

**MODULE 6: THE RED BEAD EXPERIMENT*****Time: 2 hours*****Objectives:** Participants will be able to:

- ◆ Recognize management practices that are not conducive to improving quality.
- ◆ Develop and discuss your own ideas about the role of management in quality improvement.
- ◆ Explain some of the lessons learned through the Red Bead Experiment
- ◆ Become familiar with Deming's 14 Points

**Materials:** Materials required for this module are:

- ◆ Participant Manual
- ◆ Read Bead experiment materials
  - Plant signs
    - White Bead Company
    - Now Hiring – Apply Within
  - Slogan banners
    - Red Beads are Dead
    - White Beads are Right Beads
  - Partially completed control chart
  - Partially completed run chart
  - Bead Box with beads and paddle
- ◆ Flipchart, easel, and markers
- ◆ Overheads (OH) 6-1 thru 6-5
- ◆ Overhead projector and projection screen

**Simulation Objective:** W. Edwards Deming, one of the fathers of the quality improvement movement, developed this simulation. It teaches many important lessons about quality improvement.

In the simulation, workers are recruited to work in the “White Bead Factory”. During their employment the manager of the White Bead Factory provides them with training, re-training, and positive and negative reinforcement, as he or she believes that high quality is the result of individual effort.

However, this type of emphasis on individual efforts never works because the system at the White Bead Factory is flawed. The employees all produce about the same amount of white and red beads. The small variation in their production is due to common cause variation (or chance).

The materials for this simulation are available for purchase from the Internet at <http://64.38.99.5/redbead.com/> or by contacting [mjohnson@redbead.com](mailto:mjohnson@redbead.com)

Many other sites related to Dr. Deming’s work can also be accessed. Two are:

<http://www.deming.org/>

<http://www-caes.mit.edu/deming/>

## ▶▶▶▶▶ MODULE INTRODUCTION

- OH 6-1
1. **DISPLAY** overhead 6-1.
  2. **REFER** participants to Module 6 in their manuals.
  3. **STATE** the following:
 

In this module you will either participate in or observe an experiment called the Red Bead Experiment. It was created by Dr. W. Edwards Deming who is considered one of the fathers of the quality improvement revolution. The experiment is a simulation of a manufacturing environment, however it has many lessons for the healthcare profession.

- OH 6-2
4. **DISPLAY** overhead 6-2.
  5. **REVIEW** the objectives for the module.

▶▶▶▶▶▶ **SET UP SIMULATION**

6. **EXPLAIN** background information about the experiment.
  - The White Bead Company is expanding to accommodate a new customer
  - The new customer wants to purchase white beads of the highest quality. They will not accept red beads. (Red beads are considered defects)
  - The company must hire additional employees to produce the white beads
  - To satisfy the customer and remain profitable, the number of defects must be minimized
  - Red beads are considered defects and are considered scrap or rework to make them white

- Flip Chart
7. **FLIP CHART** the job positions that will be hired by the White Bead Company to expand production
    - 6 willing workers. Workers must be willing to put forth their best effort. Job security depends on performance. No experience required.
    - 2 Inspectors. Inspect for quality of white beads. Must be able to count and discriminate red from white.
    - 1 Supervising Inspector. Same qualifications as the inspector.
    - 1 recorder. Must be able to write numbers and letters on the flip chart.

8. **RECRUIT VOLUNTEERS** (hire 6 willing workers, 2 inspectors, 1 supervising inspector and one recorder) to participate in the simulation by acting out the part of the

*Note: Inform participants that participating in the simulation will not cause them to be embarrassed.*

plant manager. Retain the role of plant manager throughout the simulation.

▶▶▶▶▶ **BEGIN SIMULATION / ORIENT NEW EMPLOYEES**

9. **STATE** the following:

Welcome new employees of the White Bead Company. During the next few days you will receive training about the company and our processes. You may ask whatever questions you have during this period. Once you go to the production floor you will no longer be allowed to ask questions.

The following is important information about your job and how to perform it.

