INTRODUCTION TO QUALITY IMPROVEMENT METHODS

LEARNING OBJECTIVE

- 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.

OUTLINE

- The science of improvement;
- The quality improvement model;
- Change concepts;
- Examples of continuous improvement methods;
  - Clinical Practice Improvement(CPI)
  - Root Cause Analysis(RCA)

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 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

THE SCIENCE OF IMPROVEMENT

Three main types of measures

- Outcomes Measures : Represent the ultimate goal of healthcare

  Example: The 30-day mortality rate

- Processes Measures: Represent the delivery of specific clinical services to patients, are often based upon clinical guidelines.

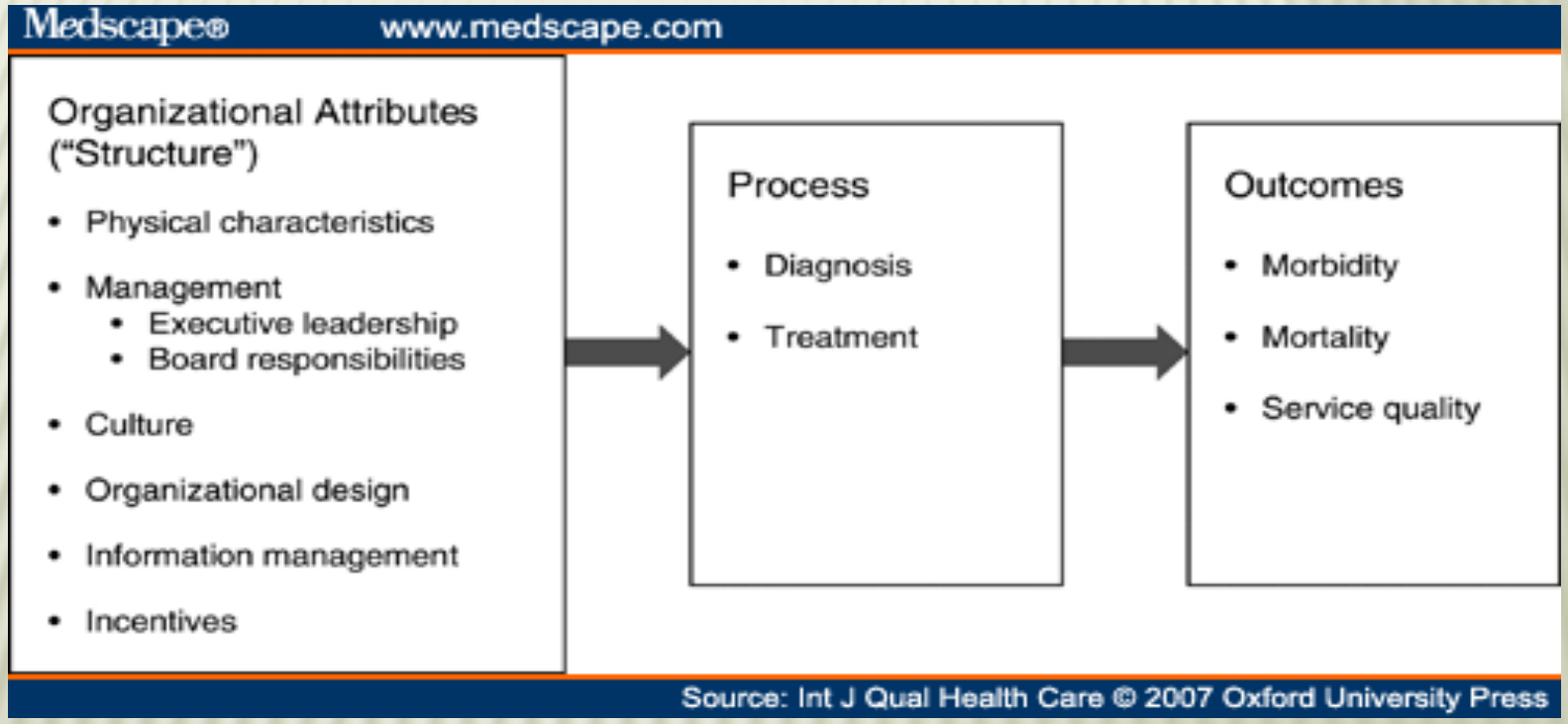
  Example: The percentage of patients hospitalized for myocardial infarction who are treated with a beta blocker at the time of discharge

- Structure Measures: Represent the characteristics of individual healthcare providers, organizations, and facilities.

