 2. No Needless Pain
- 3. No Helplessness
- 4. No Unwanted Waiting
- 5. No Waste
- 6. No Unfairness

[Safety] [Effectiveness] [Person-Centered] [Timeliness] [Efficiency]

[Equity]

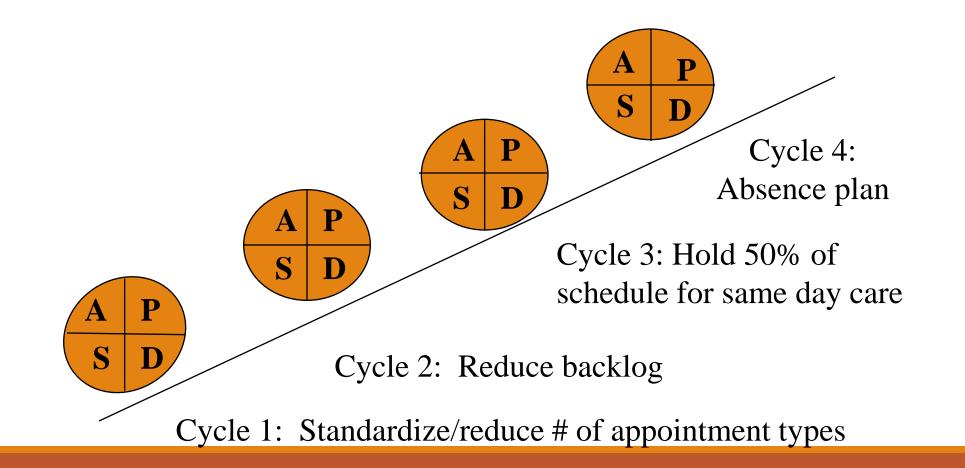
# Model for Improvement – IHI [model A]

#### The model has two parts:

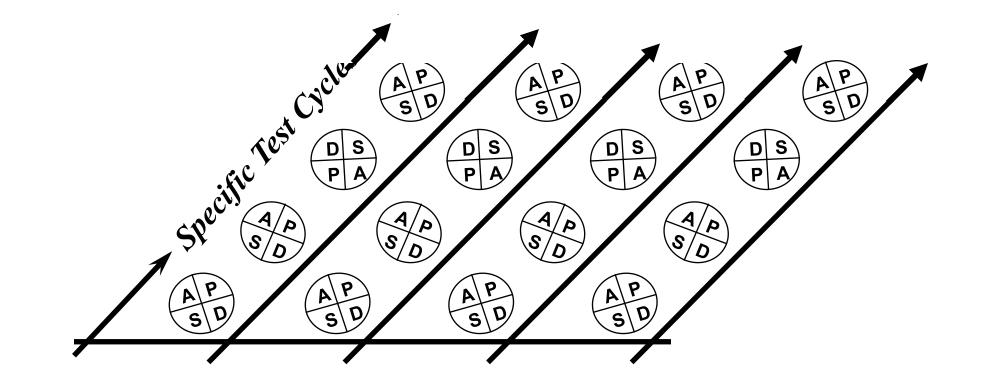
- I. Three Fundamental Questions:
  - 1. Setting **Aims**: What are we trying to accomplish?
  - 2. Establishing **Measures**: How will we know that a change is an improvement? [Measurement]
  - 3. Selecting **Change**: What changes can we make that will result in improvement?
- II. The Plan-Do-Study-Act (**PDSA**) cycle to test and implement changes in <u>real work settings</u>

Rapid Cycle Improvement (RCI) = multiple small tests (PDSAs) of change

### Testing...testing...Aim: Next Available Appointment < 7 days



#### Rapid Cycle Improvement (Many PDSA Cycles)



StandardSchedulingAppointmentTeam approachpanel sizeprotocolstypesto care

## What is Lean Thinking?

"The endless transformation of waste into value from the customer's perspective"

