Addressing Malnutrition: What Are the Opportunities

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Disclosure
- I have nothing to disclose

Malnutrition - Not a New Issue

PERCENTAGE OF WEIGHT LOSS: BASIC INDICATOR OF SURGICAL RISK IN PATIENTS WITH CHRONIC PEPTIC ULCER
HIRAM O. STUDLEY
A.S.P.E.N. and Malnutrition

Malnutrition is present in 25%-54% hospitalized patients at admission
- Data from 1976 - 2013
- Various malnutrition assessment methods were used
- Higher prevalence rates often seen in ICU patients

A.S.P.E.N.’s Malnutrition Strategy

Historical Malnutrition Prevalence

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Specialty</th>
<th># Pts</th>
<th>Malnutrition %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston, MA</td>
<td>General</td>
<td>351</td>
<td>8%</td>
</tr>
<tr>
<td>Birmingham, AL</td>
<td>General</td>
<td>154</td>
<td>8%</td>
</tr>
<tr>
<td>Multiple V.A.</td>
<td>General</td>
<td>1,063</td>
<td>9%</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>Pediatrics</td>
<td>351</td>
<td>3%</td>
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<tr>
<td>Syracuse, NY</td>
<td>ICU</td>
<td>125</td>
<td>10%</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>General</td>
<td>404</td>
<td>10%</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>ICU</td>
<td>17</td>
<td>50%</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>ICU + PCU</td>
<td>248</td>
<td>10%</td>
</tr>
<tr>
<td>Penn State/PA</td>
<td>General</td>
<td>277</td>
<td>10%</td>
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</table>

Malnutrition Prevalence

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Definition</th>
<th>Prevalence</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Severe</td>
</tr>
<tr>
<td>2013</td>
<td>Acute care hospital</td>
<td>A.S.P.E.N. Academy</td>
<td>19%</td>
</tr>
<tr>
<td>2015</td>
<td>Acute care hospital (pilot)</td>
<td>A.S.P.E.N. Academy</td>
<td>33%</td>
</tr>
<tr>
<td>2016*</td>
<td>Ambulatory oncology</td>
<td>A.S.P.E.N. Academy</td>
<td>24%</td>
</tr>
<tr>
<td>2016*</td>
<td>Head and neck cancer</td>
<td>A.S.P.E.N. Academy</td>
<td>n/a</td>
</tr>
<tr>
<td>2016*</td>
<td>Critically ill</td>
<td>A.S.P.E.N. Academy</td>
<td>n/a</td>
</tr>
<tr>
<td>2016*</td>
<td>Pancreatic surgery</td>
<td>A.S.P.E.N. Academy</td>
<td>25.6%</td>
</tr>
<tr>
<td>2016*</td>
<td>Pediatric – acute care hospitals</td>
<td>A.S.P.E.N. Academy</td>
<td>12%</td>
</tr>
</tbody>
</table>

* CNW Abstract

Malnutrition and Outcomes

Impact on Patient Outcomes

- Patient Characteristics and the Occurrence of Never Events
  - US epidemiologic analysis of 887,189 surgery cases from 1368 hospitals, using HCUP NIS data from 2002-2005
  - Malnutrition can dramatically increase the risk of severe events
    - 4X more likely to develop pressure ulcers
    - 2X more likely to have SSI
    - 5X more likely to have CAUTI

Impact on Patient Outcomes


Malnutrition Characteristics

Corkins MR. JPEN 2014;38:186-95

Malnutrition and Length of Stay

• Observational evaluation to validate methodologies in predicting inpatient LOS
• 2 year study in a Portuguese teaching hospital
• Methodologies
  ▫ Academy/A.S.P.E.N.
  ▫ PG-SGA
  ▫ NRS 2002
  ▫ MUST
• Through hazard analysis (unadjusted and adjusted), all methodologies found to be valid in predicting a longer hospital LOS

Malnutrition and Readmissions

- Australian prospective study to identify factors associated with 6 month unplanned readmission medical patients (n=142)
  - 55 participants (38.7%) with an unplanned hospital admission within 6 months
  

