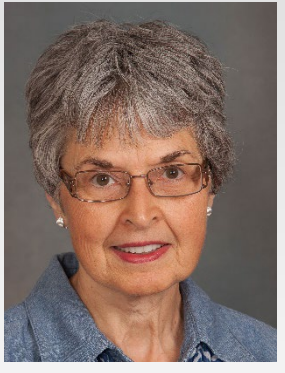
Issues in Enteral Feeding: Malnutrition



A webinar for HealthTrust Members
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Continuing Education Provider

PFIEDLER education

Presented by:
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Disclosures

- The presenter serves as a clinical education consultant for ΔVΔNOS through Kelly Outsourcing and Consulting Group.

- This program may contain the mention of drugs or brands presented in a case study or comparative format using evidence-based research. Such examples are intended for educational and informational purposes and should not be perceived as an endorsement of any particular supplier, brand or drug.

Issues in Enteral Feeding: Malnutrition

Objectives

- Explain why malnutrition is a significant clinical problem in acute health care settings in the United States
- Describe how to recognize when a patient is malnourished and would benefit from nutritional support
- Discuss use of enteral & parenteral feeding in malnourished patients
- Summarize the importance of establishing a multidisciplinary care team to improve nutrition intervention.

Malnutrition

Malnutrition is a dietary deficiency when intake of nutrients is too high, too low or poorly balanced

Malnutrition

The prevalence of malnutrition in older adults (aged ≥ 65y) in Europe and North America is:

- 1-15% in noninstitutionalized older adults
- 25-60% in geriatric care facilities
- 35-65% in hospitals

Source: Favaro-Moreira, et al. (2016). Adv Nutr **7**(3): 507-522.

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In the year 2050, it is predicted that the percentage of people in developed countries over the age of 80 will grow from 9% to 19%
RESULT: An increase of older adults at risk of malnourishment

Source: Favaro-Moreira, et al. (2016). Adv Nutr **7**(3): 507-522.

Malnutrition

The prevalence of illness-related malnutrition in hospitalized children: 6-51%

Malnutrition is probably under recognized

Source: Mehta, N. M., M. R. Corkins, et al. (2013). "Defining pediatric malnutrition: a paradigm shift toward etiology-related definitions." JPEN J Parenter Enteral Nutr **37**(4): 460-481.

Malnutrition

- 1/3rd of patients have some degree of malnutrition when admitted to hospital
- 2/3rds of those patients will have further decline in nutrition during inpatient stay if left untreated

Tappenden, K. A., B. Quatrara, et al. (2013). J Acad Nutr Diet **113**(9): 1219-1237.

Polling Question 1

In your estimation, what percentage of adult patients are malnourished when admitted to your hospital/healthcare facility?

A. 5%
B. 10%
C. 20%
D. 30%
E. >30%

Causes of Malnutrition

- Inadequate food intake
- Mental health conditions
- Eating disorder
- Digestive disorders/stomach conditions
- Alcoholism
- Difficulty obtaining/preparing healthy food
- Increased/changed metabolic demands

Causes of Malnutrition

Additional risk factors:

- Older age
- Hospitalization
- Residence in a long-term care facility

Older patients are at high risk, with malnutrition impacting up to 60% of hospitalized older adults

Signs and Symptoms of Malnutrition

- Lack of appetite
- Fatigue/irritability
- Inability to concentrate
- Feeling cold
- Loss of fat/muscle/body tissue

Signs and Symptoms of Malnutrition

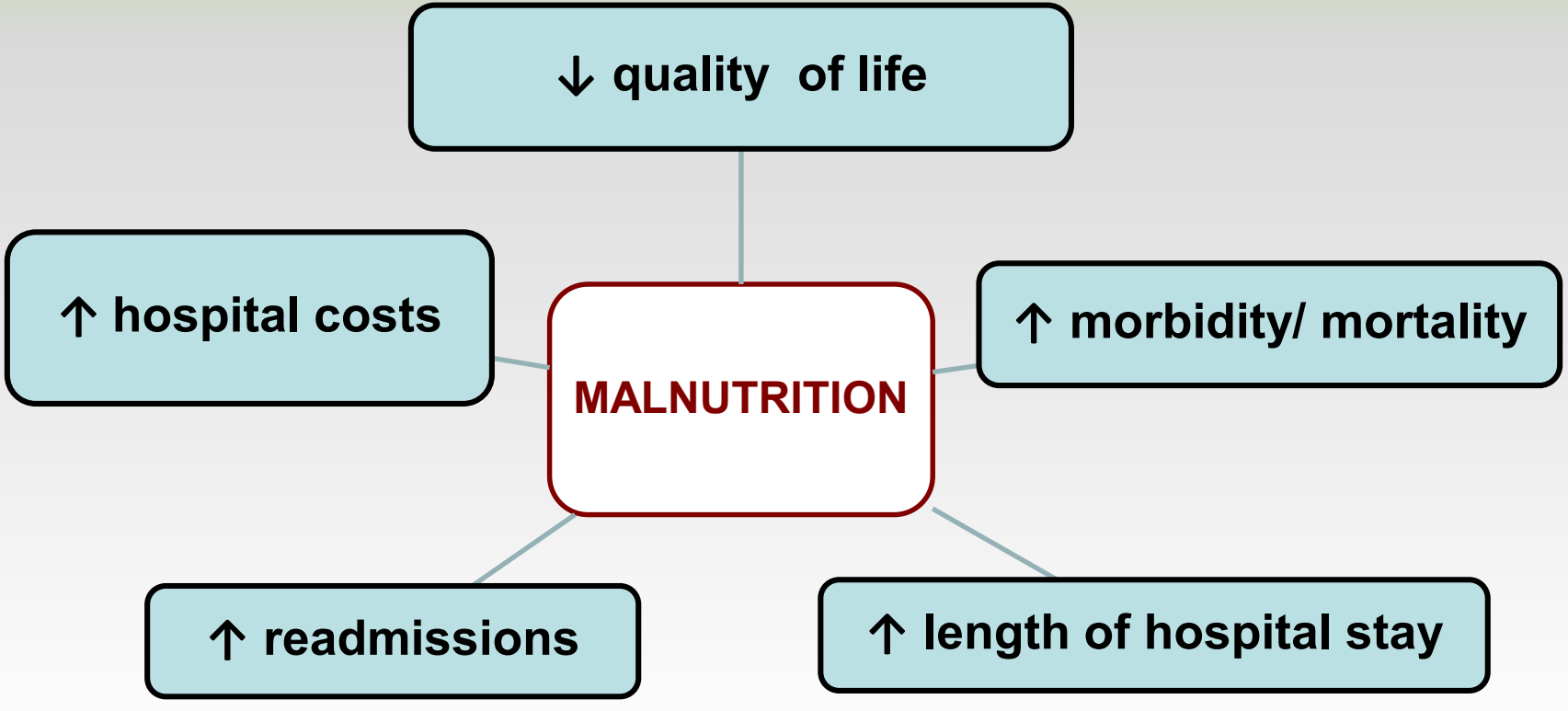
- Lack of appetite
- Fatigue/irritability
- Inability to concentrate
- Feeling cold
- Loss of fat/muscle/body tissue
- Frequent illness/delayed recovery
- Delayed wound healing
- Complications after surgery
- Depression
- Reduced sex drive
- Problems with fertility

