

Nutrition Screening and Assessment in Hospitalized Patients: A Survey of Current Practice in the United States

Nutrition in Clinical Practice
 Volume 29 Number 4
 August 2014 483–490
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 for Parenteral and Enteral Nutrition
 DOI: 10.1177/0884533614535446
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Abstract

Background: The Joint Commission has mandated universal screening and assessment of hospitalized patients for malnutrition since 1995. Although various validated and nonvalidated tools are available, implementation of this mandate has not been well characterized. We report results of a survey of hospital-based professionals in the United States describing their perspective on the current range of nutrition screening and assessment practices as well as associated gaps in knowledge. **Methods and Materials:** Data from a 2012–2013 cross-sectional, web-based survey targeting members of the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.), the Academy of Medical-Surgical Nurses, and the Society of Hospital Medicine were collected with non-hospital-based members excluded. Descriptive statistical analysis was performed. **Results:** Survey data from 1777 unique email addresses are included in this report. A majority of respondents were dietitians, nearly half were A.S.P.E.N. members, and 69.4% reported caring for a mix of adult and pediatric patients. Most respondents answered affirmatively about nutrition screening being performed in alignment with The Joint Commission mandate, but only 50% were familiar with the 2012 Consensus Statement from the Academy of Nutrition and Dietetics/A.S.P.E.N. on adult malnutrition. In most cases, nurses were primarily responsible for nutrition screening, while dietitians had primary responsibility for assessment. No one specific assessment tool or *International Classification of Diseases, Ninth Revision* code was identified as being used a majority of the time in assessing or coding a patient for malnutrition. **Conclusions:** The survey findings affirmed compliance with accreditation standards in completing a nutrition screen within 24 hours of admission, and most hospitals appear to have a process to perform a nutrition assessment once a screen is completed. However, there is considerable heterogeneity in both use of tools and mechanisms for coding capture. Opportunities exist to improve education around nutrition screening and assessment and to identify ideal practices for these processes in hospitalized patients. (*Nutr Clin Pract.* 2014;29:483-490)

Keywords

nutrition screening; nutrition assessment; malnutrition; The Joint Commission

Malnutrition is a major contributor to increased morbidity and mortality, leading to hospital readmissions and higher health-care costs.¹⁻⁴ Current estimates of the prevalence of in-hospital malnutrition, pediatric and adult alike, range from 13%–88% depending on the patient population, disease severity, and the criteria used to identify its occurrence.³⁻⁷ In 1995, The Joint Commission mandated that nutrition screening be performed within 24 hours of hospital admission, with a full nutrition assessment completed if the screen identified an at-risk patient. In addition, periodic rescreening must occur at regular intervals.⁸ Beyond language mandating performance of nutrition screening and assessment upon hospital admission, few guidelines were given.⁹ In fact, there are few reports describing how individual hospitals in the United States have implemented The Joint Commission's mandate.¹⁰ Furthermore, while there

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Financial disclosure: None declared.

This article originally appeared online on July 2, 2014.

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are several published nutrition screening tools that have been studied in both adult and pediatric populations, no established standard on the components essential for screening or the qualifications of the screener have been universally adopted.¹¹⁻¹⁴ The American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) defines the goal of the nutrition screen to identify patients who are malnourished or at risk to become malnourished.¹⁵ A.S.P.E.N. has published adult- and pediatric-specific malnutrition definitions that offer a common language concerning these issues, as well as consensus-based expertise to guide screening and assessment processes that fully capture patients who meet the published criteria.^{16,17}

Given the role of nutrition in both health and disease, it is remarkable that there is such a paucity of data characterizing the current state of nutrition screening and assessment in U.S. hospitals. Improved understanding of how malnourished patients are identified and assessed in the hospital setting will allow A.S.P.E.N. and other stakeholder organizations to better meet the needs of these patients and the clinicians who treat them. This report is a summary of findings from a 2012–2013 survey of multidisciplinary hospital professionals, including dietitians, nurses, pharmacists, physician assistants, and physicians, that sought to assess the current state of nutrition screening and assessment in U.S. hospitals.

