Carol Rees Parrish, M.S., R.D., Series Editor

A Clinician's Guide to Defining, Identifying and Documenting Malnutrition in Hospitalized Patients

Wendy Phillips

Maria Browning

Malnutrition has been associated with trends toward higher acuity, higher health care cost, and poor patient outcomes. However, until recently no universal definition of malnutrition was available. As our understanding of the effects of malnutrition on outcomes and hospital stays has evolved, it has become increasingly important for the Registered Dietitian Nutritionist (RDN) to consistently identify and communicate the degree of malnutrition present in any patient who meets criteria, in order to set up a timely treatment plan. Adopting and imbedding standard language related to malnutrition in the electronic medical record (EMR) can lead to more consistent coding and tracking.

INTRODUCTION

Most healthcare professionals will agree that malnutrition can be simply defined as inadequate calories, protein, and micronutrients required for proper tissue growth, maintenance, and repair.[1] The causes of malnutrition can be multifactorial including, but not limited to: poor nutrient intake, malabsorption, poor nutrient utilization (hyperglycemia), and/or hypercatabolism. Historically, malnutrition has had various descriptions in the literature due to the lack of a universally accepted definition. Therefore, the prevalence of malnutrition in hospitalized patients has been reported to be anywhere between 16-68%.[2-7] Regardless of the definition used, malnutrition is associated with poorer outcome,[8] specifically: longer hospital length of stay,[4-14] more readmissions within 30 days,[14-29] more nosocomial infections,[16-19] and more pressure injuries.[24-27] Unfortunately, due to the various definitions found in the literature describing the prevalence of, and complications associated with, malnutrition, the true prevalence and consequences are still unknown.

The Academy of Nutrition and Dietetics (Academy)

Wendy Phillips, MS, RD, CNSC, CLE, FAND, Division Director of Clinical Nutrition, Morrison Healthcare, St. George, UT Maria Browning MS, RD, CNSC, Quality Expert, Charge Management Surgical Charge Optimization Revenue Cycle Services, IU Health Methodist Hospital, Indianapolis, IN

and the American Society for Enteral and Parenteral Nutrition (A.S.P.E.N.) joined forces to develop a consensus statement for the identification of adult malnutrition in 2012[1] and for pediatric malnutrition in 2014.[28] Clinicians and researchers are encouraged to use the criteria set forth from these documents to identify malnutrition in an effort to inform facility policies, interventions, and resource allocations. It would help the process of standardizing definitions of malnutrition if each facility reviews and approves the Academy/A.S.P.E.N. criteria for malnutrition assessment and diagnosis by all key players: clinical nutrition team, LIPs, and coders. The clinical nutrition team is positioned to spearhead the education of all appropriate providers to ensure consistent use of the approved criteria throughout the facility. This article aims to provide practical guidance for clinicians to do just that.

Malnutrition Coding: Beyond the Money

Understanding the Medicare payment structure for hospital admissions is necessary to understand the importance of adequately diagnosing malnutrition and translating the malnutrition diagnosis into International Classification of Disease (ICD), 10th revision (ICD-10) codes.[30] Medicare is the largest funding source

Table 1. Definition of Terms

ICD-10	International Classification of Diseases, 10th revision; a system used by the World Health Organization and adapted for use in the United States by the National Center for Health Statistics to classify and code all diagnoses, symptoms, and medical procedures.
DRG	Diagnosis Related Group; defined by Medicare, patients are placed into groups based on the principle diagnosis causing hospital admission.
MS-DRG	Medicare Severity-Diagnosis Related Group; Each MS-DRG is defined by certain patient attributes including the principal diagnosis, specific secondary diagnoses that are coded as a CC or MCC (see below), medical procedures, sex, and discharge status.
RW	Relative Weight; A value assigned by Medicare to each MS-DRG to reflect the expected severity level and calculate payment for each hospital for patients assigned to that MS-DRG.
CMI	Case Mix Index; The CMI is the average of the relative weights (RW) for MS-DRGs for all patients admitted to the hospital in that year.
CC & MCC	CCs (complication or comorbidities) or MCCs (major complications or comorbidities); Secondary diagnoses can be comorbidities (conditions present on admission) or complications (conditions that developed after admission). Depending on the severity level, Medicare classifies these secondary diagnoses as CCs (complication or comorbidities) or MCCs (major complications or comorbidities). MCCs are higher severity level and therefore increase the relative weight (RW) of the MS-DRG.
LOS	Length of Stay; the number of days a patient spends in the hospital.
SOI	Severity of Illness; the extent of physiologic decompensation of an organ system or disease state. It can be categorized as minor, moderate, major, or extreme, and is meant to provide a basis for evaluating hospital resource use or establish patient care guidelines.
ROM	Risk of Mortality; Medicare's estimate of the average impact of being treated in a particular hospital for a particular condition on the likelihood of dying.
EMR	Electronic Medical Record