- We have fixed procedures at this company and you may not deviate from them. No excuses, no suggestions, just do the job you are instructed to do
- Your job depends on your performance. If you make too many defects (red beads) you will be fired
- We have established standards that will determine if you are performing up to par
- Inspectors must count and record their results independent of one another. The supervising inspector will verify that the counts match
- We have a policy of 100% inspection to ensure no red beads (defects) are shipped to the customer

10. **ASK** employees if they understand the company's policies.

**▶▶▶▶▶▶ CONTINUE SIMULATION / TRAIN EMPLOYEES**

11. Playing the role of Plant Manager in the simulation, **TRAIN** the employees to do the work of the company in the following way:

**Willing Workers**

- Prepare the incoming raw material by grasping the tub with both hands at one corner and along the opposite wide side. Pour from the corner. Do not shake the raw material or dump the tub over.
- Manufacture the beads by grasping the handle of the paddle, inserting the paddle into the beads and shirring the paddle three times (clockwise).
- State the goal is to produce white beads. Assure the workers they will not produce red beads, because inspectors will see to it that red beads do not go to the customer. The production goal is no more than xx red beads per paddle. Depending on the number of red/white beads in your particular box, you need to determine this threshold number.
- Once the beads are manufactured, carry the produced beads to the inspector to have their quality examined.

**Inspectors**

- Conduct count of white/red beads manufactured independent of other inspector.
- Notify the Inspection Supervisor of the count

- Recount white/red beads when requested by Inspection Supervisor

**Inspection Supervisor**

- Verify consistency of counts provided by each inspector
- Provide count to the Recorder

*Note: A chart that can be used to record the manufacturing results is provided at the end of this module of the instructor guide. A copy is also provided in the participant manual of this module.*

**Recorder**

- Record the red bead tally for each worker as directed by the Inspection Supervisor.

▶▶▶▶▶▶ **CONTINUE SIMULATION / DAY 1**

12. **INSTRUCT** workers to begin producing, inspecting, and recording results of bead production.
13. Through your actions as the plant manager, **CONVEY** idea that company uses slogans to motivate employees.
  - Red beads are dead beads
  - White beads are right beads
14. Through your actions as they plant manager **CONVEY** the idea that the company uses positive and negative reinforcement to try to manage performance.
  - Remind workers that best performer will get merit pay and worst will be put on probation.
  - Explain that the performance of some is very disappointing.
  - Explain that to improve performance, a new target has been set. Revise the threshold number based on the results of this first day's work – you may aim lower (more difficult production target) or

higher (to acknowledge that these workers are unable to meet the current target).

- Ensure beads are counted and recorded correctly.

▶▶▶▶▶▶ **CONTINUE SIMULATION / DAY 2**

15. **INSTRUCT** workers to continue producing, inspecting, and recording results of bead production.

16. Through your actions as the plant manager **CONVEY** the idea that employees must not have received enough training. **RETRAIN** the willing workers as you did in **STEP 11** above and detailed below.

- Prepare the incoming raw material by grasping the tub with both hands at one corner and along the opposite wide side. Pour from the corner. Do not shake the raw material or dump the tub over.
- Manufacture the beads by grasping the handle of the paddle, inserting the paddle into the beads and shirring the paddle three times (clockwise).
- Ensure beads are counted and recorded correctly.

▶▶▶▶▶▶ **CONTINUE SIMULATION / DAY 3**

17. **INSTRUCT** workers to resume producing, inspecting, and recording results of bead production.

18. **ANNOUNCE** to the workers that today is **ZERO DEFECTS DAY**. Stress that everyone must try to do their best, as the future of the company and their jobs depend

upon it.

19. Through your actions as the plant manager, **CONVEY** the idea that management remains disappointed in the quality of the production.
  - Explain that company is losing money
  - Explain that only workers can save their jobs by working harder
  - Explain that layoffs might happen
  - Ensure beads are counted and recorded accurately – ask the recorder to total the number of red beads produced by each worker thus far.

▶▶▶▶▶▶ **CONTINUE SIMULATION / DAY 4**

20. **INSTRUCT** workers to resume producing, inspecting, and recording results of bead production.
21. At the end of the workday **ANNOUNCE** that management must lay off some workers to reduce costs and keep plant open.
  - Lay off 3 workers who produced the most red beads
22. **CONVEY** other messages related to layoffs.
  - Best workers will be retained to ensure minimum number of defects produced
  - Retained workers will now work double shifts
  - The employees that were dismissed deserved it as their work was poor
  - Conduct the workday with the recorder making two spaces for each worker – ensure beads are counted and recorded correctly.



