

Plan-Do-Study-Act (PDSA)

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In 1920, the Western Electric Company team, Drs. Walter Sheward, Edwards Deming, and Joseph Juran developed a scientific method for effecting change. To use their model, if one wants to change something, they should plan the change, make the change, study data that accurately measures the outcome, and, if the goal is not yet met, act to improve performance in the next intervention cycle. The Plan-Do-Study-Act cycle or PDSA (also known as the Deming Wheel) is an interactive, iterative process improvement technique. It is a relatively simple and efficient model for testing whether a single process change leads to improvement. The PDSA technique applies best to problems where a single intervention, or series of single interventions, promises to improve performance to the goal. This technique is not intended to rapidly and completely redesign a complex system.

The Plan step begins by identifying the overall performance goal. Then, the system is analyzed to understand its current state, especially why it is producing less than desired outcomes. A few potential system changes are formulated while considering (1) what will change, (2) whose work will be affected, (3) when the change can be implemented, (4) predictions about what will result and why, and (5) defining efficiently measurable outcomes to assess whether the change results in improvement. These are often the key questions: What are you trying to accomplish? What changes could result in improvement? How will you know things have improved? At the conclusion of this step, the most promising intervention is selected.

The Do step involves implementing the most promising intervention (just one!). The intervention's effect is observed to assess its feasibility and identify problems. Outcomes are measured. Often, measurements also include the performance of key individual process steps.

During the Study step, the team analyzes the data collected and compares outcomes with their initial predictions and the overall goal. The team reflects on lessons learned.

During the final step, Act, if the overall goal has not yet been met, opportunities for modifying the process are analyzed as the team prepares for the next improvement cycle/next intervention. When the goal has been met, during the Act step, the team considers whether learnings can be applied more globally.

After a little experience, most appreciate the PDSA's simplicity, practicality, and the ability to make global change with a step-by-step process (one intervention at a time). Using multiple PDSA cycles, a team can test, refine, and adapt change ideas to the environment while expanding the project's impact and engaging others. A few simple interventions, one per improvement cycle, can result in impressive performance improvements.

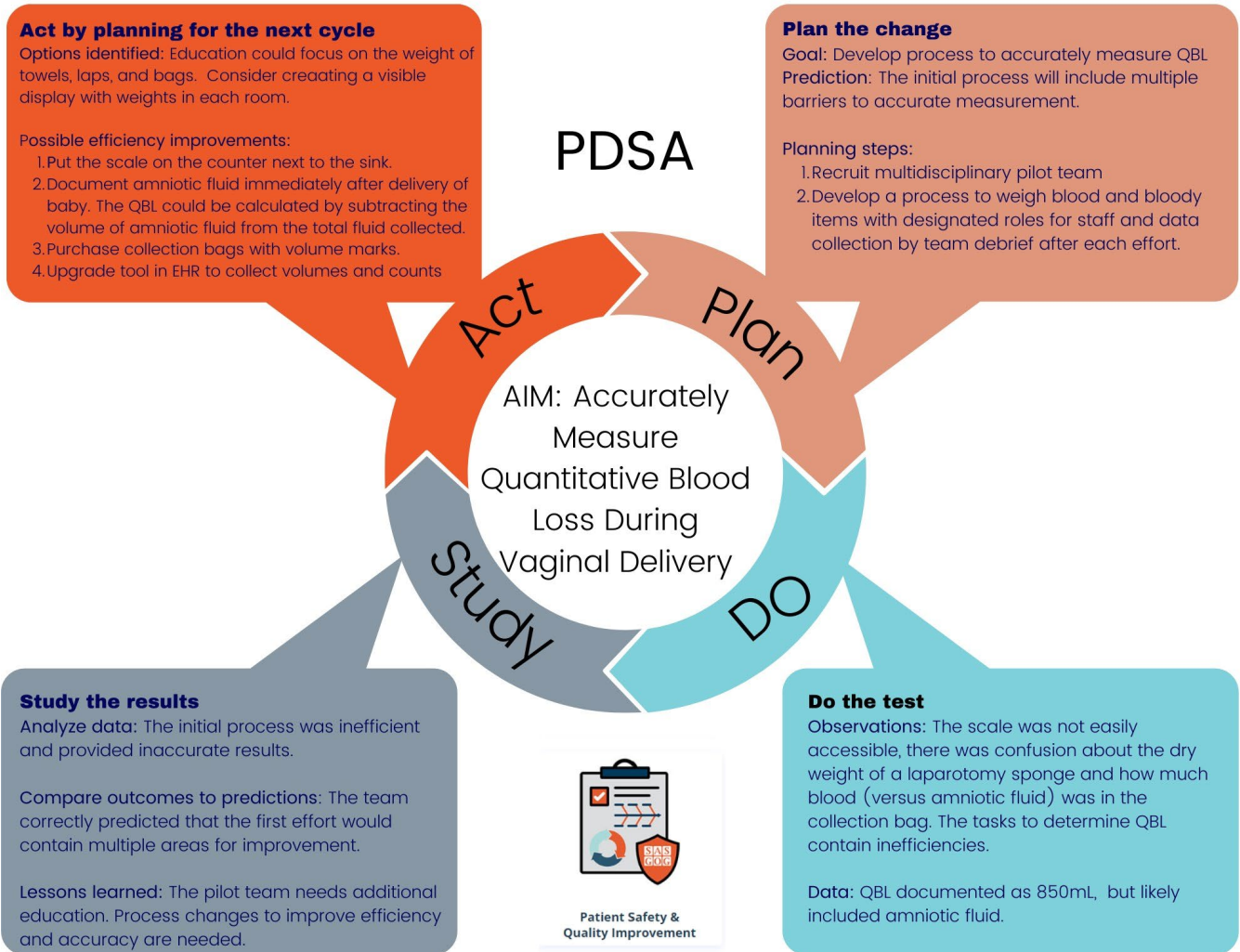


Figure 1: Original example of a PDSA Cycle developed by SASCOG Quality Team focused on accurate measurement of quantitative estimated blood loss during a delivery.

Further Reading

1. Institute for Healthcare Improvement PDSA Worksheet - file:///C:/Users/jnunz/Downloads/QIToolkit_PDSAWorksheet.pdf
2. <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-019-4482-6>