  Example: Nursing to patient ratio in the ICU

THE SCIENCE OF IMPROVEMENT

Types of Measures



Avedis Donabedian Conceptual Framework

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 general categories:

1. *Eliminate waste*

   Look for ways of eliminating any activity or resource in the hospital or clinic that does not add value to patient care.

2. *Improve workflow*

   Improving the flow of work in processes is an important way to improve the quality of patient care delivered by those processes..

CHANGE CONCEPTS

4. *Change the work environment*

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

5. *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.

CHANGE CONCEPTS

6. ***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.

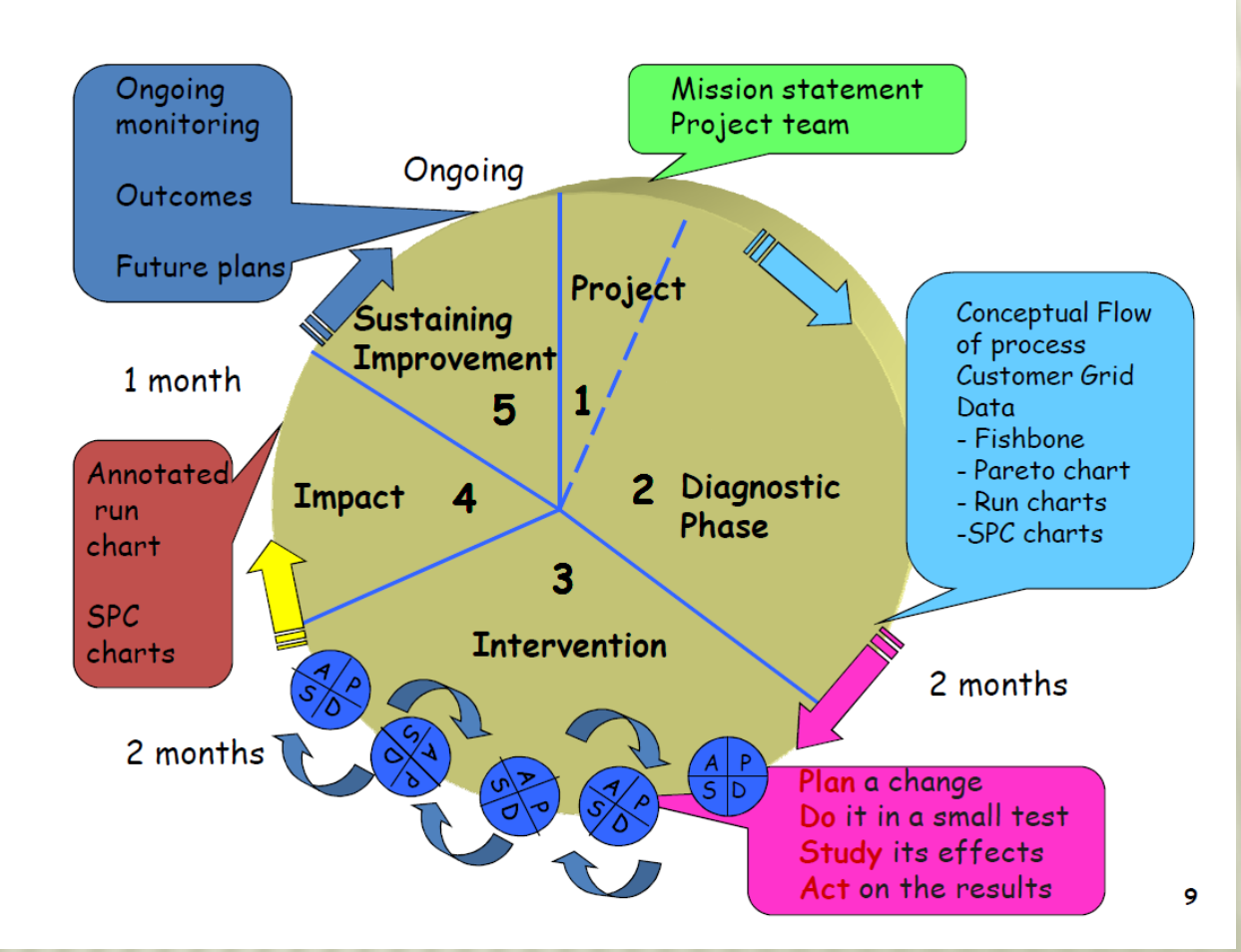
7. ***Design systems to avoid mistakes***

