Plan-Do-Study-Act (PDSA)

Accelerate Quality Improvement in Your Practice

AMA IN PARTNERSHIP WITH

Laura Lee Hall, PhD
Director, Center for Quality and
Office of Grants, American College of Physicians

How will this module help me successfully make changes in my practice?

1. Describes four STEPS to quality improvement using the PDSA method.
2. Provides answers to common questions about the PDSA method.
3. Shares downloadable resources with samples and templates.
Introduction

The **Plan-Do-Study-Act (PDSA)** method provides a straightforward, iterative approach to quality improvement in your practice. The PDSA framework is easy to adopt regardless of practice size or resources. As ongoing quality improvement becomes part of your practice's culture, your team will continue to find opportunities to improve existing processes.

**Figure 1. The Plan-Do-Study-Act (PDSA) Cycle**

These common questions are used throughout the iterative PDSA cycle.

---

### Four STEPS to using PDSA within your practice:

1. **Plan:** Develop the initiative.
2. **Do:** Implement your plan.
3. **Study:** Analyze the results.
4. **Act:** Adjust the process based on the results found in the Study phase.

---

#### 1 Plan: Develop the initiative.

The following actions will help you in the “planning” phase of your PDSA initiative:

- Select your improvement initiative.
- Identify your PDSA team.
- Develop your plan.

**Select your improvement initiative.**

Involve your team in selecting the quality improvement initiative. Most good ideas for improvement come from the people doing the work, so consider the perspectives of everyone on the team, both clinical and non-clinical. Be sure you can answer “What’s in it for me?” (WIFM) for everyone you expect will participate. Patient surveys can also be used to identify areas for improvement.

**To identify areas for improvement, consider asking these questions:**

Where does your practice need to improve patient care?
Your practice may already have performance measure data from a payer (federal, state, and/or private) or a point-of-care registry that can reveal gaps in care processes or patient outcomes.

**Where is your practice less efficient than it should be?**
Your team may be able to identify bottlenecks in the workflow. Prioritize those areas that you have some control over and that the team thinks will be most impactful. Use a “go and see” approach of respectfully observing the work and then asking “why?”

**What about the day is most frustrating for your team and/or patients?**
Ask patients and staff. This will generate a list from which you can prioritize areas for improvement.

Reference the module on selecting sustainable change initiatives for more guidance on choosing areas for improvement in your practice.

*Identify your PDSA team.*
The people doing the work should be the ones planning and guiding the process improvement initiative.

Your PDSA team should include representatives from all areas of your practice that will be affected by the improvement. Set expectations for the time commitment to the PDSA team early in the cycle and plan to continue working together through implementation. You may also choose to have a core quality improvement team that rotates in specialized representatives based on the initiative. Most teams work best with a maximum of 10 people. Practice members who are not on your PDSA team should receive regular updates about the initiative’s progress.

**Develop your plan.**
Your quality improvement team should work together to develop a plan. The plan is a to develop a test to improve the process that you have identified.

*Brainstorming to answer the following questions can help you formulate your plan:* *

- What does my practice want to accomplish?
- Why is this a priority? (Of all the possible areas for improvement, why is my practice focused on this one in particular?)
- What current process is my practice changing?
- What does the new process look like?
- Who will enact the changes?
- When will the changes be made?
- Where will the changes take place?
- What team training and preparation are required?
- Will patients be affected? How? Which patients will be affected?
- What results do you expect?
- How will you measure the impact of the changes? What process and outcome measures will you use?
- How and when will you inform the team about progress?

The following downloadable tools can help you in your planning phase:

**ACP Quality Connect: PDSA planning worksheet**
(PDF, 267 KB)

**Process map toolkit**
(PPT, 2,130 KB)
What are some examples of quality improvement initiatives?

Common targets of PDSA cycles include:

- Medication refills.
- Adult immunizations.
- Diabetes or hypertension screening and care.
- No-show rates.
- Results reporting.
- Patient registration processes.
- Hold times or wait times.
- Finishing days on time, Work after Work (WAW)

For more ideas, visit your specialty’s professional society quality improvement website, such as the American Society of Clinical Oncology Institute for Quality, ACP Advance, and AAFP Basics of Quality Improvement.

What is an example of a PDSA team?

