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Improving Patient Meal Satisfaction with Room Service Meal Delivery

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Cancer and cancer therapies cause side effects that prevent patients from consuming adequate amounts of food. As evidenced by patient meal consumption studies conducted at patients' bedside, only 39 percent of patients surveyed consumed greater than 50 percent of their main entrée. The Food and Nutrition Services Department at Memorial Sloan-Kettering Cancer Center used the organization's performance improvement process, STRAIGHT-A, to develop and execute a room service program designed to increase patient meal consumption and improve patient meal satisfaction A multidisciplinary task force developed policies and procedures and tested new menu items as part of the room service plan. After program implementation, 88 percent of patients surveyed consumed greater than 50 percent of their main entrée. **Key words:** *improvement, meals, satisfaction*

INTRODUCTION

Cancer can diminish food intake by its direct effect on the gastrointestinal tract or by remote effects on the appetite and metabolism. For example, tumors can induce anorexia without directly involving the gastrointestinal tract. Proposed mechanisms for this type of anorexia include decreased taste and smell and abnormalities in the central nervous system that affect the control of food intake or enforce a feeling of satiety.

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Cancer therapies such as surgical procedures, chemotherapy, and radiation treatments all cause side effects that prevent patients from consuming adequate amounts of food. Factors interfering with oral intake are decreased appetite, nausea, vomiting, taste changes, mouth sores, dislike of hospital foods, differences in ethnic food preferences, and other food aversions.

The Department of Food and Nutrition Services at Memorial Sloan-Kettering Cancer Center (MSKCC) recognized that hospitalized cancer patients experienced such problems and that there was an opportunity to improve patient meal satisfaction. Thus, the department embarked on a performance improvement project to evaluate patient meal consumption. The team used MSKCC's STRAIGHT-A process to facilitate performance improvement. The nine-letter acronym stands for:

1. Select a process
2. Team ssignment

3. *R*eview process
4. *A*nalyze reasons for variance
5. *I*mplement improvement
6. *G*auge success by measuring against baseline
7. *H*ead back to step 4 if improvement not achieved
8. *T*est for stability
9. *A*ssess for continued improvement

STRAIGHT-A METHODOLOGY

The team carried out each step in the STRAIGHT-A process by creating, administering, and evaluating a survey of patients to determine meal consumption and identify problems related to the conventional meal delivery service.

Step 1: Select a process

The Food and Nutrition Services Department set the following objectives:

- Determine the percentage of patients who consume less than 50 percent of the main entrée at meal times.
- Ascertain the main reasons why patients did not consume 50 percent or more of their main entrée.
- Develop a meal delivery program that would improve patient satisfaction and meal consumption.

Step 2: Team assignment

The following representatives were assembled to form a multidisciplinary task force:

- Director of food and nutrition services (team leader)
- Manager of clinical nutrition and patient services
- Manager of food and beverage
- Culinary trained chefs
- Project manager
- Clinical dietitians
- Nurse
- Pharmacist
- Physician
- Director of admitting
- Patient representative

This team worked to develop policies and procedures for a new meal delivery system as well as create new menus.

Step 3: Review process

In the conventional meal delivery system, menu selections were processed and tallied 24 hours in advance of each meal period. Food was prepared and cooked in bulk for all patient care units. Meals were assembled on a tray via a conveyor and delivered in batches according to unit-specific schedule. Figure 1 shows the conventional meal service flow.

To improve this meal delivery service, the task force created a survey to measure how much food was eaten at each meal and to record the reasons patients ate less than 50 percent of the main entrée. Typically, plate waste studies are conducted in the utility room of the main kitchen, where patients' trays are checked for the amount of food not eaten. However, in this study the food and nutrition services staff were trained to assess plate waste at patients' bedside during meal rounds.

Patients were selected from all inpatient units irrespective of treatment types. The cases surveyed consisted of both surgical and medical patients. Patients with diet orders for clear liquids, full liquids, tube feedings, and total parenteral nutrition were excluded from the survey.

A total of 1,190 patients were surveyed using the customized questionnaire shown in Figure 2. Consumption of the main entrée was used as the determinant of the amount of food consumed. The survey was conducted for one month as a part of the daily routine meal rounds. At the end of each lunch meal period, a food and nutrition services staff member visited patients, checked meal trays, and documented the amount of food consumed.

