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Identifying malnutrition:

From acute care to discharge and beyond

By Renay D. Tyler, DNP, RN, ACNP and Peggi Guenter, PhD, RN, FAAN

Abstract: Nutrition assessment and intervention significantly contribute to the well-being of patients. NPs should advocate that patients be appropriately evaluated and implement recommendations as part of a comprehensive care plan to avoid malnutrition in patients while they are in the hospital and when they return home.

In today's healthcare paradigm, the responsibility of nutrition assessment and patient monitoring typically rests with the dietitian; however, nutrition has long been an important domain of nursing. In the 19th century, Florence Nightingale's *Notes on Nursing* stated:

Every careful observer of the sick will agree in this that thousands of patients are annually starved in the midst of plenty, from want of attention to the ways which alone make it possible for them to take food.¹

Nightingale elaborated on the importance of nutrition in both acute injury and chronic disease and gave extensive instructions regarding ways to assess patient status and provide nutrition.

Nutrition plays a key role in the disease process; individuals who are malnourished have worse outcomes than those who are well nourished. As members of healthcare teams, NPs have a significant role in facilitating timely and

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appropriate nutrition assessment and therapies to positively affect clinical outcomes. The NP with enhanced nutrition knowledge can deliver optimal care to acute care patients. Nutrition in medical education curricula and graduate medical education training programs is lacking, and physicians are aware that they might be inadequate in this area.²

■ Basic concepts on malnutrition

Malnutrition is an acute, subacute, or chronic state of nutrition in which a combination of varying degrees of overnutrition or undernutrition (with or without inflammatory activity) have led to a change in body composition and diminished function.³ It can be starvation-related malnutrition, as in chronic starvation without inflammation (anorexia nervosa); chronic disease-related malnutrition with mild-to-moderate inflammation (organ failure, pancreatic cancer, rheumatoid arthritis, or sarcopenic obesity); or acute disease or injury-related malnutrition with acute and severe inflammation (major infection, burns, trauma, or closed head injury).⁴

The prevalence of malnutrition in adult hospitalized patients varies widely depending on the population selected and acuity of care. It is estimated that at least 33% of patients in developed countries are malnourished upon admission to the hospital, and if left untreated, approximately 66% of those patients will experience a further decline in their nutrition status during the inpatient stay.⁵ Among patients who are not malnourished upon admission, approximately 33% may become malnourished during the hospital stay.⁶

Malnutrition has been associated with increased readmissions and hospital-acquired conditions such as surgical site infections, pressure injuries, and central line infections.⁷⁻¹⁰ A recent study found that in medical patients, one in four N.P.O. orders and nearly half of missed meals could have been avoided.¹¹ Malnutrition is also associated with increased healthcare costs.¹²⁻¹⁵

■ Nutrition therapy

Nutrition therapy includes nutrition education and counseling, coordination of nutrition care, and nutrition delivery, which can range from provision of nutrient-dense food to enteral and parenteral nutrition.¹⁶ Nutrition therapy improves clinical outcomes most often in older adult patients who are malnourished or at risk for developing malnutrition. Studies have shown that nutrition interventions significantly reduce complication rates, length of stay and cost, readmission rates, and mortality.¹⁷⁻²⁵ Nutrition intervention is an effective strategy for prevention of healthcare-acquired malnutrition and associated complications.^{16,26-28}

■ Critical points in the acute care process

NPs should participate in identifying, preventing, and treating malnutrition and its associated comorbidities. The mul-

tidisciplinary care team can use a logical, stepwise approach to optimal nutrition care to be sure that malnutrition is addressed in each patient. This approach is illustrated in the American Society for Parenteral and Enteral Nutrition (ASPEN) Nutrition Care Pathway.²⁹ All of these steps require multidisciplinary documentation and an electronic health record robust enough to facilitate efficient assessment, intervention, and communication across the healthcare team (see *ASPEN Adult Nutrition Care Pathway*).

