

## Briefing: The Value of Quality Malnutrition Care

### Burden of Malnutrition in Hospitalized Adults

Malnutrition is a leading cause of morbidity and mortality, especially among older adults. Evidence suggests that 20% to 50% of all patients are at risk for or are malnourished at the time of hospital admission<sup>1</sup> and yet a recent study shows that only 7% of patients are typically diagnosed with malnutrition during their hospital stay, leading to millions of cases left undiagnosed and potentially untreated.<sup>2</sup> Up to 31% of these malnourished patients and 38% of well-nourished patients experience nutritional decline during their hospital stay.<sup>3</sup> Significantly, many patients continue to lose weight after discharge, and patients with weight loss are at increased risk for readmission,<sup>4</sup> with data demonstrating that malnourished hospitalized adults have 54% higher likelihood of hospital 30-day readmissions than those who are well nourished.<sup>5</sup>

Malnutrition is the inadequate intake of nutrients, particularly protein, over time and may contribute to chronic illness and acute disease or illness and infection. People can be underweight or overweight (obese) and malnourished when they lack sufficient nutrients needed to promote healing, rehabilitation, and reduce the risk of medical complications. Malnutrition and weight loss can also contribute to sarcopenia, the age-associated loss of skeletal muscle mass and function, which can impact recovery, mobility, and independence.<sup>6</sup>

### Contributing Factors that Lead to Malnutrition among Older Adults

There are many contributing factors that can lead to malnutrition among older adults (see figure 1). Chronic diseases such as cancer, stroke, diabetes, gastrointestinal, pulmonary, and heart disease and their treatments can result in changes in nutrient intake and ability to use nutrients, which can lead to malnutrition.<sup>7,8</sup> Disease-associated malnutrition is often multifactorial, including inflammatory responses which can increase metabolic demand, decreased appetite, gastrointestinal problems, and difficulty chewing and swallowing, leading to decreased nutrient intake that can diminish immune response and wound healing, and increased infection rates.<sup>9</sup> Such changes can increase risks for functional disability, frailty, and falling.<sup>7</sup>

Hospitalized patients are vulnerable to nutritional decline for many reasons, including dietary restrictions because of tests, treatments, and medical conditions, as well as poor appetite and gastrointestinal problems. Malnourished surgical patients are two to three times more likely to experience post-operative complications and increased mortality than their more well-nourished counterparts.<sup>10</sup> One study noted that one-fifth of hospitalized patients aged 65+ had an average nutrient intake of less than 50% of their calculated maintenance energy requirements. Nutritional status is also considered an important factor in the recently identified “post-hospital syndrome,” which can result from the stress of hospitalization.<sup>11</sup>

Figure 1: Contributing Factors that Lead to Malnutrition among Older Adults<sup>12</sup>



## The Cost of Malnutrition

Patients who are malnourished while in the hospital have a greater risk of complications, falls, pressure ulcers, infections, readmissions, and length of stay, which is associated with up to a 300% increase in costs.<sup>13</sup> A 2016 analysis of U.S. hospital discharges reported that average hospital costs for all non-neonatal and non-maternal hospital stays were \$12,500, while patients diagnosed with malnutrition had hospital costs averaging up to \$25,200 depending on the type of malnutrition indicated.<sup>2</sup> A recent study of over 1,000 patients across 18 hospitals found that costs for patients with malnutrition were between 31% and 34% higher than well-nourished patients with similar patient characteristics.<sup>14</sup>

When looking at costs of each readmission associated with malnutrition, average cost per readmission is \$16,900 per patient for those with protein-calorie malnutrition and \$17,900 per patient for those with post-surgery non-absorption. This is 26 and 34% higher respectively than readmission costs for patients without malnutrition.<sup>5</sup>

Patients with malnutrition may experience longer lengths of stay by up to 4 to 6 days.<sup>15</sup> Studies have also shown hospitalized older adults at risk for malnutrition are more likely to be discharged to another facility or require ongoing health services after leaving the hospital than patients who are not malnourished.<sup>2</sup> Furthermore, malnutrition during the hospital stay is associated with up to five times higher likelihood of in-hospital death.<sup>2</sup>

