MODULE 4: FOUR STEPS OF QUALITY IMPROVEMENT

Module Introduction

Quality Improvement efforts can be large or small, simple or complex, and involve few or many people. Regardless of the size and complexity of the improvement effort, it will likely follow the same basic four-step sequence. The focus of this module is to introduce you to the four steps of quality improvement.

Module Objectives

At the end of this module, you should be able to:

◆ Identify the four steps of quality improvement

◆ Explain (at a high level) what is involved in each step

◆ State questions that can be asked to help develop a problem statement

◆ Discuss the benefits of creating a problem statement

◆ Discuss Shewhart's PDSA Cycle

◆ Explain the relationship between Shewhart's PDSA Cycle and Step 4 of quality improvement

◆ Identify what activities occurred during the different QI steps of the QI Success Stories

▶▶▶ 4 STEPS OF QUALITY IMPROVEMENT

The four steps of quality improvement are identified below. They include the steps of identify, analyze, develop, and test/implement.

1. **Identify**   Determine what we want to improve

2. **Analyze**   Understand the problem

3. **Develop**   Hypothesize about what changes will improve the problem

4. **Test / Implement**   Test the hypothesized solution to see if it yields improvement. Based on the results, decide whether to abandon, modify, or implement the solution.

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►►► 4 STEPS OF PATIENT TREATMENT

The four steps of quality improvement, listed on the previous page, are similar in nature to the four steps of patient treatment known by physicians, nurses, and other healthcare workers, and listed below.

<u>**4 Steps of Patient Treatment**</u>

1. Assess
2. Diagnose
3. Treat
4. Evaluate

4 Steps of Patient Treatment / Discussion

Directions: In groups of 3 to 4 people generate examples of activities that occur during each stage of patient treatment. Write your examples in the space provided below.

<u>Patient Treatment Four Steps</u>   <u>Example</u>

1. Assess

2. Diagnose

3. Treat

4. Evaluate

►►► FOUR STEPS OF QUALITY IMPROVEMENT: A CLOSER LOOK

This section provides a close look of the four basic steps of quality improvement: (1) identify, (2) analyze, (3) develop, (4) and test/implement.

►►► STEP 1: IDENTIFY

The first step of quality improvement begins when someone recognizes that an opportunity for improvement exists. Problems can be identified in a number of different ways. A patient might express dissatisfaction with quality of care provided, an adverse event might draw attention to a flawed process, or an organization might systematically capture and monitor statistical information it believes to be important. The following questions are helpful in problem identification.

– What is the problem?
– How do you know that it is a problem?
– How frequently does it occur, or how long has it existed?
– What are the effects of this problem?
– How will you know when it is resolved?

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Problem Statements

Problem statements are concise statement about a problem to be addressed. While it is not always necessary to begin with a problem statement, the practice of creating a problem statement is very helpful in bringing about a shared understanding of the improvement opportunity. Therefore, the creation of a problem statement is highly recommended when more than one person will be working to solve the problem or improve a process.

A good problem statement answers the questions listed on the previous page (e.g., what is the problem) and accomplishes four things:

1) provides insight into the process that needs to be improved,
2) identifies when the process starts and stops (its boundaries),
3) identifies the general concern that the quality improvement effort should address, and
4) includes a general statement as to why it is a priority.

Additionally, a problem statement should not include statements of blame or discuss potential causes or solutions to the problem. Provided below is an initial version of a problem statement and the way it was modified to meet the criteria identified above.

Example 1: Problem Statement, Niger

Initial Statement of the Problem:
In areas without electricity, refrigerators are powered by gas in bottles, which need regular refills. Deficiencies in the transportation and refill of the bottles, however, disrupted the refrigeration of vaccines.

Rewritten Problem Statement:
Interruptions in the supply of butane to most health centers in the district have become increasingly frequent and long lasting. An improvement in this situation would reduce the number of interruptions of the cold chain.

Example 2: Waiting Times

Initial Statement of the Problem:
Waiting times for pregnant women are long because the midwives take too long for tea breaks. This discourages women from coming for prenatal care.

Rewritten Problem Statement:
Waiting times for pregnant women have been shown to take up to three hours. This has been stated as a reason that women do not make the desired four prenatal visits before delivery.