for most hospitals, and some commercial insurance companies structure their payment system similar to Medicare. Medicare does not pay hospitals directly for each expense incurred to care for patients, but rather categorizes patients into a Diagnosis Related Grouping (DRG) based on the principle diagnosis precipitating hospitalization.[31] Payment is then based on an annual analysis of the average resources required to care for patients admitted for the same or similar principle diagnoses. Additional stratification occurs when the patient is further categorized into tiers within the DRG based on the presence of secondary diagnoses. This stratification is known as the Medicare Severity-DRG (MS-DRG) – some DRGs have one or two tiers, but the majority have three. Secondary diagnoses are those impacting clinical evaluation, therapeutic treatment or diagnostic procedures, and extend the length of stay or increase the nursing care required. They can be coded as co-morbidities or complications (CCs) or major co-morbidities or complications (MCC). See Table 1 for definition of terms. CCs and MCCs can raise the assigned tier within the DRG for the patient's principle diagnosis. Medicare reimbursement increases to the hospital for higher tiered patient stays in order to cover the increased cost of care. Since the higher tiers have a higher relative weight (RW) assigned by Medicare, this also influences the case mix index (CMI).[31] The CMI is an average of all of the RWs of patients with discharges within a specified time interval, and provides an index of the severity level of the patient population receiving care at that hospital. The CMI will also influence the base rate for that hospital for Medicare payment in subsequent years.

Secondary diagnoses count as CCs or MCCs and influence payments for hospital stays under Medicare's MS-DRG Inpatient Prospective Payment System only if several conditions are met and documented in the licensed independent practitioner (LIP) progress notes.[31] The secondary diagnosis cannot be an integral part of the principle admitting disease process itself and must affect the care provided during that hospital admission. For example, severe protein-calorie malnutrition cannot be considered a MCC for the principle diagnosis of "Failure to Thrive" because the two conditions are too similar. For principle diagnoses in which severe protein-calorie malnutrition could be listed as a MCC, there must be documentation demonstrating additional nursing care or other resources required for the patient (such as enteral or parenteral nutrition support). While clinicians recognize malnourished patients require additional resources and nursing care, this is not always clearly stated in the medical record, nor historically been adjusted for in terms of hospital reimbursement. Secondary diagnoses must be listed in the final diagnostic statement by the provider using whatever method the facility has designated (such as the problem list or the discharge History and Physical). For example, a patient may be admitted with community-acquired pneumonia

Table 2. Communication Strategies for Adequate Documentation of Malnutrition Diagnosis

- Establish standard language for all RDNs to use when documenting malnutrition severity.
- Communicate directly with the physician and other healthcare team members during medical rounds, on the patient care floors, or at the bedside, and notify where to find the RDN documentation in the medical record. Include the malnutrition diagnosis, suspected etiology, signs, and symptoms signifying the malnutrition, and the planned interventions to treat the malnutrition. Work with the healthcare team to plan for nutrition needs after discharge.
    - Consider putting the severity of malnutrition at the top of the RDN initial consult.
- RDN documentation should include the information listed above, and be in a format that the physician can easily translate to his/her progress note (and if possible, to the problem list, if the problem list is used by the facility). Data in discrete fields, such as drop down boxes in electronic flowsheets, allow this information to be automatically pulled into the physician's documentation template and enable coders to efficiently and effectively query the data using lists of patients.
- Encourage LIPs to add a malnutrition documentation section for their own progress note charting template, similar to the template section for relevant medications or patient history.