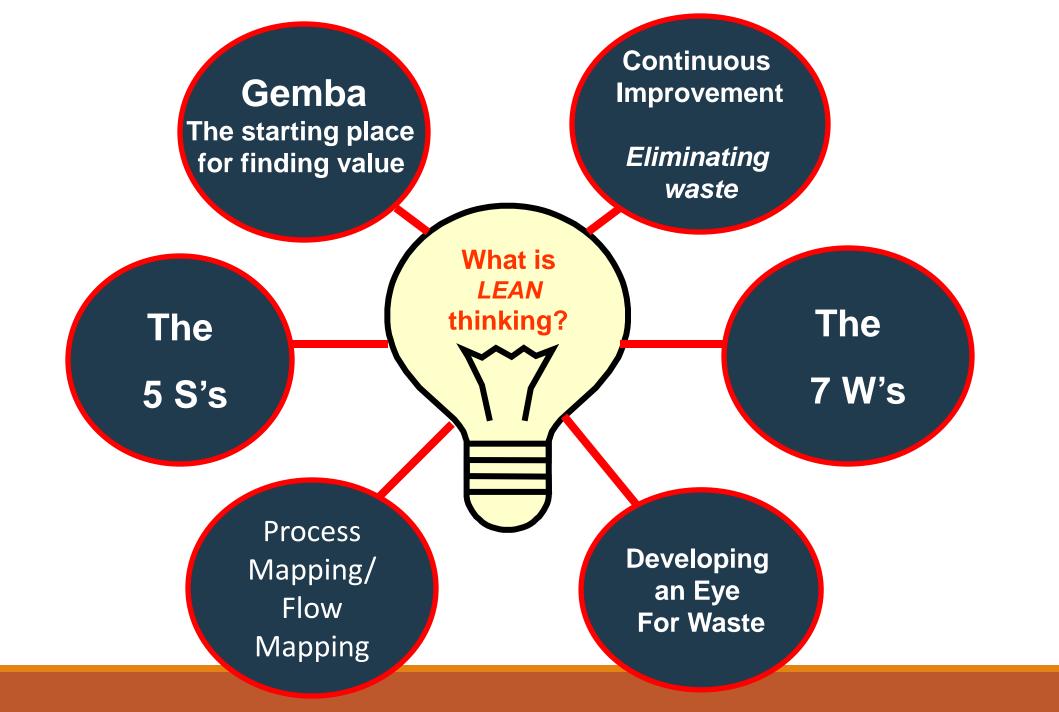
The Culture change in lean thinking is as important as the actual tools or methodologies

#### How to Determine the <u>Value</u> You Provide to Your Patients:



**VALUE** = "A"  $\times \frac{Access + Technical + Functional + Satisfac.}{COST}$ 

"A" = Appropriateness If "A" = zero, don't do process If "A" = 1, appropriate care



### 5 S:

### Sort, Set in Order, Shine, Standardize, Systematize

#### 5 S: an organized, never ending, effort to

- Remove all physical waste out of the work place that is not required for doing work in that area
- Setting things in order
- Identify, label, allocate a place to store it so that it can be easily found. retrieved and put away

#### Lean Six Sigma: 5S

5S is a workplace organization technique composed for five primary phases: Sort, Set In Order, Shine, Standardize, and Systematize.





SE

Keep only Arrange items necessary items to promote in the workplace. efficient workflow.

SET IN ORDER Arrange items to promote



SHINE

Clean the work area so it is neat and tidy.



STANDARDIZE

Set standards for a consistently organized workplace.



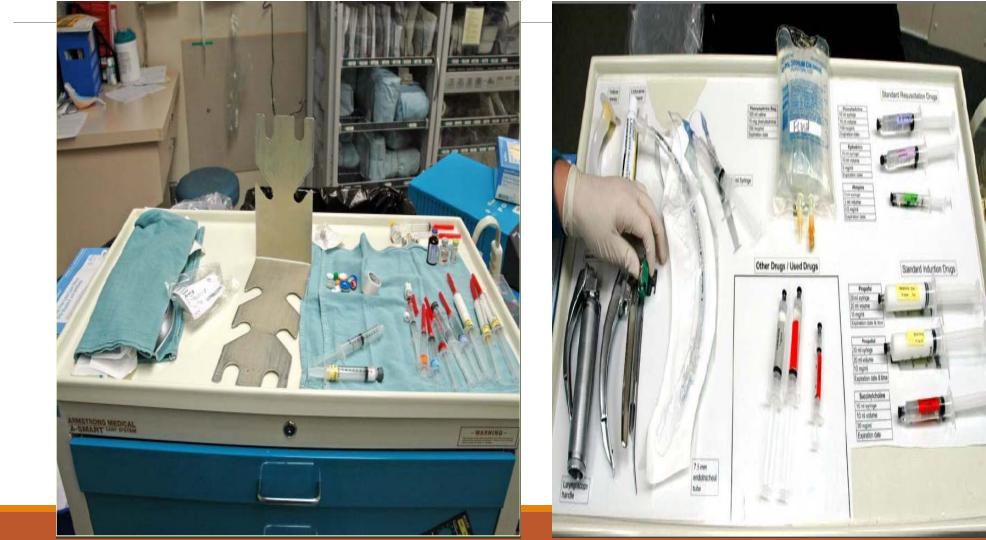
SYSTEMATIZE

Maintain and review standards.

