Measuring the Success of Nutrition Education and Promotion in Food Assistance Programs

When USDA's Food and Nutrition Service (FNS) began focusing on incorporating nutrition education into all its food assistance programs, FNS needed a means of measuring program effectiveness to ensure the best possible use of its limited resources. FNS was also looking for ways to identify what worked best—which program components, under what circumstances, and at what costs. The objective was to help those at the program-delivery level provide the best, most cost-effective nutrition programs possible.

As a result, a conference entitled "Charting the Course for Evaluation: How Do We Measure the Success of Nutrition Education and Promotion in Food Assistance Programs?" was held July 13-14, 1995, in Arlington, VA. Nutrition educators, market researchers, and health promotion evaluation experts, brought together to identify and promote the state of the art in evaluating nutrition education and promotion efforts, were asked to evaluate a range of nutrition education, health promotion, and social marketing programs.

Overview of Major Themes

Although the design and implementation of nutrition education in nonclinical settings differs greatly from conducting clinical research, conference speakers argued convincingly that experimental designs used for clinical science often guide expectations for what nutrition education programs can accomplish and how they should be evaluated. The following list summarizes participants' ideas about developing and evaluating behavior-focused nutrition education programs using models appropriate for population settings:

- *Set appropriate objectives and manage expectations*: Nutrition education usually involves trying to change complex behaviors. Hence, educators must ensure that (a) expectations and objectives are appropriate for community-based programs, and (b) change is measured using program-appropriate evaluation models.
- *Define meaningful, measurable outcomes*: Often the outcomes selected for nutrition education programs are too global to measure (meaningfully) a program's effect or to be measured accurately. Outcomes need to be realistic. Identifying and measuring intermediate variables, in addition to outcome, is often critical to measuring progress.
- *Design interventions using appropriate theoretical models—and design evaluation using the same models*: Theoretical models appropriate for nutrition education include (a) stage of change, (b) social learning theory, (c) health belief, and (d) diffusion of innovations. Social marketing, a process, can be used with any of these models to develop health promotion and disease prevention programs.
- *Include both formative and process evaluation activities*: Outcome evaluation is often the only type of evaluation used for nutrition education and communication efforts. Other types of evaluation are critical to successful program development and implementation.

Session Summaries

- **Contemporary Budget and Policy Realities: The State of Nutrition Education in USDA and the Importance of Evaluation,** Eileen Kennedy, executive director, USDA Center for Nutrition Policy and Promotion—Three questions are relevant to the discussion of evaluating nutrition education programs: (1) What works? (2) In what context does nutrition education work? and (3) At what cost? To answer these questions, the mix of programs offered must be evaluated. Also, nutrition educators are headed toward a multifaceted approach to intervention strategies. Evaluation strategies must be multifaceted and must include formative, process, and outcome evaluation research.

Section I. Where We've Been

- **Overview: A Review of the Role of Evaluation in Recent Nutrition Education Research and Interventions,** Isobel Contento, coordinator, Program in Nutrition and Education, Teacher's College, Columbia University—A USDA-contracted review of 217 studies found a wide range of outcome measures used to evaluate nutrition education effectiveness, illustrating the complexity of dietary change and the difficulties of measuring such change. The review found

that nutrition education works and is a significant factor in improving dietary practices when behavior change is the goal and educational strategies are designed with that as a purpose.

- **Confounding Issues in Evaluations of Nutrition Interventions,** William Smith, executive vice president, Academy for Educational Development—The complexity of human behavior, thinking about programs as prevention "vaccines," and other factors confound our understanding of the relationship of how different human behaviors relate to health, evaluation, and research. Identifying the determinants of a behavior is key to understanding behavior. Determinants can be identified by comparing those who do and those who do not engage in a behavior. Improving the balance between basic evaluation and marketing or clinical research may be useful.

Section II. Charting a New Course: Using Communication and Behavior Models in Designing Evaluations

