THE DEVELOPMENT OF A MODEL TO BE UTILIZED IN THE EVALUATION OF THE TELEPHONE AS A VEHICLE FOR NUTRITION INFORMATION

by

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CHAPTER 1

Introduction

Nutrition education has been defined by the American Dietetic Association as "the process by which beliefs, attitudes, environmental influences, and understanding about food lead to practices that are scientifically sound, practical, and consistent with individual needs and available food sources" (ADA, 1978). The Association takes the position that nutrition education should be available to all individuals and families. Robinson (1976) stressed the responsibility of dietitians in providing nutrition education, and Leverton (1974) stated the importance of presenting appropriate information from the research and development laboratories to the public, the ultimate user. Bosley (1975) called attention to dietitians that "a gap exists between the scientific fact and its utilization." As the public seeks more information about nutrition, the situation presents a challenge for dietitians to close the gap between available nutritional knowledge and its application to the quality of life (ADA, 1978).

Harper (1979) stated that "if the consumer is to use nutrition information in a meaningful way, it is important that the consumer understand the essence of science as a technique for gaining knowledge and for assessing the accuracy of conclusions drawn from this knowledge." He also pointed out the most obvious problems of the consumer as lack of information, conflicting information, and continuous exposure to

misinformation. He remarked that remedying these problems is a major task for nutrition education (p. 171).

Concerted efforts have been made in nutrition education to use a variety of teaching methods; however, these methods have not been totally successful (Wagner, 1970). Thus, there is a need for a delivery system which operates on an individual basis by providing an easily accessible resource for answering personal nutrition concerns.

As consumers have encountered the accumulation of knowledge about nutrition, they have realized that the information is often too technical to apply, too difficult to understand, or too time-consuming to investigate. Thus information must be easily accessible to them and presented in an appropriate manner. The telephone communication system offers a vehicle for nutrition education that meets these criteria. The system is accessible and offers information close to the teachable moment--the time the consumer is interested in securing the information.

The telephone has been used in various nutrition education projects (Wagner et al., 1960, 1966, 1965 et al., Wakefield and Vaden, 1973, Hinkle and Fessler, 1975, Spears, Moore and Tuthill, 1973) in many cities. However, there has been little in-depth research into the effectiveness of nutrition education using the telephone communication delivery system.

This study focused on the development of a model to evaluate the influence of selected factors on the performance of a telephone delivery system for nutrition education. The model was utilized to evaluate

the performance of the telephone delivery system, Dial-A-Dietitian in Roanoke Valley.

Statement of the Problem

Agencies in the Roanoke Valley have perceived a need for a nutrition education delivery system to answer consumer questions. The telephone is a universal communications tool that could make information available to any consumer in a brief period of time. Using this system, the nutrition professional, the Registered Dietitian, could be easily accessible to provide sound nutrition information on a personalized basis. This system could act as a preventive measure against the spread of misinformation and as a teaching tool to fill gaps in nutrition information.

However, there was a need to determine the effectiveness of this type of education intervention. Previous studies of Dial-A-Dietitian programs have focused on number of calls; categories of questions; client satisfaction with service; publicity sources; and characteristics of clients. Only one study in this review, the San Diego Dial-A-Dietitian program, questioned the client's reaction to the answering dietitian (Wagner et al., 1965). There have been no recent studies recorded. Thus, the purpose of this study was to develop and use a model to evaluate the effectiveness of the telephone as a vehicle for communicating nutrition information to the public.

The development of an evaluation model, which could be used for the Roanoke Dietetic Association Dial-A-Dietitian program, will be

useful with established Dial-A-Dietitian programs across the United States. The American Dietetic Association, the professional organization for Registered Dietitians, does not have an evaluation model (Wallin, 1980); however, the Association has an interest in the development of this model.

Specific Objectives

Specifically, the study attempted the following:

(1) To design a model to evaluate the influence of selected factors on the performance of a telephone delivery system for nutrition information.

(2) To use the model to evaluate the performance of the Roanoke Dietetic Association's Dial-A-Dietitian program.

Limitations

(1) Experimenter bias may have been present.

(2) Validity was more difficult to establish since the clients reported their own behavior changes.

(3) Self-reported behavior affected the reliability of the assessment instrument.

(4) The dietitian volunteers have varied educational backgrounds and professional experience.

(5) The dietitian volunteers have varying attitudes toward the program.

(6) There was no control for outside influences other than the telephone delivery system; client satisfaction can be affected.

Basic Assumptions

(1) People seek nutrition and foods information when needed.

(2) Nutrition information is likely to be used when readily available.

(3) If information is found relevant and appropriate, the individual will internalize it, and appropriate behavior change will result.

(4) When better informed, the individual can assume greater responsibility for his nutritional health.

(5) Use of the telephone has, to some persons, more immediacy and greater credibility than a printed text as a source of nutrition information.

(6) Clients enter the system with a positive attitude toward its use.

(7) The Registered Dietitian is a professional person who will perform in a professional manner.

(8) Program evaluation can be included in the nutrition information delivery system.

(9) Program evaluation can be useful throughout the program process and for analysis of the program product or outcome.

Definition of Terms

Attitude - described as an underlying disposition which enters along with other influences into the determination of a variety of behaviors toward an object or class of objects, including statements of beliefs

and feelings about the object and approach avoidance actions with respect to it. Attitude refers to affective behavior of the subject.

Cybernetics - the study of feedback and control; how systems maintain equilibrium through homeostasis.

Delivery System - organizational arrangements including staff, procedures, activities, physical plants, and materials needed to provide program services--a combination of pathways and actions undertaken in order to provide an intervention.

Dial-A-Dietitian Program - a telephone delivery system for nutrition information.

Environment - that set of entities outside the system, the state of which set is affected by the system or which affect the state of the system itself.

Knowledge - For purposes of this study, the term refers to cognitive domain--recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting.

Performance - the level which reflects on programmatic outputs, including information on the number and types of changes in clients and in the nature of the system being evaluated.

Processes - communications, socialization, institutionalization, boundary maintenance, systemic linkage, and social control. The term can be defined as the system of actions of a system.

Registered Dietitian - is a dietitian who has successfully completed the examination for registration and maintains continuing education requirements. In providing nutritional care, the Registered Dietitian applies the science and art of human nutrition in helping people select and obtain food for the primary purpose of nourishing their bodies in health or disease throughout the life cycle. This participation may be in single or combined functions in food service systems management, in extending knowledge of food and nutrition principles, in teaching these principles for application according to particular situations, or in dietary counseling.

System - an arbitrarily defined set of interdependent parts working together toward a common purpose such that the parts can be labeled, their boundaries defined, and their functions specified.

Systematic - is having, showing, or involving a system, plan, or method.

CHAPTER 2

Review of the Literature

The primary purpose of this review was to focus on a discussion of telephone delivery systems in health education and dietetics, the evaluation of these systems, and model utilization. The information was utilized to design an evaluation model for use with a telephone delivery system, the Dial-A-Dietitian program of the Roanoke Dietetic Association.

Telephone Delivery Systems in Education

Although the telephone was first used as an instructional medium in 1939 to assist homebound and hospitalized students, it was not until the mid-sixties that the idea burgeoned in the field of continuing education. Research on the use of instructional telephone is, comparatively, an even newer area (Becker, 1978).

During the last twenty years, technological equipment more sophisticated than the telephone has dominated educational media; however, institutions are refocusing attention on the telephone to meet rising educational and training demands (Parker and Baird, 1978). Through the use of the telephone more people can be reached with educational programs; there is less travel for persons in remote areas and less travel for faculty. Several researchers have studied the use of telephone in courses for credit, teacher education extension classes, industry in-service, and art education (Whitburn, 1975; Forest and Lonergan, 1974; Wakefield and Vaden, 1973; Spears et al., 1973). These studies

indicated that the telephone classes were, for the most part, comparable to learning face-to-face. Other authors (Short, 1974; Monson, 1978; Williams, 1978) have cautioned planners to continue to monitor the practical advantages of telephone instruction and follow instruction with in-depth interviews for evaluation purposes.

The utilization of the telephone has also changed the face of health education (Meyer et al., 1968, 1969, 1970; Ristau, 1965; Donaldson, 1968) in recent years. The management of medical practice has made alterations in various ways (Levy et al., 1979; Strasser et al., 1978; Curtis and Talbot, 1980; Katz et al., 1978; Fischer and Smith, 1979; Greitzer et al., 1976; Perrin and Goodman, 1978; Perlstein et al., 1979; Strain and Miller, 1971) as a result of telephone usage. One example of a management change was reported by Katz et al. (1978). They stated that in response to increasing telephone utilization by patients, the medical group developed a telephone care system with goals to increase the capacity for home management by delegating the functions of both telephone triage and personal home care advice to trained pediatric health assistants, working under physician supervision. This operation maximized direct physician contact with patients by decreasing time spent on the telephone. Another report (Strain and Miller, 1971) cited the use of a specially trained nurse for telephone counsel in a pediatric practice.

In Dietetics (Spears, Moore and Tuthill, 1973) and in Adult Education (Parker and Baird, 1978), the telephone has been used to meet the continuing education needs for health professionals. In all these situations, the telephone was perceived to be a low cost, effective, and wide-reaching method for education.

Tutorial assistance by telephone has been used to assist individuals in the Open University near London (L'Henry-Evans, 1974). This author stated that the tutor must learn to cope with the absence of facial expressions, which causes a certain amount of tension for him. However, students in this situation can gain confidence from the anonymity afforded by this method. Another advantage for students is that many could not attend college classes on campus. Turok (1976) supported these views by citing the necessity of the telephone systems maintaining an acceptable degree of comfort and efficiency.

Another use of the telephone in education was reported by Becker (1978). He surveyed the use of teleconferencing, which is a generic term for any type of long distance discussion in which two or more separated groups are jointed through a telephone system. There are two forms: Telelecture and telephone-based instruction. Becker states that observational and survey techniques, including interviews, appear to be appropriate means to assess the effectiveness of various telephone teaching methods.

In a study by McQuigg (1979) of an innovative telephone delivery system, Teleteacher, in Prince William County, Virginia, the following criteria were used to determine the success of this program: (1) maximize the number of people reached; (2) maximize resource utilization; (3) minimize procurement, operating and maintenance costs; and (4) facilitate ease of operation. Preliminary analysis of the system was indicated that the educational effectiveness was comparable to classroom instruction. McQuigg (1979) stated that in less than two months period, three students successfully studied for and passed the Graduate Education Development test and one student the citizenship test. Each of these students was homebound and could not have attended classes.

To increase public knowledge about cancer, a telephone information system was set up in Erie County, New York, (Wilkinson et al., 1976). This free information was made available through 36 prerecorded tapes on various aspects of this disease. An operator handled calls and recorded data, such as, the number of calls, categories of requests, sex, age and residence of caller, and how the caller learned of the program. The goal of the system was to increase public awareness, interest and knowledge about cancer etiology, prevention and diagnosis. Effort was made to do a systematic assessment to determine patterns of use, characteristics of users, user motivation and program impact.

Two types of evaluation were planned for this New York system; they were: (1) a plan to examine trends in response and traits of users

as compared to the general population and (2) another plan to assess improvements in cancer control behavior evidenced by users of the system as compared to nonusers. Data were secured from telephone interviews to users and nonusers. Wilkinson et al., (1978) reported that the data revealed the following: (1) females called more than males, (2) use of the system varied inversely with age and distance of residence from the program's location, (3) socioeconomic status was equivocally related to use of the system with the low middle income group being the most frequent user, and (4) consistent patterns existed in hourly, daily, and monthly response with heaviest load on noon weekdays and with fewest calls on Sundays.

In addition, the New York data showed that users of the system exhibit behavior more oriented toward cancer prevention and control. The researchers reported that the preventive health behaviors could have been affected by use of the system.

In a similar study, Harer (1979) reported on a local medical society project which spread to a nationwide information resource. The program began in San Bernadino County, California, by providing health information by telephone with tape-recorded messages. Later, more than 800,000 calls per month were received in 180 cities, accessing a library of more than 300 subjects.

This idea, called Tel-Med, gave public access to accurate medical information. It is now a nonprofit, tax-exempt education corporation

which administers the program nationally. All tapes used must have the approval of the local medical society, which insures conformance with local standards and assures acceptance. Reviews were made for up-to-date accuracy of information. Scripts were written by volunteer physicians and edited in a simpler language by Tel-Med staff.

Harer points out that the taped messages effectively supplement physician and staff counseling; callers can request vital information on sensitive subjects; the program is cost effective; positive changes in behavior have been reported; and growth has been steady in programs across the United States (Okel and Holderfield, 1974; Holderfield, 1977; Diseker et al., 1980; Bartlett et al., 1973).

In an evaluation of a Tel-Med program, Diseker et al. (1980) surveyed 3,005 respondents in North Carolina to determine whether or not the program objectives met their needs. The telephone interviews included questions on user characteristics, user motivation, action taken, knowledge and information gained, and system improvements. The results of the survey indicated the following: (1) A large percentage of adults with lower educational level were not aware of the service, (2) Income and education were not related to use of the system, (3) Efforts need to be made to inform all groups of the service, and (4) Tel-Med information can influence consumer health decisions. Diseker et al., 1980, stated that most of the telephone information systems have been subject to only limited evaluation (p. 229).

Medical information is provided to Wisconsin physicians by dial access to telephone tapes (Meyer, 1970). This system was set up to provide authoritative core information on a variety of medical subjects for use in emergency situations and as a method of updating medical information. Another objective was to have the information available at any time of the day or night and accessible wherever the physician may be located.

The Wisconsin system was evaluated to determine program effectiveness by an analysis of data collected at the time of the call and from the analysis of a post card survey of the users. These data included date, time, frequency of tape use, caller's name, address and practice status. From the analysis of these data, Meyers reported that the user accepts and retains new information more readily if presented at the time of a pressing need for the information. In this study, 32.5 percent of the callers indicated change of behavior as a result of using the service.

Meyers (1969) also reported on the University of Wisconsin Medical Center and University Medical Communications Center, which was established in 1967. The objectives of the center were: (1) Provision for the structured continuing education of the health care professionals in Wisconsin -- through the telephone-radio conference circuit, reaching 68 hospitals in Wisconsin, (2) Providing immediate access to current, pertinent and emergency information to physicians in the state on a 24

hour basis -- the Medical Dial Access Library, (3) Providing visual instruction of new medical techniques for physicians in their own hospitals -- single concept films, (4) Investigation of the means by which physicians in community hospitals could attend conferences held at the medical center by means of slow-scan TV and obtain hard-copy reprints of articles or abstracts within minutes of request, and (5) Identification of the place for random-access videotapes and tape-slide presentation in medical curricula.

The Center use was evaluated by tabulation of calls, utilization by subject categories, and by a postcard or telephone user survey. Telephone-radio conferences for continuing education from the Center gave pre and post tests; these data showed no significant differences in scores of physicians participating in this program and medical students tested in the regular Campus programs (Meyer et al., 1968).

Parker and Baird (1978) indicated that the "telephone is meeting the rising demand for continuing education by Wisconsin physicians, nurses, pharmacists, and other allied health personnel." These authors also stated that Wisconsin's telephone network ranks as one of the world's largest party lines for learning in terms of coverage by locations and diversity of professions served such as social workers, lawyers, musicians, teachers, farmers, librarians. . . in addition to health personnel.

Forest and Lonergan (1974) reported a study of the effectiveness of the telephone in reaching people with information from the Extension

Service Office. The Extension home economist kept a record of incoming questions for one month. At the time of the call, the caller was asked to participate in a follow-up survey; six weeks later, the survey was completed, and the results are shown in Table 1. The continuation of using the telephone for information from the local Extension Office to the public resulted from this survey.

In another study, Perlstein et al. (1979) reported on the Neonatal Hotline Telephone Network in Ohio. Initiation of this improved system of communications was associated with a significant improvement in the survival of infants transferred from the community hospitals to the regional care facility. The direct lines to six different area hospital nurseries with the Newborn Special Care Unit at Cincinnati Children's Hospital provided immediate information.

In this review, it is apparent that few systems have conducted intensive evaluation studies. Programs which have conducted evaluation studies measured the effectiveness of the program by the number using the system, satisfaction of the user measurement, identification of user characteristics, and behavioral changes as reported by users.

Telephone Systems in Dietetics and Nutrition Education

Dietitians and food specialists have used the telephone communications system in various projects. One project, Telenet, at Kansas State University, was reported by Wakefield and Vaden (1973). This

TABLE 1. Results of Extension Service Telephone Survey*

Remembered asking the question	100%
Got desired information	91%
Understood reason for answer	93%
Used information	87%
Satisfied with results	90%
Can use information in future	91%
Shared information with others	82%

*Source. Forrest and Lonergan. Should we still teach by phone? Extension Service Review, 1974, 47, 14-15.

project consisted of a telephone network to provide nutrition education for elementary teachers at eighteen locations scattered throughout Kansas; a coordinator assisted at each site. Participants were provided with nutrition education material, including transparencies, sack puppets, and booklets, which was mailed prior to the lesson. Results from pre and post tests indicated that this instruction was an effective medium for imparting nutritional knowledge to individuals inaccessible to other teaching methods.

Telephone-radio conferences which provided continuing education for dietetics practitioners were reported by Dickie (1974). A series of statewide conferences was held in Wisconsin through the Medical Communications Center. This network allowed participants to share in a two-way conference telephone line without leaving their own locations. Speakers from any location could be brought in by connecting the network with a long distance call. This was a source of continuing education for dietitians and had offered a chance for sharing information.

Telephone Dialogue is another system, which has been sponsored six times by the Council for Agricultural Science and Technology (Update, 1980). Specialists answer food questions during the two-day call-in over a nationwide, toll-free network. Twenty-three hundred callers (1980) were concerned with excessive vitamin intake, saccharin and its relationship to cancer, additives, hyperactivity, and cancer causing foods.

Spears et al. (1973) reported on continuing education through telelectures. An evaluation was carried out to compare this method with

traditional workshops. Control and experimental groups were used with pre and post tests. The evaluation was done to determine whether or not a change in behavior had occurred. From the study, the telelecture method of teaching proved to be effective, particularly in remote areas. The authors stated that "the telelecture technique should not be considered as a complete replacement for the traditional workshop" since some individuals are more responsive to in-person methods. However, this study does indicate that the telelecture method is as effective as the traditional workshop in bringing respective participants to a common level of educational achievement.

