

PURCHASING PRACTICES AND CONVENIENCE FOODS  
USAGE IN SMALL HOSPITALS

by

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## INTRODUCTION

Foodservice has as its goal the production and service of acceptable quality food within the financial resources available (1). How this foodservice goal is achieved will vary with different systems. With the increased production and use of convenience foods in the foodservice industry new convenience food systems have been developed.

Researchers have investigated the acceptability of convenience foods in university foodservice and school lunch programs (2,3), on-premise production under institutional conditions (4), skills required in preparation of convenience dessert items (5), and extent of utilization in selected universities (6). Changes to convenience foods systems have been influenced by rising labor costs and low labor productivity (7,8). These systems may eliminate or reduce capital investment for conventional kitchen equipment and space (9).

A number of hospital case studies have reported implementation of convenience systems (10-14); although some hospitals have rejected the use of convenience foods (15,16). Among factors affecting the choice of a convenience food system in hospital foodservice may be hospital size and/or location.

Approximately 49 per cent of the hospitals in the United States in 1974 had less than 100 beds (17). These hospitals frequently have limited financial support and limited production and storage space, however, use of convenience foods may

not be feasible because of location away from a metropolitan area (18).

The foodservice of many small hospitals is managed by a part-time dietitian or by a foodservice supervisor with the advice and assistance from a consultant dietitian. These managers may have limited data available to them to evaluate the feasibility of using convenience foods in their hospital.

The objective of this project was to study purchasing practices and the use of convenience foods in short-term, general hospitals of less than 100 beds in the West North Central Region of the United States as defined by the American Hospital Association (AHA) (19) and to compile data for use by foodservice managers or consultant dietitians. Identification of factors influencing the decision to use convenience foods was of particular interest.

In this study convenience foods were defined as those foods that are prepared and then frozen, canned or freeze-dried commercially; prepared and then frozen in on-premise facilities; or prepared in central commissaries (food factories). They may be preplated portions or packaged in bulk.

Literature reviewed relevant to the study included the following topics: hospital food production systems, hospital use of convenience foods, problems of small hospitals, purchasing practices, legislation, and accreditation standards.

## REVIEW OF LITERATURE

### Hospital Food Production Systems

Use of convenience foods or conversion to a total convenience food system requires an analysis of storage facilities, equipment, personnel, production procedures, and financial resources, as well as purchasing practices and product availability. All of these factors are interrelated and interdependent. Whether a foodservice system is based on conventional food preparation or designed for a convenience food approach influences extent of use of convenience or partially prepared foods.

#### Conventional Foodservice Systems

In a conventional foodservice system, the foods required for a meal are prepared immediately prior to the meal. Patient trays must be assembled, transported, and delivered without any significant delay to avoid adverse effects on the nutritional quality, the palatability, and the esthetic acceptability of the food. Goldberg and Kohlligian (20) list the following among the problems of the conventional system: personnel alternate between extremely busy and slack times; most available staff of the department of dietetics are needed for assembly and delivery of patient trays during meal periods; and difficulty of supervision during food preparation.

The conventional foodservice system is the most widely used system in hospital foodservice. A number of case studies reported foodservice managers periodic evaluation of the operation with updating as needed. For example, Alta Bates Community Hospital in Berkeley, California (16), determined from their study that advances of modern technology had strengthened rather than weakened the case for a conventional system in their hospital. Patient preference, overall cost comparisons, updating of equipment, and employee satisfaction influenced the decision to maintain a conventional system.

Ronan and Okey (21) reported modification of the conventional system in a 175-bed hospital. The system utilized the assembly-line concept of food preparation centered around the ingredient room worker and the food production worker who weighed, assembled, and cooked the raw food. Employees in other positions carried out less skilled functions. During the six years this system has been in use, the daily food production output has increased by one-third while the daily manhours required for food preparation have decreased.

#### Convenience Food Production System

The convenience foods system uses foods that have been prepared and canned, frozen, or freeze-dried commercially and often utilizes point of service reheating of refrigerated meals. These systems refer to a detailed operating plan for purchasing, receiving, storing, preparing for service, bringing to serving temperature, portioning, tray assembly, transporting

to patient areas, patient tray service and retrieval, and dish-washing (22). If a total convenience system is implemented savings may be realized in personnel, purchasing, equipment, and kitchen space and in addition, the need for general sanitation and potwashing personnel may be reduced (20). Other advantages are that delayed meals may be assembled and taken with all other meals to the patient floors where they may be held under refrigeration until needed and a wider range of menu selections may be included (20).

A major disadvantage of convenience systems cited by Goldberg and Kohlligian (20) is that special diet foods are not available commercially; thus, it is not possible to eliminate all of the personnel, equipment, and space devoted to production of food. Other disadvantages are that convenience items usually are expensive and often are not widely available, nutrient content data has been limited, and quality control problems may result from long distance shipping and holding of frozen foods (20).

An example of a convenience food system that has cut labor costs was reported by Kaplan, Albert, and Uleau (10). The system at the 159-bed hospital used a combination of convenience foods and microwave ovens. In another example microwave ovens also were used (12). Wyandotte General Hospital of Detroit set up a convenience system with a catering firm. The meals were plated; trays were assembled and placed on carriers; and carriers were transported to the hospital where entrees were heated and served by dietary aides.



Eleven Kaiser hospitals in northern California have a working relationship with two airline commissaries to set up and deliver patient trays to each of these hospitals. This is also a frozen food and microwave system (13).

Some hospitals have considered conversion from conventional to convenience systems and have compromised using what was best for their operation from each system. For example in Franklin Square Hospital in Baltimore a convenience system is supplemented with conventional preparation of fresh green salads because of poor quality of the convenience product (9).

Two New Jersey hospitals, which consolidated operations, solicited the assistance of an airline in setting up a commissary in a separate building. The meals in tray carriers are transported by refrigerated truck to the hospital's service entrance (23).

Another convenience system with some modifications has been adopted by a 201-bed New York hospital (7). Most convenience foods are purchased; however, a few items are manufactured on-premise which cannot be purchased commercially.

A community hospital in Washington planned to implement a preplated convenience food system but changed to a system using the integral heat system (24-26). All food is prepared, cooked, or slightly thawed in advance to ensure plating at about 40°F. Those entrees prepared on-premise (usually roasts, chops, cutlets and poultry) are only partially cooked since the final heating process completes the cooking. This system can finish the plated food from a frozen state if necessary; however, the

process is much faster when done from a holding temperature of 38° to 40°F. A dietary employee from each patient area obtains the tray cart from the refrigerators just before meal time and transports it to the individual pantry where the plates are heated as the trays are completed. Eisleben and Melchert (24) indicated that this system has resulted in labor force reduction.

#### Ready Food System

In the ready food system the operation manufactures and freezes its own convenience foods for later use. The only requirement to be a ready food is that the item can be satisfactorily frozen and reconstituted. Pinkert (27) reported that the ready foods system allows a hospital to operate its kitchen much like a factory, smoothing out workload peaks and valleys and allowing an even work pace throughout the day. Meal service is essentially the same as the convenience food system (27).

A Brooklyn hospital implemented a system to manufacture its own pre-portioned frozen foods (13). As the fresh food arrives it is immediately cooked on conventional institutional equipment, sealed in disposable aluminum containers, dated and put into a large walk-in freezing unit maintained at -40°F. Twenty-four hours later it is transferred to a holding freezer which maintains a constant -20°F. For reconstitution the hospital uses an integral heating system (13).

The eighty bed United States Air Force Regional Hospital in Minot, North Dakota, has an in-house manufacturing system

of frozen component meals that utilizes microwave ovens (28). A microwave oven is attached to each foodservice cart so that the plate of hot food can be heated at the nursing unit while the rest of the tray is assembled. As soon as the food is hot the nursing personnel immediately deliver the tray to the patient. Only main dish items that require extensive preparation are prepared as frozen meal components. This system was implemented with minimum capital equipment investment and little change in food procurement policies. Schneider (28) reported that reductions in food cost have resulted from improved management effectiveness, including strict adherence to recipe formulation, accurate portion control, reduced food waste, and low individual service costs.

Several cook-freeze operations in Australian hospitals have been reported. In 1971 Glenside Hospital at Adelaide provided fast-frozen preplated meals for the Strathmont Training Center (29). However, it was not until 1973 that Glenside Hospital converted to the cook-freeze system for the meals it used daily. Multiportion food packs were found to be more economical, easier to handle, and more acceptable to patients than preplated food. A large central kitchen facility is being built to supply a group of operations. This facility will produce, freeze, store, and distribute meals for ten metropolitan hospitals and ten other institutions. The new central food production facilities are being built in close proximity to all of the anticipated users. All main courses and hot desserts will be prepared and frozen at the central production facility.

Soups, salads, cold desserts, and instant foods will be prepared at the individual hospitals and institutions (29).

The Catering Research Unit of the University of Leeds in England was formed to investigate methods for providing food services in hospitals; and subsequently developed a cook-freeze foodservice system (30). One application, the Newcastle Hospitals Catering Project, operational in 1975, may provide a pattern for future hospital foodservice systems in Britain. The system is called "Freeze Production Catering" which is an alternative title for cook-freeze. The central element of the project is a food production unit that initially provided 220,000 hospital meal portions per week, operating a standard five-day work week. Most food is supplied from the central production unit, but items that can be delivered directly from the suppliers and that do not require freezing will continue to be completely or partially prepared at the individual hospitals supplied from the new facility. Each hospital will reheat the frozen food packs, tray the food, load the carts, and transport the carts to the wards with a minimum of delays (30-37).

