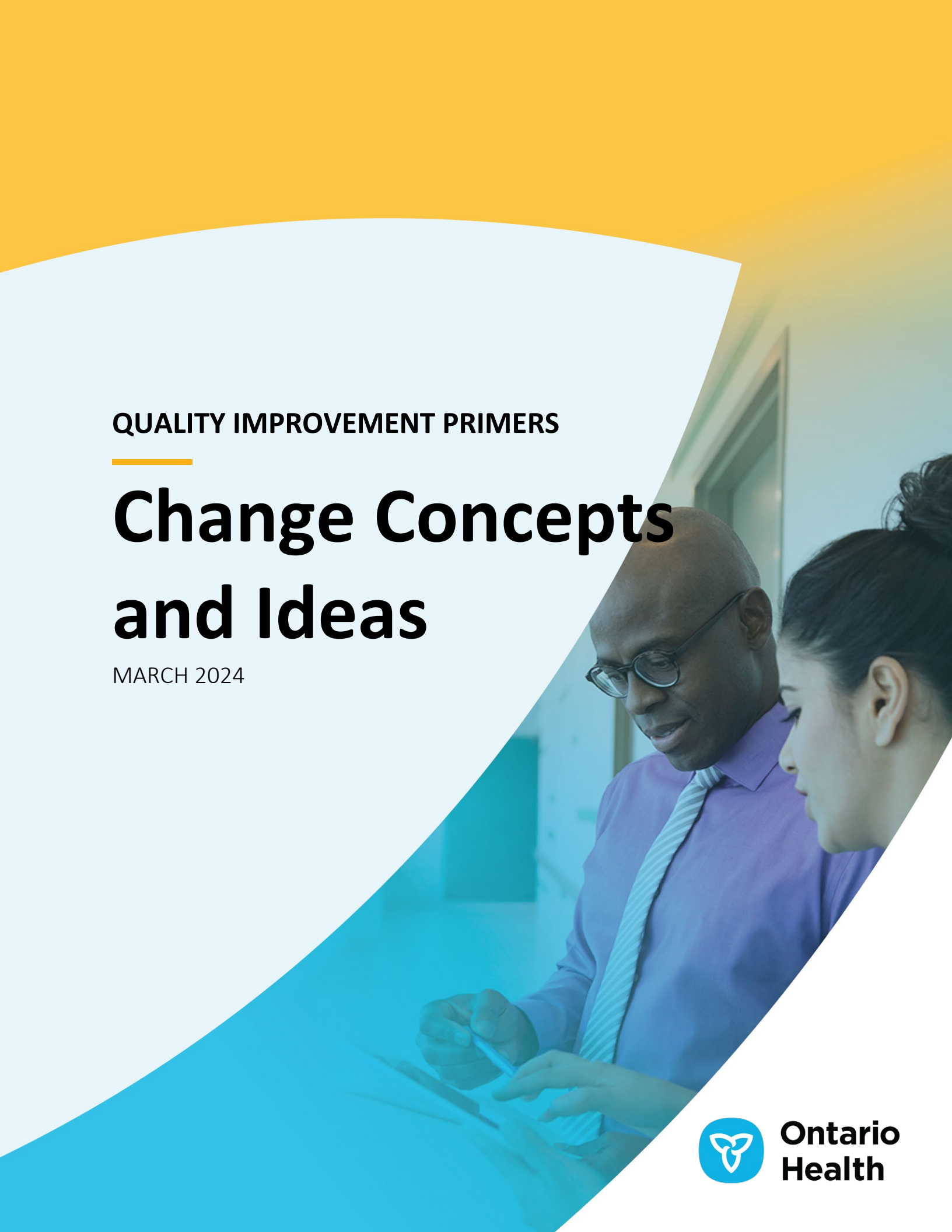
QUALITY IMPROVEMENT PRIMERS

Change Concepts and Ideas

MARCH 2024



Ontario Health

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Acknowledgements

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"While all changes do not lead to improvement, all improvement requires change."[1]

The ability to develop, test, and implement changes is essential for any individual, group or organization that wants to improve. However, change is sometimes challenging and it is often difficult to find a good place to start.

