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A STUDY TO ASSESS THE EFFECTIVENESS OF
AN A-LA-CARTE FEEDING SYSTEM AT NAVAL
REGIONAL MEDICAL CENTER,
ORLANDO, FLORIDA

A Graduate Research Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
Master of Health Administration

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by

Commander Robert J. Downs, NC, U.S.N.

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DISCUSSION STATEMENT
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CHAPTER I

INTRODUCTION

Background Information

The funding of dining facilities has drawn increasing attention in recent years from the Congress, the Department of Defense, and the military services. As food costs continue to escalate and the medical departments of the various services become more concerned with this rising trend, it is becoming necessary to seriously re-evaluate the status quo of the conventional food delivery service. A very fertile area for cost curtailment in food service is the control of the quantity of food consumed in the dining room.

The Navy initiated a study in 1975 at Naval Air Station, Alameda, California, to ascertain the feasibility of changing the traditional food service system at naval ashore installations. This new system entailed placing all personnel on the base on a monetary allowance (commuted ration) and of pricing all food items on an a-la-carte basis.

The results of this study were published in Technical Report TR-77/011, entitled An Evaluation of an All-Commuted Ration Ashore/A La Carte System for the Navy.¹ The recommendations of the study were that an all-commuted ration/a-la-carte system should not be implemented because it represented a more costly program and more personnel chose not to patronize

the Navy dining facility.

However, the study did find that a-la-carte food service was preferred by the personnel. The a-la-carte system provides the customers with more freedom in their eating habits. There are many food substitutes which are approximately identical in nutritional value. This is one reason for allowing freedom of choice on an a-la-carte system. The food alternatives and the a-la-carte method allow the consumer to choose food on the basis of cost as well as nutritive value.² Consequently, starting in Fiscal Year 1979, a-la-carte feeding was initiated in some general messes at naval bases. No implementation for naval hospitals of the a-la-carte system was planned, and the practicality of the new method for hospital use was not addressed.

Study Stimulant

In October, 1978, the commanding officer, Naval Regional Medical Center (NRMC), Orlando, Florida, wrote to the chief, Bureau of Medicine and Surgery (BUMED), recommending that NRMC, Orlando, be authorized to develop and test in a hospital setting a Navy-approved a-la-carte feeding system. The new hospital at NRMC, Orlando, was to be ready in Fiscal Year 1981, and it was felt that the dining room was well designed to support an a-la-carte-type operation. An additional reason for proposing testing of an a-la-carte method was the rapidly accelerating food costs which were making it

no longer cost effective to provide all one could eat for the fixed price of the hospital ration. Another issue was that the current all-you-can-eat policy made it very difficult to establish and maintain adequate weight-control programs.

In December, 1978, the chief, BUMED, authorized NRMC, Orlando, to operate an a-la-carte cafeteria feeding system when the new facility was occupied. On April 21, 1981, the new facility was dedicated, and approval to test an a-la-carte system was received in May, 1981. This study reports on the testing of a hospital-based a-la-carte operation which commenced on February 1, 1982.

Statement of the Problem

The problem is to assess the effectiveness of an a-la-carte feeding system for Naval Regional Medical Center, Orlando, Florida.

Objectives

This study is meant to be a comprehensive assessment of the effectiveness of the a-la-carte food service system at the Naval Regional Medical Center, Orlando, and is centered around four objectives:

1. To determine if the a-la-carte system increases the number of cash-paying customers utilizing the dining room.
2. To compare the ration cost under both the conventional and the a-la-carte system.

3. To contrast the total subsistence expenditures under both the conventional and the a-la-carte system.
4. To evaluate the advantages and disadvantages of the a-la-carte food system.

Criteria

The criteria for this study are:

1. No decrease in patronage should be experienced by the dining room as demonstrated by the number of customers served.
2. The average cost per ration should be reduced.
3. The total subsistence expenditures should decrease as the amount of food consumed decreases.

Assumptions

The following assumptions were made:

1. No increase in the number of personnel authorized to receive commuted rations will be granted so that the number of personnel eligible for ration-in-kind meals will remain relatively constant during the period of the study.
2. The population eligible to utilize the dining room will remain the same and is comprised of hospital staff and hospitalized patients.

Limitations

The following constraints are applicable to this study:

1. The present food service system of cook/chill and the current food service equipment must be utilized.
2. The Addressography-Multigraph 3220 system chosen by the Navy Food Service System Office must be employed.
3. No additional software systems will be funded for use at this time.

Definitions

The following terms are pertinent to this study:

A-la-carte is a method of payment found in commercial cafeterias whereby customers pay only for the items of food they select.

Commuted ration (COMRATS) is a monetary allowance paid to an enlisted service member to enable him to purchase his meals.

Conventional or traditional system is the method of pricing meals at a flat rate commensurate with the daily commuted rate established by the Department of Defense plus a surcharge for nonenlisted members to cover overhead costs.

Cook/chill method is an advance preparation system whereby the food is cooked, bulk chilled, and reheated prior to being served.

Hospital ration is one day's food allowance, or three meals.

Hospital ration rate is the cost of providing one hospital ration and is determined by the total cost of the

food items divided by the total number of rations served.

Subsistence expenditures are the total raw food costs accumulated during a month to provide patient and staff meals.

Subsistence in kind (SIK) denotes that daily ration of food in lieu of receiving a monetary allowance to which each enlisted person is entitled.

Methodology

The hardware used in this study was determined by the Navy Food Service System Office. The instrument selected was the Addressograph-Multigraph Documentor 3220 system. The Documentor 3220 is an easy-to-use, point-of-sale terminal with a 12K memory. The keyboard has 110 keys with 22 key positions dedicated to control of numeric functions and 88 key positions dedicated for menu items. The key tops are easily printable to accommodate menu item changes.

The a-la-carte system study was completed in four phases. Phase One was a development process that necessitated familiarization with the food service activities. This was accomplished by reviewing numerous food service manuals and historical food service management records, direct observation of the food service program, and, finally, structured and unstructured interviews with various level food service workers.

Selecting a work testing period, designing a pre- and a post-implementation survey, creating a data sheet on

which to compile the activity and a food service performance analysis report for BUMED notification, and, finally, recording data were completed in Phase Two. Statistical applications were employed to establish the sample size necessary for the consumer surveys.

Assemblage of historical data from the prior fiscal year to be used for comparison purposes was accomplished in Phase Three.

Findings were specifically addressed and recommendations were made during the final phase of the study.

Footnotes

¹U.S., Department of the Army, U.S. Army Natick Research and Development Command, An Evaluation of an All-Commuted Ration Ashore/A La Carte System for the Navy, Technical Report TR-77/011 (Natick, Mass.: U.S. Army Natick Research and Development Command, January, 1977), p. 18.

²Marie Balsley, "Minicomputer Updates Food Prices Weekly," Hospitals 54 (1 September 1980): 76.

CHAPTER II

DISCUSSION

A-La-Carte System

The a-la-carte system has been used extensively in the civilian community for many years, and its effectiveness as a pricing method is well established. The a-la-carte pricing system in military dining facilities was first tested by the Air Force at Shaw Air Force Base, South Carolina, in 1972. The effectiveness of this study was discussed with Lieutenant Colonel Dean Falconer, Headquarters, Strategic Air Command/Surgeon General Health Department, Offutt Air Force Base, Nebraska, in telephone conversations on October 15, 1981, and on November 9, 1981. Lieutenant Colonel Falconer reiterated the effectiveness of a total a-la-carte system as tested at Shaw Air Force Base but stated that a modified a-la-carte system was tested at Loring Air Force Base, Maine, and proved to be even more successful. The modification entailed not placing all personnel on COMRATS and issuing a meal card to those personnel receiving subsistence in kind. Under the modified a-la-carte system, each item served on the menu is priced and paid for by cash or the personnel receiving subsistence in kind pay for their selected items by presenting their meal card.