The food factory is another ready food system used in some operations. This system is designed to provide maximum efficiency and reduce the overall operating costs. The food factory usually produces meals for more than one location (38).

#### Hospital Use of Convenience Foods

A number of hospitals have reported implementing convenience foods systems but this does not give a total picture of

the extent of use of convenience foods. In a study of thirty-nine Louisiana hospitals with fifty beds or less, Pass (39) found that very few convenience foods were used by 53.8 per cent of the hospitals and 50 per cent or more convenience foods were used by 10.3 per cent of the hospitals.

A trade organization's survey in 1972 of foodservice practices in hospitals showed increased use of convenience foods (18). The use of frozen foods reflected the greatest increase with individual serving packages, prepared foods, and oven-ready meats each showing substantial increases. Increases were minimal for freeze-dried foods and single-service meals (18).

The trade magazine, *Institutions/Volume Feeding*, has conducted a convenience foods study for the past five years. The 1973 study (40) showed 59.3 per cent of the hospitals used convenience foods because they reduced labor costs; 64.8 per cent because they reduced waste by control; 30.4 per cent because they reduced portion cost; 54.0 per cent because they may offer a wider menu; and 45.1 per cent because they help even out the work load. The same study showed that the most frequently purchased frozen convenience entree items by hospitals were oven-ready meats, breaded fish, breaded shrimp, turkey breasts, chicken rolls, lasagna, and pizza.

For the first time since the use of convenience products has been charted by *Institutions/Volume Feeding*, growth had slowed in the 1975 study (41). This does not mean that fewer operators are using convenience items but that the percentage of convenience items in the menu mix had decreased. Availability

of better quality products was the most frequent reason for increased use of convenience foods in hospitals. In the 1975 study 32.5 per cent of the hospitals used convenience foods regularly and 4.2 per cent, occasionally. Amount of convenience foods used in hospitals by percentage of total menu items was reported as follows:<sup>1</sup>

	%
Frozen - raw, cook and serve	23.2
Frozen - thaw or heat and serve	17.3
Canned	19.8
Dry mix	5.6
Ready-to-serve	7.0
Raw/fresh foods	33.6

The most frequent reasons for using frozen foods were the high quality and flavor and the major disadvantage was the problem with storage. However, the most frequent reason for using canned foods was ease of storage and the major disadvantages were quality and flavor.

Regarding the hospital usage of convenience foods, the Institutions/Volume Feeding survey found that in 1974 50.5 per cent of the hospitals increased their use of convenience foods while 6.8 per cent reported decreased use (41). In 1975, 44.9 per cent reported increased use and 7.2 per cent reported decreased use.

Most foodservice operators use convenience foods as part of a system that incorporates both conventional and convenience preparation (41). A 1973 Food Service Marketing survey showed

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<sup>1</sup>Percentages given are the mean rather than straight averages, so number may not total 100 per cent (41).

that 69.2 per cent of the operators indicated they use convenience foods to supplement those prepared on the premises (42).

### Problems of Small Hospitals

#### Dietary Management

Budgetary limitations of smaller hospitals often restrict the employment of a full-time professionally qualified dietitian. However, by using the services of dietary consultants, part-time or shared dietitians, smaller hospitals may effectively utilize the professional services of a dietitian and still maintain operating budgets. The percentage of hospitals utilizing the services of dietitians has been increasing over the past fifteen years. The 1959 study by Lofquist et al. (43) showed that 22 per cent of the 152 Minnesota hospitals surveyed employed dietitians. Three years later the American Dietetic Association Survey of 1962 found that 24.5 per cent of the hospitals under 100 beds had dietitians in charge of their food service (44). The 1970 study of thirty-nine Louisiana hospitals of fifty beds or less showed that twenty-five hospitals (64 per cent) employed consultant dietitians (39). Approximately 66 per cent of the hospitals under 100 beds employed dietitians in a 1972 survey (18).

With the help of a trained foodservice supervisor, a dietitian can delegate part of the nonprofessional day-to-day work in the department of dietetics. In a small hospital without a full-time dietitian, the foodservice supervisor has the day-to-day responsibility for operation of the foodservice and



reports to the administrator. A part-time, shared or consultant dietitian should be available to help and advise the foodservice supervisor (45).

Foodservice supervisors were employed in approximately 40 per cent of the hospitals with less than 100 beds in the 1962 American Dietetic Association survey (44). Vaden (46) found in her 1967 study that foodservices in fifteen of the twenty-three hospitals surveyed were directed by subprofessional persons. Pass (39) reported that twenty-two of the thirty-nine hospitals reporting indicated that the foodservice supervisor was responsible for the department of dietetics. In another study Hagwood (47) reported that six hospitals out of fifty-nine reporting employed trained foodservice supervisors while in another seven the supervisors were enrolled in a correspondence course.

Another option for management of the hospital foodservice department is the contract foodservice company. A contract company offers professional management of dietary services and resources for training, testing, and development. Some advantages are that they may reduce costs because of national purchasing contracts, as well as possible reduction of accounting functions because the company is responsible for purchasing, invoicing, and paying for all food and dietary supplies. Also, the contract company offers a staff of specialists in management, foodservice, and dietetics who can provide expertise and advice to several accounts.

In 1975 contract foodservice companies managed less than 20 per cent of the foodservices in health care facilities (49).



When a contract foodservice company takes over a foodservice department qualified personnel are kept on the staff. The foodservice manager usually works for the contract company which often has chefs, dietitians, regional supervisors, and operations specialists on its payroll as well (49).

A 1972 survey (18) showed only two of the 142 hospitals (1.4 per cent) under 100 beds had foodservices managed by contract companies; whereas, 6.5 per cent of all hospitals had contracted foodservices. In 1962, approximately 2 per cent of the responding hospitals under 100 beds contracted the operation of their foodservice (44). This latter survey showed that approximately 3 per cent of all hospitals contracted their foodservice operation.

Shared professional and managerial expertise is another option for assistance in the management of the foodservice department (50). The opportunity to utilize the services of highly trained and educated personnel on a part-time basis allows small hospitals to provide patient services that they otherwise could not afford. According to a survey of the members of the American Society for Hospital Food Service Administrators (ASHFSA) twenty-three of the 147 members responding to the survey share dietary department personnel with other institutions. In most instances the shared personnel were dietitians who performed administrative duties, provided patient nutritional counseling, and coordinated in-service employee training (50).

Milburn (51) reported the establishment of a freestanding, not-for-profit shared service corporation that provides management services, data processing, group purchasing and engineering service. The corporation has been able to attract a well-qualified staff, and with no major marketing effort, attracted five hospital accounts in a six month period.

Management services that may be shared include menu planning, financial record keeping, data processing for foodservice functions, payroll functions, in-service education and training, and policies and procedures planning (50). Forty-four of 136 ASHFSA members stated that their institution shared one or more of these management services with another institution. Tripp (52) reported about a shared management program in Nebraska. The Nebraska system operates by the philosophy to provide a high level of health care by offering specialized services on an affiliation basis to area health care institutions with each community having the opportunity to determine how to best meet its own health care needs.

Data processing for foodservice is another management service that can be beneficial to small hospitals. DeZeeuw and Weinstein (53) reported a study to determine the applicability of a computer-assisted menu planning (CAMP) program for small hospitals and nursing homes in Colorado. CAMP is a computer program that can plan nonselective, selective, and/or cafeteria menus using data bases which include information regarding menus, portion sizes, raw food costs, recipe ingredients, and recipe steps. Such a system frees the foodservice director from the

routine tasks of calculating recipe costs and performing nutrient analyses. The program also provides inventory control by generating reorder reports and listing of storeroom items by vendor and subject category.

DeZeeuw and Weinstein (53) found that a fifty-bed hospital with an annual raw food budget of \$40,000 would be able to purchase shared CAMP services (utilizing a larger hospital's data bank, menu file, and price structures) and realize a 10 per cent savings in raw food costs. The services provided twice a year to the smaller hospital included menu planning, recipe scaling, and food purchase planning.

Seale (54) found that 88.8 per cent of the foodservice managers thought the services of a computer would reduce their food and labor costs. Of the nineteen hospitals studied 94.4 per cent indicated a desire to use a computer center to perform selected managerial duties.

#### Financial Support

In a 1972 survey the most pressing problems expressed by hospitals of less than 100 beds were controlling foodservice costs and securing capital for modernization (18). Since that time both labor costs and food costs have increased (17,55). Data from American Hospital Association studies (56) indicate small hospitals usually have foodservice costs (salaries, food, and expendable items) of about 8 per cent of the total operating expense of the institution.

The Hospital Administrative Services (HAS) program of the American Hospital Association provides data to participating

hospitals in the form of reports containing financial, statistical, and productivity measurements for each department (57).

Comparison of the institution's performance with the HAS indicators provides administrators with an excellent tool for evaluating operational effectiveness. HAS medians for foodservice department indicators at various sized hospitals show that in hospitals of less than 100 beds direct expense per meal has increased approximately 30 per cent and salary expense, 21 per cent in the period from June, 1972, to December, 1975. In this same period there was a small decrease in meals served per man hour.