Entrée consumption was classified into two groups: patients who ate more than 50 percent of the main entrée and those who ate less than 50 percent. The patients who

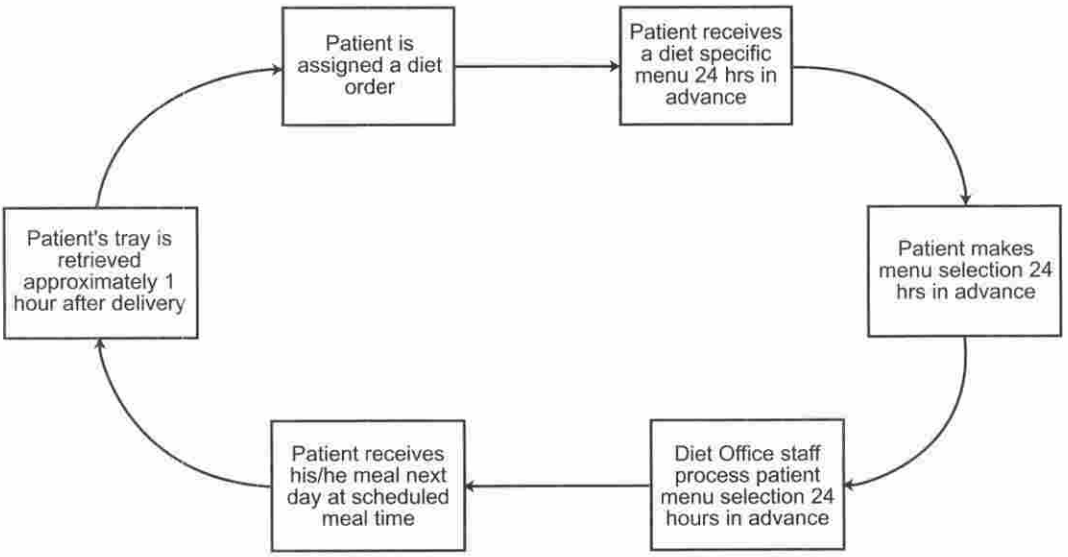


Figure 1. Conventional meal service flow.

Date: _____
Room #: _____
Diet Order: _____

Greater than 50 percent of main plate consumed?

Yes	**No**
Patient consumed	Lack of appetite
Visitor consumed	Patient sleeping
(If checked determine reason from "No" column)	Patient did not select meal and received house diet, which was not acceptable
	Patient prefers food from outside source
	Patient's visitor brought alternative food for mealtime
	Patient's diet changed to nothing by mouth prior to meal being served
	Patient lost taste for food as a result of medication
	Smell of food makes patient nauseous
	Portion too large
	Food too spicy
	Meals served too early/late
	Patient could not swallow food
	Patient in too much pain to eat
	Patient afraid to eat after surgery

Medical Record Information

Date of Admission: _____
Service: _____
Diagnosis: _____
Treatment:
Surgery
Chemotherapy
Radiation
Meds_____
_____
_____
_____

Comments: _____
_____
_____
_____

Figure 2. Plate waste study.

ate less than 50 percent of their entrée were then interviewed; the reasons given for poor intake were recorded.

Step 4: Analyze reasons for variance

The study results shown in Figure 3 revealed that 39.14 percent of patients consumed 50 percent or more of their main entrée, 28.67 percent consumed less than 50 percent of their main entrée. Figure 4 shows the primary reasons patients consumed less than 50 percent of their entrée. The top three reasons were: patients were sleeping or not in their room, their physical condition, and lack of appetite at the time meals were delivered.

The survey indicated that the conventional meal delivery system was neither efficient nor patient focused. In the conventional system, meals were delivered according to a set schedule and did not accommodate patient-specific schedules. Menu selections were made 24 hours in advance, and they did not allow for subsequent diet changes or changes in patients' appetite.

Step 5: Implement improvement

Based on the survey results, the food and nutrition department subsequently developed and implemented a room service program pilot on two patient care units, M-10 and M-15. The goal was to improve both patient satisfaction and meal consumption. This patient-driven meal delivery program had the following features:

- It was a "meal-on-demand program," meaning that patients could order what they want when they want it.
- It boasted a restaurant-style menu.
- The foods were freshly cooked to order.
- Meals were delivered within 40 minutes of a patient's request.
- Medication administration was coordinated with meal delivery times.
- The meal period was extended to last from 7:00 A.M. to 9:30 P.M.

