Alleviating Hospital-based Malnutrition: A Baseline Progress Report
Introduction

Since the Institute of Medicine’s (IOM) landmark reports, *To Err Is Human* (2000) and *Crossing the Quality Chasm* (2001), revealed widespread incidence of medical errors in U.S. hospitals, an intensified effort has been underway to improve the quality and safety of patient care. The result has been notable improvements, including the quality of care provided to heart attack, pneumonia, surgical care, venous thromboembolism (VTE) and stroke patients, according to composite accountability measures.\(^1\)

Despite this progress, however, many challenges have yet to be solved. One of these persistent challenges is hospital-based malnutrition—most simply defined as any nutritional imbalance.\(^2\) According to a 2012 consensus statement by the Academy of Nutrition and Dietetics and the American Society of Parenteral and Enteral Nutrition, this condition is associated with the presence of two or more of the following characteristics: insufficient energy intake, weight loss, loss of muscle mass, loss of fat mass, localized or generalized fluid accumulation, or decreased functional status.\(^3\) Occurring in both overweight and underweight individuals\(^2\) and affecting patients of all ages—from infants in the neonatal intensive care unit (ICU) to geriatric patients\(^4\)—malnutrition in hospitalized patients is not a new problem. In fact, since 1974 when Dr. Charles E. Butterworth Jr’s landmark study brought recognition of the problem to the eyes of hospital clinicians,\(^5\) patient malnutrition has been referred to as the “skeleton in the hospital closet”\(^6,7\) because it remains under-recognized and often untreated, despite being associated with increased complication rates, length of hospital stay, readmission rates, and mortality.\(^8-14\)

Our alliance represents over **100,000** dietitians, nurses, physicians, and other clinicians from **all 50 states**, on a mission to transform patient outcomes through nutrition.
Forty years after Butterworth’s article called for practices aimed at the proper diagnosis and treatment of malnourished patients, a number of factors are precipitating a real focus on addressing this public health challenge. One of these factors is the greying of America, described as one of the most dramatic demographic shifts in the nation’s history. According to the U.S. Census Bureau, the number of Americans aged 65 and over will top 90 million by 2060, leading public health experts to project a significant increase in age-related chronic conditions and the demand for healthcare and aging-related services. Since chronic disease is often correlated with an increase in malnutrition, this demographic shift underscores the need for preventing and/or treating malnutrition and reducing its associated complications.

At the same time, hospitals are responding to major changes in Medicare and Medicaid programs through implementation of the Patient Protection and Affordable Care Act (ACA) in which malnutrition plays a role. Two of these issues are hospital infections, estimated to cost up to $33 billion each year, and 30-day readmissions, which cost the Medicare program approximately $26 billion a year. To address these and other potentially preventable costs, the Centers for Medicare and Medicaid Services (CMS) has implemented new Medicare rules that:

- Withhold payment to hospitals for 11 recognized preventable conditions, including pressure ulcers, surgical site infections, and falls—all less likely to occur when patients are adequately nourished.
- Penalize hospitals with high rates of avoidable readmissions for their heart failure, heart attack, and pneumonia patients. In 2013, 2,225 hospitals were penalized $280 million through lower Medicare payments due to their excess readmissions.

CMS has also set the stage for more hospitalized malnourished patients to receive a formal diagnosis of malnutrition by revising the severity level of the diagnostics codes for moderate and mild malnutrition. Collectively, these actions pave the way for making malnutrition a public health priority and working through stakeholders to ensure nutrition therapy is a critical component of patient care.
Putting Hospital Malnutrition on the Radar

**The Burden of Hospital Malnutrition**

In terms of its prevalence and cost, hospital malnutrition is a serious threat to the improved delivery of healthcare. According to research findings:

- At least 1/3 of patients are malnourished upon admission to the hospital.\(^{24-26}\)

- If left untreated, approximately 2/3 of these malnourished patients will experience a further decline in their nutrition status during their inpatient stay.\(^{27}\)

- Approximately 38 percent of well-nourished patients will also experience a nutritional decline during their hospital stay.\(^{27}\) The reasons include dietary restrictions due to diagnostic testing, prescribed treatments, and symptoms of patients’ medical conditions, including poor appetite and gastrointestinal problems.