Step 1: Nutrition screen. Nutrition screening is a process to identify an individual who may be malnourished or at risk for malnutrition and to determine if a detailed nutrition assessment is indicated. In 1996, The Joint Commission added to their standards that nutrition screening must be completed on all hospitalized patients within 24 hours after admission.³⁰ Nurses overwhelmingly perform this nutrition screen as part of their general admission assessment to identify high-risk patients who are likely to be malnourished. The key to the success of this screening is to identify the at-risk patient and communicate those findings to the medical team in addition to a registered dietitian (RD).

Step 2: Is this patient at nutrition risk? Adult patients may be considered at nutrition risk if they experience any of the following:

- involuntary loss of 10% of usual body weight or greater within 6 months or involuntary loss of 5% of usual body weight or greater in 1 month
- involuntary loss or gain of 10 lb (4.5 kg) within 6 months
- body mass index less than 18.5 kg/m² or greater than 25 kg/m²
- chronic disease
- increased metabolic requirements
- altered diets or diet schedules
- inadequate nutrition intake, including not receiving food or nutrition products for more than 7 days.²⁹

Documentation of these findings is critical to communicating and establishing nutritional status throughout the continuum of a patient's care.

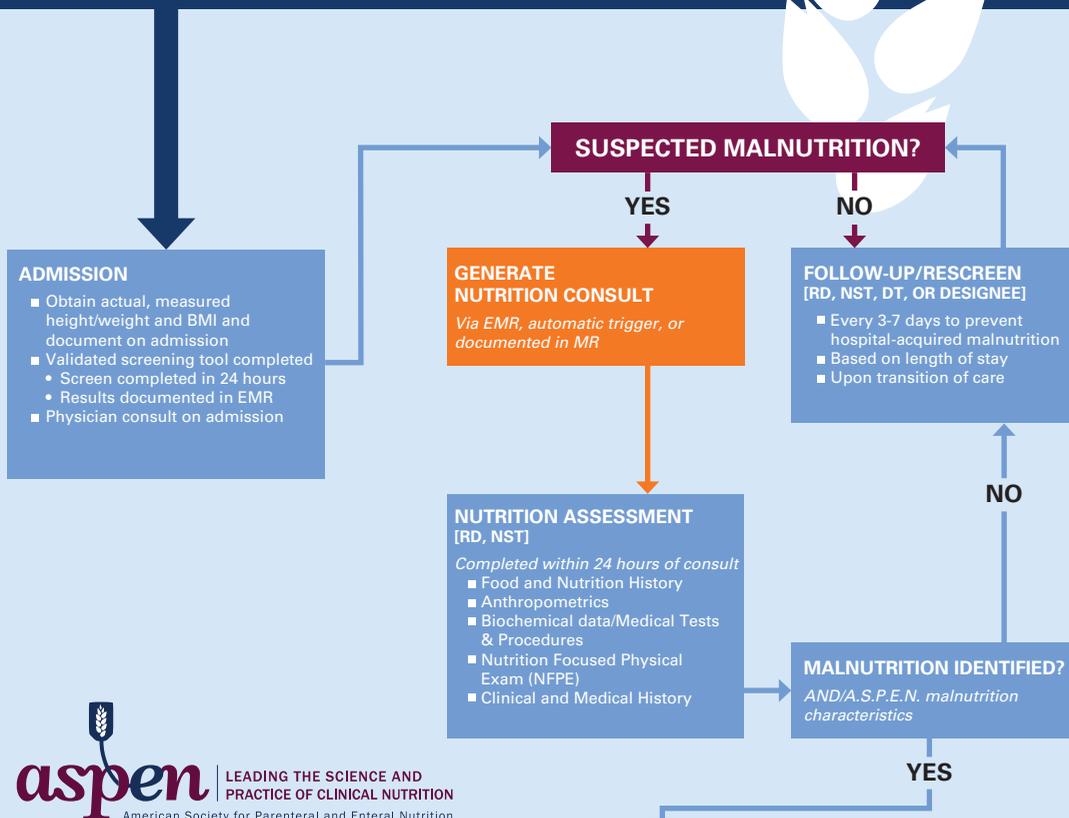
Step 3: Nutrition assessment. Nutrition assessment is a comprehensive approach to diagnosing nutrition problems that uses a combination of medical, nutrition, and medication histories; physical exam; anthropometric measurements; and lab data. Nurses usually incorporate the following parameters during a nutrition assessment:

