Identifying and Managing Malnourished Hospitalized Patients Utilizing the Malnutrition Quality Improvement Initiative: The UPMC Experience

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ABSTRACT
Registered dietitian nutritionists at University of Pittsburgh Medical Center, a group of 40 academic, community, and specialty hospitals in Pittsburgh, PA, recognized the need to improve the identification and management of malnourished adult patients at their institutions. It was decided to pilot the Malnutrition Quality Improvement Initiative (MQii) at two institutions within their health care system. The MQii is based on the dual-pronged approach of malnutrition-focused electronic clinical quality measures and a quality improvement toolkit (MQii Toolkit), to help identify and manage malnourished adult patients. The quality improvement implementation focused on hospital-wide adoption of the Nutrition Focused Physical Examination (NFPE). The MQii team was guided by the malnutrition electronic clinical quality measures focused on completing a nutrition assessment (the NFPE) within 24 hours of identification of malnutrition risk and ensuring documentation of a malnutrition diagnosis when it was identified. Performance on both measures improved significantly ($P<0.01$). Performance on appropriate timing of nutrition risk screening improved slightly, and there was almost perfect compliance for completion of nutrition care plans in the presence of malnutrition. Overall, the performance data demonstrated the effectiveness of using the MQii to improve the nutrition processes and the ability to implement NFPE into the process of malnutrition identification.

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MALNUTRITION IN HOSPITALIZED patients continues to be underdiagnosed and untreated. The prevalence of adult patients at risk for malnutrition upon admission to the hospital ranges from 20% to 50%.[1-3] However, only 5% to 8% of patients are identified as malnourished during their hospital admission.[4,5] High variation in care practices across systems may contribute to this lack of consistent identification.[6] This gap in the identification of nutrition risk and appropriate malnutrition diagnosis provides opportunities for credentialed nutrition and dietetics practitioners to implement quality initiatives to improve the identification, assessment, and management of hospitalized patients with malnutrition.

Statement of Potential Conflict of Interest: See page S43.

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GETTING STARTED

Understanding that there was a need to improve the identification and care of adult patients at risk for malnutrition, three clinical nutrition managers (CNMs) from UPMC (University of Pittsburgh Medical Center), a group of 40 academic, community, and specialty hospitals totaling 8,500 beds, attended a Clinical Nutrition Manager Symposium in March 2017. This symposium included a session on the Malnutrition Quality Improvement Initiative (MQii). The MQii is an evidence-based quality initiative designed to help clinicians better identify and manage hospitalized patients at risk for malnutrition.[7]

After attending the symposium, the CNMs were very interested to learn more about how to implement the MQii to optimize the malnutrition care processes at UMPC facilities. The MQii Toolkit was reviewed and the Readiness Questionnaire completed.[7,8] The Readiness Questionnaire was an important first step in the process and included a series of assessment questions focused on three areas:

- Are you ready to end malnutrition in your hospital?
- Do you have the needed resources to do this?
- Is your culture one of improvement?

Once the MQii team determined that the institutions were ready to proceed, the MQii Toolkit's Onboarding Checklist (a step-by-step process and timeline for program implementation) was reviewed.[7]

Seeking Approval

With the completion of the readiness documents and Onboarding Checklist, permission was granted by the Director of Corporate Quality to implement the MQii. Using the Onboarding Checklist guidance, the MQii team then sought and received

approval from the legal and information technology (IT) departments.

Establishing an Expert Group

It is critical to build a strong group of experts representing all the departments involved in the training and implementation of the MQii. Members of the UPMC expert group included: clinical nutrition teams at both the system and facility levels; executive vice president, nursing and quality leadership; medical staff; and IT staff. In addition, the medical and nursing electronic health records directors, reports, and coding teams were recruited to facilitate data extraction from the electronic health records on nutrition screening, assessing, diagnosing, and care plan development. The multidisciplinary expert group had multiple opportunities for team building within each facility and across the network as they worked together to implement the MQii project.

SELECTING A QI FOCUS

Driving excellence in nutrition care begins with understanding current practices and identifying areas for improvement. At UPMC, the focus was on improving the nutrition processes of screening, assessment, diagnosis, and care plan development. Completion of the Malnutrition Care Assessment Decision Tool helped to identify clinical practice improvement opportunities and allowed mapping of current workflows and identification of gaps in these processes.[7,8]

Simultaneously, the UPMC Clinical Nutrition Department was already initiating a Nutrition Focused Physical Examination (NFPE) training program for registered dietitian nutritionists (RDNs). The goals of the NFPE training program were to:

- improve malnutrition diagnosis documentation;
- ensure that malnutrition diagnostic criteria were included in the narrative notes; and
- improve RDN and physician communication and alignment on the malnutrition diagnosis.