#### Physical Facilities

Pass (39) reported that inadequate space was available in approximately 51 per cent of the hospitals in her study. Vaden (46) found that facilities were outdated and had limited space and/or poor arrangement of equipment in eight out of the twenty-three hospitals in her study. The amount of storage space needed depends on many factors such as type of operation, menu, number of meals served, frequency of deliveries and purchasing policies (22). A frequent complaint about storage space is that the area is too small (58). Inadequate refrigeration space was reported as a deficiency in Vaden's (46) study. Lofquist et al. (43) found that refrigeration space was adequate in most of the hospitals surveyed but that one-third of the hospitals reported a shortage of freezer space.

## Sources of Supply

Retail food stores generally are not recommended for institutional buying, except for emergencies. They are geared to sell to the retail trade but will sometimes offer price reductions to institutions (22). Kelly (59) indicated small institutions often are located in fairly non-competitive market areas and as a result the buyer may have few sources of supply. Therefore, the buyer must be knowledgeable and alert to quality, prices, and services available to select the best purveyor.

Pass (39) reported that 56.4 per cent of the hospitals studied purchased foods from both wholesalers and retailers, 30.7 per cent from wholesalers only and 12.8 per cent from retailers only. Lofquist et al. (43) found that hospitals with less than thirty beds purchased most of their food from the retail market. Some hospitals purchase from area retail merchants to satisfy local interests and to maintain good public relations in the community (39,43). Vaden (46) found that the good will approach of local retail purchasing to promote community relations was quite common in small West Texas hospitals. Thirty-eight per cent of the hospitals purchased food and supplies from retail markets.

## Records

Record keeping in small hospitals often is either very complicated or nonexistent (59). In the study reported by Lofquist et al. (43), no budget was prepared specifically for the department of dietetics in 92 per cent of the hospitals. In 28 per cent the raw food cost per meal per person was

calculated monthly and in another seven per cent the raw food cost per day per person was calculated monthly.

Vaden (46) found that no record was kept of food and supply orders in over 76 per cent of the hospitals studied. She also found that budgets were not prepared for the foodservice department in twenty-one of twenty-three hospitals and food cost records were not kept in nine hospitals.

### Purchasing Practices and Policies

#### Policies and Procedures

Written policies and procedures are required in hospitals because of health care legislative regulations and hospital accreditation standards (60,61). They establish criteria against which actual performance can be measured, as well as promoting teamwork and proper delegation of authority (57,62). Policies for each department should be compatible with the objectives and policies of the institution (57).

The policies and procedures for hospital foodservices are specified by regulatory legislation and accreditation standards (57,60,61). State and local agencies may specify standards in addition to those in effect on a nationwide basis (57).

Zaccarelli (63) stated that purchasing policies may affect labor costs as well as food costs. The American Hospital Association published a manual for foodservices in health care institutions (22). This manual states that the person in charge of the foodservice department is best equipped to know the kind and quantity of food required to achieve a successful

foodservice. The actual purchasing responsibility varies with local conditions. Basic factors identified that influence purchasing decisions were listed as follows: size and location of the facility, number of persons served, available storage space, number and skill of the employees, and the planned menus. Market conditions that affect purchasing decisions, also identified were the availability and price of foods, state of the economy, and reliability of vendors in regard to services and products (22).

The frequency of purchasing depends upon the location and size of the institution, the keeping qualities of the product, the storage facilities, the delivery schedule of firms, the amount of contract buying, and the available funds. In general, the AHA (22) suggests various types of purchase can be scheduled as follows:

Meat, poultry, fish and shellfish:	Two or three times a week or on contract.
Fresh vegetables and fruits:	Two or three times a week.
Butter, eggs, cheese:	Weekly or on contract.
Staples:	Weekly, bimonthly or monthly.
Canned goods:	Bimonthly, monthly or on contract.
Milk, cream, bread, baked goods:	Daily or weekly against standing orders or on contract.
Ice cream:	As needed against stand- ing order or on contract.

Beyer (57) stated that purchasing standards should include written, detailed, up-to-date food specifications that are



periodically reviewed to eliminate obsolete items and to include new items. It also is recommended that all sources of food supply be investigated, including wholesale and retail operations as well as cooperative purchasing groups. Obtaining price quotations for purchasing perishable foods and bids from at least three vendors for all staple or nonperishable foods, nonfood supplies, and any items purchased by standing order or on contract is recommended (22). A set procedure should be followed for issuing and receiving vendor bids and price quotations (57).

#### Group Purchasing

Banner (50) purported that group purchasing is a way of sharing services to control costs. Both large and small hospitals benefit from and participate in group food purchasing. Cooperative purchasing groups have been reported in nearly every area of the country. The savings that can be realized by shared food purchasing vary according to hospital size. Farevaag and David (64) found that savings range from 10 to 35 per cent, with smaller hospitals saving 15 to 20 per cent and larger ones 10 to 14 per cent.

Of 5,727 short-term general hospitals surveyed in 1971, only 757 (13.2 per cent) shared food purchasing of some kind and another 649 (11.3 per cent) indicated a desire to participate (50). More recent statistics indicate an increasing trend. In a study of ASHFSA members (N=147), 43.2 per cent reported shared purchasing of canned and dry staples; 22.9 per cent, meat, poultry, and fish; 32.8 per cent, milk, cheese, and



butter; 27.5 per cent, frozen fruits and vegetables; 16.0 per cent, frozen entrees; and 23.4 per cent, bakery items (50).

According to Farevaag and David (64), there are several valid reasons for participation in group purchasing. Sharing of specifications and also, information about food quality, processing techniques, consumer acceptance data, nutritional quality, and information on availability and quality of new food products are other advantages of group purchasing.

Farevaag and David (64) found that directors of hospital foodservice departments are interested in group purchasing, although they express some apprehension about not being able to make decisions about quality and use of the foods to be purchased. Of the 163 hospitals in the study eighty-five were participating in group purchasing organizations: six were purchasing nonfood items only. Farevaag also solicited information from known group purchasing organizations serving hospitals in the North Central region. Foodservice departments were active in ten of the twelve organizations responding. Of the 462 hospitals participating in the twelve purchasing organizations, 45 per cent included food purchasing. Table 1 shows kinds of food purchased through the group purchasing organizations.

#### Legislation and Accreditation Standards

Enactment of Health Insurance for the Aged Program (61), Title XVIII of Public Law 89-97, popularly called Medicare, brought about a close scrutiny of existing hospital foodservice

Table 1: Foods purchased through twelve group purchasing organizations in the North Central region (64)

type of food	1973		projected 1974-75	
	number of hospitals (N=206)	%	number of hospitals	% increase
canned foods	189	92	231	22
milk	145	70	212	46
frozen foods	137	66	226	65
bread	125	61	178	42
meat	106	51	182	72
ice cream	79	38	87	10
fresh produce	62	30	62	0
coffee	15	7	30	100

facilities by administrators and dietitians. Conditions of participation regarding the dietary department listed four major standards with explanatory factors for each standard (61). The conditions were developed to assure that the program pays only for care in hospitals with staffs and facilities which meet adequate standards of care; the law stated a number of specific requirements which must be met by participating hospitals for certification in the Medicare program. The conditions of participation for dietetic services departments were reprinted in the Code of Federal Regulations as of April 1, 1974 (65), and are the same as those established originally in 1966.

Hospitals accredited by the Joint Commission on Accreditation of Hospitals (JCAH) may participate in the Medicare program without additional audit from the United States Department of Health, Education, and Welfare (HEW), the organization which has the responsibility for Medicare certification. Nonaccredited

facilities undergo a direct audit by designated state agencies to determine compliance with Medicare standards. Approximately two-thirds of the hospitals receiving Medicare funds derive their "deemed status" for participation through their JCAH accreditation, and one-third through direct audit (66).

The four broad standards for foodservice operations identified by the Joint Commission on Accreditation of Hospitals are as follows:

- I. There shall be an organized dietetic service, directed by a qualified person and staffed by adequate numbers of dietitians and technical and clerical personnel.
- II. The dietetic service shall have adequate space, equipment and supplies to effect the efficient, safe and sanitary operation of all functions assigned to it.
- III. There shall be written policies and procedures that govern all dietetic activities.
- IV. The administration of the nutritional aspects of patient care shall be under the direction of a qualified dietitian (60).

The dependence of Medicare reimbursement on a hospital's compliance with the standards of the JCAH poses a serious dilemma to smaller health care institutions. The difference between eligibility and noneligibility for funds may represent the fine line between bankruptcy and survival for a small hospital with limited financial base. The process of establishing and maintaining an organization and a facility that are likely to be accredited is a great drain on the smaller hospital's already limited resources (67).

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## METHODOLOGY

To fulfill objectives of the study, a stratified random sample of hospitals 100 beds and under in the West North Central Region of the United States as defined by the American Hospital Association (68) (Figure 1) was selected. The sample represents 50 per cent of the general short-term care hospitals 100 beds and under in each of the state included in this region (Table 2). Data were collected using a mail survey method because of the wide geographic distribution of the hospitals.