Your team could include physicians, practice leadership, nurses, medical assistants, receptionists, patients, and IT, coding, and/or compliance staff. For example, if your practice’s first PDSA project is to increase rates of adult pneumococcal vaccinations, your team may consist of the following representatives:

- A physician champion or leader who can provide clinical expertise and secure support from providers as well as practice and/or system leadership.
- The practice manager could serve as the project manager and administrative lead for the initiative. This individual can work directly with the electronic health record (EHR) or IT representative to develop a daily report of patients over the age of 65 who do not have a documented pneumococcal vaccination.
- The front desk lead can distribute information about vaccines to appropriate patients upon check-in or before their appointments through email or a patient portal.
- A nurse or medical assistant can offer insight about current workflows and the most effective way to reshape the practice’s current workflow to reflect the new process. He or she will likely be the one administering the vaccine, so his or her input is particularly important.
- An IT representative can program a clinical decision support reminder to administer and record vaccinations.

Why is leadership support important?

Keeping your leaders informed will help you gain their support and could help your team obtain the resources needed to make the desired change. For larger initiatives, senior-level support is essential. Communicate with leaders about the potential for improved performance measures, workflow efficiencies, and/or cost savings. See the Lean Health Care module for more information about identifying a champion for your quality improvement work.
How can I include patients in my practice's PDSA effort?

It is important to design care plans with patients, instead of designing care plans for patients. Your practice could include one or two patients on the quality improvement team. If your practice does not use patient advisors regularly, start with a simple survey to understand what your patients value most.

What if my project is focused on my practice's IT utilization and workflows? Are there resources to help me?

The Agency for Healthcare Research and Quality (AHRQ) has a detailed IT workflow assessment toolkit to help your practice navigate IT-related quality improvement efforts.

2 Do: Implement your plan.

With a committed team and a detailed plan, you are ready to implement your quality improvement initiative. Communicate the new process to your team and share inspiring stories to keep everyone excited about the change.

After the change has been implemented, regularly discuss the adoption of the new process at huddles and meetings. This will help you determine if the change had the desired result.

Set SMART goals for your PDSA quality improvement initiative.

Help your team stay focused and efficient through impactful goal setting. For example, one practice goal may be to increase depression screening among patients with a diagnosed substance use disorder. Using the SMART approach, your goal would look like this:

- **Specific:** Your practice will increase depression screening from 20 to 50 percent of patients who are either diagnosed with substance use disorder or prescribed opioids for non-cancer pain.
- **Measurable:** You will use manual or electronic chart audits to document depression screenings.
- **Achievable:** You've set a reasonable goal of 50 percent rather than 100 percent. You want to set an attainable goal; the bar can always be raised if your change is successful.
- **Relevant:** There is a clear gap in care because only 20 percent of your target population is being screened for depression.
- **Time-bound:** The goal will be achieved over the next three months. A reassessment (the "study" step of PDSA) will occur three months from now.

“

My practice benefited from making changes, especially in team-based care. I have felt empowered through education and have been able to provide better care through better staff engagement that involves everyone in practice improvement.

“

Brenda Vozza-Zeid, MD, FACP, Henderson, TX
Q&A

What is the best approach to rolling out the change in my practice?

Start small by piloting the improvement with one physician or in one pod. This can help the initiative gain traction, and it can help the PDSA team and pilot team work together to successfully implement the new process.

Are there any support networks that can help my practice improve?

Organizations that provide support to practices implementing quality improvement initiatives include:

- Area Health Education Centers (AHECs).
- Quality Improvement Organizations (QIOs).
- Quality Innovation Network QIOs (QIN-QIOs).
- Practice-based Research Networks (PBRNs).
- Local or regional Practice Transformation Networks (PTNs).

Study: Analyze the results.

Use the process or outcome measures the PDSA team chose during the planning phase to evaluate the success of the process change. A classic technique to visualize changes over time is a run chart, which can be displayed in a team area or shared regularly at meetings.

Your PDSA team should consider the factors that might have contributed to the findings. You may discover that your change has been very successful or you may find that you are not seeing the improvements you expected. Your team can work together to identify how and why you achieved the observed results.

You can download and customize these tools to align with the measures you have selected for your change initiative.