   Organizations can reduce errors by redesigning the system to ensure that there is redundancy i.e. multiple checks and balances to combat human error.

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).

CONTINUOUS IMPROVEMENT METHODS
CLINICAL PRACTICE IMPROVEMENT (CPI) METHODOLOGY



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.

IMPROVEMENT MODEL-(PLAN-DO-STUDY-ACT CYCLE)

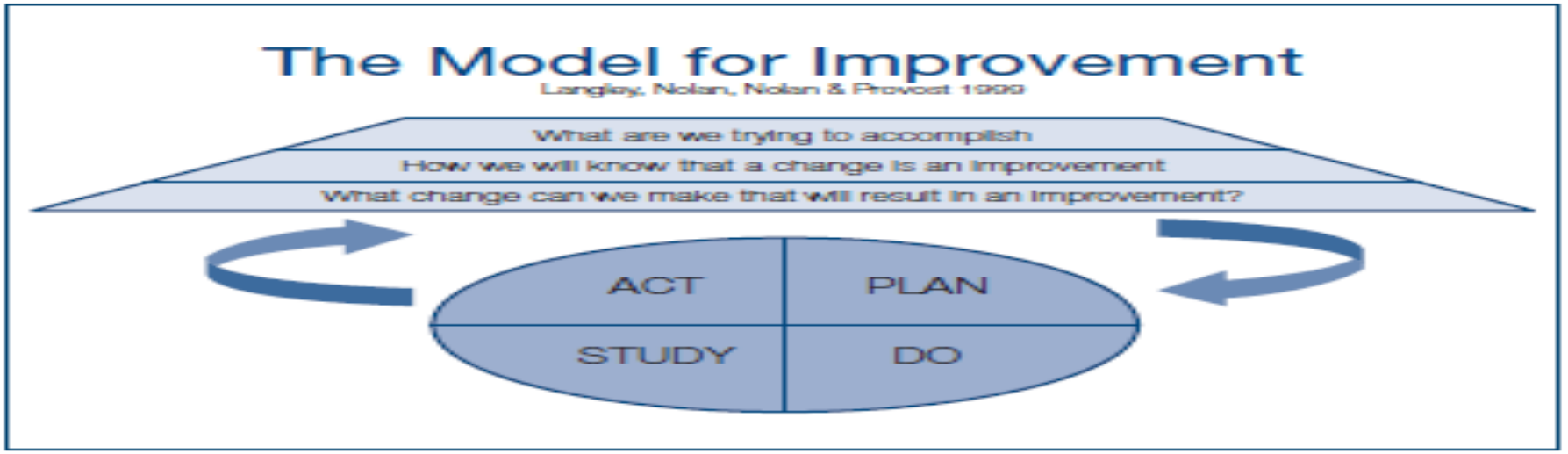
- **The questions are:**

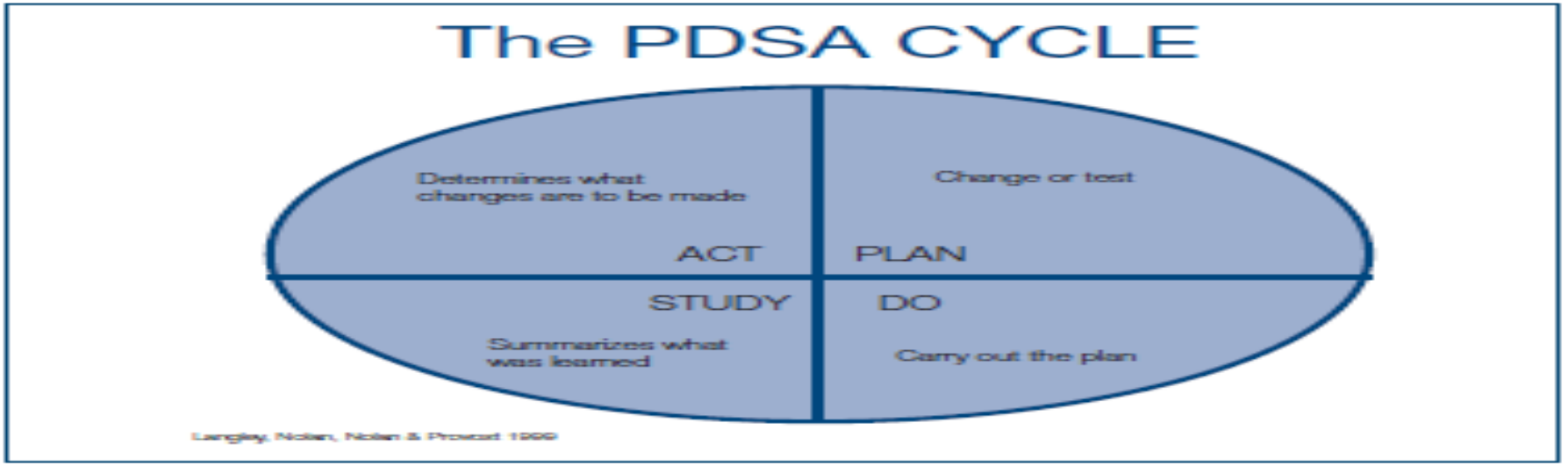
1. What are we trying to accomplish?
- It is important that the team agrees that a problem exists and that it is worthwhile fixing.

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.

IMPROVEMENT MODEL-(PLAN-DO-STUDY-ACT CYCLE)





IMPROVEMENT MODEL- *ROOT CAUSE ANALYSIS (RCA)*

- 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.

IMPROVEMENT MODEL- *ROOT CAUSE ANALYSIS (RCA)*

An effective root cause analysis requires the following components.

- Multidisciplinary team
- 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;

IMPROVEMENT MODEL- *ROOT CAUSE ANALYSIS (RCA)*

- Event flowchart 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

IMPROVEMENT MODEL- ROOT CAUSE ANALYSIS (RCA)

- 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;
  - T*eam 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.

