



Professionalism

Introduction to Quality Improvement Methods

(18)



Objectives:

- To describe the principles of quality improvement.
- To introduce the basic methods and tools for improving the quality of health care.
- To understand the benefits of using quality improvement methods.
- To apply the principles and use the tools to undertake their own improvement project.

The purpose of Quality improvement methods

- Identify a problem.
- Measure the problem.
- Develop a range of interventions designed to fix the problem
- Test whether the interventions worked.

The science of improvement

The following four components of knowledge that underpin improvement:

A) Appreciation (Understand) of A System:

Most patient care outcomes or services result from **a complex system of interaction between health-care professionals**, (doctors, nurses, patients, treatments, equipment, procedures, theatres and so on).

B) Understanding of Variation:

- There is extensive variation in health care and patient outcomes **can differ from one ward to another, from one hospital to another**. Variation, though, is a feature of most systems.
- Shortages of personnel, drugs or beds can lead to variations of care.

C) Theory of knowledge

- When health professionals have **experience and knowledge of the area** they wish to change it is more likely that the change will result in an improvement.
- For example, health professionals who work in particular health-care settings such as a clinic may be better at predicting the results of a change in this environment. Because they have more knowledge about these clinics and the way they

D) Psychology

- Understanding the psychology of **how people interact with each other and the system**
- Example: A medical ward, includes a number of people who will vary in their reactions to a similar event such as introducing an incident monitoring system.

We do not need to understand these components in depth to apply the knowledge. we can drive a car without understanding how it works.

The role of measurement in improvement

- Measurement (**collect and analyze data**) is an essential component of quality Improvement.
- There is strong evidence to show that when people use the appropriate measures to measure change, significant improvements can be made.
- All quality improvement methods rely on measurement

Three main types of measures:

Outcomes Measures نتيجة	Processes Measures عملية	Structure Measures
<p>Represent the ultimate goal of healthcare</p> <p>Example: The 30-day mortality rate, morbidity, readmission, infection.</p>	<p>Represent the delivery of specific clinical services to patients, are often based upon clinical guidelines.</p> <p>Example: The percentage of patients hospitalized for myocardial infarction who are treated with a beta blocker at the time of discharge, compliance, daily use..</p>	<p>Structure Measures (Number):</p> <p>Represent the characteristics of individual healthcare providers, organizations, and facilities.</p> <p>Example: Nursing to patient ratio in the ICU (Number)</p>

Change Concepts

- A general idea, with proven merit and sound scientific or logical foundation, that can stimulate specific ideas for changes that lead to improvement.
- Asking what changes can be made to improve a particular situation
- Example :improved study habits, tension with a family member, a teacher or difficulties at work

Change Concepts

The following **nine (9)** general categories:

Eliminate waste	Look for ways of eliminating any activity or resource in the hospital or clinic that does not add value to patient care
Improve workflow	Improving the flow of work in processes is an important way to improve the quality of patient care delivered 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
Enhance the health provider/patient relationship	To benefit from improvements in quality and safety of health care, the health-care professionals and patients must recognize and appreciate the improvements
Manage time	An organization can get more achieved by reducing the time to deliver health care, develop new ways of delivering health care, reducing waiting times for services and cycle times for all services and functions in the organization.
Manage variation	Reducing variation improves the predictability of outcomes and helps reduce the frequency of adverse outcomes for patients.

