

Quality Improvement Basics: The Model for Improvement-PDSA Transcript

Slide 1:

Welcome to the Quality Improvement Basics course 'The Model for Improvement' & the Plan Do Study Act / PDSA tool module

Slide 2:

Our topics in this module will be to learn about the broader set of quality improvement models and methodologies and then focus in on "The Model for Improvement" ... and how the PDSA tool can be used to help your QI team focus on a specific process, set a goal and conduct multiple rapid cycles to achieve the

Also, before we start, please open the related documents for this module (tools, templates and any samples) which are available on the web page where you found this module link. It will help you to have those ready for quick reference as screenshots of the documents may not legible on your screen. goal.

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Quality Improvement Methodologies

Slide 4:

There are a variety of Quality Improvement methodologies currently in use - five are highlighted here. As you'll learn here, the Model for Improvement is accompanied in the world of Quality Improvement by many options and you may want to branch out and explore the other models and methodologies once you get some expertise using the Model for Improvement.

- FADE: There are four broad steps to the FADE QI model. The letters of the FADE acronym stand for:
 - Focus—define process to be improved
 - Analyze—collect and analyze data
 - Develop—create action plans for improvement
 - Execute—implement the action plans, and Evaluate—measure and monitor the system to ensure success

Six Sigma: Six Sigma is a measurement-based strategy for process improvement and problem reduction. It is completed through the application of the QI project and accomplished with the use of two Six Sigma models: 1) DMAIC (define, measure, analyze, improve, control), which is designed to examine existing processes, and 2) DMADV (define, measure, analyze, design, verify) which is used to develop new processes.



Lean Model: This model defines value by what a customer or patient wants and seeks to eliminate waste in processes that are intended to deliver value to customers or patients. It maps how the value flows to the patient (the healthcare consumer) and ensures that processes deliver care in a manner that is cost effective and time efficient. The model originated in the manufacturing field and has been adapted by other industries including healthcare.

Root Cause Analysis: is an approach or methodology which is used to determine why an unexpected or unintended outcome (an event) occurred and what can be done to prevent it from happening again.

That is the goal of root cause analysis. The root cause analysis methodology bears many resemblances to the Model for improvement approach and there are some tools from the methodology, such as the '5 why's' and 'fishbone diagrams', which help get at the underlying reasons a negative event or 'near-miss occurred. We'll touch on this methodology briefly before diving into the Model for Improvement.

The Model for Improvement: This model focuses on sequenced steps:

1. setting the aim or organizational goal,
2. establishing measures)
3. testing changes through the use of the Plan-Do-Study-Act (PDSA) rapid test cycles of change tool which is designed to test changes on a small scale.

A few reasons that The Model for Improvement which incorporates the PDSA tool are often employed are: the ability to quickly learn and apply this model, and that it is oriented on, initially, small tests of changes that can later be expanded, spread and scaled up. Initial success is easier to achieve on a smaller scale and then promote organization momentum and buy-in based on early achievements.

While we will focus on and learn about the Model for Improvement, none of these methodologies need to stand alone or be 'siloed'. If you have had previous training, use or exposure to another methodology or see unique applications by combining the best aspects or tools between two or more methodologies for your organization, there are certainly no reasons not to do so. For example, as you learn and use the Model for Improvement, you could expand the process mapping component of your work, which we'll cover in another module, to take that same process and look at it from a value perspective and do value mapping which is part of the Lean model. You might achieve the desired improvements with the Model for Improvement but need or would like to achieve cost reductions and increase value, for example, for your patients by applying value mapping as well.

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The prior slide outlined some of the most popular methodologies that are used in QI work and they contain some common themes

Leadership:

- Probably the most important factor in successful implementation and is highlighted in all methodologies. Based on the scope and focus of your work, leadership may denote the formal leadership roles of CEO, COO or perhaps a less formal role where subject matter experts or professional credentials such as an experienced RN may fill leadership positions in your organization.