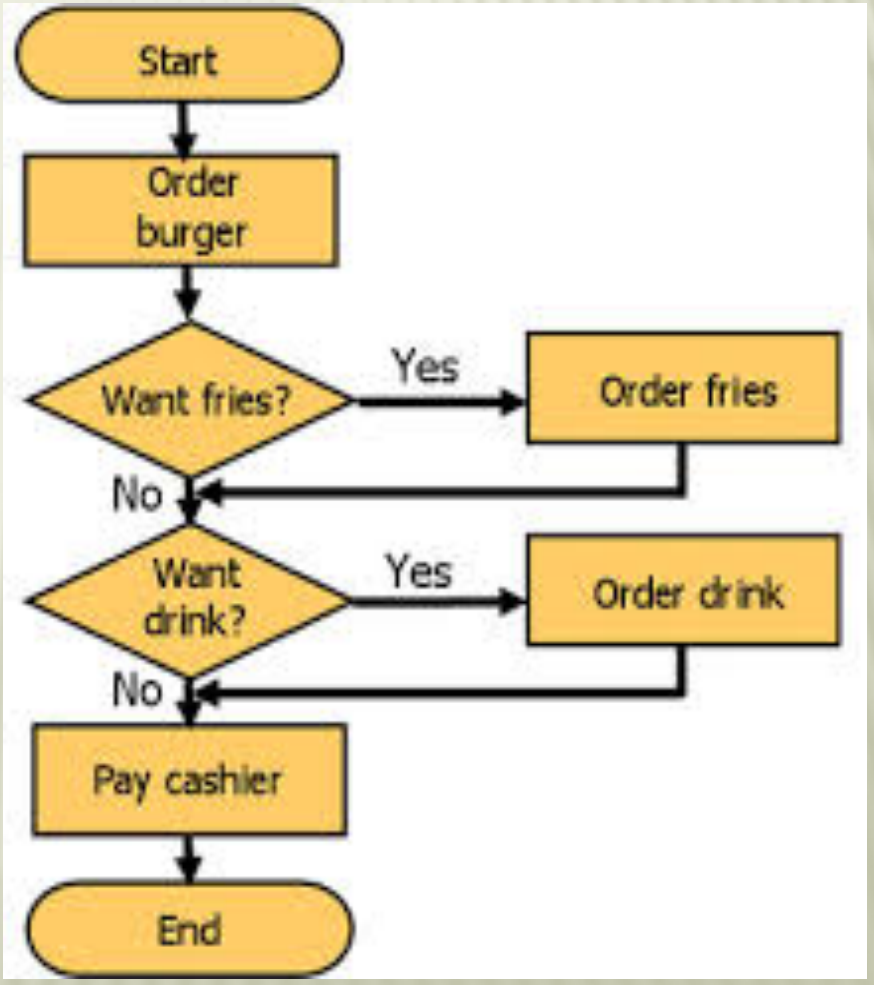
QUALITY IMPROVEMENT TOOLS

- Flowcharts
- Cause and effect diagrams(ishikawa/fishbone)
- Pareto charts
- Run charts

QUALITY IMPROVEMENT TOOLS