▶▶▶▶▶▶ **CONTINUE SIMULATION / DAY 5**

- 23. **INSTRUCT** workers to resume producing, inspecting, and recording results of bead production.
- 24. **CONVEY** message that the work of best workers has deteriorated. Explain that the results are no better than the first day of production.
- 25. **ANNOUNCE** to remaining workers that management has made the decision to close the plant.

▶▶▶▶▶▶ **DISCUSS SIMULATION**

26. **FACILITATE** a discussion of the simulation by asking the following questions:

- What role did 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?
- How helpful was the training?
- 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?

*Note: Encourage participants to write the lessons learned in their manuals on page 6.*

▶▶▶▶▶▶ **DEMING'S 14 POINTS**

- OH 6-3            27. **REFER** participants to the last page of  
OH 6-4            Module 6 in their manuals.  
OH 6-5  
(Optional)       28. **INFORM** them that Deming's 14 Points are  
provided for their convenience. Explain that  
while not all of the points are relevant to  
process improvement in healthcare, they  
will likely find the 14 points to be of interest  
and value.

*Note: The overheads are optional.*

### 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						

**MODULE 7: FOCUS ON PROCESSES AND SYSTEMS**

**Time: 1.5 hours**

**Objectives:** Participants will 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

**Materials:** Materials required for this module are:

- ◆ Participant Manual
- ◆ Quality Improvement Tools appendix (pp 51-76 of the Monograph)
- ◆ Flipchart, easel, and markers
- ◆ Overheads 7-1 thru 7-5
- ◆ Computer or overhead projector and projection screen

▶▶▶▶▶ **MODULE INTRODUCTION**

- OH 7-1
1. **DISPLAY** overhead 7-1.
  2. **REFER** participants to Module 7 in their manuals.
  3. **STATE** the following:  
  
 In module 5 we learned that quality improvement efforts are based upon four basic principles. In this module our focus is going to be on understanding work as processes and systems.
- OH 7-2  
OH 7-3
4. **DISPLAY** overheads 7-2 and 7-3.
  5. **REVIEW** the objectives for the module.

▶▶▶▶▶▶ **FOUR PRINCIPLES OF QI**

- OH 7-4
6. **DISPLAY** overhead 7-4.
  7. Briefly **REVIEW** the four principles of Quality Improvement introduced in Module 5:
    - Client focus
    - Understanding work as processes and systems
    - Testing changes and emphasizing the use of data
    - Teamwork

▶▶▶▶▶▶ **PROCESS AND SYSTEM DEFINITIONS**

- Manual
8. **REFER** participants to the definitions of “process” and “system” in their manuals.
  9. **EXPLAIN** what a process is using the Participant Manual as a reference
  10. **ASK** one or two volunteers to provide additional examples of a process.
  11. **EXPLAIN** what a system is using the explanation in the Participant Manual as a reference
  12. **ASK** one or two volunteers to provide additional examples of a system.

▶▶▶▶▶ **FLOWCHARTS**

Manual

13. **STATE** the following:

A flowchart is an illustration of a process. It shows the sequence of steps required to complete a process.

14. **REFER** participants to the sample flowchart of “getting to class” provided in their manuals.

15. **STATE** the following:

In your manuals is an example of a high level process of getting to class this morning. It includes high-level steps of getting out of bed, getting washed, getting dressed, walking to the bus, riding the bus, and walking to class.

16. **EMPHASIZE** that within each of these high level steps, are several other smaller processes.

17. **EXPLAIN** that as shown, the high level process of getting to class does not have an oval starting or stopping point. **ASK** what they might be.

- Starting point might be alarm ringing or being awoken by other family member
- Stopping point would be arrival at class

18. **INFORM** learners that a more detailed description of Flowcharts is provided in the tools appendix and you will review it as a group later in this module.

19. **REMIND** learners that flowcharting was a tool used in Story 3 of the Quality Improvement Success Stories reviewed in Module 2. Explain that you’ll revisit that flowchart at the end of this module.

