

## Tips on Testing Changes (Source: www.IHI.org)

### Reasons to Test Changes

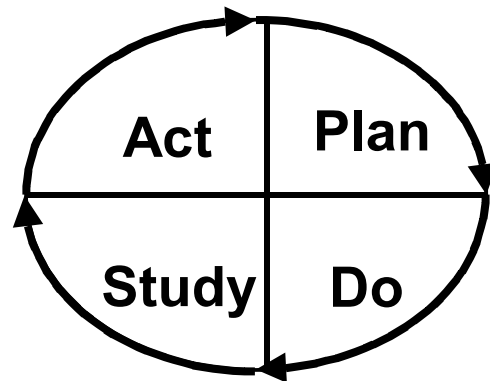
- To increase your belief that the change will result in improvement.
- To decide which of several proposed changes will lead to the desired improvement.
- To evaluate how much improvement can be expected from the change.
- To decide whether the proposed change will work in the actual environment of interest.
- To decide which combinations of changes will have the desired effects on the important measures of quality.
- To evaluate costs, social impact, and side effects from a proposed change.
- To minimize resistance upon implementation.

### Steps in the PDSA Cycle

#### Step 1: Plan

Plan the test or observation, including a plan for collecting data.

- State the objective of the test.
- Make predictions about what will happen and why.
- Develop a plan to test the change. (Who? What? When? Where? What data need to be collected?)



#### Step 2: Do

Try out the test on a small scale.

- Carry out the test.
- Document problems and unexpected observations.
- Begin analysis of the data.

#### Step 3: Study

Set aside time to analyze the data and study the results.

- Complete the analysis of the data.
- Compare the data to your predictions.
- Summarize and reflect on what was learned.

#### Step 4: Act

Refine the change, based on what was learned from the test.

- Determine what modifications should be made.
- Prepare a plan for the next test.

## Example of a PDSA Cycle for Continence Care

Depending on their aim, teams choose promising changes and use Plan-Do-Study-Act (PDSA) cycles to test a change quickly on a small scale, see how it works, and refine the change as necessary before implementing it on a broader scale. The following example shows how a team started with a small-scale test.

- Plan:** We will test a new fluid intake monitoring sheet with two patients over the next week. We will use a sheet modified slightly from one used successfully in another hospital.
- Do:** The sheet is used by one of the nurses on the team with two patients that she selects because they are willing to help.
- Study:** The nurse will track how easy the sheet is to use, if all the terminology is understandable and whether it provides the kind of information needed to assist in management of UI. The team will also actively seek open feedback on the use of such a sheet and the process of monitoring.
- Act:** The feedback from the test with two patients will contribute to revisions to the worksheet and the process for using it. A second test will be carried out with other patients for whom the process may be more challenging.

## Linking Tests of Change

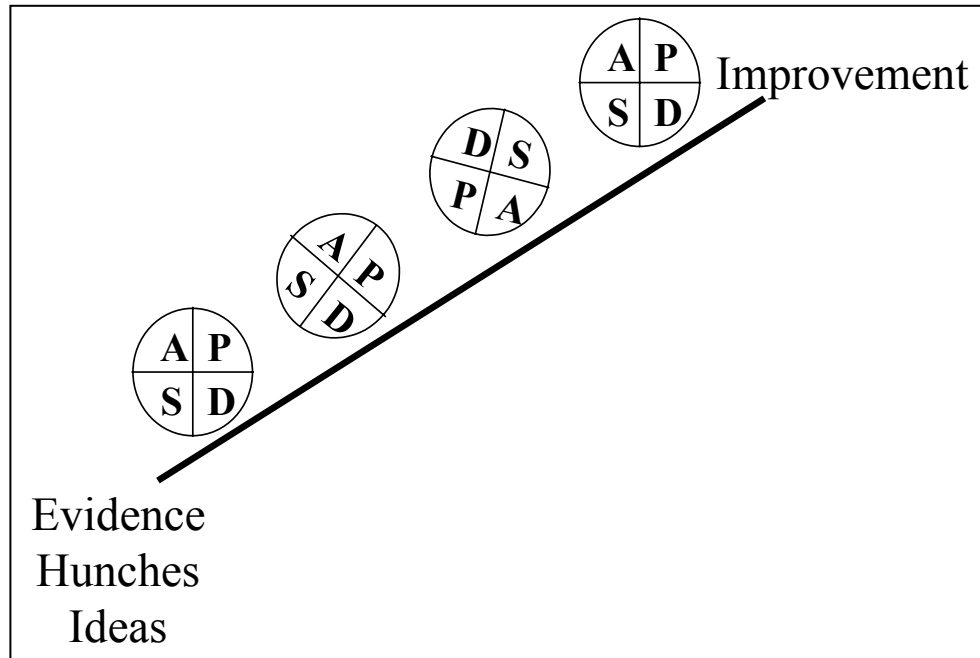
Testing changes is an iterative process: the completion of each Plan-Do-Study-Act (PDSA) cycle leads directly into the start of the next cycle. A team learns from the test — What worked and what didn't work? What should be kept, changed, or abandoned? — and uses the new knowledge to plan the next test. The team continues linking tests in this way, refining the change until it is ready for broader implementation. A series of linked tests are sometimes called a **RAMP**.

*Note:* People are far more willing to test a change when they know that changes can and will be modified as needed. Linking small tests of change helps overcome an organization's natural resistance to change and ensure adoption of the changes.

