



# Quality and Safety Series

## Quality Improvement Models

# OBJECTIVES



- Define quality improvement.
- Identify the primary quality improvement models.
- Discuss the differences between the models.

# Defining 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*

- Safe
- Effective
- Patient centered
- Timely
- Efficient
- Equitable



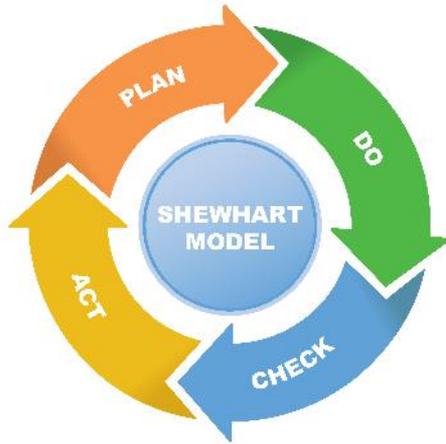
# Quality Improvement



“Systematic approach using specific methods to improve quality; achieving successful and sustained improvement.”

—*Institute of Medicine*

# Quality Improvement Models

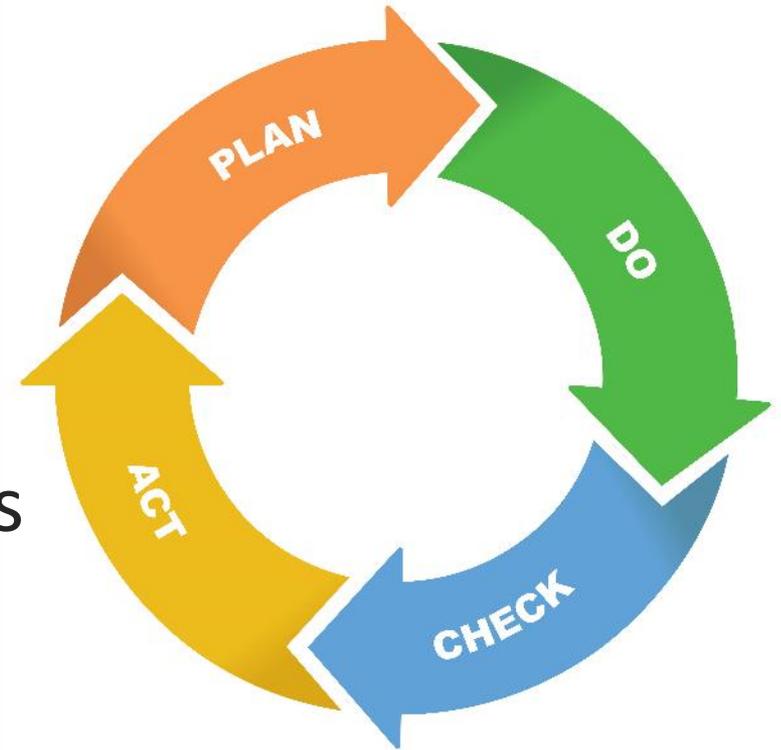


## Other Models

- **FOCUS**—Find, Organize, Clarify, Uncover, Start
- **Xerox 10 Steps**
- **IMPROVE**—Identify, Measure, Prioritize, Research, Outline, Validate, Execute
- **FADE**—Focus, Analyze, Develop, Execute
- **Juran's QIP**—Organize, Diagnose, Remediate, Hold
- **AHIMA 11 Steps**

# Shewhart Model: PDCA/PDSA

- Simple, 4-step model
- More suited to solving specific problems
- Not as adaptable for organization-wide problems
- Lacks a step for control/sustainability



# Steps of PDCA

## Plan

- Identify the problem
- Analyze the problem and data
- Define the problem
- Set goals
- Establish current-state process
- Create strategy

## Do

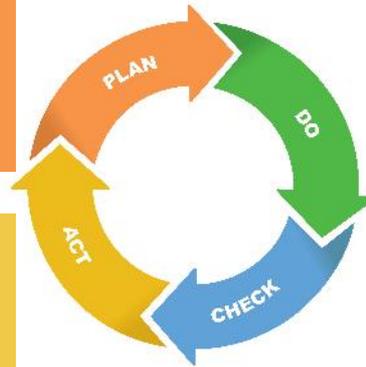
- Begin implementation
- Pilot strategy

## Check

- Analyze data
- Determine effectiveness
- Decide to:
  - Adapt: modify process go back to plan
  - Adopt: continue to act
  - Abandon: end initiative

## Act

- Fully implement, if adopted
- Continue to monitor results
- Consider spread and sustainability



# Six Sigma Model: DMAIC/DMADV

- Six  $\sigma$  = 99.99966% or 3.4 deficits per million
- Designed by Motorola for manufacturing improvement
- Focused on reducing variation and error
- Heavily data driven
- Formal certifications
  - White Belt: Introduction
  - Yellow Belt: Basic foundational knowledge
  - Green Belt: Comprehensive knowledge, lead projects
  - Black Belt: Expert knowledge, lead over multiple projects
  - + Master Black Belt: Program level expert/trainer



# DMADV vs. DMAIC



Methodology applied to a **new** process or service line



Methodology applied to improving an **existing** process or service line

# Steps of DMAIC

## Control

- Create policies and procedures
- Verify benefits/cost savings
- Develop a control plan
- Transition to process owners

## Define

- Identify customers
- Conduct a stakeholder analysis
- Identify process impacted
- Develop high-level inputs and outputs

## Improve

- Generate solutions
- Define benchmarks/goals
- Perform FMEA
- Conduct training



## Measure

- Define opportunities
- Define metrics
- Create detailed process maps
- Establish data collection methodology

## Analyze

- Evaluate process map
  - Value added
  - Non-value added
- Identify variation
- Determine root cause
- Analyze data

# Six Sigma vs. Lean

	<b>Lean</b>	<b>Six Sigma</b>
<b>Reduction of</b>	Waste	Variation
<b>Business Justification</b>	Speed & flow	Defects
<b>Savings from</b>	Costs of inefficient operations	Costs of poor quality
<b>Enhanced value</b>	Delivery	Quality
<b>Technicality</b>	Moderate	High
<b>Project Leadership</b>	Kaizen	Black Belt
<b>Expected Duration</b>	1 week–3 months	2–6 months

# Resource: HSAG PDSA Worksheet

**HSAG HQIC**

Unit: \_\_\_\_\_  
Date: \_\_\_\_\_  
Cycle #: \_\_\_\_\_



**Plan, Do, Study, Act** *Team Worksheet*

**Purpose of this test of change** *(hunch or idea to help accomplish Aim):*

**Plan** *(the change, predictions, and data collection):*

**The Change**  
What are we testing, and who is conducting the test?  
Who are we testing the change on?  
When are we testing?  
Where are we testing?

**Predictions**  
What do we expect to happen?

**Data Collection**  
What data do we need to collect?  
Who will collect the data?  
When will the data be collected?  
Where will the data be collected?

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# Key Take-Aways

- Quality improvement can be an organization-wide approach or topic-specific approach.
- DMAIC can be very complex, especially when using the Six Sigma tools.
- PDCA does not have a clear end, sustainability, or hand-off.
- Not one approach fits all.
- A team approach and collaboration is critical.
- Leader support and frontline engagement are vital to sustained success.





Thank you!

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