Another kind of project using the telephone system was reported by Corak (1974). In Mobile, Alabama, a Nutrition Information and Referral system was set up to connect potential utilizers of nutrition services with providers. To improve nutrition services, the following projects were done: (1) A Directory of Food and Nutrition Services was compiled, (2) Data were collected for a nutrition educational and audio-visual exchange system, (3) Forms were designed for record keeping requests, (4) Information from various agencies was gathered by personal interviews, (5) Community cooperation was promoted and a County Nutrition Council was formed and (6) Publicity was a continuing process and brought community focus on nutrition. Through this project gaps of service were identified and an on-going council continued.

Dietitians and nutritionists have long provided nutrition education using various methods. However, it was not until 1958 that these professionals used the telephone delivery system as a method for nutrition education. The Dial-A-Dietitian system, "the organized use of the telephone to communicate nutrition facts in response to telephoned questions adds but one more dimension to these (nutrition and education) efforts" (Wagner, 1966). In the ADA Courier (1980), it was reported that "during the 1978-79 year alone, Dial-A-Dietitian answered over 9,000 telephone calls, responded to over 250 letters, and wrote 372 newspapers columns."

Wagner et al. (1960) reported on the telephone nutrition information project of the Detroit Dietetic Association, which was the first Dial-A-Dietitian program in the U.S. and was organized October 1, 1958. The project served the following purposes: it offered community services and provided an avenue of communication between the public and the dietetic profession. With support from the American Dietetic Association, a working committee planned the operation of the project. An answering service was used, with various dietitians calling the clients to discuss the questions.

The working committee for this project set up policies and procedures for resource materials, referral agencies, and other committees as needed. Funding for the initiation of the project was given by the Merrill-Palmer Institute. A chairman from the Detroit Dietetic

Association coordinated schedules, answering service forms, records, and evaluation meetings with the Advisory Board. Members volunteered for one day every three months; the member picked up the question from the answering service and then returned the call within 24 to 48 hours.

Public response in Detroit was directly correlated to newspaper announcements and radio publicity. A newspaper column was featured for ten consecutive weeks. During the first nine months of operation, the Detroit service received 932 calls. A committee analyzed the questions placing them into categories of therapeutics, food values, food preparation, and sanitation. A follow-up survey to participants showed satisfaction with the project. The Detroit Dietetic Association gained in several ways--continuing education, satisfaction in community service, information as to needs in the community, and a greater awareness of community agencies and resources.

Another Dial-A-Dietitian program, in Columbus, Ohio, (Hinkle and Fessler, 1975), was reviewed as to its operation between November, 1961, and October, 1972. Reports revealed the Columbus program motivated 8,072 citizens to use the telephone for nutrition information. During the first year, most questions related to heart disease, diabetes mellitus, and general dietary modification. Ten years later, most queries were on food values, nutrient composition, and calorie content. Funding for the program was made available through the Heart Association. Hinkle and Fessler (1975) stressed the importance of the volunteer

professionals for this community service and the need for continued publicity throughout the operation.

Wagner (1966) reported on the existing Dial-A-Dietitian programs throughout the United States, designed to provide authoritative nutrition facts in response to telephoned questions. She stated that "the direct line of communication between the nutrition professional and the client provides an avenue for clarification of the telephoned question and assures the dietitian an enthusiastic exchange with an interested, self-motivated participant." Wagner explained that most cities with this service used the following pattern of operation: (1) A telephone number was published through public service time and space, (2) An answering service recorded the question and information about the caller, and (3) Questions were referred to scheduled dietitians to answer within a 24-to-48 hour period.

Dietitians answered questions on normal nutrition and dietary information relating to clarification of therapeutic diets. The telephone was answered with the name of the dietetic association to preserve the identity of the project.

Wagner stressed the fact that the impetus of a project is the interest of the Dietetic Association members. Wagner stated that "in the last analysis, however, the critical issue of the effectiveness of the service can be judged only by the skill with which the dietitian relates her professional knowledge to her clients' concerns about nutrition."

Another report on the Dial-A-Dietitian programs in the United States was presented by the ADA Advisory Committee (Wagner et al., 1965). This study analyzed data on program organization and program impact from nineteen regional programs in the United States. Data were collected through the use of evaluation forms completed by the chairman of the pilot programs, call "load records," a monthly time sample of client requests, and detailed reports of publicity activities.

This report (Wagner et al., 1965) made the following inferences about organizational details of Dial-A-Dietitian programs: (1) The project organization initiated by the Detroit group was the most typical (Wagner et al., 1960), (2) Monthly costs varied from $25 to $45, with initial expenditures of approximately $100, (3) Service in larger cities was most conveniently handled by associations having at least twenty-five members for volunteer participation, (4) Areas having populations of more than 200,000 seem to provide the greatest client potential, (5) Service hours should be restricted to 3 hours daily during the first two months of operation; (6) Suitable local sponsors have been available in all program locations; (7) The programs were seen by the regional dietetic associations as implementing Association goals and as providing a public service channel where the talents of the dietitian as a nutritional expert are in demand. This report stated that the organizer must have a large time commitment and that once the project is underway administration becomes predictable except for the continuous need for publicity.

When study impact data were analyzed, there were 3,415 questions with categories as follows: Food Composition, Dietary Modification, Food Sanitation, Food Preparation, Menus, and Recipes, Food in Relation to Health and Metabolism, Food Additives and Commercial Food Processing, Food Buying and Budgeting, Resource Materials, Career Guidance, and Nonanswerable questions. The categories were tested for validity before their use. Food Composition accounted for more than one-fourth of the total questions. Remaining categories followed in this order: Dietary Modifications, Food Sanitation, and Food Preparation, Menus and Recipes. Tables 2 and 3 present an analysis of the questions in the two categories of Food Composition and Dietary Modification.

A majority of clientele was interested in weight reduction. The cities differed in the percentage of various categories. The number of requests for modified diets was low. Table 4 presents an analysis of resource material requests. The most frequent caller seemed to be the middle-class, nonemployed homemaker. Newspapers appeared to be the most effective publicity medium for referral (see Table 5). The clients viewed the service as a readily accessible and valuable resource for nutritional information (Wagner et al., 1965).

Wagner (1970) stated that "constant communication with the public by new and dramatic presentations of nutritional truths is essential to counteract the exaggerated claims of the modern counterpart of the

TABLE 3. Analysis of 654 Questions on Dietary Modification by Topic and Type of Assistance Requested*

Topic	Number of Questions	Percent	Percentage Requesting Specific Assistance*	
			Food Preparation, Menus, and Recipes	Dietary Clarification
Diabetes	169	25.8	37.9	62.1
Calories	148	22.6	20.3	79.7
Sodium	83	12.6	37.3	62.7
Allergy	59	9.0	54.2	45.8
Fat, cholesterol, and polyunsaturated fatty acids	51	7.8	17.6	82.4
Bland	32	4.9	25.0	75.0
Ulcer	31	4.7	29.0	71.0
Purines	18	2.8	5.6	94.4
Gallbladder	16	2.5	6.3	93.7
Lowfiber	7	1.1	28.6	71.7
Acne	5	0.8	60.0	40.0
Miscellaneous	35	5.4	14.3	85.7

*Source: Wagner, M. G., Huyck, M. C. and Hinkle, M. M.: Evaluation of the Dial-A-Dietitian Program. J. of American Dietet. A., 47: 385, 1965.

TABLE 2. Analysis of 926 Food Composition Questions by Topic*

Topic	Number of Questions	Percent
Calories	568	61.3
General food composition	171	18.5
Vitamins	57	6.2
Fat, cholesterol, polyunsaturated fatty acids	40	4.3
Sodium	24	2.6
Protein	23	2.5
Carbohydrate	11	1.2
Potassium	7	0.8
Iron	7	0.8
Purine	4	0.4
Miscellaneous (other minerals, oxalic acid, and so on)	14	1.4

*Source: Wagner, M.G., Huyck, M. C. and Hinkle, M.M.: Evaluation of the Dial-A-Dietitian Program. J. of American Dietet. A., 47: 385, 1965.

TABLE 4. Analysis of 260 Requests for Resource Materials by Topic *

Topic	Number of Requests	Percent
Weight reduction	57	21.9
Calorie charts	47	18.1
General nutritional information	45	17.3
Diabetic cookbooks	37	14.2
Allergy recipes	17	6.5
Sugar-substitute recipes	17	6.5
General food composition tables	15	5.8
Speakers or bibliographies	10	3.9
Miscellaneous	9	3.5
Career information	6	2.3

*Source: Wagner, M.C., Huyck, M.C. and Hinkle, M.M.: Evaluation of the Dial-A-Dietitian Program. J. of American Dietet. A., 47: 385, 1965.

TABLE 5. Publicity Referral Media
Reported by 1243 Clients*

Source of Information	Frequency of Listing	Percent
Newspapers	703	56.5
Radio	252	20.3
Television	123	9.9
Friends	61	4.9
Agency	31	2.5
Telephone book listing	20	1.6
Professional personnel (doctors, dietitians, teachers)	21	1.7
Miscellaneous (bus cards, pamphlets, and so on)	32	2.6

*Source: Wagner, M.G., Huyck, M.C. and Hinkle, M.M.: Evaluation of the Dial-A-Dietitian Program. J. of American Dietet. A., 47:385, 1965

medicine man." She said that "perhaps there is a need for more programs that operate on a more intimate basis by providing an easily accessible resource for answering personal nutrition concerns." Wallin (1980) indicated a need for District Dietetic Associations to include evaluation in their program planning as new Dial-A-Dietitian programs are organized.

Polk (1980) reported on a Dial-A-Dietitian Hotline, which was founded for two summers. She stated the importance that this type program be established throughout the United States to promote wise food choices and aid in disease prevention.

The literature review has shown that the Dial-A-Dietitian programs which have reported continue to have questions on the performance of these delivery systems. Questions from previous reports, and questions for this study are shown in Appendix A. This study sought to answer the questions through model utilization.

Evaluation of Methodology

Evaluation is the determination (whether based on opinions, records, subjective or objective data) of the results (whether desirable or undesirable, transient or permanent, immediate or delayed) attained by some activity (whether a program or part of a program. . . an on-going or one-shot approach) designed to accomplish some valued goal or objective (whether ultimate, intermediate, or immediate, effort or performance, long or short range). This definition contains

four key dimensions: (1) processes--the "determination," (2) criteria--the "results," (3) stimulus--the "activity," and (4) value--the "objective." The scientific method with its accompanying research techniques then provides the most promising means for "determining" the relationship of the "stimulus" to the "objective" in terms of measurable "criteria" (Suchman, 1967, p. 31).

Today nutrition education programs are continuously initiated across the United States. It is important that a systematic approach be considered for the evaluation of such programs.

Bennett (1977) emphasized that "program evaluation is part of the overall program development process, which includes: (1) identifying problems and selecting long-range objectives, (2) specifying these objectives and the strategy, activities, and budget designed to achieve them, (3) conducting activities, (4) evaluating the program's strategy and impact, and (5) using this evaluation along with other information in subsequent program development." Bennett stated that "the major purpose of program evaluation is to assist in reaching decisions on future directions, design, and funding of programs. Decisions on whether programs should be terminated, curtailed, maintained, or expanded are aided by program evaluation." Figure 1 shows the Bennett Model (Bennett, 1977) for program evaluation.

Klein et al. (1979) cautioned that there is little uniformity of definition of evaluation among evaluators. These authors stressed that

Plans Compared with Achievement*

P A	7. End Results	Ultimate Objectives "Side" effects
P A	6. Practice Change	Individual Innovation; Structural Change
P A	5. KASA Change**	Direction and Extent; Duration of Change
P A	4. Reactions	Interest in Activities; Acceptance of Leadership
P&A	3. People Involvement	Number and Characteristics; Continuity and Intensity
P A	2. Activities	Educational Methodology; Subject Matter Conveyed
A P	1. Inputs	Time Expended; Staff Qualifications

KEY
P=Planned (Objectives)
A=Achievement

*Source: Bennett, C. F. Analyzing Impacts of Extension Programs. Extension Service, U. S. Department of Agriculture, ESC-575, July, 1977.

**KASA indicates knowledge, attitudes, skills, and aspirations.

Figure 1. Hierarchy of Evidence for Program Evaluation

"evaluations are undertaken to provide information about the extent to which projects or programs are meeting social needs." They defined "program evaluation as the name given to evaluating programs; project evaluation is the name given to evaluating local projects."

The American Dietetic Association's Position Paper on the scope and thrust of nutrition education (ADA, 1978) stated that "evaluation must be a part of all nutritional endeavors, with measurable objectives constructed to determine the effectiveness of the programs." The Position Paper placed emphasis on the appropriate stated measurements of indicators, which may be: increased nutritional awareness, attitudinal changes, increased nutritional knowledge, changes in food purchasing and selection, behavior and actual health outcomes as reflected in objective physical measurements or biochemical data.

Emphasis in the Position Paper was also placed on methodology, i.e., the effectiveness of the methodology must be measured according to the strategy and setting. Studies need to "give attention to validity, appropriateness and consistency of content, coordination within or between agencies engaged in nutrition education, and their efficiency of operation" (ADA, 1978).

Attkisson et al. (1978) stated that program evaluation must be viewed as an integral aspect of organizational design and development that promotes external accountability to citizens, consumers, and funders. These authors presented the information in Table 6 for definition of program evaluation.

TABLE 6. Program Evaluation: A Working Definition

Program Evaluation

A process of making reasonable judgments about program:

- Effort
- Effectiveness
- Efficiency
- Adequacy

Based on systematic data collection and analysis designed for use in:

- Program management
- External accountability
- Future planning

Includes special focus on:

- Accessibility
- Acceptability
- Comprehensiveness
- Integration of services
- Awareness
- Availability
- Continuity
- Cost of services

Source: Attkisson, C. C., Hargreaves, W. A., Horowitz, M. J., and Sorensen, J. E. Evaluation of Human Service Programs, N.Y.: Academic Press, 1978.

Attkisson et al. (1978) indicated that evaluation which is "highly linked" to a user system will develop in the direction of more closely meeting user needs and will be more readily accepted. They emphasized that the availability of evaluation data coupled with an effective public relations campaign can add visibility to an organization and also add credibility among people who often resist using a service.

It has been pointed out by Steele (1973) that the complexity of evaluation needs, interrelationships, and importance of not trying to reduce evaluation to one specific procedure or to use only one evaluative approach is of utmost importance to remember in planning for evaluation. She stressed the need for evaluation when a program lacks past operating experiences. Steele also stressed that "the kind of evaluation models that are most needed are those that can deal with real-life situations and make valuable contributions in an everyday environment" (Steele, 1973).

The literature review reveals many examples of models for evaluation (Klein et al., Steele, Talmage et al., Worthen and Sanders, Popham, Wolf, Suchman, Bennett, Fitz-Gibbon and Morris, and Churchman). The terms "design," "model," "approach," and "framework" are used interchangeably in the literature review (Steele, 1973). Models vary in complexity and emerge continuously; they are used for doing various kinds of evaluation. For example, models are used to make major decisions and guide overall program management, to examine the impact and

larger results of a program, to guide the organization and its use of program components, and to evaluate the progress from the participant's viewpoint. Often a certain model will be more important for one kind of program than another, and the model will be needed at a specific time but not another time (Steele, 1973).

Model Designs Used in Dietetics and Health Related Programs

In this literature review, this researcher was unable to report specific evaluation models for Dial-A-Dietitian programs. However, models have been designed for various dietetics programs and health related programs.

Performance evaluation has been discussed by Registered Dietitians (Fiedler et al., 1981). These researchers designed a model for a performance evaluation system; the model established a procedure for an evaluation system and included the following steps: (1) Development of a performance evaluation instrument, (2) Establishment of content validity, (3) Use of the instrument in a standardized situation, (4) Establishment of interrater reliability through repeated trials, (5) Implementation of the instrument in the program, (6) Review of the instrument periodically for validity and reliability. These researchers found that coordinated program students, faculty, and personnel experienced greater satisfaction and less frustration in performance evaluation and feedback after having utilized the model.

Glanz (1979) designed a framework or model for the study of dietitians' effectiveness and patient compliance with dietary regimens. This study emphasized that indirect effects in patient compliance include interference in the dietitian-patient relationship and general dissatisfaction with the delivery of nutritional care (p. 631). The Glanz Model included the following: (1) Predisposing and Need Factors, e.g. patient and dietitian characteristics and institution factors, (2) Enabling Factors, e.g. patient and dietitian attitudes, (3) Modifying Factors, which included the Interaction. The author stressed that communication of the basic components of a dietary regimen is a necessary prerequisite to patient compliance. Glanz stated the importance of vocabulary in the interaction process since misunderstanding could occur and cause dissatisfaction (p. 632). (4) Readiness to Comply (also Enabling Factors) consisted of patient attitudes toward health and intentions to comply. (5) Compliance Behavior of patient behaviors was the last component of the Glanz model.

The Glanz study included nine dietitians and twenty of their patients; observations of counseling sessions were made, and patients and dietitians were questioned independently to predict rates of compliance. One month after the interaction, a follow-up telephone call was made to both dietitians and patients to assess adherence to the dietary regimen. An index was developed and based on the dietitians' answers. Compliance scores were computed on patients' answers.

Statistical analysis used was (1) Fisher's exact test, which was used to test the hypothesis of independence, and (2) the odds ratio, which was a measure of association between two categorical variables.

Glanz concluded that dietitians are in a crucial role to influence patients' beliefs regarding a condition and the paths of action to follow for dietary compliance and to mobilize the skills needed. She stated that evidence strongly suggested the importance of practitioner-patient interaction on subsequent patient behavior (p. 636).

Wittemann et al. (1978) designed an overall evaluation model, which was utilized for planning and continuous assessment of a dental student nutritional counseling program. This model had four interdependent components: input, transaction, analysis, and output. Each component represented a number of specific evaluation and information processing efforts calling for the identification of particular critical attributes, variables, functional roles, processes, structures, and whole subsystems. The model was used to (1) identify resources pertinent to the structure of the course, (2) develop a method to accurately measure changes in cognitive learning and devise a system to record student skill levels in counseling patients (p. 164). In this research observation and evaluation forms were used at various phases of the program (p. 166).

Talmage et al. (1978) pointed out the use of various models to evaluate nutrition education programs. These researchers stated the importance of sequential steps in a study, and they were listed as

follows: (1) Description of the institutional context, (2) Description of the change, (3) Statement of goals and objectives, (4) Evaluation Design which includes the Model, Methodology, Data Sources, Instrumentation, Data Collection, and Data Analysis, (5) Time Frame, and (6) Reporting.

