

# VIII MONITOR AND EVALUATE THE INTERVENTION

The last step of program development is often performed with less enthusiasm than the other steps or is sometimes forgotten. However, monitoring and evaluation of the nutrition intervention is critical and as important as any of the other steps. Together, they help ensure a successful intervention, contribute to the body of knowledge on cost effectiveness and cost benefit of nutrition services, and can support the continuance or expansion of the intervention. Monitoring and evaluation are not easy, but if steps similar to the ones described in this handbook have been taken in the assessment, objective writing, and implementation phases, this task is simpler.

Monitoring is the on-going assessment and evaluation of the intervention that provides continuous feedback on performance. Evaluation is the systematic measurement of results by comparing the data collected with pre-established standards or controls.<sup>1</sup> There are many ways to evaluate a program's effectiveness. If the agency or organization you are with has a continuous quality improvement process or another evaluation process or system in place, use it to evaluate the nutrition intervention. If the nutrition plan is a part of the community health plan, as has been strongly encouraged throughout this handbook, follow the monitoring and evaluation steps and guidance in the community health plan. If a community health plan does not exist or the monitoring and evaluation part is not yet developed, use the information below to develop an evaluation tool.

The ultimate purpose of evaluation is to help program managers decide whether to change, eliminate, continue, or expand a program or service. This chapter includes informa-

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tion on setting up data systems, assessing the quality of nutrition services, using internal or external assessment methods, and identifying the steps in developing evaluation plans — all necessary to determining the effectiveness of the intervention.

## DEVELOP A DATA SYSTEM

For more information on data systems, see *Healthy Communities 2000: Model Standards*, which discusses establishing community-based targets and provides Baseline and Future Data Sources.<sup>3</sup>

For each nutrition activity, a data system must be designed to collect data on the intervention, document performance, and measure progress. An existing data system may already be in place that is ready to use or requires minimal adjustment. State health agencies can help with this. A data system includes baseline data, methods

to collect data, and ways to report results. Use measurable objectives written for the community programs as the basis for designing data systems. A data system can be maintained with a computer database or it can be an organized collection of written records and reports from an intervention.

### Baseline Data

Baseline data is the data collected in the assessment phase of developing the nutrition intervention. For example, the data may come from death records, medical records, community surveys, or focus groups. *Healthy People 2000* includes baseline statistics from national data sources that can also be used for a data system.<sup>2</sup> Many states have developed their own version of *Healthy People 2000* with state-level statistics. Contact the nutrition director in the state health department for this information.

### Program Records

Program records serve as data collection tools. A system to create and collect records must be built into each nutrition intervention. Collect records at predetermined times and at the completion of the activity. The data can then be compared to baseline data to measure the degree to which the objectives are being met, resources are being efficiently used, and consumers are satisfied. For example, for nutrition education classes, keep records of attendance, log course content and discussion topics, and compare pre- and post-test scores and pre- and post-food records to determine behavior change. Class evaluations can be used to measure participant satisfaction.

For media campaigns, logs can be kept of requests for materials offered or records kept of call-in questions. For a 5 A Day campaign in the community, work with the local super-

markets to monitor sales of fresh, frozen, and canned fruits and vegetables. Ideally, supermarkets will have been included throughout the development and implementation of the intervention so baseline fruit and vegetable sales prior to implementation are known and available for the monitoring and evaluation processes.

Information recorded should also include changes in staffing, workloads, and programs. Records and reports of time spent by nutrition personnel on various activities can be used to analyze costs and benefits and measure the cost effectiveness of activities. This information is useful in interpreting the data collected on the intervention. For example, if staff turnover is high throughout the intervention, a successful intervention is less likely due to factors such as the time involved in hiring and training new staff.

In addition to keeping data on the intervention itself, attention should be given to documenting the nutrition problems and trends in the community, which can influence program direction, focus, and evaluation. This information is essential to determining the effectiveness of the program. For example, a large influx of new ethnic populations, an increase in the number of homeless families, and reporting on new fad weight loss programs in the media could have a negative impact on the reported effect of the program.

### **Program Reports**

Program reports document progress that has been made toward achieving objectives. These reports analyze and interpret data from the various program records. In conformance with agency policy, prepare and submit reports on a designated periodic schedule to serve as feedback for staff, administrators, funders, policymakers, and for dissemination to the community. Progress reports provide continuing feedback on the program and assist in the establishment of priorities for the future.