### Tips for Successful Linked Tests of Change

1. Plan multiple cycles for a test of a change.
2. Think a couple of cycles ahead.
3. Scale down the size of the test (the number of patients or location).
4. Test with volunteers.
5. Do not try to get consensus, "buy-in," etc.
6. Be innovative to make the test feasible.
7. Collect useful data during each test.
8. Test over a wide range of conditions. Try a test quickly; ask, "What change can we test by next Tuesday?"

## Linked Cycles on an Improvement Ramp

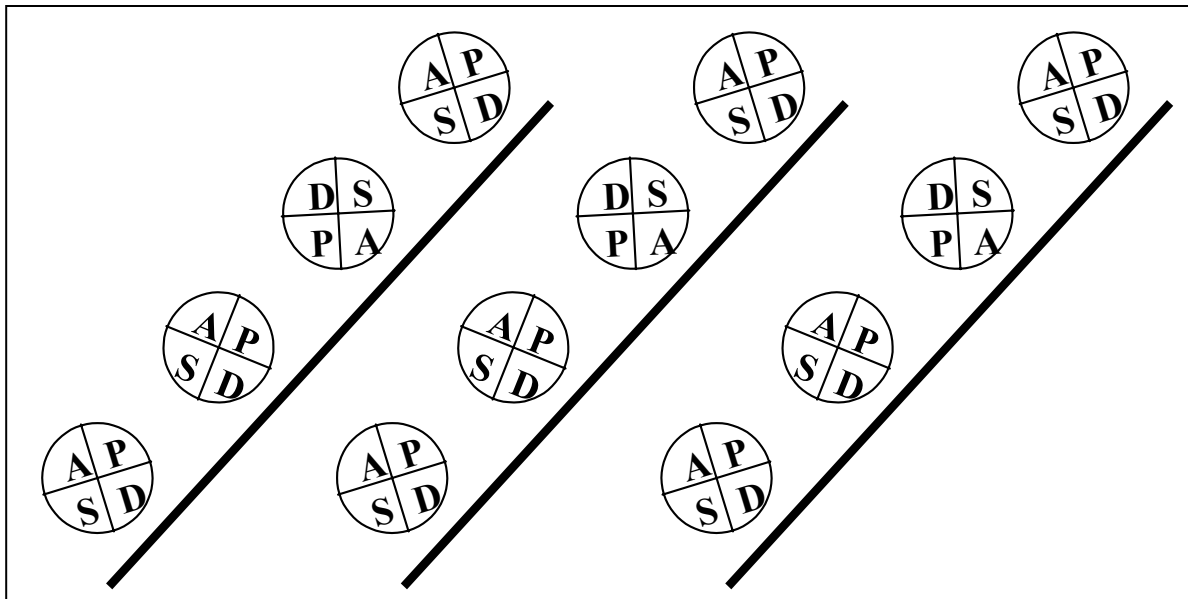


### What is a 'RAMP'???

A series of PDSA cycles that follow in a progression of testing, refining and implementing changes that result in improvement. [see example: *Cycle Log – Assessing Voiding Pattern*]

## Testing Multiple Changes

Typically, teams test more than one change at a time. All of the changes are aimed at achieving the same ultimate goal. Using several linked Plan-Do-Study-Act (PDSA) cycles allows a team to test more than one change simultaneously.



## Examples of Changes to Improve Continence Care

The following changes may be anticipated for organizations working to improve continence care. Based on the Clinical Model developed for IC 5, each of these improvements will require a series of linked change cycles in order to achieve the overall aim for the project.

Improve initial assessment process and performance

Improve detailed UI assessment processes and performance

- Improve identification of contributing factors

- Improve accuracy in determining type of UI

Improve conservative management of UI

Improve management for specific UI types (transient, functional, overflow, stress, urge)

Improve management when no resolution to UI

- Product selection and use

- Catheterization practices

## Summary Tips on Testing Changes

- 1. Stay a cycle ahead.** When designing a test, imagine at the start what the subsequent test or two might be, given various possible findings in the "Study" phase of the Plan-Do-Study-Act cycle. For example, teams that are redesigning same-day admission criteria should also be planning how those criteria will be applied.
- 2. Scale down the scope of tests.** Dimensions of the tests that can be scaled down include the number of patients, nurses, and others involved in the test ("Sample the next 3" instead of "Get a sample of 40"), and the location or duration of the test ("Test it on south-west unit for one week").
- 3. Pick willing volunteers. Work with those who want to work with you.** ("I know Sally Smith will help us" instead of "How can we convince Chris Jones to buy in?")
- 4. Avoid the need for consensus, buy-in, or political solutions.** Save these for later stages. When possible, choose changes that do not require a long process of approval, especially during the early testing phase.
- 5. Don't reinvent the wheel.** Instead, replicate changes made elsewhere. For example, instead of creating your own functional UI management protocol, try modifying another hospital's protocol.
- 6. Pick easy changes to try.** Look for the concepts that seem most feasible and will have the greatest impact.
- 7. Avoid technical slowdowns.** Don't wait for the new computer to arrive or an elaborate system; try recording test measurements and charting trends with paper and pencil instead.
- 8. Reflect on the results of every change.** After making a change, a team should ask: What did we expect to happen? What did happen? Were there unintended consequences? What was the best thing about this change? The worst? What might we do next? Too often, people avoid reflecting on failure. Remember that teams often learn very important lessons from failed tests of change.
- 9. Be prepared to end the test of a change.** If the test shows that a change is not leading to improvement, the test should be stopped. Note: "Failed" tests of change are a natural part of the improvement process. If a team experiences very few failed tests of change, it is probably not pushing the boundaries of innovation very far.