5 S Results:

#### **Before 5S**

After 5S

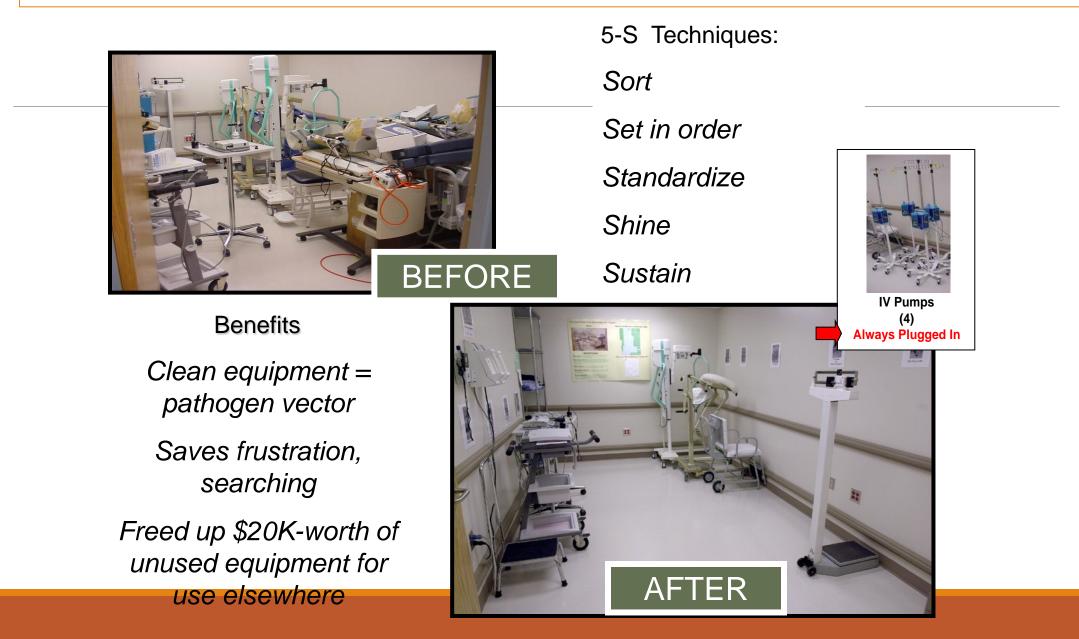


Waste "Pre / Post- "5 S"

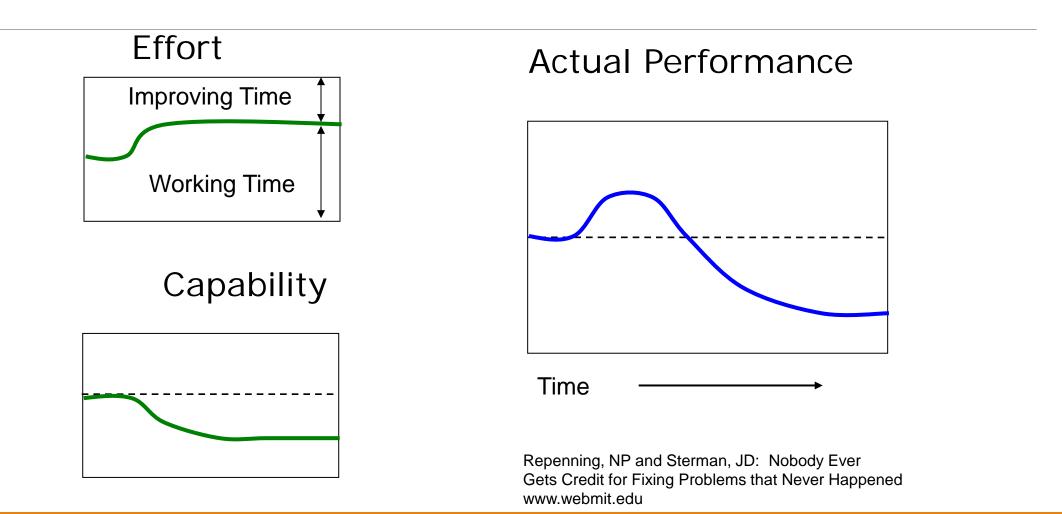


Unit 1. Basement (Before) and (After)

