UCLA Head & Neck Surgery
Patient Safety and Quality Improvement:
MFI & PDSA cycles

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QI Resident Representative
"Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-assessment and lifelong learning. Residents are expected to develop skills and habits to be able to systematically analyze their practice using QI methods, and implement changes with the goal of practice improvement; residents are expected to participate in a QI project."
QI vs Research

Research
- Form hypothesis
  - Stick with it until bitter end
- One large test
- T-tests, chi square, p-value

Quality Improvement
- Form a hypothesis
  - Adjust through multiple PDSA cycles to work out kinks
- Sequential tests
- Run charts or Shewhart charts

In QI, the goal is to improve the conditions that exist… not merely to describe what they are
And to do that, you need to be able to modify your assumptions and retest your theories based on what you learn in the course of your tests
Goals of PS/QI

1st session
- The Quadruple Aim
- Accident Causation
- Root Cause Analysis

2nd session
- Model For Improvement (MFI)
- Setting an Aim
- Plan-Do-Study-Act (PDSA cycle)

3rd session
- Family of measures
- Run charts
- Histogram
Six Sigma, Lean, MFI

Six Sigma
- Define
- Measure
- Analyze
- Improve
- Control

Lean
- Identify Value
- Understand Value Stream
- Eliminate Waste
- Establish Flow
- Enable Pull
- Pursue Perfection

Model for Improvement
- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What change can we make that will result in improvement?

Source: The Improvement Guide, API

Act
Plan
Study
Do
Model For Improvement (MFI)

2 parts:

- 3 fundamental questions
- PDSA cycles
Applying MFI requires the following steps:

1. Set an aim
2. Establish measures
3. Identify changes
4. Test changes
5. Implement changes
How to set an aim

“What are we trying to accomplish?”

Your aim statement needs to be SMART:

- **Specific**: Sets a clear goal.
- **Measurable**: Has concrete criteria for measuring progress and defines success numerically.
- **Achievable**: Can actually be accomplished.
- **Realistic**: Includes objectives that the team is willing and able to work towards.
- **Time-bound**: Establishes a timeframe (usually 6-12 months).
How to identify a quality gap: SAC Matrix

The SAC Matrix (excerpted from VHA Patient Safety Improvement Handbook, see http://www.patientsafety.gov/NCPSHb.pdf)
Identify an issue that you feel needs improvement

- perioperative efficiency of DISE procedures

Define why improvement in this area is necessary

- time utilization, healthcare cost, patient experience, staff utilization, loss of multiple streams of revenue, delay in access to care

Collect and/or review baseline data in your problem area to confirm it is actually a problem

- track baseline time for a short period:
  - DISE procedure time vs pt facility time
Develop an Aim Statement: Clinical Example

What are you trying to accomplish?
- improve efficiency of DISE

For whom? (or what system?)
- at Ronald Reagan

How?
- reduce facility time by 30%

By when?
- January 2019

**AIM Statement:** We will reduce facility time for patients undergoing DISE procedures at Ronald Reagan by 30% by January 2019

Need to understand the baseline process and data
Developing Measures and Changes: Clinical Example

Outcome measure?

- facility time (min)

How will you determine what to change?

- Describe the current process for this and current data
  - DISE is performed in the MOR with or without concurrent other procedures, current average time for the procedure is 10 min, and the facility time is 312 min.

- What change can result in the improvement?
  - setting: RR, MOR
  - staff
  - equipment
  - anesthesia protocol
  - procedure time
  - patient factors
Aim Statement Worksheet

We will improve efficiency of DISE procedures
(High level area, e.g., health of our patients, operational efficiency, patient experience, etc.)

By reducing
(Reducing/decreasing or raising/increasing, etc.)

facility time
(What are you going to reduce/decrease, raise/increase?)

From 312 min to 220 min
(Baseline) (Target goal)

By January 2019
(Target date)

Example: We will reduce the time utilization of DISE procedures at Ronald Reagan by 30% by January 2019

Improvement measures tracked monthly to measure progress toward Aim:

1. Procedure/operating room utilization
2. Anesthesia time utilization
3. Recovery room utilization
4. Facility time
5. Procedure time
PDSA cycles: 4 stages

1. Plan
2. Do
3. Study
4. Act

The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change in the real work setting — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning.
PDSA cycle: Clinical Example

Time utilization for DISE performed in ES vs. MOR

- Total Procedure Time
  - MPU: 8.46
  - MOR: 10.41

- In-Operative Room Time*
  - MPU: 26.95
  - MOR: 36.73

- Anesthesia Care Time*
  - MPU: 28.83
  - MOR: 42.64

- Postoperative Recovery Time*
  - MPU: 33.72
  - MOR: 77.23

- Total Facility Time*
  - MPU: 150.08
  - MOR: 312.77
Changes to the system resulting in improvement

Modify the protocol and make it standard practice

Use the entire protocol with all patients

Modify the protocol and use it with other patients

Use part of a protocol with a small group of patients and refine it

Data

Ideas