▶▶▶▶▶ **SYSTEMS**

Manual

20. **REFOCUS** the learners to the high level flowchart provided in their manuals.

21. **STATE** the following:

I'm certain that getting to class was not as simple for you as this high level flowchart would lead us to believe. That's likely due to the fact that rarely do we act *independently* of one another. For example, riding the bus was contingent upon the bus arriving at the bus stop.

Let's take a few minutes now to discover some of the *interdependencies* associated with getting to class.

*Note: Be certain that learners understand the difference between independent and interdependent. Independent means acting alone, interdependent means that you're dependent on others to accomplish something.*

22. **REFER** participants to the exercise in their participant module entitled "Exploring Interdependencies."

*Note: Another way this can be explained is that you want to explore inputs to your process.*

23. **DIRECT** participants to work alone on this exercise. Following are the directions: Think about the high-level process you used to get 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 mean you interacted with a family system.

*Note: Allow participants about 10 minutes to complete the individual exercise.*

24. **DEBRIEF** exercise in a large group setting by asking each participant to share one examples of another process or system that they were dependent upon this morning.

25. **EMPHASIZE** and reinforce that when we look at processes, we need to understand the larger system. Explain that a system

can be thought of as interacting processes.

▶▶▶▶▶ **CREATING FLOWCHARTS**

26. **STATE** the following:

Let's now try and create a flowchart together.

27. **REVIEW** the basic steps of creating a flipchart in the participant manual and follow the steps as you lead the class in the creation of a flowchart. Use the process of brushing your teeth as an example.

*Note: Use the example of brushing your teeth. As you discuss the process with the class, be certain to add decision points to the process and identify dependencies or inputs to the process— e.g., availability of toothpaste, availability of water.*

Flipchart

28. Write on a **FLIPCHART** important details as you follow the steps to create a flowchart of brushing your teeth. For example, list the main steps first, then put in order prior to drawing the flipchart.

29. **ENCOURAGE** participants to copy the flowchart created by the class in their manuals

30. **ARRANGE** participants into groups of 3-4 people for a group exercise.

31. **REFER** participants to the exercise in flowchart exercise in their manuals entitled "Applying a Dressing."

32. **ASK** each group to pool their knowledge to create a flowchart of how to apply a dressing. Encourage them to identify the starting and stopping points and the decisions that must be made along the way.

*Note: If the participants need an additional example of a flowchart, refer them to the flowchart shown in Module 2 of the Participant Manual.*

33. **DEBRIEF** by having each group explain the flowchart created by them. **POINT OUT** the differences between groups. **EMPHASIZE** that because it is easy for people to focus in



on different details in a process, that it is important to assemble everyone involved in the process. This will help ensure that the flowchart makes sense to everyone.

*Note: Provide groups with flipchart paper and markers to draw their flowcharts.*

34. **EMPHASIZE** also, that when you draw a flowchart to improve a process, it is essential to draw the process as it exists, not how you want it to be. This will allow you to identify flaws and inefficiencies in the existing process so you can improve them..

*Note: Allow groups about 10 minutes to create this flowchart.*

▶▶▶▶▶ **MORE ABOUT PROCESSES AND FLOWCHARTS**

35. **EXPLAIN** that the information discussed in this module on flowcharts is high level.

36. **REFER** participants to the section on flowcharts in the tools appendix and **EXPLAIN** that more detailed information is provided in the appendix. This includes more detailed steps for creating flowcharts, and additional symbols not reviewed in class.

*Note: Based upon the level of sophistication of the class, you may opt to review some additional concepts about flowcharts provided in the tools appendix.*

OH 7-5

37. **DISPLAY** overhead 7-5

38. **EXPLAIN** that there are various types of processes in healthcare that can be illustrated by process flows including

- Clinical algorithms
- Information flow processes
- Material flow processes
- Patient flow processes
- Multiple flow processes

39. **REFER** participants to the process flow provided in Module 2 – Quality Improvement Success Stories.

40. **ASK** participants to take a closer look at the flowchart than before and to ask questions

that they might have. ANSWER any additional questions they might have.