A telephone conversation on November 17, 1981, with

Mr. Alex Biehl of the food service facility at Randolph Air Force Base, Texas, confirmed the effectiveness of this modified a-la-carte system. A further check on November 19, 1981, with Captain Kelly, MSC, food service facility, Tyndall Air Force Base, Florida, substantiated the success of the revamped a-la-carte system. All Air Force Strategic Air Command medical treatment facilities are using the a-la-carte method with payment by cash or SIK meal card. This basic a-la-carte method as developed by the Air Force is the system selected for use in this study.

Dining Room Setting

The dining room at NRMC, Orlando, is located on the first floor. Along one wall, there is a serving line containing hot entrees and cold self-serve items. The beverage island is conveniently located in the center of the room to allow easy access to the assorted drinks. The cashier is at the end of the beverage island next to the only entrance to the seating area. The seating area contains ninety-two seats inside the main dining room with an outdoor patio area capable of seating forty-eight more. An alcove containing twenty-eight seats is designated the no-smoking area. Figure 1 provides a composite diagram of the entire setting.

Pricing Policy

A comprehensive knowledge of the food service activities was attained and included a familiarization with the

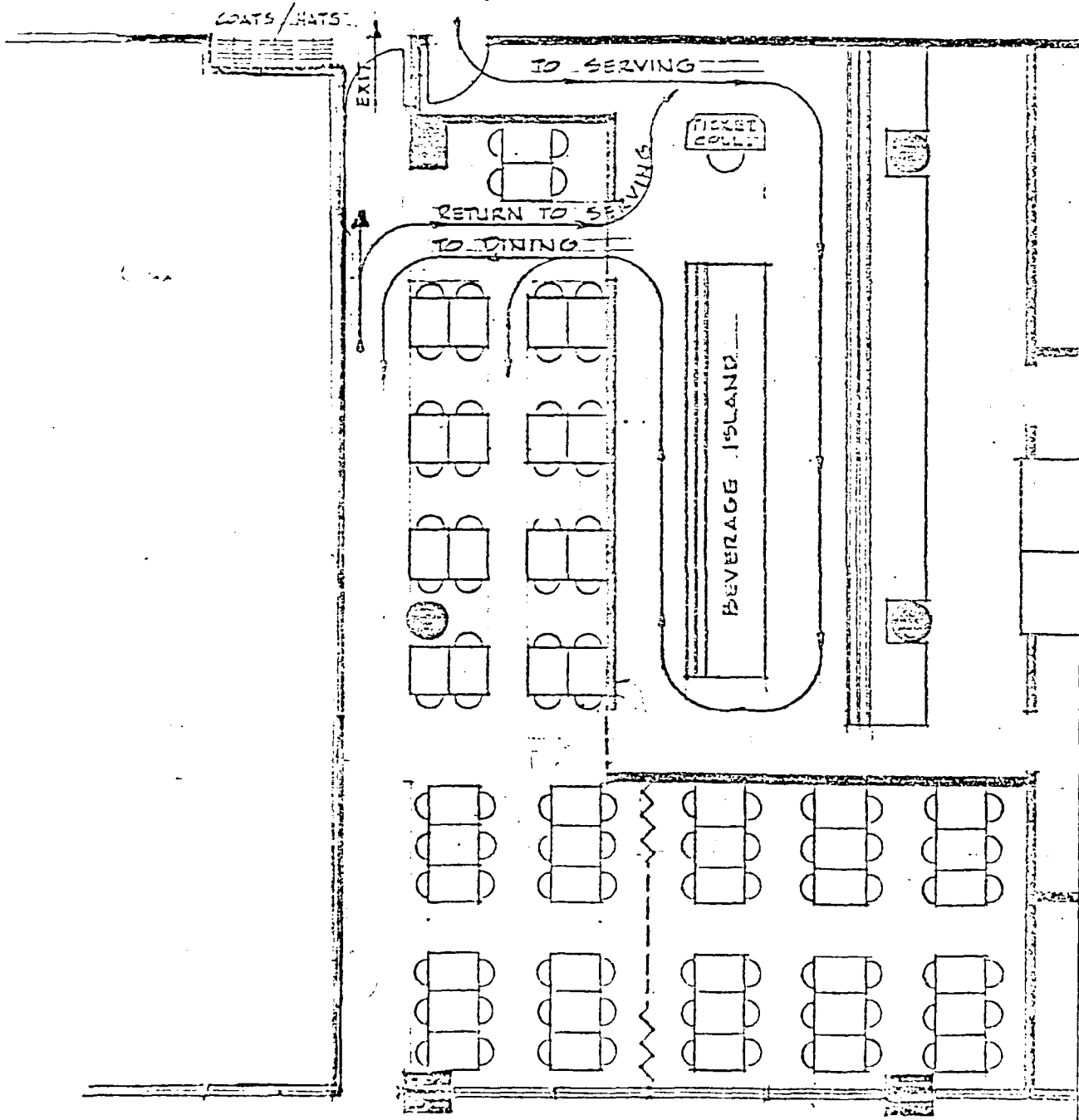


Fig. 1. Layout of Dining Room, Naval Regional Medical Center, Orlando, Florida

conventional system and the a-la-carte system. The goal of the hospital dining room is to provide the highest quality nutrition at the most cost-effective price.

Recognizing that nutritional support is vital to the recovery of hospital patients, the hospital determines its own rate for reimbursement by calculating its ration rate. This ration rate is used as the basis for reimbursement for all patrons subsisted in kind.

When calculating the ration rate, the food service manager does not segregate and accumulate related labor, supply, utility, and maintenance costs. Each enlisted person is entitled to either a daily ration of food or a monetary allowance. Each officer and each civilian pay for the cost of the food plus a surcharge to cover overhead expenses.

Under the conventional system currently used in all naval hospitals, the pricing for meals is set at a flat rate commensurate with the daily commuted rate; that is, 90 cents for breakfast and \$1.50 for lunch and dinner, with officers and civilians paying a surcharge of 40 cents for each meal. With the implementation of the a-la-carte concept, all items served are individually priced so that the total meal price of any individual will vary depending upon his preferences and choices. However, the surcharge is added only when the total of the items selected is 25 cents or greater.

The pricing policy established for the test still reflects the general military policy of subsidizing the

dining facility inasmuch as no charges are made for labor and overhead costs. Prices are established purely on raw food costs, plus a percentage markup to cover normal cooking losses and condiments provided to the patrons at no additional charge. Prices are rounded to the nearest nickel to avoid the requirement of maintaining a large supply of pennies with which to make change and to speed the change-making process.

A special effort was made to display prominently the prices for all items available to insure that each customer was fully aware of the cost of his choices. To this end, two large menu boards were hung at the beginning of the serving line with the daily menu items listed and their prices clearly displayed. Also, a small price tag was placed near each item.

One last measure was used to fully inform the customers of the price of their meal. The cash register issued a receipt for each customer listing each item purchased and its associated price as well as the total cost of the meal selected.