Methods

Survey Development

A 35-question web-based survey was designed by members of A.S.P.E.N.'s Malnutrition Data Collection Subcommittee. In brief, the survey was formatted to assess the characteristics of healthcare institutions and the providers involved in nutrition care (10 questions), the screening process (7 questions), the assessment process (15 questions), and items related to diagnosis and coding (3 questions). Each multiple-choice question had an option to enter a free-text response, as well as the ability to be skipped. A pilot was conducted prior to fielding the survey to evaluate the face validity of the questions. The survey was conducted using Survey Monkey, and the survey is available per request.

Subjects

All A.S.P.E.N. members, as well as members of the Academy of Medical-Surgical Nurses and the Society of Hospital Medicine, were invited to participate in this survey. Targeted members had to have valid email addresses and be hospital based.

Data Collection and Analysis

Target members of the collaborating organizations were emailed a link to the survey once in November 2012 and again

in January 2013. Only 1 response per email address was permitted. The data did not include personal identifying information and were examined in several ways. First, data were summarized for the total pool of respondents. Subsequently, stratified analyses were conducted with a focus on respondents who care for adult patients only, those who care for pediatric/neonatal patients only, and according to the respondents' profession.

Results

Baseline Characteristics of Respondents

A total of 1777 surveys were returned. As noted above, respondents were sorted into 2 groups based on the age category of patients they identified that they primarily cared for: adults only ($n = 485$, 27.2%) and pediatrics and neonates only ($n = 60$, 3.4%). Data from respondents who provide care across the life span (neonates through adulthood) are included in the total responses but not in subgroup comparisons (see Table 1). Dietitians comprised the vast majority of respondents, and nearly half of all respondents were A.S.P.E.N. members. The majority of respondents who reported caring for adult patients only practiced in a community hospital setting, whereas respondents who provided care to pediatric and neonates only practiced more frequently in academic hospital settings. A wide range of hospital sizes was apparent among respondents.

About half (47.7%) of all respondents reported that their hospital had a nutrition support team, 49.4% reported no such team, and the remaining 2.9% indicated that they did not know whether their hospital had a nutrition support team. Of respondents from hospitals with nutrition support teams, only 43.3% of adult-only respondents reported being a member on the team, whereas 73.7% of pediatric and neonatal-only respondents reported membership on the nutrition support team. However, 75% of A.S.P.E.N. members reported being a clinician on their hospital's nutrition support team.

Nutrition Screening

The results of survey questions on screening practice are shown in Table 2. A majority of respondents reported that nurses most frequently conducted the initial nutrition screen, followed by dietitians. Results showed that this screen was routinely conducted within 24 hours of hospital admission, a finding that is consistent with the mandate from The Joint Commission.⁹

Awareness about the type of nutrition screening tool used in the respondents' hospitals was variable. Among nurses, 42% indicated that they knew a validated screening tool that was used, whereas 49% indicated that they did not. In contrast, 37% of dietitians indicated that they were aware of use of a validated screening tool and 20% were not, with the remainder

Table 1. Baseline Characteristics of Respondents and Practice Settings.

Characteristic	Total Respondents (n = 1777)	Adult-Only Providers (n = 485)	Pediatric/Neonatal-Only Providers (n = 60)
Profession, %			
Dietitian	62.0	67.5	71.7
Nurse	30.8	28.2	5.0
Pharmacist	4.3	2.1	5.0
Physician	2.4	1.9	15.0
Nurse practitioner	0.7	0.2	3.3
Physician assistant	0.3	0.4	0
A.S.P.E.N. member, %	43.2	43.9	65.5
Hospital type, %			
Academic	33.6	24.1	79.7
Community	55.3	50.1	11.9
VA/military	4.2	12.8	0
Other	6.9	13.0	8.5
Hospital size, %			
<100	14.1	25.8	8.3
100–250	31.2	37.8	33.3
251–500	32.8	22.9	50.0
>500	21.9	13.4	8.3
Patient population, %			
Adult only	27.9	100	0
Pediatric only	1.4	0	40.0
Neonatal only	0.2	0	6.7
Adult/pediatric	17.6	0	0
Adult/neonatal	10.1	0	0
Pediatric/neonatal	1.8	0	53.5
Adult/pediatric/neonatal	41.0	0	0
Hospital nutrition support team, %			
Yes	47.7	48.8	33.3
If yes, member	34.9	43.3	73.7