▶▶▶▶▶ **MODULE REVIEW**

41. **FACILITATE** a discussion to review important concepts discussed in this module. Use the following questions as a guide:

- How might you explain the term process?
- How might you explain the term system?
- How might you differentiate between the two?
- What would be a good process for drawing a flowchart?
- Knowing what you now know about processes and systems, do you agree that a focus on them should be one of the four principles of quality improvement? Why or why not?

**MODULE 8: FOCUS ON MEASUREMENT**

***Time: 2 hours***

**Objectives:** Participants will 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

**Materials:** Materials required for this module are:

- ◆ Participant Manual
- ◆ Flipchart, easel, and markers
- ◆ Overheads (OH) 8-1 thru 8-8
- ◆ Computer or overhead projector and projection screen

▶▶▶▶▶ **MODULE INTRODUCTION**

- OH 8-1      1. **DISPLAY** overhead 8-1.
2. **REFER** participants to Module 8 in their manuals.
3. **STATE** the following:  
 In the previous module we focused on the principle that providers must understand the service system and its key service processes in order to improve them.

In this module we're going to begin to equip you to do just that. We will begin to look at the type of data that can be collected in a healthcare setting.

- OH 8-1      4. **DISPLAY** overhead 8-2 thru 8-3.  
 OH 8-2

5. **REVIEW** the objectives for the Module.

▶▶▶▶▶ **FOCUS ON MEASUREMENT**

- OH 8-3
6. **DISPLAY** overhead 8-3.
  7. **REINFORCE** the idea that testing changes and emphasizing the use of data is one of the four principles of quality assurance.

▶▶▶▶▶ **WHY MEASURE?**

- OH 8-4
8. **DISPLAY** overhead 8-4.  

“A difference that makes no difference is no difference.”
  9. **FACILIAE** a discussion of the quote’s meaning.  

Basically, the quote points to the fact that people can engage in activity to try and make a difference, but activity is meaningless unless a change is realized.
  10. **EMPAHASIZE** that it is through the measurement of data that we can determine if a change is effective or if it makes no difference.

- OH 8-5
11. **DISPLAY** overhead 8-5.
  12. **REVIEW** the five reasons on the overhead for measuring data. They are:
    - 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.

▶▶▶▶▶ **IDENTIFYING MEASURES**

Manual

13. **REFER** participants to the exercise page in their manuals called “Identifying Measures”.
14. **ARRANGE** participants into small groups of 3 to 4 people.
15. **DEBRIEF** in a large group setting. **ENCOURAGE** discussion about how each item could be measured.
16. **EMPHASIZE** that in their own settings, a great deal of discussion will also ensue when they try to define the best way to measure something.
17. **EMPHASIZE** that without measurement it would be impossible to determine if a change occurred, e.g., a decrease in infant mortality, improved client satisfaction, etc.

*Note: Allow groups approximately 20-30 minutes to identify some possible ways the various quality improvement initiatives could be measured.*

▶▶▶▶▶ **QUANTITATIVE AND QUALITATIVE DATA**

18. **STATE** the following:

In the previous exercise, we identified ways we could measure to determine if a change we wanted to occur did in fact change. When we measure with numbers, they are called quantitative measures, because you “quantify” or use numbers.

There is a second type of data that is known as qualitative data. Qualitative data uses words, often through detailed reports.

OH 8-6  
OH 8-7

19. **DISPLAY** Overheads 8-6 and 8-7.
20. **REVIEW** the characteristics of quantitative data and qualitative data provided in the Participant Manual.
21. **ASK** for a volunteer to provide examples of quantitative data and qualitative data.

▶▶▶▶▶ **EXERCISE: QUANTITATIVE OR QUALITATIVE**

22. **ARRANGE** participants into groups of 3 to 4 people.
23. **DIRECT** them to review the sample client satisfaction survey in their manuals and discuss each of the questions about it.
24. **DEBRIEF** in a large group setting. The following main ideas should be communicated:
  - While the data asks for opinions that are typically qualitative in nature, the data can be quantified by assigning a number value to each response. For example
    - Strongly agree (5)
    - Agree (4)
    - Neutral (3)
    - Disagree (2)
    - Strongly disagree (1)
  - These values can then be collected over time to create a quantitative measure of client satisfaction.
  - To make these questions more

*Note: Allow groups approximately 10 minutes to discuss this.*

qualitative in nature, the respondents should be asked more open-ended questions that allow them to elaborate and provide additional information.