Detailed observations were made during the subsequent weeks following implementation of the a-la-carte system to determine any major flaws in the setup of the system and to evaluate overall effectiveness of the process. The system was functioning as designed with little initial consumer confusion. Personnel responsible for the daily functioning of

the process adapted quickly and with ease to the redesigned food display method, the new food portion distribution, and the A-M Documentor 3220 cash register.

Data-Gathering Format

The next step required developing a form that would aid in readily recording and analyzing the data capture effort and assist in preparing the performance report for BUMED. The data sheet used throughout the study was called the Daily Operation Statement (Figure 2). The data sheet identified and measured the actual number of customers in each category (Inpatient, SIK, Enlisted COMRATS, Office/Civilian, and Guest) that patronized the dining room, the number of customers returning for seconds, and the number of box lunches prepared. Also totalled daily was the amount of cash collected from the COMRATS customers and the officers/civilians, the surcharge, and the cost of the SIK meals and the inpatient nourishments. The Others column denoted recruits and transient personnel assigned to a work party at NRMC, Orlando, who received their meals under the SIK category. A separate worksheet was used for each of the three months surveyed. All worksheets are included in Appendix A.

When the data were analyzed at the end of the first month, it was discovered that additional factors should have been added. One factor was that cash collected from dining room patrons needed to be totalled separately for officers/civilians and enlisted personnel receiving COMRATS. This

would allow for more accurate assessment of what each group was spending for an average meal. Also, a technique for adding in the patients receiving a tray on the wards was needed and was devised starting the second month of the study. This technique consisted of making a duplicate of all diet requests submitted for ward patients and then having the A-M Documentor 3220 operator enter all items into the computer. This provided for the inclusion of the actual cost of inpatient trays in the total cost of SIK meals.

The Food Service Performance Analysis, NAWMED 10110/2 (Rev. 5-80), was used under the conventional food service system to meet the requirements of BUMED. Beginning March 1, 1982, the BUMED instruction governing hospital food services was revised, and reporting requirements now contain data on gross ration costs, which includes the cost of labor and supplies as well as of provisions. A Food Service Performance Analysis report was devised for the a-la-carte trial period. Data retrieved by the Daily Operation Statement are summarized on the BUMED a-la-carte trial forms in Appendix B in addition to management data helpful in assessing the performance of the food service. A separate trial worksheet was prepared for each month of the study. All worksheets are included in Appendix B.

Sample Size Determination

In order to assess the reaction to the a-la-carte

among the hospital staff, a survey was conducted the week before the system changed and again during the last week of the three-month test period. To insure that the results of the surveys would be an accurate reflection of the opinions of the hospital staff, the number of staff members to be randomly selected for the surveys had to be determined.

Computations to obtain the sample size necessary to determine with a 99 percent confidence level and be correct to within 5 percent for a population of 795 staff members are shown below:

$$n = \frac{Nz^2pq}{d^2(N-1) + z^2pq}$$

$$n = \frac{795(2.575)^2(.5)(.5)}{(.05)^2(795-1) + (2.575)^2(.5)(.5)}$$

$$n = \frac{795(6.6306)(.25)}{(.0025)(795) + (6.6306)(.25)}$$

$$n = \frac{795(1.6577)}{1.985 + 1.6577}$$

$$n = \frac{1317.8715}{3.6427}$$

$$n = 361.7843$$

$$n = 362$$

The number of staff members needed for the surveys was found to be a minimum of 362. Both surveys exceeded this number and are, therefore, considered to be fully acceptable for the study.

Customer Attitude Survey

In order to assess the reaction to the a-la-carte feeding system among the dining room patrons, surveys were conducted the week before and three months after the system changed. Two different survey forms were used, and a copy of each is contained in Appendix C.

Of the ten questions on the pre-implementation survey, seven queries were objective and three were open-ended. The objective questions required the respondent to mark one of the answers provided on the survey form. The open-ended questions allowed the respondents to provide as little or as much information as they wished. Of the ten questions on the post-implementation survey, nine questions were objective and one was open-ended.

The topics addressed in the pre-implementation survey were to ascertain how frequently the respondent ate at the hospital and if he ate in the dining room. The attitude of the respondent in regard to the impending system and his opinion as to whether or not he would eat less under an item-pricing method were also assessed. Finally, suggestions were sought from the respondent in the hope of better meeting his desires and thereby increasing his patronage of the dining room.

The topics of interest in the post-implementation survey were to ascertain if the respondent was using the dining room more frequently, if he preferred the item-pricing

system, if he was eating less food under the a-la-carte method, and if the new system was meeting his needs better. Also, how the respondent felt about the prices charged and the quality of the food and his suggestions on what he did not like about the new system were solicited.

Results of Customer Surveys

There were some significant differences among the four groups differentiated for the pre-implementation survey. Each group was fairly represented, and the number of respondents totalled 375. Figure 3 illustrates the overall responses to the planned changes in the food-pricing system.

The overwhelming majority of the hospital staff eat at least one meal a day at the hospital, it was found. However, only 71 percent of those personnel on COMRATS, 56 percent of the officers, and 59 percent of the civilians reported that they eat at least one meal daily in the dining room. Significantly, a large number of those not eating one meal a day in the dining room, namely officers and civilians, stated that they favored an item-pricing system and would use the dining room more when the new pricing system was instituted. They also agreed that they would benefit from eating less food under the new pricing method.

Those personnel in the SIK and the COMRATS groups expressed some reluctance and uncertainty about the effects of the change. The apprehension on the part of the COMRATS