Table 2: Short-term care hospitals 100 beds and under in the AHA<sup>1</sup> West North Central Region

state	total number of hospitals in region	hospitals in sample	hospitals responding	
	N	N	N	%
Kansas	124	63	51	80.9
Nebraska	76	38	25	65.8
North Dakota	49	26	21	80.8
South Dakota	47	25	21	84.0
Minnesota	118	59	43	72.9
Iowa	98	51	34	66.7
Missouri	75	38	24	63.2
all hospitals	587	300	219	73.0

<sup>1</sup>American Hospital Association

The instrument was developed to collect data concerning use of convenience foods, purchasing practices, and related management practices (Appendix A). A cover letter on letterhead

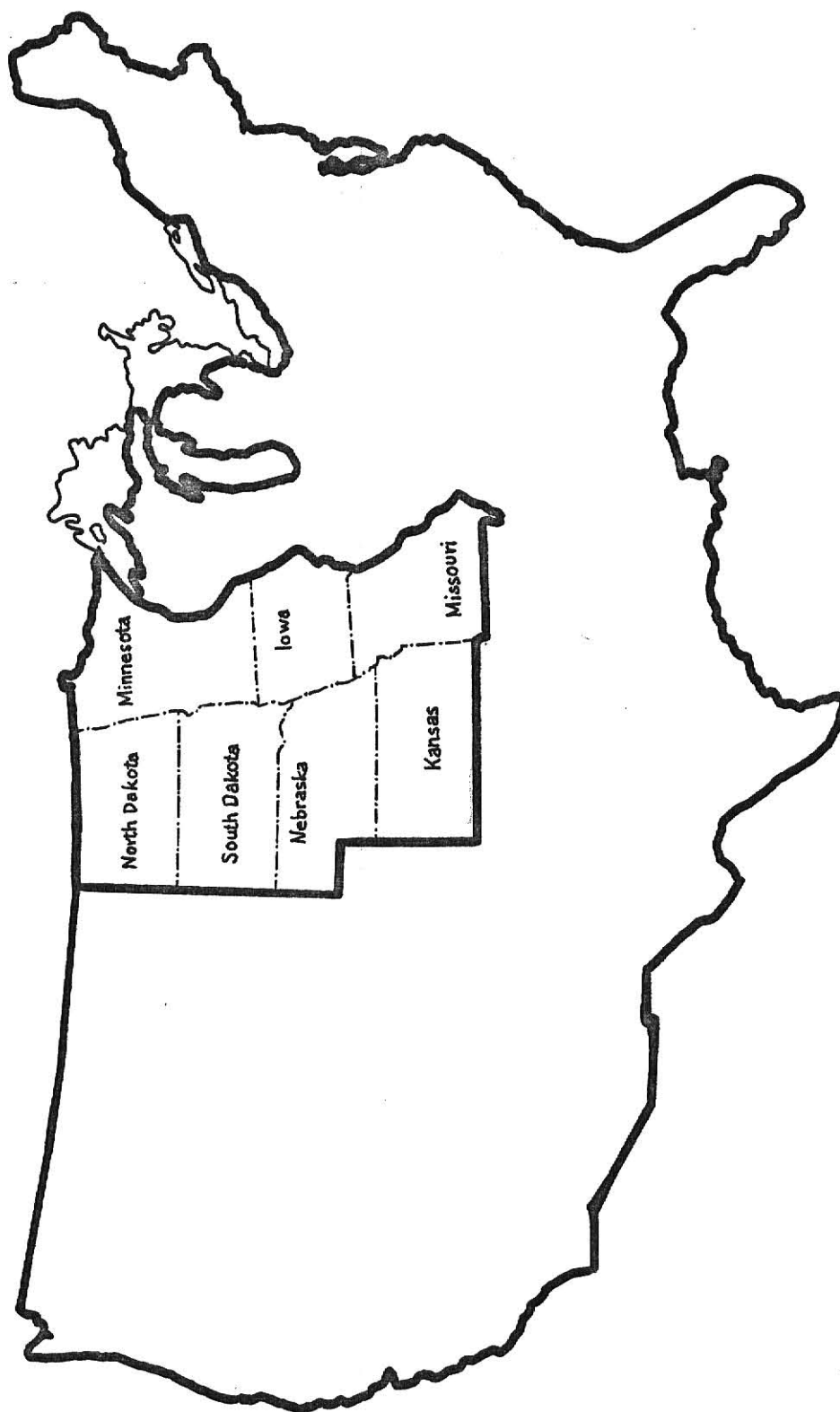


Figure 1. Geographic area of sample

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stationery of the university sponsoring the study accompanied the questionnaire to encourage reply (Appendix B). The study was presented as a project which would provide useful information for foodservice managers and consultant dietitians.

A number of questionnaires from other related studies were used as resources in constructing questions (18,40-42,69,70). Before mailing, the questionnaire and correspondence were pre-tested with a registered dietitian, foodservice director, trained foodservice supervisor, and a foodservice supervisor in the process of completing an approved correspondence course. The questionnaire and correspondence also were reviewed by three Kansas State University faculty from the Department of Institutional Management. Revisions were made based on comments and suggestions of the reviewers and pretest participants.

The cover letter included a brief discussion of the study, instructions for completing the survey, and a statement encouraging response. The questionnaire, cover letter, and stamped, self-addressed envelope were mailed from and returned to the Department of Institutional Management, Kansas State University. A follow-up letter (Appendix B) with another copy of the questionnaire and a stamped, self-addressed envelope were sent two weeks after the initial mailing to those not responding.

Seventy-three per cent (219 of 300) of the questionnaires were returned. Of these, 54.3 per cent were returned following the first mailing and 18.7 per cent, following the second mailing. Of the 219 returned questionnaires 216 were usable although all respondents did not complete all items on the

instrument. Three instruments were not used in the data analysis for the following reasons: one instrument was returned unanswered because the hospital was closed, one was too incomplete, and one was returned after data analyses were complete.

Responses from the questionnaires were coded and punched on computer cards for analysis by electronic data processing. Frequency distributions and means were computed and the chi square test of independence was used to study relationships among items.

## RESULTS AND DISCUSSION

### Description of Sample

#### Description of Respondents

Each respondent provided biographical information including hospital administrative position, professional memberships, and educational background (Table 3). Registered dietitians represented 27.8 per cent of the sample; 9.3 per cent were college graduates but not members of The American Dietetic Association (ADA); 8.8 per cent were cook/managers; and the largest group of respondents were foodservice supervisor/managers (43.5 per cent). The remainder were hospital administrators with the exception of one, who was an office manager. Approximately 95 per cent of the hospitals employed a full-time, part-time, or consultant dietitian. Professional memberships of the 193 foodservice respondents indicated about 32 per cent were members of ADA; and 30 per cent were members of the Hospital, Institution, and Educational Food Service Society (HIEFSS); about 6 per cent were members of the American Society for Hospital Food Service Administrators (ASHFSA); and the remainder had no professional affiliation. The biographical information indicated 50.8 per cent of the foodservice respondents were high school graduates, 39.4 per cent were college graduates with BS/BA degrees and another 5.2 per cent held master's degrees. Training beyond high school was primarily in

Table 3: Characteristics of survey respondents

person responding (N=216)		education (N=193) <sup>1</sup>	
	%		%
registered dietitian		high school	50.8
full-time	10.6	BA/BS	39.4
part-time	9.3	MS	5.2
consultant	7.9	RN	3.1
other foodservice		other	1.6
director/manager			
college graduate--		major for BA/BS (N=76) <sup>1</sup>	
not ADA member	9.3		%
foodservice super-		dietetics	78.9
visor/manager	43.5	home economics	
cook/manager	8.8	education	10.5
administrator of		business	
hospital	10.2	administration	5.3
office manager	.5	other	1.6
professional member-			
ships (N=193) <sup>1</sup>		major for MS (N=10) <sup>1</sup>	
	%		%
HIEFSS	30.1	dietetics	90.0
ADA	31.6	business	
ASHFSA	5.7	administration	10.0
work with consultant			
dietitian (N=216)	%		
yes	63.4		
no	5.1		
not applicable <sup>2</sup>	31.5		

<sup>1</sup>Hospital administrators and office manager excluded.

<sup>2</sup>Dietitian was respondent.

dietetics;<sup>1</sup> however, several reported backgrounds in home economics education and business administration.

#### Description of Hospitals

The hospitals were grouped into three categories based on size or number of hospital beds: under 25-beds, 26- to 50-beds, and 51- to 100-beds (Table 4). Distribution of the study sample among these categories was 17.6 per cent, 42.1 per cent, and 40.3 per cent; which is similar to the distribution of hospitals within the 100-bed and under category in the West North Central Region (68).

Table 4: Description of hospitals in sample

	N	%
size of hospital		
under 25-bed	38	17.6
26- to 50-bed	91	42.1
51- to 100-bed	87	40.3
operational classification		
federal government	10	4.6
nonfederal government	68	31.5
nongovernmental, not-for-profit	127	58.8
for-profit	11	5.1
service classification		
general medical and surgical	208	96.3
hospital unit of institution (prison, college, etc.)	6	2.8
children's hospital	1	.5
psychiatric hospital	1	.5
contract foodservice with management company	3	1.4

<sup>1</sup>Dietetics as used includes majors in both foods and nutrition and in institutional management.