The CNMs and lead RDNs—working with the multidisciplinary expert group—decided to use implementation of the NFPE program as UPMC's first quality improvement initiative utilizing the MQii tools and resources. A significant amount of the Clinical Nutrition Department's time had been invested in the NFPE program as it is within the RDN Scope of Practice per the Academy of Nutrition and Dietetics: Revised 2017 Scope of Practice for the Registered Dietitian Nutritionist (https://www.eatrightpro.org/scope).

PREPARING FOR AND IMPLEMENTING THE MQii

Multidisciplinary staff education on the MQii framework was conducted. In addition, RDN staff willing to attend NFPE competency classes at the University of Pittsburgh were identified. These RDNs then functioned as peer-to-peer trainers on NFPE.

Often the implementation of a large project can seem daunting and difficult, but by starting with a smaller pilot, the results that are generated can be rolled out in larger-scale programs for more impactful changes over the long term. Using this approach, the MQii and NFPE program were implemented at two of the largest hospitals in the UPMC system.

OUTCOMES

It is critical to utilize outcome measures that are based on clinical consensus, such as the malnutrition electronic clinical quality measures (eCQMs) developed by the MQii (Figure 1). Recommendations from the Academy of Nutrition and Dietetics and the American Society for Parenteral and Enteral Nutrition on nutrition screening, assessment, and malnutrition diagnosis were incorporated into UPMC's clinical data collection.[9]

UPMC documented a baseline for the four malnutrition eCQMs prior to implementation of the NFPE program. After 5 months, eCQM performance data were collected again (postimplementation of the NFPE program) and evaluated to determine if the NFPE program was driving an improvement in clinical practice (Figure 2). Performance improved

eCQM #	Measure Description	Measure Objective
1	Completion of a malnutrition screening within 24 hours of admission	Patients age≥18 received a malnutrition screening and results documented in their medical record within 24 hours of their admission to the hospital
2	Completion of a nutrition assessment for patients identified as at risk for malnutrition within 24 hours of a malnutrition screening	Patients age≥65 who were identified to be at risk of malnutrition from a screening were provided a nutrition assessment within 24 hours of the screening
3	Nutrition care plan for patients identified as malnourished after a completed nutrition assessment	Patients age≥65 who were assessed and found to be malnourished should also have a documented nutrition care plan in their medical record
4	Appropriate documentation of a malnutrition diagnosis	Patients age≥65 who were assessed and found to be malnourished should have a physician-confirmed diagnosis of malnutrition documented in their medical record to ensure care plan implementation and transfer of necessary medical information upon discharge

Figure 1. Malnutrition electronic clinical quality measure (eCQM) descriptions and objectives.[10]

