

Step 5

INCREMENTALLY TEST SOLUTIONS, FOCUSING ON WORK/ROLE CHANGES

THE CLINICIAN'S BLACK BAG OF QUALITY IMPROVEMENT TOOLS

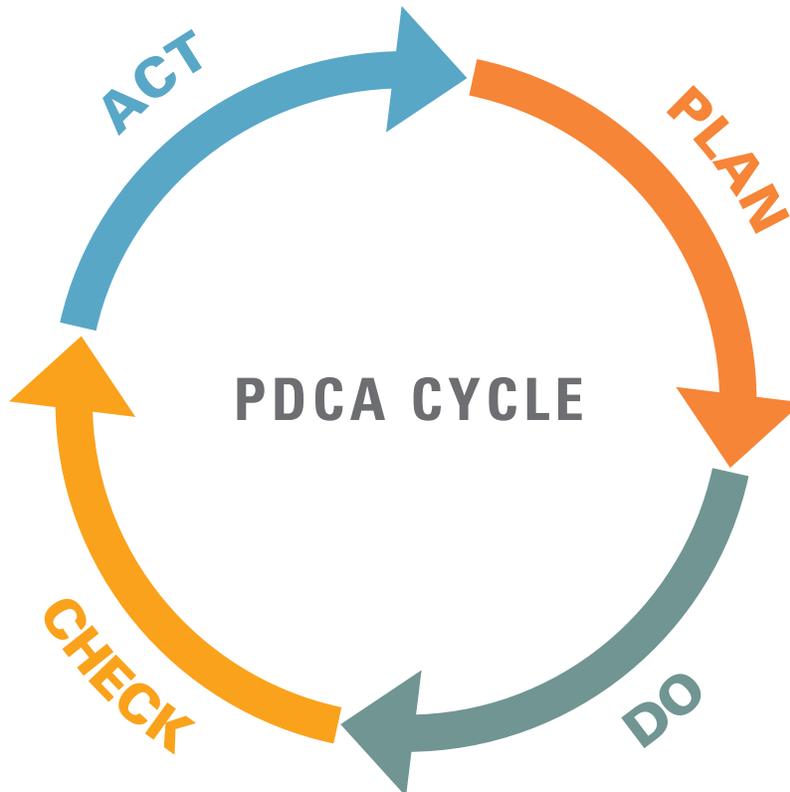
Dartmouth University

DESCRIPTION

The **PDCA (or PDSA) Cycle** was originally conceived by Walter Shewhart in the 1930s, and later adopted by W. Edwards Deming. The model provides a framework for the improvement of a process or system. It can be used to guide the entire improvement project, or to develop specific projects once target improvement areas have been identified.

USE

The PDCA cycle is designed to be used as a dynamic model. The completion of one turn of the cycle flows into the beginning of the next. Following in the spirit of *continuous* quality improvement, the process can always be reanalyzed and a new test of change can begin. This continual cycle of change is represented in the **ramp of improvement**. Using what we learn in one PDCA trial, we can begin another, more complex trial.



Step 5

INCREMENTALLY TEST SOLUTIONS, FOCUSING ON WORK/ROLE CHANGES

THE CLINICIAN'S BLACK BAG OF QUALITY IMPROVEMENT TOOLS *continued*

PLAN

a change or a test, aimed at improvement.

- In this phase, analyze what you intend to improve, looking for areas that hold opportunities for change. The first step is to choose areas that offer the most return for the effort you put in — the biggest bang for your buck. To identify these areas for change, consider using a Flow chart or Pareto chart.

DO

Carry out the change or test (preferably on a small scale).

- Implement the change you decide on in the plan phase.

CHECK OR STUDY

the results. What was learned? What went wrong?

- This is a crucial step in the PDCA cycle. After you have implemented the change for a short time, you must determine how well it is working. Is it really leading to improvement in the way you had hoped? You must decide on several measures with which you can monitor the level of improvement. Run Charts can be helpful with this measurement.

ACT

Adopt the change, abandon it, or run through the cycle again.