- On average, both patients who are malnourished upon admission and those who become malnourished during their hospital stay have higher healthcare costs during their hospitalizations.\(^{27-29}\)

Compounding these problems, studies find the risk of malnutrition is particularly high among older adults,\(^{30}\) especially those who suffer from chronic diseases and comorbidities, such as cancer and cardiovascular disease.\(^{31}\) Other factors associated with malnutrition include depression, bereavement and living alone, all of which are prevalent among older adults.\(^{32}\)

**The Consequences and Cost of Patient Malnutrition**

The adverse outcomes associated with hospital-based malnutrition are substantial and place a significant burden on the healthcare system. A growing body of research correlates malnutrition with a range of complications, including surgical site infections (SSIs), pressure ulcers, falls and deteriorating functional status across the continuum of care. As reported in the literature:

- Malnourished surgical patients are 2-3 times more likely to develop a surgical-site infection or postoperative pneumonia.\(^{20}\)

- Malnourished patients are twice as likely to develop a pressure ulcer.\(^{19}\)

- 45 percent of patients who fall in the hospital are malnourished.\(^{21}\)

Since malnutrition can delay recovery and increase medical complications, studies further document the costs to the health system in terms of longer lengths of hospital stay, higher readmission rates, higher treatment costs, and increased mortality.\(^{22}\) For example, a recent study examining data from the 2010 Healthcare Cost and Utilization Project (HCUP), the most current nationally-representative data describing U.S. hospital discharges, found malnourished patients spent an average of 12.6 days in the hospital compared to 4.4 days for other patients, resulting in an almost three-fold increase in hospital costs ($26,944 versus $9,485).\(^{33}\)

At the same time, studies demonstrate that treating malnutrition in the hospital leads to better patient outcomes. According to research findings, nutrition intervention has been associated with:
These findings make clear that elevating the role of patient nutrition in the hospital must become a priority. Identifying and treating malnourished patients and those at risk of malnutrition upon admission through discharge is a low-cost, effective strategy for hospitals to improve patient outcomes (complication rates, readmission rates, and mortality) while reducing costs and length of hospital stay.
**Major Obstacles Impeding Progress**

Given the overwhelming evidence documenting the burden of patient malnutrition why does this pervasive problem remain unrecognized and untreated in so many hospitalized patients? Healthcare experts have identified six key challenges that are impeding progress:

- Although The Joint Commission recommends nutritional screening of all at-risk patients within 24 hours of hospital admission and at frequent intervals throughout hospitalization, the vast majority of hospitalized patients are inadequately screened and their malnutrition risk goes unrecognized.\(^4\)\(^,4^7\)\(^,4^8\)\(^,4^9\)

- While the responsibility for patients’ nutrition care in hospitals usually rests with on-staff registered dietitian nutritionists (RDNs), many institutions don’t employ enough RDNs to address all patients’ needs properly.\(^5\)\(^,1^0\)

- Nurses, who are on the front lines in observing patients, interacting with caregivers and delivering patient care, are not consistently included in patients’ nutrition care.\(^5^1\)

- Nutrition interventions are often delayed due to the time required to obtain nutrition consultations. In fact, research conducted by Meena Somanchi, Ph.D. and colleagues at the Johns Hopkins School of Medicine found the time to consultation from admission is nearly 5 days, which is similar to the average length of hospital stay.\(^5^2\)

- Other factors delaying nutritional screening and treatment for malnutrition include lack of nursing protocols focused on nutrition, lack of diet orders, and physician uncertainty with specific nutrition intervention options in their hospitals.\(^5^0\)

- Moreover, physician sign-off is generally required to implement nutrition care, which delays time and adds layers to the process. Dietitian recommendations have been found to be implemented in only 42 percent of cases.\(^5^3\)

- Finally, the inadequate food consumption of many hospitalized patients can contribute to malnutrition. There is documented evidence that many patients experience difficulty consuming food without assistance, contributing to more than half of these individuals not finishing their meals.\(^5^4\)

Underlying these challenges are numerous institutional factors, such as the lack of understanding among hospital administrators and clinicians of the scope and costs of untreated malnutrition and the limited or nonexistent formal education in nutrition among physicians and nurses. Also impeding progress is the lack of formal policies and procedures in place to ensure malnourished patients or patients at risk for malnutrition are screened within 24 hours of admission and treated with nutrition interventions in a timely fashion. As such, these findings represent a call-to-action for policymakers and clinicians to improve the standards and best practice protocols for diagnosing malnutrition in the hospital setting, ensuring patients get timely and effective treatment.