Run chart
(MS EXCEL, 21 KB)

Simplified practice assessment
(MS WORD, 34 KB)
I thought I had a good handle on managing my diabetic patients, but I learned about facilitating good decision-making by my patients, coaching behavioral changes, and gaining insight into patient compliance. I also learned about how to engage my office staff into optimizing OUR care of OUR diabetic patients.

Robert Dobbin Chow MD, MBA, MACP, Baltimore, MD

Q&A

What are some examples of process and outcome measures that we can monitor?

Process measures assess the actions undertaken by the clinical team. Examples include:

- Percentage of patients with diabetes who have a current HgbA1c documented.
- Percentage of patients who have their blood pressure checked at their visit.
- Percentage of patients who have pre-visit labs obtained.

Outcome measures assess results. Examples include:

- Percentage of patients who have an HgbA1c less than 8.0.
- Percentage of patients with blood pressure at goal.
- Patient, physician, and team satisfaction ratings

Act: Adjust the process based on the results found in the Study phase.

At this point, you can decide to Adopt, Adapt, or Abandon the process.

The PDSA cycle is meant to be continuous; even your best processes can be improved and become more consistent. You can further refine your processes by repeating the cycle. Celebrate completing your first PDSA cycle even if it didn't result in improvement. View this as a learning opportunity.

During this final stage of the PDSA cycle, your team should determine what action to take next.
Table 1. Determine what course of action is warranted
Using the results of the PDSA cycle, you can Adopt, Adapt, or Abandon your plan.

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adopt</td>
<td>The plan worked and well and now it is time to scale it to a larger group.</td>
</tr>
<tr>
<td>Adapt:</td>
<td></td>
</tr>
<tr>
<td>Restart the PDSA cycle at the planning phase</td>
<td>The plan is meeting or surpassing the desired results, and the team sees opportunity for even better outcomes. Based on your analysis, refine the current process in the next planning phase. Look for other areas in your practice to expand your successful improvement.</td>
</tr>
<tr>
<td>Abandon:</td>
<td></td>
</tr>
<tr>
<td>Discontinue the plan</td>
<td>The plan did not work or is better suited for another time or environment. Go back to the planning phase to overhaul the existing plan or develop a new one.</td>
</tr>
</tbody>
</table>

Table 2. Real-world examples of PDSA cycles within the practice environment
You can use the table below to help identify your PDSA goals, areas for improvement, changes to implement, and measures.

<table>
<thead>
<tr>
<th>Quality improvement</th>
<th>Plan</th>
<th>Gap or area of improvement</th>
<th>Do</th>
<th>Study</th>
<th>Process change to be implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase pneumococcal vaccination rates among older patients.</td>
<td>A consistent process for identifying appropriate patients for pneumococcal vaccine does not exist.</td>
<td>1. Work with EHR vendor to build a flag for appropriate immunizations based on clinical guidelines. 2. Implement a pre-visit planning to anticipate immunization and screening needs for all patients. 3. Increased number of pneumococcal immunizations received by older patients.</td>
<td>1. Correct vs. incorrect identification of patients in EHR. 2. Number of patients identified during pre-visit planning. 3. Increased number of pneumococcal immunizations received by older patients.</td>
<td>Process change to be implemented</td>
<td></td>
</tr>
<tr>
<td>Increase depression screening for patients with chronic pain and/or substance abuse.</td>
<td>Patient surveys revealed that they felt uncomfortable completing a depression assessment in the waiting room.</td>
<td>1. Conduct the screening in the exam room prior to being seen by the physician. 2. Training the rooming staff to conduct the PHQ-2 and PHQ-9 as appropriate. 3. Improvement in patient feedback about screening process.</td>
<td>1. Percent of screenings completed in the waiting room vs. exam room. 2. Increase in patient feedback about screening process.</td>
<td>Process change to be implemented</td>
<td></td>
</tr>
<tr>
<td>Decrease the amount of physician time spent on documentation after clinic hours.</td>
<td>Physicians are documenting the elements of the patient visit that could be completed by MA or nurses.</td>
<td>1. Share responsibilities during the patient rooming process. 2. Train MA or nurses to document the patient visit. 2. Decrease in after-hours documentation time by the physician.</td>
<td>1. Number of MA or nurses trained on documentation. 2. Decrease in after-hours documentation time by the physician.</td>
<td>Process change to be implemented</td>
<td></td>
</tr>
</tbody>
</table>

Q&A

What methods should I use to communicate the results of the PDSA cycle?