Problem Identification / Exercise

Directions: In small groups or individually, evaluate each of the statements below. Determine if you would need to know more to begin addressing the problem and what questions you would ask to learn more. Write your ideas in the space provided and be prepared to share your ideas with the class.

Statement	Assessment

1. Patients do not come to the health center because they fear getting HIV from the staff.

2. Mothers do not use supplemental feeding programs.

3. We need to stress the importance of using bed nets.

4. Health workers do not maintain records on Growth Monitoring and Vitamin A Supplementation regularly.

5. All pregnant women who come for antenatal care do not receive iron supplements, as the heath center does not have sufficient stock.

6. Reduce the amount of time it takes for urgent laboratory tests to have results available to the clinical officer.

7. Exit interviews of mothers with sick children indicated that 78% of the mothers were not told about the nutritional status of their children.

8. Contaminated needles are lying on the ground where children play.

9. The oxygen tank is empty.

10. In a focus group conducted with health workers in a village, it was found that most were not certain of the breastfeeding guidelines for mothers who tested positive for HIV.

►►► STEP 2: ANALYZE

The second step of quality improvement begins once an opportunity for quality improvement has been identified. Like Step 1 - Identify, Step 2 will vary based upon the size and complexity of the process improvement effort. Analysis is performed to better understand the process that needs to be improved or the system in which the improvement effort will be based. Listed below are some objectives of the problem analysis stage. They are:

- Clarify why the process or system produces the effect that needs to be improved
- Measure the performance of the process or system that produces the effect
- Learn about internal and external clients
- Formulate research questions, including
    - Who is involved or affected?
    - Where does the problem occur?
    - When does the problem occur?
    - What happens when the problem occurs?
    - Why does the problem occur?

To achieve these objectives, the analysis stage involves the use of data. Some of the data may already exist, or new data can be collected.

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►►► STEP 3: DEVELOP

The third stage begins when enough data has been collected to develop hypotheses about what changes or interventions might improve the existing problem. A hypothesis is an educated guess about the underlying cause of a problem.   Because it has not been tested, it is only a theory at this point.

►►► STEP 4: TEST AND IMPLEMENT

The fourth and final stage of the quality improvement process focuses on testing and implementation of hypothesized solutions. As with the other stages of the quality improvement effort, the nature of this step will be influenced by the size and complexity of the quality improvement effort. For example, in some situations it might make sense to conduct several small tests of the solution(s), while in other situations it might make sense to make one large test of all the solutions.

The process that is used to test and implement hypothesized solutions is known as the PDSA Cycle.

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►►►SHEWHART'S CYCLE FOR LEARNING AND IMPROVEMENT (PDSA)

Within the domain of process improvement, a methodology is used to build knowledge that will lead to process improvement. The methodology, known as Shewhart's Cycle for Learning and Improvement, is a four-step process included within the testing and implementation stage of the four-step quality improvement process. Shewhart's Cycle is often referred to as the "PDSA Cycle" with the acronym relating to the words "Plan," "Do," "Study," and "Act."

The PDSA Cycle

4: Act
– Modify/abandon unsuccessful plan
– Implement successful plan
– Develop ongoing monitoring
– Consider implementing change throughout system

