

# Extending the Reach of Hospital-Based Nutrition: A Registered Dietitian Nutritionist's Perspective on the Malnutrition Quality Improvement Initiative and Improving Patient Recovery



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## ABSTRACT

Registered dietitian nutritionists (RDNs) at Legacy Salmon Creek Medical Center (Washington) recognized a need to use nutrition to help patients recover faster and stay independent longer. With the goal of decreasing 30-day hospital readmission rates, the RDNs at Legacy Salmon Creek developed a program for posthospital nutrition care. The intervention was a pilot program designed to provide palatable and nutritious meals to patients at home during a 4-week, postdischarge interval. The RDNs obtained approval from hospital administrators and received buy-in from nursing staff who participated in RDN-led training on malnutrition awareness and risk screening. Results of the pilot program indicated a high level of patient satisfaction and a decrease in the rate of readmissions.

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## HEALTH SYSTEM PROFILE AND SETTING

**T**HE LEGACY HEALTH SYSTEM IS a nonprofit community system that includes seven hospitals in the Portland (Oregon) and Vancouver (Washington) metropolitan areas. Legacy Salmon Creek (LSC) Medical Center, the site of this ongoing malnutrition quality improvement (QI) program, is a 220-bed hospital in Vancouver, WA. LSC has units for intensive care, step-down care, general medicine, surgical care, neonatal intensive care, and short-stay care. Approximately 60% of patients admitted on most of these units are 65 years of age or older.

The patient-centered culture of the Legacy Health System aims to identify and meet the needs of patients and their families, including best-practice nutrition care. The LSC nutrition supervisor oversees a 12-member group of registered dietitian nutritionists (RDNs); each RDN has a daily caseload of 8 to 10 patients.

**Statement of Potential Conflict of Interest:**  
See page S48.

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## A NUTRITION GAP

When health care professionals identify gaps in care, a QI initiative is often implemented to improve the process. An evaluation of a change in patient outcomes then occurs. This article highlights how RDNs at LSC sought to improve the quality of nutrition care as a way to help improve outcomes for patients who were admitted to LSC.

To determine the targeted LSC treatment population, the daily hospital census and RDN consultation records were reviewed over a 6-month period of time (March to September 2017). During this period, the admitting nurse screened all patients for malnutrition using the Malnutrition Screening Tool (MST),<sup>1</sup> and a positive result triggered an RDN consultation. RDNs assessed each patient between days 3 and 5 using consensus statement guidelines and a nutrition-focused physical examination, with further guidance based on the Malnutrition Clinical Characteristics diagnostic tool.<sup>2-4</sup> Baseline data from patients' electronic health records indicated that the average length of stay for an LSC malnourished patient was 10.7 days and the average rate of readmission within 30 days of discharge was

16.3%. The RDN team found that 43% of patients screened by an admitting nurse were at risk for malnutrition, and 28% were diagnosed as malnourished by the RDN. Once malnutrition was diagnosed by the RDN, it was added to the problem list in electronic health records.

Although nutrition-care plans for patients with malnutrition were implemented by RDNs, clinical nutrition management staff members were concerned that patients' remaining time in the hospital was often not long enough for nutritional support to make a substantial difference in overcoming disease-related weight loss and poor appetite. LSC staff members posited that patients would recover faster and better if the posthospital nutrition gap was filled by providing malnourished patients with meals in their homes following discharge. At LSC, a pilot intervention was designed to make high-protein, balanced meals accessible to 10 patients for 4 weeks post-hospitalization. Results from postdischarge meal programs in other hospital systems have been encouraging—including success in patient recruitment and retention along with improved patient outcomes.<sup>5-7</sup>

## THE LSC TEAM PLAN TO IMPLEMENT A PILOT POSTHOSPITAL NUTRITION PROGRAM

“The idea for the pilot program was seeded for me during a discussion I had with an RDN from Lee Health (Florida) at the American Society of Parenteral and Enteral Nutrition (A.S.P.E.N.) Conference in January 2017. I subsequently heard a presentation by the Malnutrition Quality Improvement Initiative (MQii) team from the Academy of Nutrition and Dietetics and Avalere Health at the 2018 A.S.P.E.N. Conference. I discussed an MQii-based program<sup>8</sup> with the LSC director of clinical nutrition services and with RDN colleagues in the department. Together, we sought to apply MQii processes to improve nutrition care for hospitalized patients. LSC RDNs decided the initial focus would be to remove barriers malnourished patients experienced in getting the right nutrition to support recovery; the RDNs also sought to educate patients and their families on the importance of nutrition for healing. In brief, the plan was to provide weekly delivery of ready-made meals to patients who were identified as malnourished and enrolled in the pilot program—three meals per day for 4 weeks to patients who were discharged from the hospital to their home. Funding would be pursued so there would be no charge for the meals.”—Gerry Howick, RD, nutrition supervisor, Legacy Salmon Creek Medical Center, Vancouver, WA