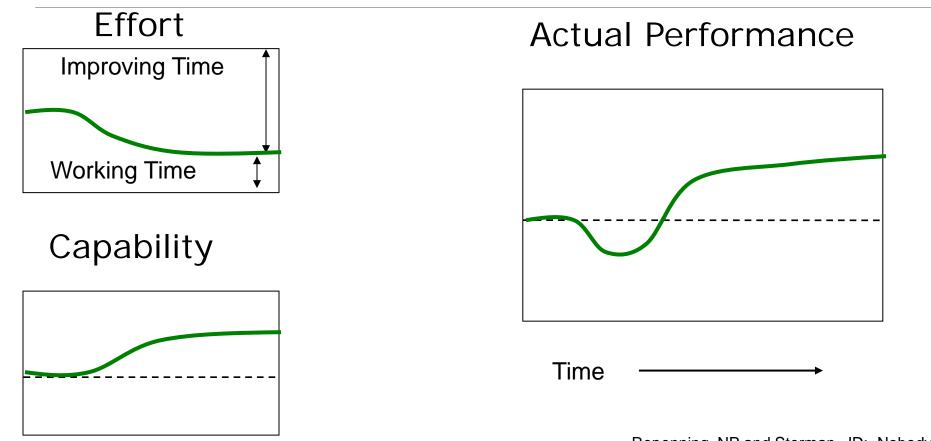
### Stabilizing Equipment Availability



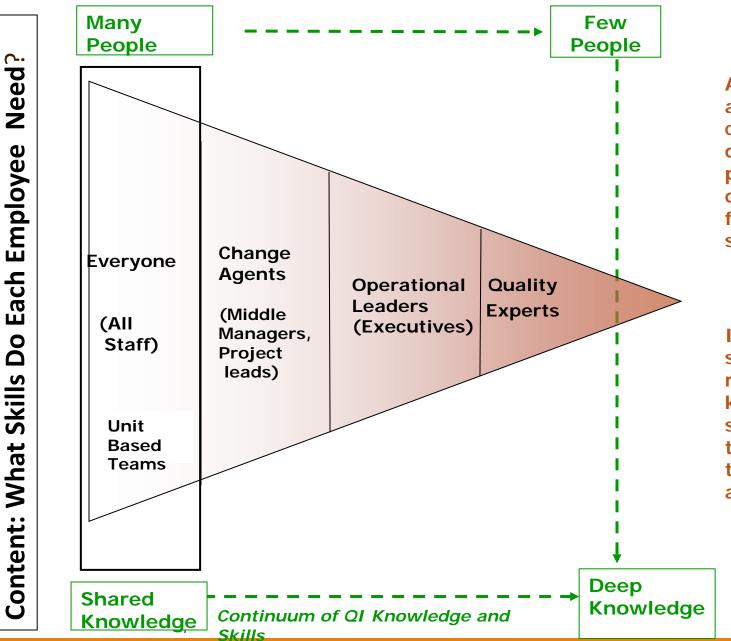
# System Paradox: Does QI mean – Work "Harder"?