1: Plan:
– Make a plan for the change
– Collect baseline data
– Communicate the test of the change
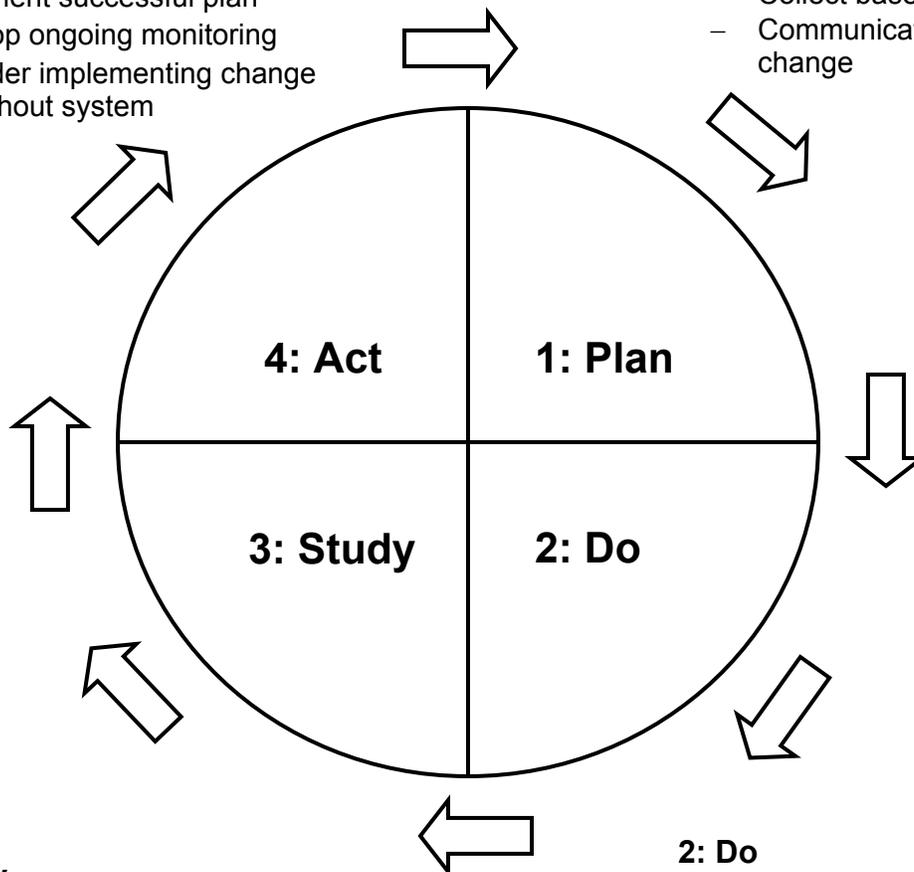
3: Study
– Verify the effects of the change
– Check Results

2: Do
– Test the change
– Document the results of the change
– Continue to monitor the data

Activities Associated with the PDSA Cycle

Phase of Cycle	Activities

1. Plan
- Develop a plan of change to address:
  - What changes will occur and why?
  - Who is responsible for making the change?
  - When and how the changes will occur?
- Collect baseline data to measure the effects of change. Plan to monitor the effects of change through a data collection system.
- Educate and communicate with others about the change. Inform and include people involved in the change and make sure they accept it.

2. Do
- Test the change (intervention).
- Verify that the change is being implemented as planned.
- Collect data about the process being changed.
  - Check that the data are complete.
  - Document any changes not included in the original plan.

3. Study
- Verify that the change was implemented according to the plan.
- See if the data are complete and accurate.
- Compare the data with the baseline information to look for an improvement.
- Compare predicted or desired results with the results from the test.

4. Act
- Summarize and communicate what was learned from the previous steps.
- If the plan does not yield the desired results, modify or abandon the plan and repeat the PDSA cycle if necessary.
- Implement the change as standard procedure if it proved to be successful.
- Monitor the change over time to check for improvements and problems.

►►► QI SUCCESS STORIES / 4 STEPS OF QI DISCUSSION

Directions: In groups of 3 to 4, review the four cases discussed in Module 2, and identify the various activities associated with each step.

Case 1: Helping Patients Find Their Way

◆ Step 1: Identify

◆ Step 2: Analyze

◆ Step 3: Develop

◆ Step 4: Test and Implement

Case 2: Decreasing the Duration of Phototherapy

◆ Step 1: Identify

◆ Step 2: Analyze

◆ Step 3: Develop

◆ Step 4: Test and Implement

Case 3: Improving Malaria Treatment Outcomes

◆ Step 1: Identify

◆ Step 2: Analyze

◆ Step 3: Develop

◆ Step 4: Test and Implement

Case 4: Increasing Patients' Attendance at Postpartum Appointments

◆ Step 1: Identify

◆ Step 2: Analyze

◆ Step 3: Develop

◆ Step 4: Test and Implement

MODULE 5: INTRODUCTION TO QUALITY IMPROVEMENT CONCEPTS

Module Introduction

In addition to the Four Steps of Quality Improvement and Shewhart's Learning and Improvement Cycle, there are some other concepts that are central to quality improvement. They include:

- ◆ The four approaches to quality improvement
- ◆ The use of quality improvement tools
- ◆ The four principles of quality improvement

This module is designed to introduce you to these three concepts. Each will be explored in greater detail in later modules of this program.