The majority of the institutions were operated as nongovernmental, not-for-profit hospitals; the next largest group were nonfederal governmental, and a few were for-profit and federal government institutions. The service classification was general medical and surgical in over 96 per cent of the hospitals.

Only three hospitals (1.4 per cent) indicated they had a contract with a foodservice management company. This number is well below a recent national report (49) which indicated almost 20 per cent of all hospitals reported foodservice management contracts.

None of the 216 responding hospitals reported receiving fully prepared meals from a central commissary. This service is available in some areas and is expanding into other areas (38), but apparently is not being utilized by small hospitals in the West North Central Region.

Several hospitals provided meals to other institutions and programs (Table 5). Meals-on-wheels was the program most frequently served. Meals to nursing homes and meals to other hospitals were the second most frequently served programs. Other programs mentioned were elderly feeding projects, long term care, and meals to county jail, to retirement residence, to convalescent unit, and to retarded children.

In addition to meals for patients, hospitals often prepare meals for employees and other programs and institutions. In this study (Table 6), 31.2 per cent of the respondents prepared 50 per cent or less of their total meals for patients;

Table 5: Service to other institutions or programs

program/institution	survey hospitals <sup>1</sup> providing meals to other programs/ institutions		mean number of meals provided per day to program
	N	%	
meals-on-wheels	68	31.5	17.6
meals to nursing home	30	13.9	110.0
meals to another hospital	34	15.7	64.6
elderly feeding project	15	6.9	32.7
long term care	2	0.9	87.0
meals to county jail	1	0.5	58.0
meals to retirement residence	1	0.5	40.0
meals to convalescent unit	1	0.5	60.0
meals to retarded children	1	0.5	25.0

<sup>1</sup>Total N=216

Table 6: Percentage of meals prepared for patients

per cent of total number of meals served	reporting hospitals (N=204)
	%
40 per cent or less	17.6
50 per cent	21.6
60 per cent	21.1
70 per cent or more	39.7



whereas, 60.8 per cent prepared more than 50 per cent of their meals for patients.

A significant difference was found in employment of registered dietitians among hospital size categories (Table 7). Hospitals of 50-beds or less tended to employ consultant dietitians; whereas, 51- to 100-bed capacity hospitals employed full-time and part-time dietitians more frequently. Other studies reported similar findings (18,39,43,44,46) and suggest that hospitals under 50-beds tended to employ consultant dietitians because of budgetary limitations and rural location. Larger hospitals (over 50-beds) tended to employ full-time and part-time dietitians more frequently because both finances and dietitians were available.

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Table 7: Hospital size and registered dietitians

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size of hospital	N	registered dietitian			$\chi^2$
		full-time (N=23)	part-time (N=20)	consultant (N=17)	
		%	%	%	
under 25-bed	9	22.2	22.2	55.6	
26- to 50-bed	18	16.7	27.8	55.6	
51- to 100-bed	33	54.5	39.4	6.1	18.78***

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\*\*\*p  $\leq$  .001

## Purchasing Policies and Practices

### Written Purchasing Policies and Specifications

Written purchasing policies were reported in 66.0 per cent of the hospitals (Table 8). In approximately 73 per cent of the hospitals, specifications were used for purchasing at least some food products. Food samples were requested for testing in about half of the hospitals. A bid system was used for purchasing in only forty-six (21.5 per cent) of the hospitals. Milk was purchased on bid more frequently than other food products. Canned goods, bread, meat and frozen foods also were purchased by bid in more than one-third of the hospitals. In most of the hospitals buyers were permitted to purchase by brand name.

No significant differences were found in percentage of written policies or established specifications when data were studied by hospital size (Table 9); however, the larger hospitals tended to have a higher percentage of written policies and established specifications. Significant differences were found in the percentage of hospitals purchasing by a bid system when data were studied by hospital size. Bid purchasing was used more frequently in the larger hospitals (over 50-beds) than in the smaller institutions.

### Purchasing Practices

No significant differences were found in extent of participation in group purchasing among the three size categories of hospitals (Table 10). Approximately one-fourth of the hospitals

Table 8: Purchasing policies of survey hospitals

purchasing policy	N	%
written policies		
yes	138	66.0
no	71	34.0
established specifications		
all	51	24.4
some	102	48.8
none	56	26.8
food samples requested for testing		
yes, but few available	49	22.9
yes, samples received	62	29.0
no	103	48.1
purchase by bid system		
yes	46	21.5
no	168	78.5
products purchased on bid in hospitals using bid system (N=46)		
canned goods	24	52.2
frozen foods	16	34.8
meat	17	37.0
bread	24	52.2
milk	26	56.5
other food products or materials	7	15.2
can purchase by brand name		
yes	148	69.8
sometime	57	26.9
no	7	3.3

Table 9: Purchasing policies by size of hospital

purchasing policies	size of hospital			$\chi^2$
	under 25 beds (N=38)	26-50 beds (N=91)	51-100 beds (N=87)	
	%	%	%	
written policies				
yes	61.1	61.1	73.5	
no	38.9	38.9	26.5	3.42
established specifications				
all	21.1	22.7	27.7	
some	50.0	50.0	47.0	
none	28.9	27.3	25.3	.88
purchase by bid system				
yes	13.2	16.5	30.6	
no	86.8	83.5	69.4	7.08*

\*P  $\leq$  .05

Table 10: Participation in group purchasing organization

size of hospital	N	participating	not participating	$\chi^2$
		%	%	
under 25-bed	38	15.8	84.2	
26- to 50-bed	91	28.6	71.4	
51- to 100-bed	86	26.7	73.3	
all hospitals	215	25.6	74.4	2.40n.s.

participated in group purchasing. This is more than the 13.2 per cent reported in a 1971 survey of general hospitals (50), and less than the 48.4 per cent reported in a 1973 survey of hospitals with a patient census of 200 or more (64).

Canned goods were purchased through group purchasing organizations more frequently than other food products (Table 11); frozen foods were the second most frequent food products purchased. Meat, milk, bread and fresh produce were purchased by about one-fourth of the hospitals buying through group purchasing organizations. The 1973 survey of larger hospitals (64) indicated similar purchasing trends through group purchasing organizations. Foods purchased most frequently appear to be those for which quality standards have been established such as canned goods, milk, and bread. Frozen foods were purchased less frequently because of limitations on variety and size of packages.

Only two of the 216 responding hospitals reported procuring food products by using computerized ordering procedures. Shared computer-assisted management is available in some areas (53,54); but apparently very few small hospitals in the West North Central Region have converted to electronic data processing in the department of dietetics.

Forty hospitals (18.5 per cent) indicated food products were ordered through the hospital purchasing department. Canned goods were purchased through the purchasing department more frequently than other food products (Table 12). Larger hospitals tend to have the purchasing department responsible for

Table 11: Type of food purchased through group purchasing

type of food	hospitals participating in group purchasing (N=55)	
	N	%
canned goods	49	89.1
frozen foods	23	41.8
meat	15	27.3
bread	13	23.6
milk	14	25.5
fresh produce	11	20.4
other food products and supplies	12	21.8

Table 12: Type of food purchased through hospital purchasing department

type of food	hospitals purchasing food through purchasing department (N=40)	
	N	%
canned goods	37	92.5
frozen foods	28	70.0
meat	28	70.0
bread	21	52.5
milk	21	52.5
fresh produce	24	60.0
other food products and supplies	3	15.0

providing raw materials and equipment, for negotiating prices, and for selecting sources of supply (58). Establishing standards of quality and specifications, as well as, maintaining a record of food purchases and overseeing receipt, storage, and use of food products remain as responsibilities of the department of dietetics. Close cooperation between these two departments must be maintained. This division of labor may free time for the foodservice administrator to devote to management.

Eighty-seven (40.5 per cent) of the respondents indicated inadequate storeroom space was available; while 102 (47.4 per cent) indicated that space was no problem. Similar findings of inadequate storeroom space were reported in a 1967 study (46); however, in a 1970 study of hospitals with 50 beds or less (39), inadequate space was indicated more frequently than in this study.

Sources of food supplies were studied because many small hospitals are in rural or low population areas and may have few sources of supply. Twenty-eight per cent of the hospitals reported purchasing 50 per cent or more of their food supplies from retail sources (Table 13). The extent of retail purchasing was significantly related to size of hospital. Almost 60 per cent of the hospitals of 25 beds or less purchased over one-half of their food supplies from retail sources; whereas, only 13.3 per cent of the 51- to 100-bed hospitals purchased over 50 per cent from retail sources. These findings are similar to those reported in other studies of small hospitals and nursing homes (39,43,59,69). Some hospitals purchase from

area retail merchants to promote community relations; however, this buying may be necessary because of few sources of supply, size of wholesale purchase unit, and availability. Rural location may limit deliveries from wholesale suppliers.

Table 13: Extent of retail purchasing

size of hospital	N	purchases from retail sources			
		50 per cent or more	a few products	very few products	$\chi^2$
		%	%	%	
under 25-bed	37	59.5	32.4	8.1	
26- to 50-bed	91	28.6	46.2	25.3	
51- to 100-bed	83	13.3	33.7	53.0	
all hospitals	211	28.0	38.9	33.2	40.32***

\*\*\*P  $\leq$  .001

Food supplies purchased most frequently from retail sources were fresh produce, bread, milk, and meat (Table 14). Ninety per cent of the hospitals purchasing from retailers reported buying one, two or three times a week (Table 15). A few hospitals purchased from retailers four or more times per week.