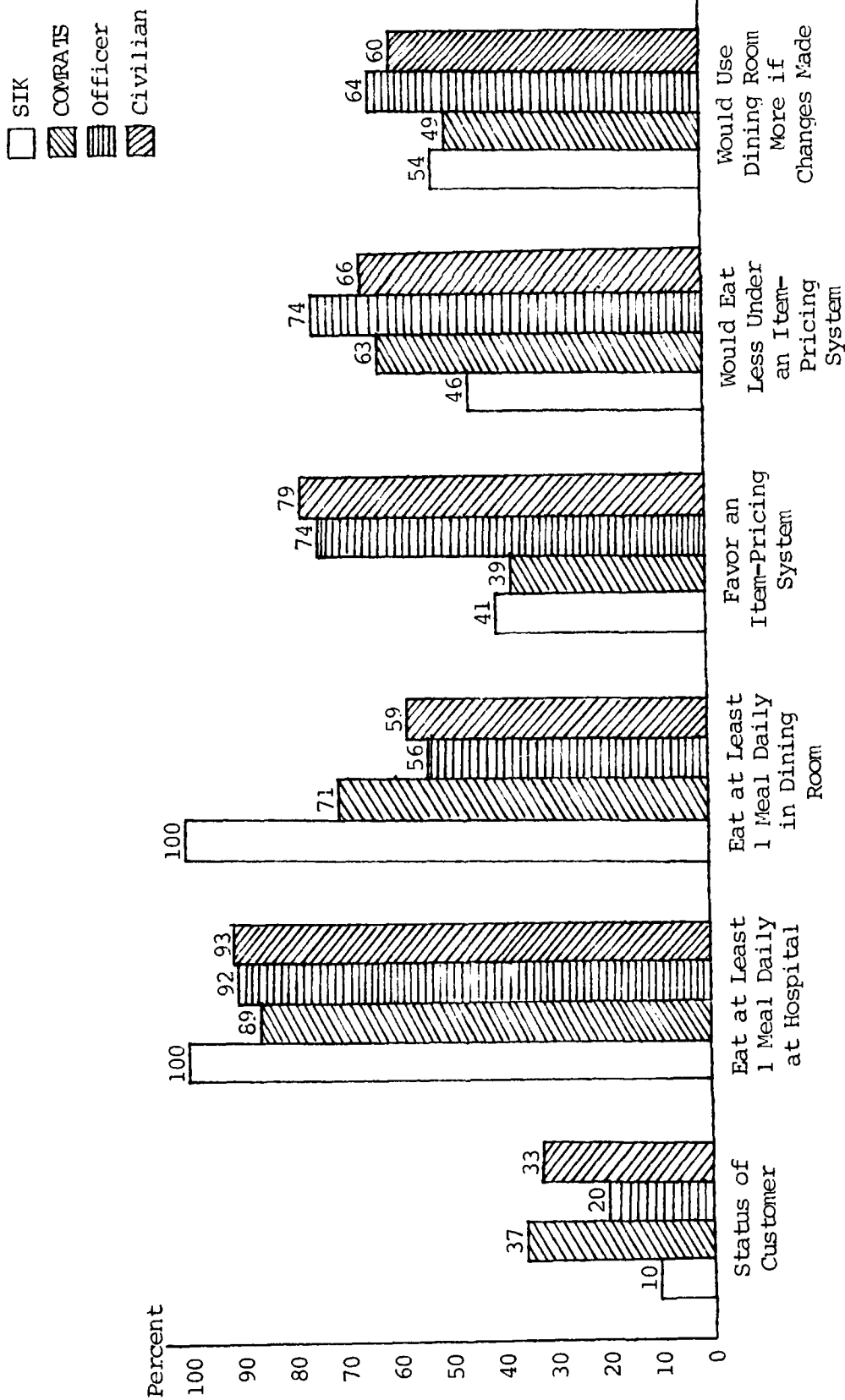


Fig. 3. Histogram of Pre-Implementation Survey Results

group is understandable, as they must pay for the food items they select. The uncertainty on the part of the SIK group, however, who have and will continue to have meal cards, is hard to explain. One explanation is that the SIK group did not carefully read the instructions at the top of the survey form which stated that they would continue to receive their meals as usual with only their meal pass number required for payment.

The main reasons given by the officer and the civilian groups for not eating more frequently in the dining room were that they eat too much and that they do not always wish a complete meal. The SIK and the COMRATS groups stated that they lived away from the hospital and did not return for more of their meals, and, in addition, the COMRATS group stated that the food selection did not entice them to eat more frequently in the dining room.

All groups agreed that the one change they would make to the conventional food system was to include a larger selection of menu items. The individual food item most desired by the officer and the civilian groups was more salads. The SIK and the COMRATS groups desired more beef entrees.

The menu used for the a-la-carte system was a twenty-one-day cycle menu. It included a choice of three main entrees at three price levels: high, medium, and low cost. In addition, grill items of hot dogs and hamburgers were always available, and a choice of a chef's salad or side salad

was likewise always available. Space limitations of the serving line area prohibited expanding the menu selection any further during the test period.

The third month survey found the general attitude toward the a-la-carte system to be very favorable. The customers' endorsement of the system changes as a whole is shown in Figure 4. The survey had 371 respondents, and over 90 percent of them had eaten in the dining room under both the old and the new system.

The average for all groups of those stating that they were eating in the dining room less frequently was 25.6 percent. However, 74.1 percent stated that they had not decreased their patronage, and 24.3 percent overall stated that they were utilizing the dining room more. This analysis of the opinions of the respondents revealed that there was no decrease in the patronage of the dining room.

The cash-paying customers, comprised of officers, civilians, and enlisted personnel receiving COMRATS, strongly endorsed the item-pricing system and were using the system to consume less food. The SIK group, as would be expected, was not overly supportive of the new system, and few made any alterations to the quantity of food they consumed.

The attractiveness of both the price and the quality of the food under an item-pricing system is significant in that the consumer must want to select the item. Strong support was found in all groups for the prices charged for the

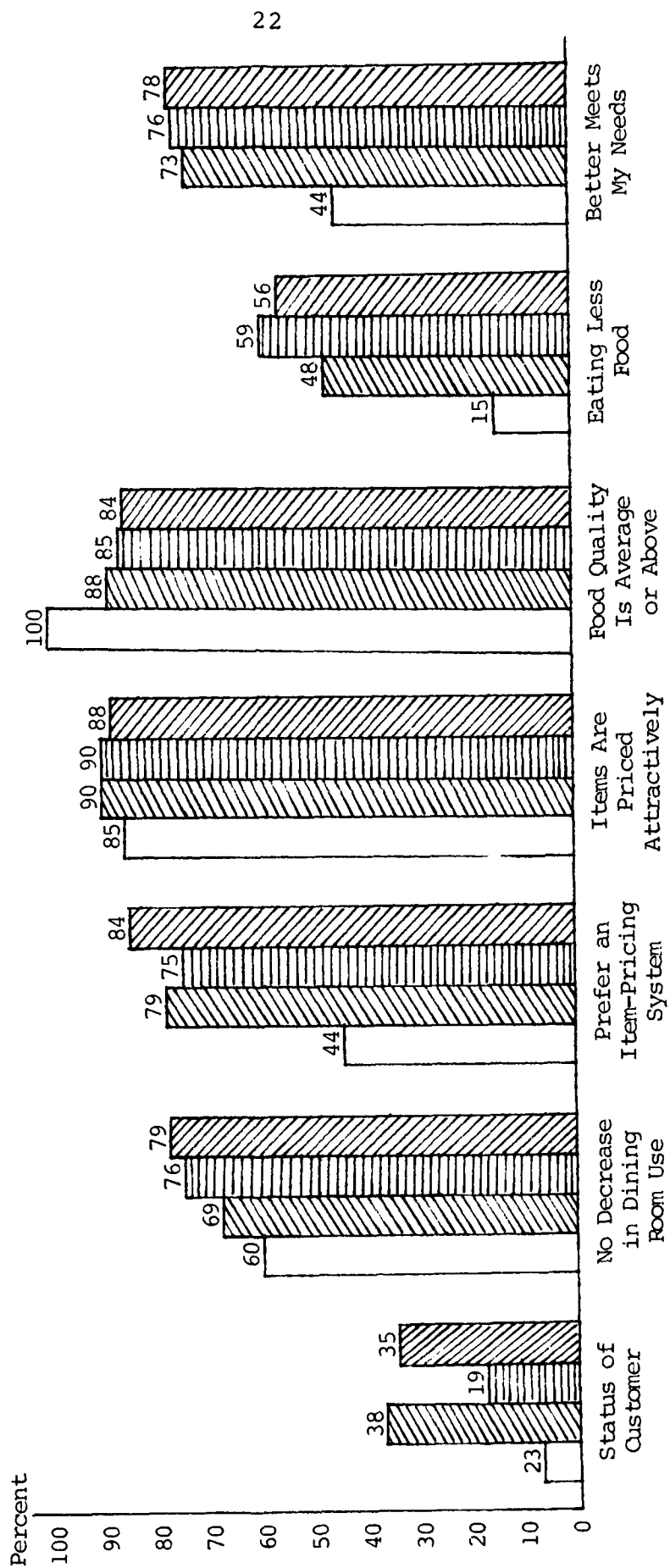
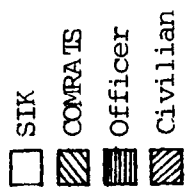


Fig. 4. Histogram of Post-Implementation Survey Results

food items and for the food quality.