Module Objectives

At the end of this module, you should be able to:

- ◆ Name the four basic approaches to quality improvement

- ◆ Explain that different situations require the use of different approaches

- ◆ Name several of the quality tools that are used in quality improvement initiatives

- ◆ Determine the appropriateness of different tools for different steps in a quality improvement initiative

- ◆ Name the four principles of quality improvement

- ◆ Identify examples of the four principles of quality improvement from the QI Success Stories (Module 2)

►►► **Four Approaches to Quality Improvement**

Quality improvement initiatives take place in a number of settings, from large urban hospitals to small rural health posts. Some initiatives involve many people, while others involve as few as one person. To accommodate for the variety of settings and situations in which quality improvement efforts might be initiated, four different approaches to quality have been developed. They are: individual problem solving, rapid team problem solving, systematic team problem solving, and process improvement. Each is briefly described below.

1. **Individual problem solving**

   Very often, a single person can improve quality. This occurs when the individual recognizes a problem, identifies a solution to it, and is able to solve it. Of course, in order to be able to solve a problem independent of others, the individual must have autonomy over the situation.

2. **Rapid team problem solving**

   This team approach improves quality through a series of small incremental changes that are tested to verify that they result in an improvement. Teams that use this approach often make use of a mentor or have had previous experience in problem solving. Often existing data is used as well as the teams' wisdom, minimizing the need for data collection.

3. **Systematic team problem solving**

   This team approach is used for complex or recurring problems. It makes use of a detailed analysis that requires the collection of data. The detailed analysis allows for the design of a more targeted solution. Because this approach involves the collection of data and a detailed analysis of the data, it requires the use of more time and resources.

4. **Process improvement**

   This is the most complex of the four approaches. Process improvement entails the use of a permanent team that continuously collects, monitors, and analyzes data to improve a process over time. It normally occurs in organizations where resources are continuously allocated to process improvement.

►►► Matrix of Quality Improvement Approaches by QI Step

| | Quality Improvement Approaches | | | |
| | Less Complex ➢ More Complex | | | |
QI Step	Individual Problem Solving	Rapid Team Problem Solving	Systematic Team Problem Solving	Process Improvement
Identify	Individual decision-making for a small problem that is not interdependent on others	An ad hoc team identifies an intuitive or obvious problem based on intuition, observation, and existing data	An ad hoc team addresses a complex, recurring problem	A permanent team addresses a core process or issue in the organization
Analyze	Relies on individual analysis, using existing data, observation, and intuition	Generally requires minimal analysis using mainly existing data and group intuition	The team examines the root causes of a problem from existing data and/or data collection	Requires detailed process knowledge from on-going data collection and monitoring
Develop	The change is usually minor and not interdependent on others	A series of small changes	Generally a large change that addresses the root cause of the problem	A change in a key process
Test & Implement	"Trial and error" approach to testing	Many small to medium tests in similar systems	Generally requires extensive testing before implementation	Depends on the approach used and the magnitude of the change; permanent teams continue to monitor / improve the process

Four Approaches to Quality Improvement / Exercise
Directions: In teams of 3 to 4 people, make a preliminary determination as to which quality improvement approach might be most appropriate to address the problem as it is currently understood.

Statement	Suggested QI Approach

1. Patients do not come to the health center because they fear getting HIV from the staff.
   _____

2. Mothers do not use supplemental feeding programs.
   _____

3. We need to stress the importance of using bed nets.
   _____

4. Health workers do not maintain records on Growth Monitoring and Vitamin A Supplementation regularly.
   _____

5. All pregnant women who come for antenatal care do not receive iron supplements, as the heath center does not have sufficient stock.
   _____

6. Reduce the amount of time it takes for urgent laboratory tests to have results available to the clinical officer.
   _____

7. Exit interviews of mothers with sick children indicated that 78% of the mothers were not told about the nutritional status of their children.
   _____

8. Contaminated needles are lying on the ground where children play.
   _____

9. The oxygen tank is empty.
   _____

10. In a focus group conducted with health workers in a village, it was found that most were not certain of the breastfeeding guidelines for mothers who tested positive for HIV.
    _____

▶▶▶Quality Improvement Tools

Similar to the way that a variety of tools are used to treat patients, a variety of tools are used in quality improvement efforts. The table below lists the most common tools and identifies the various steps of quality improvement where they are often used.