Dietitians have alluded to other models (Mason et al., 1977; Morse et al., 1979; Webster et al., 1981; Canter and Beach, 1981; and Vickery and Boylan, 1981) in the field of dietetics. These researchers have employed a theoretical framework to study various research projects.

Summary

As the public reaches out for better understanding of the information to them, dietitians are in a position to bridge the gap between nutrition research and its utilization by the consumer. The telephone communications delivery system has been used extensively in health education; and dietetics has used the system since 1958. However, there is a need to evaluate the effectiveness of the telephone system and its use with nutrition information. Thus the use of a systematic evaluation model was selected for this study. The model will seek to determine the effectiveness of the Dial-A-Dietitian program as a tool for nutrition education for the public.

CHAPTER 3

Framework for Nutrition Education Evaluation

Evaluation in nutrition education is often subjective and based primarily on how well the audience liked the program (Gillespie, 1981). Gillespie stressed that nutrition education research needs studies that present the development and/or application of explicit models which can be tested and improved upon and from which a body of generalizations may emerge to guide further research. With a systematic approach, there can be a better understanding of the process of nutrition education, which can facilitate more effective strategy formulation and the ability to predict program outcomes (Gillespie, 1981). An evaluation model is presented in this chapter.

The Dial-A-Dietitian Model

Weiss (1972) commented that the construction of a model is useful in making assumptions more explicit; such a model is a way to clarify and systematize the factors that are worth examining (p. 52). This study attempted to design a systems model to be utilized with the Roanoke Dietetic Association Dial-A-Dietitian program for its evaluation. However, the study is classified as ex post facto research or nonexperimental research. Kerlinger (1979) defined this kind of

study in which it is not possible to manipulate variables or to assign subjects or conditions at random. The basic purpose of ex post facto research is to discover or establish functional relationships among variables.

In order to describe the Dial-A-Dietitian Model, it is first necessary to define the goals of the system and then to describe the articulation of the parts of the system. Initially, the goals of the Roanoke Dietetic Association Dial-A-Dietitian Program were adapted from guidelines of the American Dietetic Association Dial-A-Dietitian Committee.

The goals from the American Dietetic Association Dial-A-Dietitian Committee, from the Roanoke Dietetic Association Dial-A-Dietitian program, and for this research study are stated as follows:

(1) The American Dietetic Association:

To provide the public with an authoritative source for normal nutrition information.

(2) The Roanoke Dietetic Association:

a. To provide an opportunity for the general public to have access to a professional, who is a Registered Dietitian, in order to secure nutrition information.

b. To create a community awareness of the Registered Dietitian, who is a member of the Roanoke Dietetic Association.

c. To provide access, through referral, to community agencies for available materials in the foods and nutrition subject area.

d. To evaluate the nutrition information program Dial-A-Dietitian.

(3) The Research Study:

a. To design a model to evaluate the influence of selected factors on the performance of a telephone delivery system for nutrition information.

b. To use the model to evaluate the performance of the Roanoke Dietetic Association Dial-A-Dietitian program.

The model is characteristic of a systematic and organized framework. It is sequential in nature with each phase important to the total operation of the system model.

Rationale for the Model

As alluded to in the literature review, there is a need to establish an evaluation model for telephone delivery systems. Models provide a conceptual framework for developing evaluation plans. The evaluation approach through this model will borrow from the evaluation ideas and models of several contemporary writers without following exclusively the theories of any particular individual.

As previously stated, this Dial-A-Dietitian Model resembles the systems approach, which involves a model for simplification of a process. Kramer and Smit (1977) stated that a systems approach or systems thinking is a means of tackling problems, a methodology. The term "system"

ranks high among popular concepts and catchwords. This philosophical framework has been used in both the biological and social sciences and has penetrated into everyday language (Kramer and Smith, 1977). Laszlo (1972) stated: "The natural philosophy of the new developments in the sciences is a systems philosophy. When properly articulated, it can give us both factual and normative knowledge" (p. 120). A systems philosophy can be characterized as a multidisciplinary means of communication for practical action (Kramer and Smith, 1977). A system has been defined as "a set of parts coordinated to accomplish a set of goals" (Churchman, 1968) and as "an arbitrarily defined set of independent parts working together toward a common purpose such that the parts can be labeled, their boundaries defined, and their functions specified." Both definitions of Churchman clearly imply an interaction of parts of a system to achieve a specific objective.

Churchman also stressed the following basic considerations when thinking about the meaning of a system:

(1) the total system objectives and the performance measure of the whole system;

(2) the system's environment: the fixed constraints;

(3) the resources of the system;

(4) the components of the system, their activities, goals and measures of performance; and

(5) the management of the system (p. 31).

In order to clearly demonstrate systems concepts, oftentimes, a systems model, i.e., a representation, is used to illustrate parts

of the system and describe their interaction. A basic systems model is illustrated as follows:

Inputs ⟶ System ⟶ Outputs

Here inputs are defined as needs and resources (people, money, staff); the system is defined as program activity with components; and outputs are defined as measured results of the program activity. However, if one wishes to evaluate the system, it is necessary to include a feedback loop. The system then becomes a cybernetic system; that is, information from the outcomes are returned to the decision-maker for program activity change (see Figure 2). It is such a system that this research employed in the development of a model which was used to evaluate the Dial-A-Dietitian program.

The Dial-A-Dietitian Model (Figure 3) uses the idea of concepts as they fit into the nutrition information delivery system with categories from Bloom's Taxonomy of Educational Objectives (Appendix B). The concepts and their categories are shown in Table 7. These concepts were measured through Performance (outcome - Phase 1), a component of the evaluation process. A client telephone survey (Appendix C) was the measurement tool. Provisions will be made for continuous feedback such that program changes may be considered. Concepts are useful in thinking about the effect of relationships on systems and the behavior of systems.

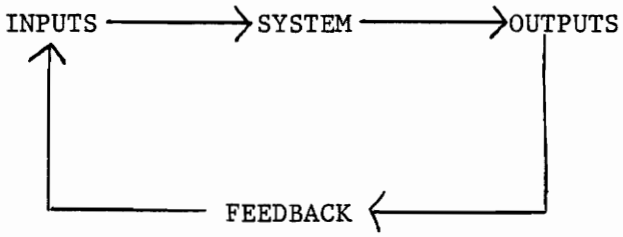

Figure 2. A General Model of a Cybernetic System

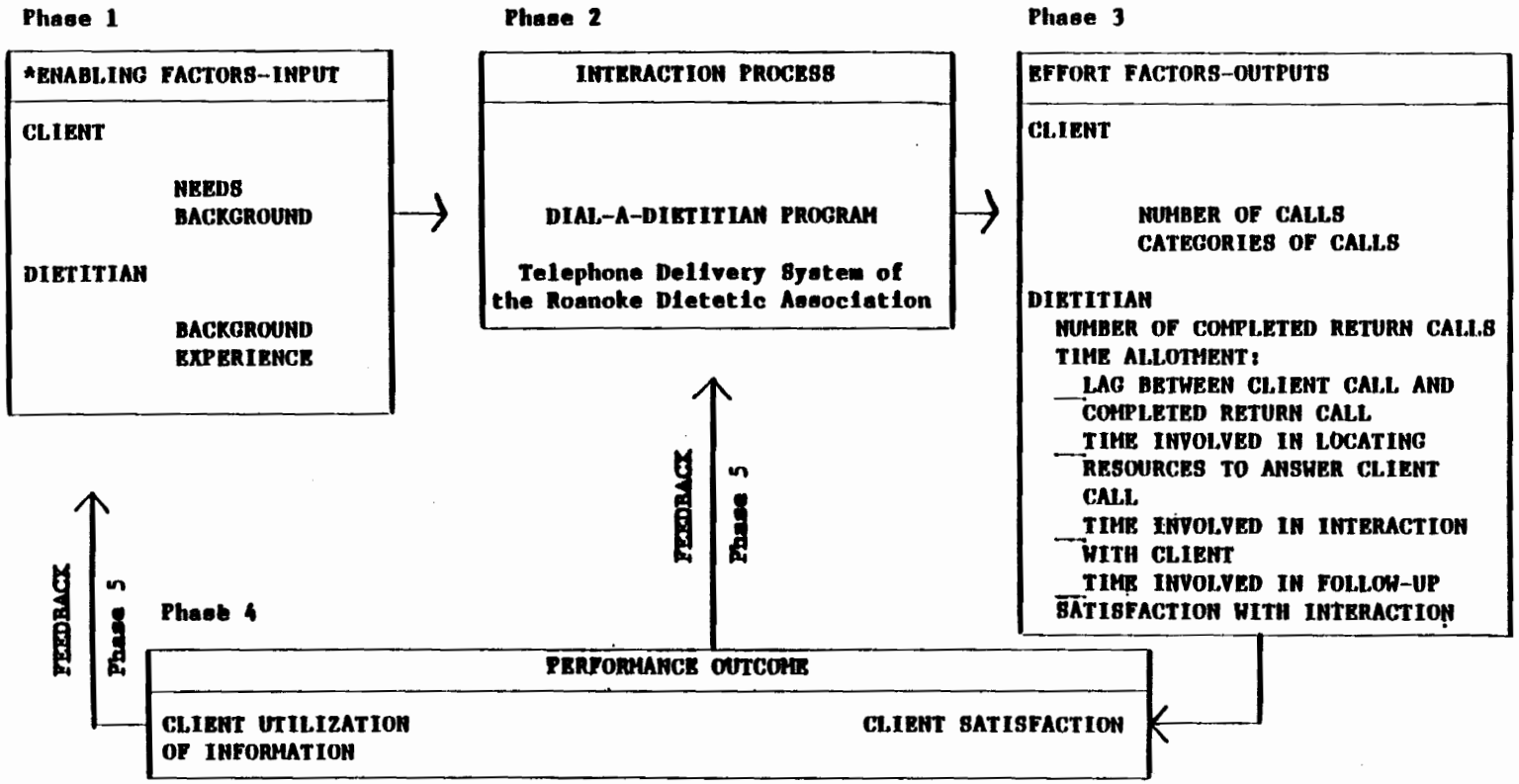

Figure 3. Dial-A-Dietitian Model to Evaluate the Telephone Delivery System Dial-A-Dietitian Program of the Roanoke Dietetic Association

*Asterisk indicates other Enabling Factors not measured in this study, e.g. organizational structure with operation committees of the sponsoring organization; funding source; publicity; material resources; community linkage; staffing.

TABLE 7. Dial-A-Dietitian Program Concepts and Categories

(1)	Client can recall the nutrition information from Dial-A-Dietitian	Knowledge (Cognitive Domain)
(2)	The client will use the nutrition information from Dial-A-Dietitian	Application (Cognitive Domain)
(3)	The client is satisfied with the telephone delivery system as a nutrition information resource	Responding - Satisfaction in response (Affective Domain)

Another way of examining the concepts in this study is to compare them with Bennett's Model (Bennett, 1977) which was shown in Figure 1 for levels of program accomplishment. Table 8 summarizes the comparison of the Dial-A-Dietitian Model and the Bennett Model.

Performance on the Dial-A-Dietitian Model measures criteria similar to the top levels of the Bennett Model. Effort Factors in the Dial-A-Dietitian Model compare to the next two levels of the Bennett Model-Reactions and People Involvement. The Interaction Process of the Dial-A-Dietitian Model parallels the Activities level of the Bennett Model. The Dial-A-Dietitian Enabling Factors correspond to the Inputs of the Bennett Model.

The Bennett Model has been used in Extension Service education programs. Evidence of impact becomes stronger in ascending the levels shown in Figure 1. Although the two models are similar, the Dial-A-Dietitian Model appears to have more control through its feedback mechanism, which will be beneficial in evaluating the telephone delivery system for nutrition information.

The Design

Prior to the discussion of the model components, it is appropriate for the purpose of this study to present a brief description of the environment surrounding the system. A system's relevant environment consists of: "that set of entities outside the system, the state of which set is affected by the system or which affect the state of

Table 8. Comparison of the Dial-A-Dietitian Model and the Bennett Model Evidence for Program Evaluation

Bennett Model	Criteria	Dial-A-Dietitian Model	Criteria
7. End Results	Ultimate objectives "side" effects	Performance	Maximize the nutritional health of Roanoke Valley citizens
6. Practice Change	Individual Innovation Structural Change	Performance	Client's utilization of nutrition information
5. *KASA Change	Direction and Extent Duration of Change	Performance	Knowledge, Attitudes, Satisfaction
4. Reactions	Interest in Activities Acceptance of Leadership	Effort Factors	Dietitian Effort
3. People Involvement	Number and Characteristics Continuity and Intensity	Effort Factors	Number of Calls & Category Time Allotment in Calls
2. Activities	Educational Methodology Subject Matter Conveyed	Interaction Process	Dial-A-Dietitian Telephone Delivery System
1. Inputs	Time Expended Staff Qualifications	Enabling Factors	Clients Dietitians

*Knowledge, attitudes, skills, and aspirations

the system itself" (Kramer and Smith, 1977, p. 34). The environment for this model, the community of Roanoke Valley, has many characteristics which influence the model. Factors which are not being included in this discussion include the following: organizational operation, funding, publicity, community linkage, and material resources.

In order to achieve goals there must be an interaction of the phases of the system; however, it is necessary to define each of these phases before describing their interaction. This discussion will attempt to explain the components of the Evaluation Model as shown in Figure 3; and the description will relate the Model to the Roanoke Dietetic Association Dial-A-Dietitian program (Appendix D). The component phases of this model are (1) Enabling Factors, (2) Interaction Process, (3) Effort Factors, (4) Performance, and (5) Feedback. These can be translated into a system framework by viewing the Enabling Factors as inputs, the Interaction Process as the system of program activity, and the Effort as outputs. Performance or outcome provides an avenue for feedback which becomes the basis for the evaluation study. Glanz (1979) developed a similar framework for a study of dietitians' effectiveness and patient compliance with dietary regimens.

Enabling Factors - Phase 1 (inputs)

The Enabling Factors (see Figure 3) are important to the initiation of the Dial-A-Dietitian program or other adult education programs; Knowles (1970) stated that "the starting point is always the adults'

interest." Knowles (1970) describes an educational need as "something a person ought to learn for his own good, for the good of the organization, or for the good of society" (p. 85). This need is described as "a gap between the present level of competencies and a higher level required for effective performance as defined by himself, his organization, or his society" (Knowles, 1970). This author also stated that three sources of need should be considered in planning programs, and they are the following: (1) needs of individuals to be served, (2) needs of the sponsoring organization, and (3) needs of the community or society at large (p. 91).

The need for the Dial-A-Dietitian program was perceived through a survey of agencies with a nutrition or related program to determine whether or not a demand for nutrition information existed. Participating agencies were asked to record the number of telephone requests for food and nutrition information for one week. A representative of each of the following agencies in Roanoke Valley was contacted:

Hospital Dietary Departments:

Veterans Administration

Community

Roanoke Memorial

Lewis-Gale

Virginia Cooperative Extension Service Offices:

Bedford Co.

Craig Co.

County of Roanoke

Montgomery Co.

Botetourt Co.

City of Roanoke

Franklin Co.

Other Related Agencies:

Appalachian Power Co. Home Economist

Va. Dept. of Agriculture and Consumer Service

Roanoke Times and World-News Food Guide Editor

Va. State Dept. of Health, Nutrition Consultant-Blacksburg

Each representative was requested to send the following information: name of agency and record of food/nutrition questions received by telephone during the week of July 14, 1980. They were questioned as to any specific procedures for referral or evaluation.

The return rate was 93%. The number of questions received concerning food and nutrition information during this period indicated a definite need for this type of information. The questions were categorized as shown in Table 9. Specific questions can be found in Appendix E.

Table 9. Analysis of Agency Telephone Questions
Week of July 14, 1980

Topic	Number of Questions	Percent
Diet Modifications	29	21
Food Preparation, Buying/Menu Planning	17	12
Food Terms/Food Products	5	4
Nutritive Values	5	4
Food Preservation/Safety/ Storage	79	57
Nonanswerable (Referrals)	4	2

Other significant findings from this survey having relevance to the planning phase of the program were: (1) There was no specific channel for referral of nutrition questions among the Roanoke Agencies, (2) There was no evaluation as to the effectiveness of telephone information in food/nutrition subject matter for the consumer at this time, (3) Va. Dept. of Agriculture and Consumer Service, Food Guide Editor, and Va. Tech Extension Service offices were receiving questions relating to diet modification. However, none of these agencies has medical sanction to respond to questions of this type.

Client needs vary as to kinds of information they seek. Use is posited to be dependent on the client's demographic profile and attitudes about nutrition, and his need for nutrition information. The client's attitudes toward health in general and toward specific diet information can influence the interaction between the client and the Registered Dietitian (Glanz, 1979). Attitudes can directly affect the outcomes, positively and negatively. It was anticipated that the client will usually be self-motivated to use the Dial-A-Dietitian program. It was, therefore, assumed that the client would enter the system with a positive attitude.

Dietitians participated as resource persons in the operation of the system. The dietitians have varying backgrounds and experiences, which can be important determinants to any system. It was assumed

that the dietitian, who has continually counseled patients, influences client satisfaction and information utilization. Background and experience can be a limiting factor unless resource materials are easily accessible.

Interaction Process - Phase 2

The Interaction Process is the actual treatment or system activity for the client who has contacted the Dial-A-Dietitian program--the telephone delivery system. The Interaction Process is the communication between the client and the nutrition professional, the Registered Dietitian. This factor is made possible through the telephone delivery system--the Roanoke Dietetic Association Dial-A-Dietitian program. Glanz (1979) stressed the importance of the dietitian's addressing the client's concerns and meeting their expectations. In this setting the Dietitian can ease client tension and promote client feedback.

The "Policies and Procedures Governing Operation of Services" describes the Roanoke Dietetic Association Dial-A-Dietitian program (Appendix D). The Executive Board of the Roanoke Dietetic Association and the Dial-A-Dietitian Committee operate the telephone delivery system with the assistance of the Telephone Answering Service. This interaction component is the process involving the clients and the providers. Adequate records (Appendix C, F, G) are important to the process assessment.