### System Paradox: Work "Smarter"



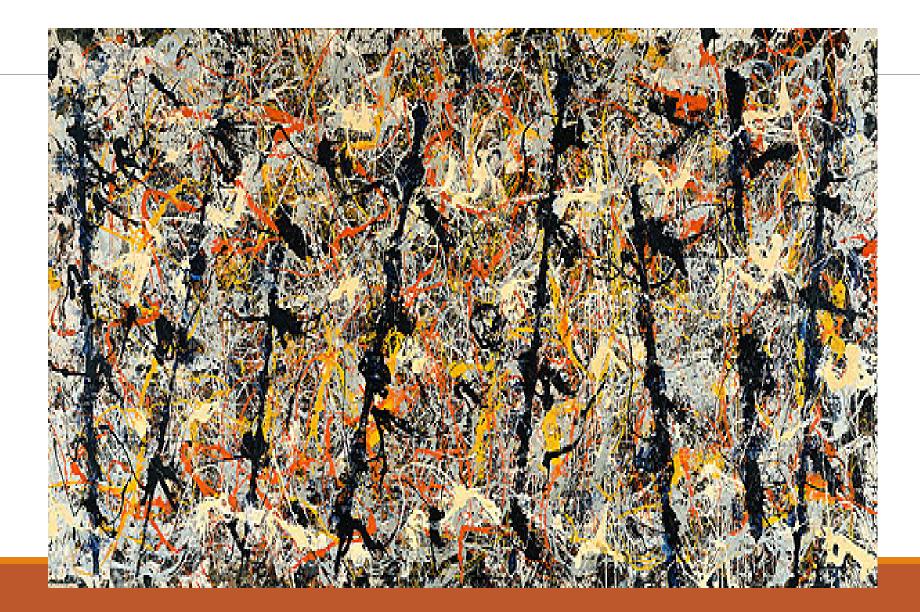
Repenning, NP and Sterman, JD: Nobody Ever Gets Credit for Fixing Problems that Never Happened www.webmit.edu



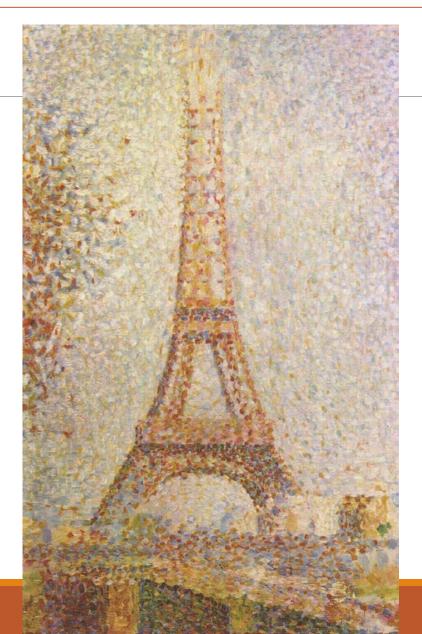
A key operating assumption of building capacity is that different groups of people will have different levels of need for QI knowledge and skill

Important to make sure that each group receives the knowledge and skill sets they need when they need them and in the appropriate amounts

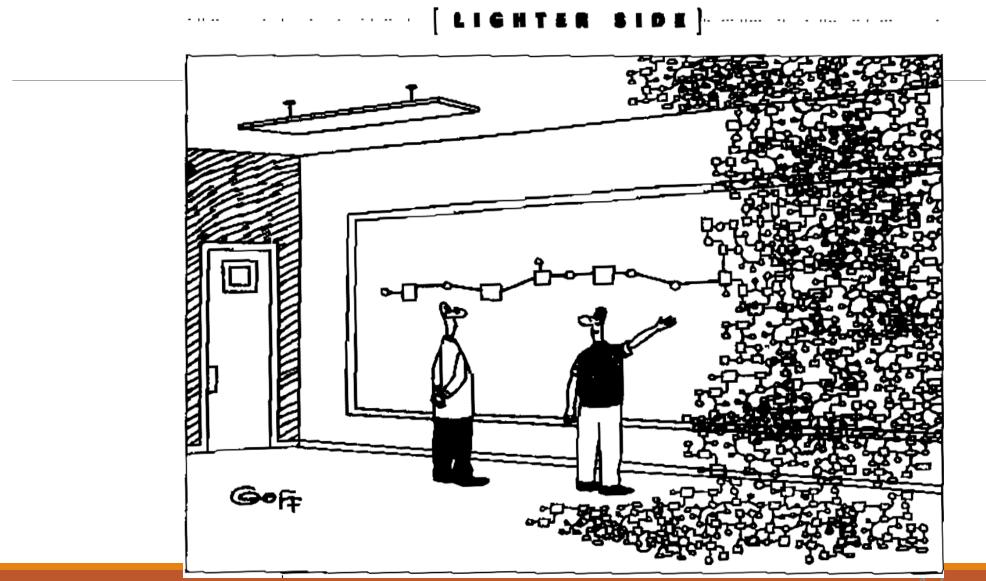
## Data



# Information



#### Now this is where it gets a little complicated



4,

# Why A3 "Protocol"/Thinking?

- •A structured cycle of improvement
- A framework for organizing thinking
  - Can be used for any type of problem
  - Individual and teams (and systems) a living, dynamic document
- Eliminates the waste of debating method
- •Reveals the issues, problems and previous ways of thinking
- •Makes problem solving visual
- Tells a Story