Table 3. Suggested Charting Template for the RDN to Use in Electronic Medical Records

General Guidance for Building Effective Nutrition Assessment Templates

- Data for as many progress note sections as possible should be entered in discrete fields (such as drop-down boxes in flow-sheets) so the terminology used is consistent. Clinical documentation specialists can query this data if needed and it can be used in research. Some examples are provided here but additional terminology could be built into the electronic medical record (EMR).
- Note: RDN documentation should include a statement about how the principle diagnosis for the hospital stay and/or the care provided is affected by malnutrition to ensure it is included in the MS-DRG payment system.
- Data can auto-populate to LIP's note in order to assist them in their documentation of malnutrition.
- Although the nutrition diagnosis is typically found later in the note using the Nutrition Care Process ADIME charting format, having the malnutrition diagnosis at the top of the note will enable LIPs and others to find it efficiently to help treat the malnutrition and include it as a "medical diagnosis."
- RDNs rely on nursing documentation for much of this data such as: oral, enteral, parenteral, and intravenous intake; medication administration; fistula and gastric suction output; weights and other anthropometrics; ability to perform activities of daily living compared to baseline; edema, fluid status, total I/O; mental status, ability to comprehend education, preferred speaking and reading language; vital signs.
- If possible, this data can be automatically populated to the Nutrition Assessment if RDNs can maintain the ability to delete what is not nutritionally relevant.
- Nutrition-focused physical exam should be completed and documented by the RDN.

Nutrition Interventions

- If allowed by state law, authorize nutrition order writing privileges for RDNs with hospital specific policy and procedure.
- Consider hospital policy to allow RDN to enter pended orders for physicians to sign to facilitate more timely implementation of nutrition interventions, if this functionality is available in the EHR.
- Consider developing a method such that RDN nutrition intervention recommendations that need to be ordered by the LIP automatically populate to the LIP order screen or other notification system.

Nutrition Goals

- The clinical nutrition team can decide commonly written goals to build drop down boxes for this section. Always include an "other" category with the ability to free text so that goals can always be customized for the needs of the patient.

Table 3. continued on page 26

as the principle diagnosis precipitating hospitalization. Secondary diagnoses may include acute respiratory failure (requiring the intervention of mechanical ventilation) and severe protein-calorie malnutrition (requiring the intervention of enteral nutrition). The acute respiratory failure and severe protein-calorie malnutrition would be listed as secondary diagnoses by the LIP in the final diagnostic statement and coded to be included in the MS-DRG assignment.

Although both acute respiratory failure and severe protein-calorie malnutrition are MCCs, only one MCC is required to increase the severity tier of the DRG. Therefore, the malnutrition cannot be considered a diagnosis that increases reimbursement in this patient, because the acute respiratory failure would have already increased the DRG and the reimbursement, even if malnutrition had not been documented and coded. However, both should be documented and coded. Beyond potentially increasing the reimbursement for providing care, the accurate identification, documentation, and coding of malnutrition is important for many other

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reasons. First, it encourages an increased awareness and focus on malnutrition that requires a specific intervention during that encounter and throughout the transition of care. When malnutrition is documented as a medical diagnosis and communicated through the discharge summary alerting clinicians at the next care site (such as a rehabilitation or long term care facility), prompt attention to nutrition care needs will be more likely to occur within that next setting.

Additionally, the expected length of stay (LOS), severity of illness (SOI), and risk of mortality (ROM) increase as the secondary diagnoses are coded as CCs or MCCs and the patient moves to a higher tier within the MS-DRG.[31] This provides more realistic survival expectations for Medicare and other payers who use a method similar to the MS-DRG classifications. "Grades" that are given to a hospital and individual providers based on patient outcomes are adjusted for SOI, ROM, and CMI. The adjustment process is too complicated to explain in this article; a basic explanation is that coding for all applicable secondary diagnoses (like

Table 3. Suggested Charting Template for the RDN to Use in Electronic Medical Records *(continued from page 22)*