*Dietitian recommendations have been found to be implemented in only 42% of cases*\(^5^3\)
Creating the Roadmap

Because the ramifications of hospital malnutrition have wide-reaching consequences, addressing this problem requires direct, systematic and sustained intervention. Accordingly, a consortium of registered dietitian nutritionists, nurses, hospitalists, other physicians and public health leaders joined forces in 2013 to form the first interdisciplinary partnership dedicated solely to overcoming the problem of hospital malnutrition. Called the Alliance to Advance Patient Nutrition, this stakeholder coalition represents more than 100,000 health professionals across the nation working collectively to advocate for early nutrition screening, assessment and intervention in hospitals.

Currently, the Alliance is managed by four leading healthcare organizations: the Academy of Medical-Surgical Nurses (AMSN), the Academy of Nutrition and Dietetics (AND), the Society of Hospital Medicine (SHM), and Abbott Nutrition. The work of the Alliance to Advance Patient Nutrition is made possible with support from Abbott Nutrition.

Officially announced in May 2013, the Alliance is already having a major impact in driving awareness and systems change. Because no blueprint existed that would drive systems change, on June 4, 2013 the Alliance published a pioneering consensus paper, *Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition*, in three leading peer-reviewed journals.

Documenting the extent of undiagnosed and untreated malnutrition in the nation’s hospitals and the consequences for patients and the healthcare system, the consensus paper provided a renewed call to action to elevate hospital malnutrition as a priority concern and presented a novel Nutrition Care Model to drive improvement. Specifically, the Nutrition Care Model emphasizes the following 6 principles:
To drive widespread adoption of the Nutrition Care Model, the consensus paper also lays out specific recommendations for hospital administrators and clinicians to institute effective nutrition practices in the nation’s hospitals. Among these recommendations are to:

| **Educate all clinicians to be able to recognize and diagnose malnutrition, and implement evidence-based nutrition interventions.** |
| **Consider nutritional status an essential part of the patient’s condition.** |
| **Make nutrition interventions a core component of medical therapy.** |
| **Screen ALL patients within 24 hours for malnutrition risk using a validated screening tool and continually re-screen all patients at frequent intervals throughout hospitalization.** |
| **Initiate a nutrition care plan within 48 hours of admission for patients with or at risk of malnutrition.** |
| **Engage nurses in understanding malnutrition risk factors and develop/implement policies that allow nurses to provide nutrition care.** |
| **Allow registered dietitian nutritionists ordering privileges for diet plans, oral nutritional supplements, vitamins, and calorie counts to prevent delays in food and/or nutrient delivery.** |
| **Communicate malnutrition diagnosis and care plans to the healthcare team.** |
| **Develop nutrition care plans and formally document them in a central area on the medical record or in the electronic health record (EHR).** |
| **Develop clear, standardized written instructions for nutrition care at home, including the rationale for and details on diet instructions, along with any recommended oral nutritional supplementation (ONS), vitamin and/or mineral supplements.** |
To equip the hospital community with the resources to advocate for effective nutrition practices in different institutions, the Alliance also launched a comprehensive website—www.malnutrition.com—as a national resource on hospital malnutrition. The website makes available a robust toolkit with validated screening tools, feeding tips, fact sheets, case studies, patient discharge materials and patient education handouts. Malnutrition.com further offers an evidence library of research data on nutrition intervention in clinical settings, study overviews vetted by specialists in hospital-based malnutrition, and nursing education models.

Moving the Needle

With the consensus paper and website as the foundation, the Alliance has begun a multi-year initiative to elevate nutrition intervention as a critical component of patient care in U.S. hospitals through education, policy change, best practice...
sharing and new research. This includes a national public awareness effort using the mass media and a more targeted communications program directed specifically at hospitalists, nurses and registered dietitian nutritionists. In this area, the Alliance has not only succeeded in elevating awareness of patient malnutrition within the hospital community but qualitative results indicate the Alliance’s message is being received and implemented by interdisciplinary care teams in the hospital setting.

Among the results are the following:

- **Extensive coverage of hospital malnutrition by the mass media.** This included 42 news articles reaching more than 30 million readers and viewers and over 2,500 views of national press releases. All media coverage and communications has included critical messaging about the impact of malnutrition, the benefits of nutrition intervention, and the need for interdisciplinary clinical collaboration.

