Introduction to Quality Improvement and the FOCUS-PDSA Model

Overview of Quality Improvement (QI)

The increasing demand for high quality delivery of patient care has led many health care settings to begin monitoring their performance in an effort to ensure that they are delivering care that is: safe, effective, timely, patient-centered, equitable, and efficient.[1] To help do this, several organizations have introduced the concepts of continuous quality improvement (CQI) to their staff.

CQI is an approach to quality management that builds upon traditional quality assurance methods by emphasizing the organization and its systems. It is an approach that focuses on the "process" rather than the individual, recognizes both internal and external "customers" and promotes the need for objective data to analyze and improve processes. With a solid understanding of an organization's processes and awareness of performance levels for specific tasks, a team of individuals can bring about needed changes to help the team perform even better.

This QI Tool Kit will help you develop and follow an action plan for a specific clinical or management problem that can benefit from a quality improvement strategy.

You will be introduced to a change model referred to as FOCUS-PDSA, and some basic skills needed to use this model. FOCUS-PDSA is a common quality improvement approach utilized by many healthcare organizations. Easy to learn and use, this model can be applied to the management of any process. Each of its nine steps stand for the following actions:

F = Find a problem
O = Organize a team
C = Clarify the problem
U = Understand a problem
S = Select an intervention

P = Plan
D = Do
S = Study
A = Act

Determining a problem to improve can be easy, but actually making a change is not. The focus of this primer is on determining the best approach you can take to make changes that result in improvement.

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[1] These principles of quality care were introduced by the 2001 Institute of Medicine report *Crossing the Quality Chasm: A New Health System for the 21st Century* and have served to establish numerous quality improvement efforts in the health care field.

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Developing an Action Plan (FOCUS)

The FOCUS-PDSA model works well in many areas of improvement, and requires only the formation of an interdisciplinary team and use of a few simple data collection and reporting tools. For each step introduced in this section, there is a corresponding Worksheet included in this Tool Kit that will explain in a step-by-step manner how to conduct each stage. In addition, some of the resources needed can be found in the QI Tool Box of this Tool Kit, so be sure to look to those examples of data gathering and presenting tools as needed. Following the outlined steps will help you provide better patient care, document your progress, and energize your team to do even better.

Step 1: F=Find a Process or Problem to Improve

The first step in the FOCUS-PDSA model is to identify and very clearly define a specific process or problem to improve. To accomplish this task, we recommend that you complete five simple steps. Do not be surprised if it takes a considerable time to complete Step 1, as finding a process or problem to improve is perhaps the most important step in implementing CQI.

◼ Objectives
Understand the importance of identifying the process or problem to be improved.
- Use QI tools to identify and select potential opportunities for process improvement that are important to both the customer and the organization.
- Recognize the role of stakeholders/customers in prioritizing potential process improvements.
- Demonstrate the ability to draft a good problem statement.
- Demonstrate the ability to establish a team charter.
- Complete the "Find a Process to Improve" worksheet.

◼ Outcome
To select a process with a significant opportunity for improvement and demonstrable results that is important to both the customer and the organization and to outline a team charter for the project.

Step 2: O=Organize a Team

The second step in the FOCUS-PDSA model is to assemble a team that is familiar with the process or problem under investigation. This section does not outline the steps required to ensure effective teams (e.g., conflict resolution), but focuses on identifying team members and assembling the team.

◼ Objectives
- Increase knowledge of key work-team concepts, including team process.
- Organize a team that is multidisciplinary.
- Select a team leader and facilitator.
- Develop team goals; then define roles and procedures to support them.
- Develop agreed upon ground rules.
- Complete the "Organize a Team that Knows the Process or Problem" worksheet.

◼ Outcome
To organize an efficient and effective multidisciplinary team with team members who are extremely knowledgeable about the process or problem.

Step 3: C=Clarify Current Knowledge of the Process

A team cannot improve a process or problem until the team fully understands the current process or problem. Therefore, the third step in the FOCUS-PDSA model is to clarify current knowledge of processes of care and to answer questions such as, "Is the problem clearly understood?" or "Are the related processes clearly understood?" In addition, this step encourages teams to begin to think about what data are necessary and how to begin collecting it to fully address the process or problem under study.