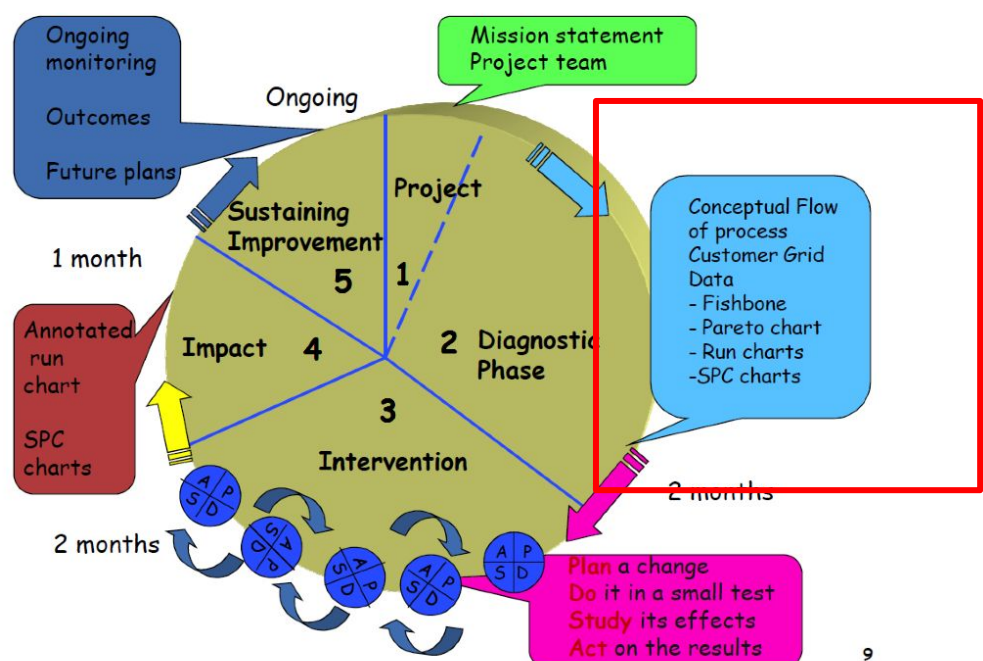
<p>Design systems to avoid mistakes</p>	<p>Organizations can reduce errors by redesigning the system to ensure that there is redundancy i.e. multiple checks and balances to combat human error.</p>
<p>Focus on the product or service</p>	<p>Although many organizations focus on ways to improve processes, it is also important to address improvement of products and services</p>

continuous improvement methods:

There are a number of examples of quality improvement methods in health care but the two most relevant to medical setting are:

- Clinical practice improvement(**CPI**) methodology;
- Root cause analysis(**RCA**).
- PDSA (plan-do-study-act)

Not important



improvement model- (Plan-do-study-act cycle):

The IHI model has two parts:

- Three fundamental questions, which can be addressed in any order
- The PDSA cycle to test and implement changes in real work settings—the PDSA cycle guides the test of a change to determine if the change is an improvement.

The questions are: (Read only)

1. What are we trying to accomplish?

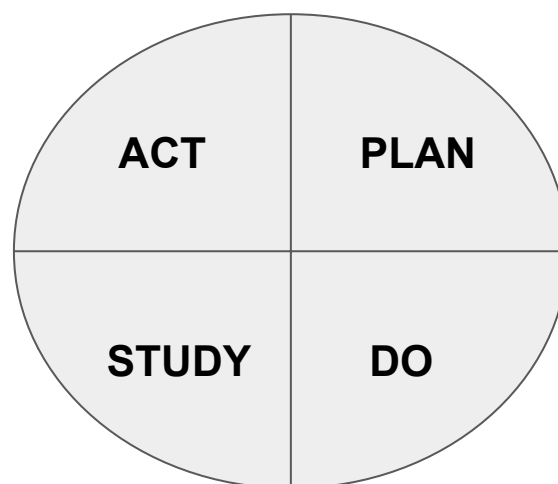
It is important that the team agrees that a problem exists and that it is worthwhile fixing.

2. How will we know whether a change is an improvement?

An improvement can only be confirmed when the measures show things were improved over time.

3. What changes can we make that will result in an improvement?

the team testing the different interventions used to make the improvements.



Root cause analysis (RCA): (Method)

Is a defined process that seeks to **explore all of the possible factors associated with an incident** by asking what happened, why it occurred and what can be done to prevent it from happening again.

Requires the following components.