Measurement:

- ...is included as a basis in each of the methodologies reviewed (you can't improve what you can't measure)

- This may be one of the more difficult aspects of the methodologies to implement depending on your organization staffing and expertise with the topic.
- To quote Melinda Gates, who oversees the Bill and Melinda Gates foundation with her husband:
- “Data leads to better decision and better policies. It helps us create goals and measure progress. It enables advocacy and accountability. [for change]”

Staff Involvement and team approach:

- Quality Improvement cannot really be done well without involving staff; ideally, improvement work includes active involvement from the individuals closest to the work. Involve them in setting aims and measures, in understanding current processes and in identifying and testing changes to improve processes.

Lastly, focusing on the Customer or patient is:

- Embedded in each of the methodologies.
- Focusing on what is best for the customer (the patient in healthcare) incorporates patient-centric objectives of: safe, effective, efficient, patient-centered, timely, and equitable care

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Root Cause Analysis

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Root Cause Analysis, also called RCA, is an approach or methodology which is used to determine why an unexpected or unintended outcome (an event) occurred and what can be done to prevent it from happening again. The root cause analysis method can be used as a ‘stand-alone’ approach, but we’ll take some pieces from the methodology that can be used in general QI work ...such as the ‘5 why’s’ technique to drill down beyond the initial, suspected cause that may not be the true core of the problem.

Some situations can be managed and resolved quickly. They are unlikely to recur based on unique circumstances, and negative consequences may be minor or non-existent, or there is no pattern of previous similar events or trends. Root Cause Analysis takes time and requires resources to be done well. Events that are chronic, recurring, involving communication breakdown, and are systemic in nature are best for this type of in-depth problem solving. Root Cause Analysis is a different process than managing an incident and implementing immediate action to correct the situation. Root Cause Analysis occurs after the immediate situation is resolved: involved individuals and staff are safe; immediate communication to individuals, families, and staff has concluded; and any external and internal reporting requirements are completed. The root cause analysis process is then performed by a team to identify breakdowns in processes and systems that contributed to the event and creates solutions to prevent them from recurring.

Root Cause Analysis is not intended to find “who is at fault”. Rather, it is focused on the systems at play and how they may have led individuals to make the choices they did. The improvement process resulting from an RCA focuses on changing systems in order to change behavior.

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The value of undertaking a Root Cause Analysis investigation are very similar to those used in the Model for Improvement.

The RCA methodology:

- Avoids choosing a 'quick fix'
- Engages staff in analyzing why events occur
- Promotes changing culture through encouraging a non-punitive approach
- Guides teams to measure the impact of changes made as the result of RCA
- Improves safety

Root cause analysis is most frequently used when

- Unexpected events with serious outcomes occur
- Repeating incidents are observed or detected in our systems and processes
- Near misses happen and an incident is avoided ...RCA helps to drill down and avoid these near misses in the future along with correcting processes where a failure may have happened ...but a 'Good Catch' avoided an incident. We can't and shouldn't rely on 'good catches', rather we need to correct the underlying issues that led to them.

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The Root Cause Analysis process uses a similar approach and relies on some of the same tools as you've been learning in this QI Basics course. The seven steps of the RCA process are:

- Identify the event
- Form a team
- Describe the event – where did breakdowns occur
- Identify all factors
- Identify root causes and contributing factors
- Create change by designing and implementing process and system changes
- Measure to determine results

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As you learned in the QI Basics module, the elements of systems and process thinking are embedded in quality improvement and that is no different for root cause analysis. A process provides certain steps to follow and those steps are either designed or highly influenced by the policies and procedures in place. When we use root cause analysis and get to the core of the issue, we can make changes to the process by properly modifying the policies and procedures to create more reliable, safer, more predictable process outcomes or results.

The result of improved processes has the effect of creating improved systems, which produce the intended results or outcomes. Our systems are made up of processes, people, environmental factors, equipment and technology, and influence by our organizational culture. Root cause analysis helps us to determine which of these factors led to an event or undesired outcome.