Once a week orders to wholesalers were placed by 65.3 per cent of the hospitals (Table 15). Purchases were made two or more times weekly in 25.1 per cent of the hospitals. Thirty per cent purchased from one or two wholesale vendors and 70 per cent from three or more wholesale vendors (Table 16).



Table 14: Sources of food supplies

type of food	N	wholesale	retail	wholesale and retail
		%	%	%
canned goods	211	83.4	5.7	10.9
frozen foods	209	84.2	7.7	8.1
meat	210	58.6	28.6	12.8
bread	204	61.8	38.2	0.0
milk	204	68.6	31.4	0.0
fresh produce	205	44.9	42.9	12.2
other food products and supplies	53	43.4	39.6	17.0

Table 15: Frequency of purchasing food supplies

frequency of purchasing	from wholesale source (N=199)	from retail source (N=119)
	%	%
every 3 weeks, monthly or quarterly	3.0	0.0
every 2 weeks	5.0	0.8
once a week	65.3	47.1
2 or 3 times a week	19.6	42.9
4 or 5 times a week	4.5	5.0
over 5 times a week	2.0	3.4
other	0.5	0.8

Table 16: Number of wholesale vendors by size of hospital

size of hospital	N	number of wholesale vendors			$\chi^2$
		one or two	three	more than three	
		%	%	%	
under 25-bed	35	54.3	34.3	11.4	
26- to 50-bed	84	36.9	32.1	31.0	
51- to 100-bed	84	13.1	28.6	58.3	
all hospitals	203	30.0	31.0	38.9	32.81***

\*\*\* $p \leq .001$

Significant differences were found in the percentage of hospitals buying from one to three or more wholesale vendors when data were studied by hospital size. Over half of the hospitals of 25-beds or less purchased from one or two wholesale vendors, and over half of the hospitals over 50-beds purchased from more than three vendors. The frequency of purchasing depends on the location and size of the institution as well as storage space (22). Institutions located away from metropolitan areas may have the opportunity to purchase from only one or two wholesale vendors, and may receive deliveries only once or twice monthly.

## Convenience Foods Usage and Acceptance

### Convenience Foods Purchased

Current purchases of convenience foods compared to purchases three years ago indicated the purchase of frozen foods had increased the most (Table 17); oven-ready meats and prepared foods were next. The greatest decrease in purchase of any type of convenience food was for single-service meals. Decreases also were noted for freeze-dried foods.

Results were compared with a 1972 national survey (18), which reported that increased purchases were greatest for frozen foods and also increased for foods in individual serving packages, prepared foods, and oven-ready meats. Decreased purchases among the various categories were similar between this study and the 1972 survey except for individual serving packages which decreased substantially more in this study.

The limiting factors identified most frequently in the purchase of convenience foods were lack of freezer space, cost is too high, already have adequate kitchen staff, and product quality is not acceptable (Table 18). A 1973 national survey (42) ranked the following as major disadvantages to use of convenience foods: product quality not acceptable (59.5 per cent), cost is too high (54.1 per cent), already have adequate kitchen staff (51.4 per cent), and lack of freezer space (40.5 per cent). The major concerns were the same but were ranked in different order of importance.

Table 17: Previous and current convenience food purchases and comparison with 1972 national sample (18)

type of convenience food	current purchases compared to three years ago							
	purchase more 1975		purchase same 1975		purchase less 1975		no response 1975	
	W.N.C. hospi- tals <sup>1</sup>	national survey sample <sup>2</sup>	W.N.C. hospi- tals	national survey sample	W.N.C. hospi- tals	national survey sample	W.N.C. hospi- tals	national survey sample
frozen foods	57.4	54.9	35.2	38.7	2.8	0.1	4.6	6.3
oven-ready meats	22.7	28.9	39.4	50.0	13.0	9.9	24.9	11.2
individual serving packages	19.0	47.2	38.4	43.0	14.4	2.1	28.2	7.7
prepared foods	22.7	37.3	41.7	47.2	9.1	4.9	26.5	10.6
freeze-dried	8.3	12.7	32.9	50.7	17.1	14.1	41.7	22.5
single-service meals	1.9	7.0	24.1	42.3	19.0	19.7	55.0	31.0

<sup>1</sup>N=216, present study of West North Central region as defined by American Hospital Association.

<sup>2</sup>N=142, 1972 national survey (18).

Table 18: Limitations to purchase of convenience foods

limitation to purchase	N <sup>1</sup>	degree of limitation on decision to purchase convenience foods		
		very strong limitation	some-what a limitation	not really a limitation
		%	%	%
cost too high	173	45.1	34.7	20.2
not available	137	18.2	36.5	45.3
lack of freezer space	177	48.0	27.1	24.9
product quality not acceptable	149	22.8	41.6	35.6
have adequate kitchen staff	172	37.2	16.3	46.5
poor package instructions	126	3.2	12.7	84.1
not enough variety	120	7.5	25.8	66.7
lack of proper equipment	135	21.5	25.2	53.3
lack of administrative support	131	15.3	17.6	67.2

<sup>1</sup>N equals number responding to item.

Usefulness of convenience foods in emergencies was listed as the strongest factor influencing the decision to purchase convenience foods (Table 19). Other strong influences were reduced preparation time and ability to offer a broader menu. Hospitals responding to a 1973 national survey (40) ranked arguments for increasing the use of convenience foods in this order: reduced waste by control (64.8 per cent), reduced labor costs (59.3 per cent), and ability to offer a broader menu (54.0 per cent).

Table 19: Factors influencing increased purchase of convenience foods

	N <sup>1</sup>	degree of influence on decision to purchase convenience foods		
		very strong factor	somewhat a factor	not really a factor
		%	%	%
shortage of employees	94	14.9	12.8	72.3
more product uniformity	93	20.4	38.7	40.9
reduces waste by control	100	27.0	32.0	41.0
reduces preparation time	110	48.2	27.3	24.5
reduces portion cost	88	13.6	36.4	50.0
reduces labor cost	92	28.3	32.6	39.1
offers broader menu	98	34.7	28.6	36.7
useful in emergencies	118	54.2	33.9	11.9

<sup>1</sup>N equals number responding to item.

## Managerial Evaluations

To realize cost reductions by using convenience foods, hospitals must show savings related to labor, waste, and possibly equipment and food production space (8). Slightly over 50 per cent of the managers indicated that frozen bulk convenience foods could help cut costs, which was a higher percentage than the 47.1 per cent that indicated frozen preplated meals could help cut labor costs (Table 20). The majority (66.5 per cent) reported that some of the purchase units of frozen convenience foods were too large for their needs. Thirty-two per cent of the managers indicated that special diet convenience foods were not available in their area and another 65 per cent indicated that some were available.

A significant difference was found among the hospitals based on institutional size and reactions to the packaging units of frozen convenience foods ( $P \leq .01$ ). Thirty per cent of the hospitals of 25-beds or less indicated that all the purchase units were too large for their needs and only 7 per cent of the 51- to 100-bed hospitals indicated that all were too large.

Cooperation of foodservice employees is essential for efficient operation of any foodservice. The managers of approximately half (49.3 per cent) of the hospitals indicated their present employees would not resist the use of convenience foods, approximately one-third indicated the possibility of some resistance, and only a few indicated that present employees would strongly resist the use of convenience foods.

Table 20: Managerial evaluations related to convenience foods

	hospitals reporting (N=208)
	%
frozen bulk convenience foods could help cut cost	
yes	17.9
probably	37.3
no	44.8
frozen preplated meals could help cut labor costs	
yes	16.8
probably	30.3
no	52.9
special diet convenience foods are available in this area	
all	3.3
some	64.9
none	31.8
purchase units of frozen convenience foods are too large for our needs	
all	15.3
some	66.5
none	18.2
present employees resist use of convenience foods	
strong resistance	16.1
some resistance	34.6
not really any resistance	49.3



## Food Costs and Control Procedures

Thirty-eight (18.0 per cent) of the respondents were required to meet a budgeted food cost per patient day. This compares with 58 per cent of the respondents in a 1973 survey of hospitals with census of 200 or more who had budgeted food costs (70). This finding tends to substantiate earlier reports (43,46,59) that few small hospitals have a budget for the department of dietetics or keep adequate food records. The mean budgeted food cost was \$1.78 per patient per day. This compares favorably with a median food cost for hospitals 100-beds or less of \$1.87 reported by Hospital Administrative Services (HAS) of the American Hospital Association (AHA) for the six months period ending December 31, 1975 (57).

Respondents were asked how they believed that costs per meal in their hospitals compared with the national average. Thirty-five (20.1 per cent) reported they believed costs per meal were higher in their hospital; sixty-four (36.8 per cent) reported the same cost per meal; and seventy-five (43.1 per cent) reported a lower cost per meal than the national average.

