
Clinical Issues

Room Service Improves Patient Food Intake and Satisfaction With Hospital Food

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Cancer therapy causes side effects that interfere with oral intake. Frequently, patients undergoing such therapy suffer from anorexia, nausea, vomiting, food aversions, dysgeusia, and xerostomia, all which adversely affect oral intake. Adequate nutrition intake is an important part of therapy for the cancer patient, especially when that patient is a child. Children who are well nourished are better able to withstand infection and tolerate therapy. Parents and staff at our hospital have worked diligently to improve patients' oral intake with limited success. Hence, a multidisciplinary team was organized to develop a new approach to food services that would improve patients' oral intake. The team initiated patient "room service," and patients were allowed to call the kitchen when they were ready to eat. The system works much like room service in a hotel. After the introduction of room service, patients' caloric intake improved significantly ($P = .008$), and protein intake increased by 18%. Patient satisfaction with hospital food service also improved; excellent ratings increased by as much as 35%. We conclude that room service is a viable alternative to traditional food services in the pediatric oncology setting and may be useful in other patient populations, such as maternity and general pediatrics.

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CANCER THERAPY (ie, chemotherapy and radiation) causes side effects that interfere with oral intake. Frequently, patients receiving such therapy suffer from anorexia, nausea, vomiting, food aversions, dysgeusia, and xerostomia.¹ Inadequate intake can eventually result in malnutrition, which can lead to poorer treatment outcome, decreased tolerance to therapy, and increased susceptibility to infections, and can-

cer cachexia. Children who are well nourished are better able to withstand infection and tolerate therapy.² Additionally, meal times may become a battleground for parents, patients, and health care staff, as everyone focuses on getting the child to eat. A number of control issues arise around food intake. For example, the more parents and care givers try to persuade the child to eat, the less likely the child is to eat.³ Timing of meals may also be a problem. The hospital stay involves diagnostic tests and therapies that frequently interfere with meal time. After an exhausting day, a child may be too sick for supper, and may sleep too late the next morning and miss breakfast. Adequate nutrient intake is an important part of therapy for children with cancer, and any mechanism designed to improve food intake in these children is invaluable.

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Present Food Service System

Parents and staff at our hospital work diligently to improve patients' oral intake. All patients, regardless of diet, are allowed to select their menu. Limited menus are passed out a day in advance and patients make their selections for the next day. Patients are allowed to write in non-menu items as long as they are within the prescribed diet. The food service department provides three meals (at 8:00 AM, 12:00 noon, and 5:00 PM) and three snacks (at 10:00 AM, 2:00 PM, and 7:00 PM) each day. The department provides additional food on request and will obtain special requests from a local grocery store, if necessary. Additionally, nursing units are stocked with food items for children to eat when food service is closed.

Often times children do not want the food that is served and second trays are ordered. Frequently, children do not consume adequate nutrition by mouth and oral intake has to be supplemented or provided by nutritional support (parenteral or enteral). As many as 58% of hospitalized patients receive some form of nutritional support while an inpatient. Although O'Hara et al reported taste of food, food temperature, and presentation as the most important predictors of overall patient satisfaction with food service, our patient food service satisfaction surveys indicate that patients are not completely satisfied with meal times or menu selections.⁴ In a 1994 report, Davis et al found that after changes in the menu selection system at their hospital, there was a 32% increase of positive responses on patient satisfaction surveys.⁵ Therefore, the nutrition and food service staff decided to look into alternative ways of providing meals and snacks with the hope that patient oral intake and satisfaction with meal service would improve.

Methodology

Because of changes in the healthcare environment, healthcare institutions find themselves looking for ways to improve so that they can attract and retain valuable customers. Customers could be patients, families, physicians, and other healthcare employees.

With this environmental change came the need to find processes that would drive this improvement process. Increasingly, health-care organizations are embracing quality improvement principles first established by Joseph Juran. Juran identified processes designed to measure, improve, and consistently deliver optimal outcomes and he names this system total quality management (TQM). The focus of TQM is the development of a system to identify customers, determine their needs, systematically measure and improve performance.⁶ The Hospital Corporation of America developed the FOCUS-PDCA model and is an expansion of the PDCA system developed by Walther Shewhart.^{7,8}

Using the FOCUS-PDCA methodology, the hospital studied possible ways to improve patients' oral intake. FOCUS-PDCA is an acronym for: F—find a process to improve, O—organize to improve the process, C—clarify the current process, U—understand the process variations, S—select the process improvement, P—plan the improvement, D—do the improvement, C—check the improvement, A—act to maintain the improvement.⁷

Focus-PDCA

The hospital decided to restructure patient food services for the improvement of patients' oral intake, their satisfaction with food services, and waste reduction. A committee was organized to interview food management companies to determine whether a company could provide both additional expertise and innovative ideas on the improvement of patient food service. The management staff from Nutrition Services, Administration, Human Resources, Nursing, and Materials Management comprised the committee. The committee interviewed companies, and obtained data on customer satisfaction from references provided by the companies. As a result, a company that had developed a specialty "on demand" feeding program at Dana-Farber Cancer Institute and Boston Children's Hospital was hired to restructure patient food services.