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The Five Whys root cause tool starts with a problem statement and asks the question "Why?" in repeated succession to identify the root cause. Include team members with direct knowledge of the processes and systems involved in the problem being discussed. This technique works well if the

problem is not overly complex. If, after asking “Why?” several times, and the answer does not seem clear or correct, further analysis may be needed. The more complex the problem, the more likely it will take further analysis to reach the root cause.

Let’s step through the 5 why’s process:

1. Develop a clear and specific problem statement.
2. The team facilitator asks why the problem happened and records the team response. Ask the team to consider “If the most recent team answer to the question “why?” were corrected, is it likely the problem would recur?” If the answer is yes, this is a contributing factor, not a root cause.
3. If the answer provided is a contributing factor to the problem, the team keeps asking “Why?” until there is agreement from the team that the root cause has been identified, and if corrected, the problem would not recur.
4. It often takes three to five times of asking “Why?” But it can take more than five. Keep going until the team agrees the root cause has been identified.

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Here is a screenshot of the 5 Whys tool which is available on the web page where you launched this module. Like the other tools available as part of this course there are instructions on how to use it similar to those we just stepped through on the prior slide.

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The Model for Improvement...step by step

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The Model for Improvement draws its success from the application of the following concepts:

It Encourages learning by testing change on a small scale:

- For example, you use the model and tools to pilot the changes in one department, with one nurse, one shift, etc.
- Testing on a small scale is then scaled up through expanded application and further testing of the changes you are making
- It Eliminates studying the problem to death...and moves the team from contemplation to action ...and it’s easier to do this based on a ‘small scale’ initial focus. It also Minimizes data collection &/or data overload

You’ll learn in the ‘using data’ module that it’s best to collect just enough data to avoid suffering from ‘analysis paralysis’

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The Model for Improvement is elegant in its simplicity by asking three questions to drive three key steps:

1. What are we trying to accomplish? This sets the aim or goal along with focus or scope of our work.
2. How will we know that change is an improvement? This demands that we employ measures to quantify progress and success. You can’t improve what you can’t measure!
3. What change can we make that will result in improvement? We need to create a hypothesis and test it out.

Once we have asked the three questions and provided answers, the Plan Do Study Act (PDSA) rapid cycle testing tool translates our answer to the third question into action steps to test out our proposed changes.

As you conduct each cycle or test using your PDSA tool, the answers to questions 1 and 2 will remain the same, however, you may discover that a different change or approach is needed, so your answer to question 3 would require running a new PDSA test cycle.

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Question one is to ask what the team is trying to accomplish

Improvement begins with setting aims

- State aim clearly
- Gain agreement from team

Make aim measurable

- Use a % goal...and next we'll define how to set a SMART goal

Make aim achievable

- Your aim should be realistic...and it can be expanded through subsequent PDSA cycles as you scale up the change

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When your team is setting a goal or aim for your PDSA cycle, you want to make sure your goals are SMART ones. The goals that you set in your QI work should meet the test of the SMART acronym.

Each aspect of your goal should meet this set of criteria. Is your goal:
Specific, Measurable, Achievable, Relevant and Time-based.

Specific: what are we trying to accomplish...narrow the description of your work to focus on specifics

Measurable: As QI is a data driven undertaking, how can you quantify and measure this goal and the change you are seeking

Achievable: Can we envision ourselves actually accomplishing the goal? Is the goal within our means given the time, resources and budget at hand?

Relevant: achievement of the goal should fit into your organization's mission and strategy

Time-based: you'll want to put a date on the calendar and set a deadline for achieving the goals. You can also set major milestones as part of your goal rather than a single end date.

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An example of answering the first question "What are we trying to accomplish?" is done by setting a SMART goal

“We will to reduce the occurrence of facility acquired MRSA infections by 25% within 6 months of implementing our proposed changes.”

This goal statement meets the SMART criteria. Think through each one:

Is it: Specific, Measurable, Achievable, Relevant and Time-based?

Here are a few more examples:

Increase the number of our long-term nursing home residents with a vaccination against both influenza and pneumococcal disease documented in their medical record from 61 percent to 90 percent by December 31, 2019.

