Quality Improvement Basics: The Model for Improvement

Slide 1 Objectives

After completing this module, participants will be able to

- Explain the three sequenced steps in the Model for Improvement (setting aims, establishing measures, testing changes)
- Discuss the key components of the Plan-Do-Study-Act or PDSA steps in testing changes
- Describe the benefits and importance of the testing phase
- Use the Model for Improvement and PDSA template to plan and test changes

Slide 2 The Model for Improvement

One of the most common quality management or improvement methods in healthcare is the Model for Improvement.

In this module we will focus on the Model for Improvement, however, please note that this model can be used with other improvement methods that your organization may already be using. If you have previous training, use or exposure to another methodology like, LEAN for example, you might combine the best aspects or tools between the two to develop a hybrid of what works best for your organization.

The Model for Improvement is a quality management model that involves three sequenced steps:

- Setting aims
- Establishing measures, and then
- Identifying changes to make and testing changes. In this step, PDSA cycles are used.

Slide 3 The Model for Improvement continued

The model for improvement has roots in the Plan-Do-Study-Act cycle, originally conceived of by Walter Shewhart and later advanced by W. Edwards Deming. Deming focused on cornerstones of the science of improvement including appreciation of a system, knowledge of variation, the human side of change and the theory of knowledge and psychology.

Pushed by Deming's work, The associates in process improvement (API) consultants developed the Model for Improvement in the late 1980's and early 1990's.

This model can be used with any improvement effort, and by individuals, teams, and whole organizations.

Let's review the model.

The first question is

- What are we trying to accomplish? Here, the aim is articulated. Often this is a bold aim to improve an aspect of health or health care. Setting goals helps to provide a vision for the team. It provides motivation, helps to guide focus, trigger new behaviors, and sustain momentum. Consider using the SMARTIE goal format - SMARTIE stands for Specific, Measurable, Achievable, Relevant, Time-Bound, Inclusive, and Equitable. We will talk more about SMARTIE goals shortly.

The second question is

- How will we know that change is an improvement? Here, you describe the measure(s) you will use to understand if the changes you make are resulting in an improvement.

The Third question is

- What change can we make that will result in an improvement? In other words, what interventions will be implemented? Once interventions or changes are identified, then a series of Plan-Do-Study-Act or PDSA cycles are implemented to test the changes.

We will talk more about each of the three sequenced steps.

Slide 4 Example Answers to Model for Improvement Questions
Let's look at an example of how one team in a nursing home answered the **first two questions** – their aim and the measure they will use to track progress.

Slide 5 Example Answers to Model for Improvement Questions
The team's aim is

- To protect staff and nursing home residents from COVID-19. The aim is to increase the number of staff that are up to date on their COVID vaccines from 5% in June 2023 to 23% in September 2023.

The measure they will use is

- Staff that are up to date on their COVID vaccines, as reported in NHSN and publicly reported on Nursing Home Compare. "Up to date" is defined as the staff members receiving the primary vaccine series and an updated bivalent booster.

Slide 6 What changes will result in an improvement?
Now, let's look at the **third question**– what changes can we make that will result in an improvement?

Before answering the third question of the Model for Improvement, the team should understand the processes currently in place, how they are working, what barriers exist, and then identify opportunities for improvement.

Process mapping is a helpful tool to aid in understanding the processes currently in place and where there are opportunities for improvement. When using process mapping, you can learn what facilitates the current process and where the current process isn't working well for team members – where there are breakdowns, work-a-rounds or where variation occurs, and where there is duplication or unnecessary steps. Instructions for how to create a process map are provided in the process mapping module.

Once the team identifies and analyzes opportunities for improvements, they then decide what to change in the process, and/or what system changes are needed. The key is to make changes that clearly address why problems or breakdowns are occurring. Putting fixes in place that don't address reasons for current breakdowns or problems will not result in sustained improvement.

How do you decide what changes to make? Review the best available evidence for what works, work with internal subject matter experts, and learn what has worked at other organizations.

Key changes are then tested using PDSA or Plan Do Study Act cycles.

Slide 7 Health Equity

As you decide what changes will result in an improvement, and as you strive for health equity, ask

1. How do we include and amplify those most impacted by this issue?
2. Who is driving this process of change and who is sidelined?
3. How are our efforts impacting change in just and accountable ways?

Discussing these questions as a team will help you to better understand who is impacted by the issue at hand, and if there are significant differences in access, quality, or outcomes of health care between different groups of people. You will want to identify and include representatives of those who are impacted so that you plan changes or interventions that address barriers, are workable and sustainable. In other words, as you plan and implement changes to solve problems, WORK WITH the people most affected. "Nothing about them without them."