- **Reaching clinicians directly through Alliance communications.** Information from the Alliance has generated 130-plus Alliance-member articles, e-blasts and social media posts targeted directly at hospital administrators, clinicians and policymakers.

- **A growing presence for the Alliance website.** As of March 31, 2014, www.malnutrition.com had more than 125,000 page views, with 1,054 clinicians choosing to register for ongoing information. Moreover, the average visit duration on the site is just under three minutes (2:55) —about 50 percent longer than many sites targeted to health professionals, due to the large amount of relevant content and informational tools available.

At the same time, the Alliance is spearheading national malnutrition education programs for hospital-based clinicians, providing hands-on, skills-based information through teaching modules, webinars, workshops, lectures and an interactive exhibit booth at professional meetings and conferences. Some of the 2013 highlights include:

- A Patient Nutrition section in the Practice Resources made available to all nurses on the AMSN website along with a “Nutrition Stories” microsite to facilitate the sharing of nutrition care ideas and practices. The organization also distributes a regular nutrition column in the AMSN newsletter MEDSURG Matters!

- The recently published Critical Illness Evidence-Based Nutrition Practice Guidelines, which was made available to registered dietitian nutritionists in over 200 countries as part of the Academy of Nutrition and Dietetics Evidence Analysis Library (EAL). The EAL houses more than 5,000 research article references, evidence-based practice toolkits, educator modules, presentations and mobile apps.

- An updated version of the Malnutrition Resource Center website, which was launched in May 2014 by the Journal of the Academy of Nutrition and Dietetics to provide registered dietitian nutritionists, nurses, and health practitioners a variety of educational tools, self-study courses and data on malnutrition from peer-reviewed journal articles.

- A dedicated web-based “resource center” on diagnosing and treating malnutrition in the hospital made available to hospitalists as part of the Society of Hospital Medicine’s online Center for Hospital Innovation.
and Improvement. This “resource room” on malnutrition provides hospital-based physicians with links to resources and clinical tools to improve inpatient care, including order sets, guidelines, templates, and worksheets.

- Increasing awareness of hospital nutrition at professional meetings and conferences. This included a keynote address on “The New Malnutrition: Challenges of Changing the Paradigm Globally” by Kelly Tappenden, PhD, RDN, one of the authors of the consensus paper, at a March 2014 policy conference Clinical and Economic Outcomes of Nutrition Interventions Across the Continuum of Care. Jointly hosted by the Abbott Nutrition Health Institute, The Sackler Institute for Nutrition Science, and the New York Academy of Sciences, the forum focused on emerging research on nutrition health economics and how nutrition can affect healthcare costs.

- Educating clinicians through Alliance booths at major meetings and interdisciplinary panel discussions and/or platforms at major nutrition, nursing and physician conferences. Between May 2013 and January 2014, the Alliance reached 15,000 clinicians with science-based information on hospital malnutrition, including 3,000 hospitalists during the Society of Hospital Medicine’s 2013 annual meeting.
Complementing the efforts of the Alliance, 2013 also saw the release of a new health economics study that documents the value of treating malnourished patients with oral nutrition supplements (ONS) as a strategy for reducing hospital readmissions. Conducted by leading researchers at the University of Southern California, Stanford University, The Harris School at The University of Chicago and Precision Health Economics, and supported with a research grant from Abbott Nutrition, the study analyzed 667,000 hospital episodes of Medicare patients older than 65 in 460 hospitals between 2000 and 2010 to determine differences in length of stay, episode cost and 30-day readmission rates when Medicare patients aged 65 and older were prescribed ONS versus those not receiving ONS. The results are noteworthy: ONS decreased the probability of 30-day readmission by 12 percent among Medicare patients over 65 years old treated for acute myocardial infarction (AMI) and 10.1 percent among those with congestive heart failure (CHF). ONS also decreased the average hospital length of stay by 16 percent and achieved a cost saving per episode of $3,079 among Medicare patients over 65 with any primary diagnosis.

To ensure these new findings reached the hospital community, the study results were presented in a poster session at the 35th annual meeting of the Society for Medical Decision Making (SMDM) in October 2013, as well as at Hospital Medicine 2014, SHM’s annual meeting held in March 2014.