The New System

A multidisciplinary team with representatives from Clinical Nutrition, Food Services, Nursing, Volunteer Services, Social Services, Patient Services, and Infection Control planned the restructuring of patient meal service. After flow charting the current method of meal delivery (Fig 1), the team considered possible renovations and compared results with two other hospitals. The team implemented "patient room service" to replace the present system. Patient room service would be similar to room service at any hotel. Rather than have meals served at set intervals, patients would call when they were ready to eat and their meal would be delivered within 30 minutes (Fig 2). New menus, including modified diets, were written and contained more than 150 items. Room service hours were set from 7:00 AM to 7:00 PM, with additional food stocked on the

nursing units for patients' consumption when room service was closed. To assure that patients were eating sufficiently, a built-in monitoring system was developed to alert staff of any patient who had not ordered for two consecutive meals. The staff was educated on the new process and a room service video was developed for staff and patient/family training. The new process was implemented and monitored after 4 weeks to determine if patient intake and patient satisfaction were improved, as well as to determine if food waste had decreased.

Results

Nursing Service personnel recorded all of the patient's consumption on the patient's intake and output card before and after the initiation of room services. After recording this information, Diet Technicians in the Food

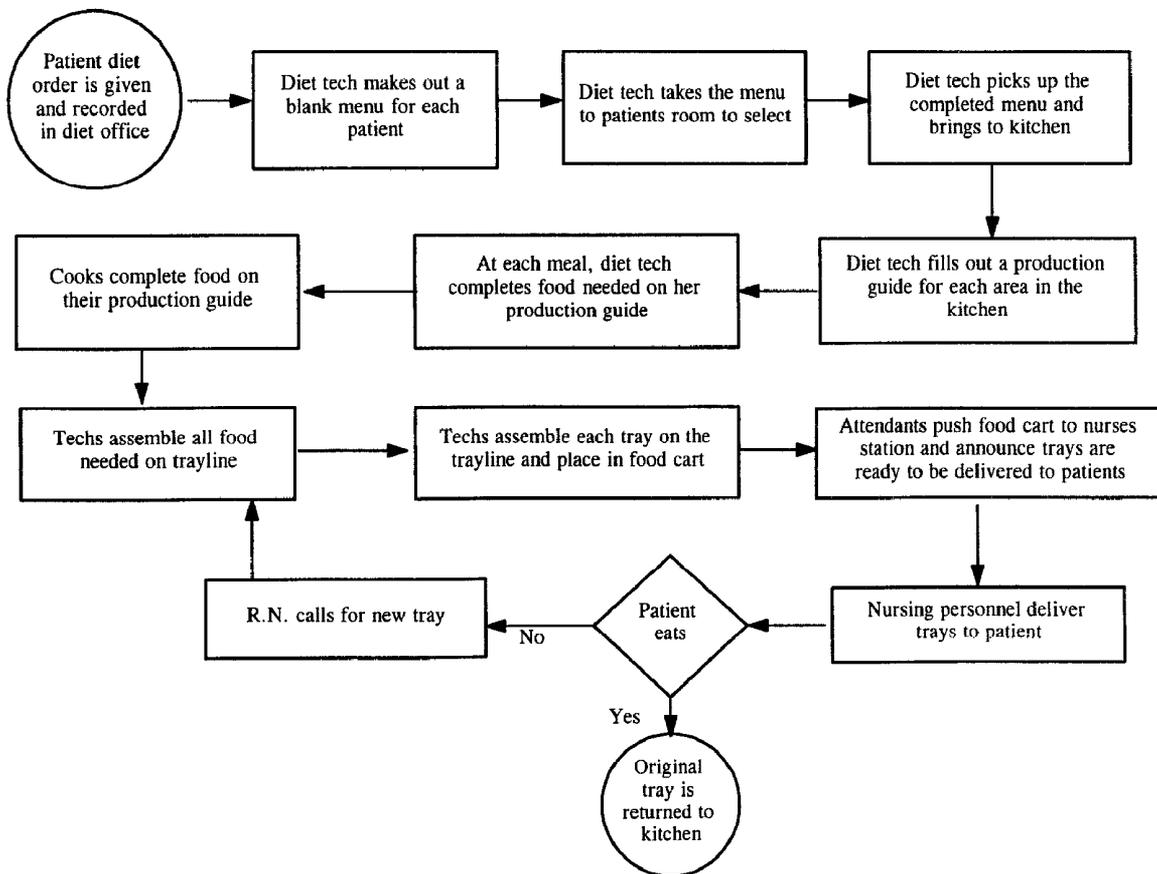


FIGURE 1. Patient meal service: present process.