Malnutrition and Readmissions

- US general surgical patients (n=1442)
  - 163 (11.3%) readmitted within 30 days
  

Malnutrition and Readmissions

- Retrospective 2 year observational trial of US medical patients
  - Urban academic medical center
  - 10,359 admissions
    - 1762 patients (17%) readmitted within 30 days
  - Significantly more re-admitted patients with weight loss
    - 8.7% vs 6.8% (p=0.0449)

Nutrition Interventions

Oral Nutrition Supplements

- Examine the cost and cost effectiveness of oral supplements
- 9 studies included (< 3 months usage)
  - 31 cost analysis
- Median cost saving of 5%
- Meta-analysis: reduced hospitalization by 16.5% (p<0.001)

Elia M. Clin Nutr 2015; ahead of print

ONS and Outcomes

- Multicenter PRCT
- Malnourished older adults (n=622)
- ONS randomized during hospital stay
  - Following screening and assessment of malnutrition
  - Two 8 oz servings/day during hospitalization and at discharge
- Results
  - 90 day readmission/mortality (primary)
    - 31.1% w/placebo vs 26.8% w/ONS (p=0.214)
  - 90 day mortality
    - 9.7% w/placebo vs 4.8% w/ONS (p=0.018)

Nutritional Approach in Malnourished Surgical Patients

- RCT in 196 malnourished patients - surgery for GI malignancy
- Randomized to 1 of 3 groups
  - Control – post op EN with standard formula
  - Pre-op – 7 days PO intake of immune formula and act EN post op
  - Peri-op – 7 days PO intake and post op EN with immune formula
- Eligible patients – 150 (50 per group)
  - Mean % wt loss: 13%
  - Pre-op intake: 920 mL
- Total complications reduced in perioperative group (p=0.02)
- Hospital LOS reduced in both pre-op and peri-op (p = 0.04 and 0.001)

Preoperative Nutrition Support in At Risk Abdominal Surgery Patients

- Prospective cohort study
  - To evaluate the impact of nutrition support on clinical outcome in patients at nutritional risk
  - 56.6% of risk patients received NS
  - PN = 334, EN = 73, PN-EN = 61

<table>
<thead>
<tr>
<th>NRS Score</th>
<th>Pre-op NS – Hosp A</th>
<th>Pre-op NS – Hosp B</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 3</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>3-4</td>
<td>5.6%</td>
<td>5.2%</td>
</tr>
<tr>
<td>≥ 5</td>
<td>41.5%</td>
<td>39.9%</td>
</tr>
</tbody>
</table>

NRS ≥ 3 = 47.2% (512 of 1085)  
Jie B. et al, Nutrition 2012, e pub

<table>
<thead>
<tr>
<th>Number Of Complications With NRS Of At Least 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp. Status</td>
</tr>
<tr>
<td>No Complications</td>
</tr>
<tr>
<td>One Complication</td>
</tr>
<tr>
<td>Two Complications</td>
</tr>
<tr>
<td>≥ 3 Complications</td>
</tr>
</tbody>
</table>

Jie B. et al, Nutrition 2012, e pub
Gastric Cancer and Nutrition Intervention

- Observational study of 800 patients with gastric Ca
- Malnutrition defined
  - >10% weight loss in 6 months
  - SGA-grade C
- Adequate intake = ≥25 kcal/kg/IBW
  - From all sources
  - Some pre-operative nutrition support provided
- Malnutrition incidence
  - 19% classified as malnourished (n=152)

Fukuda Y. Ann Surg Onc 2015; e-pub

Gastric Cancer and Nutrition Intervention

- Intervention
  - 106 patients received pre-operative nutrition support (69.7%)
  - 85% received adequate support

Fukuda Y. Ann Surg Onc 2015; e-pub

Critical Need to Address Malnutrition

...
Contributors to Malnutrition In Acute Care Settings

Personal
- Age
- Apathy/Depression
- Disease
- Inability to buy/prepare food
- Inability to chew/swallow
- Limited mobility
- Sensory loss
- Medications
- Therapies: vents/drains/NPO, etc.

