National Food Service Management Institute
The University of Mississippi

Continuous Quality Improvement Process

Tailored for the School Nutrition Environment

Applied Research Division
The University of Southern Mississippi

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Building the Future Through Child Nutrition

The National Food Service Management Institute (NFSMI) was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford. The Institute operates under a grant agreement with the United States Department of Agriculture, Food and Nutrition Service.

Purpose

The purpose of NFSMI is to improve the operation of Child Nutrition Programs through research, education and training, and information dissemination. The Administrative Offices and Divisions of Technology Transfer and Education and Training are located in Oxford. The Division of Applied Research is located at The University of Southern Mississippi in Hattiesburg.

Mission

The mission of the NFSMI is to provide information and services that promote the continuous improvement of Child Nutrition Programs.

Vision

The vision of the NFSMI is to be the leader in providing education, research, and resources to promote excellence in Child Nutrition Programs.

Contact Information

Headquarters
The University of Mississippi
Phone: 800-321-3054
Fax: 800-321-3061
www.nfsmi.org

Education and Training Division
Technology Transfer Division
The University of Mississippi
6 Jeanette Phillips Drive
P.O. Drawer 188
University, MS 38677-0188

Applied Research Division
The University of Southern Mississippi
118 College Drive #10077
Hattiesburg, MS 39406-0001
Phone: 601-266-5773
Fax: 888-262-9631

ACKNOWLEDGEMENTS

EXPERT PANEL AND REVIEWERS

Sincere appreciation is expressed to the following people who contributed their time and expertise to develop this resource.

Megan Aardema, Foodservice Director
Pembroke Public Schools, Pembroke, MA

Bobbie Desprat, Director, School Nutrition Services
Community Consolidate School District #15, Palatine, IL

Jeanne Hopkins, Director, Foodservice Department
School District of Superior, Superior, MI

Scott Kingery, Foodservice Director
Olathe Unified School District, Olathe, KS

Theresa Latta, Area Consultant School Nutrition Program
Georgia Department of Education, Atlanta, GA

Martha Lawless, Foodservice Director
Canton Public Schools, Canton, MA

Cleta Long, School Nutrition Director
Bibb County Schools, Macon, GA

Dr. Patricia Luoto, Director, John C. Stalker Institute of Food and Nutrition
Framingham College, Framingham, MA

Janelle Madden, Director of Foodservices
Dover/Sherborn Public Schools, Dover, MA

Diane Zak, Foodservice Director
Hatfield Public Schools, Hatfield, MA

Continuous Quality Improvement (CQI) Process

What is the CQI process?

The CQI process uses a team approach to accomplish operational changes. Change occurs by following sequential steps that focus on changing procedures, empowering employees, placing customers first, and achieving long-term organizational commitment.

This resource has been developed to walk you through the CQI process using six sequential steps referred to as the Problem Solving Discipline (PSD) Approach (Rampersad, 2001). The six steps have been modified for the school nutrition environment. They are listed below and are discussed in detail beginning on page 7.

The Six-Step Problem Solving Discipline Approach

Step 1: Define Area(s) for Improvement
Step 2: Identify All Possible Causes
Step 3: Develop CQI Action Plan
Step 4: Implement CQI Action Plan
Step 5: Evaluate Measurement Outcome for Program Improvement
Step 6: Standardize CQI Process

How does the CQI process work in the school nutrition environment?

School nutrition directors meet the challenges of today's competitive foodservice business by providing quality school nutrition programs to their customers. One tool available to directors for improving program quality is the Continuous Quality Improvement (CQI) process. Researchers at NFSMI/ARD collaborated with school nutrition professionals across the country to develop this CQI resource for school nutrition program improvement. Drawing from their customer service experiences, school nutrition professionals tailored the Six-Step Problem Solving Discipline (PSD) Approach to illustrate how the CQI process works in the school nutrition environment.

How do you begin the CQI process?

To begin the CQI process, you will need to have a CQI team in place. In putting together your CQI team, be sure to include school nutrition managers, supervisors and staff. To ensure you have varying perspectives on the team, make an effort to include employees with different degrees of work experience, different education levels, a variety of job titles, and diverse cultural backgrounds. When deciding how many members should be on your CQI team, be mindful that you have enough members to address the issues but not such a large team that progress is hindered.