When asked if the item-pricing system was able to meet their needs better than the traditional one-price method, a significant number of the cash-paying groups stated that it did. Only 44 percent of the SIK group stated that the new system was better for their needs. The only problem created by the new item-pricing system is an increase in waiting time. This was noted by about 20 percent of all respondents. This was listed by 41 percent of the SIK group and could account for the low percentage of this group who felt that the new process better met their needs.

Only 14 percent of the cash-paying customers perceived that their meals were now more expensive under the new system. An increased number of selections was also requested by 32 percent of all the respondents. Overall, the analysis of the third month survey revealed that the negative effect of the increased waiting time and the desire for more selections was more than offset by the positive effects of good food quality, attractive item prices, and ability to select only those items desired.

Patrons Eligible to Use
the Dining Room

The dining room serves the needs of both patients and staff. Patients may eat in the dining room if medically possible, or they receive tray service in their rooms on the ward. Staff members who may eat in the dining room are

comprised of officers, enlisted personnel, and civilians.

The number of staff assigned to NRMC, Orlando, during the second quarter of fiscal years 1981 and 1982 remained fairly stable as reflected in the manpower authorization document. During the period of time the study was done, the staff totalled 795 members, which included 149 officers, 251 civilians, and 395 enlisted persons. For the same period of time in Fiscal Year 1981, the staff was comprised of 149 officers, 255 civilians, and 361 enlisted persons for a total of 765 staff members.

The inpatient census was also compared between the two fiscal years. Data were collected for the average patient load and the occupied bed days for the same period in fiscal years 1981 and 1982. These totals are shown in tables 1 and 2. Very little fluctuation can be noted between the two fiscal years.

TABLE 1

AVERAGE PATIENT LOAD, NRMC,
ORLANDO, 1981 AND 1982

Month	1981	1982
February	79.1	58.8
March	64.4	63.3
April	58.1	67.5
3-Month Average	67.2	63.1

The number of patrons eligible to use the dining

TABLE 2

OCCUPIED BED DAYS, NRMIC,
ORLANDO, 1981 AND 1982

Month	1981	1982
February	2,216	1,649
March	1,997	1,964
April	1,745	2,025
3-Month Average	1,986	1,879

room during the last two fiscal years, being fairly constant, is therefore not considered enough of an influence to cause any significant swing in the number of rations served and the number of monthly dining room customers. Indeed, when the information contained in Table 3 is assessed, it is apparent that there was no drop in the number of dining room customers.

TABLE 3

MONTHLY DINING ROOM CUSTOMERS, NRMIC,
ORLANDO, 1981 AND 1982

Month	SIK	COMRATS	Off/Civ	Total
Conventional System, 1981				
February	3,297	1,925	2,136	7,358
March	3,438	2,425	2,523	8,386
April	3,107	2,516	2,323	7,946
A-La-Carte System, 1982				
February	2,538	3,058	2,255	7,851
March	3,335	3,809	2,808	9,952
April	3,277	4,081	2,571	9,929

Additionally, the number of monthly rations served over the same time period during fiscal years 1981 and 1982 show no decrease in customer patronage. In fact, when only those customers who were free to choose between eating in the dining room or eating elsewhere are taken into account, the number using the dining room increased. Table 4 supports this fact by listing the increase in rations served to officer/civilian personnel and enlisted staff on COMRATS under the a-la-carte system.

TABLE 4

MONTHLY RATIONS SERVED, NRMIC, ORLANDO, 1981 AND 1982

Month	Inpatient	SIK	COMRATS	Off/Civ	Total
Convention System, 1981					
February	1,798	1,149	581	605	4,134
March	1,720	1,282	673	720	4,395
April	1,367	1,356	811	841	4,375
A-La-Carte System, 1982					
February	1,301	686	1,032	739	3,758
March	1,585	839	1,270	936	4,631
April	1,735	903	1,423	984	5,045

The large increase in the COMRATS category is particularly worth noting. These are the lower paid enlisted personnel who can benefit most by buying only the items they desire at a lesser cost than under the conventional system.

Ration Costs

The average cost per ration is the cost of the raw

food supplies used to prepare a one-day ration of food. To obtain the average cost per ration, the total subsistence expenditure is divided by the number of rations served. As previously noted, the number of staff personnel and inpatients over the past year has not fluctuated a great deal. Also, as has been well publicized, the cost of food has not decreased but rather, overall, has risen during the past year by a small percentage.

It has also been demonstrated earlier in this study that the number of rations served per month has increased over the past year. However, when the average cost per ration calculated during the a-la-carte trial period is compared to the same months in 1981, a distinctive decrease in the average ration cost is noted. The degree of decrease is shown in Table 5.

TABLE 5

MONTHLY SUBSISTENCE EXPENDITURES AND AVERAGE COST
PER RATION, NRMIC, ORLANDO, 1981 AND 1982

Month	Rations Served	Subsistence Expenditures	Average Cost per Ration
Conventional System, 1981			
February	4,134	\$18,712.99	\$4.53
March	4,395	18,689.92	4.25
April	4,375	19,270.66	4.41
A-La-Carte System, 1982			
February	3,757	\$15,770.09	\$4.20
March	4,631	16,539.60	3.57
April	5,045	18,275.63	3.62

The decrease in the average ration cost is even more remarkable in view of the fact that the dining room menu has been expanded. This supports the survey results, whereby a large majority of the respondents stated that they were eating less.

Monthly Subsistence Expenditures

Closely associated with the average cost per ration is the monthly subsistence expenditure. The total cost of the raw food used by the dining room can be expected to increase as the number of rations served rises. By examining the figures contained in Table 5, it is apparent that the total subsistence expenditures are not as large for the number of rations served under the a-la-carte system when compared to the conventional system. This decrease in subsistence expenditures can be attributed to the fact that, although patronage has increased, the amount of raw food products purchased and their related costs have decreased.

Summary

The problem was to assess the effectiveness of an a-la-carte food serving system at the Naval Regional Medical Center, Orlando. The goal of the food service manager, to provide the highest quality meal at the lowest reasonable cost, remained unchanged. The data collected over the three-month period revealed that the number of inpatients did not fluctuate to a large extent nor did the number of staff personnel.

The results of the surveys were used to analyze the attitudes of the personnel prior to implementing the new system and in the third month of the new system. The surveys showed that most staff members appreciated the new policy, preferred the method of item pricing, and utilized the new system to decrease their food intake.

The dining room was shown to have suffered no loss of patronage. The popularity of the new system was demonstrated by the fact that the number of rations served during the months of the study increased over the same months of the past year.

Ration costs have a significant effect upon the budget of the Navy. By using the a-la-carte system, a decline in ration costs was demonstrated. Finally, the monthly subsistence expenditures were compared in order to show that they were a lesser amount in relationship to the total number of rations served.

CHAPTER III

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

It is concluded from this research effort that the a-la-carte feeding system tested within the Food Service Department at the Naval Regional Medical Center, Orlando, Florida, effectively met the needs of the customer and of the hospital. Based upon this research effort, it is apparent that the tested system effected no decrease in patronage of the dining room, reduced the average cost per ration, and resulted in a lowering of the total subsistence expenditures in relationship to the number of rations served.