The HAS program of the AHA provides data to participating hospitals in the form of reports containing financial, statistical, and productivity measurements for each department (57). Comparison of the institution's performance with the HAS indicators provides administrators with an excellent tool for evaluating operational effectiveness. Eighty-three responding hospitals (55.3 per cent) subscribed to the HAS program

(Table 21). Significant differences were found in the percentage of hospitals subscribing to HAS when data were studied by hospital size. A greater percentage of 51- to 100-bed hospitals subscribed. Subscribers to HAS were asked how frequently they checked the cost comparisons on this report. Responses were as follows: always, 42.5 per cent; on occasion, 47.5 per cent; and rarely, 10.0 per cent.

Table 21: Subscribers to HAS<sup>1</sup>

size of hospital	N	hospital subscribes		$\chi^2$
		yes	no	
		%	%	
under 25-bed	29	48.3	51.7	
26- to 50-bed	62	46.8	53.2	
51- to 100-bed	59	67.8	32.2	
all hospitals	150	55.3	44.7	6.13*

<sup>1</sup>HAS refers to Hospital Administrative Services of the American Hospital Association.

\*P  $\leq$  .05

Food costs were favorable in the survey hospitals even without the benefits of HAS reports; however, other factors besides costs enter into the evaluation of a foodservice. Food quality, service, and patient satisfaction are also important considerations.

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Foodservice has as its goal the production and service of acceptable quality food within the financial resources available. How this goal is achieved will vary with different systems. The small hospital has some unique problems related to size and geographic location which make it difficult to cope with rising labor costs and low labor productivity. These two factors have influenced some hospitals to adopt convenience foods systems; however, a convenience foods system may not solve the problems of the small hospital.

The objective of this research was to study the purchasing practices and use of convenience foods in short-term, general hospitals of less than 100 beds and to compile data for use by dietitians and foodservice managers. Identification of factors influencing the decision to use convenience foods was of particular interest.

A random sample (N=300) was selected representing 50 per cent of the hospitals 100-beds or less in the seven state West North Central Region of the United States as defined by the American Hospital Association. Data were collected using a mail survey method because of the wide geographic distribution of the hospitals. Seventy-three per cent of the questionnaires were returned.

The hospitals were grouped into size categories as follows: under 25-beds, 26- to 50-beds, and 51- to 100-beds. A

significant difference was found among hospitals when employment of registered dietitians was compared with hospitals by size. Hospitals of 50-beds and under tended to employ consultant dietitians; whereas, hospitals with over 50 beds employed full-time dietitians more frequently.

Some general findings concerning the survey hospitals were as follows: three were managed by a management company, none received prepared meals from a central commissary, meals-on-wheels was the outreach program most frequently served by the hospitals, two used computerized ordering procedures, 25.6 per cent participated in group purchasing, 18.5 per cent ordered food supplies through the hospital purchasing department, and 40 per cent reported inadequate storeroom space.

The department of dietetics in the larger hospitals (51- to 100-beds) tended to use more recommended management practices than did the smaller hospitals. These practices included: employment of full-time or part-time dietitians, written purchasing policies, established food specifications, purchasing by a bid system, and lesser extent of purchasing from retail sources.

Convenience foods purchases appeared to follow the 1975 national trends reflecting increases in purchases but at a slower rate than previously reported. Major limitations to increased purchase of convenience foods were lack of freezer space and high costs. The majority of respondents indicated the major factors influencing increased purchases were usefulness of convenience foods in emergencies and reduction of

preparation time. Approximately 50 per cent of the managers indicated the use of bulk convenience foods or preplated meals could help reduce labor costs.

Each hospital represents a unique combination of characteristics regarding size, location, dietary management, financial resources, physical facilities and sources of supply; therefore, each foodservice must analyze its own situation. The following were identified as considerations in the decision to increase usage of convenience foods or to convert to a total convenience system.

- a. A menu which meets the needs of the institution.
- b. Regular availability, nutritive value, and quality, flavor, and texture acceptability of food products.
- c. Portion cost including labor time required for preparation and comparison with cost per portion using conventional preparation.
- d. Storage and equipment capacities.
- e. Cost of additional equipment and storage that may be needed.
- f. Reaction of employees to new products or systems.

To cope with rising labor costs and low labor productivity it is recommended that the hospital of 100-beds and under should utilize, when available, shared services such as group purchasing, shared professional personnel, and management services including data processing. In addition to helping reduce costs, shared services tend to help keep management up-to-date on new trends, new food products, and new equipment as it is available.

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## APPENDIXES

APPENDIX A  
Questionnaire

# FOOD PURCHASING PRACTICES IN HEALTHCARE FACILITIES

Please mark the answers which most nearly correspond to your opinions as foodservice director and to the practices in your hospital. Your answers will help make this study more valuable. If you have any additional comments please add them at the end of the questionnaire.

In this study, we are particularly interested in the use of convenience foods in small hospitals. Convenience foods are defined as:

those foods which are prepared and then frozen, canned or freeze-dried commercially; prepared and then frozen in on-premise facilities; or prepared in central commissaries (food factories). They may be preplated or in bulk packaging.

Please check the answer most appropriate for your institution.

1. Is your foodservice department contracted to a food-service management company?  
☐ Yes  
☐ No
2. Do you receive fully prepared meals from a central commissary?  
☐ None at all  
☐ Modified only  
☐ Regular or general only  
☐ All
3. Do you produce fully prepared meals for any other locations?  

Check as many as apply	Approximate number of meals/day	
<input type="checkbox"/> Meals on Wheels	<input type="checkbox"/>	
<input type="checkbox"/> Nursing home	<input type="checkbox"/>	
<input type="checkbox"/> Hospital	<input type="checkbox"/>	
<input type="checkbox"/> Elderly Feeding Project	<input type="checkbox"/>	
<input type="checkbox"/> Other (specify)	<input type="checkbox"/>	<input type="text"/>
4. Does your foodservice department participate in a group-purchasing organization?  
☐ Yes  
☐ No  
 If Yes, give name
5. Which food products do you purchase through this group-purchasing organization?  
☐ Canned goods  
☐ Frozen foods  
☐ Meat  
☐ Bread  
☐ Milk  
☐ Fresh produce  
☐ Other
6. Is your foodservice department required to meet a budgeted food cost per patient day?  
☐ Yes  
☐ No
7. If yes, what is the amount?  
 \$  /patient/day.

8. Are any food products for your department procured by computerizing ordering procedures?  
☐ Yes  
☐ No
9. Please check any of these food products ordered through the purchasing department in your hospital:  
☐ None are ordered through purchasing  
☐ Canned goods  
☐ Frozen foods  
☐ Meat  
☐ Bread  
☐ Milk  
☐ Fresh Produce  
☐ Other \_\_\_\_\_
10. Where do you buy the following food products:  

From Wholesalers	From Retailers
<input type="checkbox"/> Canned Goods	<input type="checkbox"/>
<input type="checkbox"/> Frozen Foods	<input type="checkbox"/>
<input type="checkbox"/> Meat	<input type="checkbox"/>
<input type="checkbox"/> Bread	<input type="checkbox"/>
<input type="checkbox"/> Milk	<input type="checkbox"/>
<input type="checkbox"/> Fresh produce	<input type="checkbox"/>
<input type="checkbox"/> Other	<input type="checkbox"/>
11. About how many times a week do you buy food products other than bread and milk:  

From Wholesalers	From Retailers
<input type="checkbox"/> once a week	<input type="checkbox"/>
<input type="checkbox"/> 2 or 3 times	<input type="checkbox"/>
<input type="checkbox"/> 4 or 5 times	<input type="checkbox"/>
<input type="checkbox"/> over 5 times	<input type="checkbox"/>
<input type="checkbox"/> other, please explain _____	
12. From how many wholesalers do you buy food products other than bread and milk:  
☐ None  
☐ One  
☐ Two  
☐ Three  
☐ More than three
13. What proportion of your food products are purchased from a local retail dealer?  
☐ A majority  
☐ About half  
☐ A few products  
☐ Very few
14. Do you consider your storeroom space:  
☐ Inadequate  
☐ Adequate  
☐ Plenty of space, no problem
15. What percent of total meals prepared are served to patients?  
☐ 40% or less  
☐ about 50%  
☐ about 60%  
☐ 70% or more
16. This hospital has written policies governing the foodservice purchasing function.  
☐ Yes  
☐ No
17. Specifications are established for food supplies.  
☐ All  
☐ Some  
☐ None