Effort Factors - Phase 3 (Outputs)

Effort Factors are important to consider in this system. Effort can be described as "the quantity and quality of activity that takes place" (Suchman, 1967, p. 61). The assumption is that this kind of effort will enable the program to reach its objectives. Effort Factors for this study included the number of client calls, category of call, the number of completed return calls by the Registered Dietitian, the time lag between the client call and the completed return call, the time involved in the dietitian's location of resources to respond to the client call, time involved in actual telephone interaction with client, time involved in follow-up, e.g., mailed material and/or agency referral and Dietitian satisfaction. More often Effort Factors are the only factors studied in evaluation research. This study seeks to expand and include Performance Factors as well as Effort Factors.

Performance - Phase 4 (outcome)

Other studies of established Dial-A-Dietitian programs have been limited to an evaluation of effort. However, this study seeks to determine program performance. Performance is defined as "the level which reflects on programmatic outputs, including information on the number and types of changes in clients and in the nature of the system being evaluated" (Suchman, 1967). This is a measurement of results of effort and is assessed in terms of one's objectives in what kind

of change has been effected and whether intermediary goals were accomplished. This measure may also be a measurement of very specific and concrete outcomes.

Performance in this system was measured by client satisfaction, client recall of information, and client utilization of information. These outcomes functioned as dependent variables in this study. Performance information was used as Feedback (Phase 5) for the decision-making process to effect program change.

The Phases of the Dial-A-Dietitian Model were presented graphically in Figure 3. The arrows connecting each Phase denote the interrelationships between each Phase, extending to the Feedback Phase.

Through the use of the Dial-A-Dietitian Model, inferences can be made as to the effectiveness of the Dial-A-Dietitian program; then decisions can be made for improvement for program change or for cancellation of the telephone delivery system for nutrition information. There has been some measurement at the practice change level; however, it will not be feasible for this research study to follow up to determine long-term results of the program effort, i.e., the effect on the nutritional health of Roanoke Valley citizens.

CHAPTER 4

Procedures

The evaluation model was presented in Figure 3 with various factors operating in a systems approach. This chapter will present procedures which were used to evaluate the Roanoke Dietetic Association Dial-A-Dietitian program with the Dial-A-Dietitian Model. The discussion presents (1) the identification of subjects used in this study, (2) the selection and development of the evaluation instruments, (3) the data collection techniques, and (4) the methods selected for the data analysis.

Subjects

Clients who used the Dial-A-Dietitian program were involved in the measurement of Performance (Phase 4), which is the outcome of the project. The following discussion describes the method for selection of clients for the evaluation.

The term client describes the population actually using the Roanoke Dietetic Association Dial-A-Dietitian program between January 1, 1981 and July 1, 1981. It was estimated that 600 calls would be received annually. This estimate was based on previous Dial-A-Dietitian program reports (Wallin, 1980). During the first six months of this study, 264 calls were received; these constituted the client pool from which a random sample (N = 152) was selected. This selection

was based on a method of Slonin which includes the assumption that error will not exceed five percent in 95 out of 100 samples (Vermeersch, 1979).

At the time of contact with the system, each client in the pool was assigned a number according to the Encounter Form (Appendix F). A table of random numbers was used to obtain the sample for the study.

Treatments

The treatment or interaction process (Phase 2) began when the client initiated contact with the Dial-A-Dietitian program. The Telephone Answering Service Operator answered the Dial-A-Dietitian telephone number and recorded on the Encounter Form (Appendix F) the client's name, telephone number, date, time of call, and the client's question. In addition, the preferred time for the return call was recorded. The Registered Dietitian on the Dial-A-Dietitian volunteer schedule received the Encounter Forms on a daily basis from the Answering Service Office or from the Co-Chairman of the Dial-A-Dietitian Committee.

The Registered Dietitian on duty attempted to return the client call within forty-eight hours. When a question was classified as nonanswerable, the Registered Dietitian referred the client to another community agency. If the Registered Dietitian found it necessary

to send follow-up materials by mail, she instructed the Co-Chairman. All materials were reviewed initially by the Literature for Lay Public Committee. An explanation of various committees for operation of this program can be found in Appendix H. At the completion of the return call, the Registered Dietitian completed the Encounter Form (Appendix F).

Instrumentation

Effort Factors (Phase 3) or outputs were measured by (1) number of client calls, (2) categories of calls, (3) number of completed return calls by the Registered Dietitians, (4) the time lag between the client call and the completed return call, (5) the time involved in the location of resources to respond to the client call, (6) time involved in actual telephone interaction with the client, (7) time involved in follow-up, and (8) Dietitian satisfaction. Data related to Effort Factors (Phase 3) or outputs were compiled on the Encounter Form (Appendix F).

Performance (Phase 4) or outcome was measured by client utilization of the information from the Interaction process and client satisfaction. Instruments for these measurements appear in Appendices C and F.

Morris and Fitz-Gibbon (1978) suggested consolidation of concerns about outcomes, implementation, and costs into single measurement instruments. These authors stated that effort should be made to

administer only one instrument of a particular type--questionnaire, interview, test--to each group of respondents (p. 84). For this study, the Telephone Survey (Appendix C) was chosen for the client evaluation instrument with three sections for client reaction: Section I consisted of questions for reaction to the process. Section II was an attitude assessment, which was designed to measure both the direction and intensity of a person's attitude toward the interaction process. Section III consisted of a form to secure demographic profile information.

For both the client and the Registered Dietitian, the following Likert-type format was used for attitude items:

(5)	(4)	(3)	(2)	(1)
Strongly Agree SA	Agree A	Undecided U	Disagree D	Strongly Disagree SD

This format was suitable because of the ease of responding and the familiarity of categories used, e.g., a five-category continuum from "strongly agree" to "strongly disagree". It was believed that an individual would respond to these statements with an inherent judgment as to the meaning of the statement.

To establish reliability for the Telephone Survey of Clients, Cronbach's alpha was computed for the client questions and yielded

a reliability coefficient of 0.86. Instruments were field tested with a group of twelve clients in an established Dial-A-Dietitian program in Knoxville, Tennessee. The items retained for the client questionnaire were those found usable by the Tennessee program. Twelve Richmond Registered Dietitians judged all instruments for content validity. In addition to these professional judgments, the instruments were also evaluated at various stages of their development by six faculty members at Virginia Polytechnic Institute and State University, Blacksburg, Virginia. These periodic examinations focused attention primarily on the content, clarity, and appropriateness of the items which were included in the final form of the instruments.

The volunteer Registered Dietitians also completed a questionnaire and an attitude assessment section as a part of the Encounter Form (Appendix F). The Cronbach's alpha was computed to establish reliability of the questions on the Encounter Form for the Registered Dietitians; the reliability coefficient was 0.83. The Registered Dietitian Demographic Profile was completed and is shown in Appendix G. These instruments were judged as the above by the twelve Richmond Registered Dietitians, professional judges from the faculty, and the Chairman of the Dial-A-Dietitian program in Knoxville, Tennessee.

Statistical Analysis

Descriptive variables, e.g., number of client calls, number of completed return calls, the time lag between the client call and

the completed call, the time involved in the Registered Dietitian location of follow-up material, time involved in actual telephone interaction with the client, time involved in follow-up, and characteristics of clients were presented as frequency distributions.

Individual Chi Square Tests of Independence were used to determine the relationship between the independent variables, Enabling Factors (Phase 1) and Effort Factors (Phase 3), and the dependent variable, Performance (Phase 4). Specifically, Performance included: (1) client utilization of the information, and (2) client satisfaction.

The data were recorded upon IBM cards, verified, and processed at the Virginia Polytechnic Institute and State University Computer Center, Blacksburg, Virginia. The Statistical Package for the Social Sciences (Nie et al., 1975) was employed in the computer analysis of the data.

CHAPTER 5

Results and Discussion of the Study

This study involved designing a model to evaluate the influence of selected factors on the performance of a telephone delivery system for nutrition education and the use of the model in evaluating the performance of the Roanoke Dietetic Association Dial-A-Dietitian program. This chapter presents the results of the data collection, the data analysis, and the interpretation of the data. Phases 1, 3 and 4 of the Dial-A-Dietitian Model were the components for data collection and measurement.

Phase 1 - Inputs (Enabling Factors of Clients)

A demographic profile was obtained from each of the 152 clients, who were surveyed for the Telephone Survey for Clients (Appendix C). The 152 numbers were chosen randomly from a random table; the numbers were then matched with client numbers from Encounter Forms. The demographic profile form was divided into five categories; (a) sex, (b) age, (c) employment status, (d) occupation, and (e) level of education. Female clients represented 139 (91.4%) of the 152 clients interviewed, and 88 (57.9%) were in the age groups 46 to over 65 years of age. The data in Table 10 indicate that the employment category, homemaker, representing 65 (42.8%) of the clients, was the largest of the employment categories; the retired category, representing 39 (25.7%) of the clients, was the second largest. Seventy-seven

Table 10. Summary of Analysis of Data from Demographic Profiles of Clients

Categories	Absolute Frequency	Relative Frequency (Pct.)
Sex:		
Male	13	8.6
Female	139	91.4
Age:		
Under 25 Years	6	3.9
26-35 Years	33	21.7
36-45 Years	25	16.4
46-55 Years	24	15.8
56-65 Years	35	23.0
Over 65 Years	29	19.1
Employment Status:		
Employed, full time	36	23.7
Employed, part time	10	6.6
Unemployed	2	1.3
Retired	39	25.7
Homemaker	65	42.8
Occupation:		
Professional	30	19.7
Office/Clerical	14	9.2
Teaching	1	0.7
Factory	3	2.0
Self Employed	4	2.6
Homemaker	65	42.8
Retired	34	22.4
Student	1	0.7
Level of Education:		
Grade School	9	5.9
High School	54	35.5
College	77	50.7
Graduate School	12	7.9

N = 152

(50.7%) of the clients reported college as the highest level of education and 12 (7.9%) of the clients reported graduate school as the highest level of education.

Additional open-ended data were collected at the end of the Demographic Profile upon which only limited analysis was performed. Forty-seven of the 152 clients responded to the request for general comments to improve the Dial-A-Dietitan program. The most frequent comment on the program was in the form of a superlative descriptor. Eighteen of the responses included such descriptors as "great program," "good service," "wonderful program," "helpful service," etc. Only eleven responders indicated that time lag had been a problem. Three responders stated that the program was limited by specific hours through an Answering Service telephone number; and four responders indicated that information needed to be more specific. Eight responders suggested an increase in publicity for the program (Table 1).

Phase 1 - Inputs (Enabling Factors of Dietitians)

For this study, 23 Registered Dietitians volunteered to answer questions of the sample population during the period, January 1, 1981 to July 1, 1981. A Demographic Profile Form (Appendix G) was used to secure information. Frequency distributions for the data appear in Table 12. No retirees volunteered for the service during this period.

Table 11. Summary of Client Comments for Improvement for the Dial-A-Dietitian Program

Client No.	Response*
014	Registered Dietitian could not answer all of question
016	Wonderful program--needs more publicity
017	Slow return
020	Information was general--needs to be more specific
021	More written information needs to be available
039	Slow return
040	Pleased--knew of program from newspaper
045	Slow return--did not get specific answer for Kroger Co. brand
048	Faster time for return call
053	Return call sooner and need to provide literature
055	Good service that should be continued--can improve on time of return call
059	Was a great help
065	Slow return on answer
067	Can improve on time for return call
069	Unhappy with answer. Thought the Registered Dietitian took the easy way out by referring client back to the food company for product ingredients.
080	Think program is excellent as is
081	Do not need improvement
089	Keep up work, enjoy follow-up in the newspaper column
100	Think telephone number should be posted in places so it would be available to more people-need to advertise more.

Table 11 (Cont'd.)

Client No.	Response*
102	Great. Use Feingold diet and ask many questions.
107	Quite satisfied
114	Great program-advertise more
117	Learned about program from library exhibit during Nutrition Month. Will have assistance by Registered Dietitian for a church community program as a result of Dial-A-Dietitian.
118	Publicity misleading-need to let public know that you do discuss fad diets
123	Great program
124	Surprised to get Answering Service and then waited for Registered Dietitian call
125	Appreciate the program--on Feingold diet
128	Needs to be publicized more widely
129	Inconvenient to be limited to calling Answering Service only 4 hours when you have small children.
135	Saw first whole page Food Guide story and Kroger Co. ad. Think there should be more publicity. Excellent service.
137	Not satisfied with the time to get an answer - too long.
141	Good service for the community
153	Fortunate to have this service in Roanoke
160	It was several days before I got the answer. Hope the program is continued.
170	If printed material is available and could be mailed to clients, it would be a great deal of help.
172	Menu planning and follow-up diet counseling would be helpful after prescribed diet is given by the Medical Doctor.

Table 11 (Cont'd.)

Client No.	Response*
173	Recommend that you find out more about a person's diet restrictions before mailing printed material.
176	Had a specific question and the answer received was too general.
189	Publicize more. Noticed column in Food Guide and Kroger Co. ad. Have an exhibit in Kroger Stores - Valuable community program.
193	Need publicity-More public nutrition education needed
196	Advertise service more-Radio call-in program would be helpful. (WVWR suggested)
213	Good service to have
219	Expected to receive a call back sooner
255	Good program
256	"Pretty good" service
260	Stay in there. Helpful service.
261	Better publicity-This kind of information is important to the community.

N = 47

*Responses of the clients were recorded exactly as given by the clients (except where slight changes in wording were necessary for clarification).

Table 12. Summary of Analysis of Data from Demographic Profiles of Volunteer Registered Dietitians

Classification	Absolute Frequency	Relative Frequency (Pct.)
Type of Practice:		
Hospital Therapeutics	8	34.8
Hospital Clinic	2	8.7
Hospital Administration	2	8.7
Hospital Teaching	1	4.3
Community Nutrition or Community Nutrition	2	8.7
Private Consultant	2	8.7
College Teaching	3	13.0
Unemployed	1	4.3
Other	2	8.7
Employment Status:		
Full-Time	18	78.3
Part-Time	4	17.4
Not Employed	1	4.3
Education Background (Highest Level):		
B. S. Degree	1	4.3
Dietetic Internship after B. S. Degree	13	56.5
Master's Degree	7	30.4
Doctorate Degree	2	8.7
Professional Activities:		
Attendance at local Dietetic Association Meeting of Registered Dietitians		
Monthly	10	43.5
Bimonthly	3	13.0
Less than Monthly	10	43.5

Table 12 (Con'd.)

Classification	Absolute Frequency	Relative Frequency (Pct.)
Attendance at State Dietetic Association Meeding of Registered Dietitians		
1 time a year	10	43.5
2 times a year	4	17.4
Less than 1 time a year	9	39.1
Attendance at National Dietetic Association Meetings		
Annually	1	4.3
Biannually	2	8.7
Occasionally	20	87.0
Attendance at Continuing Education Workshops		
Annually	9	39.1
Biannually	7	30.4
Occasionally	7	30.4
Attendance at Other Professional Meetings		
Monthly	3	13.0
Annually	8	34.8
Occasionally	12	52.2

N = 23

At the end of the Demographic Profile Form, the Registered Dietitian was requested to list any suggestions to improve the Dial-A-Dietitian project. Eight responses were given and appear in Table 13. The most frequent comment from these responses was in reference to the Dietitian Resource Kit, which had been provided for reference.

Phase 3-Outputs (Effort Factors)

Each volunteer Registered Dietitian completed portions of the Encounter Form (Appendix F). The analysis of the data was computed with the Statistical Package for the Social Sciences (Nie et al., 1975). Sections I and II provided the record of the date and time of the client's call and the date and time of the Registered Dietitian's return call. The purpose of this data collection was to estimate time lag for all calls. The median for time lag was 74.5 Hours.

In Section III, the Registered Dietitian was asked to classify calls as to the type of primary and secondary question: (a) an information question, (b) a knowledge or skills question, or (c) a practice change question. Of the 152 client primary questions, 110 (72.4%) were classified as information type questions. The response types for primary questions appear in Table 14, and the response types for secondary questions appear in Table 15. Client utilization of information can indicate behavioral change if the question has been identified as practice change.

Table 13. Summary of Responses of Registered Dietitian on Suggestions for Improvement in Dial-A-Dietitian Operation

Registered Dietitian No.	Response*
RD05	Need more reference for foods information in the Dietitian Resource Kit
	Xerox copies of information in the Kit should give source at the bottom of the copy
RD06	Sample menus and recipes as handouts for the diabetic
RD07	Resource Kit should include more information on Clinical Dietetics
	Would like to have modified diet recipes to send to clients upon request
RD09	List of good nutrition books and special diet cookbooks available at our local libraries
RD13	Could we have in the Resource Kit the pamphlets that are used in helping our clients with Basic Four or Guide to Good Eating/food vitamin sources or whatever is available. I feel that this type of material would be most helpful to offer. We talk "good nutrition"; they (clients) need specifics.
RD19	Concern over product information/not nutrition
RD20	I enjoyed doing this-wished I could have gotten all my clients on the return call. This is a great project.
RD22	Sometimes it was necessary to clarify what information the client was seeking, i.e., Client 252; or to find out what the client's present knowledge re the subject was. The structured form did not encourage this type of interaction for me, because I felt as though I should write down all of the communication between the client and me and the only space designated on the form was headed "answer."

N = 8

*Responses appear as recorded (except where slight change was necessary for clarification).

Table 14. Distribution of Responses of the Registered Dietitian on Type of Primary Question

Category	Absolute Frequency	Relative Frequency (Pct.)
Information Only	110	72.4
Knowledge of Skills	7	4.6
Practice Change	35	23.0

N = 152

Table 15. Distribution of Responses of the Registered Dietitian on Type of Secondary Question

Category	Absolute Frequency	Relative Frequency (Pct.)
No Secondary Question	99	65.1
Information Only	35	23.0
Knowledge of Skills	5	3.3
Practice Change	13	8.6

N = 152

Another statement in Section III requested that the Registered Dietitian estimate time allotment for each client. This included time for locating resources to answer the call, time for the interaction with the client, and time necessary for follow-up information. Table 16 contains a summary of these responses.

In Section III, the Registered Dietitian was requested to subjectively rate the nutrition background of the client after each telephone interaction. The most frequent responses were rated "fairly informed" and "informed." Table 17 presents the summary of these responses.

Section IV of the Encounter Form consisted of a reaction form for an attitude assessment of the Registered Dietitian's interaction with the client. A five-point Likert type scale, ranging from "strongly agree" to "strongly disagree," was used to measure the strength of agreement or disagreement with the statement. Results of this Section IV are presented in Table 18.