The pilot was implemented on two inpatient units. All patients were eligible, except those receiving tube feeding and total parental nutrition as their sole source of nutrition and patients on nothing by mouth status. Figure 5 shows the room service program flow.

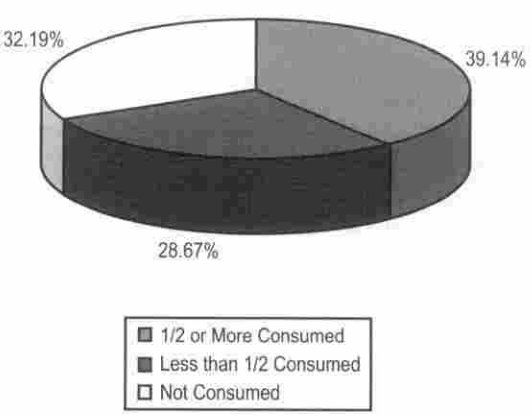


Figure 3. Plate waste study results.

Step 6: Gauge success by measuring against the baseline

Table 1 ranks the reasons patients consumed less than 50 percent of their main entrée, during the pre-implementation and post-implementation phase of the room service pilot. The room service program addressed most of the reasons. The program resulted in a significant increase: 88.24 percent of patients consumed more than 50 percent of their entrée as shown in Figure 6.

Delivery time

Room service tray delivery times are monitored daily using tray tracking sheets, which included the time of order, the time of delivery, and the time of tray pickup for each patient. A sample of 608 tray deliveries were monitored for 6 days and analyzed. Figures 7 through 9 shows delivery times for each meal as well as call volume. Overall, 89.14 percent trays were delivered within 40 minutes of request.

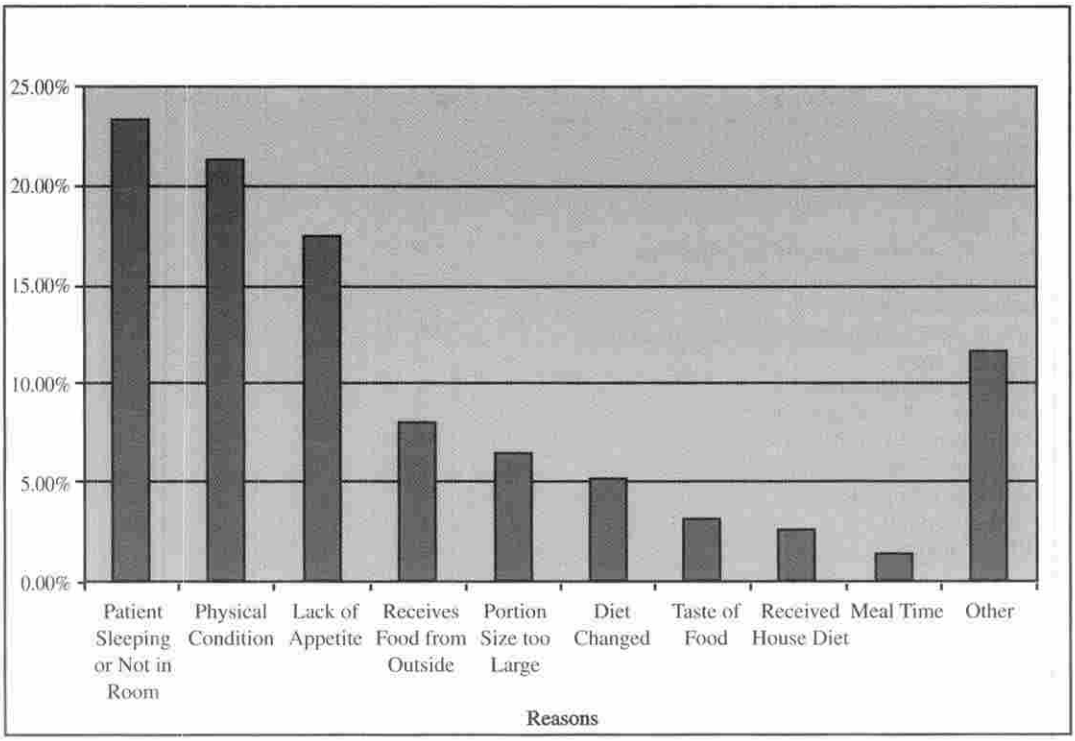


Figure 4. Primary reasons why patients eat less than 50 percent of their entrée.