- After planning a change, implementing and then monitoring it, you must decide whether it is worth continuing that particular change. If it consumed too much of your time, was difficult to adhere to, or even led to no improvement, you may consider aborting the change and planning a new one. However, if the change led to a desirable improvement or outcome, you may consider expanding the trial to a different area, or slightly increasing your complexity. This sends you back into the Plan phase and can be the beginning of the ramp of improvement.



EXAMPLES

Improving Patient Compliance in Personal Health Maintenance

Example 1: The businesswoman who wants to lose weight

Clinician Section: Improving Your Office

Example 2: The medical student who made a difference

THE CLINICIAN'S BLACK BAG OF QUALITY IMPROVEMENT TOOLS *continued*

IMPROVING PATIENT COMPLIANCE IN PERSONAL HEALTH MAINTENANCE

Designing and implementing a patient's plan for health care is a dynamic process. Therefore, it is not uncommon for even the best-intentioned care plans to fail on the first attempt. When this happens, the provider and patient must carefully reconsider, reevaluate, and redesign the health improvement plan to make it more compatible with the patient's lifestyle and needs. The PDCA cycle aids in this reevaluation process by providing a systematic approach to improvement.

EXAMPLE 1: THE BUSINESS WOMAN WHO WANTS TO LOSE WEIGHT

Mrs. T is a 55-year-old white woman, a successful buyer. She is 10 pounds overweight, suffers from high blood pressure, and lacks muscle tone.

- What is she trying to accomplish? Mrs. T. and her doctor are trying to find and implement a viable exercise regimen for her. The goal is to design an exercise schedule that the patient can maintain despite traveling four days a week on business.
- How will she know that a change is an improvement? Improvement will be measured by how frequently she exercises and for how long, and whether her blood pressure decreases.
- What changes can she make that will result in improvement? The doctor and patient need to design a plan that she enjoys as well as one that she can (and will) follow, even when she is traveling.

Cycle 1

Plan: Ride an exercise bike four days a week for twenty minutes. To continue her exercise program while traveling, Mrs. T will make reservations only at hotels equipped with gyms. She will also lease an exercise bike for her home.

Do: Mrs. T tries to exercise four days a week for twenty minutes. The patient finds that the exercise bike is too difficult and makes her back sore. She can ride for only three minutes before she gets dizzy and has to stop. Mrs. T finds that at hotels, it is hard to get time on the bike, since there are usually many people who want to use it.

Check: Mrs. T exercised only one day a week and could go for only three minutes. The patient is not motivated to use the exercise bike because she doesn't enjoy it. Also, the hassle about using bikes at hotels is a big hindrance. Mrs. T needs to find an exercise that permits her to set her own pace and her own hours.

Act: Mrs. T and her doctor decide to find a different program.

Cycle 2

Plan: Mrs. T will try a treadmill instead of the exercise bike.

Do: Mrs. T tries to exercise four days a week for twenty minutes, but can go for only about five minutes before she gets bored. Also, she feels sick after getting off the treadmill. There was no problem finding an available treadmill at the hotels.

Check: Mrs. T exercised twice a week for five minutes. However, the patient did not enjoy it. She enjoys the walking but has trouble with motion sickness.

Act: Mrs. T will continue to walk but will walk outside to avoid inconvenient gym hours and the motion sickness.

The patient considers purchasing a dog, knowing that this will provide greater motivation to walk and make it more enjoyable.

Step 5

INCREMENTALLY TEST SOLUTIONS, FOCUSING ON WORK/ROLE CHANGES

THE CLINICIAN'S BLACK BAG OF QUALITY IMPROVEMENT TOOLS *continued*

IMPROVING PATIENT COMPLIANCE IN PERSONAL HEALTH MAINTENANCE

continued

Cycle 3

Plan: Mrs. T will get a dog and walk it every morning she is home. When she is away, she will try to take a short sight-seeing trip on foot, while her husband takes care of their dog at home.

Do: Mrs. T exercises as frequently as possible. She finds walking her dog very enjoyable and does it every day she is home (approximately three days a week) for about forty-five minutes. When she is away, she tries to take a walking tour of the city. This isn't always possible but occurs about 50 percent of the time.

Check: Mrs. T exercises three to six days a week for at least twenty minutes. She finds walking the dog most enjoyable because of the early-morning fresh air. Her blood pressure has become less elevated as well.