Taken together, the first-year efforts of the Alliance have had a significant impact. Already, there is evidence that specific hospitals are implementing the recommended nutrition intervention protocols from the Alliance, such as Pardee UNC Healthcare in Hendersonville, NC where the institution implemented a comprehensive nursing protocol to reduce the incidence of pressure ulcers, avoidable readmissions, infections, and falls. Through this protocol, registered nurses and nursing assistants screen all patients for malnutrition, treat malnourished patients with medical nutrition therapy, and include oral nutrition supplementation in the patient’s discharge orders.

Another example is TouchPoint Support Services at St. John Providence Health System in Metro Detroit, MI, which places great emphasis on nutrition interventions to improve patient outcomes. By utilizing a validated screening tool, optimizing its electronic medical record system to include mandatory nutrition screening, and through hands on training and utilization of nutrition-focused physical assessments by the dietitians, St. John Providence Health System is now screening 100% of its patients on admission and providing ongoing assessment for every patient diagnosed as malnourished.

In addition, the Alliance is aware of up to 10 other large hospitals and health systems that are now working Alliance protocols into their processes. This includes Mercy Health, a large health system based in Cincinnati, OH, whose 21 hospitals meet the healthcare needs of people in Ohio, Kentucky, and contiguous states. Embracing the Alliance’s principles, Mercy Health has implemented an interdisciplinary approach to systematically improve the quality of patient care through the identification of malnourished and at-risk patients, nutrition interventions and providing
patients clear, standardized written instructions for nutrition care at discharge. Comprised of registered dietitians, nurses, and specialists in information technology and healthcare quality, the interdisciplinary team is led by Tonya Burnett RD, LD, System Director of Food and Nutrition Services for Mercy Health, who has been instrumental in educating hospital leaders and staff on the role of identifying and treating malnutrition as a low-cost strategy for reducing the incidence of falls, pressure ulcers and readmissions, decreasing hospital length of stays and improving quality outcomes data for physician and hospital profiles.

Also embracing nutrition therapy as a critical component of patient care are the Chief Medical Informatics Officers for two of Mercy Health’s regions: Vince Vanek MD, FACS, FASPEN, General Surgeon and Chief Medical Informatics Officer for Humility of Mary Health Partners (HMHP) and Michael Stark, MD, FACS, General Surgeon and Chief Medical Informatics Officer, Northern Region. Both regions are now developing nutrition protocols and practices based on the Alliance’s principles.

**Accelerating Progress in 2014**

These actions provide a solid foundation for beginning to overcome the problem of hospital malnutrition in the US. Moving forward, the Alliance will move beyond awareness-building to achieve measurable change. This will entail focusing on ongoing education, grant funded projects, policy change, best practice sharing and new research with the recognition that instituting effective nutrition practices in the nation’s hospitals requires changes in the knowledge, attitudes and skills of clinicians, hospital administrators and policymakers alike.

While no single strategy will guarantee success, the Alliance intends to be the catalyst for action by aligning stakeholders to address hospital malnutrition and provide evidence-based information and practice-based solutions.

Therefore in 2014 and beyond, priorities for the Alliance are to:

- Measurably demonstrate the impact of nutrition intervention on improved patient outcomes and reduced health care costs.
- Raise awareness of the clinical characteristics of malnutrition so health professionals will recognize the common signs at hospital admission and during hospitalization.
- Communicate a sense of urgency around screening, assessing and diagnosing every patient’s nutritional status.
- Drive widespread implementation of the Alliance’s Nutrition Care Model and the specific recommendations to institute effective nutrition practices in hospitals across the nation.
- Advocate for policies that will facilitate universal nutrition screening in hospitals and acute care settings, require rapid, appropriate nutrition intervention when patients are either malnourished or at-risk for malnutrition, and establish nutrition as a standard component of all care processes.

Now is the time to improve patient outcomes, recognizing that identifying and treating malnourished patients upon admission through discharge is a critical component of quality care, and providing the resources and attention required for success.

*Now is the time to improve patient outcomes.*
References


These health organizations are dedicated to the education of effective hospital nutrition practices to help improve patients’ medical outcomes and support all clinicians in collaborating on hospital-wide nutrition procedures. The Alliance to Advance Patient Nutrition is made possible with support from Abbott Nutrition.

In 2013, the Alliance introduced a novel Nutrition Care Model, the effects of which are beginning to be felt in hospital systems around the country.