The following reasons were identified as possible causes for the delay of room service tray delivery:

- Network failure resulting in faulty printing of tray tickets
- Excessive batching of patients' meal orders by room service associates (taking patient's orders) or from expediters (who assemble trays)
- Saturated system transportation during conventional meal delivery times
- Lack of communication between food transportation personnel and room service associate

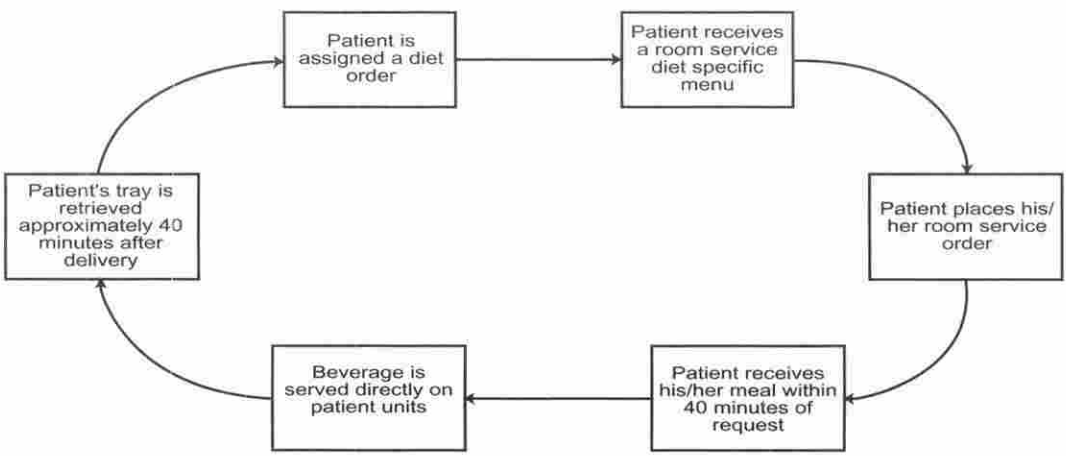


Figure 5. Room service program flow.

Table 1. Reasons patients consumed less than 50 percent of their main entrée

Reason	Before implementation	After implementation
Loss of appetite	25	2
Patient sleeping	24	0
Taste loss	11	0
Portion size	8	3
Items received different from selections	7	1
Food smell	7	0
Patient not in room	6	0
Patient switched to nothing by mouth status	5	0
Food too spicy	4	0
Mealtime inappropriate	4	0
Preference/dislike of food	2	0
Visitor brought food	2	0
Patient too sick	2	0
Difficulty swallowing	0	1
Patient in pain	0	1
Other reasons	23	0

Lunch and dinner menu analysis

The most popular room service food categories ordered were desserts such as Jello and applesauce (48.03%) and soups (14.70%). The popularity of these categories was driven partially by the prevalence of pre- and postoperative diets, namely liquid diets (18.57%) and soft diets (10.12%). These diets primarily offer items from these two categories.

Diet order analysis

A survey of 1,638 diet orders showed that the room service pilot used 42 diet types including a combination diet. Table 2 shows the 20 most used room service diet orders.