Once the CQI team is established, you may begin to define the area(s) for improvement as outlined in the Six-Step PSD Approach. Remember this process is improved when all team members have input in defining area(s) for improvement. As areas are considered for improvement, remember to include additional stakeholders such as principals, students, teachers, parents, or custodians on the team to provide focused input.

The SIX-STEP PSD APPROACH
for Implementing the CQI Process

Step 1: Define Area(s) for Improvement

Now that you have your CQI team established, it is time to define the area(s) for program improvement. It is important for the CQI team to clearly and specifically define the area(s) or issue(s) of concern. Answering the following questions may help the CQI team in developing a detailed description of the area(s) for improvement:

- "What is the problem?"
- "When does the problem occur?"
- "Where does the problem occur?"
- "Why does the problem occur?"
- "Who does the problem affect or who is involved in the problem?"
- "How is this a problem?"

It may be helpful to consider several sources of information as you define the area(s) for improvement. Information that may be helpful includes results of customer surveys, customer complaints and suggestions, participation rates in conjunction with menu offerings, performance information (such as meals per labor hour) and information obtained from meeting with customers.

Step 2: Identify All Possible Causes

Once the CQI team has defined the area(s) they want to improve, the next step is identifying all the reasons or causes they believe contribute to the area(s) needing improvement. One means that may be useful in discussing possible causes is the Cause and Effect diagram. The Cause and Effect diagram is sometimes referred to as the Fishbone diagram because it looks like a fish skeleton. For the purpose of illustration, the Cause and Effect diagram is shown in Fishbone format and table format on page 9.

The Effect is the area selected for improvement and the Cause is a list of all potential issues that contribute to the Effect. One way to thoroughly explore all possible causes is to lead the CQI team in a brainstorming process designed to gather many perspectives and ideas on the particular topic. To assist in the brainstorming process, some guidelines are presented below.

Techniques for a Productive Brainstorming Session

- Make sure that all members of the group fully understand the purpose and objective of the brainstorming session before they start.
- Emphasize that brainstorming is most successful when all ideas are welcomed.
- Assign a team member to record all ideas on a flip chart for everyone to view.
- Record all ideas exactly as stated and keep all completed flip charts visible.
- Encourage everyone to actively participate.
- Ensure all opinions are heard and valued.
- Encourage creative thinking, stimulating conversation, and respectful discussions.

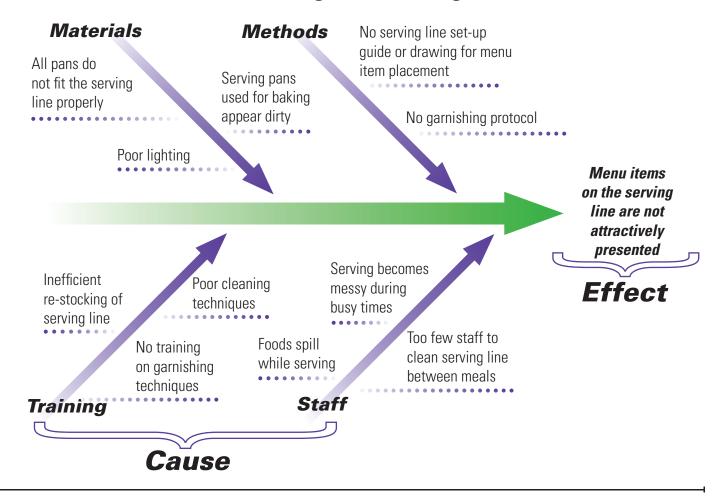## *Techniques and Behavior to Avoid During a Brainstorming Session*

- Making negative comments - These statements may seriously hinder the brainstorming process:
    - ✗ "That will never work."
    - ✗ "We have already tried that."
    - ✗ "But we have always done it that way."
- Criticizing, judging, or dismissing ideas when stated - The team needs to be secure in voicing their ideas.
- Discussing ideas as they are being collected - This will slow down the process and take you off track. Discussion of ideas should take place when the brainstorming session is completed.
- Ending the session prematurely - When ideas stop flowing, wait in silence, and ideas usually start flowing again.
- Substituting your own words - All ideas should be recorded exactly as stated by the team member. Using your own words could change the meaning of the idea.