## GETTING STARTED

The LSC QI department was engaged to collect and review baseline data on patients identified as malnourished by the RDNs. The data collected included: (1) nutrition risk (admission nurse performance of nutrition screening within 24 hours; prevalence of malnutrition risk), (2) RDN assessment and diagnoses of malnutrition (timing of assessment interview; prevalence of malnutrition), and (3) monitoring of patient outcome (rate of readmission). Once data were analyzed, a QI program for posthospital nutrition was

developed. This QI program was inspired by MQii principles, malnutrition electronic clinical quality measures, and resources aimed at improving patient outcomes by making changes in nutrition care.<sup>8</sup> The RDN team developed and presented the pilot posthospital nutrition program plan to the chief executive officer. The chief executive officer understood the importance of identifying and supporting malnourished patients and approved the pilot. It was designated Creekside Meal Delivery Service.

Once the concept of the pilot program was approved, the RDN team began to put together the necessary pieces for implementation—obtaining funding to support the pilot; educating nursing staff on malnutrition awareness and risk screening; determining criteria for pilot program enrollment; preparing menus; organizing hospital volunteers to deliver meals to patients in the community; and educating staff, delivery volunteers, and patients on safe food storage and handling practices (meal storage in refrigerator or freezer until ready to eat and thorough reheating before consumption).

Early on, the RDN team sought legal guidance and clearance on wording of a patient contract for enrollment into the pilot program. The LSC Legal Department also assisted in the development of other forms, including patient feedback, program information, menu descriptions, health literacy evaluation, and patient-reported meal consumption.

## Nutrition Education for LSC Hospital Nurses

All LSC registered nurses and certified nurse assistants were given nutrition education as part of the annual nursing skills day. The session included discussion of the importance of malnutrition and training on using the MST to screen patients for malnutrition risk upon admission.

## Patient Selection and Enrollment

Pilot program enrollment was open to older patients who were identified at risk for malnutrition on the MST screen<sup>1</sup> and received a malnutrition diagnosis using the Malnutrition Clinical Characteristics tool.<sup>2</sup> In addition, patient eligibility was limited to those without food allergies or eating-disorder diagnoses, living within the

service county, discharged to a home that had space for 1 week's supply of premade meals in the refrigerator or freezer and a microwave in working order, and able to receive meals on a weekly basis.

## Menu Selection

The menu was created in collaboration between the RDNs and the LSC executive chef. The menu cycle was for 1 week and every meal was different during the week. The patients were advised to eat the meals in a specified order, to ensure that perishable food was eaten at the beginning of the week and that patients met their nutritional requirements each day. Some patients were encouraged to add more foods to their meals to meet their individual requirements.

## Meal Preparation, Storage, and Delivery

The meals were prepared in the hospital kitchen. Some of the food was made as part of the inpatient menu and packaged for freezing. Meals were prepared the day of or the day before delivery. All meals were tested for palatability by a panel of hospital employees.

The RDN program coordinator called each patient before their scheduled meal delivery date. This call was used as an opportunity to check in with the patient, to answer questions they had, and to make sure they were ready for the next set of meals. Meals were boxed by RDNs, to ensure that the right meal was going to the right patient and to ensure that appropriate food substitutions were made if necessitated by unavailability. The process of assembling 1 week's meals took about 15 minutes per patient.

Each meal batch also included a survey developed by the RDN nutrition supervisor and approved by the hospital's Institutional Review Board as per hospital protocol; the survey included questions about meal consumption, satisfaction, and physical progress. Survey materials were developed and approved in anticipation of scaling up the program to cover more than the 10 patients in the pilot.

Meals, menus, and surveys were delivered by volunteers who were part

of the LSC Hospital Volunteer Service Department. Completed surveys were retrieved by the volunteers and returned to the RDN nutrition supervisor. The RDN nutrition supervisor compiled the results and reported findings at QI meetings for standard plan-do-study-act analyses and decisions. The plan-do-study-act model is described in further detail in the MQii Toolkit.<sup>8</sup> Patients answered two questions at the start of the pilot program for defining what goals to achieve. Weekly telephone calls gave an opportunity to check patient goal attainment and to evaluate patient experience of receiving any other benefits from the meals. An RDN measured patient handgrip strength (using a hand dynamometer) at the patient's first day of pilot program enrollment (day of discharge) and end (last day of meal consumption). After the pilot program enrollment ended, one final check-in with the patient included two questions to determine if goals were reached and what was learned from the experience. The questions were: (1) Before you started this program, your goal was to \_\_\_\_\_. Do you feel you reached your goal? (2) What did you learn about nutrition from eating these meals over the last month?

## RESULTS

A total of 10 patients were enrolled in the pilot program. Patient survey responses indicated that on average 89% of each meal was eaten. Patient satisfaction was high, and all patients reported health improvements attributed to the pilot postdischarge nutrition program.