Act: Now that she has found a program she enjoys, Mrs. T decides to commit herself to this new exercise regimen: walking the dog and sight-seeing by foot.

By directly considering Mrs. T's needs as well as Mrs. T's likes and dislikes, the physician and the patient were able to design and implement an unconventional but highly effective exercise program that improved both the physical and the emotional wellness of the patient.

Step 5

INCREMENTALLY TEST SOLUTIONS, FOCUSING ON WORK/ROLE CHANGES

THE CLINICIAN'S BLACK BAG OF QUALITY IMPROVEMENT TOOLS *continued*

CLINICIAN SECTION: IMPROVING YOUR OFFICE

As a first-year medical student, your role can extend far beyond just practicing your history-taking skills. You have an untainted perspective that attacks problems with a freshness that your office is probably unaccustomed to and will probably treasure. But simply throwing out ideas for change every time one pops into your head is not the way to effect change; instead, use the PDCA cycle. Let's see how it works in an office setting like yours.

EXAMPLE 2: THE MEDICAL STUDENT WHO MADE A DIFFERENCE

Tucker is a first-year medical student who follows a preceptor in a small family practice office. At a recent lunch break at this office, Tucker listened in as the four physicians complained about the high volume of patients they were referring to specialists.

- What are they trying to accomplish? Improvement is certainly needed in this referral process.
- How will they know that a change is an improvement? The major measure that this practice is interested in is the number and type of referrals. Another metric the practice is concerned about is financial productivity.
- What changes can they make that will result in improvement? Tucker knew that there were opportunities for improvement here, so he decided to apply the PDCA cycle.

Cycle 1

Plan: Tucker asked his preceptor for all her referrals in the past six months. After stratifying the referrals by specialty, Tucker realized that 70 percent of the patients went to the orthopedics department at the local tertiary care center, mostly for sprained ankles and knee trauma. He also noted that a number of the initial calls to the family practice came when the office was closed, on weekends and after 5 p.m. Tucker presented this information to his preceptor, and together they realized that the practice might benefit from a change in its delivery of orthopedic care. Their plan was simple: have the orthopedics department at the local hospital train the four physicians in the practice how to treat sprained ankles and some knee trauma. Since the local hospital physicians are on a salaried status, not fee-for-service, there is no disincentive for this training.

Do: The family practitioners arranged for a one-week, after-hours training session in these two areas of high-volume injuries. They decided that they would test this change for two months to determine whether they would be able to reduce the number of referrals and maintain their patients' continuum of care at the practice. They also decided to stay open until 9 p.m. every Wednesday and from 10 a.m. to 1 p.m. every Sunday as an open clinic. One physician, one nurse, and one administrator would staff each open clinic.

Check: The practice is interested in the number and type of referrals, as well as financial productivity. After two months of implementing this change, the number of orthopedic referrals fell by 30 percent compared with the same period in previous years. By staying open longer, treating more patients, and referring less, the profits at the practice were 18 percent higher than they were during those two months in any previous year. Further, although they had no formal metric for patient satisfaction, all four physicians received positive feedback for the orthopedic care they were delivering and for their new convenient open clinic.

Act: Clearly, this change resulted in major improvement. The physicians decided to institute this change permanently. Because of its success, the physicians are considering applying this technique to other specialties to which they refer patients.

As demonstrated by this case study, the PDCA cycle can be applied to any situation. By employing the PDCA cycle, the family practice first carefully assessed what needed to be changed and then implemented an effective improvement plan. Implementing an improvement plan that is hastily selected rarely leads to effective change. This family practice did not fall into the trap of shooting without properly aiming.

Step 5

INCREMENTALLY TEST SOLUTIONS, FOCUSING ON WORK/ROLE CHANGES

THE CLINICIAN'S BLACK BAG OF QUALITY IMPROVEMENT TOOLS *continued*

Further Reading

Deming, WE "The New Economics: for industry, government, education." 1994 MIT CAES, Cambridge.

Walton, M "The Deming Management Model." 1986 Perigee Books, NY, NY.

"The Medical Student's Guide to Better Patient Care," pp 51-64.

Reprinted with permission of Dartmouth Medical School Office of Community-Based Education and Research, copyright 2008.