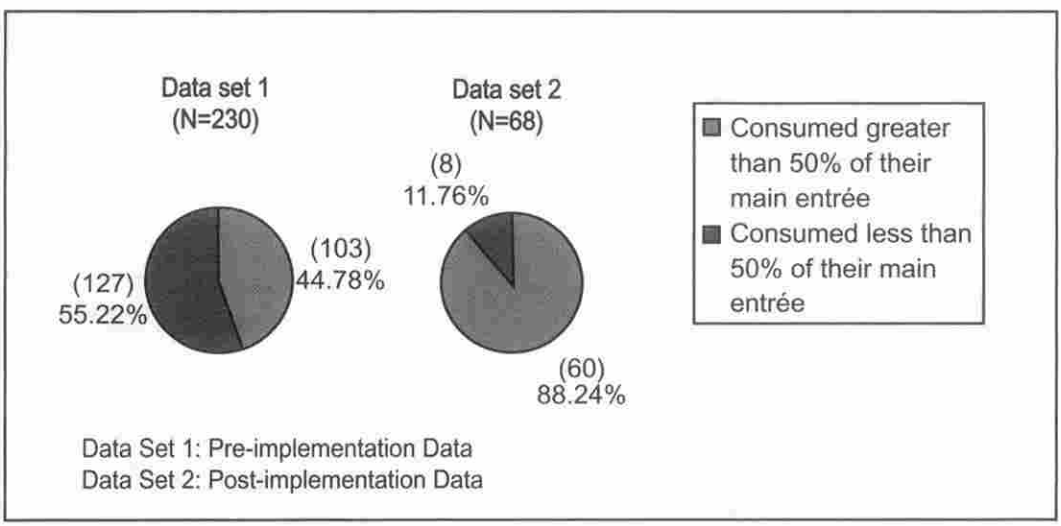
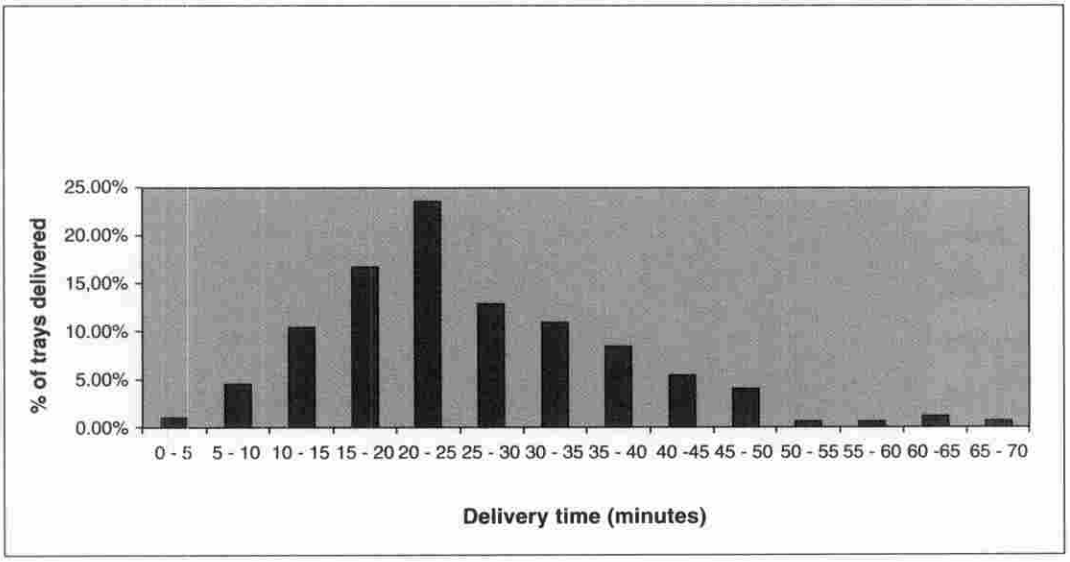
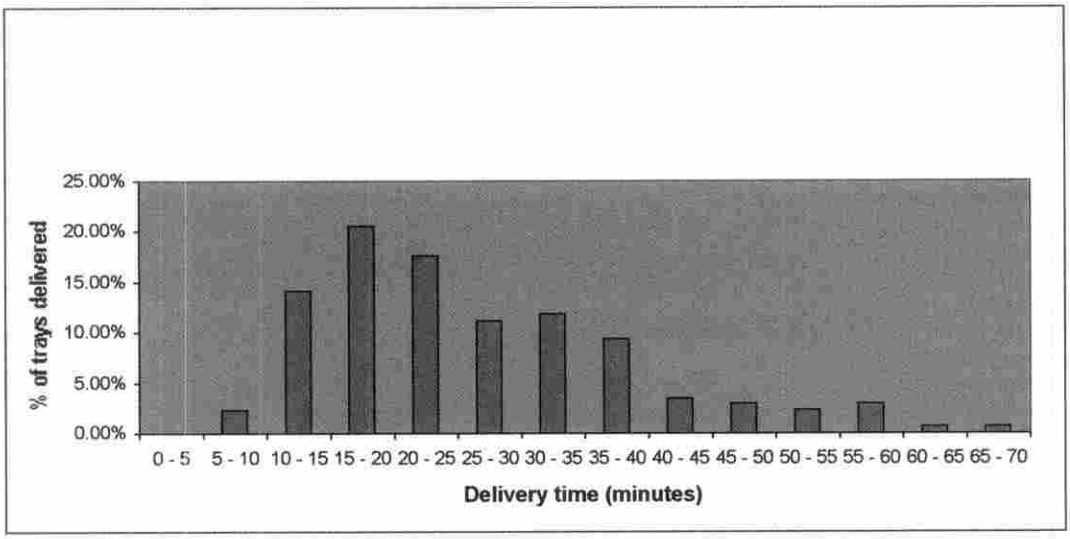


Figure 6. Pre- and Post-Implementation Program Plate Waste Study Results on M-10 and M-15.