CHARTING PARAMETER **Malnutrition Diagnosis**	SAMPLE CHART NOTE SECTIONS **Malnutrition Diagnosis**
(Select one from drop-down list and enter patient specific, measurable data) ◆ None ◆ Moderate Protein-Calorie Malnutrition ◆ Severe Protein-Calorie Malnutrition	Severe protein-calorie malnutrition based on:
Etiology of malnutrition: (Select all that apply from drop-down list) ◆ Altered mental status ◆ Food/nutrition related knowledge deficit ◆ Poor appetite ◆ Malabsorption of nutrients ◆ Wound healing needs ◆ Impaired ability to prepare meals ◆ Other: _____	◆ Diarrhea > 6 times per day exacerbated by oral intake.
Signs/Symptoms of malnutrition: (Select all that apply from drop-down list) ◆ Energy intake < __% of needs over __ (wks/months) ◆ Weight loss of __ % of usual body weight over ___ (wks/months) ◆ Loss of subcutaneous fat (choose mild, moderate, or severe) ◆ Loss of muscle mass (choose mild, moderate, or severe) ◆ Fluid accumulation (choose mild, moderate, or severe if related to nutrition status) ◆ Hand-grip strength measurably reduced ◆ Other ___	As evidenced by: ◆ Unintentional weight loss of 12% over past 6 months and ◆ Severe loss of muscle and fat mass.

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Table 3. Suggested Charting Template for the RDN to Use in Electronic Medical Records ***(continued from page 26)***

Nutrition Assessment Detail	Nutrition Assessment Detail
◆ RDNs should work with Information Systems team to build EMR templates to include as much detail using drop-down boxes with consistent terminology). *Common nutrition assessment items:* ◆ Diet history ◆ Past medical and surgical history ◆ Anthropometrics ◆ Intake ○ Oral food and fluids ○ IV fluids, parenteral nutrition ○ Tube feed formulas and water flushes ◆ Output ○ Urine, stool, drains, tubes to suction, fistulas ◆ Nutrition-related lab results and other exams ◆ Nutrition-related medications ◆ Nutrition focused physical exam findings ◆ Glycemic control	76 year old female undergoing radiation for colon cancer; partial colectomy 6 months ago. Medical/surgical records incomplete – unsure if ileocecal valve remains and which portions of the bowel were resected. Per patient and husband, has suffered ongoing diarrhea of at least 6 times per day and repeated visits to urgent care for dizziness, anxiety, and IV potassium and fluid repletion. Taking all medications as prescribed (see home and current medication lists). Ht: 5' 6" Current Wt: 135 lbs BMI 21.8, below goal for age Pre-surgery wt per medical records 6 months ago: 151 lbs Usual wt pre-op per patient & husband: 150 to 155 lbs *Findings of nutrition focused physical exam:* ◆ Severe temporal and clavicular muscle and fat wasting; niece confirms the muscle wasting has become increasingly obvious over past 6 months. Most days has plain toast for breakfast, and a sandwich with lunchmeat and white bread for lunch and dinner because she states all else worsens her diarrhea. Reported intake provides an estimated 300 calories and 20 grams of protein per day.
Nutrition Interventions	**Nutrition Interventions**
RDN to order/implement: (Select all that apply from drop-down list) ◆ Initiate enteral nutrition _____ ◆ Initiate parenteral nutrition _____ ◆ Order HgbA1c ◆ Order vitamin/mineral test _____ ◆ Order vitamin/mineral supplement _____ ◆ Other _____ *Physician to order:* (Free text)	1. Clearly define anatomy. 2. Consider checking for C. difficile. 3. Smaller portions at meals with snacks between meals. 4. Liberalize diet to Regular to allow greater flexibility with food choices. 5. Add therapeutic vitamin & mineral supplement x 2 weeks. 6. Consider addition of Imodium, 2 mg BID-TID if primary team deems appropriate.
Nutrition Goals	**Nutrition Goals**
These should be measurable, achievable, and stated clearly and concisely at the end of the note.	1. Weight gain of 1-2 lbs per week with goal weight of 125 lbs 2. Resolution of diarrhea. 3. Will provide education for food selections to reduce diarrhea if warranted once GI anatomy clarified. 4. Intake >75% of meals and snacks. 5. Normalization of magnesium, potassium, and phosphorus. 6. F/U in GI nutrition clinic in 2-4 weeks.

malnutrition) can make the hospital or provider's grades better with the same outcomes because of the associated expected SOI and ROM. A good grade with a high CMI is an overt indication that the facility successfully cares for very ill patients. Poor grades may cause payers to remove the hospital or LIP as a provider for certain payment plans. This data is also publicly available, and patients may not seek care from institutions whose survival rates are below what is expected for a particular diagnosis. Diligence in documenting an MCC such as severe protein-calorie malnutrition not only can move the patient's stay to a higher tier within the MS-DRG, which has the potential to direct nutrition intervention as well as help recover revenue for services, but also better represents SOI, ROM, and the resources required to care for the patient.