The Cause and Effect diagram may include four or more categories in which to list potential causes for improvement. Typical categories include equipment, environment, procedure, staff, school administration, budget, facilities, and/or parents. Whatever categories are selected to use, it is important they suit your particular situation. The Fishbone diagram, seen on page 9 in Example One, includes the categories 'Methods,' 'Materials,' 'Training,' and 'Staff.' Example Two presents the Cause and Effect information in table format. Each are appropriate formats to diagram Cause and Effect. You decide which format works best for you.

Take each Cause identified from your brainstorming session and place it into one of the categories. You may need to incorporate or develop more categories if some of the Causes do not fit. The diagrams on page 9 illustrate how Causes identified in a brainstorming session may be categorized.

Once the CQI team has completed the Cause and Effect diagram, it is time to have the team select the Causes believed to have the greatest positive impact on the Effect. This process leads to Step 3, Develop Action Plan, described on page 10.

EXAMPLE ONE: Fishbone Diagram Showing Cause and Effect

Materials

All pans do not fit the serving line properly

Poor lighting

Methods

Serving pans used for baking appear dirty

No serving line set-up guide or drawing for menu item placement

No garnishing protocol

Menu items on the serving line are not attractively presented

Effect

Inefficient re-stocking of serving line

Poor cleaning techniques

No training on garnishing techniques

Training

Foods spill while serving

Serving becomes messy during busy times

Too few staff to clean serving line between meals

Staff

Cause

EXAMPLE TWO: Table Showing Cause and Effect

Effect: *Menu items on the serving line are not attractively presented.*	
Category	**Causes**
Materials	All pans do not fit the serving line properly Serving pans used for baking appear dirty Poor lighting
Methods	No serving line set-up guide or drawing for menu item placement No garnishing protocol
Training	Poor cleaning techniques Inefficient re-stocking of serving line No training on garnishing techniques
Staff	Serving becomes messy during busy times Foods spill while serving Too few staff to clean serving line between meals

Step 3: Develop Action Plan

Action plans consist of specific activities, procedures, and/or processes designed to address Causes selected by the CQI team as identified in the Fishbone diagram.

Below are two examples of the development process.

Example 1: The team focuses on the Cause "No garnishing protocol." An action plan is discussed and the team identifies specific activities that need addressing: 1) the type of garnishes that are needed, 2) the menu items to be garnished, 3) staff training on garnishing techniques, 4) determination of additional costs related to garnishing, and 5) identification of staff members to develop garnishing protocol and ensure the protocol is followed. Now the CQI team is ready for Step 4.

Example 2: The team addresses the Cause "Poor lighting." An action plan is discussed and the team identifies that replacing windows will improve the light and therefore improve the attractiveness of menu items on the serving line. However, the team decides this is too great of an expense at the present time but should be considered if/when construction or remodeling of the cafeteria is planned. No further action is taken for the present time.

When developing action plans, do not forget to discuss how action plans will be accomplished and objectively measured. The Action Plan Chart on page 11 illustrates how the effectiveness of an action plan is determined by evaluating the anticipated outcome (Measurement) in relation to the actual outcome (Evaluating Measurement).

Step 4: Implement CQI Action Plan

Now is the time for the CQI team to implement their action plan(s) developed in Step 3. The Effect now becomes the Outcome for Program Improvement.

Example:
Effect: *Menu items on the serving line **are not** attractively presented.*
Outcome for Program Improvement: *Menu items on the serving line **are** attractively presented.*

Develop an Action Plan Chart as shown on page 11. Included in the Action Plan Chart are the Outcome for Program Improvement and the following five descriptors:

1. Action Plan(s) (from Step 3 above)
2. Measurement (determine how program changes will be documented through numbers or percentages, i.e. "100% of school nutrition staff will participate in garnishing training")
3. Evaluating Measurement Outcome (determine if change has occurred, i.e. "100% have attended the garnishing training program")
4. Person Responsible
5. Time Line.

Additional descriptors may be added in your Action Plan Chart, based on your particular needs. Descriptors may include current progress, cost, equipment, and/or facility.