Overall it is estimated that the economic burden of the morbidity, mortality, and direct medical costs associated with disease-related malnutrition in the U.S. totals \$157 billion, with \$51.3 billion attributed to those age 65 years and older who are the most at risk.<sup>16</sup>

### **Gaps in Malnutrition Care Quality**

Malnutrition is an independent predictor of negative patient outcomes including mortality, length of hospital stay, readmissions, and costs.<sup>16,17,18,19</sup> Despite the evidence that demonstrates the benefits of nutrition for healing, recovery, and chronic disease management, significant variation and gaps remain in care processes that can negatively impact time to screening, assessment, diagnosis, intervention, monitoring, and care coordination for malnourished and at-risk adults.<sup>20,21</sup> The gap in risk identification and diagnosis occurs for a number of reasons, including lack of provider visibility into patients' nutritional status and how malnutrition information is communicated and tracked in institution medical record systems.

Given the prevalence and costs of disease-related malnutrition, it is important to promptly implement clinical strategies to address malnutrition and to coordinate care for malnourished and at-risk patients. Because malnutrition care is an area that has largely remained unaddressed, it presents an opportunity for improved quality of care at a low cost as evidence has demonstrated nutrition interventions are a highly cost-effective means of improving patient outcomes).<sup>19,22</sup>

### **How Quality Malnutrition Care Aligns With Provider and CMS Value-Based Healthcare Priorities**

Addressing malnutrition directly aligns with the Triple Aim and Health and Human Service national quality strategy priorities related to patient safety, care coordination, patient and family-centered care, population health, and affordability. Patients who are malnourished during a hospital stay have an increased risk of adverse events and complications, have a 54% higher likelihood of hospital 30-day readmissions, up to 2 times longer length of stay, and are up to 5 times more likely to have an in-hospital death than non-malnourished patients.<sup>5</sup>

Clinical consensus recommendations underscore that early identification and systematic nutrition care coupled with interdisciplinary team-based care are critical in remediating malnutrition in both the hospital and in the post-acute care setting.<sup>23,24</sup> Patient and family engagement in their own nutrition care plan during hospitalization and upon discharge is important to facilitate recovery. Studies have consistently demonstrated that implementation of a comprehensive nutrition pathway from inpatient admission to post-discharge improved identification of high-risk patients and decreased time to nutrition consult, length of hospital stay, and 30-day readmission rate.<sup>6,25,26</sup> For example, one study found that optimizing nutrition care in multiple hospitals in a large ACO (accountable care organization) could help reduce 30-day readmission rates by 27% and the average hospital stay by almost two days for malnourished patients.<sup>27</sup> These types of risk reduction have the potential to result in substantial savings to the healthcare system. For example, a recent study conducted at Advocate Health Care reported more than \$4.8 million in cost savings following the implementation of a nutrition-focused quality improvement program at four of its Chicago hospitals. The majority of savings resulted from decreased readmission rates and shorter patient length of stay. Savings averaged approximately \$3,800 per patient.<sup>28</sup>

In the 2017 Inpatient Prospective Payment System (IPPS) rule, the Centers for Medicare & Medicaid Services (CMS) recognized the prevalence and negative consequences of malnutrition and the performance gaps and opportunities for improvement in screening, assessment, and diagnosis. The agency is currently considering future adoption of clinically relevant malnutrition electronic clinical quality measures (eCQMs) in the hospital Inpatient Quality Reporting (IQR) Program to improve outcomes and decrease healthcare costs for malnourished and at-risk older adults.<sup>29</sup> The malnutrition eCQMs for hospitalized older adults assess the alignment of care with nutrition best practices while minimizing administrative burden through electronic reporting. Implementation of malnutrition care best practices has the ability to improve care delivery, potentially support the need for additional staff focused on nutrition care, enhance patient outcomes, and reduce the burden of undiagnosed malnourished patients on the health system. A companion interdisciplinary toolkit is available to help hospitals implement evidence-based best practices and an optimal malnutrition-focused clinical workflow to decrease clinical variation in care. To access the malnutrition eCQMs and the toolkit go to [www.mqii.today](http://www.mqii.today).

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