Finally, large-scale epidemiological studies require accurate diagnosis data available in discrete fields in the electronic medical record (EMR) that can be queried by automated data mining programs. Standardized language to describe the diagnosis of malnutrition with associated signs and symptoms ensures the interoperability and communication for that diagnosis with different EMRs, billing systems, and data mining programs used for research. An example of discrete fields would be the utilization of flow sheets with drop-down boxes that have been pre-populated with standardized language that can be clicked indicating the presence and degree of malnutrition.

Malnutrition Treatment: It Takes a Healthcare Village

The first step in identifying malnutrition in the hospitalized patient is through adequate nutrition risk screening, which is usually conducted by the registered nurse as part of the admission screening process. A validated nutrition screening tool appropriate for the patient population is recommended, such as the Malnutrition Screening Tool,[32] the Malnutrition Universal Screening Tool,[33] or the Nutrition Risk Screening (NRS) 2002.[34] Periodically, the accuracy of the screening tool and the workflow process to notify the RDN should be reevaluated to ensure patients requiring full nutrition assessment and interventions are being identified.[35,36]

Once a patient is identified as at-risk for malnutrition, or frankly malnourished, either through the nutrition screening process or other method, a referral needs to be placed to a registered dietitian nutritionist (RDN) to complete a full nutrition assessment and implement a nutrition care plan in partnership with the patient/caregiver, physician, nurses, and other healthcare team members. RDNs rely heavily on nursing documentation to evaluate the parameters described in the malnutrition clinical characteristics consensus statements published by the Academy/A.S.P.E.N.[1,28] The RDN must communicate the presence of malnutrition and the associated signs and symptoms to the LIP responsible for the care of the patient; this will need to be included as a medical diagnosis by the LIP. This crucial step ensures the diagnosis is communicated from one care setting to the next so that nutrition intervention continues until the malnutrition is resolved.

The nutrition interventions in the care plan should specifically address the etiology, as well as signs and symptoms of the malnutrition. Often, nursing and food service staff will assist with the actual implementation of the nutrition interventions designed by the RDN, with nursing staff providing valuable documentation in the medical record about the patient's response to care.

Table 4. Examples of Quantification of Nutrition Details in RDN Chart Note

If the writing says:
• Recently lost weight *better:* • Lost weight in last 6 months *better yet:* • Lost 25 lbs (15%) in last 6 months *even better:* • Lost 25 lbs (15%) with 4 clothes size changes, complains of inability to walk upstairs in last 6 months
• Poor intake *better:* • Poor intake for recent 4 weeks after surgery *better yet:* • Poor intake, pt reports less than 50% of usual in recent 4 weeks after surgery *even better:* • Poor intake, pt reports less than 50% of usual, (est. 550 calories and 30 grams protein per day) and only 1 meal per day and 1 snack, in recent 4 weeks after surgery

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In some facilities, the LIP will need to place orders for at least some of the nutrition interventions per facility policy. The RDN will monitor, evaluate, and document the patient's response to care, progress towards defined goals, making alterations to the nutrition care plan as needed, and finally document and coordinate the discharge nutrition needs to ensure appropriate nutrition follow-up after leaving the hospital.

Physicians continue to be responsible for documenting all diagnoses affecting the hospitalization or influencing the principle diagnosis causing the patient's admission. If a patient is malnourished, this will affect the course of the hospital stay, the resources necessary to care for the patient, and the length of hospitalization required.[9-14] Therefore, malnutrition should be documented by the LIP responsible for the care of the patient whenever it has been identified by the RDN as a nutrition diagnosis.

Likewise, medical billing specialists are required to code for all diagnoses affecting the care of the patient and/or their prognosis during that hospital stay, regardless of whether or not doing so will influence reimbursement for the stay. If the RDN has provided written information about the malnutrition as a nutrition diagnosis, but the LIP has not added it also as a medical diagnosis, then the billing specialist should query the LIP to check for agreement with the RDN. He/she may also query the RDN for documentation clarification if necessary.