Organizational
- Lack of recognition
- Lack of screening/assessment
- Lack of nutrition education
- Confusion re: responsibility
- HT/WT not measured/recorded
- Failure to measure/record food intake
- Inadequate nutrients provided
- Lack of feeding assistance staff
- Nutrition status low priority

Food Intake Can Be Improved
- To evaluate the impact of mealtime practices on meal intake
- Oncology, vascular, internal medicine and orthopedic patient care units
- Mealtime audits of 6 meals/unit for 2 weeks

"This study confirmed that hospital patients eat poorly; 40% of patients ate half or less of their meal, with 10% eating none of the meal provided."

Oral Intake Often Inadequate
- Observational review of ICU patients – oral intake post extubation
- 44% malnourished on ICU admission
- Barriers to intake included anorexia, N/V, restrictive diets, weakness

Peterson S. JADA 2010;110:427-433
Nutrition Care Best Practices

- Systematic review of multiple studies evaluating nutrition practices
- Determine which practices minimize malnutrition in the elderly hospitalized patient
- 29 studies reviewed
  - 15 supported beneficial effect of oral nutrition supplements
  - 9 identified increased energy/protein intakes with enteral feedings
  - 4 studied changes in hospital diets
  - 1 study supported additional personnel to assist with feeding

Vanderkroft D. Int J Evid Based Healthc 2007; 5: 110–181

Malnutrition - National Patient Goal?

- Malnutrition in the hospitalized patient cannot be eliminated
- How it is addressed by the clinician is the key element

The absence of timely nutrition assessment, diagnosis and implementation of a care plan in patients at risk for malnutrition or with pre-existing malnutrition should be a “never event”.


Malnutrition - A National Goal?

Outlines three priority areas

- 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 identification of the malnourished patient).
Building Infrastructure: Accreditation

- Petitioned the Joint Commission to make Optimal Nutrition Care a National Patient Safety Goal
- Nutrition remains on their list to consider
- If made a NPSG, would most likely develop additional standards and programs

What is a National Patient Safety Goal?

- The National Patient Safety Goals (NPSGs) were established in 2002 to help accredited organizations address specific areas of concern in regards to patient safety
- The first set of NPSGs was effective January 1, 2003
- The Patient Safety Advisory Group advises The Joint Commission on the development and updating of NPSGs

Malnutrition Processes and Resources
Nutrition Care Pathway - Adult

- Underlying philosophy to “raise the bar” in identifying malnourished patients
- Consistent with recommendations in Joint Commission Journal paper
- Nutrition assessment completed within 24 hours of consult
- If negative admission screen, rescreens should occur every 3-7 days

Nutrition Intervention - Adult

- If malnutrition present, nutrition care plan with goals and intervention recommendations essential
  - Optimize oral intake
  - Oral nutrition supplements if appropriate
  - Enteral or parenteral nutrition per indication
  - Communication with health care provider is essential
Care Transition

- Discharge care plan is key step
- Education
- Orders
- Case Management
- Communication with home care provider


A.S.P.E.N.'s Step-by-Step Guide to Addressing Malnutrition gives you and your nutrition care team the resources and tools to identify, document, code, and treat this condition.

The guide will help you:
- Implement an optimal nutrition care plan
- Measure the quality of your team's efforts
- Improve the value to your patient

Malnutrition Resource Guide

- Executive summary
- Pathways and links to additional content
- Crosswalk between Joint Commission paper recommendations and tools
- Pocket cards
- Performance improvement tools
- Nutrition Support Team resources
Performance Improvement

- Indicators specific to various pathway steps
- Identify improvement opportunities
- Available in spreadsheet format

Documentation of Malnutrition Matters
What You Need to Know

- Impacts Severity Of Illness
- Impacts Risk of Mortality
- Impacts Quality Measurement
- Impacts Reimbursement