Additionally, the a-la-carte system provided advantages to the customers of being able to select only those items desired and helped them in their effort to practice weight control. The amount of wasted food was minimized, as only those items the customer planned on eating and for which he paid were requested by him. These advantages were accomplished with the only documented disadvantage being an increase in the waiting time in the serving line. All of this was achieved at no increase in cost. The current food service personnel were trained to operate the Documentor 3220 cash register. Also, no rise in working hours was necessary in order to carry out the a-la-carte system.

It can be concluded, then, that overall the a-la-carte system as operated was a success and that the majority of the system can be applied to other medical facilities' food service departments. However, it is recognized that a larger facility might incur additional cost as its current food service staff might not be able to integrate the process into the work schedules without requiring additional staff personnel.

Recommendations

The following recommendations are directed to the Navy Medical Department:

1. The a-la-carte system is an effective food delivery system and should be implemented in all Navy medical facilities.
2. The a-la-carte process used in this study and developed by the Air Force should be utilized in implementing any future a-la-carte systems.

APPENDIX A
DAILY OPERATION STATEMENTS,
FEBRUARY-APRIL, 1982

	Guest Child	Per Diem	Box Lunches	Cash Surcharge	Total Daily Cash Sales	Cost Nourish- ment	Cost SIK
	0	0	2	\$42.80	\$273.80	\$13.44	\$100.85
	0	0	2	46.80	308.40	8.73	112.75
	0	0	2	41.60	310.95	9.86	134.55
	0	0	2	42.00	247.65	6.95	100.85
	0	0	1	34.80	241.35	11.17	101.65
	0	0	1	6.40	75.85	11.59	88.15
	0	0	1	8.40	83.85	8.85	111.45
	0	0	3	52.00	295.25	12.49	98.00
	0	0	3	50.00	328.40	9.69	103.40
	0	0	3	47.60	328.00	14.65	99.40
	0	0	3	47.60	298.55	10.66	105.25
	1	0	3	45.60	340.85	10.74	81.80
	0	0	3	7.20	84.10	6.56	58.95
	0	0	2	4.00	66.00	12.61	40.30
	1	0	2	10.00	192.85	13.21	81.50
	0	0	4	47.60	50.00	10.14	37.40
	0	0	4	46.00	309.95	7.48	103.85
	0	0	3	44.40	303.80	10.41	115.60
	0	0	1	41.60	299.90	16.26	87.05
	0	0	1	6.40	96.25	14.42	121.05
	0	0	1	5.60	115.70	9.41	105.65
	0	0	0	42.80	274.30	16.72	127.20
	0	0	1	41.20	263.45	12.99	142.15
	0	0	1	42.40	295.40	14.68	128.30
	0	0	1	48.00	296.45	12.40	122.85
	0	0	3	34.40	244.70	11.18	91.45
	0	0	3	7.60	86.25	19.06	67.35
	0	0	3	7.60	89.45	5.18	91.75

DAILY OPERATION STATEMENT

March 1982	Inpatient	Subsistence in Kind	Others	Seconds	Officer/ Civilian	COMRATS	Guest Adult
1	134	62	5	26	108	155	1
2	141	64	9	29	107	143	2
3	130	67	8	33	99	152	0
4	139	76	2	26	115	149	0
5	121	66	0	21	113	140	1
6	109	59	21	24	30	71	0
7	96	60	33	33	23	72	0
8	115	69	6	48	105	147	0
9	122	80	4	34	109	139	0
10	126	91	2	35	117	135	0
11	158	96	1	36	108	148	1
12	148	95	3	36	89	151	2
13	148	59	10	29	22	55	3
14	147	55	6	34	21	51	1
15	148	91	10	39	103	114	0
16	170	77	0	30	119	139	0
17	112	79	0	29	104	165	2
18	172	85	0	38	108	154	2
19	208	93	1	41	90	136	0
20	186	44	0	30	26	59	0
21	175	60	0	18	17	70	0
22	176	86	0	31	91	121	1
23	183	85	0	30	124	137	0
24	191	94	1	31	119	160	0
25	184	89	2	40	98	144	0
26	149	88	6	42	125	127	0
27	156	46	11	28	27	78	1
28	178	65	12	23	22	78	1
29	168	93	6	25	108	132	1
30	182	78	11	29	106	148	1
31	182	87	3	21	117	162	0

Guest Child	Per Diem	Box Lunches	Cash Off/Civ	Cash Surcharge	Cash COMRATS	Cost Nourishment	Cost SIK
1	0	3	\$119.60	\$43.20	\$171.70	\$20.30	\$247.60
0	0	3	129.95	42.80	173.70	16.99	247.90
0	0	3	123.90	39.60	190.25	6.82	239.60
0	0	0	157.45	46.00	97.60	11.72	232.35
0	0	0	172.50	45.20	99.55	8.79	213.25
0	0	0	42.15	12.00	54.35	10.68	201.80
0	0	0	35.70	9.20	55.30	10.02	209.95
0	0	0	123.50	42.00	116.75	12.37	200.90
0	0	0	149.25	43.60	136.65	10.64	240.00
0	0	0	179.65	46.80	90.00	10.91	243.25
0	0	0	161.20	43.20	108.25	9.63	291.50
0	0	0	127.50	35.60	112.50	18.70	277.20
0	0	0	36.40	8.80	47.67	10.99	249.20
0	0	0	31.80	8.40	40.85	7.88	239.60
0	0	0	145.10	41.20	72.85	16.70	256.60
0	0	0	167.00	47.60	85.20	8.30	261.40
0	0	0	168.40	41.60	107.20	10.15	213.15
0	0	0	137.40	43.20	93.70	9.22	258.15
0	0	0	124.30	36.00	83.90	8.82	327.65
0	0	0	36.10	10.40	36.80	6.31	273.30
0	0	0	27.55	6.80	58.90	5.47	270.00
0	0	0	118.45	36.40	79.45	16.82	272.95
0	0	0	179.85	49.60	94.20	13.82	303.30
0	0	0	171.80	47.60	116.25	10.83	334.80
0	0	0	133.85	39.20	96.30	9.68	293.15
0	0	0	175.65	50.00	83.15	10.32	269.65
0	0	0	38.30	10.80	64.90	7.35	253.45
2	0	0	36.50	8.80	68.15	10.42	289.40
0	0	0	144.80	43.20	82.70	13.05	276.50
0	0	0	149.35	42.40	91.45	11.00	294.95
0	0	0	174.20	46.80	120.05	7.88	292.40