A.S.P.E.N., American Society for Parenteral and Enteral Nutrition; VA, Veterans Administration.

unsure. When asked about using specific validated screening tools, the most frequent responses included the Malnutrition Screening Tool (MST), Nutrition Risk Classification (NRC), Simple Screening Tool, and Subjective Global Assessment (SGA). The SGA is an assessment tool but often used for screening.¹⁸ Subgroup analyses showed that A.S.P.E.N. members and dietitians were more likely to use the SGA for screening (12%) than the NRC or Simple Screening Tool, and clinicians were less likely to use the Nutritional Risk Index, Nutritional Risk Screening 2002, Prognostic Nutritional Index, or Maastricht Index. Responses to the “Other” category included an internally validated tool, European Society for Clinical Nutrition and Metabolism (ESPEN) guidelines, Braden score, Rapid Nutrition Screen, or adaptations of other validated screening tools. Interestingly, 6% of all respondents stated that they did not know what tool was being used at their institution, and 28% did not answer this question.

If a validated nutrition screening tool was not used, a majority of respondents used weight loss history (92%), trouble chewing and swallowing (82%), and diet history of poor oral

intake as screening parameters (80%). This finding suggests that many institutions collect more than 1 parameter to perform screening. Ninety-two percent of nurses responded using the chewing and swallowing parameters, and 93% of dietitians used weight loss history. Interestingly, 24% of respondents included other options for nutrition screening. These included pressure ulcers, wounds, nausea, vomiting, diarrhea, age, new diabetes, cancer, heart failure, renal failure, growth chart parameters, body mass index (BMI) <18.5 or >40, serum proteins, malnourished appearance, mechanical ventilation, multiple trauma, and thermal injury.

Nutrition Assessment

Results of the assessment practice questions are shown in Table 3. In contrast to nutrition screening, a majority of respondents reported that dietitians most frequently conduct the subsequent nutrition assessment, followed by nurses. A majority of respondents also identified that the screening process and prescriber order triggers prompted most of the nutrition

Table 2. Details of the Screening Process: Provider, Timing, and Tools Used.

Characteristic	Total Respondents (n = 1777)	Adult-Only Providers, (n = 485)	Pediatric/Neonatal- Only Providers (n = 60)
Provider performing the screen, %^a			
Nurse	82.7	82.2	72.9
Dietitian	49.0	51.3	45.8
Dietetic technician	13.6	12.6	32.2
Admission clerk	0.5	1.0	3.4
Physician	9.1	8.4	3.4
Other	2.5	2.1	6.8
Timing of screen, %			
On admission	36.7	39.3	25.4
<24 h from admission	50.8	50.8	62.7
<48 h from admission	5	3.8	6.8
>48 h after admission	0.9	1.7	0
No specific protocol	2.8	1.9	1.7
Other	3.8	2.5	3.4
Validated screening tool used, %			
Yes	38.5	37.5	28.8
Don't know	31.1	30.2	27.1
No	30.4	32.3	44.1
On completion of the screen, %			
Findings documented in medical record	69.0	73.3	74.5
Findings verbally communicated	0.7	0.6	3.6
Findings documented in record and verbally communicated	14.0	12.1	9.1
Depends on the findings	16.0	14.0	12.7
Resulted in a clinician's intervention			
0%–50% of the time	41.0	39.1	41.9
51%–75% of the time	27.0	27.0	30.9
76%–100% of the time	30.0	33.9	27.3

^aThe question was “Who completes the nutrition SCREENING in your hospital? (check all that apply)”; hence, the percentage is greater than 100.

assessments. A wide variety of parameters were identified as being used in nutrition assessment, with no one marker or characteristic used universally.