By December 31, 2020, the average time a patient will spend at our clinic will be reduced by 10%—from 65 to 58.5 minutes.

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Question 2 asks ‘How will we know that change is an improvement’?

This question underscores the Measurable portion of the SMART goal criteria.

We need to determine a measure and set a goal that we expect to achieve by the change we are implementing. Your team will need to ensure that data exists or that you have some ability to collect data which will provide measurement of your proposed change. As you determine what your measure will be, also think about whether you are measuring the process itself...or a specific outcome (what is the change in health for the group of patients you are measuring)? We will cover the difference between process and outcome measures in the Using Data module.

An example of a process measure, using our MRSA infection example from the prior slide, might be measuring average additional amount of time spent in the hospital for patients that acquire a MRSA infection. This would measure the average time needed to address the MRSA infection compared to patients with similar treatments or procedures without that complication.

An outcome measure would be focused, for example, on the percent of patients that are readmitted to a hospital within 30 days after discharge. This tells us something about quality of care provided to patients for a particular facility.

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Another example would be to count the number of MRSA infections over a given time period. Is this documented in your EHR? Can you ‘get at’ the data with reporting tools or applications? Does someone on your team know how to do that? What other data might you collect or already have documented on this: which units, floors, patient demographics, types of treatments or procedures performed where the patient subsequently contracted MRSA, etc. By collecting this type of data and slicing and dicing it, we can determine if steps we will take to reduce the MRSA rate will be an improvement as we can indeed set a baseline and measure what the current infection rate is and compare it to the new set of data we collect after our proposed improvements are implemented.

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Question 3 ‘What changes can we make that will result in an improvement?’ ...this prompts us to formulate a plan to implement and test the change that we hypothesize will achieve our goal.

To do this, we need to clarify what the actual, current process (the series or tasks it takes to carry out the work) looks like. In the process mapping module in this course we’ll learn the basics of doing just that. It’s helpful to draw a simple diagram of the process that the team agrees accurately represents how the work is carried out.

As you diagram what is currently happening in your process, keep an eye out for this checklist of typical process issues:

- Redundant or duplicate tasks
- Forgotten tasks
- Unnecessary steps that do not add value
- Delays
- Inconsistency with standards
- Lack of continuity of care across units or between clinicians

As you start to dissect your process, this will generate conversations about what the root causes of the issues are that may be the basis of poor performance for your chosen measure.... or spark ideas about performing even better if you are doing just average or below an optimal level.

An additional technique was introduced in the prior section on Root Cause Analysis: the 5 whys. By continually asking the ‘why’ question and stepping down into more detail, you’ll unearth more information about the process and what might be at the core of the issue you’re addressing and needing to change.

Lastly, you should also consider reviewing literature, studies and guidelines that provide best practice recommendations.

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In our example with MRSA infections, the QI team has decided to ask questions about the process to better understand what is happening: ‘Why are we seeing the MRSA infection rate going up?’ Is there a pattern of infections that may be linked with the time of day, certain environmental triggers, or perhaps some sort of correlation with staffing patterns at the root of the issue? These hypotheses can be discussed by the QI team and staff that carries out the process you are analyzing. Ultimately, the goal is to arrive at a proposed set of changes or a single change that you believe will result in the desired improvement.

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Answering the 3rd questions in the Model for Improvement moves your QI team into the next step...using your PDSA tool.

As you construct your Plan Do Study Act test for improvement, consider the tips to help confirm your proposed changes:

Be clear about the problem you are trying to solve. If you start to make changes without being clear about the problem, you tend to implement changes that don't really fix the problem or get to the core of the issue.

If your process is overly complex, think about ways to limit the variation and simplify the process.

Look outside of your organization and learn what works well at a comparable facility

COPY, COPY, COPY... (but be sure to give credit!) as the saying goes, imitation is the sincerest form of flattery...why try and re-invent the wheel. There are very likely other organizations that have run into similar challenges and have implemented solutions that you can adapt at your facility. Use your network of professional relationships as well as researching using the internet to seek out what solutions may already exist...and are proven and effective.