- **Health Belief Model,** Arlene Caggiula, associate professor, Nutrition and Epidemiology, Graduate School of Public Health, University of Pittsburgh—In the two studies reported, the health belief model predicted adherence to eating patterns low in cholesterol and total fat. The type of population, intervention program, and adherence measure affected the relative importance of the components.
- **Social Learning Theory,** Kim Reynolds, associate professor, Department of Health Behavior, University of Alabama at Birmingham—Social learning theory is useful in intervention design and in measurement—it defines mediators and guides professionals toward different measures that can be used. Social learning theory was used in the design and intervention of the High Five program in Alabama, part of the 5 A Day program.
- **Stages of Change: The Transtheoretical Model,** Marci Kramish Campbell, assistant professor, Department of Nutrition, University of North Carolina at Chapel Hill—This model has been applied to a variety of behaviors such as smoking cessation, addictions, weight loss, and dietary change. Several studies have shown that stage of dietary change correlates with dietary intake, particularly for dietary fat, fiber, fruits, and vegetables.
- **Persuasion and Social Marketing,** Alan Andreasen, professor, Department of Marketing and associate dean, Faculty Affairs, School of Business, Georgetown University—Social marketing is an adaptation of commercial marketing technologies to programs designed to influence the voluntary behavior of target audiences to increase individual well-being and/or that of society. Social marketing focuses on behavior change and on market research in the formative, pretesting, and monitoring stages.
- **Using Formative Evaluations to Identify Target Populations,** Elizabeth Howze, chief, Health Interventions and Translation Branch, Centers for Disease Control and Prevention—The Nutrition and Physical Activity Communications Project (NuPAC) is a communications campaign designed to focus on nutrition and physical activity. Desired behaviors include a diet high in fruits and vegetables and low in fat and 30 minutes or more of moderate physical activity most days of the week.
- **The Knowledge-Attitudes-Behavior Model and Defining 'Behavior Changes,'** Tom Baranowski, professor, Division of Behavioral Sciences and Health Education, Rollins School of Public Health, Emory University—This model assumes that increases in knowledge lead to more positive attitudes and that attitudes affect behavior. The model is based on the individual and includes no environmental factors. The bottom line: knowledge-attitudes-behavior provide a poor model for designing or evaluating behavior-change programs.
- **Choosing Evaluations That Fit the Intervention and Stage of Development: Breakout Sessions,** Anne Murphy, nutrition education evaluation consultant, University of Michigan-Flint—This session focused on conducting the best evaluation possible—at the lowest cost and with the least possible error—while overcoming the many barriers to it. A distinction between evaluating and reporting was given.
- **Evaluating Social Marketing Promotions,** Craig Lefebvre, vice president and chief technical officer, Prospect Associates—When developing social marketing programs, the diffusion of innovations, social learning theory, stages of change, and consumer-based health communications models are helpful. Professionals must think about the outcomes they are evaluating and think about what a marketing communications program can achieve.
- **Program Evaluations in the Community,** Adrienne Paine-Andrews, associate director and Kari Harris, research associate, Work Group for Health Promotion and Community Development, University of Kansas—Kansas LEAN is a statewide coalition with

projects focusing on nutrition education, healthier school lunches, and physical activity opportunities in the community. To evaluate this community effort, the coalition's questions focused on process as well as intermediate and long-term outcomes.

- **Choosing Appropriate Dietary Data Collection Methods to Assess Behavior Changes,** Alan Kristal, Department of Epidemiology, Fred Hutchinson Cancer Research Center, University of Washington—The science of measuring dietary change is in its infancy, especially in the context of intervention trials. Questions for evaluating diet intervention studies were outlined and standard dietary intake measures were discussed.

III. Measuring Change in the Real World: Learning From Ongoing and Past Projects: How Related Fields Use Evaluation to Document Changes in Health Behaviors

- **What We've Learned So Far: Ten Observations for the Real World,** Elaine Bratic Arkin, health communication consultant—The first of 10 observations discussed claims that behavior change and measuring that change are possible, depending on the kind of change, with whom, the type of intervention, and the type of evaluation.
- **The Child and Adolescent Trial for Cardiovascular Health (CATCH),** Theresa Nicklas, associate professor and director, Dietary Studies, Tulane Center for Cardiovascular Health, Tulane School of Public Health and Tropical Medicine—This school-based program involving school food service, physical education, classroom curricula, and the family was implemented successfully in diverse populations in four geographic areas of the country. *Eat Smart*, the food service intervention was used, along with *Eat Smart* process and outcome measures.
- **National Dairy Council,** Madlyn Daley, senior vice president, Marketing and Economic Research, Dairy Management, Inc.—Research was conducted on the need for dairy product information in the classroom. This was part of an effort to update the dairy industry's nutrition education program *Food, Your Choice*. The target audience for the council's educational efforts was elementary students. The council developed, tested, and modified two versions of *Nutrition, It Is Elementary*.
- **Minnesota Heart Health Program,** Pat Snyder, nutrition coordinator, School of Public Health, University of Minnesota—This program was a community-based research and demonstration program involving six communities. Its goals were to improve health by lowering the population levels of blood cholesterol, blood pressure, and cigarette smoking; increase physical activity; and reduce morbidity and mortality from heart disease. The focus of the school lunch program was to lower fat and sodium content in individual menu items.
- **Project LEAN,** Sarah Samuels, health program and policy consultant—Project LEAN (Low-fat Eating for America Now) was devised to accelerate a trend toward lower fat consumption by increasing the availability and accessibility of low-fat foods and to promote greater collaboration among partners. Evaluation strategies were outlined and nutrition program planning and future evaluations were discussed.
- **5 A Day,** Jerianne Heimendinger, program director, National Cancer Institute, National Institutes of Health—5 A Day's goal is to increase the average consumption of fruits and vegetables to five servings a day by the year 2000. Program components include supermarkets, mass media, redirected advertising dollars provided by the produce industry, food service, the community, and research.
- **Charting the Course From Lessons Learned,** Robert Hornik, professor, Annenberg School for Communication, University of Pennsylvania—This session focused on problems with current outcome evaluation models. For example, message exposure needs greater consideration. Some alternative models of change and alternative evaluation designs were discussed.

Full transcripts of the conference are available:

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