Examples included:

- Improved endurance to perform activities of daily living such as entering and exiting the shower.
- Increased stamina to complete the task of grocery shopping.
- Increased strength to leave the house, both before and after hospitalization, and reengage in social activities.

The RDN nutrition supervisor who managed the pilot program conducted follow-up telephone calls to postdischarge patients and noted their voices got stronger over the

monthlong meal period. When the RDN nutrition supervisor visited patient homes for occasional delivered meals, incremental improvements in their strength and mobility were noted.

Although the number of patients enrolled in the pilot program was too small to conduct statistical analyses of findings, the 30-day readmission rate among pilot program enrollees was 10%, compared with an overall average hospital 30-day readmission rate of 16.3% (as documented before the pilot program).

## SCALING UP THE PILOT POSTHOSPITAL NUTRITION PROGRAM

The second year of funding to fully complete the pilot posthospital nutrition program has been initiated. Funds are also being requested to scale-up the program to enroll additional patients. Furthermore, based on patients enrolled in the pilot program, the RDN team identified a need for including specialty diets in addition to the standard diet. The RDN team and executive chef recently created menus for a carbohydrate-controlled diet and a low-sodium diet to meet the most common special needs beyond the standard diet.



Gerry Howick, RDN nutrition supervisor at LSC, administers a patient handgrip test on discharge day in the hospital; the reading becomes a baseline for evaluation of postdischarge recovery.

The pilot posthospital nutrition program focused on providing complete and balanced meals for malnourished patients after hospital discharge. The RDN team is now expanding the QI focus to fine-tune and improve the quality of nutrition care during the hospital stay.<sup>8</sup>

## FINE-TUNING LSC HOSPITAL NUTRITION CARE

Based on experiences from the first year of the pilot program, refinements were identified to guide future efforts to improve nutrition care, specifically by using MQii tools and resources. In particular, the efficiency and efficacy of the malnutrition screening and diagnosis processes will be improved to facilitate implementation of nutrition interventions sooner in the hospitalization episode.

Nutrition-focused QI programs have improved health outcomes, and reports indicate that such programs have the potential to lower health care costs.<sup>9-13</sup> Programs being considered or initiated at LSC include:

- Malnutrition screening—LSC nurses screen admitted patients for malnutrition risk using the MST, a validated and sensitive tool.<sup>1</sup> However, findings are not fully consistent with RDN-diagnosed cases of actual malnutrition.<sup>2</sup> Although some have suggested that admitting nurses may need additional training for best-practice use of the MST,<sup>1,14,15</sup> LSC did not observe this need, but did see a shift in nurses being more supportive of malnutrition prevention and intervention post-MST training and thus will continue to explore additional opportunities for nursing engagement.
- Malnutrition assessment—LSC RDNs conduct nutritional assessments between days 3 and 5 of hospitalization. The malnutrition electronic clinical quality measure for assessment is completion of a nutrition assessment for patients identified as at risk for malnutrition within 24 hours of a malnutrition screening. Assessments completed earlier than LSC current practice could increase in-hospital nutrition interventions

and timeliness, potentially improving patient outcomes.

- Postdischarge intervention—Malnutrition is not necessarily resolved in 4 weeks. Expanding the LSC posthospital nutrition program beyond 4 weeks with a self-pay option for patients at high nutrition risk could provide an opportunity for effective interventions. In addition, outcome measures could be enhanced by collecting data on changes in handgrip strength over the course of recovery and conducting a patient satisfaction survey on postdischarge meals, recovery, and nutrition education.

"Based on our learnings and stepwise improvements in nutrition care and patient outcomes at LSC, we encourage other nutrition services to use MQii to identify nutrition problems and enhance nutrition services."—Gerry Howick, RDN, nutrition supervisor, Legacy Salmon Creek Medical Center, Vancouver, WA

### TAKE-HOME MESSAGES

A QI program such as this pilot post-hospital nutrition program can serve as a catalyst to guide changes in malnutrition care during the hospital stay. The pilot program aimed to improve patient care and satisfaction by providing complete and balanced postdischarge meals.

In the course of implementing the pilot, the RDN team learned to

further enhance the quality of nutrition care by improving practices for screening of malnutrition risk on patient admission, assessing and diagnosing malnutrition, and ensuring appropriate nutrition interventions for malnourished patients both during hospitalization and postdischarge.

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## **STATEMENT OF POTENTIAL CONFLICT OF INTEREST**

The Malnutrition Quality Improvement Initiative (MQii) is a project of the Academy of Nutrition and Dietetics, Avalere Health, and other stakeholders who participated in and provided guidance and expertise in this collaborative partnership. G. Howick is an employee of Legacy Salmon Creek. K. J. Pratt is an employee of Avalere Health. A. Steiber is an employee of the Academy of Nutrition and Dietetics.

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## **AUTHOR CONTRIBUTIONS**

G. Howick led development of this quality improvement project. K. J. Pratt provided technical assistance and guidance on project implementation. A. Steiber provided guidance on interpretation of the project results and clinical practice applications.