- trouble chewing or swallowing disorders
- weight history
- measurement of height and weight
- skin integrity
- presence of edema
- electrolyte abnormalities
- handgrip strength (by squeezing the examiner's hand).³¹

ASPEN Adult Nutrition Care Pathway

A.S.P.E.N. ADULT NUTRITION CARE PATHWAY

(Age 18+ years)

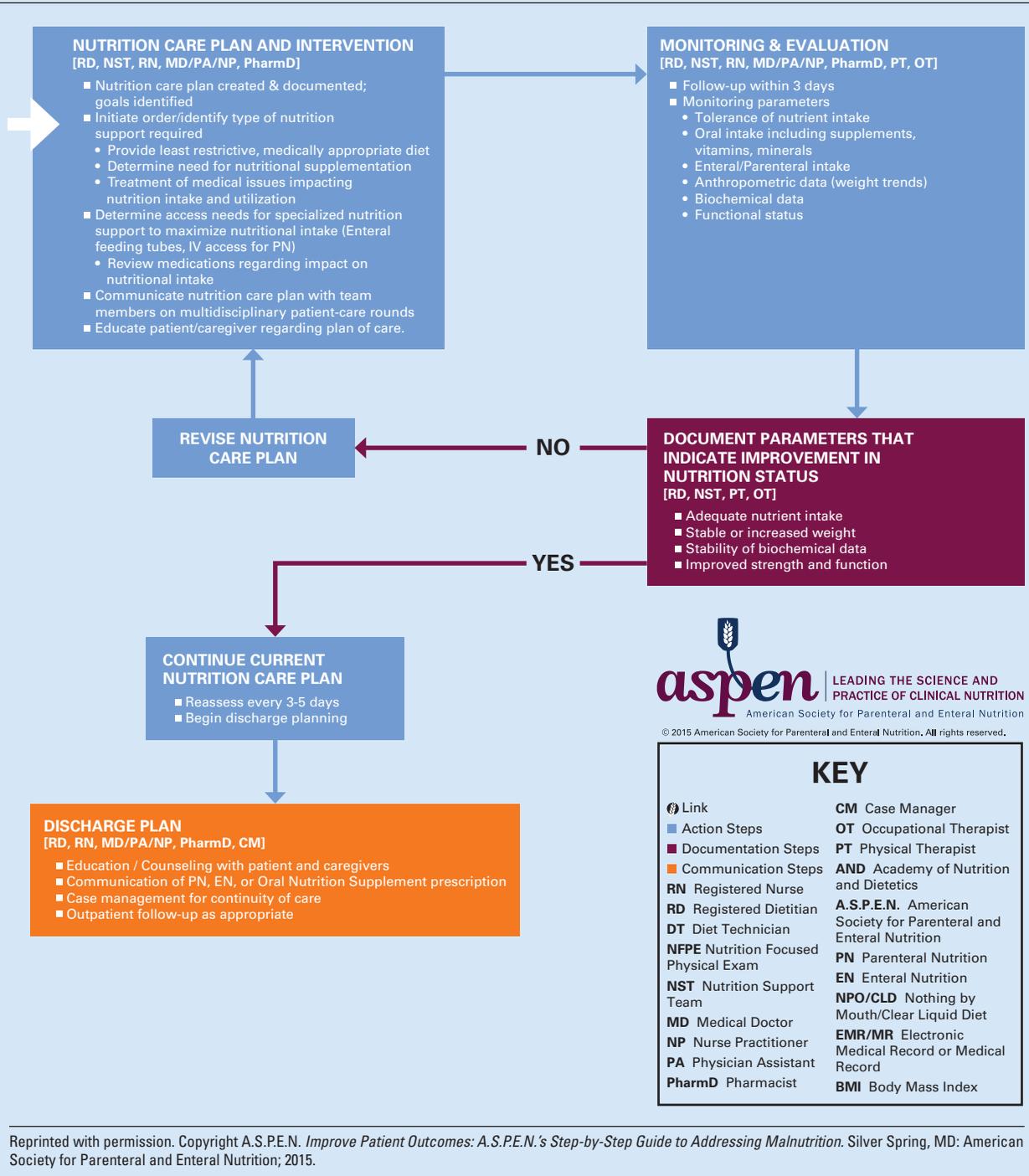


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KEY	
🔗 Link	CM Case Manager
📄 Action Steps	OT Occupational Therapist
📄 Documentation Steps	PT Physical Therapist
🗨️ Communication Steps	AND Academy of Nutrition and Dietetics
RN Registered Nurse	A.S.P.E.N. American Society for Parenteral and Enteral Nutrition
RD Registered Dietitian	PN Parenteral Nutrition
DT Diet Technician	EN Enteral Nutrition
NFPE Nutrition Focused Physical Exam	NPO/CLD Nothing by Mouth/Clear Liquid Diet
NST Nutrition Support Team	EMR/MR Electronic Medical Record or Medical Record
MD Medical Doctor	BMI Body Mass Index
NP Nurse Practitioner	
PA Physician Assistant	
PharmD Pharmacist	

MORE ON NEXT PAGE

ASPEN Adult Nutrition Care Pathway (continued)



Reprinted with permission. Copyright A.S.P.E.N. *Improve Patient Outcomes: A.S.P.E.N.'s Step-by-Step Guide to Addressing Malnutrition*. Silver Spring, MD: American Society for Parenteral and Enteral Nutrition; 2015.

A more in-depth nutrition assessment is generally performed by an RD or a member of a nutrition support service. This further delineates the malnutrition diagnosis and is the basis for the nutrition plan of care. Again, documentation and communication of this assessment should be part of the multidisciplinary longitudinal plan of care.

Step 4: Malnutrition diagnosis. In 2012, the Academy of Nutrition and Dietetics/ASPEN identified six characteristics to assess for the presence of malnutrition. If a patient demonstrates two or more of the following characteristics, malnutrition can be diagnosed with its severity further defined via specific thresholds and/or parameters:

- weight loss
- inadequate energy intake
- loss of muscle mass
- loss of subcutaneous fat
- fluid accumulation
- reduced handgrip strength.³²