Matrix of Quality Improvement Tools by QI Step

Tool	Quality Improvement Step			
	Step 1: Identify	Step 2: Analyze	Step 3: Develop	Step 4: Test & Implement
Data Collection	✓	✓	✓	✓
Brainstorming	✓	✓	✓	
Affinity Analysis	✓	✓	✓	
Creative Thinking Techniques	✓		✓	
Prioritization Tools				
Voting	✓	✓	✓	
Prioritization Matrices	✓	✓	✓	
Expert Decision Making	✓	✓	✓	✓
Systems Modeling	✓	✓		✓
Flow Charts	✓	✓	✓	✓
Cause and Effect Analysis		✓		
Force Field Analysis		✓		✓
Statistical & Data Presentation				
Bar & Pie Charts	✓	✓		✓
Run Charts	✓	✓		✓
Pareto Charts	✓	✓		✓
Benchmarking	✓		✓	
Gantt Charts		✓		✓
Quality Assurance Storytelling	✓	✓	✓	✓

▶▶▶ The Four Principles of Quality Assurance

There are four basic tenets or principles of quality assurance. Each is explored in detail in later modules of this program.

The Four Principles of Quality Assurance

- ◆ **Client Focus.**
  Services should be designed so as to meet the needs and expectations of clients and community.

- ◆ **Understanding Work as Processes and Systems.**
  Providers must understand the service system and its key service processes in order to improve them.

- ◆ **Testing Changes and Emphasizing the Use of Data.**
  Changes are tested in order to determine whether they yield the required improvement. Data are used to analyze processes, identify problems, and to determine whether the changes have resulted in improvement.

- ◆ **Teamwork.**
  Improvement is achieved through the team approach to problem solving and quality improvement.

MODULE 6: THE RED BEAD EXPERIMENT

Module Introduction

In this module you will participate in or observe a simulation called the Red Bead Experiment. Dr. W. Edwards Deming, considered one of the founders of the quality improvement, created the experiment. While the experiment simulates a manufacturing environment, its lessons are applicable to a healthcare environment.

Module Objectives

◆ Recognize management practices that are not conducive to improving quality

◆ Develop and discuss your own ideas about the role of management in quality improvement

◆ Recognize Deming's 14 Points

◆ Explain some of the lessons learned through the Red Bead Experiment

▶▶▶ Red Bead Experiment / Background Information

A company is expanding to accommodate a new customer. The new customer is interested in purchasing white beads, but only white beads. The company must hire several new employees to manufacture the white beads. If the customer is satisfied with the beads and the company is profitable, it will be able to retain the customer and the new employees.

Observation Guide: Record your observations of the red bead experiment in the space below.

Hiring of new employees and orientation:

Day 1:

Day 2:

Day 3:

Day 4:

Day 5:

White Bead Company
Manufacturing Results

Name	Day 1	Day 2	Day 3	Day 4	Day 5	Total
	Subtotal	Subtotal	Subtotal	Subtotal	Subtotal	Total
Worker 1						
Worker 2						
Worker 3						
Worker 4						
Worker 5						
Worker 6						

Discussion Questions

◆ What role does management assume in this simulation?

◆ What kinds of messages did the plant manager send as he/she oriented the employees to do the job?

◆ What caused the production variation?

◆ What caused some workers to be better than others? Why were some better on some days than on others?

◆ Why did the quality of the production never improve?

◆ How helpful were the slogans?

◆ What did the plant manager think was the cause of the poor quality?

◆ What do you believe was the cause of poor quality?

◆ What might you do to make the plant profitable?

◆ How might you want to change the working culture?

Red Bead Experiment / Lessons Learned

Directions: In the space provided below, record what the class found to be the important lessons learned from the Red Bead Experiment.

▶▶▶ **Deming's 14 Points**

Dr. Deming created 14 points that should be followed during a quality improvement effort. He used these 14 points to communicate the principles of quality improvement around the world.

