THE UNIVERSITY OF CHICAGO MEDICINE
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UCM QUALITY IMPROVEMENT
A GUIDE TO USING THE PDSA WORKSHEET

PDSA (Plan, Do, Study, Act) is a performance improvement method that offers a systematic approach to make and sustain improvement within an organization. Based upon the scientific method, it involves understanding processes, identifying potential changes that might improve the quality of the those processes and their outcomes, testing those changes to see if they are effective, analyzing what worked, what didn't work, and what could work better, and then starting another project aimed at further improving the process. These iterations of change are often referred to as "cycles of change."

This document briefly summarizes the PDSA method as adapted from the Institute for Healthcare Improvement's model for implementing change in healthcare settings. Within this document, you will find many hyperlinks to outside quality improvement information resources.

Please contact the Center for Quality if you need assistance with your quality improvement project. The Center for Quality team can help you make full use of the performance improvement tools and assist you in taking advantage of any existing data sources that might be available to you and your team.

UCM Resources

UCMC Center for Quality Web Page   UCMC Center for Quality Staff Contact List   UCMC Nursing Quality

Planning a PDSA Quality Improvement Project	
Project Title	Pick a title that concisely describes the nature of your working group and what the specific quality improvement project. Examples: *T4SE QR Nurses – Improving Pain Assessment* *EVS – Reducing Time from Patient Discharge to Room Ready for Next Patient*
Team Members	Make sure that people who are involved in the current process or who will be affected by any changes to that process are included in the planning of your project. Consider who is involved in carrying out the processes associated with this project? Who has the major inputs into this work? To whom do the major outputs go to? What leadership would you need to "sign off" on any announcements regarding this project or any funding needed to initiate the project? Be prepared to add members to your team as you refine your project aims and begin to more carefully study the processes. You may also have some ad hoc team members who participate only as needed. As your team begins to form, be as specific as possible in terms of defining the role and expectations of each member. See the Institute for Healthcare Improvement's webpage, "Forming the Team" for more information and examples. Consider using the following tools to assist you in establishing your team: Internal Customer (Stakeholder) Analysis, NHS Stakeholder Analysis , External Customer (Stakeholder) Analysis.
Aims	Develop a statement (or a few statements) that clearly define what you are trying to accomplish. These are your aims, or the results you are hoping to achieve. Make aim statements **SMART**: • as specific as possible (S) • clearly measurable (M) • actionable (A) in that the team has the ability to make the specific changes necessary to overcome obstacles to improvement • realistic (R) in that it is within the team's ability and authority to influence the attainment of the aim • time-bound (T) in that the aim has a reasonable target date – for projects longer than 6 months, ensure that you come up with target dates, sometimes called "milestones," so that you can track the progression of your efforts toward attaining your aim(s) Your aims should also be aligned with one or more of the six "Aims for Improvement" for healthcare, as defined by the Institute of Medicine (IOM). Additionally, in order to help establish priority among other organizational initiatives, if the project is directly in response to an externally mandated regulation it's important to call that out.
Measures	**Develop at least 1 measure (or metric) for your project aim** Every project should have at least one metric related to the aim, to quantify the teams' progress toward attaining that aim. Refer to the IHI tool on establishing measures for more guidance. **Conduct research to see if someone else has already developed metrics for similar aims** Whenever possible, don't just "make up" your measures. Conduct some research into metrics and data collection tools that other teams or organizations may have already developed and validated.

Take the time to define meaningful, feasible metrics that are clearly linked to your aims

A project team might spend several weeks determining how they will measure their improvements. Defining these measures clearly and ensuring that the data you need in order to calculate them are valid, reliable, and feasible to obtain consistently are among the most critical steps in engaging in a quality improvement project.

Consult the Center for Quality or Nursing Quality to determine whether or not another group is already collecting the data that you are considering. This could end up saving you a lot of time that would otherwise have been wasted with labor-intensive, redundant data collection! Remember to define all of the essential elements of a metric: description, unit of measure, data collection tools and methods, assessment frequency, and baseline and target performance.

Develop balancing measures to ensure that your intervention is not placing patients or the organization at risk

Healthcare quality improvement initiatives often involve changing the way care is delivered, which requires careful monitoring for unintended negative effects on other processes or the system as a whole. Potential unintended consequences can compromise any of the IOM aim domains (safety, effectiveness, patient-centeredness, timeliness, efficiency, equity). General examples include: saving resources from one department while increasing the costs in another, or disrupting other related or unrelated care or operational processes. A specific example is around reducing the length of stay: Two balancing measures for this aim are readmissions rates and patient satisfaction scores. You want to make sure that as patients are discharged sooner, they are not readmitted more often or sooner, and that patients don't feel rushed or not ready and reflect that with lower satisfaction scores.

Current Process	**Describe the current process**

Describe the current process with as much detail as possible. Often times, this means you need to observe the process from start to finish, noting who needs what (and when) in order to do what (by when).

Be careful not to describe "how the process is <u>supposed</u> to be done," but rather, focus on how it is <u>actually</u> done.

The Process Flow Chart is a helpful tool for mapping processes. Please don't hesitate to contact the Center for Quality for assistance mapping a process in its current state if you believe that might be helpful.

Understand variation within the current process and causes of variation

Investigate whether there is already some policy or protocol "on the books" describing how the process <u>should</u> be done. How does what is actually happening differ from what <u>should</u> be happening? Sometimes there is no defined process and variation can occur between people or even when a person performs the process from one instance to the next.