EXAMPLE: ACTION PLAN CHART

Outcome for Program Improvement: *Menu items on the serving line are attractively presented.*

Action Plan	Measurement	Evaluating Measurement Outcome	Person Responsible	Time Line
1. Decrease appearance of messy serving line by cleaning spills as they occur.	100% of spills are cleaned up immediately	No spills observed on daily basis	Lead Cook	September
2. Develop a garnishing list to use with menu items.	A minimum of 2 menu items garnished daily	Garnishing increased from 0 menu items to 2 items daily	Server	October
3. Train school nutrition staff on garnishing techniques.	100% of staff will participate in training	100% of staff have attended training program	Manager	October
4. Present food items on the serving line in an attractive way. Develop a serving line set-up sheet to coincide with the daily menu.	Nutrition staff follow daily serving line set-up sheet	Two times during the month, menu items were not properly placed on the serving line	Server	October
5. Survey 200 students on their perceptions of menu item presentation on the serving line.	50% of students survey will state improvement	115 students out of 200 surveyed (58%) stated improvement	Manager	December

In reviewing the Action Plan Chart, you can see that number 4 did not meet the desired measurement outcome. Twice during the month the serving line was not set up according to policy and procedure. Before taking corrective action, you must achieve an understanding as to why the measurement outcome was not met. An investigation could identify the following issues.

1) A substitute employee forgot to complete a daily serving line set-up sheet.
2) The right size pan was not available and the extra pan did not fit properly on the serving line.

At this point, the CQI team suggests the following corrective actions to improve the measurement outcome.

1) Continue to train all employees on serving line set up policy and procedures. Discuss and obtain input from the person responsible for ensuring the serving line adheres to policy.
2) Investigate the need for pans of the desired size.

Step 5: Evaluate Measurement Outcome for Program Improvement

Using quantitative measurements (numbers or percentages) provides you with objective and factual data allowing you to assess the effectiveness of the action plan. If the measurement outcome has not been met the CQI team has several options. Three recommended options are listed below.
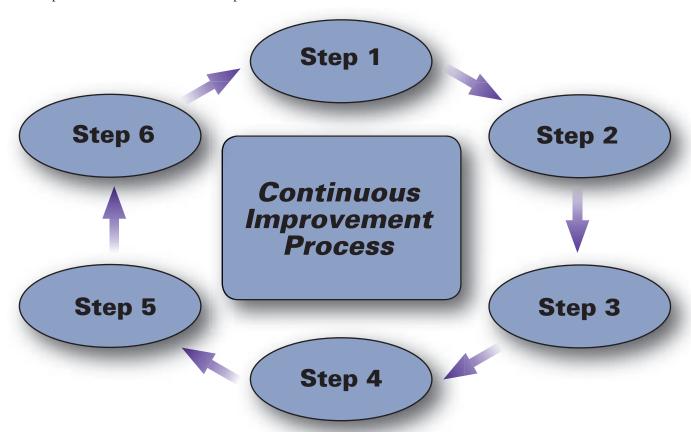
1) Take corrective action and evaluate the measurement outcome again.
2) Return to Step 1 in the PSD Approach and re-define your area(s) for improvement.
3) Return to Step 3 to re-evaluate the action plan chosen by the CQI team.

Additional examples of qualitative measurements are participation rates, production sheets, plate waste, mini surveys, verbal surveys, Web site surveys, meals/labor hour, staffing records, equipment usage/expenses, and/or food costs.

Step 6: Standardize CQI Process

If the action plan is working, and the measurement outcomes are acceptable, the CQI team will write a program policy and procedure to incorporate changes into the daily operations. It is important to remember that **the CQI process does not end here because it is a cyclic process.**

To fully benefit from the CQI process it must become a part of your everyday operation. Continuous program improvement leading to exceptional customer satisfaction happens when sequential steps are followed, employees are empowered, and the organization embraces the CQI philosophy. School Nutrition Directors can take a leadership role in CQI by sharing their successes with applying the Six-Step PSD Approach and training other school departments in how to use the process.

Step 1 → Step 2 → Step 3 → Step 4 → Step 5 → Step 6 → Step 1

Continuous Improvement Process

Reference

Rampersad, H, K. (2001). Total quality Management: An executive guide to continuous improvement. (pp 11-18). Heidelberg, Germany: Springer-Verlag.