APPENDIX B

FOOD SERVICE PERFORMANCE ANALYSIS FORMS,
CONVENTIONAL AND A-LA-CARTE SYSTEMS

HOSPITAL		MONTH ENDING	
NAVAL REGIONAL MEDICAL CENTER, ORLANDO FL 32813		82 FEB 28	
A. RATIONS SERVED	DINING ROOM	WARDS	TOTAL
TYPE			
REGULAR DIET	2617	787	3404
THERAPEUTIC DIET		353	353
TOTAL SECTION A	2617	1140	3757
B. ANALYSIS OF RATIONS		ATTACHED	SERVED
1. SUBSISTENCE IN KIND			
INPATIENTS		1502	1301
STAFF AND SUPPORT PERSONNEL		2114	567
OTHERS			119
2. CASH SALES			
OFFICERS AND CIVILIANS (STANDARD RATE)		10703	739
OFFICERS AND CIVILIANS (PER DIEM RATE)		0	0
ENLISTED PERSONNEL		8596	1019
GUESTS			13
TOTAL SECTION B		22915	3758
C. SUBSISTENCE EXPENDITURES		VALUE	% OF TOTAL
CATEGORY			
MEATS, FISH AND POULTRY	\$	5,483.55	34.77 %
WHOLE, FRESH MILK		1,068.57	6.78 %
			%
			%
ALL OTHER CATEGORIES		9,217.97	58.45 %
TOTAL SECTION C	\$	15,770.09	100.00 100%
D. MANAGEMENT DATA			
INVENTORY OF EXPENDED SUBSISTENCE ITEMS		\$	117.43
SUPPLEMENTARY NOURISHMENTS		\$	316.03
WHOLE, FRESH MILK			543.70
OUNCES PER RATION WHOLE, FRESH MILK ISSUED			18.52
PRODUCTIVITY INDEX			3.95
AVERAGE COST OF RATION		\$	4.198

REMARKS

SIGNATURE *(Signature)*
 G. W. DUMAIS, LCDR MSC USN

APPROVED

(Signature)

FOOD SERVICE PERFORMANCE ANALYSIS (A LA CARTE TRIAL)NAVAL REGIONAL MEDICAL CENTER, ORLANDO FL 32813Month Ending 82 FEB 28A. ANALYSIS OF MEALS SERVED

	<u>NO. MEALS SERVED</u>	<u>\$ VALUE</u>
1. <u>SUBSISTENCE IN KIND (SIK)</u>		
*Inpatient Meals Wards	<u>3922</u>	<u>4497.00</u>
Inpatient Meals Dining Room	<u>491</u>	<u>547.35</u>
Supplemental Nourishments	<u>--</u>	<u>321.00</u>
Staff and Support Personnel	<u>1690</u>	<u>1942.05</u>
Others	<u>276</u>	<u>327.95</u>
TOTAL	<u>6379</u>	<u>\$7635.55</u>
AVE \$ VALUE/MEAL =		

2. CASH SALES

Officer/Civilian Guest	<u>2253</u>	
Enlisted on Commuted Rations	<u>3058</u>	
Surcharge	<u>--</u>	
TOTAL	<u>5311</u>	<u>\$6277.20</u>
AVE \$ VALUE/MEAL =		

B. MANAGEMENT DATA

Total Subsistence Expenditures	<u>\$15770.09</u>
Total Revenue (Actual & Foregone)	<u>13912.55</u>
Total Profit (Loss)	<u>(1857.54)</u>
Ave Sale Per SIK Customer	<u>1.196</u>
Ave Sale Per Cash Customer	<u>1.180</u>
Total Meals Served	<u>11690.00</u>
Total Paid Man-Hours (CivPers Only)	<u>5756.00</u>
Total Meals Per Paid Man-Hour	<u>2.03</u>
Total Worked Man-Hours (CivPers Only)	<u>5332.00</u>
Total Meals Per Worked Man-Hour	<u>2.19</u>

*Cash Value of Inpatient Meals is an Estimate

SUBMITTED BY

G. W. DUMAIS

G. W. DUMAIS

APPROVED BY

J. R. Lent

ACTIVITY: NAVAL REGIONAL MEDICAL CENTER, ORLANDO FL 32813
 PERIOD COVERED: 1-31 MARCH 1982

A. RATIONS SERVED	DINING ROOM	PATIENT TRAYS	TOTAL
TYPE			
REGULAR DIET	3318	916	4234
MODIFIED DIET	0	397	397
TOTAL SECTION A.			4631

B. ANALYSIS OF RATIONS		ATTACHED	SERVED
1. SUBSISTENCE IN KIND			
INPATIENTS		1777	1585
RESIDENTS OF MEDICAL HOLDING COMPANY		0	0
RESIDENTS OF DRUG/ALCOHOL REHABILITATION PROGRAM		0	0
RESIDENTS OF OTHER, NONINPATIENT PROGRAMS (Specify)	a.		0
	b.		0
	c.		0
STAFF AND SUPPORT PERSONNEL		1310	778
OTHERS		0	61

2. CASH SALES			
OFFICERS AND CIVILIANS (STANDARD RATE)		11867	936
OFFICERS AND CIVILIANS (PER DIEM RATE)		0	0
ENLISTED PERSONNEL RECEIVING COMMUTED RATIONS		11900	1270
ADULT GUESTS		0	1
CHILD GUESTS		0	0
TOTAL SECTION B.		26854	4631

C. EXPENDITURES	VALUE	% OF TOTAL
SUBSISTENCE	\$ 16539.60	21.1 %
NONSUBSISTENCE SUPPLIES	1339.00	1.70 %
MILITARY SALARIES	6795.00	8.67 %
CIVILIAN SALARIES	53709.00	68.52 %
TOTAL SECTION C.	\$ 78382.60	100 %

D. MANAGEMENT DATA	
INVENTORY VALUE OF EXPENDED SUBSISTENCE ITEMS	\$ 800.00
COST OF SUPPLEMENTARY NOURISHMENTS	\$ 342.58
MEALS SERVED/ MAN-HOUR	2.36
AVERAGE FOOD COST/RATION	\$ 3.571
AVERAGE TOTAL COST/RATION	\$ 16.925

E. REMARKS

G. W. DUMAIS, LCDR MSC USN

L. R. FOUT, CAPT MC USN

FOOD SERVICE PERFORMANCE ANALYSIS (A LA CARTE TRIAL)NAVAL REGIONAL MEDICAL CENTER, ORLANDO FL 32813MONTH ENDING 31 MARCH 1982A. ANALYSIS OF MEALS SERVED

	<u>NO. MEALS SERVED</u>	<u>\$ VALUE</u>
1. <u>SUBSISTENCE IN KIND (SIK)</u>		
Inpatient Meals	<u>4754</u>	<u>5003.55</u>
Supplemental Nourishments	<u>--</u>	<u>342.58</u>
Staff and Support Personnel	<u>2339</u>	<u>2774.90</u>
Others	<u>229</u>	<u>302.45</u>
TOTAL	<u>7322</u>	<u>8423.48</u>
2. <u>CASH SALES</u>		
Officer/Civilian/Guests	<u>2693</u>	
Enlisted on Commuted Rations	<u>3832</u>	
Surcharge	<u>--</u>	
TOTAL	<u>6525</u>	<u>7555.30</u>

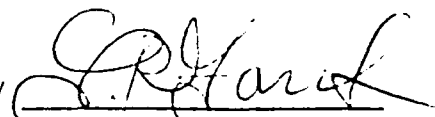
B. MANAGEMENT DATA

Subsistence Expenditures (Less Supplemental Nourishments <u>342.58</u>)	<u>16197.02</u>
Total Revenue (Actual & Foregone)	<u>15636.20</u>
Total Profit (Loss)	<u>(560.82)</u>
Ave Sale Per SIK Customer	<u>1.103</u>
Ave Sale Per Cash Customer	<u>1.158</u>
Total Meals Served	<u>13847</u>
Total Paid Man-Hours (CivPers Only)	<u>6348</u>
Total Meals Per Paid Man-Hour	<u>2.18</u>
Total Worked Man-Hours (CivPers Only)	<u>5860</u>
Total Meals Per Worked Man-Hour	<u>2.36</u>