Your team, stakeholders, and patients will be eager to learn more about your successes. Write a brief summary that describes the quality improvement initiative and the results that were generated. Print it in your organization’s newsletter, send a congratulatory note to the team members copied to leadership. Present a summary of the report during a lunch time meeting and celebrate your successes.

Post a summary of the effort on a bulletin board in a common area. Consider making a data wall or dashboard that tracks every initiative, and displays practice goals. Continue to prominently display regular updates of run charts. Positive reinforcement through communication and recognition can drive greater teamwork, and continued quality improvement in your practice.

How should I communicate the results to patients?

Patients and caregivers can be an integral part of your quality improvement efforts. Surveys that gather outcomes data can help you monitor the patient experience in your practice. Summarize your results and report them to patient advisory groups through your patient portal or email.
Conclusion

Any practice team can complete a quality improvement initiative if they start small and plan ahead. Foster your internal assets to develop more reliable systems to improve care. With careful thought given to each aspect of the PDSA cycle, ongoing communication, and detailed attention to the metrics, your practice can successfully reach its goals.

AMA Pearls

Start small.

Try using the PDSA framework on a simple initiative first so you can gain familiarity and comfort with the method. For example, if you want to increase rates of flu vaccinations in your practice, use PDSA to develop and implement a communications strategy during the next flu season. Take what you learn to make improvements to your approach during next year's flu season.

Use other analysis tools to approach improvement.

This module provides the framework for making changes in your practice. If you are taking on a larger quality improvement effort, try these tools:

- A fishbone diagram to show cause and effect.
- A Pareto chart to identify the most influential cause(s) of a problem.
- A scatter plot to reveal causal relationships.
- A check sheet for easy data collection and to show patterns.
- The STEPS Forward™ Starting Lean healthcare module.

STEPS in practice

PDSA Case Report: University Physicians Group

University Physicians Group is a multi-specialty, 65-physician medical practice with offices in Staten Island and Brooklyn, NY.
The group started their first PDSA cycle to address what they viewed as suboptimal diabetes outcomes during the previous year. They thought communication and educational processes might be improved to help their patients achieve better outcomes.

They began with a simple, pre-visit questionnaire that asked patients what they understood about diabetes and their care plans. This questionnaire covered the purpose of tests for diabetes, what the test results mean, and terminology related to diabetes care. The survey revealed a gap in what the doctors believed their patients understood about their disease and their care plan and what patients actually understood.

The questionnaire results showed that many of the group's diabetic patients did not consistently have the information necessary to properly manage their own care. The survey results also indicated that the patients did not feel comfortable asking questions, even when they did not comprehend the physician's instructions. For example, 21 percent of the patients surveyed did not know the difference between fasting and non-fasting glucose measures, but were afraid to ask their doctor to clarify what the measures meant.

Armed with this information, University Physicians Group developed a plan to accomplish two things:

1. Improve communication with patients so that they understand their disease and the care plan that they create with their physician
2. Improve outcomes for patients with diabetes

The plan that University Physicians Group developed relies on the medical assistants (MAs)—who have the most hands-on time with patients—to educate and coach patients with diabetes. The practice disseminated the plan from the executive level to the office managers and MAs. Getting buy-in from the team was easy; diabetes is prevalent among the group's patient population and improving communication is something that interested care team members on both a personal and professional level.

No additional staff needed to be hired; instead, the current MAs were trained to ask patients the following:

- Do you have a glucometer? If so, do you know how to properly use it?
- Do you know the difference between fasting and non-fasting glucose?
- Do you know what HbA1c is and do you know your most recent HbA1c test result?
- Do you have insurance? If so, what kind?

Gathering this information helped the MAs tailor the educational material and coaching intensity for each patient. Approximately 150 patients were enrolled in the pilot program across the group's two offices.

After three months of the pilot program, the practice resurveyed patients to check the initial impact. Results were favorable. Data is being collected on an ongoing basis and the group intends to start the “study” step of their PDSA cycle soon. Based on the findings, they will decide if they need to adjust their plan. One aspect of the plan that they already know they'd like to refine during the next PDSA cycle is to use the EHR more effectively for data collection.