Deming's 14 Points
1. ***Create constancy of purpose for improvement of produce and service.*** The goal should be to stay in business and provide jobs through innovation, research, constant improvement, and maintenance.
2. ***Adopt the new philosophy.*** We are often tolerant of poor service and workmanship. We must become intolerant of mistakes and naive attitudes.
3. ***Cease dependence on mass inspection.*** Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
4. ***End the practice of awarding business on the basis of price tag alone.*** The practice of purchasing supplies and services from the lowest priced vendor often results in purchasing supplies of lesser quality. Instead, it's important to seek the best quality and work with the vendor to develop a long-term relationship.
5. ***Improve constantly and forever the system of production and service.*** Improvement is not a one-time effort; it is a philosophy that results in improved quality and productivity and reduced costs.
6. ***Institute training.*** Too often, workers learn their jobs from another worker who was never trained properly.   They often can't do their jobs because they don't know how.
7. ***Institute leadership.*** The job of a supervisor is not to tell people what to do but to lead. Leading consists of identifying through objective methods what can be done to help people perform their jobs better.
8. ***Drive out fear.*** Often people are afraid to ask questions even when they do not understand what they are supposed to be doing or how they should do it.
9. ***Break down barriers between staff areas.*** Often staff areas are in conflict with one another and are unable to work together as a team to solve problems.
10. ***Eliminate slogans, exhortations, and targets for the workforce.*** These things have never helped anybody do a good job. Allow people to create their own slogans.
11. ***Eliminate numerical quotas.*** Quotas focus only on numbers, not quality or methods.
12. ***Remove barriers to pride of workmanship.*** People are eager to do a good job. Remove barriers that prevent them from doing so.
13. ***Institute a vigorous program of education and retraining.*** Both management and the workforce need to be educated in the new methods, including teamwork, and statistical techniques.
14. ***Take action to accomplish the transformation.*** Develop a plan of action that empowers everyone within the organization to participate in the transformation. The transformation should be everyone's job.

MODULE 7: FOCUS ON PROCESSES AND SYSTEMS

Module Introduction

Module 5 introduced the idea that quality improvement efforts are based upon four basic principles: client focus, understanding work as processes and systems, testing changes, and emphasizing the use of data and teamwork. This unit explores the principle of understanding work as processes and systems more closely.

Module Objectives

At the end of this module, you should be able to:

◆ Explain that a focus on systems and processes is one of the four principles of quality improvement

◆ Explain the meaning of the term "process"

◆ Explain the meaning of the term '"system"

◆ Differentiate between a process and a system

◆ Identify dependencies and decision points within a process

◆ Depict a process by creating a basic flowchart

▶▶▶ The Four Principles of Quality Improvement

The four basic principles of quality improvement introduced in Module Five are reviewed below.

The Four Principles of Quality Assurance

◆ **Client Focus**
Services should be designed so as to meet the needs and expectations of clients and community.

◆ **Understanding Work as Processes and Systems**
Providers must understand the service system and its key service processes in order to improve them.

◆ **Testing Changes and Emphasizing the Use of Data**
Changes are tested in order to determine whether they yield the required improvement. Data are used to analyze processes, identify problems, and to determine whether the changes have resulted in improvement.

◆ **Teamwork**
Improvement is achieved through the team approach to problem solving and quality improvement.

▶▶▶ **Understanding Work as Processes and Systems**

An important principle of quality improvement is that in order to improve quality, providers must understand the services that are being provided and the processes used to provide them.   To understand this principle, it's important to first understand what is meant by the terms "process" and "system."

Process Defined

A process is a series of steps used to perform a task or accomplish a goal. During an ordinary day, without even giving it a thought, you probably follow hundreds of different processes. For example, your day began with several different processes, which may have included eating breakfast, getting dressed, brushing your teeth, leaving your home, and so on.

Processes can be simple or complex, involve few or many steps, and involve few or many people. Within the healthcare profession, various types of processes exist, including those that are used to make clinical decisions, manage treatment, and manage supplies.

Flowcharts are a valuable way to depict a process. A sample flowchart is available on the next page, and is also provided in the tools appendix. Flowcharts can be written at a "high" level (only the big steps are listed) or at a more detailed level.

System Defined

A system is a set of interacting and interdependent parts and processes.   The human body, the ecosystem, a computer system, a family, a healthcare facility, a local community, a school, and a nation are all examples of different systems. Systems can be small or large, simple or complex, and they can be comprised of few or many parts.

Each system has its own processes that are often based upon the needs of the system. For example, the process you used to get to class this morning was likely influenced by the different systems with which you interact.