- **Objectives**
  - Understand how the current process works and be able to analyze it.
  - Identify the customers and suppliers in the current process.
  - Recognize the importance of performance indicators.
  - Understand how to set up a measurement process so data may be collected.
  - Complete the "Clarify Current Knowledge of the Process" worksheet.

- **Outcome**
  - To describe how the current process actually works.
  - To establish a measurement process.
  - To collect data relevant to addressing your quality improvement problem.

Step 4: U=Understand Sources or Causes of Process Variation

The key to solving a problem is to fully understand it. To do so, you need data. As previously mentioned in Step 3 (Clarify Current Knowledge of the Process), data are the linchpin to any quality improvement effort and care must be taken to appropriately identify and collect the data needed to address the quality improvement problem under investigation. These data, however, are only good if they are used in a completely comprehensible manner. In this fourth step of the FOCUS-PDSA model, you will learn how to take meaning from the data once it has been compiled, understand its sources and patterns of variation, and use this information to guide actions for improvement.

- **Objectives**
  - Analyze data using analytical tools.
  - Understand causes of variation in the system.
  - Identify the root causes of the problem.
  - Complete the "Understand Sources or Causes of Process Variation" worksheet.

- **Outcome**
Understand the root causes that determine how the process performs so that an informed decision can be made about how to improve it.

Step 5: S=Select the Improvement or Intervention

Building upon the team's understanding of the process and their identified reason for the problem in Step 4, the team is now ready to move on to the next step. It is likely that several alternatives for solving the problem exist. Choosing sound solutions requires a good list of options. The "best" strategy,

however, depends on the forces that impede or favor the change, and the effectiveness and cost of the alternative solutions. In the fifth step of the FOCUS-PDSA model, the team is charged with identifying and selecting the improvements or interventions to be implemented.

■ **Objectives**
- Identify what improvements or interventions will be made in the process.
- Understand the value in using creative thinking techniques to develop potential solutions.
- Use team-building techniques to evaluate the solutions proposed.
- Complete the "Select the Improvement or Intervention" worksheet.

■ **Outcome**
To identify the intervention(s) to implement for improving the process or problem under study using consensus decision making techniques.

Implementing an Action Plan (PDSA)

Once the team has selected the improvements to be made and the intervention(s) needed, it's time to put the wheels in motion by using a Plan-Do-Study-Act cycle (PDSA cycle). Central to the FOCUS-PDSA approach is the idea that changes in care can be planned and tested very easily on a small scale and at multiple levels — patient, provider or hospital level — and easily reproduced on a larger scale if improvement is achieved. The focus on small steps enables rapid feedback and ensures that movement in the "wrong" direction is detected quickly. Larger improvements are realized by the cumulative effects of rapid improvement PDSA cycles.

Step 6: P=Plan How to Implement the Improvement and Test the Changes

In this first step of a PDSA cycle (Step 6 of the larger FOCUS-PDSA model), the team is tasked with identifying and applying an action plan intended to modify certain processes and to improve performance.

■ **Objectives**
- Define the current situation or system.
- Gather data to describe the processes as they are currently working.
- Identify causes of the variation or problems and develop theories to address these.
- Define specifically what you are trying to accomplish.
- Obtain buy-in from key stakeholders.
- Identify ways to counteract resistance to change.
- Develop a communication plan.
- Complete the "Plan How to Implement" worksheet.

■ **Outcome**
To develop a plan to implement the changes that are intended to improve performance.

Step 7: D=Do Implement the Plan

Once a concise and realistic plan has been developed, it's time to put the plan into practice. In the seventh step of the FOCUS-PDSA model, the team carries out the steps of the project plan and collects information that indicates how well the intervention proceeded. Even the best, most thought through plans are likely to need a little revamping, so be ready to modify your plan if needed.

Objectives
- Implement the intervention plan.
- Record any unexpected events and other observations.
- Begin analyzing the data.
- Complete the "Do the Improvement " worksheet.

Outcome
To make the changes in the process that are intended to improve performance.