Step 5: Nutrition care plan. The nutrition care plan is prescribed for an individual using the data obtained from a nutrition assessment. The plan should include statements of nutrition goals and monitoring/evaluation parameters; the most appropriate route of administration of nutrition therapy; method of nutrition access; anticipated duration of therapy; and training and counseling on goals and methods. Nutrition interventions can encompass optimized oral intake, oral nutrition supplements, and enteral and parenteral nutrition. NPs play a vital role in implementing the nutrition interventions.

Step 6: Monitoring and transition of care planning. The continued monitoring of the patient's nutrition status, nutrition goals, and safety/effectiveness of interventions is essential, particularly in transition of care planning. The importance of communicating the patient's nutritional care plan at care transitions should not be overlooked. When patients are discharged from the hospital, nutrition interventions are often stopped, and the patient may be readmitted with worsening malnutrition.¹⁵

The NP should anticipate ongoing nutritional needs and ensure case-management strategies that include referrals to primary and specialty providers, appropriate skilled facilities, and community services; home infusion and medical equipment companies should be implemented as indicated. The use of a transition of care plan initiated by NPs as shown in the ASPEN Nutrition Care Pathway may prevent a vulnerable patient from being readmitted (www.nutritioncare.org/malnutrition).¹⁵

■ Call to action

NPs should look to the admission nursing screen for indications that a patient may be at risk for malnutrition, expand on that nutrition assessment, then make note of any nutrition recommendations and implement interventions as suggested by the RD. Nutrition needs to be included in transitions of care, including discharge to home and the outpatient arena. NPs should incorporate the following principles into care, no matter the acute care specialty:

- Each clinician on the interdisciplinary care team should participate in the execution of the nutrition care plan.
- Develop systems to quickly diagnose all malnourished patients and those at risk.
- Develop nutrition care plans in a timely fashion and implement comprehensive nutrition interventions (optimally within 48 hours of identifying the malnourished patient).¹⁶