#### A Key tool in becoming a High Reliability Organization

### LEAN A3

<ol> <li>Reason for Action: VISION / Analysis Team and AIM</li> </ol>	4. Gap Analysis: Change	7. Completion Plan: Sustain new process Spread
<ol> <li>Current State: Map Process Baseline measurement</li> </ol>	5. Solution Approach: Change Ideas	8. Confirmed State: Sustain & Spread
<ol> <li>Target (or Future) State: Map Ideal/Target State Measure</li> </ol>	<ol> <li>Rapid Experiments (PDSA Cycles =RCI) Change</li> </ol>	9. Insights: Ideas to help sustain and spread

# A3 - Box 1 Reason for Action

What is the problem statement?

What is the scope of the problem?

What are the boundaries you will set?

Reason for Action	Gap Analysis	Completion Plan
1	4	7
Current State	Solution Approach	Confirmed State
2	5	8
Target (Future) State	Rapid Experiments	Insights
3	6	9

# A3 – Box 2 Current State

# What does the organization look like right now?

- Data/Business case for need:
- What are the current/upcoming changes you wish to initiate?
- Have you personally visited the site you want to change?
  - Gemba Walk
- Identify what are the core process?
- Flow Map the core processes
  - Identify (high-level) major issues (Kapowie's)

Reason for Action	Gap Analysis	Completion Plan
I I	4	7
Current State	Solution Approach	Confirmed State
2	5	8
Target (Future) State	Rapid Experiments	Insights
3	6	9

# A3 – Box 3 Future (Target) State

What do we want the organization to look like at:

- 1 year
- 3 years
- 5 years from now?

What does a "Good" future look like?

How will we know when we have made an impact?

Reason for Action	Gap Analysis	Completion Plan
I	4	7
Current State	Solution Approach	Confirmed State
2	_	8
L	5	0
Target (Future) State	5 Rapid Experiments	O Insights

# A3 – Box 4 "Gap Analysis"

What are the big differences (gaps to be closed) between the current and future state?

What impact do these gaps have on our ability to be successful or reach our target state?

How much control / influence do we have over these gaps?

What are some of the potential root causes of the gaps?

Reason for Action	Gap Analysis	Completion Plan
I	4	7
Current State	Solution Approach	Confirmed State
2	5	8
Target (Future) State	Rapid Experiments	Insights

# A3-Box 5 Ideas (Solutions) Approach

What ideas / strategies do we have for closing the gap?	
Which of the core processes have the most potential to close gaps (attain target)	
What have others done to close the gaps?	
How easy or difficult are the solutions being proposed?	

Reason for Action	Gap Analysis	Completion Plan
I	4	7
Current State	Solution Approach	Confirmed State
2	5	8
-		-
Target (Future) State	Rapid Experiments	Insights

# A3 – Box 6 Rapid Experiments

Proposed countermeasures to address each root cause	Reason for Action
Predicted results for each countermeasure	I
Do multiple PDSAs	Current
Assessment Q:	State
<ul> <li>Are there clear countermeasure steps identified?</li> </ul>	2
<ul> <li>Do the countermeasures link to the Root Cause of the prob.?</li> </ul>	-
<ul> <li>Who is responsible for what, by when (5 whys)</li> </ul>	Target
<ul> <li>Will these action items prevent recurrence of the problem?</li> </ul>	(Future) State
	State
	3

Reason for Action	Gap Analysis	Completion Plan
I	4	7
Current State	Solution Approach	Confirmed State
2	5	8
2 Target (Future) State	5 Rapid Experiments	8 Insights

# A3 – Box 7 "Implementation"

Table to document how you will do the different PDSA cycles you do in closing the gaps

- Who (who leads task)
- What (task)
- When (completion date)
- Where

Learn and improve as you go

Reason for Action	Gap Analysis	Completion Plan
1	4	7
Current State	Solution Approach	Confirmed State
2	5	8
Target (Future) State	Rapid Experiments	Insights
3	6	9

# A3 – Box 8 "Confirmed State"

#### Accomplishments

Metrics (data)

- run charts, control charts, etc.
- Document quantified change (% improvement or % no longer happening, etc.)