### **ASSESS THE QUALITY OF NUTRITION SERVICES**

With increasing emphasis on accountability for health expenditures and for quality of care, all program managers must be concerned about the effectiveness and costs of their services and the efficiency and productivity of personnel.<sup>4,5,6</sup> Assessing the quality of health care can be accomplished through a variety of formal approaches, such as Total Quality

Management, Continuous Quality Improvement, or a Quality Assurance Program. This handbook does not review these specific programs. It does, however, review the three basic categories of assessment each of these programs use: structure, process, and outcome. Note that these three means of assessment/evaluation are identical to the types of objectives to be written for the nutrition program.

**Structure** relates to environmental and personnel factors in service delivery such as the adequacy of the facility, the availability of necessary equipment (scales, skin fold instruments), the availability and training of skilled personnel (nutritionist), the scheduling of patient visits, the storage and availability of patient records, and the like. Patient flow analysis studies are helpful in evaluating structure.

**Process of care** relates to the interaction between providers and clients, the information collected from and about clients, the diagnostic assessments made, the therapeutic and education plans and how they are carried out, and the follow-up on problems over time. Failure to document client care adequately in the medical record or group education records makes a quality assessment all but impossible.

**Outcomes of care** are measures of the success or failure of the structure and process of the care provided. They demonstrate change in the health status of a client or community. Death and morbidity are classic outcome measures, but are rarely useful in assessing ambulatory care unless the patient can be followed for long periods of time and all the factors that affect the patient's overall health and quality of life can be understood and controlled.

In the context of nutritional services, it is possible to define what are sometimes termed "proximate impact" or "intermediate outcome" measures. These measures are believed to influence long-term measures such as death or morbidity, but are relatively easy to measure over a reasonably short period of time. For example, in the patient with iron deficiency anemia, the hematocrit, hemoglobin, and/or serum iron are proximate outcome measures of the success of therapy. They do not, however, indicate whether the underlying cause of the anemia has been identified. In problems of under- or over-nutrition, the patient's weight is a proximate outcome measure. Serum cholesterol is another example of a proximate outcome measure in patients with hyperlipidemia.

In other clinical areas, where nutrition services play a role together with other services, determining proximate outcomes is more difficult (e.g., in the care of diabetics, it may be difficult to separate out the effectiveness of the diet as opposed to medication in the control of blood sugar). In prenatal care, it is well known that maternal nutrition is a major determinant of the normal development of the fetus. However, it is not always possible to assess the contribution of nutrition to a problem situation, such as premature birth or a child who is ultimately found to be developmentally delayed.

### Quality Assurance Resources

*Guide to Quality Assurance in Ambulatory Nutrition Care,*<sup>7</sup> *Call to Action: Better Nutrition for Mothers, Children and Families,*<sup>8</sup> *Quality Assurance Criteria for Pediatric Nutrition Conditions: A Model — Outcome and Progress Criteria,*<sup>9</sup> and *Quality Assurance/Quality Improvement Criteria for Nutritional Care of Pregnant and Postpartum Women and Adolescents.*<sup>10</sup>

## DETERMINE USE OF INTERNAL OR EXTERNAL EVALUATION

Make a decision as to whether the evaluation is going to be conducted internally, externally, or both. Ideally, this decision is made during the assessment phase. Many agencies have total quality management programs in place that provide tools and structure for evaluating programs internally. Staff should be continuously involved in the evaluation process and helped to understand that the evaluation identifies successes as well as deficits. Health program staff may need training in program evaluation to understand the concepts, terminology, and validity of various methods of data collection.

### Internal Evaluation

Internal evaluation means that criteria and standards are developed by those actually responsible for providing care, with agreement on what good care should be. These same individuals assess the actual care provided by one another usually using the medical record as a basis. Limited evidence suggests that internal evaluation is much more effective than external evaluation in actually changing the way care is provided since it is the direct responsibility of those providing care and is integrated into the day-to-day operation of the program.

### Basic steps for internal evaluation

- 1) Define the goals of the practice and select problem areas for quality improvement.
- 2) Develop standards of criteria for those problem areas.

- 3) Document care provided in the client record.
- 4) Review the care provided and compare it against the standard to identify deficiencies of care.
- 5) Take steps to correct the detected deficiencies for the individual clients whose records were reviewed and for subsequent clients.

In a clinic setting, the problem-oriented record, or a record system that documents the process of care with equal effectiveness, is considered by many to be a precondition for effective internal assessment. Otherwise, it may be the quality of the record, rather than the care, that is at issue.