Flowcharts

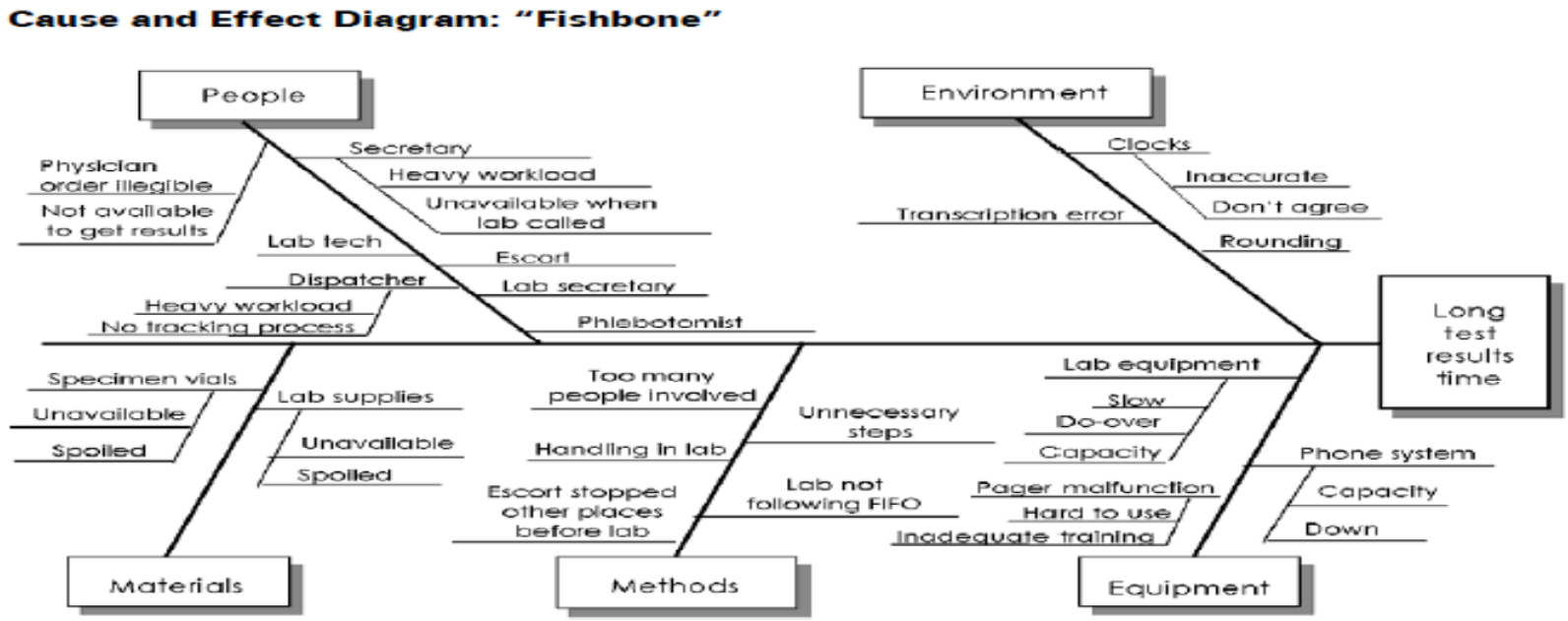
- A flowchart is a pictorial method for showing all the steps or parts of a process that makes up the system.