Why else do you need to know?
► Greater understanding as relates to big picture of healthcare
► Provides a clear, accurate, assessment of the patient

Medical Coding

- DRG- Diagnostic Related Groups- system for providing reimbursement to hospitals based on projected/prospective utilization of resources and LOS patterns (Medicare)
- Patients assigned based on
  - Principle Dx
  - Secondary Dx
  - Surgical Procedures
  - Age (newborns)
  - Gender
  - Discharge Disposition: routine, transfer, expired
- All DRGs have
  - Mean LOS
  - Relative Weight - indication of resources needed.
  - Higher RW value = higher reimbursement

5/3/2016
Secondary Diagnoses

- Conditions that co-exist at admission (Co-morbid) or develop during admission (complication)
- CC’s affect treatment received and/or LOS
- CC’s apply to MS-DRGs and APR-DRGs
- Three categories of secondary diagnoses
  - **MCC** = Major complication/comorbidity - highest severity level
  - **CC** = Complication/comorbidity - next level of severity
  - **Non-CC** = Non-complication/comorbidity affecting severity of illness

Nutritional Deficiencies

**ICD-10 E40 - E46**

- E-40 Kwashiorkor **MCC**
- E 41 Nutritional marasmus **MCC**
- E42 Marasmic kwashiorkor **MCC**
- E 43 Unspecified severe, protein-calorie malnutrition **MCC**
- E44 Protein calorie malnutrition of moderate and mild degree **CC**
- E45 Retarded development following protein calorie malnutrition **CC**
- E46 Unspecified protein calorie malnutrition **CC**

Other nutrition codes – without severity codes
- R630 Anorexia
- R634 Weight loss
- R 625 Failure to thrive (adult)

Malnutrition - Patient Acuity

- Important terms to describe patient acuity
  - Case mix index (CMI)
  - All patients refined DRG (APR weight)
  - Severity of illness (SOI)
  - Risk of mortality (ROM)
- All reflect increased resources needed for adequate treatment
  - Influences base payment rate for a hospital
  - Higher measures increase reimbursements
**Malnutrition Process**

- Nutrition screening and assessment
- RD determines if malnutrition is present and degree.
- Notifies MD of malnutrition and supporting criteria
- MD documents malnutrition and severity in progress note
- Coders translate diagnosis into the corresponding ICD code

**Coding and Reimbursement**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>ICD Code</th>
<th>Amount</th>
<th>Medicare</th>
<th>Medicaid</th>
<th>Private</th>
<th>Others</th>
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</thead>
<tbody>
<tr>
<td>Obstructive</td>
<td>592.44</td>
<td>$177.60</td>
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<td>$177.60</td>
<td>$87.00</td>
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<tr>
<td>Malnutrition</td>
<td>507.92</td>
<td>$249.40</td>
<td>$214.20</td>
<td>$204.00</td>
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<td>SGA</td>
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<td>$249.40</td>
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<td>$249.40</td>
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<tr>
<td>Nutritional deficiency</td>
<td>507.92</td>
<td>$249.40</td>
<td>$214.20</td>
<td>$204.00</td>
<td>$249.40</td>
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<td>Anorexia</td>
<td>507.92</td>
<td>$249.40</td>
<td>$214.20</td>
<td>$204.00</td>
<td>$249.40</td>
<td></td>
</tr>
</tbody>
</table>

**Coding for Malnutrition Improvement Needed**

- Aim: to determine frequency of use of ICD-9 codes in a population of malnourished patients
- 1371 patients
- SGA performed
- Discharge ICD-9 code assignment reviewed
- 441 patients with SGA-B or C
  - 32% malnourished
  - 40 patients (9%) with malnutrition codes upon discharge
Coding for Malnutrition - Improvement Needed