### External Evaluation

External evaluation involves bringing in "experts" from outside a practice or project to interview, observe, and examine medical records. Some federal funding agencies will monitor and evaluate their programs at the state and local levels. External reviewers should be identified at the start of program development. The experts then make judgments about the effectiveness of client services based either on their overall impression about the quality of care (implicit judgment) or on specific, well-defined criteria (explicit judgment). External assessment is the usual model for research into quality of care and has also been used as a mechanism for improving client services. The problems with external evaluation may include that:

- 1) it is costly;
- 2) it is often difficult to have reproducible results where implicit judgments are made;
- 3) the criteria used by the evaluators may not be shared with providers;
- 4) it may be disruptive to the program; and
- 5) there is limited evidence that it is effective in altering the way client care is provided (e.g., identified deficiencies are not corrected).

### STEPS IN DEVELOPING EVALUATION PLANS

#### 1) Essential steps

- Develop a clear needs statement that tells what the intervention intends to solve. (See the chapter on developing a nutrition plan.)

- Restate your goals and objectives in measurable terms. (See Chapter IV for more information.)
  - Decide how the program will be judged. Will you be using a quality assurance or measurement program?
  - Build in methods for recording and reporting essential data.
  - Maintain surveillance and control.
- 2) Reduce the barriers to evaluation**
- List evaluation as one of the program objectives.
  - Include evaluation and steps to set it up into the intervention timeline.
  - Include evaluation expenses in the program budget.
  - Involve colleagues and subordinates in the evaluation process and keep them apprised of progress and results.
- 3) Ensure that evaluation takes place**
- Work with those who have a significant role in the evaluation.
  - Anticipate the nature of evidence needed.
- 4) Prepare and present evidence clearly**
- Include cost benefit analysis and/or cost effectiveness data. See Appendix D under "Financing and Costing Nutrition Services" for a list of resources.
- 5) Follow-up to evaluation**
- Prepare recommendations and proposals.
  - Associate proposals with evaluation analysis, show modifications and desired changes.

As we move to the future, improving the nutrition and health status of the nation becomes more complex. Developing community-based nutrition services, however, can help ensure the health of Americans. We hope this handbook advances this cause.

### References

1. Kaufman, M. (Ed.). (1990). Nutrition in Public Health: A Handbook for Developing Programs and Services. Rockville, MD: Aspen Publishers, Inc. p. 292.

2. U.S. Department of Health and Human Services. (1991). Healthy People 2000, National Health Promotion and Disease Prevention Objectives. DHHS Publication No. (PHS) 91-50212. Washington, DC: U.S. Government Printing Office.
3. American Public Health Association. (1991). Healthy Communities 2000: Model Standards, Guidelines for Community Attainment of the Year 2000 National Health Objectives. (3rd ed.). Arlington, VA: American Public Health Association.
4. Wooldridge, N.H. and G. Joyner. (1991). "Quality Assurance." In Call to Action: Better Nutrition for Mothers, Children and Families. Arlington, VA: National Center for Education in Maternal and Child Health. pp. 257-270.
5. Willis, B.B. (1985). Documentation: The Missing Link in Evaluation. Journal of the American Dietetic Association. 85(2): 225-227.
6. Smith, A. (1985). Cost Benefit, A Message that Sells. In Planning and Financing an Integrated Nutrition System, Proceedings of a Workshop. Minneapolis, MN: University of Minnesota.
7. Kaufman, M. and J. Vermeersch. (Eds.). (1983). "Guide to Quality Assurance in Ambulatory Nutrition Care." Chicago, IL: The American Dietetic Association.
8. Wooldridge, N. H. and G. Joyner. (1991). "Quality Assurance." in Call to Action: Better Nutrition for Mothers, Children and Families. Arlington, VA: National Center for Education in Maternal and Child Health. pp. 257-270.
9. The American Dietetic Association. (1988). Quality Assurance Criteria for Pediatric Nutrition Conditions: A Model — Outcome and Progress Criteria. Chicago, IL: American Dietetic Association.
10. American Dietetic Association, The. Public Health Nutrition Practice Group. (1993). Quality Assurance/Quality Improvement Criteria for Nutritional Care of Pregnant and Postpartum Women and Adolescents. Atlanta, GA: DHHS, PHS, CDC, Division of Nutrition and Physical Activity.