QUALITY IMPROVEMENT TOOLS

Cause and effect diagrams(ishikawa/fishbone)

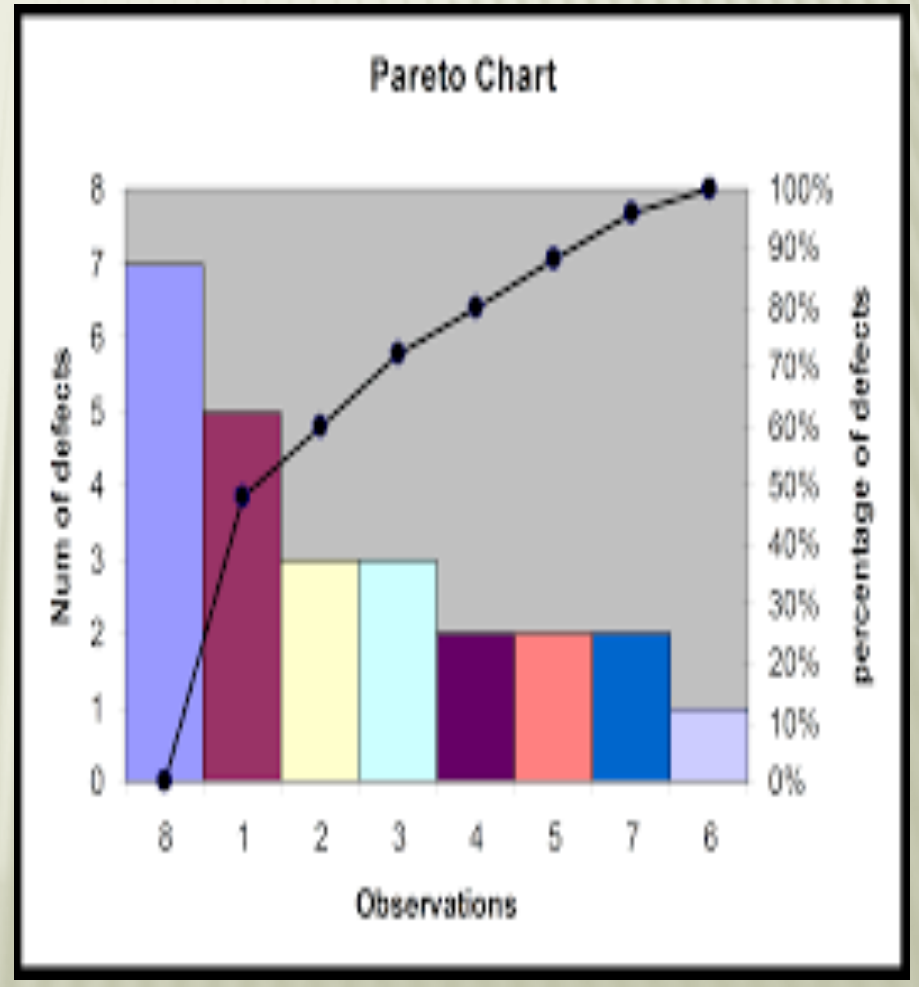
- A tool for solving problems. The diagram is used to explore and display the possible causes of a certain effect