And lastly, don't let the perfect get in the way of the good. The PDSA tool will help your QI team achieve success as it is designed for repeated cycles of small-scale change to determine what change works best. Don't expect perfection on the first attempt...or even after repeated attempts to improve your process. Rather, the PDSA is meant to help implement and test incremental change toward your stated goal.

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During the plan stage, first refer back to how you answered the three key questions:

- What are we trying to accomplish?
- How will we know the change is an improvement?
- What change can we make that will result in improvement?
- You can then start asking some additional nuanced questions that will lead you to define the details of your Planning step:
 - What change are you testing with each PDSA cycle?
 - What do you predict will happen and why? Predictions are important because you are really testing a hypothesis with the PDSA test cycle.
 - "If we do 'x'...we expect that it will result in 'y' "
 - Teams will also address "Who will be involved in this PDSA" (for example, one staff member or customer of patient, one time or for one shift or one day – the key is starting with small scale tests.
 - You'll also want to determine: When and where will the change be tested?
 - How long will the change take to implement?
 - What resources will be needed and
 - What data will need to be collected? Do you have existing 'baseline' data for your measure?
 - Are you measuring a process or an outcome?

During your planning portion of the PDSA, you are answering what, when, who, why, where, and how long types of questions to formulate your plan.

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The next step is 'Do'

...Carrying out your test as you defined in your plan

You'll collect data to set your baseline as well as to determine the impact of changes to your process. Having the two sets enables the comparison you'll make to evaluate if the changes resulted in the expected improvements.

Document observations, including any problems and unexpected findings. It is important to collect both quantitative and qualitative data. Staff feedback about the feasibility of a work flow is essential to take into account when considering scaling improvements. The qualitative feedback also is important when considering culture change and how your organization is adapting to the change.

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Study is the evaluation steps of the PDSA test cycle

You'll Analyze the data you have collected

Compare data to your benchmarks and the expected or predicted outcome or goal.

What did you learn by analyzing the quantitative data and combining that with qualitative observations or notes gathered during your test period?

- Did you encounter problems
- What success stories do you have to report?
- Did any surprises occur?
- Are you satisfied with the results?

In the study step, you're assimilating, analyzing and making sense of the test you just conducted in preparation for the next step, Act.

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The last step in the PDSA rapid improvement cycle is Act

Based on what was learned from the test:

- What changes should be made before the next cycle?
- What will the next test be?
- Will you implement or change your approach?
- Are you ready to implement more broadly...especially if you had notable success and don't see need for additional testing cycles?
- How will you maintain gains if you did indeed achieve your goals? This is one of the areas you'll want to confirm and be certain of.

One of the challenges in quality improvement is that once the focus is taken off a process or some change that you implemented, it's easy and indeed normal to fall back to the previous way we worked. Consider how you will continue to monitor and hold those gains over time.

Lastly, if you didn't achieve your goal in the first cycle, it's time to establish a new plan – and repeat the PDSA cycle. This doesn't necessarily mean establishing an entirely new plan, just identify how you could have done better and what needs to be improved for the second cycle of PDSA.

As you work your way through these considerations and determine what the next actions steps will be...once again, review your responses to the three key questions:

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

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Based on what you learned from your PDSA test, you'll categorize your actions as Adapt, Adopt or Abandon with regard to the changes and improvements you tested.

- Adapt – modify the changes and repeat PDSA cycle.
- Adopt – consider expanding the changes to additional staff, patients, departments or units.
- Abandon – change your approach entirely and repeat the PDSA cycle in a different manner

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A brief note on one of your options for the Act step. If you and your team are ready to Adopt the changes as you have experienced success, try using the rule of 5 to further spread these successful changes. For example, if you changed the process in one department or unit, try spreading it to 5 other departments or units. This allows for further testing and confirmation without going to broad immediately. If those additional 5 units are successful, then repeat the process. If you started with 1 person or role, then increase that to 5 and so on.