Slide 8 SMARTIE Goal Formula

We mentioned the SMARTIE goal format to help you answer the first question and articulate your aim.

Here is the SMARTIE goal formula.

- S stands for specific, a clear statement of what is to be accomplished so that it is unambiguous.
- M stands for measurable and can include the measure that will be used, the current data available for that measure, and the specific increase or decrease desired in the measure.
- A stands for attainable which asks if the goal is possible based on evidence or best practice. It is important not to make the goal too low so that it's not challenging or too high so that it is unreasonable for the team to accomplish.
- R, stands for relevant, meaning that it addresses an important problem in the organization.
- T stands for time bound, which means there is a target date set for achieving the goal.
- I stands for inclusive, asking who is impacted and involved, and finally
- E stands for equitable – how will this address inequities?

Slide 9 The Model for Improvement – PDSA

Once you have clarified what you want to accomplish, how you will know change is an improvement and what change you want to make, you are ready to test your change ideas. Testing of changes is done in Plan-Do-Study-Act or PDSA cycles.

Resist the urge to skip testing of changes. Teams are often eager just to implement their ideas which they are pretty sure are the best ideas and will work! As a quality improvement leader in your organization, you can encourage systematic testing of changes before full implementation. This will help ensure that you are implementing the right changes in the right way.

Over the next four slides, we will talk about the key components in PDSA cycles.

Slide 10 Plan

During the plan stage, teams address the following questions:

- What change are you testing with the PDSA cycle(s)?
- What do you predict will happen and why? Predictions are important because you are testing a theory with the PDSA cycle.

Teams will also address

- Who will be involved in this PDSA (for example, one staff member or customer or patient, one time or for one shift or one day – the key is starting with small scale tests. This doesn't mean you can't test a big change, but rather, it means to start with testing it on a small scale to learn from it through subsequent PDSA cycles, before implementing more broadly

Teams will plan

- When and where will the change be tested
- How long the change will take to implement
- What resources will be needed and
- What data will need to be collected to help understand if the change was implemented as intended and how it worked. Did it have the intended impact, and were any concerns or barriers with implementing the change?

Slide 11 Do

The team then carries out the test as planned, collecting data, and noting observations and findings.

Again, typically changes are tested on a small scale to help build sequential knowledge.

Slide 12 Study

The team then studies and analyzes the data and determines if the change resulted in the predicted outcome.

The team notes any lessons learned, unintended consequences, surprises, successes, or failures, and summarizes what was learned. All this information will guide team decision making about the tested change.

Slide 13 Act

The act stage involves the team deciding to adapt, adopt, or abandon the tested change. The team might modify any aspects of the change and repeat the PDSA cycle. They might adopt the changes and consider broadening the scope of the test – with more people and departments, on additional shifts, etc. Or the team may choose to abandon the tested change and plan a new test of change that may be more beneficial in working towards the goal.

Slide 14 To Be Considered a PDSA Cycle

To be considered a PDSA cycle, the test must be planned and attempted. Data must be collected and analyzed, and action is taken based on what was learned.

Again, it is important to note that PDSA cycles can test a big impactful change, however, the power of the PDSA is that it can be first used on a small scale, in order to identify barriers and problems early on and to address those, and to sequentially build buy-in and commitment and produce data that demonstrates results.

Slide 15 Why test on a small scale?

As mentioned earlier, individuals and organizations often want to skip the testing phase and move right to full implementation of a change.

Why should testing of changes be done on a small scale?

You can learn from failures without a large impact, you can start to document the improvement resulting from the change, you can learn how to adapt the change to conditions in the local environment.

You can evaluate costs and side-effects or unintended consequences, and you can start to build buy-in and minimize resistance.

Slide 16 Repeated Use of PDSA Cycle
Keep in mind that PDSA is an iterative process, meaning the process of implementing PDSA cycles continues serially over time, to help ensure the right changes are made in the right way.

The intervention is refined, and the scope or scale is broadened with each cycle. In this way, knowledge is built sequentially.

Slide 17 Model for Improvement PDSA Template
Here is a fillable form template that you can use as a guide for Model for Improvement planning and documenting PDSA cycles.

Slide 18 Examples of PDSA Cycles
Here are a few links to additional examples of PDSA cycles.

Slide 19 In Summary
- The Model for Improvement is built on cornerstones of the science of improvement. It involves three sequenced steps (setting aims, establishing measures, identifying, and then testing changes)
- The power of PDSA with iterative tests of change is that it can be first used on a small scale, in order to identify and address barriers and problems early on, and to sequentially build buy-in and commitment and produce data that demonstrates results.
- You can learn from failures without a large impact, and you can learn how to adapt the change to conditions in the local environment.
- And remember that you can combine aspects of quality improvement models that work well for your organization.