18. Samples of food supplies are requested for testing.

\_\_\_ Yes, but few are available

\_\_\_ Yes, samples are received when requested

\_\_\_ No

19. Bid system is used for purchase of food supplies.

\_\_\_ Yes

\_\_\_ No

20. If above answer is yes, which products are put on bid.

\_\_\_ Canned goods

\_\_\_ Frozen foods

\_\_\_ Meat

\_\_\_ Bread

\_\_\_ Milk

\_\_\_ Other \_\_\_\_\_

21. Are you allowed to purchase by brand name?

\_\_\_ Yes

\_\_\_ Sometimes

\_\_\_ No

22. Do you buy more of these than you did three years ago?

More Same Less

\_\_\_ Frozen foods

\_\_\_ Oven-ready meats

\_\_\_ Individual serving packages

\_\_\_ Prepared foods

\_\_\_ Freeze-dried foods

\_\_\_ Single-service meal

23. Our purchase of convenience food is limited because of (check as many as applicable):

A - Very strong limitation

B - Somewhat a limitation

C - Not really a limitation

A B C

\_\_\_ Cost too high

\_\_\_ Not available

\_\_\_ Lack of freezer space

\_\_\_ Product quality not acceptable

\_\_\_ Have adequate kitchen staff

\_\_\_ Poor package instructions

\_\_\_ Not enough variety

\_\_\_ Lack of proper equipment

\_\_\_ Lack of administrative support

24. The purchase of convenience foods have been increased because of (check as many as applicable):

A - Very strong factor influencing purchase of convenience foods

B - Somewhat a factor

C - Not really a factor

A B C

\_\_\_ Shortage of employees

\_\_\_ More product uniformity

\_\_\_ Reduces waste by control

\_\_\_ Reduces preparation time

\_\_\_ Reduces portion cost

\_\_\_ Reduces labor cost

\_\_\_ Offers broader menu

\_\_\_ Useful in emergencies

25. Do you think the following statements would apply in your institution?
- A. Frozen bulk convenience foods could help cut labor costs.  
☐ Yes  
☐ Probably  
☐ No
- B. Frozen preplated meals could help cut labor costs.  
☐ Yes  
☐ Probably  
☐ No
- C. Special diet convenience foods are available in this area.  
☐ All  
☐ Some  
☐ None
- D. Purchased units of frozen convenience foods are too large for our needs.  
☐ All  
☐ Some  
☐ None
- E. Present employees resist use of convenience foods.  
☐ Strong resistance  
☐ Some resistance  
☐ Not really any resistance
26. How does your present cost per meal compare to the national average?  
☐ Higher  
☐ Same as  
☐ Lower
27. Does your hospital subscribe to Hospital Administrative Services (HAS) of the American Hospital Association?  
☐ Yes  
☐ No  
☐ Not sure
28. Do you check the cost comparisons on this report?  
☐ Always  
☐ On occasion  
☐ Rarely
29. What is the bed size of your hospital?  
☐ under 25  
☐ 26 - 50  
☐ 51 - 100  
☐ over 100
30. Which classification best describes the operation of your hospital?  
☐ Federal government  
☐ Nonfederal government  
☐ Nongovernmental  
☐ not-for-profit  
☐ For-profit
31. Which classification best describes the service of your hospital?  
☐ General medical and surgical  
☐ Hospital unit of an institution (prison, college, etc.)  
☐ Rehabilitation  
☐ Children's hospital  
☐ Maternity  
☐ Other (please specify)  


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32. Are you a registered dietitian?  
☐ Yes  
☐ No



33. If the answer to question #32 is yes, do you work full-time or part-time?  
 \_\_\_\_\_ Full-time  
 \_\_\_\_\_ Part-time  
 \_\_\_\_\_ Consultant
34. If the answer to question #32 is no, which category below describes you?  
 \_\_\_\_\_ College graduate--not American  
       Dietetic Association Member  
 \_\_\_\_\_ Foodservice supervisor/manager  
 \_\_\_\_\_ Cook manager  
 \_\_\_\_\_ Other (please specify) \_\_\_\_\_
35. If person other than food-service director is answering this questionnaire, please indicate your position.  
 \_\_\_\_\_ Administrator of hospital  
 \_\_\_\_\_ Consultant  
 \_\_\_\_\_ Dietitian  
 \_\_\_\_\_ Other (please specify) \_\_\_\_\_
36. Which of the following professional memberships apply to you? (Check as many as applicable):  
 \_\_\_\_\_ Member of HIEFSS (Hospital, Institution, and Educational Food Service Society)  
 \_\_\_\_\_ Member of American Dietetic Association  
 \_\_\_\_\_ Member of American Society for Hospital Food Service Administrators  
 \_\_\_\_\_ Other (please specify) \_\_\_\_\_
37. Do you work with a Consultant dietitian?  
 \_\_\_\_\_ Yes  
 \_\_\_\_\_ No  
 \_\_\_\_\_ Not applicable
38. List highest educational degree and major:  
 \_\_\_\_\_ High school diploma  
 \_\_\_\_\_ B.A./B.S.  
 \_\_\_\_\_ M.S.  
 \_\_\_\_\_ Other (please specify) \_\_\_\_\_
- Major (for college graduates)  
 \_\_\_\_\_ Dietetics  
 \_\_\_\_\_ Foods & Nutrition  
 \_\_\_\_\_ Home Economics Education  
 \_\_\_\_\_ Business Administration  
 \_\_\_\_\_ Other (please specify) \_\_\_\_\_
- \_\_\_\_\_ Other training (specify) \_\_\_\_\_

COMMENTS:

APPENDIX B  
Correspondence

Department of Institutional Management  
Justin Hall  
Manhattan, Kansas 66506  
Phone: 913 532-5521

May 25, 1975

Dear Foodservice Director:

At Kansas State University, we are conducting a study concerning the use of convenience foods in small hospitals and we need your assistance. This questionnaire is being sent to the Director of the Foodservice Department of selected hospitals in your state with less than 100 beds.

Please mark the answers which most nearly correspond to your opinions and to the practices in your hospital. Please answer every question. If you have any additional information or remarks please feel free to comment at the end of the questionnaire.

You or your hospital will not be identified individually. An identification number has been used to aid us in followup only. We have asked a number of questions that will provide information for classification and analysis of data. Results of the study will be summarized for an overall report of purchasing practices in small hospitals in the midwest.

When the questionnaire is complete, will you please place in the enclosed stamped envelope and drop in the mail today or tomorrow? Thank you for your cooperation and time in answering the questionnaire.

Sincerely,

Allene Vaden, Ph.D., R.D.  
Assistant Professor

Lavonna Morrison (Mrs.)  
Graduate Student

LM/fj

enclosures

Department of Institutional Management  
Justin Hall  
Manhattan, Kansas 66506  
Phone: 913 532-5521

June 8, 1975

Dear Foodservice Director:

About two weeks ago you should have received a questionnaire for a study that we are conducting at Kansas State University on the use of convenience foods in small hospitals. If you have completed the questionnaire and have sent it back, thank you! However, we thought possibly you did not receive your copy and are enclosing another with this mailing.

In the event you did not receive the first letter, let me briefly restate some of its contents. We are anxious to have this data from all the hospitals in your state that were randomly selected for this study. You or your hospital will not be identified individually. An identification number has been used to aid us in follow-up only. We have asked several questions that will provide information for classification and analysis of data. Results of the study will be summarized for an overall report of purchasing practices in small hospitals in the midwest.

We appreciate your time and consideration in providing the information. The greater percentage of return, the more accurate our compilation of information will be. Would you please complete the enclosed questionnaire and return it in the enclosed stamped envelope today or tomorrow? Thank you for your cooperation and time.

Sincerely,

Allene Vaden, Ph.D., R.D.  
Assistant Professor

Lavonna Morrison (Mrs.)  
Graduate Student

LM/fj

enclosure

PURCHASING PRACTICES AND CONVENIENCE FOODS  
USAGE IN SMALL HOSPITALS

by

LAVONNA P. MORRISON

B. S., University of Idaho, 1960

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AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Institutional Management

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1976

The small hospital has some unique problems related to size and geographic location which make it difficult to cope with rising labor costs and low labor productivity. These two factors have influenced some hospitals to adopt convenience foods systems; however, a convenience foods system may not solve the problems of the small hospital.

The objective of this project was to study purchasing practices and the use of convenience foods in short-term, general hospitals of less than 100 beds and to compile data for use by dietitians and foodservice managers. Identification of factors influencing the decision to use convenience foods versus conventionally prepared foods was of particular interest. Convenience foods were defined as those foods which are prepared and then frozen, canned or freeze-dried commercially; prepared and then frozen in on-premise facilities; or prepared in central commissaries (food factories).

Data were collected using a mail survey method from a random sample of hospitals (N=300), which represented approximately 50 per cent of the total number of short-term general hospitals 100 beds or under in the West North Central Region of the United States as defined by the American Hospital Association. The sample was stratified by state and a proportional number of hospitals drawn from each state. Seventy-three per cent of the instruments were returned.

Hospitals were grouped into size categories as follows: under 25-beds, 26- to 50-beds, and 51- to 100-beds. Employment of registered dietitians was significantly related to hospital

size. Hospitals 50 beds and under tended to employ consultant dietitians; whereas, hospitals with over 50 beds more often employed full-time dietitians.

Some general findings concerning the survey hospitals were as follows: three were managed by a management company, none received prepared meals from a central commissary, meals on wheels was the outreach program most frequently served by the hospitals, two used computerized ordering procedures, 25.6 per cent participated in group purchasing, 18.5 per cent ordered food supplies through the hospital purchasing department, and 40 per cent reported inadequate storeroom space.

The department of dietetics in the larger hospitals (51- to 100-beds) tended to use recommended management practices more frequently than did the smaller hospitals. These practices included: employment of full-time and part-time dietitians, written purchasing policies, established food specifications, purchasing by a bid system, and lesser extent of purchasing from retail sources.

Current convenience foods purchases appear to follow the 1975 national trends reflecting increases in purchases but at a slower rate than previously reported. Major limitations to increased purchase of convenience foods were lack of freezer space and high costs. The majority of respondents indicated the major factors influencing increased purchases were usefulness of convenience foods in emergencies and reduction of preparation time. Approximately 50 per cent of the managers indicated the use of bulk convenience foods or preplated meals could help reduce labor costs.