The Dietitians indicated that adequate time had been spent in interaction with 142 (93.4%) of the clients. Of the 152 interactions, the Registered Dietitians indicated that 137 (90.1%) interactions were satisfactory; 8 (5.3%) were unsatisfactory; and they were undecided about 7 (4.6%). The Registered Dietitians indicated that rapport had been established for 142 (93.4%) clients, and 135 (88.8%) clients talked more freely as the conversation progressed. The Registered Dietitians

Table 16. Distribution of Responses of the Registered Dietitians on Time Allotment for Return Calls

Response	Absolute Frequency	Relative Frequency (Pct.)
Time Spent Locating Answer		
Less than 15 minutes	130	85.5
15 to 30 minutes	19	12.5
45 minutes	2	1.3
1 Hour	0	0.0
Over 1 Hour	1	0.7
Time Spend Interacting with Client		
Less than 15 minutes	127	83.6
15 to 30 minutes	23	15.1
45 minutes	2	1.3
1 hour	0	0.0
Over 1 Hour	0	0.0
Time in Follow-UP		
Less than 15 minutes	146	96.1
15 to 30 minutes	5	3.3
45 minutes	0	0.0
1 Hour	0	0.0
Over 1 Hour	1	0.7

N = 152

Table 17. Distribution of Responses from the Registered Dietitian on Rating of Client's Background

Category	Absolute Frequency	Relative Frequency (Pct.)
Well Informed	19	12.5
Informed	51	33.6
Fairly Informed	54	35.5
Not Informed	17	11.2
Unable to Determine	11	7.2

N = 152

Table 18. Frequency of Responses to Attitude Assessment, Section IV of the Encounter Form

Statement	Response				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The time I spent with the client was adequate.	65 (42.8%)	77 (50.7%)	7 (4.6%)	1 (0.7%)	2 (1.3%)
2. I feel satisfied with the interaction with the client.	44 (28.9%)	93 (61.2%)	7 (4.6%)	7 (4.6%)	1 (0.7%
3. Rapport with the client was established	38 (25.0%)	104 (68.4%)	8 (5.3%)	2 (1.3%)	0 (0.0%)
4. I feel that the client talked more freely as the conversation progressed.	50 (32.9%)	85 (55.9%)	8 (5.3%)	9 (5.9%)	0 (0.0%)
5. The client appeared to understand the information from the Dial-A-Dietitian	43 (28.3%)	103 (67.8%)	2 (1.3%)	4 (2.6%)	0 (0.0%)
6. I feel that the client will use the information from the Dial-A-Dietitian program.	47 (30.9%)	97 (63.8%)	6 (3.9%)	2 (1.3%)	0 (0.0%)

N = 152

also stated that 146 (96.1%) of the clients understood the information. It was indicated that most of the clients would use the information from the Dial-A-Dietitian program.

Client calls were classified by type according to report forms used by the Dial-A-Dietitian Committee of the American Dietetic Association (Wallin, 1980). Twenty-six (17.1%) of the client calls were classified in the "Modified Diets-Other" category, which included questions on allergy diet, ulcer diet, and gall-bladder diet. The category of "Nutrient Analysis-Other" included questions on vitamin and mineral content of specific foods, protein supplement foods, goat milk, etc. A summary of data pertaining to all categories of client calls is presented in Table 19.

Phase 4-Outcome (Performance)

Section I of the Telephone Survey of Clients (Appendix C) contained reaction questions securing information for judging performance or outcome. Performance in the Dial-A-Dietitian Model consisted of client utilization of information and client satisfaction. The frequency distribution information for these questions is shown in Table 20.

Of the 152 clients in the survey, 135 (88.8%) were either "satisfied" or "highly satisfied" with the service, while only 4 (2.6%) clients were "dissatisfied." When the clients were questioned as to whether the Registered Dietitian had provided the requested information, 117 (77.0%) answered "definitely yes" and only 3 (2.0%) answered "definitely no."

Table 19. Categories of Client Calls to Dial-A-Dietitian

Types of Calls	Absolute Frequency	Relative Frequency (Pct.)
Employment	1	.7
Fad Diet	1	.7
Food Buying	3	2.0
Food Preparation, Storage, Sanitation	15	9.9
Food Additives, Preservatives, Natural Toxicants	3	2.0
Modified Diets:		
Diabetes	13	8.6
Weight Reduction	10	6.6
Hyperliperproteinemia & Cholesterol	5	3.3
Low Sodium	3	2.0
Other	26	17.1
Normal Nutrition	6	3.9
Nutrient Analysis:		
Calories	11	7.2
Sodium	13	8.6
Potassium	8	5.0
Cholesterol	6	3.9
Other	26	17.1
Speaker Request	1	.7
Other	1	.7

N = 152

Table 20. Frequency of Responses of Client Reaction to the Dial-A-Dietitian Program

Category of Variables	Performance Outcome	Absolute Frequency	Relative Frequency (Pct.)
Client Satisfaction with Dial-A-Dietitian	Client Satisfaction		
Highly Satisfied		73	48.0
Satisfied		62	40.8
Somewhat Satisfied		13	8.6
Dissatisfied		4	2.6
Did Client Get Information Requested	Client Satisfaction		
Definitely Yes		117	77.0
Somewhat		32	21.1
Definitely No		3	2.0

Table 20 (Cont'd.)

Category of Variables	Performance Outcome	Absolute Frequency	Relative Frequency (Pct.)
How Useful is Dial-A-Dietitian Information	Client Utilization of Information		
Very Useful		59	38.8
Useful		63	41.4
Of Some Use		20	13.2
Of No Use		10	6.6
Client Will use Dial-A-Dietitian in the Future	Client Utilization of Information		
Definitely Yes		101	66.4
Somewhat		40	26.3
Definitely No		11	7.2
Will a Client Recommend Dial-A-Dietitian to a Friend	Client Satisfaction		
Definitely Yes		73	48.0
Yes		71	46.7
Probably Yes		8	5.3
Definitely No		0	0.0

Table 20 (Cont'd.)

Category of Variables	Performance Outcome	Absolute Frequency	Relative Frequency (Pct.)
Client's Rating of Dial-A-Dietitian Quality	Client Satisfaction		
Excellent		72	47.4
Good		68	44.7
Fair		10	6.6
Poor		2	1.3
Client Satisfaction with Length of Call	Client Satisfaction		
Highly Satisfied		76	50.0
Satisfied		72	47.4
Somewhat Satisfied		2	1.3
Dissatisfied		2	1.3
Will Client Use Dial-A-Dietitian Again	Client Utilization of Information		
Definitely Yes		68	44.7
Yes		68	44.7
Probably Yes		16	10.5
Definitely No		0	0.0

N = 152

When questioned as to how useful the information has been, 122 (80.3%) of the clients answered either "useful" or "very useful" while only 10 (6.6%) answered of "no use."

When questioned whether the client would continue to use the information in the future, 141 (92.8%) replied "somewhat" or "definitely yes," and when the client was questioned whether he would recommend the program, 152 (100.0%) clients answered "probably yes," or "definitely yes." No client answered "no."

When the client was asked to rate the quality of the Dial-A-Dietitian service, 140 (92.1%) answered either "good" or "excellent," and only 2 (1.3%) answered "poor." When the client was questioned as to his satisfaction with the amount of time with the Registered Dietitian, 148 (97.4%) clients answered "satisfied" or "highly satisfied." When the client was questioned whether he would use the Dial-A-Dietitian service again, 136 (89.5%) answered "yes" or "definitely yes," and no client answered "definitely no."

Section II of the Telephone Survey of Clients was made up of six statements for an attitude assessment of the clients interaction with the Registered Dietitian. From "strongly agree" to "strongly disagree," was used to measure the strength of agreement or disagreement with the statement. Results of this Section II are presented in Table 21.

Table 21. Frequency of Responses to Attitude Assessment, Section II of the Telephone Survey of Clients

Statement	Response: Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. The person who returned your call was able to furnish the answer to your question.	73 (48%)	68 (44.7%)	2 (1.3%)	8 (5.8%)	1 (0.7%)
2. Printed material is important to the understanding of the answer to your question.	29 (19.1%)	47 (30.9%)	36 (23.7%)	28 (18.4%)	12 (7.9%)
3. The person who returned your call was friendly.	88 (57.9%)	63 (41.4%)	0 (0.0%)	1 (0.7%)	0 (0.0%)
4. The time spent talking to the Registered Dietitian was adequate.	86 (56.6%)	64 (42.1%)	0 (0.0%)	2 (1.3%)	0 (0.0%
5. The person who answered your question could understand your problem.	69 (45.4%)	74 (48.7%)	4 (2.6%)	3 (2.0%)	2 (1.3%)
6. The person who answered your question was a good listener for your problem.	65 (42.8%)	83 (54.6%)	1 (0.7%)	2 (1.3%)	1 (0.7%)

N = 152

One hundred forty-one (92.7%) clients indicated that their question had been answered by the Registered Dietitian, while only 9 (6.0%) stated that the Registered Dietitian did not answer their question, and 2 (1.3%) clients were undecided. Seventy-six (50.0%) clients indicated that printed material was important to their understanding of the question, while 40 (26.3%) stated that it was not important, and 36 (23.7%) were undecided.

One hundred fifty-one clients (99.9%) indicated that the Registered Dietitian was friendly, while only 1 (0.7%) stated that the Registered Dietitian was not friendly. One hundred fifty (98.7%) stated that the time spent talking to the Registered Dietitian was adequate, while only 2 (1.3%) indicated that the time was inadequate.

Of the 152 clients, 143 (94.1%) stated that the Registered Dietitian understood the client question, while 5 (3.3%) stated that the Registered Dietitian did not understand the client question, and 4 (2.6%) were undecided. One hundred forty-eight (97.4%) indicated that the Registered Dietitian was a good listener, while only 3 (2.0%) stated that the Registered Dietitian was not a good listener, and 1 (0.7%) was undecided.

To establish whether there was an association between variables at the 0.05 alpha level, the Chi Square test of independence was employed. A summary of these results is presented in Table 22 and 23. In order to determine the strength of the relationship between each pair of variables, it was necessary to compute a correlation coefficient. The appropriate coefficient is the contingency coefficient, C, which can

Table 22. Summary - Chi Square Test of Independence
Dependent Variable - "How Useful is Dial-A-Dietitian Information"

Independent Variable	Chi Square	Degrees of Freedom	Significance	Contingency Coefficient	C_{Max}
Client satisfaction with Dial-A-Dietitian	86.9625	9	0.0000*	0.6033	0.8660
Did client get information requested	81.6475	6	0.0000*	0.5911	0.8165
Will client use information in the future	136.3955	6	0.0000*	0.6877	0.8165
Will client recommend Dial-A-Dietitian	23.9935	6	0.0005*	0.3692	0.8165
Will client use Dial-A-Dietitian again	27.6464	6	0.0001*	0.3923	0.8165
Hours time lag on calls	5.9039	9	0.7495	0.1934	0.8660
Registered Dietitian Estimate - time spent with client adequate	7.5727	12	0.8176	0.2179	0.8660
Registered Dietitian satisfaction with interaction	14.4186	12	0.2748	0.2945	0.8660

*$p \leq 0.05$
Clients N = 152
Registered Dietitian N = 23

Table 23. Summary - Chi Square Test of Independence
Dependent Variable - "Client Satisfaction with Dial-A-Dietitian Program"

Independent Variable	Chi Square	Degrees of Freedom	Significance	Contingency Coefficient	C_{Max}
Hours time lag on calls	10.9476	9	0.2793	0.2592	0.8660
Registered Dietitian estimate time spent with client	9.0446	12	0.6991	0.2369	0.8660
Registered Dietitian satisfaction	12.1236	12	0.4358	0.2718	0.8660

*$p \leq 0.05$
Clients N = 152
Registered Dietitian N = 23

be used for any size contingency table. Because the maximum value of C is not 1.0, an estimate of the maximum value, C_{MAX}, was computed for each contingency coefficient (Hinkle, Wiersma, and Jurs, 1979). Due to the number of valid cells having expected frequencies less than 5.0, the Chi Square contingency tables were collapsed. Two examples of collapsed contingency tables are included in Appendix I.

Table 22 illustrates that the dependent variable, Performance (outcome) or the client's perception of use of the information, had an association when paired individually with the variables, client satisfaction, whether the client received the requested information and whether the client would continue to use the information. The magnitude of these paired variables indicate a strong positive relationship ($p \leq 0.05$). When the dependent variable, Performance (outcome) or the client's perception of use of the information was paired with the variables, whether the client would recommend Dial-A-Dietitian and whether the client would use the service again, there was a moderate relationship ($p \leq 0.05$). When paired with the independent variable, Hours of Time Lag on Calls, there was a nonsignificant relationship ($p \leq 0.05$) with the client's perception of use of the information. The variables Effort Factors (outputs), which are the Registered Dietitian's estimate of adequate time with the client and the Registered Dietitian's satisfaction with the interaction showed a nonsignificant relationship ($p \leq 0.05$) with usefulness. The independent variables paired with the

dependent variable, Performance (outcome), client satisfaction, showed a nonsignificant relationship ($p \leq 0.05$) for each (Table 23).

Summary

In summary, the input data (Enabling Factors, Phase 1) from this study indicated that the descriptive composite of the 152 clients for the Dial-A-Dietitian was a female, over 46 years of age, and a homemaker with a college level of education. Other data indicated that the client was satisfied with the Dial-A-Dietitian program (outcome), and that the Registered Dietitian had provided the information which the client had requested. The data also indicated that the client used the information (outcome) and that the information was useful for the future. These measurements were important as an indication of cognitive domain learning (Table 7). All clients indicated that they would recommend the Dial-A-Dietitian program to their friends.

The attitude assessment of the client demonstrated the client's reaction to the interaction with the Registered Dietitian. The data indicated that the client judged the Dietitian as being able to answer the question. The client also indicated that printed material was important to the understanding of his problem, and that the Dietitian was a friendly person. The client felt that there was adequate time for talking to the Dietitian, that the Dietitian could understand the client's problem, and that the Dietitian was a good listener.

Frequency distributions were computed on the volunteer Registered Dietitian. Most of the Registered Dietitians were employed full-time in hospital therapeutics and had an educational background of a B. S. degree with a Dietetic Internship. The most frequently indicated professional activities of the Registered Dietitians were attending the local Dietetic Association meetings monthly, attending the State Dietetic Association meeting annually, and attending the National Dietetic Association occasionally. Other meetings of professional improvement were attended by the Registered Dietitian.

The orientation and the resource kit for the Registered Dietitian had provided adequate assistance during the week the Dietitian volunteered for the Dial-A-Dietitian program. The Registered Dietitians made positive suggestions for program operation in the one open-ended question.

From the Encounter Form, the Registered Dietitian answered reaction questions and attitude assessment statements (outputs). The Registered Dietitian also classified most of the questions as information questions from the clients and indicated that the majority of questions were answered by the Registered Dietitian in the following time allotment: less than 15 minutes for finding answers; less than 15 minutes for interacting with the client; and less than 15 minutes for any follow-up information. The entire process for a client took less than one hour of the Registered Dietitian's time.

When the frequency distributions were tabulated, the Registered Dietitian had rated subjectively the majority of the clients as "informed" or "well informed." The Registered Dietitian also answered the attitude assessment statements. Most of the Registered Dietitians indicated that the time spent with the client was adequate, that there was satisfaction with the interaction, that rapport was established with the client, that the client talked more freely as the conversation progressed, that the client appeared to understand the information, and that the client would use the information from Dial-A-Dietitian. The frequency distribution indicated that the majority of calls was categorized into modified diets and nutrient analysis as other programs had reported (Wagner et al., 1965).

Individual Chi Square Tests of Independence were used to determine the relationship between the independent variables, Enabling Factors (Phase 1) and Effort Factors (Phase 3), and the dependent variable Performance (Phase 4). Strong relationships existed between the client's perception of the usefulness of the program and his satisfaction, his feeling that he had received the information he had requested, and his continued usage. Other variables did not show a strong relationship, e.g. the lag time which existed between the time of the client's call and the time of the return call of the Registered Dietitian.

CHAPTER 6

Conclusions and Recommendations for Additional Research

Conclusions

The purpose of this study was achieved through the development of a systems model which was used to evaluate the effectiveness of the telephone as a vehicle for communicating nutrition information to the public. The model was used to evaluate performance, which included client satisfaction and client utilization of the information from the Dial-A-Dietitian system. The results of this study support the effectiveness of the Dial-A-Dietitian project. In addition, the necessary data were generated for the formation of descriptive composites of both the clients and the Registered Dietitians in the Roanoke Valley.

The results of this study answered the questions which had been proposed (Appendix A). However, the study did not answer all questions remaining from previous Dial-A-Dietitian program reports (Appendix A) since the investigation was limited to the inputs, outputs, and outcome specified in the Dial-A-Dietitian Model (Figure 3). Similarities of results of other Dial-A-Dietitian programs (Wagner, 1966; 1970; Wagner et al., 1960; Wagner et al., 1965; Hinkle et al., 1975) were evident, e.g. client interest in relationship to publicity, medical profession cooperation, cooperation among dietitians, and frequencies of categories of client questions.

In the Roanoke Valley, the physicians were not surveyed; however, various physicians referred patients to Dial-A-Dietitian and requested promotion brochures. Contact with Dial-A-Dietitian was stimulated through the weekly newspaper column.

The synergism of the program operation also produced involuntary outcomes, which were not measured by the instruments of this study. These outcomes were reported to the researcher through verbal communication with the clients and volunteer Registered Dietitians. A summary of these outcomes follow:

(1) The community became more aware of the Registered Dietitian as a source of nutrition information.

(2) The necessity to research client questions created an opportunity for continuing education for the Registered Dietitian.

(3) The Dial-A-Dietitian program developed a closer cooperation among the members of the Roanoke Dietetic Association.

(4) The Registered Dietitian became aware of specific community agency resources.

(5) The Registered Dietitian became aware of the lay public specific needs for nutrition information.

(6) The Registered Dietitians have become aware that a number of clients in the community need in-depth counseling.