Change Concepts

There are many kinds of change that will lead to improvement. These changes can be organized into umbrella *change concepts*.[2]

A change concept is a general notion that is useful in the development of more specific ideas for changes that lead to improvement. Change concepts stimulate critical and creative thinking, which lead to inventive and specific improvement ideas. Many change concepts come from the manufacturing industry, but are also applicable to the health care system.

> For example, managing variation is a general notion, not a specific idea. However, creating a check list to ensure that work is done to an agreed upon standard is a specific idea that falls under the umbrella of managing variation. If applied correctly, this idea will help manage variation. By using a concept as a jumping off point, you can help the team generate effective ideas.

The *Improvement Guide: A Practical Approach to Enhancing Organizational Performance* identified 72 change concepts, falling under nine overarching categories.[3] These categories are: eliminating waste, improving workflow, optimizing inventory, changing the work environment, enhancing the consumer relationship, managing time, managing variation, designing the system to avoid mistakes, and focusing on a product or service.

A list of change concepts, categories and definitions can be found in Appendix A and Appendix B. Take some time to review these concepts and consider where and how you could explore a few of them in your own workplace.

Change Ideas

Originating from a general and abstract change concept, a *change idea* is an actionable, specific idea for changing a process. Change ideas can come from research, best practices, or from other organizations that have recognized a problem and have demonstrated improvement on a specific issue.

Change ideas can be tested to determine whether they will result in improvement and are often revised as a result of these tests.[4]

Teams test change ideas by running Plan-Do-Study-Act (PDSA) cycles, which are also called *tests of change*. These tests of change are about learning what works and what does not in your efforts to improve your processes.

Initially, these cycles are carried out on a small scale to see if they result in improvement. Teams can then expand the tests and gradually incorporate larger and larger samples until they are confident that the changes will result in sustained improvement.[5]

The ramp diagram (see page 5) illustrates how tests of change can be organized for increasing scope and complexity.

Tools such as a "tree diagram" can help your team visualize the aim, variables/drivers that affect change ideas and improvement initiatives. Here is an example:

Aim	Key Drivers	Change Concepts
Improve client/patient access to the right provider at the right time	Shape the demand	Decrease demand for appointments
	Match supply to demand	Reserve 1/2 time slots for same day, next day appointments

The following example illustrates how a change *concept* can help generate a change idea:

A family health team wants to ensure that their clients/patients have access to their providers at the right time. A number of specific change ideas can be employed to reach this goal. For example, short daily huddles to review the schedule and weekly conferences to discuss specific cases. They use select change concepts (see Appendix A) and generate the following ideas to explore:

Change Concept	Change Idea
Manage variation	Standardization (create a formal process)
Eliminate waste	Remove number of steps to complete the process
Improve workflow	Adjust to peak demand
Enhance the producer/customer relationship	Listen to customers
Manage time	Reduce wait time