<table>
<thead>
<tr>
<th>ICD-9 Code</th>
<th>Code Detail</th>
<th># of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>260</td>
<td>Kwashiorkor</td>
<td>0</td>
</tr>
<tr>
<td>261</td>
<td>Nutritional marasmus</td>
<td>3</td>
</tr>
<tr>
<td>262</td>
<td>Other severity malnutrition</td>
<td>0</td>
</tr>
<tr>
<td>263.0</td>
<td>Malnutrition of a moderate degree</td>
<td>0</td>
</tr>
<tr>
<td>263.1</td>
<td>Malnutrition of a mild degree</td>
<td>1</td>
</tr>
<tr>
<td>263.9</td>
<td>Unspecified protein calorie</td>
<td>5</td>
</tr>
<tr>
<td>780.94</td>
<td>Early satiety</td>
<td>1</td>
</tr>
<tr>
<td>783.01</td>
<td>Anemia</td>
<td>0</td>
</tr>
<tr>
<td>783.21</td>
<td>Loss of weight</td>
<td>0</td>
</tr>
<tr>
<td>783.22</td>
<td>Underweight</td>
<td>1</td>
</tr>
<tr>
<td>783.7</td>
<td>Adult Failure to Thrive</td>
<td>5</td>
</tr>
</tbody>
</table>

Abstract 56, 2014

Malnutrition Documentation

- Chart review from large academic center
- N=217 patients with community acquired pneumonia over 13 months
- 15/217 with RD malnutrition diagnosis (7%)
- 8 of the 15 were coded upon discharge
  - DRG relative weight increased for 5 of the 8 patients
  - $18,875 increased revenue
- 7 of the 15 were not coded upon discharge
  - Missed revenue of $29,813
  - CMI would have increased

Malnutrition Process

New York-Presbyterian Hospital Process

Upon admission to NYP, patients are assessed, Nurturing

- Registered Dietitian (RD) assesses patients with RD issues

- RD reviews patient's history with physician nurse practitioner/physician assistant, if appropriate, once chart notes are done to care coordination and documentation

- Upon discharge, Medical Coordinator for documentation of the physician nurse practitioner/physician assistant and medical documentation done during patient and/or RD rounds

- RD codes are “grouped” to generate a single Diagnosis Related Group (DRG)

- No ICD-9 codes and DRG for a particular diagnosis or combination of conditions in the physician nurse practitioner and medical documentation done at the discharging institution

Mt. Carmel Malnutrition Process Implementation

- Developed an “Implementation Team”
  - Clinical Nutrition
  - Medical Staff
  - Nursing
  - Finance
  - Documentation Specialists/Coders
  - Information System
  - Quality Management

Develop Implementation Plan

- Outlined nutrition assessment process
  - Adult malnutrition characteristics are standardized
- Formal and informal education of RDN’s
  - Use of characteristics
  - Nutrition focused physical assessment
  - Specify documentation nomenclature in electronic health record
- Develop education plan
  - Medical staff
  - Documentation specialists
  - Coders

Malnutrition Process Work Flow

- Nutrition Screening by Patient Care Services upon admission
  - MST – score of ≥ 2 generates referral
- RDN assesses patient
- RDN reviews malnutrition findings with MD
  - Collaborates on documentation and plan of care
- RDN enters “Nutrition” malnutrition diagnosis in electronic health record
Malnutrition Diagnosis

Malnutrition Process Workflow

- MD is alerted and, if agrees, converts to “Medical” Diagnosis
  - Includes in progress notes
- Daily report generated from EHR of patients with malnutrition documentation by RDN
- Upon discharge, coders review medical record and assign ICD malnutrition code

Malnutrition Report
Malnutrition Program Metrics

- Pre and Post program data currently being generated (3 months each)
- Percentage of positively screened patients who are malnourished
- Number of patients diagnosed by the RD with a medical malnutrition diagnosis
- Number of patients coded for malnutrition upon discharge
- Differences in reimbursement

In Summary

- Malnutrition has been an issue for over 40 years
- Outcomes can be improved with diagnosis and intervention
- Developing processes for identification and treatment beneficial
- Appropriate documentation for coding and reimbursement is essential to provide adequate resources
- This is a critical opportunity for RDN’s to impact our patients and health care systems

Thank You All

??’s