Five doesn't have to be the absolute number (4 or 6 could work as well) but pick a number that makes sense and attempt an incremental spread of your success. The 'Rule of 5' helps restrain spread that may be too quick and too broad for the organization to adjust to and also allows for more gradual, confirmation before we truly scale up and spread change.

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Once you have filled out your PDSA form and complete all four steps, you can check your work by asking the four questions here that will confirm if you are actually using the tool as intended:

The test or observation was planned (including a plan for collecting data and a prediction about results)
The plan was attempted (did you carry out your test and collect your data)
Time was set aside to analyze the data and study the results
Action was rationally based on what was learned. What are you going to do next based on the results?

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Keep in mind that using the PDSA rapid cycle, small scale testing method is an iterative process, meaning the process of implementing PDSA requires multiple cycles of testing and implementation and learning from each test cycle to inform the next one. It's very normal and expected that you don't get it right on the first or even second cycle.

As you repeat each cycle you are modifying your answer to the third question of the Model for Improvement...the answers to the first and second don't change as you attempt different changes for improvement:

1. What are we trying to accomplish? (the answer remains the same)
2. How will we know the change is an improvement? (this answer also remains the same)

3. What change can we make that will result in improvement? (the answer varies with each cycle as you test out different answers to this question)

By repeating the PDSA cycle, your interventions become more refined and your data, learning, modifications, and new approaches will be integrated with each new cycle. In this way, you will increase your knowledge about the process with each subsequent cycle and are able to make the needed refinements through observation, study and data collection to meet or exceed your defined goals. Additionally, if there are any initial missteps, those can be corrected on a small scale where the impact is minimal before spreading the change more broadly.

You can learn how to adapt the change to conditions in the local environment during your initial PDSA attempts. You can evaluate costs and side-effects or unintended consequences, and you can start to build buy-in with small scale success and minimize resistance when you are ready to scale and spread the successful changes.

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To keep your QI efforts organized, be sure to document your PDSA test cycles as you progress through each step. Here is a screenshot of the PDSA form available to you on the same web page where you found the link for this module.

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As you implement the Model for Improvement and use the PDSA tool, keep in mind these tips when testing changes:

- Test the changes you are making on a small scale until you are confident and ready to scale them up and spread beyond your initial test unit, department, facility, etc.
- Involve care teams that have a strong interest in improving care ...take advantage of your champions and advocates!
- Study the results after each change. All changes are not improvements, so discontinue testing of anything that does not work.
- If help is needed, involve others who do the work—even if they are not on the improvement team. Some additional input and often a fresh perspective from outside your QI team can be very useful.
- Ensure overall performance is improving; changes in one part of a complex system may adversely affect another

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Let's go over a few ideas of how you can best utilize the PDSA tool within your quality improvement team.

If you have any team members that aren't familiar with PDSA, be sure to teach it to them. As you've learned here, it's not complex and that is one of the significant strengths of the tool

The three questions should be discussed and answered as a group:

1. What are we trying to accomplish?
2. How will we know that change is an improvement?
3. What change can we make that will result in an improvement?

By having a group conversation, you gain buy-in, trigger some brainstorming and new ideas for process improvement and concurrently keep your team on the same page. Another benefit of this approach is creating a 'shared mental model' among your team members, a concept covered in the Teams and Facilitation module.

When it comes to the Plan Do Study Act steps, you'll continue the planning portion as a team, but you may need to break out into some side-bar or sub-group conversations to go over particulars. When you cover the 'Do' step...implementing the changes... it is the people who carry out the work that will need to be engaged along with anyone that is responsible for data collection as part of that step.

The Study step may start with your data analytics expert (or someone well versed in data collection and analysis). Once you are convinced that your QI team has studied the results of your 'Do' step, you are now ready to 'Act' step. You'll need to decide whether to Adapt, Adopt, or Abandon the changes you tested– will you attempt a second cycle or proceed to solidify your gains and spread or scale the success to other units, floors, or departments.

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Thank you for taking time to learn about the Model for Improvement and the Plan Do Study Act tool as part of the Quality Improvement Basics course. Please join me for the next module in the course: Process Mapping