Data from the model evaluation instruments: (1) the Encounter Form, (2) the Telephone Survey of Clients, and (3) the Demographic Profile for clients and Registered Dietitians, provided measurement of Effort Factors (outputs) and Performance (outcome) as well as certain characteristics of the clients (inputs) and the Registered Dietitians (inputs). The Feedback phase of the model is represented by reports which are scheduled to be given to the Dial-A-Dietitian Committee of the Roanoke Dietetic Association, which operates Dial-A-Dietitian, and to representatives of the Kroger Company, which funds the Dial-A-Dietitian. The data demonstrated evidence of the effectiveness of the Dial-A-Dietitian Program when the Dial-A-Dietitian systems model was used.

The systems model can be utilized for evaluation of the Dial-A-Dietitian telephone delivery system. The results of this study concur with the work of Schulberg and Baker (1968), who stated that the systems model, by focusing upon the various factors determining research design and interpretation of the data, offers more promise for programmatic utilization of the evaluation findings (p. 1252).

Recommendations for Additional Research

The present study indicated significant association between variables used in the data collection; frequency distributions also presented information to assist in decision-making for Dial-A-

Dietitian programs. However, further research is needed. Suggestions for additional study are as follows:

1) Factor analysis may be used to reduce redundancy of questions within the instruments.
2) The findings of this study may be used with a new data collection to provide a system of cross validation.
3) Homemakers from families with limited resources and male family members do not use the service as often as the female homemaker with a college education. Exploration of alternate methods of nutrition education may be appropriate for these groups.
4) This study included the study of outcomes but follow-up research is needed to examine behavioral changes.
5) Repeated measures of outcome are needed because behavior changes must be sustained over time to affect health status.
6) Future studies which employ this model may wish to include instruments designed to specifically measure the involuntary outcomes.

It is postulated that this study can serve as a framework for further research with telephone delivery systems for nutrition information in other settings. As other evaluation studies employ this systems model and use common indicators of program outcome, it will be possible to describe the relative effectiveness of this Dial-A-Dietitian program

as compared to other similar programs in the United States.

Dial-A-Dietitian, as every program, takes place in an environment that has consequences for its effectiveness. This system and its components cannot intervene in the larger system without knowingly or unknowingly affecting other parts. The clients who use Dial-A-Dietitian and the Registered Dietitians who participate in the program exist in the larger system. Both the client and the Dietitian have beliefs and values, family and friends, habits, behavior patterns, and ideas; thus further evaluation can be valuable in examining the supportive and inhibiting features of this personal and interpersonal context as it affects program outcomes. Perhaps program impact of Dial-A-Dietitian and other telephone delivery systems can be strengthened when evaluation can identify these operative sources of support or obstruction for the client and the dietitians. In addition, further research using a systems model can explore outcome indicators which would provide additional information concerning the desired outcome of all nutrition information delivery systems, the achievement of optimal nutritional status for the population.

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APPENDIX A

Questions from Dial-A-Dietitian Literature Review

Questions for Dial-A-Dietitian in Roanoke Valley

Questions from Dial-A-Dietitian

Literature Review

-How many persons followed through on referrals by Dial-A-Dietitian?

-Did the project facilitate a close working relationship with the medical profession?

-What was the attitude of other agencies toward Dial-A-Dietitian?

-Is it necessary to provide additional information in response to telephone requests?

-Could differences in frequency of use of question categories by the population of a city be attributed to difference in publicity, population parameters, geographic location, or agencies not being available to answer questions?

-Would it be possible to predict question distribution for a city on the basis of any of the above factors?

-Was the effectiveness of the service judged on the skill with which the dietitian relates her professional knowledge to her clients' concerns about nutrition?

-How to sustain heightened interest by consumers for the Dial-A-Dietitian?

-Has the dietitian been identified as a source for sound information about normal nutrition?

-If the client does not take questions to the professional dietitian, what is the source of nutrition information?

-Can volunteer R. D.'s in the Dial-A-Dietitian program be constantly apprised of the usefulness and rewards, both personal and professional, to be derived from participation in Dial-A-Dietitian?

Questions for Dial-A-Dietitian

in Roanoke Valley

-Characteristics of Roanoke Valley clients?

-Characteristics of Roanoke Valley Registered Dietitians?

-Client satisfaction?

-Client usefulness?

-Number of client calls?

-Number of return calls?

-Time allotment of Registered Dietitian for interaction, follow-up, and resource location?

-Time lag between client call and Registered Dietitian return call?

-Dietitian satisfaction?

-Categories of calls?

APPENDIX B

Bloom's Taxonomy of Educational Objectives

BLOOM'S TAXONOMY OF EDUCATIONAL OBJECTIVES

Categories

AFFECTIVE DOMAIN:

1.0 Receiving (Attending)

- 1.1 Awareness
- 1.2 Willingness to Receive
- 1.3 Controlled or Selected Attention

2.0 Responding

- 2.1 Acquiescence in Responding
- 2.2 Willingness to Respond
- 2.3 Satisfaction in Response

3.0 Valuing

- 3.1 Acceptance of A Value
- 3.2 Preference for a Value
- 3.3 Commitment

4.0 Organization

- 4.1 Conceptualization of A Value
- 4.2 Organization of A Value System

5.0 Characterization by a Value or Value Complex

5.1 Generalized Set

5.2 Characterization

COGNITIVE DOMAIN:

1.00 Knowledge

- 1.10 Knowledge of Specifics
- 1.11 Knowledge of Terminology
- 1.12 Knowledge of Specific Facts
- 1.20 Knowledge of Ways and Means of Dealing with Specifics
- 1.21 Knowledge of Conventions
- 1.22 Knowledge of Trends and Sequences
- 1.23 Knowledge of Classifications and Categories
- 1.24 Knowledge of Criteria
- 1.25 Knowledge of Methodology

2.00 Comprehension

3.00 Application

4.00 Analysis

5.00 Synthesis

6.00 Evaluation

APPENDIX C

Telephone Survey of Clients

CLIENT NUMBER_____

TELEPHONE SURVEY OF CLIENTS
THE ROANOKE DIETETIC ASSOCIATION
THE DIAL-A-DIETITIAN PROGRAM

SECTION I.

Recently, you used the Dial-A-Dietitian Program. We are interested in learning from you about your reaction to the Dial-A-Dietitian Program. I would like to ask you a few questions.

1. How satisfied were you with the Service?
   1. _____Highly Satisfied
   2. _____Satisfied
   3. _____Somewhat Satisfied
   4. _____Dissatisfied

2. Did the Registered Dietitian provide you with the information you had requested?
   1. _____Definitely Yes
   2. _____Somewhat
   3. _____Definitely No

3. How useful is the information from the Dial-A-Dietitian Program?
   1. _____Very Useful
   2. _____Useful
   3. _____Of some use
   4. _____Of no use

4. Will you continue to use the information in the future?
   1. _____Definitely Yes
   2. _____Somewhat
   3. _____Definitely No

5. If a friend were in need of nutrition information, would you recommend the Dial-A-Dietitian Program?
   1. _____Definitely Yes
   2. _____Yes
   3. _____Probably Yes
   4. _____Definitely No

6. How would you rate the quality of overall service?
   1. _____Excellent
   2. _____Good
   3. _____Fair
   4. _____Poor

7. How satisfied are you with the amount of time you were able to speak to the Registered Dietitian?
   1. _____Highly Satisfied
   2. _____Satisfied
   3. _____Somewhat Dissatisfied
   4. _____Dissatisfied

8. Will you use the Dial-A-Dietitian Program again?
   1. _____Definitely Yes
   2. _____Yes
   3. _____Probably Yes
   4. _____Definitely No

TELEPHONE SURVEY OF CLIENTS

SECTION II.

Now I would like to ask you a series of attitude statements concerning how you feel about the telephone interaction with the Registered Dietitian. There is no correct or incorrect answer to the statements. Please indicate your intensity of agreement or disagreement for each of the following statements:

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly Disagree

	(5)	(4)	(3)	(2)	(1)
1. The person who returned your call was able to furnish the answer to your question.	SA	A	U	D	SD
2. Printed material is important to the understanding of the answer to your question.	SA	A	U	D	SA

		(5)	(4)	(3)	(2)	(1)
3.	The person who returned your call was friendly.	SA	A	U	D	SD
4.	The time spent talking to the Registered Dietitian was adequate.	SA	A	U	D	SD
5.	The person who answered your question could understand your problem.	SA	A	U	D	SD
6.	The person who answered your question was a good listener for your problem.	SA	A	U	D	SD

TELEPHONE SURVEY FOR CLIENTS
SECTION III.
DEMOGRAPHIC PROFILE

In order to have the characteristics of users of the Dial-A-Dietitian Program, I would like to ask you a few questions about YOU.

1. Sex:
   1. _____Male
   2. _____Female

2. Age:
   1. _____Under 25 Years
   2. _____26-35 Years
   3. _____36-45 Years
   4. _____46-55 Years
   5. _____56-65 Years
   6. _____Over 65 Years

3. Are you presently:
   1. _____Employed, full time
   2. _____Employed, part time
   3. _____Unemployed
   4. _____Retired
   5. _____Homemaker

4. What is your occupation?
   (Interviewer checks one of the following:)
   1. _____Professional
   2. _____Office/Clerical
   3. _____Teaching
   4. _____Factory
   5. _____Self employed
   6. _____Homemaker
   7. _____Retired

5. What is the highest level of education which you completed?
   1. _____Grade School
   2. _____High School
   3. _____College
   4. _____Graduate School
   5. _____No Formal School

6. Do you have any comments which can help us to improve the Dial-A-Dietitian Program?

_____

_____

APPENDIX D

Dial-A-Dietitian Policies and Procedures

ROANOKE DIETETIC ASSOCIATION

DIAL-A-DIETITIAN PROGRAM

POLICIES AND PROCEDURES GOVERNING OPERATION OF SERVICE

The Roanoke Dietetic Association is a district professional organization of members of the American Dietetic Association. Through its members, effort is made to promote nutrition education in the community. It is with this purpose that the Roanoke Dietetic Association will provide nutrition information to Roanoke Valley citizens through a telephone delivery system, the Dial-A-Dietitian Program.

PHILOSOPHY

The intent of the Dial-A-Dietitian Program is to provide the public with an authoritative source for normal nutrition. Normal nutrition is here defined as the current acceptable body of knowledge which deals with the relationship of food to the individual.

Nutrition education was defined in the American Dietetic Association's 1973 Position Paper on "Nutrition Education of the Public" as "the process by which beliefs, attitudes, environmental influences, and understanding about food lead to practices that are scientifically sound, practical, and consistent with individual needs and available food resources." The fundamental philosophy of nutrition education is that efforts should focus on the establishment and protection of nutritional health rather than on crisis intervention. It is needed,

regardless of income, location, or cultural, social or economic practices, or level of education. Nutrition education must be a continuing process throughout the life cycle as new research brings additional knowledge.

In the American Dietetic Association's 1978 Position Paper on "The Scope and Thrust of Nutrition Education" the objective of nutrition education was stated "to transmit knowledge to consumers about their nutritional needs and the nutritive value of foods in a way which will motivate them to transform this knowledge into eating behavior which promotes health and well-being" (Journal of the American Dietetic Association 72:302, 1978). The Dial-A-Dietitian Program of the Roanoke Dietetic Association provides a channel for reaching a large segment of the Roanoke Valley population on a more intimate basis by providing an easily accessible resource for answering personal nutrition concerns.

GOALS OF THE DIAL-A-DIETITIAN PROGRAM

The Goals are as follows:

1. To provide an opportunity for the general public to have access to a professional, who is a Registered Dietitian, in order to secure nutrition information.
2. To create a community awareness of the Registered Dietitian, who is a member of the Roanoke Dietetic Association.

3. To provide access, through referral, to community agencies for available materials in the foods and nutrition subject area.
4. To evaluate the nutrition information program which is the Dial-A-Dietitian Program.

POLICIES AND PROCEDURES

I. Organizational Structure

A. Initiation of the Program

Policy: The proposal for initiating the Dial-A-Dietitian Program shall be submitted to the members of the Roanoke Dietetic Association for their approval by a recommendation of the Executive Board.

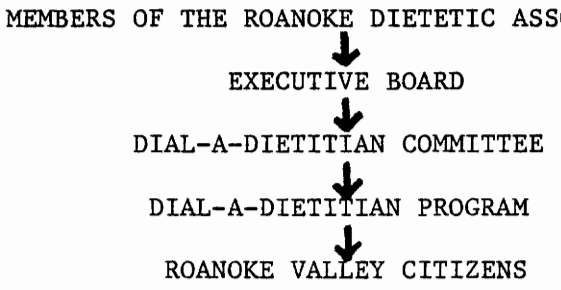
Procedure: A member or group of members of the Association will secure permission from the President of the Roanoke Dietetic Association to be placed on the agenda of the Executive Board meeting to present information for the project.

The Executive Board will recommend or decline approval for presenting the proposal for the project to the membership at the next scheduled membership meeting.

If the Executive Board approves the proposal for presentation to the membership, then the proposal for the project will be presented to the membership for their approval.

B. Structure

Policy: The organization of the Dial-A-Dietitian Program shall comply with the following structure:



Policy: The Dial-A-Dietitian Committee shall have the following subcommittees: Publicity, Operations, Finance, Lay Public Resource Material, Dietitian Resource Kit, Agency Contact, Technical Resources Advisory, Food Products, and Special Dietary Issues.

Policy: Each subcommittee with the exception of the Finance and Technical Resources Advisory subcommittees, shall consist of a Chairman and at least three members from the Roanoke Dietetic Association membership.

The Finance Subcommittee shall consist of the following:

(1) officers of the Roanoke Dietetic Association - the Treasurer, the President, and the President-Elect.

(2) the Chairman and co-Chairman of the Dial-A-Dietitian Committee.

The Technical Resources Advisory Subcommittee shall consist of the Chairman of the Dial-A-Dietitian Committee, as Chairman, and invited participants from the VPI & SU Faculty, the Radford University Faculty, physicians, community agencies, and the Roanoke Dietetic Association membership.

C. Appointments

Policy: The President of the Roanoke Dietetic Association shall appoint a Chairman and Co-Chairman for the Dial-A-Dietitian Committee.

Policy: The Chairman and Co-Chairman for the Dial-A-Dietitian Committee shall appoint Chairmen for the Subcommittees of the Dial-A-Dietitian Committee.

II. Operational Duties

Procedure:

A. Duties of the Chairman, Dial-A-Dietitian Committee, shall be as follows:

1. Serves as liaison representative between the American Dietetic Association Dial-A-Dietitian Committee, the Virginia Dietetic Association, and the sponsoring agency.
2. Coordinates all efforts of the Association with regard to the Dial-A-Dietitian Program.
3. Maintains close communication with the Co-Chairman, Dial-A-Dietitian Committee, and with the President, Roanoke Dietetic Association.

4. Maintains records, which are shown in Appendix, compiles reports of the program, and accepts the responsibility of planning and maintaining the Budget with the Treasurer of the Association.

B. Duties of the Co-Chairman, Dial-A-Dietitian Committee shall be as follows:

1. Works closely with the Chairman, Dial-A-Dietitian Committee, and performs the duties of the Chairman in his/her absence.
2. Coordinates the schedule for the Registered Dietitians who volunteer to serve in the Dial-A-Dietitian Program.
3. Assists with the record keeping.

C. Functions of Dial-A-Dietitian Subcommittees

The subcommittees and the function of each are as follows:

1. Publicity Subcommittee shall provide a continuous plan for publicity and administer its implementation using various media.
2. Operations Subcommittee shall be responsible for schedules, report forms, and telephone contacts with the volunteer Registered Dietitians. This Committee shall assure continuity of the Dial--A-Dietitian operation and answer questions regarding the operation.

3. Finance Subcommittee shall be responsible for the operational budget and the funding source of the Dial-A-Dietitian Program.
4. Lay Public Resource Subcommittee shall be responsible for the review and collection of material/information which is currently available to the public and shall recommend its use in the Dietitian Resource Kit.
5. Dietitian Resource Kit Subcommittee shall prepare, review, and collect resource material/information for use by the volunteer Registered Dietitian.
6. Agency Contact Subcommittee shall prepare a listing of various community agencies which have food and nutrition related programs. The listing is to include the agency purpose of operation and materials available from the agency and will be provided as a resource in the Dietitian Resource Kit.
7. Technical Resources Advisory Subcommittee will be contacted by the Chairman of the Dial-A-Dietitian Committee to answer specific questions which the volunteer Registered Dietitian is unable to answer. The Chairman may contact one or more members of the Committee for information whenever necessary.

8. Food Products Subcommittee shall review and collect information on special dietary foods and products. This material is to be included in the Dietitian Resource Kit.

9. Special Dietary Issues Subcommittee will be contacted by the Chairman, Dial-A-Dietitian Committee, for discussion of controversial questions which the volunteer Registered Dietitian does not want to answer. If the question cannot be resolved, the Chairman, Dial-A-Dietitian Committee, will request the assistance of members of the Technical Resources Advisory Committee.

D. Operation of the Dial-A-Dietitian Project

Policy: The Chairman and Co-Chairman shall coordinate the operation of the Dial-A-Dietitian Program through the following procedures:

1. Schedule - The Co-Chairman will schedule volunteer Registered Dietitians, no less than one person per week. Schedules are planned 4-5 weeks ahead of assignments.

   a. A Registered Dietitian is defined as the professional dietitian who has earned a baccalaureate degree and has met basic academic and experience requirements for eligibility to write the qualifying examination

for professional registration in dietetics and has successfully become registered.

2. Responsibilities of the Volunteer Registered Dietitian, The Co-Chairman, Dial-A-Dietitian Committee, contacts the Registered Dietitians for the Program. Upon agreement to the schedule for service the Registered Dietitian follows the procedures as listed below:

   a. Reviews the manual of "Policies and Procedures Governing Operation of Service," and is familiar with the forms (Appendix A), which are to be used for this program.

   b. Reviews the sample questions (Appendix B).

   c. During the assigned week the Volunteer Registered Dietitian checks with the Answering Service to secure the Client questions each day.

   d. Answers all client questions as quickly as possible; not more than 48 hours is allowed to elapse. A courtesy to the client is to call to let him/her know time is needed for resource information and that the call is briefly delayed.

e. Identifies self as follows when returning calls: "I am the Registered Dietitian from the Roanoke Dietetic Association's Dial-A-Dietitian Program."

f. Contacts the Chairman, Dial-A-Dietitian Committee, for questions which cannot be answered and for requests for additional materials.

g. The Dietitian is to use the Dietitian Resource Kit which is in the nearest Roanoke Hospital dietary office or the office of the Human Nutrition and Foods Department at VPI & SU.

h. The Dietitian is to report to the Chairman, Dial-A-Dietitian Committee, failure to reach a Client after three attempts to return the Client's call have been made. The Chairman sends a postal card to the Client.

i. The Dietitian is to request that the Chairman, Dial-A-Dietitian Committee, handle any Long Distance calls.

j. The Dietitian is to complete the Sections II, III, and IV of the Encounter Form (Appendix A) for each Client.

k. The Dietitian completes one Demographic Profile (Appendix A) annually during the operation of the Dial-A-Dietitian Program.