When asked about barriers to timely completion of the nutrition assessment, a majority (57.1%) of respondents reported no barriers. However, the most commonly reported barrier to completion of nutrition assessment was insufficient personnel (29.5%). Additional barriers included inadequate resources (7.7%), insufficient expertise (6.3%), and policies requiring an order from the prescriber (6.5%).

Diagnosis and Coding

Only 26% of respondents reported that the diagnosis of malnutrition was based on nutrition assessment (Table 4), and this was consistent across various professional groups, except for physicians. While 62.5% of physicians reported that the diagnosis of malnutrition was based on the nutrition assessment, only 23.8% of dietitians, 28% of nurses, and 30.4% of pharmacists reported that the diagnosis was based on the nutrition

assessment. Interestingly, a majority (59%) of respondents answered that the diagnosis of malnutrition was “not always” based on the nutrition assessment.

Use of *International Classification of Diseases, Ninth Revision (ICD-9)* malnutrition codes varied by professional group as well as by patient age group. However, obesity (v77.8), adult failure to thrive (783.7), and other and unspecified protein calorie malnutrition (263) diagnostic codes were used across various groups, with similar frequency.

Consensus Statement of the Academy of Nutrition and Dietetics/A.S.P.E.N. of Adult Malnutrition

In 2012, A.S.P.E.N. and the Academy of Nutrition and Dietetics published a consensus document recommending use of specific markers and characteristics for diagnosis of malnutrition.²⁰ Almost half of all respondents to the survey were familiar with this publication (49.6%), with little difference between adult-only providers (47.7%) and pediatric-neonatal

Table 3. Details of the Assessment Process: Provider, Trigger, and Components Used.^a

Characteristic	Total Respondents (n = 1777)	Adult-Only Providers (n = 485)	Pediatric/Neonatal- Only Providers (n = 60)
Assessor, %^a			
Nurse	24.8	24.8	9.6
Dietitian	92.6	93.0	100
Dietetic technician	9.7	9.6	7.7
Physician	9.9	8.6	7.7
Pharmacist	3.5	2.4	0
Physician assistant	2.0	2.0	0
Nurse practitioner	4.5	3.9	3.8
Other	1.2	2.6	0
Assessment trigger, %^a			
Screening information from medical record	71.2	70.8	72.5
Verbal communication from screener	37.9	36.5	37.3
Prescriber order	69.5	68.5	76.5
Automatic trigger from diet order	24.2	21.8	33.3
Automatic trigger from screening information	71.9	67.7	70.6
Assessment components, %^a			
Patient history details ^b	89.4	90.2	91.2
Anthropometrics			
Height, length, current weight, UBW, IBW, BMI	84.7	85.2	86.3
Head circumference, weight for length, weight for age	33.2	2.4	86.9
Mid-arm muscle circumference, triceps skinfold thickness, bioelectrical impedance analysis, DEXA	1.0	0.4	2.0
Laboratory parameters, %^a			
Electrolytes	92.7	92.7	91.7
Serum proteins	60.8	63.2	45.8
Visceral proteins	78.3	78.0	66.7
Other	18.6	18.0	20.8
Physical examination, %^a			
Fat loss	35.9	38.4	50.0
Muscle loss	48.0	51.8	50.0
Edema	85.2	86.4	88.6
Vitamin/trace element deficiency	34.0	33.3	50.0
Skin integrity	85.4	85.1	68.2
Functional status, %^a			
Handgrip strength	94.0	94.7	100
Timed chair stand	12.0	14.7	0
Skipped question	86.8	84.5	96.7 ^c
Other, %^a			
Nutrient intake	84.1	82.9	92.2
Diet order	94.1	94.0	96.1
NPO status	94.1	54.1	56.9
Indirect calorimetry	58.4	9.7	7.8
Validated assessment tool used, %			
Yes	23.1	24.1	19.2
Don't know	40.4	40.3	38.5

BMI, body mass index; DEXA, dual x-ray absorptiometry; IBW, ideal body weight; NPO, nil per os; UBW, usual body weight.