Documentation Guidance for RDNs and LIPs

Since the malnutrition diagnosis must be documented by the LIP for it to become part of the official record of care from one healthcare facility to the next, RDNs need effective communication strategies to notify the LIP when a patient is identified as malnourished. Ideas to accomplish this are included in Table 2. A suggested sample charting template for RDNs is included in Table 3 with ideas on how this can coordinate with the LIP's documentation. Documentation must be sufficiently detailed and measurable, and specific to the patient to support Medicare billing compliance audits that may be conducted by Medicare's Recovery Audit Contractors or the Office of the Inspector General. See Table 4 with examples for specific and measurable documentation.

Building the Foundation: Success Story of Documentation

Streamlining and standardizing the documentation process as described above can lead to drastic improvements in identifying all degrees of malnutrition within the hospital setting. In 2013, Indiana University (IU) Health identified a significant opportunity to improve the diagnosis of malnutrition at their Adult Academic Health Center (AHC). The AHC consists of 2 major hospitals including: level one trauma services, comprehensive transplant services, the largest neurosurgery center in the state, and destination care for all ranges of oncology services, as well as many others. Despite providing high-level care for acute and chronically ill patients, in 2013, malnutrition was coded as a secondary diagnosis in only 5.5% of patients discharged from the 2 facilities combined.[37] As a process improvement intervention, standardized language using the malnutrition clinical characteristics criteria from the consensus statement[1] was developed and imbedded within the EMR in 2014 allowing the clinical nutrition team to unify their approach to the diagnosis of malnutrition Additionally, with the support of IU Health Information Services and the Statewide Advanced Provider Team, approval was gained to allow for RDN documentation to automatically populate LIP documentation. Within the first year of implementation, total patients discharged with a diagnosis of malnutrition increased from 2900 to 4969 encounters, a 71% increase. More specifically, severe protein-calorie malnutrition diagnoses increased from 459 to 2081 encounters, a 353% increase. Ultimately, the end result was an increase in total discharges with

Table 5. Variable Direct Cost Per Patient With and Without Malnutrition Diagnosis at Indiana University Health

Metric	Patients with Malnutrition	Patients without Malnutrition
Patients	139	2,245
Total Cost	$2,467,000	$18,689,000.00
Cost per patient	$17,750	$8,325.00

a malnutrition diagnosis from 5.5% to 10%.[37]

The increased number of discharges with a malnutrition diagnosis led to improved communication of the nutritional state of the patient and required interventions implemented to remedy the malnutrition in the transition of care from the acute care hospital to home, long term care facility, or inpatient rehabilitation facility.

Consistent with previous studies[7,12] the costs associated with treating malnourished patients were higher in IU Health's population. Despite making up only 6% of the population, patients diagnosed with malnutrition made up nearly 12% of the total variable direct cost for patients admitted during a 30-day period (Table 5). Therefore, increasing awareness of the prevalence of malnutrition and the associated necessary interventions to treat it is an important step towards reducing overall healthcare costs.

CONCLUSION/CALL TO ACTION

Focusing on nutrition assessment, diagnosis, documentation, and intervention led to a significant improvement in identifying patients at nutrition risk requiring intervention at IU Health. Continued attention must be given by the entire healthcare team to ensure ongoing success. It is essential for RDNs to be diligent in their role to identify malnutrition, communicate with the LIP and other healthcare team members, and most importantly, implement meaningful interventions. Patients identified with malnutrition during their hospital stay should have clear instructions for continued nutrition repletion communicated to all appropriate healthcare team members and documented in the discharge summary. Standardizing how malnutrition is defined and documented with details specific to the individual patient will help facilities move towards meaningful and effective assessment, diagnosis, and intervention. In order to conduct studies within and beyond our own institutional walls, RDNs should agree to use the standards as defined by the Academy/A.S.P.E.N. Consensus Statements of 2012 (adults)[1] and 2014 (pediatrics)[28] and build this into daily practice. First and foremost the goal is to improve care and patient outcomes, benefiting not only the patient and families, but also the providers and institutions. Consistent documentation and coding leads to a better understanding of disease through the ability to mine large amounts of data to determine which diagnoses are most often comorbidities of each other and the related implications. Correlating malnutrition with quality metrics such as length of stay, blood stream infections, wound healing, anthropometrics, readmission and mortality will allow for improved understanding of implications and lead to more targeted therapy. An understanding of population health determinants requires appropriate documentation and coding of protein-calorie malnutrition to inform populated based interventions. ■

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