Clinical Question: What is the evidence of the prevalence of malnutrition for hospitalized patients in an acute care setting?

Results: A search of various databases yielded multiple articles relevant to this question. The following key summary of the literature of studies involving the prevalence of malnutrition for hospitalized patients in an acute care setting is offered to provide some guidance.

- Malnutrition is not a new or a rare problem. It is a debilitating and highly prevalent condition in the acute hospital setting. Patients at risk for malnutrition had significantly higher length of stay, costs, and a worsening trend during hospitalization.1-5,7-14, 17

  - Older Persons: Forty percent of hospital beds are occupied by older persons. The causes of malnutrition in older persons institutionalized include changes in nutrient requirements secondary to disease processes and drug modalities in combination with low or marginal dietary intake. Infections are common and result in anorexia. Occurrence of pressure ulcers is related to nutritional status and presents a serious risk for older persons with limited mobility. Depression and dementia are commonly seen in older persons and are major contributors to poor appetite and malnutrition. Cancer cachexia accounts for about half of the cases of malnutrition in older institutionalized persons. Physiologic changes that occur with age and multiple drug use place older persons at a high risk for adverse drug reactions. Less body water in the older individual influences and complicates many aspects of treatment.5

  - Children: A significant proportion of critically ill children in the pediatric intensive care unit (PICU) present with nutritional deficiencies. Younger age, longer duration of PICU stay, congenital heart disease, burn injury, and need for mechanical ventilation support are some of the factors that are associated with worse nutritional deficiencies. Malnourished hospitalized patients have a higher rate of complications, increased mortality, and longer length of hospital stay with increased hospital costs, may further contribute to nutritional deterioration with poor patient outcomes.8

  - Vitamin D: Vitamin D deficiency remains a significant problem among veterans in the Southeastern United States. A retrospective analysis of the medical data in the Veterans Integrated Service Network was performed, yielding a sample of 15,340 veterans. Vitamin D deficiency and lack of monitoring predicted increased inpatient health care costs for this group of veterans.7

  - Protein and Vitamin D: A randomized control trial was conducted, on the effects of a short-term nutritional intervention with protein and vitamin D on falls in malnourished older adults. 210 older adults (≥ 60 years of age) newly admitted to an acute hospital were randomized to receive nutritional intervention (energy- and protein-enriched diet, oral nutritional supplements, calcium-vitamin D supplement, telephone
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counseling by a dietitian) for 3 months after discharge or usual care. A short-term nutritional intervention consisting of oral nutritional supplements, calcium and vitamin D supplementation, and support by dietetic counseling in malnourished older adults decreased the number of patients who fell and fall incidents.6

- **Preoperative Prealbumin:** Preoperative nutritional status is associated with postoperative complications. Prealbumin, a visceral protein, is sensitive to protein malnutrition. Preoperative prealbumin levels could be a useful marker for predicting complications, especially infectious complications, after gastric surgery.11

- **Nutritional Assessment:** The prevalence of malnutrition was examined using a retrospective pooled analysis on previously published data (4,507 elderly people, 75.2% female, with a mean age of 82.3 years). Information on full Mini Nutritional Assessment (MNA) classification from researchers from 12 countries was submitted. Approximately two-thirds of study participants were at nutritional risk or malnourished, which highlights the need for nutritional assessment throughout the hospital stay.15

- **Risk of Malnutrition:** In studies involving more than 1,327 hospitalized adult patients, 40% to 55% were found to be either malnourished or at risk for malnutrition, and up to 12% were severely malnourished. Surgical patients with likelihood of malnutrition are two to three times more likely to have minor and major complications as well as increased mortality.1

- **Nutritional Decline:** A prospective observational study with a retrospective component was conducted over a 7-month interval at a university hospital. A total of 404 adults (≥18 years old) admitted to the inpatient service for more than 7 days who were not pregnant or lactating and not a psychiatric patient were included. Compared to patients who were normally nourished at admission and discharge, patients who declined nutritionally had higher hospital charges and significantly higher rate of complications, regardless of nutritional status at admission.9

- **Under-and Protein-Energy Malnutrition:** Under-nutrition and protein-energy malnutrition are seen at alarmingly high rates in institutionalized elderly and in patients admitted to hospitals. A combination of immobility and loss of lean body mass comprises muscle/skin and challenges the immune system, which increases the risk of pressure ulcers by 74%. The development of pressure ulcers in the hospital affects 10% of all admissions, with the elderly at the highest risk. The financial impact of malnutrition is high and the consequences for patient morbidity and mortality are severe.5;10
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- **Malnutrition in the ICU**: The detection of malnutrition for patients in the intensive care unit (ICU) is critical. The energy deficit accumulated by underfed patients during the first days of stay may play an important role in ICU-specific and hospital-wide outcomes. A feeding guideline and an ICU dietician can provide significant additional progression related to early introduction and route of feeding in order to achieve overall better early energy balance.12-14,18-20

- **Reimbursement**: A review of the history of Medicare and the current payment system for healthcare services by the U.S. government is essential to understand which members and what services provided by a nutritional support team will be reimbursed. Strategies to define malnutrition and identify measures of quality nutrition care have the potential to demonstrate and promote the value and importance of a functioning nutritional support team. Organizational support is critical for the creation and implementation of an institutionalized nutrition service and the achievement of optional reimbursement.16

**Clinical Options**: Based on the literature, the following clinical options are offered for consideration:

- Implementation of nutritional guidelines via a nutritional support team include the following components:
  - Nutritional assessment of patients on admission, during hospitalization, and a follow up upon discharge
  - Use of a reliable nutritional assessment tool for screening patients regardless of their nutritional status
  - Presence and timely referrals of a nutritional support team
  - Creation of an audit system to monitor and evaluate the implementation of the nutritional guidelines and its components
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