The PDSA process was well-received, in part because the initiative selected was equally important to all care team members. University Physician's Group is excited to start on the next cycle.

---

**Learning Objectives:**
At the end of this activity, you will be able to:
1. Identify how to plan a quality improvement initiative;
2. Describe how to implement a quality improvement initiative;
3. Explain how to evaluate the performance of a quality improvement initiative;
4. Recognize how to adjust a quality improvement initiative based on the results.
Credit Designation Statement: The American Medical Association designates this enduring material activity for a maximum of .50 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Target Audience: This activity is designed to meet the educational needs of practicing physicians, practice administrators, and allied health professionals.

*Disclaimers: Individuals below who are marked with an asterisk contributed towards Version 1 of this learning activity.

Statement of Competency: This activity is designed to address the following ABMS/ACGME competencies: practice-based learning and improvement, interpersonal and communications skills, professionalism, systems-based practice, interdisciplinary teamwork, quality improvement and informatics.

Planning Committee:

Christine A. Sinsky, MD, FACP, Vice President, Professional Satisfaction, American Medical Association*
Marie Brown, MD, Senior Physician Advisor, Professional Satisfaction and Practice Sustainability, American Medical Association & Associate Professor, Rush Medical College, Rush University Medical Center
Renee DuBois, MPH, Senior Practice Transformation Advisor, Professional Satisfaction and Practice Sustainability, American Medical Association
Brittany Thele, MS, Program Administrator, Professional Satisfaction and Practice Sustainability, American Medical Association
Mary Kelly, CME Program Committee, American Medical Association
Alejandro Aparicio, MD, Director, Medical Education Programs, American Medical Association*
Rita LePard, CME Program Committee, American Medical Association*
Becca Moran, MPH, Program Administrator, Professional Satisfaction and Practice Sustainability, American Medical Association*
Ellie Rajcevich, MPA, Practice Development Advisor, Professional Satisfaction and Practice Sustainability, American Medical Association*
Sam Reynolds, MBA, Director, Professional Satisfaction and Practice Sustainability, American Medical Association*

Content Reviewers:

J. James Rohack, MD, FACC, FACP, Senior Advisor and former President, American Medical Association
Renee DuBois, MPH, Senior Practice Transformation Advisor, Professional Satisfaction and Practice Sustainability, American Medical Association
Brittany Thele, MS, Program Administrator, Professional Satisfaction and Practice Sustainability, American Medical Association
Jessica Reimer, PhD, Medical Writer, HealthComms, Inc.
Alejandro Aparicio, MD, Director, Medical Education Programs, American Medical Association*
Becca Moran, MPH, Program Administrator, Professional Satisfaction and Practice Sustainability, American Medical Association*
Ellie Rajcevich, MPA, Practice Development Advisor, Professional Satisfaction and Practice Sustainability, American Medical Association*
Sam Reynolds, MBA, Director, Professional Satisfaction and Practice Sustainability, American Medical Association*
Bernard M. Rosof, MD, MACP, Chief Executive Officer, Quality in Healthcare Advisory Group*
Doron Schneider, MD, FACP, Chief Patient Safety and Quality Officer, Abington Health*
About the Professional Satisfaction and Practice Sustainability Group: The AMA Professional Satisfaction and Practice Sustainability group has been tasked with developing and promoting innovative strategies that create sustainable practices. Leveraging findings from the 2013 AMA/RAND Health study, "Factors affecting physician professional satisfaction and their implications for patient care, health systems and health policy," and other research sources, the group developed a series of practice transformation strategies. Each has the potential to reduce or eliminate inefficiency in broader office-based physician practices and improve health outcomes, increase operational productivity and reduce health care costs.

ABMS MOC: Through the American Board of Medical Specialties (“ABMS”) ongoing commitment to increase access to practice relevant Maintenance of Certification (“MOC”) Activities, this activity has met the requirements as an MOC Part II CME Activity. Please review the ABMS Continuing Certification Directory to see what ABMS Member Boards have accepted this activity.

Renewal Date: 04/25/2019

Disclosure Statement:

Unless noted, all individuals in control of content reported no relevant financial relationships.

References