If you already have baseline data available, use Pareto Charts to focus on the categories of process breakdowns that are most significantly contributing to poor performance. Use Run Charts and Control Charts to identify points in time where performance significantly improved or declined, look for any potential causes of those changes. Be prepared to add members to your team and to refine your aims and your measures as you learn more about the current process.

It is important to understand the history behind all aspects of a process before determining whether or not it is "waste" or inefficient and subject to revision. Some seemingly inefficient processes must remain in place due to safety, regulatory, or policy constraints. Make sure you ask, "why is it sometimes done this way?"; "Is there a regulatory requirement?"; "Are the circumstances that required this particular practice still valid?" When in doubt, keep asking questions and check with the experts, whether that's Compliance to ensure that a regulatory requirement is actually a requirement and not just an interpretation, or whether it's the manager of the area to understand the history of a process or policy.

Focus on the root causes of variation

Every time you see a difference between what is happening and what should be happening, you and your team need to ask "why is this difference occurring?" There is probably a good reason for the difference: perhaps they are eliminating unnecessary steps or they are doing workarounds to address a problem that has come up. Anytime you identify these differences, or identify problems and issues, it's important to get to the root cause(s).

One way to get to the root cause is an exercise called "Five Whys". It's important to understand root cause to target your intervention properly to prevent problems from recurring. If you are unsure of the problems within a process, you can use a "Fishbone Diagram" to help brainstorm potential problem causes and organize them by theme or type. You can use a Fishbone Diagram with the Five Whys tool: first brainstorm using the Fishbone Diagram, then choose a cause from the Fishbone to investigate further using the Five Whys.

Use data to understand root causes of variation

If you already have some baseline data available, you may want use that data to study a) what kinds of problems or "defects" are occurring, b) where they are occurring, and c) how many of those kinds of problems are occurring within a specified period of time. Again, try to focus on those areas that seem to really make a difference and you and your team can influence. You may find it helpful to use a Run Chart, Control Chart, or Pareto Chart for this analysis, depending on the type of problem or variation you are focusing on.

Explore the differences in the work process associated with different conditions (e.g., time of day, day of week, patient status, people, etc.); are these differences causing variation in the process or outcomes? |

Imagine a better way of doing things and get started with a plan to make it happen

You and your team may sometimes find that you do not have the resources or authority to address the root cause. In these cases, engage your leadership to help to escalate the issue.

Remember to keep a focus on our patients! It's our ethical imperative to ask ourselves and our teammates, "what causes of variation or poor performance do WE have control over?" and "what can WE do about this?"

You are now ready to start the PDSA cycle!

PDSA: Plan – Do – Study – Act

Plan	**Plan the intervention**

An intervention can be a pilot test of a new way of doing things, or it can simply be a plan to develop systematic observation of a process. Sometimes, coming up with a way of monitoring a process is in and of itself a meaningful quality improvement initiative. How do you know if there is a problem if you don't have a way of monitoring the process?
- Refer to IHI's resource on selecting changes and testing changes to get started.
- Make predictions about what will happen and why.
- If establishing an observation plan, where do you think you might want to look? Who will need to be involved in interpreting whether or not the current process is compliant and/or safe? How will this assessment be done?
- Develop a plan to test the change that results from your intervention. (Who? What? When? Where? What data is needed?)
- Define the new process in detail. Consider making another Process Flow Chart to illustrate the new process.

Use the Quality Improvement Planning Table within the PDSA worksheet to define the tasks involved in implementing this plan, what person(s) will need to do what, starting when, and what tools or training will be needed in order for those tasks to be accomplished. You may also find it helpful to use a Gantt Chart for graphically presenting when tasks start and stop in relation to the entire improvement plan.

Do	**Try out the intervention**

This is often known as a pilot test. Whenever possible, start by testing your intervention in the smallest way possible (one patient, one hour, one appointment, etc.) Your first pilot could even be a simulation.
- Carry out the intervention as documented in your Quality Improvement Planning Table within the PDSA worksheet.
- Document problems and unexpected observations. Get qualitative data from the people involved.
- Begin analysis of the data. How well is your data reflecting what you are trying to measure? Are there any signals that may be indicating that your intervention is working?

Do the pilot test. Implement your detailed action plan, including the improvement(s) itself and collection of performance data.

Study	**Study the results of the pilot test**

Assess for improvement by examining the performance data revealed by your key process and outcome measures. Answer the following questions:
- Is our performance improved? If yes, how so?
- If no, did our performance stay the same?
- If no, did our performance deteriorate?
- If no, did something interfere with our pilot test, causing the performance outcomes to be unknown?
- What did we learn from trying this on a small scale?

Document your results.

(PI Tools: Process Flow Chart, Run Chart, Control Chart, Histogram)

Act	**Act on the results of the pilot test**

Based on your answers to the four questions above, decide what action to take. To make your decision, consider the following questions:
- Do we need more performance data? Should we repeat or expand the pilot test? Should we conduct a modified pilot test? Refer to IHI's resource on linking test of change.
- Should we retire the improvement idea because, at this time, it has not led to any or significant enough improvement?
- Should we discard the improvement idea because it is associated with deteriorated performance?
- Should we spread the process change to more areas within the medical center? Is the effort involved in implementing the change on a broad scale worth the effects we will achieve? (Spread shouldn't be considered until after an extended pilot. Evaluate for spread once you're sure the change is a sustainable improvement.)

Make sure you either plan for the next PDSA cycle based on what you have learned from this first pilot, or, at the minimum, develop a strategy for monitoring this improved process at predefined intervals to ensure it is sustained. Measure for sustainment of project gains on an ongoing basis and evaluate at 3 month intervals, at minimum.