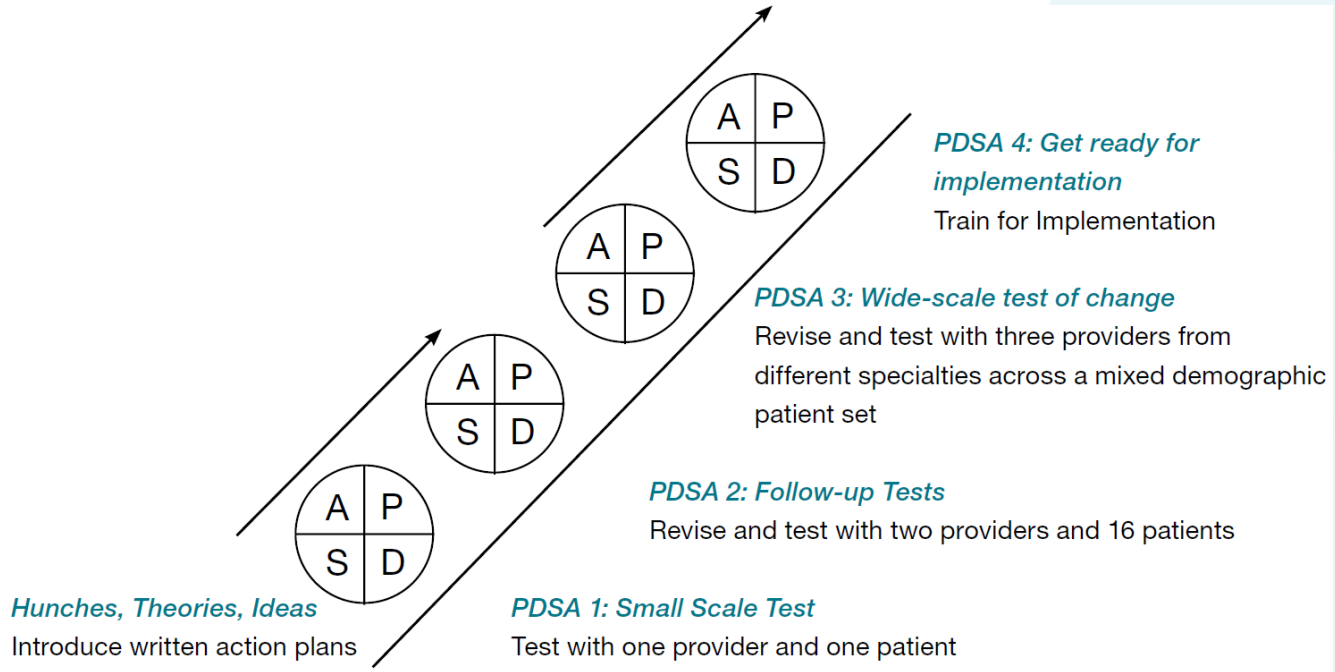
It is important to remember that there is no one-size-fits-all solution to reaching your destination.

Knowledge about a system, combined with change concepts, can lead to creative change ideas that lead to improvement in that system. This convergence of knowledge, change concepts, and change ideas is referred to as a "Change Package".[6]

A change package consists of a number of high-level outcomes supported by evidence-based concepts and specific changes to be implemented in a structured collaborative to bring about quality improvement. A change package consists of a number of high-level outcomes supported by evidence-based concepts and change ideas that, when implemented, bring about quality improvement. A change package is created by experts to capture what is known about best practices and processes based on evidence from literature, research, and the experiences of others.

Ramp for Testing and Modifying Change Ideas

Typical PDSA Cycle Example



Adapted from IHI.[7]

Learning takes place at multiple levels in the PDSA cycle. At any step, information may be gleaned about a specific process. However, learning is also taking place at the system level. As more and more information is collected, your team will grow to understand what exactly will lead to improvement. As the system evolves, this understanding will be strengthened.

Initially, PDSA cycles are most effective when testing small changes. Teams should strive to "shrink the change" to make it more manageable. For example, if you are thinking of testing:

- Months, try weeks
- Weeks, try days
- Weekdays, try one day or one shift
- All patients, try one population
- One population, try one patient
- All staff, try one department or one member

How to Generate Change Ideas to Test in PDSA Cycles

It can be challenging to get started and know when or how to begin the first PDSA cycle in an improvement process. With each PDSA, teams will improve the design of their change ideas and be able to determine how big (or small) subsequent PDSA cycles need to be.