■ Opportunities for acute care NPs

NPs can contribute to other quality and regulatory outcomes for their patients and organizations by championing thorough nutrition assessment and documentation. Anticipating and noting nursing nutritional screens and dietitian consultative recommendations hold all team members accountable regarding this important clinical and regulatory step. Acting on the recommendations shows a commitment as a provider to address potentially avoidable conditions, conveys respect for the clinicians, and reinforces the importance of nutrition in the therapeutic setting. The appropriate medical diagnosis categorizing the degree of malnutrition and the presence of associated preexisting conditions facilitates early intervention and appropriate coding for severity of illness for reimbursement compliance.³³

■ Garnering favorable returns

Nutrition assessment and intervention contributes significantly to the well-being of patients. Florence Nightingale stated that the avoidance of starvation requires “observation, ingenuity, and perseverance.”²¹ Nurses and NPs should partner together as advocates to ensure patients are appropriately evaluated and recommendations implemented as a part of a comprehensive care plan to avoid malnutrition. The return on investment illustrated through positive clinical and quality outcomes should result. 

REFERENCES

1. Nightingale F. *Notes on Nursing: What It Is, and What It Is Not*. New York, NY: D. Appleton and Company; 1860.
2. Daley BJ, Cherry-Bukowicz J, Van Way CW 3rd, et al. Current status of nutrition training in graduate medical education from a survey of residency program directors: a formal nutrition education course is necessary. *JPEN J Parenter Enteral Nutr*. 2016;40(1):95-99.
3. Soeters PB, Reijnen PL, van Bokhorst-de van der Schueren MA, et al. A rational approach to nutritional assessment. *Clin Nutr*. 2008;27(5):706-716.
4. Jensen GL, Mirtallo J, Compher C, et al. Adult starvation and disease-related malnutrition: a proposal for etiology-based diagnosis in the clinical practice setting from the International Consensus Guideline Committee. *JPEN J Parenter Enteral Nutr*. 2010;34(2):156-159.
5. Tappenden KA, Quatrara B, Parkhurst ML, Malone AM, Fanjiang G, Ziegler TR. Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition. *JPEN J Parenter Enteral Nutr*. 2013;37(4):482-497.
6. Braunschweig C, Gomez S, Sheean PM. Impact of declines in nutritional status on outcomes in adult patients hospitalized for more than 7 days. *J Am Diet Assoc*. 2000;100(11):1316-1322; quiz 1323-1324.
7. Allaudeen N, Vidyarthi A, Maselli J, Auerbach A. Redefining readmission risk factors for general medicine patients. *J Hosp Med*. 2011;6(2):54-60.
8. Kassin MT, Owen RM, Perez SD, et al. Risk factors for 30-day hospital readmission among general surgery patients. *J Am Coll Surg*. 2012;215(3):322-330.
9. Mudge AM, Kasper K, Clair A, et al. Recurrent readmissions in medical patients: a prospective study. *J Hosp Med*. 2011;6(2):61-67.
10. Fry DE, Pine M, Jones BL, Meimban RJ. Patient characteristics and the occurrence of never events. *Arch Surg*. 2010;145(2):148-151.
11. Sorita A, Thongprayoon C, Ahmed A, et al. Frequency and appropriateness of fasting orders in the hospital. *Mayo Clin Proc*. 2015;90(9):1225-1232.
12. Corkins MR, Guenter P, DiMaria-Ghalili RA, et al. Malnutrition diagnoses in hospitalized patients: United States, 2010. *JPEN J Parenter Enteral Nutr*. 2014;38(2):186-195.