Reason for Action	Gap Compl AnalyPlan	etion pletio an
1	4	7
Current State	Solution Approach	Confirmed State
2	5	8
2 Target (Future) State	5 Rapid Experiments	<b>8</b> Insight / Reflection

# A3 – Box 9 "Insights"

What have you learned from

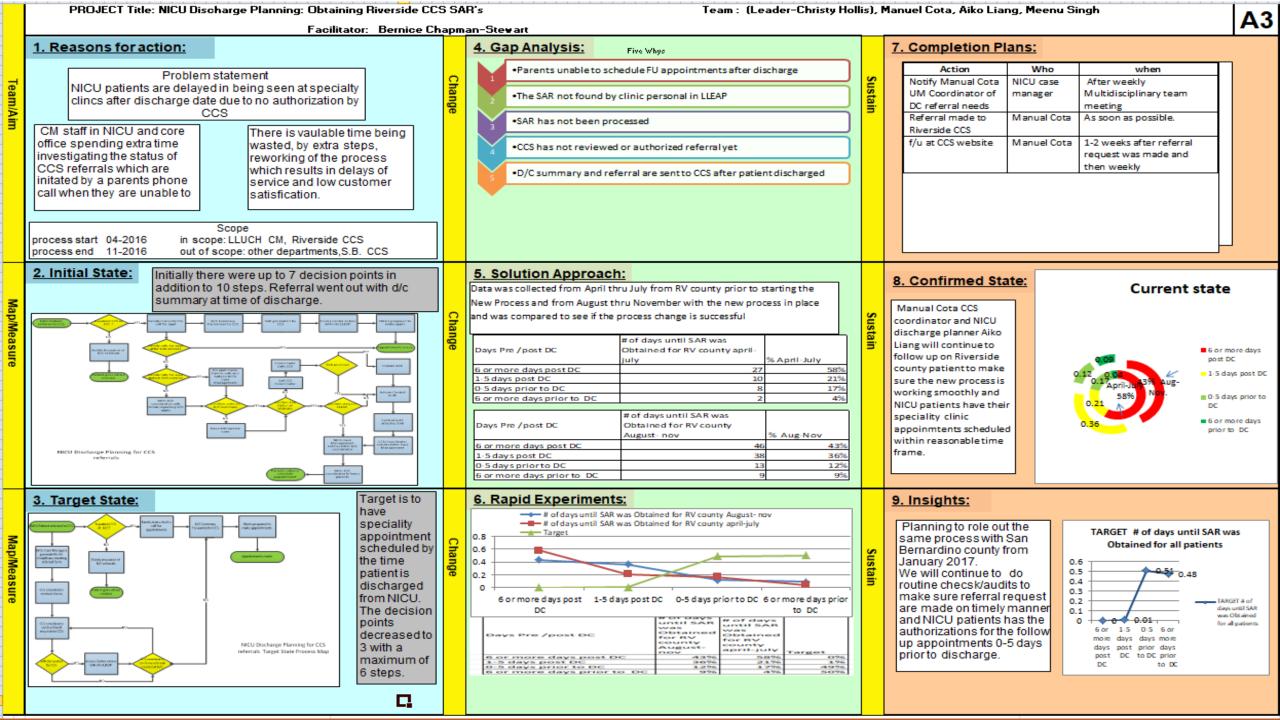
this process?

How can we make it better

next time?

Summary

Reason for Action	Gap Analysis	Completion Plan
l	4	7
Current State	Solution Approach	Confirmed State
2	5	8
2 Target (Future) State	5 Rapid Experiments	8 Insights / Reflection





# Trystorming

Rapid Tests of Change (RCI = Multiple PDSA cycles)

SDSA Cycle

- •PDSA: focuses on experimentation
- •SDSA: focuses on Standardization/Sustainability
- •Once you have run many PDSA cycles (RCI) and have achieve a desired level of performance – you want to maintain this gain
  - Adopt new a new standard method (till you need to make new improvements)
- •SDSA cycle is how you hold the gain