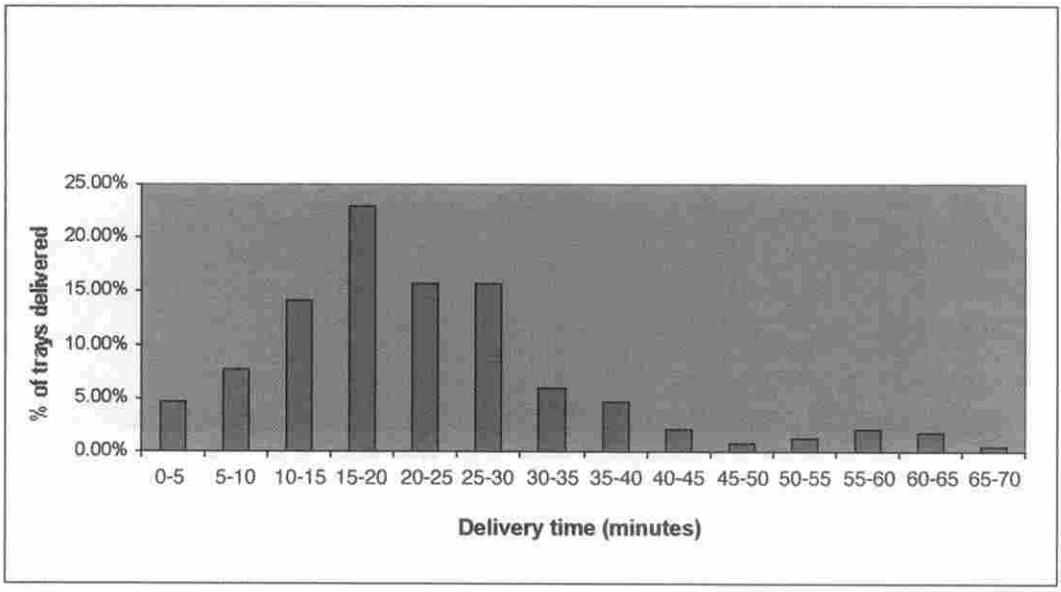
Note: 88.18 percent of trays are delivered within 40 minutes of order; the average delivery time for breakfast is 25.66 minutes.

Figure 7. Room service: Breakfast delivery time distribution (n = 203).



Note: 87.06 percent of trays are delivered within 40 minutes of order; the average delivery time for lunch is 31.37 minutes.

Figure 8. Room service: Lunch delivery time distribution (n = 170).



Note: 91.49 percent of trays are delivered within 40 minutes of order; the average delivery time for dinner was 27.59 minutes.

Figure 9. Room service: Dinner delivery time distribution (n = 235).

Table 2. The 20 most utilized room service diet orders (N = 1,638)

Diet	Daily average	%
Regular	42.53	38.95
Nothing by mouth	20.13	18.44
Clear liquid	14.27	13.06
Soft	7.27	6.65
Full liquid	3.87	3.54
Diabetic: 1,800 calories	3.93	3.60
Low fat, low cholesterol, low fiber, low residue	3.60	3.30
Dysphasia/puree	2.20	2.01
Post gastrectomy	1.33	1.22
Mechanical soft	1.13	1.04
Clear liquid, no concentrated sweets	1.13	1.04
Kosher	0.93	0.85
Low sodium, low fat, low cholesterol	0.80	0.73
Low sodium	0.53	0.49
Low fat, low cholesterol	0.53	0.49
Tube feeding	0.47	0.43
Diabetic: 2,200 calories	0.47	0.43
No concentrated sweets	0.33	0.31
Puree, low fiber low residue	0.27	0.24
Diabetic: 1,800 calories, soft	0.27	0.24

