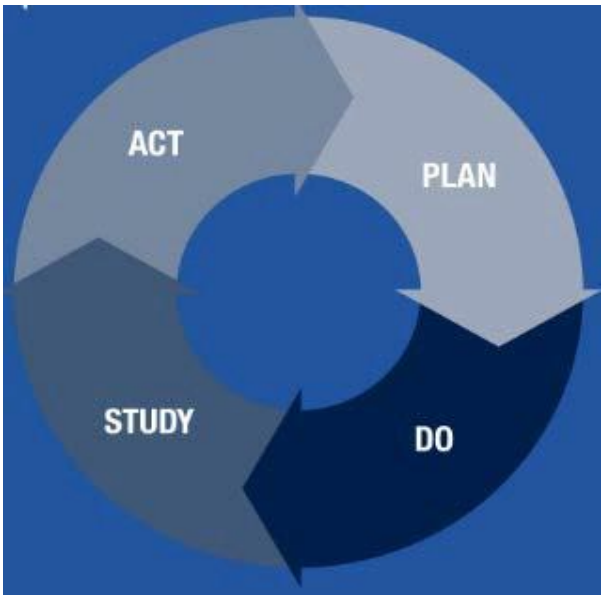
# Plan Do Study Act (PDSA)

## What is a Plan Do Study Act process?

The Plan Do Study Act (PDSA) process helps you to test improvements in a controlled way so that change can occur gradually, with an awareness of unintended consequences. It is a cycle of four stages:

- **Stage 1:** Plan: where introduction of your change is carefully planned
- **Stage 2:** Do: where you carry out your plan
- **Stage 3:** Study: where you analyse your measurements and decide if it has been successful
- **Stage 4:** Act: where you decide whether you implement your intervention, or make any changes to it, and/or consider introducing any further interventions




*PDSA cycle*

When we want to improve things in our practices, we often come up with a lot of ideas, but cannot be sure which will result in the change we want to see.

The PDSA approach accepts the fact that not all our ideas will work and allows us to test them out in a controlled way. We can then continue with the ideas that work, and stop doing those that do not. It starts at small scale and so is a cost-effective approach.

## How to create a PDSA process

The example of reducing antibiotic prescribing will be described to demonstrate how to use a PDSA cycle.

**Stage 1: Plan**

- Identify the change you wish to implement in order to bring about an improvement
- Identify who will be responsible for the change
- When it will be carried out
- Over what timescale
- How the measurement will be conducted
- Involve all stakeholders in the process from the start as this helps to persuade any reluctant team members to participate
- Look out for the unexpected, for example checking that a reduction in antibiotic prescribing does not cause an increase in chronic pulmonary obstructive disease (COPD) admissions. This is called a 'balance measure'

In our example, the practice identified three changes it would test out:

- A poster in the waiting room
- Benchmarking the GPs' prescribing habits
- A leaflet for COPD patients

**Stage 2: Do**

Collect your baseline data to monitor the existing state of play. You might do this as part of 'planning' or 'doing'.

- Ensure that all individuals who are conducting the measurements understand what data is being collected and how to collect it
- After sufficient time, continue to collect the data but introduce the agreed change
- Usually introduce one change at a time so that the effect of each can be measured. By introducing only a small change you are likely to encounter less resistance, and, if unsuccessful, adaptions can be made more quickly. The scale at which you test your change should also be kept small at first. Any problems encountered, and any unexpected consequences, can be recorded as implementation progresses

In our example for the second change, the practice decided to run a search every Friday at 5pm to gather the number of antibiotic prescriptions issued that week.

**Stage 3: Study**

The success or failure of the change is assessed at this stage, both quantitatively (by looking at the data collected) and qualitatively (by discussing how everyone experienced the change). As the number of antibiotic prescriptions normally varies from week to week, a run chart will help you to understand the normal variability before you introduce your change.

You should compare the results with the predictions you made and document any learning, including a record of the reasons for success or failure. Not all changes result in improvement, but you will always learn something from the test.

In this example the practice discovered the poster made no impact on the number of antibiotic prescriptions issued, but the benchmarking of GPs' prescribing habits did result in a reduction.

**Stage 4: Act**

In this stage, decide whether you just need to adapt what you have tried or whether you might try something completely new instead.

In our example the decision was made not to keep the poster in the waiting room, but to continue the benchmarking exercise every two months.

It is best to test small changes and then do multiple cycles. Learning from one cycle informs the next.