# "Don't be afraid of learning too much;

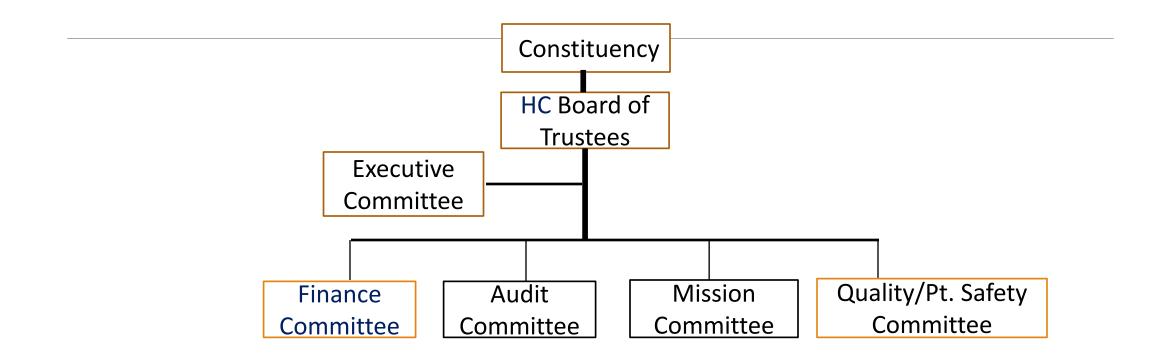
# it will never happen!"

Dr Stephen Miles

### Healthcare QI Board Responsibilities

- Ensure your HC Board has "Quality & Patient Safety" as part of its agenda – should be ~25% of agenda - Larger facilities: "Q & PS" Board Subcommittee
- •Keep your "Board" appraised of "Q and PS" status
- Establish a "Just Culture"
- •Select a Quality Improvement (QI) Methodology
- Include QI/PS goals in your CEO's Performance Evaluation
- Continually communicate QI results to all stakeholders staff (tell "stories")

### "Ideal" Board Structure





# 21<sup>st</sup> Century Health Care System

The Healthcare workplace of the future is:

- 1. A desirable place to work
- 2. An efficient place to work
- Has a Culture of Continuous Systems (Quality)
   Improvement "Improving My Work Is My Work"

Every employee has two jobs:

- Their given "job description"
- Daily Improving how they do their "job"

# 21<sup>st</sup> Century Health Care System

#### 4. Staff work in multi-disciplinary teams:

- Teams that are peers, empowered and have data about:
  - Cost, Quality, Access
- Teams have ability to select high priority challenges (those that are important to them) to improve
- Teams that receive formal QI training

# 21<sup>st</sup> Century Health Care System

#### 5. Teams have dedicated time to:

- Do change (PDSA cycles = Rapid Cycle Improvement)
- Evaluate change
- 6. Teams choose tasks that are aligned with the organization's values and culture

7. Every Employee has a Safe Forum to raise Questions

# Quality Improvement Concepts

- 1. Serious gaps in quality exist –shared aims are helpful
- 2. The people of your workforce are good
- 3. Trying harder is the worst plan
- 4. All improvement is change
- 5. Skills for improvement are not common –yet
- 6. Strong QI Methodology (concepts) are essential

# Quality Improvement Concepts

- 7. Measurement helps learning
- Local adaptation makes concepts work properly without it, they won't
- 9. "All Teach All Learn"

**10.** Improving for an individual staff member:

#### "Improving my work is my work"

# Caution

•QI Principles are <u>Tools</u> to change your local system.... Not the actual work to make needed change

• Goal: improved Efficiency, Quality and Patient Safety in your facility

•Unless many PDSA test cycles occur, you won't get any change / improvement

•"QI" principles cannot be implemented by Senior Management mandate – instead, it comes from front-line teams

•Different sites using same "QI" principles may lead to different processes in different places (freedom to innovate)

### Quality Improvement Themes:

•Soon is not a Time!

•Some is not a Number!

•Hope is not a Plan!

#### •Caring is not Whole Person Care!

- Compassion without science is well-intentioned kindness; it needs to be combined with evidence-based medicine, evidence-based HC management
- "This life is full of gracious opportunities, which you can improve in the exercise of your God-given abilities to bless others. YI, Dec. 15, 1886.

# What then is Quality?

•Quality is a way of thinking about work

•Quality is how you **approach** work every day for yourself personally and for those you serve

•Quality is not about a staff title or using the latest catchy phrase

# PS/QI = "The Science of Improvement"

Creating a culture of continuous quality improvement in a "Just Culture"

"Improving my work is my work"

"Remember that what is worth doing at all is worth doing well" YI, Sept. 29,1892

### Institute for Healthcare Improvement

IHI's Open School

<u>http://www.ihi.org/education/</u> ihiopenschool/overview/Pages/default.aspx