Step 7: Head back to step 4 if improvement was not achieved

The room service pilot clearly achieved and surpassed the goals that had been set for evaluating the success of the program. The post-implementation patient satisfaction survey revealed that patients receiving room service rated the overall service as exceeding their expectations. The following observations were made:

- A patient meal consumption study conducted on the two room service units showed that 88.24 percent of patients consumed more than 50 percent of their main entrée compared with the goal of 75 percent.
- Room service eliminated duplicate trays and late trays, problems usually inherent in the conventional tray delivery system.
- Approximately 90 percent of the room service trays were delivered within the 40-minute delivery time frame promised.
- With the exception of dinner, peak room service ordering times are identical to conventional meal delivery times. When provided with a choice, patients preferred to eat dinner later than the conventional times. Most room service dinners were delivered between 5:30 P.M. and 8:00 P.M. while the conventional meal delivery system serves dinner meals between 5:00 P.M. and 6:00 P.M.

Step 8: Test for stability by continued measurement

Table 3 shows a comparison of Press-Ganey patient satisfaction scores for the 1st and the 3rd quarters of 2001 for all patient care units. Patients receiving room service are on units M-10 and M-15.

Step 9: Assess whether continued improvement is possible or necessary

A review of patients' comments on the patient satisfaction surveys revealed that patients were pleasantly surprised that a room service program was implemented in a hospital. The overall patient satisfaction results for meals were significantly higher for patients receiving room service than those served with the conventional system. Patients ranked room service higher than the conventional system for the following criteria: timeliness of meals, temperature of food, attractiveness of food tray, taste of food, quality of the food, and variety of menu choices. Based on the success of the pilot program, the food and nutrition services department is embarking on plans to implement a hospitalwide room service meal delivery program.

DISCUSSION

One issue to be considered for the future includes the number of meals patients should be allowed to miss before a room service associate initiates a meal order. Other issues include enhancing menu variety, standardizing a process for the delivery of nourishments, and upgrading the current computerized system to eliminate functional and technological limitations.

Frequent changes in diet orders and short length of stay make the use of conventional selective menus problem-prone due to the 24-hour lag time between when patients make their meal selections and meal delivery. It is estimated that the hospitalwide program will yield comparable improvement in meal delivery times with the renovation of the cartveyor (meal delivery elevator) and redesign of the food production and servery areas.

During the pilot phase 42 diet types and diet combinations were used. Only five diet types represented 80.64 percent of diets ordered. The number of diet types and diet combinations remains high and presents a challenge for menu management.

Plans for a comprehensive renovation of the kitchen have been developed. This plan incorporates operating parameters such as staffing patterns, staff schedules, operating expenditures, and equipment requirements necessary to launch a hospitalwide room service program.

Table 3. Comparison of Press-Ganey patient satisfaction scores for first and third quarters of 2001

	Temperature of food		Quality of food		Courtesy of person serving food		Getting food checked off menu		Variety of selections	
Floor	**1st**	**3rd**	**1st**	**3rd**	**1st**	**3rd**	**1st**	**3rd**	**1st**	**3rd**
M-5	75.0	71.7	67.2	70.5	79.4	83	81.6	81.5	66.4	64.8
M-7	70.0	76.0	68.6	68.9	72.7	79.8	79.7	79.4	73.8	71.2
M-8	72.2	73.3	67.0	69.9	73.8	78.9	77.1	75.6	73.6	73.6
M-9	74.5	74.5	70.6	73.9	78.8	81.0	77.6	76.9	77.1	75.0
M-10	73.1	73.1	69.2	82.3	74.8	94.8	76.1	90.6	75.6	91.3
M-11	69.2	72.2	53.7	65.8	80.6	86.1	75.9	79.0	64.3	79.2
M-12	64.5	69.9	62.2	68.4	72.8	85.5	75.5	78.1	65.6	73.0
M-14	73.2	69.1	67.3	62.3	75.6	80.2	81.2	75.0	77.9	75.4
M-15	72.7	79.2	66.1	78.6	79.9	90.6	74.0	86.2	76.3	87.0
M-16	74.2	72.8	69.2	70.0	78.7	85.3	76.7	74.5	75.8	75.5
M-19	76.3	81.3	63.1	76.6	92.9	90.6	84.2	85.9	76.3	71.9

Note: Room service units were M-10 and M-15.

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