13. Cangelosi MJ, Rodday AM, Saunders T, Cohen JT. Evaluation of the economic burden of diseases associated with poor nutrition status. *JPEN J Parenter Enteral Nutr.* 2014;38(2 suppl):35S-41S.
14. Snider JT, Linthicum MT, Wu Y, et al. Economic burden of community-based disease-associated malnutrition in the United States. *JPEN J Parenter Enteral Nutr.* 2014;38(2 suppl):77S-85S.
15. Weiss AJ, Fingar KR, Barrett ML, et al. Characteristics of hospital stays involving malnutrition, 2013. 2016. www.hcup-us.ahrq.gov/reports/statbriefs/sb210-Malnutrition-Hospital-Stays-2013.pdf.
16. Guenter P, Jensen G, Patel V, et al. Addressing disease-related malnutrition in hospitalized patients: a call for a national goal. *Jt Comm J Qual Patient Saf.* 2015;41(10):469-473.
17. Avenell A, Handoll HH. Nutritional supplementation for hip fracture after-care in older people. *Cochrane Database Syst Rev.* 2010;(1):CD001880.
18. Milne AC, Potter J, Vivanti A, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. *Cochrane Database Syst Rev.* 2009;(2):CD003288.
19. Stratton RJ, Ek AC, Engfer M, et al. Enteral nutritional support in prevention and treatment of pressure ulcers: a systematic review and meta-analysis. *Ageing Res Rev.* 2005;4(3):422-450.
20. Brugler L, DiPrinzio MJ, Bernstein L. The five-year evolution of a malnutrition treatment program in a community hospital. *Jt Comm J Qual Improv.* 1999;25(4):191-206.
21. Cawood AL, Elia M, Stratton RJ. Systematic review and meta-analysis of the effects of high protein oral nutritional supplements. *Ageing Res Rev.* 2012;11(2):278-296.
22. Gariballa S, Forster S, Walters S, Powers H. A randomized, double-blind, placebo-controlled trial of nutritional supplementation during acute illness. *Am J Med.* 2006;119(8):693-699.
23. Milne AC, Avenell A, Potter J. Meta-analysis: protein and energy supplementation in older people. *Ann Intern Med.* 2006;144(1):37-48. Erratum in: *Ann Intern Med.* 2006;144(7):538.
24. Neelemaat F, Lips P, Bosmans JE, Thijs A, Seidell JC, van Bokhorst-de van der Schueren MA. Short-term oral nutritional intervention with protein and vitamin D decreases falls in malnourished older adults. *J Am Geriatr Soc.* 2012;60(4):691-699.
25. Philipson TJ, Snider JT, Lakdawalla DN, Stryckman B, Goldman DP. Impact of oral nutritional supplementation on hospital outcomes. *Am J Manag Care.* 2013;19(2):121-128.
26. Rosen BS, Maddox PJ, Ray N. A position paper on how cost and quality reforms are changing healthcare in America: focus on nutrition. *JPEN J Parenter Enteral Nutr.* 2013;37(6):796-801.
27. Starke J, Schneider H, Altheheld B, Stehle P, Meier R. Short-term individual nutritional care as part of routine clinical setting improves outcome and quality of life in malnourished medical patients. *Clin Nutr.* 2011;30(2):194-201.
28. Gibbons W, Shanks HT, Kleinhelter P, Jones P. Eliminating facility-acquired pressure ulcers at Ascension Health. *Jt Comm J Qual Patient Saf.* 2006;32(9):488-496.
29. American Society for Parenteral and Enteral Nutrition. *Improve Patient Outcomes: A.S.P.E.N.'s Step-by-Step Guide to Addressing Malnutrition.* Silver Spring, MD: American Society for Parenteral and Enteral Nutrition; 2015.
30. Dougherty D, Bankhead R, Kushner R, Mirtallo J, Winkler M. Nutrition care given new importance in JCAHO standards. *Nutr Clin Pract.* 1995;10(1):26-31.
31. Patel V, Romano M, Corkins MR, et al. Nutrition screening and assessment in hospitalized patients: a survey of current practice in the United States. *Nutr Clin Pract.* 2014;29(4):483-490.
32. Malone A, Hamilton C. The Academy of Nutrition and Dietetics/the American Society for Parenteral and Enteral Nutrition consensus malnutrition characteristics: application in practice. *Nutr Clin Pract.* 2013;28(6):639-650.
33. Giannopoulos GA, Merriman LR, Rumsey A, Zwiebel DS. Malnutrition coding 101: financial impact and more. *Nutr Clin Pract.* 2013;28(6):698-709.

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