Step 8: S=Study the Results of the Implementation

Now that the intervention has been implemented and sufficient time for the intervention to take effect has been given, your team should take the time to review and evaluate the results. The main focus of this step is geared towards the team analyzing the data, comparing them to the predicted results, and summarizing the lessons learned from performing the cycle. Ultimately, the team is charged with evaluating the effectiveness of the intervention and deciding if the intervention should be retained, refined, or abandoned.

Objectives
- Use tools to analyze data to determine if the intervention(s) improved the process or problem.
- Learn techniques to succinctly summarize the findings of the small-scale tests.
- Understand how to determine when modifications to the solution are needed.
- Complete the "Study the Results of the Implementation" worksheet.

Outcome
To describe the change in performance and the extent to which the intervention has closed previously identified performance gaps.

Step 9: A=Act to Hold the Gain and Continue Improvement

Based upon the lessons learned from planning, testing, and studying the intervention in Steps 6, 7, and 8, the team now must decide what action to take. By summarizing and communicating the lessons learned from the previous step, the team will decide whether to implement the intervention on a larger scale, modify, or discard the intervention and start over. The purpose of Step 9 of the FOCUS-PDSA model is to "act to hold the gains and continue improvement." This means institutionalizing the improvement and monitoring results over time.

Objectives
- Learn when it is appropriate to implement changes on a wide scale.
- Develop a monitoring schedule to measure gains over time.
- Determine how processes can be improved further.
- Complete the "Act to Hold the Gain and Continue Improvement" worksheet.

Outcome
To further improve the process, implement the improvements to all patients, and to monitor results over time.

Find a Problem to Improve

STEP 1.1 Identify potential problems

Clinical Sources
Look at your institution-level performance on clinical registry measures. List the measures with the lowest percent for performance rate.
1.
2.
3.
4.
5.
For instance, clinical outcomes measures often need the most improvement. Consider focusing on the following key clinical outcome measures if they appear on your list above.

- Blood Pressure Control
- Lipid Control
- Left Ventricular Ejection Fraction Assessment

Non-clinical sources
A similar process can be followed using other data sources:
- Staff and customer surveys
- Employee suggestions
- Recommendations from meeting minutes
- Other reports and tracking systems

Narrow your list further by considering the following:
- For which measure would improvement impact the most patients in your practice?
- Look at individual performance data. Which measures have the most variation for one physician and between physicians?
- How does each measure affect practice workflow and operations?
- How would improvement of a measure impact the use of staff time and the practice budget?

List the top 3 measures for potential improvement based on all of the above and provide your rationale for targeting each measure.

1.
Rationale:

2.
Rationale:

3.
Rationale:

It is helpful to have data to support the need for improvement of your chosen measure and to demonstrate the effectiveness of a QI intervention. Consider ways to collect data on your chosen measure pre- and post- your QI intervention.

STEP 1.2 Identify primary stakeholders

Anticipate the reaction and influence of people on your improvement project and get buy-in early. List the primary stakeholders in your practice -- if possible, use a stakeholder analysis matrix for this step.

1.

2.

3.

4.

5.

STEP 1.3 Select a specific problem to improve

Of the top 3 measures that you identified above, select one to be the focus of your improvement effort.

Which measure did you select?

Why did you select this measure?

How did you select this measure?

STEP 1.4 Draft a problem statement

Sample problem statements:
Our performance rate for left ventricular ejection fraction assessment (HF1) is lower than the 2010 benchmark.
Our blood pressure control performance rate for patients with hypertension (HTN1) has been decreasing for the past 4 months.

Draft a clear problem statement:

Quality Improvement
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Organize a Team

STEP 2.1 Form the Project Team
Identify team members who will be focused on the specific problem you have identified and for which you will be implementing a chosen solution. This team should be multidisciplinary, including members from each relevant area of care and administration. List team members by name and the reason they are a part of the Project Team.

Name	Reason for being on Project Team

STEP 2.2 Select a Team Leader and Facilitator
Identify the roles that each team member should fill based on the definitions below. Typically, there is one team leader and one team facilitator, but you can assign co-leaders or co-facilitators if desired or necessary. Team Leader – *responsible for representing project, primary decision-maker*. Team Facilitator – *responsible for monitoring progress, primary documenter*. Team Member – *a key contributor as a process owner, content expert, or data analyst responsible for implementing specific project activities*.