▶▶▶▶▶ **VARIATION TO DATA**

OH 8-8      25. **DISPLAY** overhead 8-8.

26. **STATE** the following:

The last important concept I'd like to share with you in this module is the concept of data variation. It's important to keep in mind as you interpret data that there is some variation in everything you measure.

Provide the following example. If you had a jar of jelly beans or other multi-color candy and scooped out 100, counted all the blue beans, placed them back into the jar, scooped out another 100, counted all the blue beans, placed them back into the jar, and continued doing this 20 times, you would likely end up with a different count of blue jelly beans scooped out each time.

That's because some variation in what we measure is normal, and due to chance.

This type of variation is called "common cause variation." It is predictable and expected.

27. **STATE** the following:

The second type of variation is known as special cause variation. It is neither predictable or expected, and signals something is wrong.

For example, a healthy person's normal

temperature is 98.6 degrees Fahrenheit and 37 degrees Celsius. If you took a man's temperature every day for a month, you might have small variations that might occur due to the time of day that you took his temperature or other small changes in their system – again common cause variation.

However, if one day his temperature was 102 degrees Fahrenheit or 38.9 degrees Celsius, it would signal that something was wrong.

28. **ASK** a volunteer to provide another example of common cause and special cause variation.

Possible example: Typical numbers of people visit the clinic daily; a spike in the amount might demonstrate that a disease or illness is spreading.

▶▶▶▶▶ **VARIATION TO DATA / CONTINUED**

29. **STATE** the following:

However, just because there isn't a lot of variation to a measure doesn't mean that a problem doesn't exist.

*Note: The concepts of common cause and special cause variation will be further discussed in Module 15.*

30. **ASK** participants to reflect back on the Red Bead Game. **ASK** the following:

Would you say that the type of variation found in the production of the beads was common cause or special cause?

Answer: The variation was common cause. The number of red and white beads in the bin was stable, and there were no changes to the production process, the beads, or the paddle, therefore the ratio of red/white beads was due to chance. If the supervisor



had picked out the red beads as they were produced, or if the changes were made when the beads came into the factory, it could have caused special cause variation – a massive reduction in the number of red beads produced.

31. **EMPHASIZE** that if people rely solely on data, they may actually miss a problem. **ASK** participants to reflect back to Success Story 2: Reducing the Duration of Phototherapy. In this case, the length of time the babies spent in phototherapy was reliably longer than anticipated. Dr. Awadella's knowledge of phototherapy at other facilities led him to investigate the situation.

Therefore, common cause is predicable, but it might not mean that a problem doesn't exist; it just means that the current process is stable.

▶▶▶▶▶ **MODULE REVIEW**

32. **ASK** participants to identify the most important concept learned from this module and how they think it will help them in their effort to improve quality at their facility.

**MODULE 9: USING QI TOOLS TO FOCUS ON  
MEASUREMENT**
***Time: 2 hours***
**Objectives:** Participants will be able to:

- ◆ Explain why it is important to be familiar with various tools for quality improvement
- ◆ Name three important rules for brainstorming
- ◆ Identify (through brainstorming) a number of different things that can be measured in a health facility
- ◆ Discuss strengths and weaknesses of alternative brainstorming techniques
- ◆ Determine the most appropriate quality improvement tools (presented in the appendix) for various situations

**Materials:** Materials required for this module are:

- ◆ Participant Manual
- ◆ Quality Improvement Tools appendix (pp 51-76 of the Monograph)
- ◆ Flipchart, easel, and markers
- ◆ Overheads 9-1 thru 9-6
- ◆ Computer or overhead projector and projection screen

**▶▶▶▶▶▶ MODULE INTRODUCTION**

1. **DISPLAY** overhead 9-1.
2. **REFER** participants to Module 9 in their manuals.
3. **STATE** the following:

In the last module we began to look at how data can and should be used in quality improvement initiatives to identify problems, analyze processes, and measure performance. In this module we're going to continue our focus on measurement, and begin to look at how the various quality

improvement tools can be used in this regard.