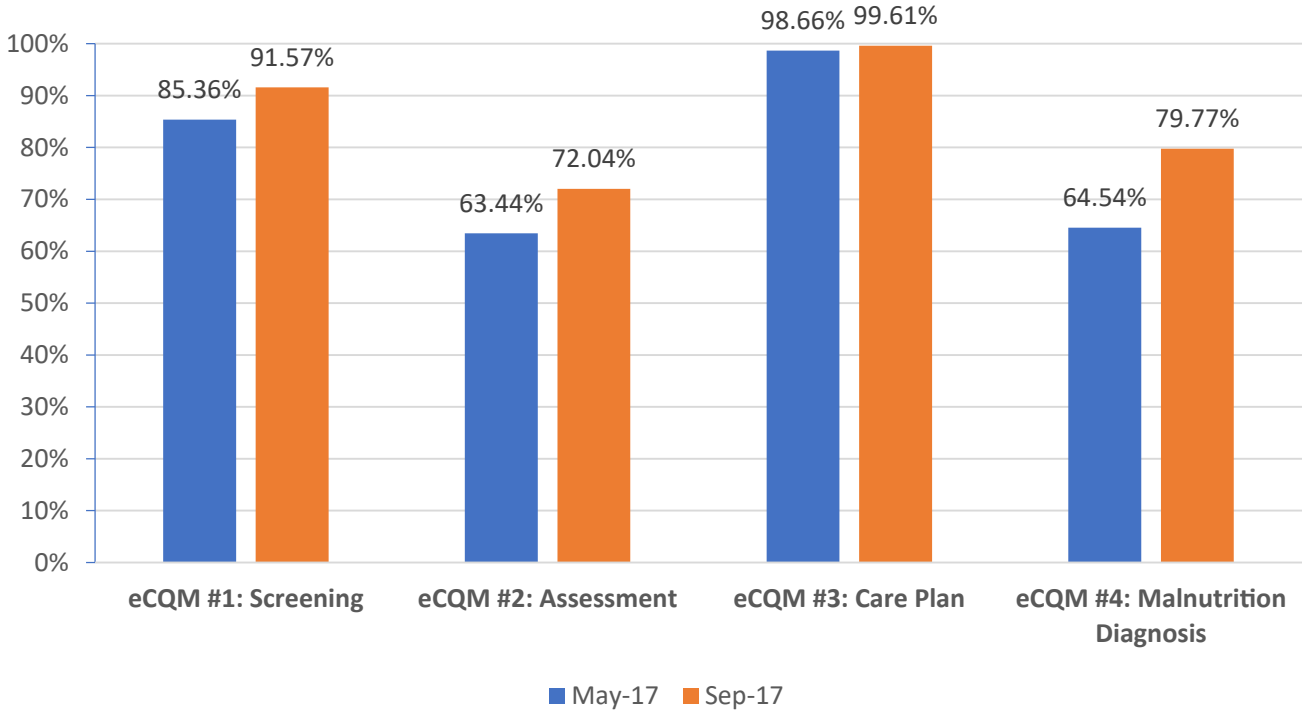

Figure 2. Change in University of Pittsburgh Medical Center system-level malnutrition electronic clinical quality measure (eCQM) performance from baseline to postimplementation.

significantly ($P<0.01$) on the malnutrition eCQMs focused on completing a nutrition assessment—the NFPE—within 24 hours of identification of malnutrition risk and ensuring documentation of a malnutrition diagnosis if it was identified. For the other two eCQMs, performance on appropriate timing of nutrition risk screening improved slightly, and there was almost perfect compliance for completion of nutrition care plans in the presence of malnutrition. Overall, the performance data demonstrated the effectiveness of the MQii process and NFPE program in improving identification of malnourished patients and delivery of nutrition care.

Unexpected Findings

Quality initiatives can provide insights into care processes that are not meeting standards. The MQii team found through their gap analysis that the existing UPMC care processes (prior to implementation of the NFPE program) were only identifying 12.75% of patients with malnutrition upon admission to the hospital as compared with the scientific literature estimated prevalence of malnutrition in hospitals of 20% to 50%.[1-3] Based on this unacceptable finding, the MQii team completed a staffing analysis and submitted a proposal to increase RDN staffing resources during implementation of the MQii and NFPE programs to help improve the identification of malnourished patients.

COMMUNICATION

Communicating the results of UPMC's quality improvement initiative was key to the MQii team's success. Getting recognition for nutrition practice improvement while sharing the importance of malnutrition identification and management with clinical and leadership staff drove big dividends. Results included:

- an increase in the RDNs' own understanding of the importance of their work;
- elevation of the RDN role and of the Clinical Nutrition Department relationship with other departments and institution leadership; and
- an increase in the visibility of nutrition assessments and identification of patient malnutrition across all clinical disciplines.

In addition, the multidisciplinary expert group was awarded first place at UMPC's annual Quality and Innovation fair for the Collaborative/Cross Campus Initiative category.

Discussion surrounding the high value of nutrition care in hospitals was noted. Collaboration between medical staff, IT, coding, quality, and leadership increased. The president and vice president discussed the importance of nutrition and quoted malnutrition data at leadership and staff meetings. With this increased attention and understanding, more resources were focused on identifying and managing adult patients with malnutrition.

NEXT STEPS

The MQii team at UPMC will continue to expand the use of MQii with a focus on several key initiatives. Based on success of the NFPE program, the

Key lessons learned:

- Identify gaps in the nutrition care process.
- Form a quality team to support your desired process improvements.
- Start small.
- Do the work and share the results.

Clinical Nutrition Department is continuing to enhance NFPE education and competency training for RDNs, with a goal of expanding the program to other UPMC facilities beyond the two pilot hospitals. In addition, the MQii team plans to focus on improving nutrition care during transitions from hospital to home or post-acute care. This transition of care project will be initiated after full execution of the NFPE program is achieved systemwide.

CONCLUSION

The implementation of the MQii framework, with the dual-pronged approach of the malnutrition eCQMs and the MQii Toolkit, has been effective in helping identify gaps and improving the care for malnourished patients at clinical facilities. By working collaboratively, the UPMC MQii multidisciplinary team was able to make malnutrition care at their facilities a top priority.

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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. K. Danis, M. Kline, M. Munson, S. Bachar, J. Nickleach, and H. Hardik are employees of University of Pittsburg Medical Center. A. Valladares is an employee of Avalere Health. A. Steiber is an employee of the Academy of Nutrition and Dietetics.

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AUTHOR CONTRIBUTIONS

K. Danis led development of this quality improvement project. M. Kline, M. Munson, J. Nickleach, H. Hardik, and S. Bachar participated in and led portions of this project. A. F. Valladares provided technical assistance and guidance to the information systems and electronic medical record teams on data query and extraction. A. Steiber provided guidance on interpretation of the project results and clinical practice applications.