►►► Flowcharts

A flowchart is an illustration of the actual sequence of steps that make up work. It is a powerful quality improvement tool as it helps people to:
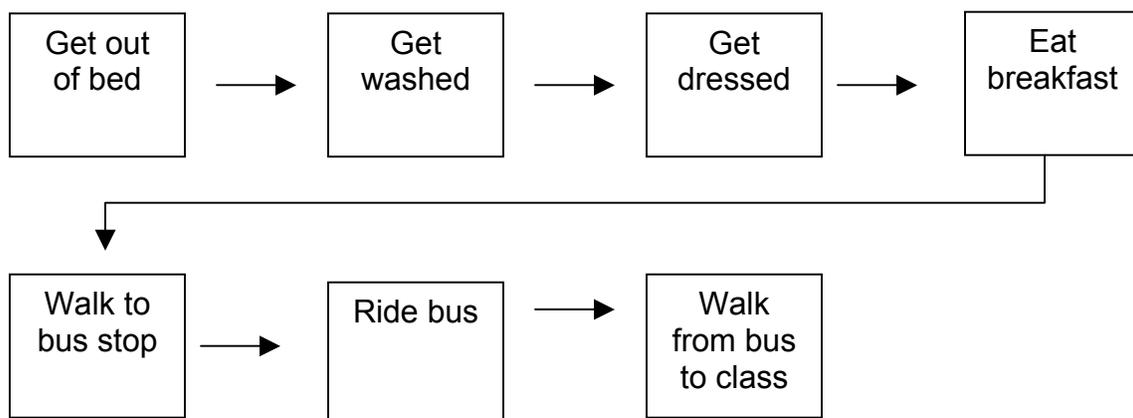
- ♦ Understand the sequence of activities and processes that make up a task
- ♦ Look at relationships between activities and decisions
- ♦ Identify opportunities to fix bottlenecks, add missing steps, and eliminate unnecessary work

Creating a Flowchart

The following symbols are often used in the creation of a flowchart

□	Box	—	Activity or step
◇	Diamond	—	Decision to be made (yes or no)
→	Arrow	—	Direction of flow between steps
○	Oval	—	Start and end points in the process
☁	Cloudy Step	—	A step that is currently uncertain

A Sample High Level Flowchart: Process of Getting to Class

Get out of bed → Get washed → Get dressed → Eat breakfast

Walk to bus stop → Ride bus → Walk from bus to class

Exercise: Exploring Interdependencies

Directions: Think about the process that describes how you got to class this morning. In the left column list the main steps in your process. In the right column, determine how your process was dependent upon other people and things. For example, taking a bus to class would mean you interacted with a transportation system, eating breakfast would mean you interacted with a food supply system, and getting a child ready for school would indicate interaction with a family system.

Process Step	Dependent Upon
1.	
2.	
3.	
4.	
5.	
6.	
7.	
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9.	
10.	
11.	
12.	
13.	
14.	
15.	

►►► Creating Flowcharts

The following basic steps can be followed when creating a flowchart.

Step 1:   Assemble* the people that are involved in the process.

Step 2:   Decide where the work begins and ends.

Step 3:   List the main steps and decisions involved in the process.

Step 4:   Arrange the steps and decisions in their proper order.

Step 5:   Draw the flowchart using the correct symbols.

Directions: Use the space provided below to draw the flowchart created by the class.

* If you are not able to assemble the people and enlist their help in describing the process, then list them (by role).

Exercise: Create an "Applying a Dressing" Flowchart

Directions: In small groups of 3 to 4, follow the steps demonstrated in class and create a flowchart that explains the process used to apply a dressing. Draw your flowchart on flipchart paper to share with the class, and use the space below to draw a copy for your personal use.

▶▶▶ **More about Processes**

There are several different types of processes in healthcare that can be explained through flowcharting. They include:

◆ Clinical algorithms: the processes by which clinical decisions are made

◆ Information flow processes: the process by which information is transmitted among the different persons involved in the care of the patient

◆ Material flow processes: the processes by which materials (drugs, supplies, food) are passed through the organization to care for patients

◆ Patient flow processes: the processes which show the movement of patients in the medical facility as they receive care

◆ Multiple flow processes: most processes are actually multiple flow processes whereby patients, materials, information, and others are involved simultaneously in the same process of care

MODULE 8: FOCUS ON MEASUREMENT: PART I

Module Introduction

One of the four principles of quality assurance states that data are needed to analyze process, identify problems, and measure performance. This module will introduce you to several concepts associated with measurement.