4. **DISPLAY** overhead 9-2 and 9-3.
5. **REVIEW** the objectives for the module.

▶▶▶▶▶▶ **DISCUSS “HAMMER-TOOLBOX” QUOTE**

OH 9-4

6. **DISPLAY** overhead 9-4 and read the quote.

“To someone with only a hammer in his/her toolbox, everything looks like a nail”.

7. **FACILITATE** a discussion of the quote’s meaning. **ASK** participants what might happen if a provider had only limited knowledge of patient treatment options.

Basically, the quote points to the idea that if people’s knowledge of different tools is limited; they will always try to use what they’re familiar with to solve a problem.

8. **EMPAHSIZE** that to minimize this phenomenon, it’s important to become familiar with as many tools as possible, so that it’s possible to make informed choices.

▶▶▶▶▶▶ **BRAINSTORMING**

Manual

9. **REFER** participants to the Brainstorming section in their manuals.
10. **REVIEW** the background information about brainstorming.

11. **DISPLAY** overhead 9-5.
12. **REVIEW** the Brainstorming Rules.
13. **DISPLAY** overhead 9-6.
14. **REVIEW** the Brainstorming Steps.

▶▶▶▶▶▶ **BRAINSTORM HEALTH FACILITY MEASURES**

15. **CONDUCT** a Brainstorming Session following the ground rules provided in the participants guide and the directions provided below.

*Note: Conduct a shortened session until you have about 10-15 ideas on each of the four flip charts.*

Flipchart

16. To begin, **LABEL** 4 sheets of flipchart paper with the following heading:

- Clients / Clients' Families
- Healthcare Providers / Employees
- Facilities / Equipment / Supplies
- Processes and procedures

17. **TELL** participants that the goal of the brainstorming session is to generate a list of various things to measure in each of the four categories.

18. **FACILITATE** the Brainstorming session using the rules and steps provided in the participant guide and tools appendix. Allow participants time first to think of some ideas before you begin. Use a structured brainstorming session if you have difficulty getting participants to contribute or if one or two people dominate the session.

*Note: To use a structured format go around the room and have each person take a turn. They may skip a turn if they don't have anything to say.*

For example, you can go around the room to give each person a chance to add a new idea. They may "pass" when it is their turn if they do not have an idea on that round.

Keep going until all ideas are exhausted and everyone passes.

19. **COMBINE** ideas on the flipchart to reduce duplicate ideas.
20. **FACILITATE** a discussion around effectiveness of the brainstorming rules and steps. **DISCUSS** various options for brainstorming and their potential effectiveness, e.g., in this exercise one flipchart could have been used to gather all ideas (instead of 4) and then the ideas could have been divided by headings later. Also discuss effectiveness of non-structured vs. structured formats.

▶▶▶▶▶ **QUALITY IMPROVEMENT TOOLS**

Manual

21. **REFER** participants to the section on Quality Improvement Tools in their manuals and to the tools appendix.
22. **ARRANGE** participants into small groups of 3 to 4 people. Assign a few tools to each group to review. Try to assign all the tools (see exceptions below), Do NOT assign brainstorming, flowcharts, force field analysis, or Gantt charts. These tools have or will be reviewed in a different module of the course. Assign the following tools:

- Data collection
- Affinity analysis
- Creative thinking techniques
- Voting
- Prioritization matrices
- Expert decision making
- Systems modeling
- Cause and effect analysis
- Bar and pie charts
- Run charts

*Note: Allow groups approximately 10 minutes for each tool they are to review, e.g., if the group is assigned 3 tools, allow 30 minutes for them to create summaries of all three tools, if assigned 2 tools allow 20 minutes.*

- Pareto charts
- Benchmarking
- Quality assurance storytelling

23. **DIRECT** the groups to review the tools assigned to them and prepare a short summary of each to present to the rest of the class. Provide them with flipchart paper and markers to help them prepare important points. As the groups prepare their summaries, have them determine an appropriate use for the tool (in their setting).
24. **DEBRIEF** by asking each group to present their summaries. **FACILITATE** discussion during the debriefing session and add comments where necessary.
25. **THANK** participants for their help in facilitating this module and ask if they have any final questions before you conclude the module.