SUBMITTED BY

G. W. DUMAIS
LCDR MSC USN

APPROVED BY

L. R. FOUT
CAPT MC USN

ACTIVITY: NAVAL REGIONAL MEDICAL CENTER ORLANDO, FLORIDA 32813
 PERIOD COVERED: 1-30 APRIL 1982

A. RATIONS SERVED	DINING ROOM	PATIENT TRAYS	TOTAL
REGULAR DIET	3553	932	4485
MODIFIED DIET	0	560	560
TOTAL SECTION A.			5045

B. ANALYSIS OF RATIONS		ATTACHED	SERVED
1. SUBSISTENCE IN KIND			
INPATIENTS		1897	1735
RESIDENTS OF MEDICAL HOLDING COMPANY		0	0
RESIDENTS OF DRUG/ALCOHOL REHABILITATION PROGRAM		0	0
RESIDENTS OF OTHER, NONINPATIENT PROGRAMS (Specify)	a.	0	0
	b.	0	0
	c.	0	0
STAFF AND SUPPORT PERSONNEL		2004	785.6
OTHERS		0	117.2

2. CASH SALES			
OFFICERS AND CIVILIANS (STANDARD RATE)		11450	984.0
OFFICERS AND CIVILIANS (PER DIEM RATE)		0	0
ENLISTED PERSONNEL RECEIVING COMMUTED RATIONS		7968	1423.0
ADULT GUESTS		0	0
CHILD GUESTS		0	0
TOTAL SECTION B.		23319	5044.8

C. EXPENDITURES	VALUE	% OF TOTAL
SUBSISTENCE	\$ 18275.63	24.43 %
NONSUBSISTENCE SUPPLIES	2234.30	2.98 %
MILITARY SALARIES	6795	9.08 %
CIVILIAN SALARIES	47504	63.50 %
TOTAL SECTION C.	\$ 74808.93	100 %

D. MANAGEMENT DATA	
INVENTORY VALUE OF EXPENDED SUBSISTENCE ITEMS	\$ 606.20
COST OF SUPPLEMENTARY NOURISHMENTS	\$ 324.81
MEALS SERVED/ MAN-HOUR	3.079
AVERAGE FOOD COST/RATION	\$ 3.622
AVERAGE TOTAL COST/RATION	\$ 14.828

E. REMARKS

SIGNATURE (Food Management Service): *G.W. DUMAIS*
 G.W. DUMAIS, LCDR MSC USN

APPROVED (Signature of Commanding Officer): *W.J. SCHEFSTAD*
 W.J. SCHEFSTAD, Acting


FOOD SERVICE PERFORMANCE ANALYSIS (A LA CARTE TRIAL)NAVAL REGIONAL MEDICAL CENTER, ORLANDO FL 32813MONTH ENDING 30 APRIL 1982A. ANALYSIS OF MEALS SERVED

	<u>NO. MEALS SERVED</u>	<u>\$ VALUE</u>
1. <u>SUBSISTENCE IN KIND (SIK)</u>		
Inpatient Meals	<u>5122</u>	<u>5519.65</u>
Supplemental Nourishments	<u>--</u>	<u>324.81</u>
Staff and Support Personnel	<u>2315</u>	<u>2736.05</u>
Others	<u>307</u>	<u>404.75</u>
TOTAL	<u>7744</u>	<u>8660.45</u>
2. <u>CASH SALES</u>		
Officer/Civilian/Guests	<u>2585</u>	
Enlisted on Commuted Rations	<u>4013</u>	
TOTAL	<u>6598</u>	<u>7604.85</u>

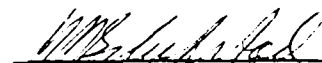
B. MANAGEMENT DATA

Subsistence Expenditures (Less Supplemental Nourishments <u>324.81</u>)	<u>17736.04</u>
Total Revenue (Actual & Foregone)	<u>16265.30</u>
Total Profit (Loss)	<u>(1470.74)</u>
Ave Sale Per SIK Customer	<u>1.118</u>
Ave Sale Per Cash Customer	<u>1.152</u>
Total Meals Served	<u>14342</u>
Total Paid Man-Hours (CivPers Only)	<u>5888</u>
Total Meals Per Paid Man-Hour	<u>2.435</u>
Total Worked Man-Hours (CivPers Only)	<u>5088</u>
Total Meals Per Worked Man-Hour	<u>2.818</u>

SUBMITTED BY


G. W. DUMAIS
LCDR MSC USN

APPROVED BY


W. J. SCHEFSTAD
CAPT MC USN

APPENDIX C

A-LA-CARTE FOOD SERVICE SYSTEM

QUESTIONNAIRES

QUESTIONNAIRE ON THE A LA CARTE FOOD SERVICE SYSTEM

47

PLEASE RETURN TO YOUR CHIEF OF SERVICE

The dining room is instituting a new method of payment which will resemble that found in most commercial cafeterias. This method allows users of the dining room to pay only for the food they wish to eat. Each person may select only those items desired and will be charged for only the cost of those items. People with meal cards will continue to receive their meals as usual with only the number of their meal pass required for payment.

Please answer a few questions to help us plan the new method in the hope that we can provide you with the type of meal service you desire.

1. What is your status? Officer _____ Enlisted _____ Civilian _____
2. If enlisted, are you currently receiving COMRATS? Yes _____ No _____
3. How many meals each day do you usually eat at the hospital? _____
(Dining room - brown bag - snack bar.)
4. How many meals each day do you eat in the hospital dining room? _____
5. Would you favor a system whereby you pay for only the items of food you select rather than one price for a complete meal? Yes _____ No _____
6. Do you think you would eat less food if pricing was by the item rather than by the meal? Yes _____ No _____
7. What is the main reason you don't eat in the dining room more often?
8. If your answer to question #7 could be corrected, would you eat in the dining room more often? Yes _____ No _____
9. What is the one thing you would change with the present food system if you could?
10. Under the separate-item pricing system, what individual food items would you like to see available?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

PLEASE RETURN TO YOUR CHIEF OF SERVICE

QUESTIONNAIRE ON THE A LA CARTE FOOD SERVICE SYSTEM

PLEASE RETURN TO YOUR CHIEF OF SERVICE

A new cafeteria-style food system is in operation in the Dining Room, whereby you pay only for the food you wish to eat. This differs from the system you may be use to, whereby you pay by the meal. Please answer the following questions to help us evaluate the new system.

1. What is your status? Officer _____ Enlisted _____ Civilian _____
2. If enlisted, are you currently receiving COMRATS? Yes _____ No _____
3. Have you used the Dining Room under both the old and the new systems? Yes _____ No _____
4. Are you eating in the Dining Room more or less often since the start of the new system? More _____ Less _____ No Change _____
5. Do you prefer the new system whereby you pay only for the food items you select instead of one price for a complete meal? Yes _____ No _____
6. What don't you like about the new system?
Too expensive? _____ Not enough selection? _____ Other? Please explain.
7. How do you feel about the prices charged for the food?
Low _____ About right _____ High _____
8. How would you rate the quality of the food?
Low _____ Average _____ High _____
9. Are you eating less food under the new system in comparison to the old system of one price for a complete meal?
Yes _____ No _____ No change _____
10. Would you rate the new system better in meeting your needs than the old one-price system? Yes _____ No _____ If not, why not?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

PLEASE RETURN TO YOUR CHIEF OF SERVICE

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