- **Multidisciplinary team (More than one)**
- **Root cause analysis effort is directed towards finding out what happened:**
 - **Documentation and review (medical records, incident forms, hospitals guidelines, literature review;**
 - **Site visit—to examine the equipment, the surroundings and observe the relationships of the relevant staff;**

Event fishbone is a **key part** of the investigation as it:

- **Helps to form a common understanding of what happened;**
- **Allows the team to develop problem statements**

The team develops a problem statement

Establishing the contributing factors or root causes are accomplished through:

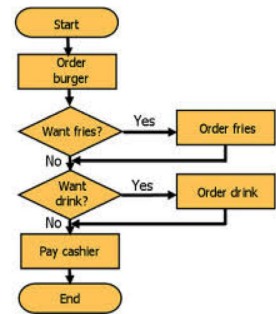
A brainstorming process of all possible factors:

- ***Environmental factors:*** e.g. The work environment; medico-legal issues.
- ***Organizational factors:*** e.g. Staffing levels; policies; workload and fatigue.
- ***Team staff factors:*** e.g. Supervision of junior staff; availability of senior doctors.
- ***Individual staff factors:*** e.g. Level of knowledge or experience.
- ***Task factors:*** e.g. Existence of clear protocols and guidelines.
- ***Patient factors:*** e.g. Distressed patients; communication and cultural barriers between patients and staff; multiple co-morbidities.

Quality improvement tools: (important)

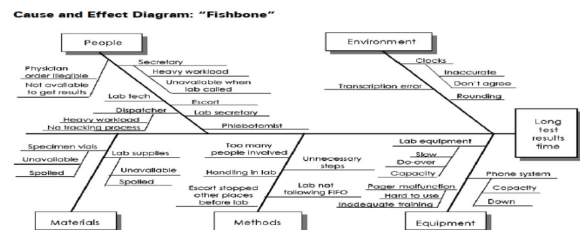
- **Flowcharts** (to facilitate A process..)

A flowchart is a pictorial method for showing all the **steps or parts of a process** that makes up the system.



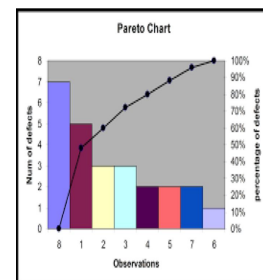
- **Cause and effect diagrams(ishikawa/fishbone) for RCA**

A tool for solving problems. The diagram is used to **explore and display the possible causes of a certain effect**



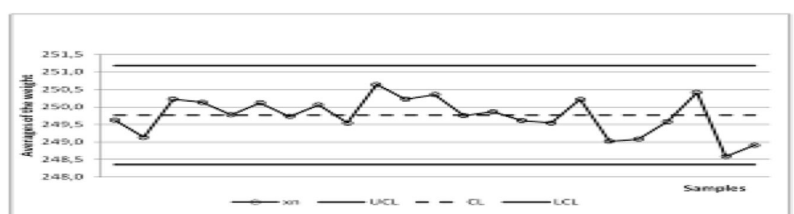
- **Pareto charts**

- A bar chart in which the **multiple factors** that contribute to the overall effect are arranged in descending order according to the magnitude of their effect.
- It helps the team **concentrate its efforts on the factors that have the greatest impact**



- **Run charts (TIME)**

- Run charts or time plots are graphs of data over time.
- A run chart helps the team **know if a change is an improvement over time** or just a random fluctuation wrongly interpreted as significant improvement.



Summary

- **The patient care improves and errors are minimized when clinicians use quality improvement methods and tools.**
- **You cannot manage what you cannot measure’.**
- **Plan –Do – Check – Act’ cycle, plays a key role in quality and productivity improvement activities.**
- **Flowcharts; fishbone; Pareto charts; and Run charts are effective tools for improvement**

Quiz

1. **Which one of the following is a tool for solving problems?**

- a) Flowcharts
- b) Cause and effect diagrams (fishbone)
- c) Pareto charts
- d) Run charts

2. **“Percentage of Heart Failure patients receives ACE-inhibitor or (ARB) at discharge”, an example of:**

- a) Outcomes Measures
- b) Processes Measures
- c) Structure Measures
- d) Balancing measure

3. **The last step in PDSA improvement model is?**

- a) Determine what changes are to be made
- b) Carry out the plan
- c) Create the plan
- d) Summarize what was learned

4. **Which of the following is a definition of a process that seeks to explore all of the possible factors associated with an incident?**

- a) Root Cause Analysis
- b) Flowcharts
- c) PDSA Cycle
- d) Pareto Tool

1.B

2.B

3.D

4.A