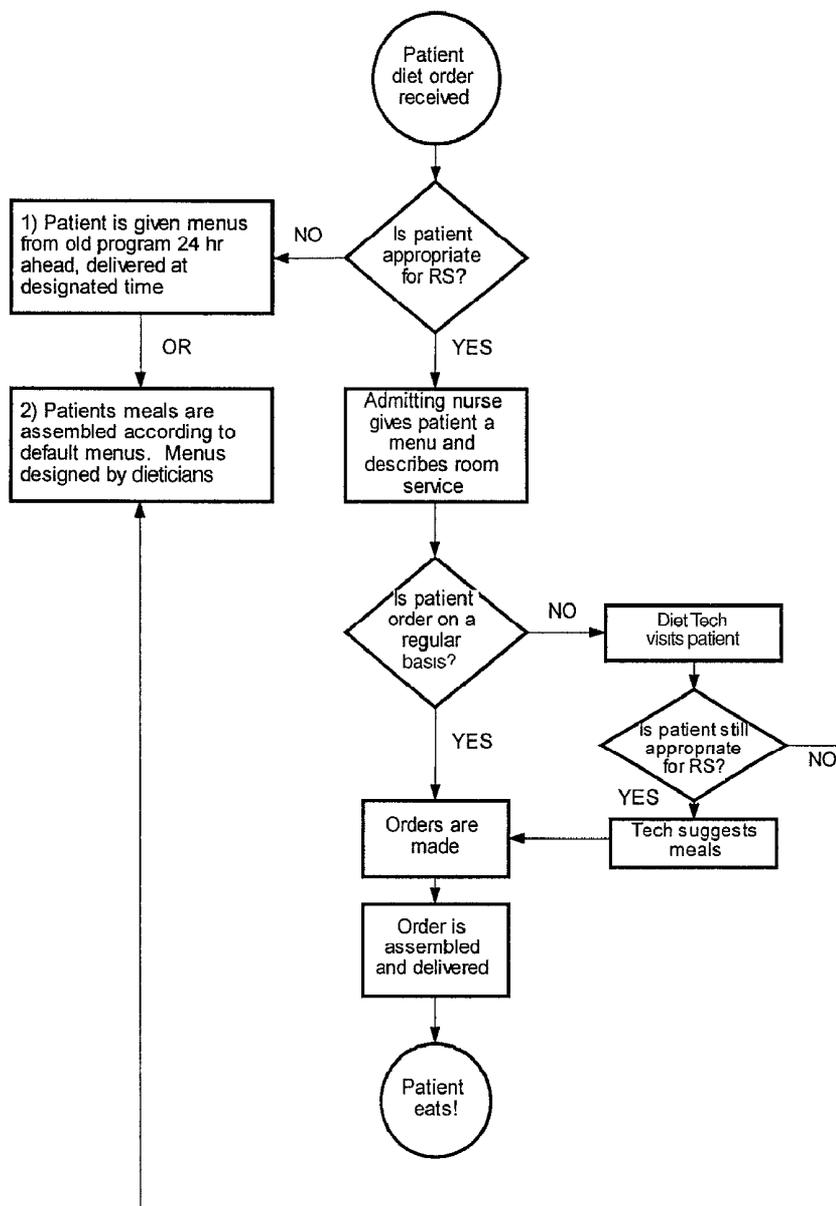


FIGURE 2.
New room service process.

Service Department calculated all intake using the CBORD Diet Analyzer System (version 2.0.1, 1991, The CBORD Group, Ithaca, NY). Results indicated that patients' caloric and protein intake increased by 28% and 18%, respectively (Table 1). In fact, the caloric intake improvement was highly significant ($P = .008$). Although patients were ordering fewer times per day with room service than with traditional meal service, they were ordering more food each time. Additionally, patients were eating a greater percentage of food that was ordered (8% increased) and

there was a reduction in food waste and call backs for a second tray.

In the first 2 months of operation, the number of delivered patient trays decreased by 61 trays a day, representing a cost savings of \$2,560 a month (based on raw cost of \$1.38 per food tray) (Table 2). The decreased purchase of grocery store items and special nourishments saved the department \$416 a month. Based on the reduction in trays, special requests, and grocery store items by patients, the total projected savings per year would be \$35,712.