QUALITY IMPROVEMENT TOOLS

Pareto charts

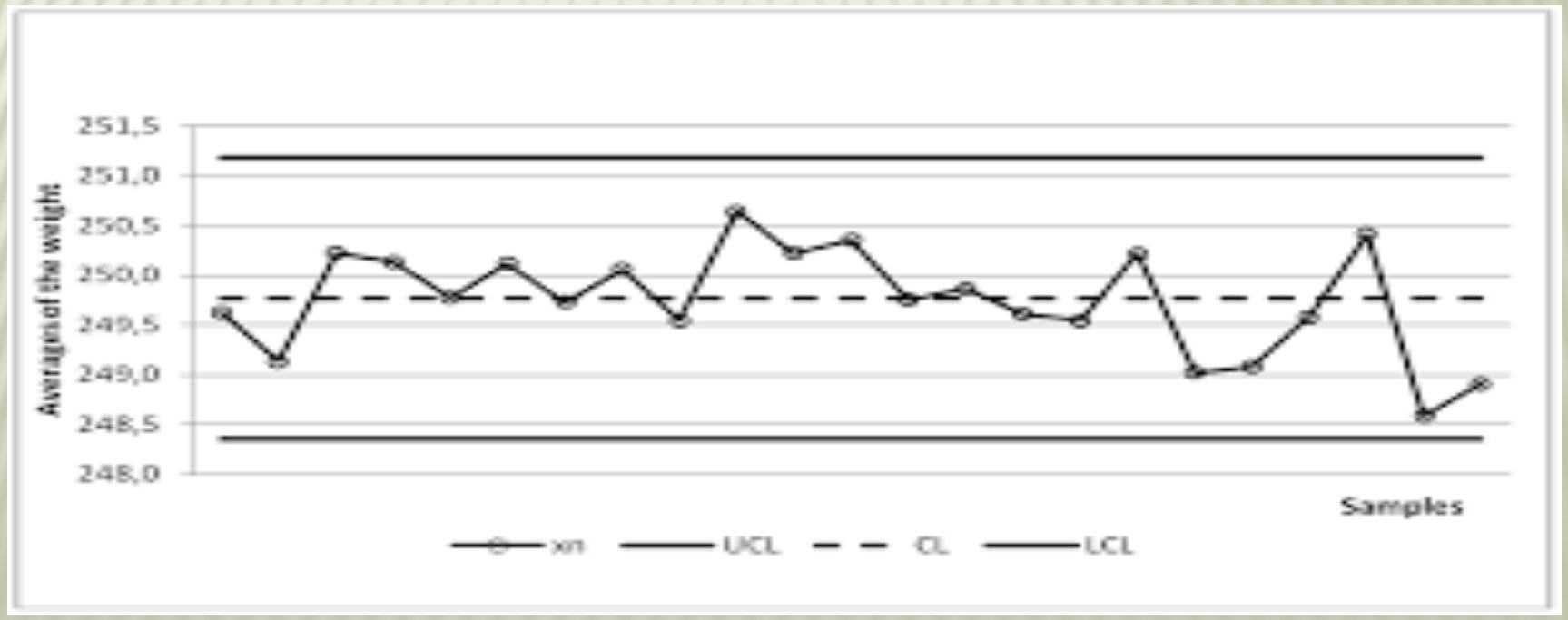
- A bar chart in which the multiple factors that contribute to the overall effect are arranged in descending order according to the magnitude of their effect.
- It helps the team concentrate its efforts on the factors that have the greatest impact



QUALITY IMPROVEMENT TOOLS

Run charts

- 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