1. The Dietitian returns all forms to the Chairman, Dial-A-Dietitian Committee, by Tuesday following the volunteer service week.

3. The Role of the Answering Service

The telephone delivery system is to be contracted through an Answering Service. The Operator follows this procedure:

a. The Operator answers the designated telephone number for the Dial-A-Dietitian Program and answers "Dial-A-Dietitian, may I help you?"

b. The Operator records in duplicate the Client's question and the entire section I of the Encounter Form (See Appendix A).

c. The Operator reads the question back to the Client for accuracy.

d. The Operator tells the client that "A member of the Roanoke Dietetic Association will return your call with the information you have requested within three days. Thank you for calling Dial-A-Dietitian."

e. The Service Hours are as follows:

Monday through Friday - 10 a.m. to noon
and
7 p.m. to 9 p.m.

No calls are received on week-ends and holidays.

4. Policy: The contents of the Dietitian Resource Kits shall consist of the following:

   a. List of Contents of the Kit
   b. Policies and Procedures Governing Operation of Service
   c. Resource Lists of available food and nutrition references
   d. Materials from community agencies available to clients
   e. List of Dial-A-Dietitian Committee Members
   f. List of community agencies, their function, and materials available for the public

5. Procedure: The Dietitian Resource Kits shall be located in the following locations:

   a. Office of Human Nutrition and Foods Department, VPI & SU
   b. Chief Dietitian's Office - Roanoke Memorial Hospital
   c. Chief Dietitian's Office - Veterans Administration Medical Center
   d. Chief Dietitian's Office - Lewis-Gale Hosptial
   e. Chief Dietitian's Office - Community Hospital

6. Policy: The volunteer Registered Dietitian may use the Kit at the location most convenient to her or be responsible for the loan of the same for home use.
7. Policy: Any alteration of the Kit contents must be channelled through the Chairman, Dietitian Resource Kit Committee.
8. The Kits are the property of the Roanoke Dietetic Association.

APPENDICES

Dial-A-Dietitian Policies and Procedures Manual

CLIENT NUMBER_____

TELEPHONE SURVEY OF CLIENTS
THE ROANOKE DIETETIC ASSOCIATION
THE DIAL-A-DIETITIAN PROGRAM

SECTION I.

Recently, you used the Dial-A-Dietitian Program. We are interested in learning from you about your reaction to the Dial-A-Dietitian Program. I would like to ask you a few questions.

1. How satisfied were you with the Service?
   1. _____Highly Satisfied
   2. _____Satisfied
   3. _____Somewhat Satisfied
   4. _____Dissatisfied

2. Did the Registered Dietitian provide you with the information you had requested?
   1. _____Definitely Yes
   2. _____Somewhat
   3. _____Definitely No

3. How useful is the information from the Dial-A-Dietitian Program?
   1. _____Very Useful
   2. _____Useful
   3. _____Of some use
   4. _____Of no use

4. Will you continue to use the information in the future?
   1. _____Definitely Yes
   2. _____Somewhat
   3. _____Definitely No

5. If a friend were in need of nutrition information, would you recommend the Dial-A-Dietitian Program?
   1. _____Definitely Yes
   2. _____Yes
   3. _____Probably Yes
   4. _____Definitely No

6. How would you rate the quality of overall service?
   1. _____Excellent
   2. _____Good
   3. _____Fair
   4. _____Poor

7. How satisfied are you with the amount of time you were able to speak to the Registered Dietitian?
   1. _____Highly Satisfied
   2. _____Satisfied
   3. _____Somewhat Dissatisfied
   4. _____Dissatisfied

8. Will you use the Dial-A-Dietitian Program again?
   1. _____Definitely Yes
   2. _____Yes
   3. _____Probably Yes
   4. _____Definitely No

TELEPHONE SURVEY OF CLIENTS

SECTION II.

Now I would like to ask you a series of attitude statements concerning how you feel about the telephone interaction with the Registered Dietitian. There is no correct or incorrect answer to the statements. Please indicate your intensity of agreement or disagreement for each of the following statements:

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly Disagree

	(5)	(4)	(3)	(2)	(1)
1. The person who returned your call was able to furnish the answer to your question.	SA	A	U	D	SD
2. Printed material is important to the understanding of the answer to your question.	SA	A	U	D	SA

		(5)	(4)	(3)	(2)	(1)
3.	The person who returned your call was friendly.	SA	A	U	D	SD
4.	The time spent talking to the Registered Dietitian was adequate.	SA	A	U	D	SD
5.	The person who answered your question could understand your problem.	SA	A	U	D	SD
6.	The person who answered your question was a good listener for your problem.	SA	A	U	D	SD

TELEPHONE SURVEY FOR CLIENTS
SECTION III.
DEMOGRAPHIC PROFILE

In order to have the characteristics of users of the Dial-A-Dietitian Program, I would like to ask you a few questions about YOU.

1. Sex:
   1. _____Male
   2. _____Female

2. Age:
   1. _____Under 25 Years
   2. _____26-35 Years
   3. _____36-45 Years
   4. _____46-55 Years
   5. _____56-65 Years
   6. _____Over 65 Years

3. Are you presently:
   1. _____Employed, full time
   2. _____Employed, part time
   3. _____Unemployed
   4. _____Retired
   5. _____Homemaker

4. What is your occupation?
   (Interviewer checks one of the following:)
   1. _____Professional
   2. _____Office/Clerical
   3. _____Teaching
   4. _____Factory
   5. _____Self employed
   6. _____Homemaker
   7. _____Retired

5. What is the highest level of education which you completed?
   1. _____Grade School
   2. _____High School
   3. _____College
   4. _____Graduate School
   5. _____No Formal School

6. Do you have any comments which can help us to improve the Dial-A-Dietitian Program?

_____

_____

CLIENT NUMBER_____

R. D. NUMBER_____

ENCOUNTER FORM

THE DIAL-A-DIETITIAN PROGRAM OF THE ROANOKE DIETETIC ASSOCIATION

SECTION I. (TO BE COMPLETED BY ANSWERING SERVICE)

ANSWERING SERVICE OPERATOR____1. DATE_____2. TIME___3. AM__PM__
Mo/Day/Yr Hr (1) (2)

NAME OF CLIENT_____CLIENT'S TELEPHONE NUMBER_____

CLIENT'S PREFERENCE FOR TIME OF RETURN CALL_____ AM_____ PM_____

QUESTION:

SECTION II. (TO BE COMPLETED BY THE REGISTERED DIETITIAN)

REGISTERED DIETITIAN_____

4. DATE OF COMPLETED RETURNED CALL_____

5. TIME OF CALL_____ 6. AM_____ PM_____
Hr.

ANSWER:

REFERENCE:

REFERRAL:

SECTION III. (TO BE COMPLETED BY THE REGISTERED DIETITIAN)

A. CHECK CATEGORY OF CLIENT QUESTION:

1. PRIMARY QUESTION:
   1. _____Information Only Example: What is laetrile?
   2. _____Knowledge or Skills Example: How do I bake a ham?
   3. _____Practice Change Example: I would like to use more polyunsaturated oil in cooking. Will you suggest ways to prepare foods using oil instead of other fats?

2. SECONDARY QUESTION: (If there is a second question at the same time as first.)
   1. _____Information only
   2. _____Knowledge of Skills
   3. _____Practice Change

B. PLEASE ESTIMATE TIME ALLOTMENT FOR THIS CLIENT:

1. Time involved in locating resources to answer client call. Check one:
   1. _____ less than 15 minutes (less than .25 hour)
   2. _____ 15 minutes to 30 minutes (.25 hour to .5 hour)
   3. _____ 45 minutes (.75 hour)
   4. _____ 1 hour (1.00 hour)
   5. _____ over 1 hour (over 1.00 hour)

2. Time involved in Interaction with the client. Check one:
   1. _____ less than 15 minutes (less than .25 hour)
   2. _____ 15 minutes to 30 minutes (.25 hour to .5 hour)
   3. _____ 45 minutes (.75 hour)
   4. _____ 1 hour (1.00 hour)
   5. _____ over 1 hour (over 1.00 hour)

3. Time involved in Follow-up. Check one:
   1. _____less than 15 minutes (less than .25 hour)
   2. _____15 minutes to 30 minutes (.25 hour to .5 hour)
   3. _____45 minutes (.75 hour)
   4. _____1 hour (1.00 hour)
   5. _____over 1 hour (over 1.00 hour)

C. RATE THE CLIENT'S NUTRITION BACKGROUND FROM YOUR TELEPHONE INTERACTION. Check one:

1. _____ Well informed
2. _____ Informed
3. _____ Fairly Informed
4. _____ Not Informed
5. _____ Unable to determine

SECTION IV. (THE REGISTERED DIETITIAN TO COMPLETE.) REACTION FORM. The following are attitude statements concerning how you feel about the telephone interaction with this client. There is no correct or incorrect answer to the statements. Please indicate intensity of your agreement or disagreement for each of the statements by circling the appropriate response.

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly disagree

		(5)	(4)	(3)	(2)	(1)
1.	The time I spent with the client was adequate.	SA	A	U	D	SD
2.	I feel satisfied with the interaction with the client.	SA	A	U	D	SD
3.	Rapport with the client was established.	SA	A	U	D	SD
4.	I feel the client talked more freely as the conversation progressed.	SA	A	U	D	SD
5.	The client appeared to understand the information from the Dial-A-Dietitian Program.	SA	A	U	D	SD
6.	I feel that the client will use the information from the Dial-A-Dietitian Program.	SA	A	U	D	SD

DIETITIAN NUMBER_____

DATE_____
Mo./Day/Yr.

DEMOGRAPHIC PROFILE QUESTIONNAIRE FOR REGISTERED DIETITIAN

THE DIAL-A-DIETITIAN PROGRAM OF THE ROANOKE DIETETIC ASSOCIATION

PLEASE INDICATE BY A CHECK MARK OR COMPLETION OF THE STATEMENTS YOUR ANSWER IN EACH OF THE FOLLOWING:

I. TYPE OF DIETETIC PRACTICE YOU ARE ENGAGED IN PRESENTLY IF EMPLOYED
1. _____Hospital Therapeutics
2. _____Hospital Clinic
3. _____Hospital Administration
4. _____Hospital Teaching
5. _____Community Nutrition or Community Dietetics
6. _____Private Consultant
7. _____College Teaching
8. _____Unemployed
9. _____Retired
10. _____Other_____

II. EMPLOYMENT STATUS
1. _____Full Time
2. _____Part-Time
3. _____Not employed
4. _____Student
5. _____Volunteer-Professional Services

III. EDUCATIONAL BACKGROUND - Check highest degree:
1. _____B.S. Degree
2. _____Dietetic Internship after B.S. Degree
3. _____Master's Degree
4. _____Doctorate Degree
5. _____Coordinated Undergraduate

IV. PROFESSIONAL ACTIVITIES
1. How often do you attend local Dietetic Association meetings on a regular basis? Check one.
1. _____Monthly
2. _____Bimonthly
3. _____Less than monthly

2. How often do you attend the state Dietetic Association meetings? Check one.
   1. _____1 time a year
   2. _____2 times a year
   3. _____Less than 1 time a year
3. How often do you attend National Dietetic Association meetings? Check one.
   1. _____annually
   2. _____biannually
   3. _____occasionally
4. How often do you attend continuing education workshops? Check one.
   1. _____annually
   2. _____biannually
   3. _____occasionally
5. Do you attend other professional meetings? Check one.
   1. _____Monthly
   2. _____Annually
   3. _____Occasionally

V. RESOURCES FOR PARTICIPATING IN THE DIAL-A-DIETITIAN PROGRAM WERE ADEQUATE IN THE FOLLOWING CATEGORIES:
1. Orientation
   1. _____Extremely Helpful
   2. _____Adequate
   3. _____Not Useful
2. Resource Kit
   1. _____Extremely Helpful
   2. _____Adequate
   3. _____Not Useful
3. Assistance as needed from Co-Chairman
   1. _____Extremely Helpful
   2. _____Adequate
   3. _____Not Useful

COMMENTS: PLEASE LIST ANY SUGGESTIONS YOU MAY HAVE TO IMPROVE THIS PROJECT AS A COMMUNITY PROJECT FOR THE ROANOKE DIETETIC ASSOCIATION.

DIAL-A-DIETITIAN (D-A-D) January 26, 1976

A-D-A RECOMMENDED PROCEDURES FOR

ANSWERING QUESTIONS

1. Do not mail therapeutic diets to clients.

2. Do not give detailed diet instructions via the telephone. Do not prescribe diets. Refer the client to his physician or dietitian if he has been a hospital patient.

3. Preface answers regarding health values of food with, "For the normal person, . . ."

4. Be sure that you know and record all of the therapeutic modifications made by the physician when answering questions about therapeutic diets.

5. Be sure that you know and record all of the relevant conditions pertaining to questions about food preservation and sanitation.

6. When asked for a retailer or brand name of a specific food, mention at least three.

7. Never "tag" an individual or group as "food faddist" or "quack". . .

8. Always answer as a representative of Dial-A-Dietitian. Never use your own name.

9. Record source of information used to answer question on the report form.

10. Individual eating problems with psychological implications and requiring counseling should be referred to physician.

11. Be sure you answer all the questions the client has if you can. Be honest if you do not know the answer.

The following statements were prepared as a guide by ADA for answering certain questions:

a) Weight reduction: "Changes in body weight should not be attempted without consulting a physician. To lose weight, the amount of food eaten must be reduced but the calories that are left must carry the necessary nutrients. These are the kinds of food needed daily, _____(basic four.") (The amounts of foods eaten are dependent on the person in questions.) One should not lost too quickly).

A-D-A RECOMMENDED PROCEDURES FOR ANSWERING QUESTIONS:

b) Vitamin supplement: "Advice of a physician is needed to identify vitamin or mineral deficiencies and to prescribe their proper treatment. Nutrition authorities agree that the best way to buy vitamins and minerals is in the package provided by nature, that is, foods. These are the amounts and kind of food needed daily, (basic four)."

c) Reducing pills, medications, and liquid formula diets: "These should be used only on advice of physician."

d) Health foods: "These are expensive sources of nutrients available in other kinds of foods."

e) Child feeding and problems: "Unless your physician is concerned about the growth of your child, you need not be. There are normal ups and downs in appetite due to difference in activity levels and periods of rapid and slower growth. These are the food needs for children. (basic four)."

APPENDIX E

Summary -- Response from Roanoke Agencies,

July, 1980

SUMMARY -- RESPONSE FROM ROANOKE AREA AGENCIES, July, 1980

The following is a list of the categories of questions:

Questions on Diet Modifications

Recipes:

Recipes for a sugarless cake (Montgomery Co.)

Recipe for a no wheat, no egg, no milk bread for sandwiches (Montg. Co.)

Interpretation of Diabetic Diet List and Menus for it (VA Hosp.)

Will you help my mother with a low-sodium, weight reduction diet?

How can I cook vegetables without salt?

Send me some menus and recipes for my mother's Diabetic Diet.

I need sodium free ideas for cooking.

Help for low sodium diet.

How to can green beans without salt?

What can I do to substitute for sugar in jelly making?

Wife wanted recipes for low sodium recipes for husband's diet.

Products like "fruit fresh" have sugar. What can I substitute if I cannot buy ascorbic acid? What proportion to use per cup of fruit?

How can I get salt into my system (having muscle cramps in hot weather) if I'm on a low salt diet?

When the doctor says I need to stay on a low cholesterol diet, what can I eat?

Many calls (Bedford Co.) for diets for low cholesterol, diabetes, hyperactive children and low salt.

Do you have any information and recipes on low triglyceride diet because my doctor told me my triglycerides were high (3 questions on this).

Is there a special diet to follow for Diverticulitis? (3 questions on this).

Help me with knowing how to transfer one food for another at meals on the Diabetic Diet.

Interested in Extension Service's next Weight Control Series.

FOOD PREPARATION	MENUS	RECIPES	FOOD BUYING

---

2 questions on how to cook spaghetti squash

Recipe for Sour Dough Bread

How to make Sangria

Recipe for Madeleines

How do I soften hard white sugar?

How to make Blackberry wine?

How to make solar tea?

Ideas for cooking in foil?

6 questions on microwave cooking

Where can I buy fresh dill?

Ice cream making

What to put on sliced apples to prevent darkening?

FOOD TERMS AND FOOD PRODUCTS

What is lactate? (VA Hospital)

Do nitrates cause cancer? What foods contain them?

What is oil of cinnamon?

Where do I buy pure ascorbic acid?

NUTRITIVE VALUES

Are all flours enriched or only white and whole wheat?

On food labeling when they list flours -- soy and other varieties -- How can I know what other varieties?

What cereals are highest in iron?

Will Vitamin E help to heal a broken bone?

How many calories in soy sauce?

FOOD PRESERVATION FOOD SAFETY FOOD SANITATION FOOD STORAGE

Freezer top was left open slightly for a couple of days. The food on the top and the sides of the freezer thawed; food in the middle was still partially frozen. Is the food all right? Should the chicken that was frozen be cooked?

To freeze tomatoes, do they need to be cooked first?

How much dry dill equals a head of dill?

At what pressure are tomatoes canned?

Freezer was accidently unplugged by children. The fruit completely thawed and the juice ran out of the packages. Is the fruit still all right to eat? Can it be re-frozen?

What do I do about weevils in my flour?

Ten calls on whether or not food was safe since the freezer was off due to electrical storm.

What makes pickles dark and slimy?

What makes pickles soft?

Can I freeze cabbage?

Can I freeze eggs?

Is my milk safe? my eggs in refrigerator? How long?

How can I remove odor from my refrigerator and freezer?

What causes mold on my jelly? is it safe?

How long do I blanch green beans before freezing?

How long do I process green beans for canning?

Are my beans safe? I processed in boiling water bath for 4 hours?

Can I save my raspberry jelly - it's too runny?

Can I buy dry shelley beans for canning?