Below are some of the ways you can generate ideas to test in a PDSA cycle:

- Tap into local knowledge. Gather the improvement team and discuss opportunities for improvement.
- Review a change package if available. Change packages will provide examples of changes that have resulted in improvement in similar environments.
- Look to other groups who have made improvements in the same areas.
- Use the change concepts provided in Appendix A to identify some ideas you and your team can test.
- Map out the process and review the gap between the current and future state. Change ideas often emerge from this process.
- Use other investigative, measurement, and reporting tools such as the Five Whys and Eight Wastes (tools can be found on the HQO website).
- Review bar charts, Pareto charts and run charts to further develop your understanding of the change process.
- Review the benchmarks established by other organizations, including those outside of your sector or region.

After you and your team have compiled a list of change ideas, narrow the list to those that will most likely result in an improvement. Test those ideas and ensure that a complete PDSA cycle is performed. Generally, it is best to undertake many small tests of a single change idea, increasing in number and complexity, rather than designing one large test.

Some teams get stuck looking for the perfect solution or perfect change idea. However, some of the most important lessons can be learned when tests fail. It is important for you and your team to reflect on both your successes and failures. Information will be collected and lessons will be learned with each test that is performed. With each new test, the team's capabilities, knowledge and confidence will be strengthened.

The important thing is to start, measure and continually learn and improve. Change, by its very nature, is an opportunity for learning. As you gain more information, learn, and work together, you and your team will improve and make a difference. Arthur Ashe, the great American tennis player, perhaps put it best when he said: "Start where you are. Use what you have. Do what you can."[8]

Tying It All Together

Take a moment to think about how you might apply the principles and ideas expressed in this document to your own workplace. Start by asking yourself:

1. How might I introduce these ideas to my team?
2. Where do I see potential buy-in and why?
3. Who on the team will support these ideas?
4. What does our team need to be aware of?
5. When would be the best time to introduce these ideas to my team?

Appendix A: Change Concepts[9]

Eliminate Waste

- Eliminate things that are not used
- Eliminate duplicate entries
- Reduce or eliminate overkill
- Reduce controls on the system
- Recycle or reuse
- Use substitution
- Reduce classifications
- Remove intermediaries
- Match the amount to the need
- Use sampling
- Change targets or set points

Improve Workflow

- Synchronize
- Schedule into multiple processes
- Minimize handoffs
- Move steps in the process close together
- Find and remove bottlenecks
- Use automation
- Smooth workflow
- Do tasks in parallel
- Consider people as in the same system
- Use multiple processing units
- Adjust to peak demand

Optimize Inventory

- Match inventory to predicted demand
- Use pull systems
- Reduce choice of features
- Reduce multiple brands of same item

Change the Work Environment

- Give people access to information
- Use proper measurements
- Take care of basics
- Reduce demotivating aspects of pay system
- Conduct training
- Implement cross-training
- Invest more resources in improvement

Focus on Core Processes and Purpose

- Share risks
- Emphasize natural and logical consequences
- Develop alliance/cooperative relationships

Enhance the Producer/Customer Relationship

- Listen to customers
- Coach customers to use product/service
- Focus on the outcome to a customer
- Use a coordinator
- Reach agreement on expectations
- Outsource for “free”
- Optimize level of inspection
- Work with suppliers

Manage Time

- Reduce setup or startup time

- Set up timing to use discounts
- Optimize maintenance
- Extend specialist's time
- Reduce wait time

Manage Variation

- Standardization (create a formal process)
- Stop tampering
- Develop operational definitions
- Improve predictions
- Develop contingency plans
- Sort product into grades
- Desensitize
- Exploit variation

Design Systems to Avoid Mistakes

- Use reminders
- Use differentiation
- Use constraints
- Use affordances

Focus on the Product or Service

- Mass customize
- Offer product/service anytime
- Offer product/service anyplace
- Emphasize intangibles
- Take advantage of fashion trends
- Reduce the number of components
- Disguise defects of problems
- Differentiate product using quality dimensions

Appendix B: Major Change Concept Categories Defined[10]

Eliminate Waste

In a broad sense, waste is any activity or resource in an organization that does not add value for a customer. Some examples of waste are materials that are thrown away, movement of items from one place to another, excess inventory, time spent waiting in line, people working on processes that are not important to the customer, extra steps or motion in a process, repeating work that has previously been done by others, over-specification of materials and requirements, and having more staff than is needed to match the demand for products and services.