Module Objectives

At the end of this module, you should be able to:

◆ Explain why it is important to use data to analyze processes, identify problems, and test interventions

◆ Determine how to measure various quality improvement goals

◆ Explain the difference between quantitative and qualitative data

◆ Explain why there is variation in all measures

◆ Explain the difference between common cause and special cause variation

▶▶▶ Focus on Measurement

Testing changes and emphasizing the use of data is one of the four principles of quality assurance. Other principles include a client focus, understanding work as processes and systems, and teamwork. The four principles of quality assurance were introduced in Module 5. Each is briefly described below.

The Four Principles of Quality Assurance

◆ **Client Focus**
Services should be designed so as to meet the needs and expectations of clients and community.

◆ **Understanding Work as Processes and Systems**
Providers must understand the service system and its key service processes in order to improve them.

◆ **Testing Changes and Emphasizing the Use of Data**
Changes are tested in order to determine whether they yield the required improvement. Data are used to analyze processes, identify problems, and to determine whether the changes have resulted in improvement.

◆ **Teamwork**
Improvement is achieved through the team approach to problem solving and quality improvement.

▶▶▶ Why Measure?

> A difference that makes no difference is no difference.

The measurement of data is key to quality improvement initiatives because it provides information about how an initiative is proceeding. Data makes it possible to make decisions based upon fact, not opinion. Data provides objective information that allows for the development and testing of hypotheses, as well as charting progress after a change has been implemented. In summary, the measurement of data is useful in quality improvement efforts to:

- ◆ Identify and analyze problems
- ◆ Verify possible causes of problems
- ◆ Show if a change yielded initial improvement
- ◆ Monitor change to ensure improvement is maintained over time
- ◆ Make decisions based upon fact, not opinion

Notes:

Exercise: Identifying Measures

Directions: In groups of 3 to 4 participants, determine how you might measure each of the following quality improvement goals. Write them in the space to the right.

Quality Improvement Goals	Measures

1. Decrease infant mortality

2. Increase number of clients cared for each day

3. Shorten the length of time required to admit a patient

4. Improve the availability of clinical supplies

5. Improve client satisfaction

6. Improve employee satisfaction

7. Improve the reliability of equipment

8. Increased use of family planning methods

9. Improve the safety of employees

10. Reduced staff turnover

▶▶▶ Types of Data: Quantitative and Qualitative

There are two broad categories of data: quantitative data and qualitative data.
Quantitative data is measured with numbers and often makes use of statistical
procedures. Qualitative data is formed with words, and often reports the detailed views
of informants. Informants might be clients, family members of clients, healthcare
providers, or community members. While both are helpful in understanding a problem
or issue, they answer different kinds of questions.

Quantitative Data is…	Qualitative Data is…
◆ Objectively based ◆ Easy to measure and quantify ◆ Often measures quantity, cost, and time ◆ Sometimes referred to as "hard data" ◆ Examples include:	◆ Subjectively based in many cases ◆ Difficult to measure and quantify ◆ Usually behaviorally oriented ◆ Often incorporates individuals attitudes, perspectives, and opinions ◆ Sometimes referred to as "soft data" ◆ Examples include:

Notes:

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Exercise: Qualitative or Quantitative?

Directions: In a group of 3 to 4 people, review the sample client satisfaction survey found below and discuss the questions that follow it.

Healthcare Facility Client Satisfaction Survey

Directions: Circle the response that best represent how you feel about your recent experience at the healthcare facility.

1.	Healthcare providers treated me courteously.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
2.	The facility where I was placed was clean and tidy.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
3.	I received service promptly.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4.	I was informed of my healthcare options before being asked to make a choice.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5.	Overall, I was satisfied with my experience at the healthcare facility.	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

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1. Is the survey collecting quantitative or qualitative data?

2. If you answered quantitative, how could it be modified to collect qualitative data?

3. If you answered qualitative, how could it be modified to collect quantitative data?

4. What are some of the steps that would need to be followed to create a survey like this?

►►► Data Variation

An important concept to keep in mind as you interpret data is the idea that there is variation in every measurement. Some of the variation is normal, while other variation can signal that there has been an improvement in or worsening of the current situation. The different types of variation are known as common cause variation and special cause variation.

◆ Common cause variation – variation that is predictable or expected within a stable situation or process.

  Example:

◆ Special cause variation – variation that is neither predictable nor expected. Variation that occurs as a result of a special cause can point to a possible worsening or improvement in a situation and should therefore be examined.

  Example: