

The Model for Improvement



The aim statement (*What are we trying to accomplish?*): An aim should be SMART: Specific, Measurable, Actionable, Realistic and Time-bound. The aim provides direction for the team with clear numerical goals, and be a challenge, or a “stretch” for the team.

The measures (*How will we know that a change is an improvement?*): Teams use measures to assess if their change results in an improvement. Measures should be include in the aim statement as the numeric goal and be collected/analyzed regularly. Quantitative and qualitative data are valuable. Teams should integrate measurement into their daily routine to plot data over time. The focus in improvement is on **useful data**, not perfect data. Sampling is a good strategy to save time and resources.

Selecting changes (*What changes can we make that will result in improvement?*): There are many sources for changes (ideas), such as evidence based literature, experts, other clinics’ experience, clients, and frontline staff.

Change concepts—a general notion or approach to change that use been found useful elsewhere—are useful in developing new ideas. Combining these change concepts with knowledge about specific subjects can help generate ideas for tests of change.

Plan-Do-Study-Act (PDSA) cycles: The PDSA cycle is a method for testing a change — by planning it, trying it, observing the results, and acting on what is learned. This is an action-oriented version of the scientific method.

Steps in the PDSA Cycle:

Plan: Plan the test, 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.

Do: Try out the test on a small scale.

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

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.

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

- Determine what modifications should be made.
- Plan for the next test; adapt and re-test, abandon, or implement.

Sources: The Institute for Healthcare Improvement www.IHI.org; and Associates in Process Improvement [The Improvement Guide](#)

Change Concepts¹

Eliminate Waste

Look for ways of eliminating any activity or resource in the organization that does not add value to an external customer.

Improve Work Flow

Improving the flow of work in processes is an important way to improve the quality of the goods and services produced by those processes.

Optimize Inventory

Inventory of all types is a possible source of waste in organizations; understanding where inventory is stored in a system is the first step in finding opportunities for improvement.

Change the Work Environment

Changing the work environment itself can be a high-leverage opportunity for making all other process changes more effective.

Producer/Customer Interface

To benefit from improvements in quality of products and services, the customer must recognize and appreciate the improvements.

Manage Time

An organization can gain a competitive advantage by reducing the time to develop new products, waiting times for services, lead times for orders and deliveries, and cycle times for all functions in the organization.

Focus on Variation

Reducing variation improves the predictability of outcomes and helps reduce the frequency of poor results.

Error Proofing

Organizations can reduce errors by redesigning the system to make it less likely for people in the system to make errors. One way to error proof a system is to make the information necessary to perform a task available in the external world, and not just in one's memory, by writing it down or by actually making it inherent in the product or process.

Focus on the Product or Service

Although many organizations focus on ways to improve processes, it is also important to address improvement of products and services.

¹ The change concepts included here were developed by Associates in Process Improvement. See *The Improvement Guide* (Langley GJ, Nolan KM, Nolan TW, Norman CL, Provost LP. San Francisco: Jossey-Bass Publishers, Inc.; 2009) for a list of hundreds of change concepts, as well as examples of how they were applied in process improvement, both inside and outside of health care.

Design Concepts for Improving Reliability²

Definition of Reliability for Healthcare:

The capability of a process, procedure or health service to perform its intended function in the required time under existing conditions.

LEVEL 1: INTENT, VIGILANCE AND HARD WORK (1 or 2 failures out of 10 opportunities, or 80-90%)

Designing basic failure prevention:

- **Basic Standardization:** Creating standards manuals and protocols. *Example: Treatment guidelines.*
- **Working harder next time:** Leadership campaigns. Intention to improve. *Example: Review protocols with providers*
- **Feedback of information on compliance:** Post data on performance at staff meetings; conversations with individual providers. *Example: Post graphs on key performance measures on a bulletin board.*
- **Awareness and training:** Signs, posters, emails, and training modules informing staff about process, protocols and guidelines. *Example: Remind providers to order laboratory tests; educate patients about the importance of tests*
- **Memory aids:** Checklists or tools. *Example: Laminated instructions for packaging samples for lab staff.*

LEVEL 2: HUMAN FACTORS AND RELIABILITY SCIENCE (<5 failures out of 100 opportunities or 95%)

Design ways to identify and prevent “failure” in processes:

- **Decision aids/ built-in reminders** *Examples: Pop-up reminder “Remember to order lab test”; text reminders to patients*
- **Desired action is the default:** *Example: Opt-out of counseling and testing for HIV.*
- **Redundancy:** Add in extra step into a process to make sure key task is done. *Example: Contact Investigator checks with lab that patient went for lab draw; Nurse and physician verify key medical procedures to be completed.*
- **Scheduling of key tasks (ensuring they are completed and clear roles/ responsibilities).** *Example: Lab sample pick up times scheduled; pre-clinic planning to include lab tests scheduled in time for patient visits; cleaning occurs each morning and does not have to be scheduled.*
- **Differentiation:** Use color coding, labeling, or sorting to differentiate between categories. *Example: pre-pull docket and color code patients in need of lab testing; package lab samples separately by urgency to process in igloo; pre-package medications for patients that call in advance to order them (limited waiting)*
- **Standardization of process:** Detailed checklists and clinical pathways to lead all providers through completing care in the same way each time with clear steps built into the process. *Example: adherence counseling checklist for different providers in the care process.*

LEVEL 3: DESIGN OF HIGH RELIABILITY ORGANIZATIONS (<5 failures out of 1000 opportunities or 99%)

Sophisticated Behavioral Designs:

- **Take advantage of habits and patterns:** *Example: Shift lab hours and locations to match patient availability; bring the lab to the patient; utilize waiting time to complete essential tasks in the care process.*
- **Make the system visible:** *Example: Show the minutes to wait until consult in waiting room; rope off the line to wait in the pharmacy*
- **Clear and unambiguous communication:** *Examples: Write down and read back orders; use teach back to make sure that patients understand instructions/ medications*
- **Mindfulness:**
 - **Real time identification and mitigation of failures:** *Examples: immediately identify patients that didn't get lab test and contact/ visit them; identify patients that are due for refill before medicines run out.*
 - **Deference to expertise:** *Example: Stop the care process and check for safety if a patient or family member raises concern (e.g., that dose looks like more than I usually have).*

²Adapted from Cincinnati Children's Reliability Design Concepts, by the James M Anderson Center for Health Systems Excellence