TABLE 1.
Food Intake by Patients With Traditional Food Service and Room Service

Monitor	Traditional Food Service (Mean)	Room Service (Mean)	% Change
Caloric intake (kcal/d)	268.8 ± 20.1 n = 412	343.9 ± 23.5* n = 420	>28
Protein intake (g/d)	9.76 ± 31.36 n = 409	11.51 ± 21.11† n = 415	>18
Amount of food eaten from meal tray (% of total ordered/received)	46 (n = 279)	54 (n = 177)	>8

**P* = .008.†*P* = .17.

Patient satisfaction surveys indicated that both patients and parents were much more satisfied with room service than with traditional meal service (Table 3). Patients' rating of satisfaction with meal times was also higher with room service. Patient satisfaction with acceptability of the menu, quality of food, promptness of delivery of meals, and timeliness of meals and snacks increased by more than 30%.

Discussion

Patient satisfaction with hospital food service is a complicated issue. Dube et al found that patient satisfaction with food service is significantly dependent on (in declining order): satisfaction with food quality, customization, attitude of the staff who delivers meals, meal service timeliness, and meal service

reliability.⁹ In another study by Belanger et al, researchers found patient satisfaction increased when the patient had more control over his or her meals.¹⁰ This control becomes particularly important in children with long-term illnesses. When loss of control occurs with repeated hospitalizations, tests, and procedures, children and parents strive to maintain control anyway possible. Food service is frequently a target of such control. By allowing children to have more autonomy over when they eat, they feel better about their meals and consequently eat better.

In our study, the method of food service order and delivery changed. The food preparation and food offered are not significantly different. Instead of dividing 25 entrées over a three week period to offer two entrées at a time, all entrées are offered each day. This grants the patient greater menu selection at any given time. Additionally, permitting the children to call when they are ready to eat allows them to eat according to their schedule and how they feel. Patients no longer have to order the day before just to receive

TABLE 2.
Cost Savings as a Result of Room Service

Monitor	Traditional Food Service (Mean) (n = 5 mo)	Room Service (Mean) (n = 2 mo)	Amount of Change
Amount spent on grocery items (cost/month)	\$480	\$237	<\$243
Number of trays sent per day	120	59	<61
Number of trays per patient per day	2.97	1.33	<1.64
Cost of special nourishments from Food Services (supplements)	\$246	\$74	<\$173

TABLE 3.
Results of Patient Satisfaction Survey (% of Excellent Ratings)

Criteria	Traditional Food Service (n = 165)	Room Service (n = 22)
Quality of food	30	65
Acceptability of menu	47	81
Times of meals and snacks	45	80
Courtesy of personnel	63	82
Promptness of personnel	49	80

food they no longer feel like eating. Children undergoing cancer therapy may feel good one day and bad the next. Room service gives patients the opportunity to order what they feel like eating, when they feel like eating. The success of the program is illustrated by the increased caloric and protein intake in our patients. Although patients are receiving food trays less often, they are eating more of the food they receive. Results of patient satisfaction surveys indicate that families and patients are increasingly happier with their meal service since the new room service policy was instituted. The increase in satisfaction of menu and meal times is dramatic, indicating that some control over meal service is very important to patients.

Martin et al identified four basic needs of customers: (1) the need to feel important, (2) the need to feel welcome, (3) the need to be understood, and (4) the need for comfort.¹¹ Allowing patients to eat when they are ready shows them that the hospital deems they are important and that their food intolerance and aversions are understood by the staff. Children with cancer have little control over the course of events in their lives. Therefore, granting them this control has made a significant difference in their happiness while hospitalized. Although our patients are children who are sick, they deserve the dignity of choosing what they will eat, when, and how much.

Conclusion

Traditionally, patients in hospitals have selected what they want to eat the day before via a preprinted menu. This process is problematic because when the food arrives, patients frequently no longer feel like eating what they ordered the day before. This is especially true in cancer patients whose

therapy and its side effects may change unexpectedly. Pediatric cancer patients are even more likely to vary their food desires from day to day and meal to meal.

The results of this study indicate that patients eat better and are more satisfied with food service when allowed to order food when they are ready to eat. In addition to patient approval, there is a significant reduction in waste and a subsequent cost savings. The increase in protein and caloric intake, with a corresponding decrease in supplemental intake, indicates that patients are eating more food from their food trays.

Because of the small size of the hospital (48 inpatient beds) used in the study, room service was relatively easy to implement and considered a viable alternative to traditional food service. Although patient room service may not be feasible for larger hospitals, it could be instituted on a smaller scale. Larger hospitals should consider room service for areas of the hospital where patients have the most problems with food intake, such as the pediatric units and oncology units. Room service has not been in place long enough to determine the cost savings in reduction of enteral and parental nutrition, but it seems reasonable to assume that there may be some financial benefits in this area. In the era of cost containment and managed care, room service may be a viable avenue for hospitals to reduce waste and overall costs.

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