Role	Name	Expertise
Leader		
Facilitator		
Member		
Member		
Member		
Member		

Clarify the Problem

STEP 3.1 Identify the process to be documented

Brainstorm all the processes associated with the measure being addressed.

State the selected processes you plan to highlight or give attention to by listing them below:

Process 1:

Process 2:

Process 3:

STEP 3.2 Develop a flowchart for selected processes

You are now going to develop flowcharts for these selected processes, so that each step within each process is clearly identified.
(For additional assistance, see the flow charting tool in the QI Toolbox.)

For each of the selected processes:
1. Include everyone involved in the process
2. Brainstorm all the steps in the process (using post-its might be helpful)
3. Put all the steps in order (don't worry about the shapes in your flowchart)

Attach your flowchart(s) to this worksheet.

Consider developing an "actual" and an "ideal" flowchart for each process to easily identify the potential problem areas in the "actual" process.

Understand the Problem

STEP 4.1 Graphically present data

Review the current performance data for your selected clinical measure or other QI opportunity. To better understand the process elements that comprise performance for the selected opportunity, consider collecting data for those elements. This can be done either retrospectively by pulling relevant patient charts and abstracting relevant information, or prospectively by following a small number of applicable patients over the next few days and noting the steps taken to satisfy the measure.

Once you have a number of observations, present them in the form of a chart or graph. Some common formats for presenting data include: control chart (recommended), bar chart, histogram, line graph, or run chart.

STEP 4.2 Identify patterns of variation

Look at the variation in performance between providers and/or for one provider for your selected measure. Describe all your observations, particularly patterns of variation.

STEP 4.3 Conduct a root cause analysis

Brainstorm the possible causes to explain the variations in care.

Sort the causes into broad categories (e.g., people, materials). Recheck and make sure the list of causes is complete. You may want to draw a fishbone diagram to create a picture of your root cause analysis. Attach it to this worksheet. (For more information, see the Root Cause Analysis tool in the QI Toolbox.)

Of all the causes identified in your fishbone diagram, narrow them down to what you believe are the three most important causes of the problem/process your team has chosen to address:

Cause # 1.

Cause # 2.

Cause # 3.

Select an Intervention

STEP 5.1 Identify potential interventions

Refer back the three root causes identified in step 4.3 on the Understand the Problem Worksheet. Brainstorm all the possible solutions to address each cause for the problem/process your team has chosen to address.

Solutions for Cause #1:
1.

2.

3.

4.

5.

Solutions for Cause #2:
1.

2.

3.

4.

5.

Solutions for Cause #3:
1.

2.

3.

4.

5.

STEP 5.2 Prioritize potential interventions

List all criteria for prioritizing the potential solutions/interventions:
1.

2.

3.

Evaluate each intervention using your stated criteria. Describe the method or tool you used in your evaluation. A prioritization matrix is recommended. (For additional information, see Prioritization Matrix tool in the QI Tool Box.)

STEP 5.3 Select your intervention(s)

Describe the selected solution(s)/intervention(s) and your rationale.

Plan How to Implement

STEP 6.1 Develop an objective for implementing the intervention

Sample objective: To improve patient safety by reducing the hospital-wide medication error rate by 3% in patients with heart failure over the next 30 days.

Make sure your objective includes the following:
- What are you seeking to improve?
- Who is targeted?
- How will it be measured?
- By how much will it be improved?
- Over what period of time?

Document your complete objective:

STEP 6.2 Develop an implementation plan

Develop an implementation plan that shows the activities and tasks that will take place, person(s) responsible, start date and time, and end date and time. Attach it to this worksheet.

STEP 6.3 Make a prediction about impact of the intervention

List the top three predictions your team believes will happen as a result of the intervention.

1.

2.

3.

STEP 6.4 Determine data and assess impact

Identify key measures or elements for monitoring the impact of the intervention. If possible, include numerator and denominators.