My pickles are cloudy - what happened?

What caused my cucumbers to shrivel?

How do you brandy peaches?

What can I do with Green Gage Plums?

What is the difference in liquid and powdered pectin? Why can't I use them the same way?

How to dry mint and other herbs

How to freeze peppers

How to can tomatoes in pressure canner and if you have to do it in water bath?

Do you have to blanch foods for freezing?

Why isn't it safe to use open kettle method?

How long can you keep foods canned and/or frozen?

How should I take foods on a picnic?

How long to keep hamburger and chicken in refrigerator before cooked and after it is cooked?

How to tell if food is safe to eat out?

What is the shelf or storage life of nitrite-free meat products?

Is chicken salad that was in the refrigerator for 36 hours when the power was off still good?

Can I use a large plastic pail rather than a crock to soal cucumbers?

Where can I buy dill?

Is frozen concentrate lemonade that thawed during power outage okay to use after it has refrozen?

Can cucumbers be boiled and frozen like squash?

Can a hamburger dish or casserole made with chicken be frozen after it has been prepared?

How do I can onions?

After apples are dried, how do they need to be stored?

Can you hurry the cooling of your pressure canner by running cold water on it?

Why should jars be sterilized in boiling water instead of oven?

Is it all right to take drinking water on vacation? Should it be kept cold for storage?

Two cans of beer are 2 years old. Is it all right?

Can paraffin wax be used to seal pickles just as it is used for jams and jellies?

Can I can in peanut butter jars and use their lids?

Do you have to process pickles?

(About 20 other questions on food preservations)

NON-ANSWERABLE -- REFERRALS

How do I get food stamps?

What are standards for Day Care Centers?

Which blender should I buy?

Which processor is best?

The significant findings from this survey having relevance at this phase of the program are:

(1) There is no specific channel for referral of questions among the Roanoke Agencies.

(2) There is no evaluation as to the effectiveness of telephone information in food/nutrition subject matter for the consumer at this time.

(3) A majority of the questions for this particular week of July represented the topic of Food Safety and Food Preservation (this week followed an electrical outage after a summer storm, and also summer gardens were at a peak season.

(4) Va. Dept. of Agriculture and Consumer Service, Food Guide Editor, and Va. Tech Extension Service offices are receiving questions on Therapeutics. This is perceived a need for a specific channel to the Registered Dietitian.

APPENDIX F

Encounter Form

CLIENT NUMBER_____

R. D. NUMBER_____

ENCOUNTER FORM

THE DIAL-A-DIETITIAN PROGRAM OF THE ROANOKE DIETETIC ASSOCIATION

SECTION I. (TO BE COMPLETED BY ANSWERING SERVICE)

ANSWERING SERVICE OPERATOR____1. DATE_____2. TIME___3. AM__PM__
Mo/Day/Yr Hr (1) (2)

NAME OF CLIENT_____CLIENT'S TELEPHONE NUMBER_____

CLIENT'S PREFERENCE FOR TIME OF RETURN CALL_____ AM_____ PM_____

QUESTION:

SECTION II. (TO BE COMPLETED BY THE REGISTERED DIETITIAN)

REGISTERED DIETITIAN_____

4. DATE OF COMPLETED RETURNED CALL_____

5. TIME OF CALL_____ 6. AM_____ PM_____
Hr.

ANSWER:

REFERENCE:

REFERRAL:

SECTION III. (TO BE COMPLETED BY THE REGISTERED DIETITIAN)

A. CHECK CATEGORY OF CLIENT QUESTION:

1. PRIMARY QUESTION:
   1. _____Information Only Example: What is laetrile?
   2. _____Knowledge or Skills Example: How do I bake a ham?
   3. _____Practice Change Example: I would like to use more polyunsaturated oil in cooking. Will you suggest ways to prepare foods using oil instead of other fats?

2. SECONDARY QUESTION: (If there is a second question at the same time as first.)
   1. _____Information only
   2. _____Knowledge of Skills
   3. _____Practice Change

B. PLEASE ESTIMATE TIME ALLOTMENT FOR THIS CLIENT:

1. Time involved in locating resources to answer client call. Check one:
   1. _____ less than 15 minutes (less than .25 hour)
   2. _____ 15 minutes to 30 minutes (.25 hour to .5 hour)
   3. _____ 45 minutes (.75 hour)
   4. _____ 1 hour (1.00 hour)
   5. _____ over 1 hour (over 1.00 hour)

2. Time involved in Interaction with the client. Check one:
   1. _____ less than 15 minutes (less than .25 hour)
   2. _____ 15 minutes to 30 minutes (.25 hour to .5 hour)
   3. _____ 45 minutes (.75 hour)
   4. _____ 1 hour (1.00 hour)
   5. _____ over 1 hour (over 1.00 hour)

3. Time involved in Follow-up. Check one:
   1. _____less than 15 minutes (less than .25 hour)
   2. _____15 minutes to 30 minutes (.25 hour to .5 hour)
   3. _____45 minutes (.75 hour)
   4. _____1 hour (1.00 hour)
   5. _____over 1 hour (over 1.00 hour)

C. RATE THE CLIENT'S NUTRITION BACKGROUND FROM YOUR TELEPHONE INTERACTION. Check one:

1. _____ Well informed
2. _____ Informed
3. _____ Fairly Informed
4. _____ Not Informed
5. _____ Unable to determine

SECTION IV. (THE REGISTERED DIETITIAN TO COMPLETE.) REACTION FORM. The following are attitude statements concerning how you feel about the telephone interaction with this client. There is no correct or incorrect answer to the statements. Please indicate intensity of your agreement or disagreement for each of the statements by circling the appropriate response.

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly disagree

		(5)	(4)	(3)	(2)	(1)
1.	The time I spent with the client was adequate.	SA	A	U	D	SD
2.	I feel satisfied with the interaction with the client.	SA	A	U	D	SD
3.	Rapport with the client was established.	SA	A	U	D	SD
4.	I feel the client talked more freely as the conversation progressed.	SA	A	U	D	SD
5.	The client appeared to understand the information from the Dial-A-Dietitian Program.	SA	A	U	D	SD
6.	I feel that the client will use the information from the Dial-A-Dietitian Program.	SA	A	U	D	SD

APPENDIX G

Demographic Profile Questionnaire for Registered Dietitian

DIETITIAN NUMBER_____

DATE_____
Mo./Day/Yr.

DEMOGRAPHIC PROFILE QUESTIONNAIRE FOR REGISTERED DIETITIAN

THE DIAL-A-DIETITIAN PROGRAM OF THE ROANOKE DIETETIC ASSOCIATION

PLEASE INDICATE BY A CHECK MARK OR COMPLETION OF THE STATEMENTS YOUR ANSWER IN EACH OF THE FOLLOWING:

I. TYPE OF DIETETIC PRACTICE YOU ARE ENGAGED IN PRESENTLY IF EMPLOYED
1. _____Hospital Therapeutics
2. _____Hospital Clinic
3. _____Hospital Administration
4. _____Hospital Teaching
5. _____Community Nutrition or Community Dietetics
6. _____Private Consultant
7. _____College Teaching
8. _____Unemployed
9. _____Retired
10. _____Other_____

II. EMPLOYMENT STATUS
1. _____Full Time
2. _____Part-Time
3. _____Not employed
4. _____Student
5. _____Volunteer-Professional Services

III. EDUCATIONAL BACKGROUND - Check highest degree:
1. _____B.S. Degree
2. _____Dietetic Internship after B.S. Degree
3. _____Master's Degree
4. _____Doctorate Degree
5. _____Coordinated Undergraduate

IV. PROFESSIONAL ACTIVITIES
1. How often do you attend local Dietetic Association meetings on a regular basis? Check one.
1. _____Monthly
2. _____Bimonthly
3. _____Less than monthly

2. How often do you attend the state Dietetic Association meetings? Check one.
   1. _____1 time a year
   2. _____2 times a year
   3. _____Less than 1 time a year
3. How often do you attend National Dietetic Association meetings? Check one.
   1. _____annually
   2. _____biannually
   3. _____occasionally
4. How often do you attend continuing education workshops? Check one.
   1. _____annually
   2. _____biannually
   3. _____occasionally
5. Do you attend other professional meetings? Check one.
   1. _____Monthly
   2. _____Annually
   3. _____Occasionally

V. RESOURCES FOR PARTICIPATING IN THE DIAL-A-DIETITIAN PROGRAM WERE ADEQUATE IN THE FOLLOWING CATEGORIES:
   1. Orientation
      1. _____Extremely Helpful
      2. _____Adequate
      3. _____Not Useful
   2. Resource Kit
      1. _____Extremely Helpful
      2. _____Adequate
      3. _____Not Useful
   3. Assistance as needed from Co-Chairman
      1. _____Extremely Helpful
      2. _____Adequate
      3. _____Not Useful

COMMENTS: PLEASE LIST ANY SUGGESTIONS YOU MAY HAVE TO IMPROVE THIS PROJECT AS A COMMUNITY PROJECT FOR THE ROANOKE DIETETIC ASSOCIATION.

APPENDIX H

Roanoke Dietetic Association Dial-A-Dietitian Committees

ROANOKE DIETETIC ASSOCIATION

DIAL-A-DIETITIAN

COMMITTEES

1980-1981

LITERATURE DISTRIBUTION FOR THE LAY PUBLIC

Review, prepare and collect material for Resource Kit which is available for the public

DIETITIAN RESOURCE KIT

Prepares and collects resources for participating Dietitian to use. Periodically checks kit for content and update.

PUBLICITY

Prepares for publicity, initiates publicity continuously for project.

AGENCY RESOURCE LIST

Prepares list of nutrition and health related agencies, their function, contact person, and available materials.

OPERATIONS

(Schedules, Reporting, Forms, Telephone Contact with Registered Dietitian)

Assures continuity of operation; arranges schedules; makes forms available; reporting; answers questions on operation.

SPECIAL DIETARY ISSUES

Coordinator contacts for controversial questions which Registered Dietitian does not want to answer. If not resolved with this committee, Coordinator seeks assistance from Advisory Committee.

TECHNICAL RESOURCE ADVISORY

Coordinator contacts for assistance when Registered Dietitian and Co-Chairman cannot reply to the question.

FOOD AND PRODUCT LIST

Updated listing and sources of special products for Dietitian Resource Kit. General Suggestions Sheets for Public.

APPENDIX I

Tables of Time Lag

FILE NONAME (CREATION DATE = 08/24/81)

* * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *
C11 CLIENT SATISFACTION WITH D-A-D BY HRS RECODED VARIABLE NOW HAVING VALUES 1, 2,
* PAGE 1 OF 1

C11	HRS 0-48 (1.)	49-74 (2.)	75-124 (3.)	125-1225 (4.)	ROW TOTAL
1. HIGHLY SATISFIED	19	14	19	21	73
	26.0	19.2	26.0	28.8	48.0
	44.2	42.4	73.1	42.0	
	12.5	9.2	12.5	13.8	
2. SATISFIED	19	15	5	23	62
	30.6	24.2	8.1	37.1	40.8
	44.2	45.5	19.2	46.0	
	12.5	9.9	3.3	15.1	
3. SOMEWHAT	3	4	2	4	13
	23.1	30.8	15.4	30.8	8.6
	7.0	12.1	7.7	8.0	
	2.0	2.6	1.3	2.6	
4. DISSATISFIED	2	0	0	2	4
	50.0	0.0	0.0	50.0	2.6
	4.7	0.0	0.0	4.0	
	1.3	0.0	0.0	1.3	
COLUMN TOTAL	43	33	26	50	152
	28.3	21.7	17.1	32.9	100.0

8 OUT OF 16 (50.0%) OF THE VALID CELLS HAVE EXPECTED CELL FREQUENCY LESS THAN 5.0.
MINIMUM EXPECTED CELL FREQUENCY = 0.664
CHI SQUARE = 10.94758 WITH 9 DEGREES OF FREEDOM SIGNIFICANCE = 0.2793
CRAMER'S V = 0.15494
CONTINGENCY COEFFICIENT = 0.25920
LAMBDA (ASYMMETRIC) = 0.03797 WITH C11 DEPENDENT. = 0.0 WITH HRS DEPENDENT.
LAMBDA (SYMMETRIC) = 0.01657
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.04029 WITH C11 DEPENDENT. = 0.03041 WITH HRS DEPENDENT.
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.03466

C_{MAX} = .86603

JEAN ROBBINS' DISSERTATION DATA: DIAL-A-DIETITIAN 08/24/81 PAGE 6

FILE NONAME (CREATION DATE = 08/24/81)

* * * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * * *
C13 HOW USEFUL IS D-A-D INFO? BY HRS RECODED VARIABLE NOW HAVING VALUES 1, 2,
* PAGE 1 OF 1

C13	COUNT / ROW PCT / COL PCT / TOT PCT	HRS 0-48 1.	49-74 2.	75-124 3.	125-1225 4.	ROW TOTAL
VERY USEFUL	1.	15 25.4 34.9 9.9	13 22.0 39.4 8.6	11 18.6 42.3 7.2	20 33.9 40.0 13.2	59 38.8
USEFUL	2.	19 30.2 44.2 12.5	12 19.0 36.4 7.9	11 17.5 42.3 7.2	21 33.3 42.0 13.8	63 41.4
OF SOME USE	3.	8 40.0 18.6 5.3	6 30.0 18.2 3.9	2 10.0 7.7 1.3	4 20.0 8.0 2.6	20 13.2
OF NO USE	4.	1 10.0 2.3 0.7	2 20.0 6.1 1.3	2 20.0 7.7 1.3	5 50.0 10.0 3.3	10 6.6
	COLUMN TOTAL	43 28.3	33 21.7	26 17.1	50 32.9	152 100.0

6 OUT OF 16 (37.5%) OF THE VALID CELLS HAVE EXPECTED CELL FREQUENCY LESS THAN 5.0.
MINIMUM EXPECTED CELL FREQUENCY = 1.711
CHI SQUARE = 5.90391 WITH 9 DEGREES OF FREEDOM SIGNIFICANCE = 0.7495
CRAMER'S V = 0.11379
CONTINGENCY COEFFICIENT = 0.19336
LAMBDA (ASYMMETRIC) = 0.01124 WITH C13 DEPENDENT. = 0.03922 WITH HRS DEPENDENT.
LAMBDA (SYMMETRIC) = 0.02618
UNCERTAINTY COEFFICIENT (ASYMMETRIC) = 0.01752 WITH C13 DEPENDENT. = 0.01522 WITH HRS DEPENDENT.
UNCERTAINTY COEFFICIENT (SYMMETRIC) = 0.01629

C_{MAX} = .86603

VITA

Jean Carothers Robbins was born May 29, 1929, in Rock Hill, South Carolina. She was graduated from Winthrop Training School in 1946 and entered Winthrop College that summer. She received a Bachelor of Science degree in Home Economics in May, 1949. She was accepted for a 12-month dietetic internship at the Medical College of Virginia Hospital in Richmond, Virginia.

After completion of the internship in 1950, she remained a staff dietitian at the hospital and served two years as a therapeutic dietitian and three years as an outpatient clinic nutritionist.

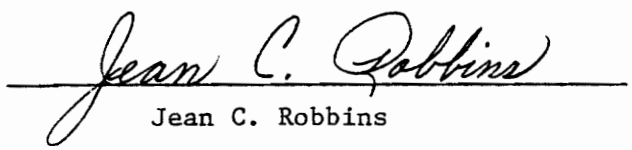
In 1951, she was married to H. Malcolm Robbins. They had two daughers; Cathy was born November, 1955, and Leslie was born April, 1958.

She entered graduate school at the University of North Carolina at Chapel Hill in 1961. In August, 1962, she received a Master of Public Health degree in Nutrition. Upon returning to Virginia, she held several part-time positions; one was dietary consultant for Shenandoah Hospital, and the other was teaching dietitian for the School of Nursing for Lewis-Gale Hospital and Jefferson Hospital in Roanoke. In 1965, she was employed full-time as a Nutrition Consultant for Roanoke County by the Virginia State Department of Health.

In November, 1967, she joined the Roanoke County Staff as Extension Agent for Virginia Cooperative Extension Service. In September, 1970, she transferred to campus and was employed as Extension Specialist, Foods and Nutrition, and held the faculty rank of Assistant Professor. In July, 1973, she returned to community work as Extension Agent in the City of Roanoke Unit. During this service, she has received recognition for outstanding achievement through an Epsilon Sigma Phi Individual Award and also through the Distinguished Service Award which was awarded at the 1979 meeting of the National Association of Extension Home Economists.

She has maintained active participation in the Virginia Dietetic Association and served as President, and as Delegate to the American Dietetic Association. In 1972, she was awarded the John Kolbe Award for outstanding service and achievement in the field of Dietetics in Virginia.

She began work toward the Doctor of Philosophy degree in September of 1978. She was granted an educational leave from September, 1979 through December, 1980. She completed the requirements for the Doctor of Philosophy degree in Human Nutrition and Foods in September, 1981. She continues her employment with the Extension Division of VPI & SU, assigned to the City of Roanoke.



Jean C. Robbins

THE DEVELOPMENT OF A MODEL TO BE UTILIZED IN THE EVALUATION OF THE TELEPHONE AS A VEHICLE FOR NUTRITION EDUCATION

by

Jean C. Robbins

(ABSTRACT)

The purpose of this study was to design a model to evaluate the influence of selected factors on the performance of a telephone delivery system for nutrition information and use the model to evaluate the performance of the Roanoke Dietetic Association Dial-A-Dietitian program. The Dial-A-Dietitian program was established to provide nutrition information to the public by Registered Dietitians.

The model entailed a systems approach to evaluate the Roanoke Dietetic Association Dial-A-Dietitian program. The five phases of the model included Enabling Factors (inputs), the Interaction Process, Effort Factors (outputs), Performance (outcome), and Feedback. Feedback entailed the utilization of the results of the evaluation in the decision-making process for future Dial-A-Dietitian programs and their operation.

The evaluation instruments, the Encounter Form and the Telephone Survey of clients, included reaction statements and attitude assessment of clients and dietitians. The data were analyzed with frequency

distributions. Also the Chi Square Tests of Independence were computed to determine the relationship between the independent variables, Enabling Factors (Phase 1) and Effort Factors (Phase 3), and the dependent variable, Performance (Phase 4).

The model was useful in the evaluation of the Dial-A-Dietitian program. The data analysis indicated that the Dial-A-Dietitian program was effective as measured by this model.