The eight types of waste can be nicely summarized using the acronym DOWNTIME: defects, overproduction, waiting, non-utilized resources and talents, transportation, inventory, motion, and excess product (stock or inventory).

Improve Workflow

Any product or service is produced by a series of processes. How does work "flow" through these processes? What is the plan to get work through a process? Are the various steps in the process arranged and prioritized to obtain quality outcomes at low cost? How can we change the workflow so that the process is less reactive? Are there steps that are not necessary? Are there steps that can be done in parallel (concurrently)?

Optimize Inventory

Inventory of all types is a possible source of waste in an organization. Inventory requires capital investment, storage space, and people to handle and keep track of it. In manufacturing, inventory includes raw material waiting to be processed, in-process inventory, and finished goods. Excess inventory can result in higher costs with little or no return for an organization. How can we reduce costs associated with the maintenance of inventory?

Understanding where inventory is stored in a system is the first step in finding opportunities for improvement. The use of inventory pull systems such as "just-in-time" is one way of minimizing wasted inventory. Just-in-time production (JIT) is a set of principles and practices based on the philosophy that firms should hold little or no inventory beyond that required for immediate production or distribution.[11]

Change the Work Environment

Changes to the work environment itself can often lead to improved performance. As we try to improve quality, reduce costs, or increase the value of the products and services we provide, changes are developed, tested, and implemented. However, change ideas may not lead to improvement because the work environment is not ready to accept or support the changes. Changing the work environment can be an effective means of facilitating the implementation of change ideas.

For example, implementation of bedside documentation was not achieved in Organization X until rooms were renovated to allow for space to do so.

Provider/Customer Interface

To benefit from improvements in quality, the consumer must recognize and appreciate the improvements that have been made. Many ideas for improvement come directly from the "voice of the customer". It is important for care providers to understand and appreciate the specific needs of their patients.

Manage Time

Time management is an effective method for improving any organization. An organization can increase consumer satisfaction by reducing: the time required to develop new processes/products, wait times for services, lead times for orders and deliveries, and cycle times for all functions in the organization.

Focus on Variation

Many of the problems related to quality or expense in the provision of a service are a result of variation. For example, the same clinic that sees patients on-time 80% of the time is the same clinic that sees the other 20% of patients late. Reduction of variation in such cases will improve the predictability of outcomes (may actually exceed customer expectations) and help to reduce the frequency of poor results.

There are three basic approaches to dealing with variation: reduce the variation, compensate (deal with the variation), and exploit the variation.

Designing Systems to Avoid Mistakes

This category is also called "Error Proofing". Often, we have to act quickly in our work environments and are required to accomplish a number of tasks sequentially or even simultaneously. In situations like these, we all might:

- Forget to enter information or enter it incorrectly, leave out a step in a process or do them in the wrong sequence
- Include the wrong merchandise in a shipment
- Try to use something the wrong way
- Put something together incorrectly

Although these errors are unintentional, they occur because of the way in which people interact with a system. Some systems are more prone to error than others. We can reduce errors by ensuring that the system itself is designed to prevent errors. This type of system design or redesign is called error proofing.

For example, if an MD's medication order is entered into three different information systems, we could potentially expect more errors than if the information were only entered once, into one information system.

We can error proof by using technology (e.g., adding equipment to automate repetitive tasks) or by making it more difficult to do something wrong. Methods for error proofing are not directed at changing peoples' behaviour, but rather at changing the system to prevent errors.

Focus on the Product or Service

Although most change concepts address the way that a process is performed, many also apply to improvements to a product or service. Appendix A contains eight change concepts that are particularly useful for developing changes to products or services that do not naturally fit into any of the other groupings.[12]

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