Key measure 1:

Key measure 2:

Key measure 3:

STEP 6.5 Plan the test cycle

Sample "test of change":

> *Heart Failure: Provide patients with self-care education on three or more elements of education.*
>
> *Plan: Develop/identify heart failure self-care education tool(s) and identify opportunities and process to provide self-care education while patient is in-house.*
>
> *Do: Provide heart failure self-care education to one patient while patient/ family member is in-house.*
>
> *Study: Patient doesn't mind listening to education. Self-care education tools are positively received.*

Summarize the overall project or "test of change".

> Problem:
>
> Plan:
>
> Do:
>
> Study:
>
> Act:

STEP 6.6 Seek buy-in from key stakeholders

Describe how your team identified and achieved buy-in for this plan from key stakeholders.

Do – Implement the Plan

STEP 7.1 Test your intervention

Describe potential setbacks you may encounter in implementing your plan.

STEP 7.2 Document what happens – unexpected observations, problems

List all the barriers you encountered.

Describe how these barriers could have been prevented in advance.

STEP 7.3 Develop your analysis plan

Describe the data you plan to analyze.

Describe your plan for using the data to determining the effectiveness of the intervention.

Study the Results

STEP 8.1 Analyze the data

Review your data based on your analysis plan. If possible, use a graph, like a control chart, to show what happened when you tested your intervention. Attach the data report or graph to this worksheet.

STEP 8.2 Compare the results to your predictions

Summarize the results from your data analysis here. Describe trends. If possible, use a control chart to find special cause (unique) or common cause (systematic) variations in your process.

STEP 8.3 Reflect on what happened

Summarize your conclusions based on your observations and the results of the data analysis.

Summarize your lessons learned from doing this analysis. These lessons learned can be used for the next time you test this intervention or other interventions.

STEP 8.4 Determine if modifications are needed

Based on your reflections and lessons learned, consider the following questions in planning your next steps:
- Would you implement the same intervention with more providers/patients?
- Would you implement the same intervention and analyze it differently?
- How would you modify your intervention to make it more effective?
- Would you select a different intervention to address your QI problem?

Document your next steps, clearly stating what you would do the same and what you would do differently in the next PDSA cycle.

Act – Continue or Change

STEP 9.1 Apply lessons learned

Summarize your PDSA cycle by documenting the problem, solution, and results.

Problem:

Root cause:

Intervention:

Prediction:

Results:

Refer to the lessons learned you identified in Step 8. Describe how these lessons learned will be applied to your planning process for the next PDSA cycle.

STEP 9.2 Change the project or implement as-is

Select a course of action based on your work in Step 8.

- ☐ Implement the same intervention
- ☐ Revise the intervention
- ☐ Select or develop new intervention

Document your reasons for selecting this course of action. Note whether or not the intervention led to improvement and if it sufficiently did as you predicted.

STEP 9.3 Prepare a plan for the next test

If your team has decided to select or develop a new intervention, start from the beginning of the FOCUS-PDSA method using the appropriate worksheets to document your process.

If your team has decided to continue with the same intervention either as-is or revised, describe your plan here and go to Step 6 to start a new PDSA cycle. Note the method your team plans to use to monitor the performance and effectiveness of the intervention.

Intro to the QI Toolbox

Introduction

The QI Tool Box describes specific tools for identifying problems and potential solutions in your practice. This resource is intended for all members of the healthcare team.

How to Use this Tool Box

Using the FOCUS-PDSA improvement model as context, here is one approach to using the QI tools.

Use of all the QI tools is not required, but it is important to note that the tools are most effective as part of a systematic approach to change in an organization where performance improvement is a priority.

	Stakeholder Analysis	Brainstorming	Dot Voting	Prioritization Matrix	Flow Chart	Root Cause Analysis
Step 1. Find a Problem to Improve	X	X	X	X		
Step 2. Organize a Team	X	X	X	X		
Step 3. Clarify the Problem		X	X		X	
Step 4. Understand the Problem						X
Step 5. Select an Intervention		X	X	X		

Further Information/Resources: https://cvquality.acc.org/clinical-toolkits/qi-toolkit