^aThe responses are check all that apply; hence, the percentage can be greater than 100.

^bPatient history details, including medical, diet, weight, trouble chewing or swallowing, specific diagnoses, on home nutrition support, and medications.

^cLikely not an appropriate measure for many pediatric patients.

Table 4. Diagnosis and Coding.

Characteristic	Total Respondents (n = 1777)	Adult-Only Providers (n = 485)	Pediatric/Neonatal-Only Providers (n = 60)
Is the malnutrition diagnosis based on the nutrition assessment? (%)			
Yes	25.8	27.1	34.7
No	15.1	17.1	20.4
Not always	59.2	55.8	44.9
Common malnutrition codes, %^a			
Obesity (v77.8)	34.5	40.1	25.5
Other severe PCM (262)	33.3	35.7	9.8
Malnutrition of moderate degree (263.0)	23.4	25.1	15.7
Unspecified PCM (263)	21.4	23.9	5.9
FTT (failure to gain weight) (783.41)	24.8	18.8	52.9
Feeding difficulties (783.3)	11.0	7.3	37.3
Loss of weight (783.21)	17.8	20.2	25.5
Underweight (783.22)	18.0	20.0	25.5
Adult FTT (783.7)	30.1	32.4	2.0

FTT, failure to thrive; PCM, protein-calorie malnutrition.

^aThe responses are check all that apply; hence, the percentage can be greater than 100.

providers (42.3%). About 75% of A.S.P.E.N. members were familiar with the consensus statement. Dietitians were most frequently aware of the publication (67%) and the nurses were least familiar (9%). Among all respondents, 34% reported that their hospital was implementing the guidelines suggested in the consensus document, and 40% reported a plan to implement them within the next year.

Discussion

With nearly 1800 responses, our survey affirmed compliance with the mandate to complete a nutrition screen within 24 hours of hospital admission. The nutrition screen findings were consistently documented in the medical record. In cases where the positive nutrition screen did not trigger a clinical intervention, these cases may warrant further investigation. This may be due to not using a validated screening tool or from an unclear communication process between the screening findings and staff responsible for the clinical intervention. This is problematic because lack of or delay in action to initiate clinical intervention may negatively affect outcomes.

Our findings also suggest that most hospitals have a process to perform a nutrition assessment once the screen is completed. It is reassuring that the former task is usually being performed by registered dietitians (RDs), professionals with the most expertise in nutrition assessment and monitoring. Arguably, improving resources available to RDs will result in greater improvement in accomplishing this vital function. Furthermore, the findings shown in Table 3 demonstrate that the assessment is taking into account many components of the patient's medical history, physical examination findings such as skin integrity and edema, and select laboratory studies. Assessment of

some anthropometric measures and indirect calorimetry were not often used in the assessment process by these survey respondents. This wide variety may indicate lack of specificity in parameter selection, hence decreasing generalizability of assessments across institutions.

The respondents identified that the most common barriers to completion of nutrition assessment were insufficient personnel, inadequate resources, and insufficient expertise. These findings suggest that there are opportunities for hospitals and professional organizations to help mobilize the resources (staff, equipment, expertise) as well as offer education tailored to professionals involved in the nutrition screening and assessment process.

A key question in the survey focused on how malnutrition is diagnosed and whether the nutrition assessment forms the basis for the malnutrition diagnosis. Surprisingly, among the 428 clinicians taking care of adult patients who answered this question, only 27% said "yes." Seventeen percent of the adult respondents said "no," and approximately 58% responded "not always." These results are cause for concern because diagnosing malnutrition should be based on supportive nutrition assessment data. Importantly, the survey did not collect data on other information used to document malnutrition. It may be that many hospitalized patients are at risk for malnutrition due to their diagnoses, a factor that may not be directly measurable or taken into account on the assessment form. This again contributes to the lack of precision and problems with arriving at the malnutrition diagnosis.

The Academy/A.S.P.E.N. consensus paper¹⁹ was published only 6 months before this survey, and it was published in the Academy and A.S.P.E.N. journals. It was also just intended for adult patients, so pediatric-neonatal practitioners would not necessarily be aware of the document. Dietitians were most

frequently aware of the publication (67%) and the nurses were least familiar (9%). The findings highlight a major educational opportunity to expand the knowledge of this tool while validity and feasibility studies are under way.

Documentation of malnutrition via *ICD-9* coding has been a subject of increasing interest. In our survey, respondents were asked, “How do coders capture a malnutrition diagnosis?” Only 88% of the respondents who care for adult patients answered this question, with 51.5% indicating that they did not know. This is not surprising as most clinicians may not be involved in the coding processes at their institution, another finding that presents opportunities to increase clinicians’ knowledge base and employ collaborative methods to improve hospital-based nutrition care. Coding staff can only put an *ICD-9* code on a diagnosis that is clearly made by a provider. Clinicians need to understand and use the “right” words in their nutrition assessments to make the diagnosis of malnutrition easy to capture.

With the great variety of malnutrition *ICD-9* codes, developing a sense of which codes are being used across the United States would be informative for a variety of reasons. As demonstrated in Table 4, there is a considerable variation in malnutrition codes that are currently being used for documenting malnutrition, particularly between adult and pediatric-neonatal providers. Of interest is that codes such as 263 (other and unspecified protein-calorie malnutrition), 263.8 (other protein-calorie malnutrition), 263.9 (unspecified protein-calorie malnutrition), and 783.7 (adult failure to thrive) were all selected by the respondents as being common malnutrition diagnoses—all were mentioned by more than 20% of respondents. As described by other investigators, the lack of specificity in diagnosing malnutrition may affect future reimbursement strategies in the United States.²⁰ Independent of reimbursement, an educational opportunity exists for all clinicians and coding specialists in the use of specific malnutrition codes that better reflect the clinical profiles of the patients that are being served. Certainly, these diagnostic codes will also need to be updated to better align with newer, more specific definitions, as previously described.¹

Limitations of the Survey Findings

Of the 3 participating professional societies with a self-reported total membership of 25,000, there were 1777 surveys returned for a 7.1% response rate. The response rate may be higher if consideration is given to the likely overlap in organization memberships and number of invalid email addresses. Although a response rate of 30%–50% is generally expected for online, email, and mail surveys,^{21,22} the 7.1% response rate achieved in this study may be due to several factors. One reason for a lower response rate is that the survey was sent to all members of these 3 organizations, yet there may have been many members who are not hospital based, who are not clinicians, or practice in educational or research positions.

Another limitation to the findings is that one discipline, dietitians, comprised the majority of respondents. Also, there were a small number of pediatric-neonatal respondents so, the ability to generalize the findings to other clinician groups may be limited.

Conclusion

This survey of multidisciplinary hospital-based clinicians in the United States affirmed compliance with national standards mandating completion of a nutrition screen within 24 hours of hospital admission. Results also indicated opportunities to improve education around a nationally standardized approach to nutrition assessment, as well as the need for increasing clinician participation in the nutrition care process. Further, there is a need to close the knowledge deficit on coding and billing for malnutrition. These findings suggest ongoing inconsistent application of available tools and insufficient education/training of hospital personnel essential to the identification and treatment of malnutrition in hospitalized patients. That said, as professional societies continue to shine a light on this issue and provide consensus guidance to clinicians, these numbers should dramatically change for the better. Future studies investigating the ideal parameters to screen and assess hospitalized patients along with audits of actual practice are warranted.

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