Signs and Symptoms of Malnutrition

In more severe cases:

- Dyspnea
- Skin that is thin, dry, inelastic, pale, cold
- Hollow cheeks
- Sunken eyes
- Hair that is dry and sparse
- Respiratory failure
- Heart failure
- Unresponsiveness

Consequences of Malnutrition



Diagnosis & Treatment of Malnutrition

Diagnosis of Malnutrition

- Two or more characteristics needed for malnutrition diagnosis
  - Insufficient energy intake
  - Weight loss
  - Loss of muscle mass
  - Loss of subcutaneous fat
  - Localized/generalized fluid accumulation
  - Diminished functional status

Nutrition Screening

Nutrition Screening is a process to:

- identify an individual who is malnourished or who is at risk for malnutrition
- determine if a detailed nutrition assessment is indicated

A.S.P.E.N.: American Society for Parenteral and Enteral Nutrition

Polling Question 2

Nutrition screening should be done:

A. on patients who appear malnourished
B. on all hospitalized patients
C. at the discretion of the admitting physician
D. none of the above

Response Question 2

Nutrition screening should be done:

A. on patients who appear malnourished
B. **on all hospitalized patients**
C. at the discretion of the admitting physician
D. none of the above

Nutrition Screening

Nutrition Screening is a process to:

- identify an individual who is malnourished or who is at risk for malnutrition
- determine if a detailed nutrition assessment is indicated

Nutrition Screening is recommended for all hospitalized patients

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Nutrition Screening Tools

- Malnutrition Screening Tool (MST)
- Malnutrition Universal Screening Tool (MUST)
- Mini Nutritional Assessment – Short Form (MNA-SF)
- Nutritional Risk

Nutrition Screenings

MST Screening Tool

The MST Screening Tool asks questions on:

- Weight Change
- Appetite

1. Have you lost weight recently without trying?		
No	0	
Unsure	2	
If Yes, how much weight (kg) have you lost?		
1 – 5	1	
6 – 10	2	
11 – 15	3	
> 15	4	
Unsure	2	Weight Loss Score: ☐
2. Have you been eating poorly because of a decreased appetite?		
No	0	
Yes	1	Appetite Score: ☐
Total MST Score (weight loss + appetite scores)		☐

Nutrition Screenings

MST Screening Tool

1. Have you lost weight recently without trying?

WEIGHT LOSS SCORE:

Response	Point Value
NO	**0**
Unsure	**2**
If YES, how much weight (kg) have you lost?	
1-5	**1**
6-10	**2**
11-15	**3**
>15	**4**
Unsure	**2**

Nutrition Screenings

MST Screening Tool

2. Have you been eating poorly because of a decreased appetite?

Response	Point Value
NO	0
YES	1

APPETITE SCORE: ☐

Nutrition Screenings

MST Screening Tool

Total MST Score =

WEIGHT LOSS SCORE: ☐ + **APPETITE SCORE:** ☐

Determination of Nutrition Support

- Type of nutritional support utilized
  - Severity of malnutrition
  - Presence of underlying conditions/complications
  - Ability to feed oneself
  - Ability to eat/digest food normally
  - Age
  - Mental state
  - Setting

Types of Nutrition Support

- Oral Nutrition Supplements
- Enteral Nutrition Supplements
- Parenteral Nutrition Supplements

Oral Nutrition Supplements

- Nutritionally complete supplements
- Nutritionally incomplete supplements
- Modular supplements
- Disease-specific supplements

Enteral Nutrition

Definition of Enteral Nutrition (EN):

The delivery (via a tube) of a nutritionally complete liquid food mixture consisting of proteins, carbohydrates, fats, mineral, vitamins and water into the stomach, duodenum or jejunum of patients with normally functioning GI tracts.

Enteral Nutrition
Types of Feeding Tubes

- Nasogastric
- Nasoduodenal
- Nasojejunal
- Orogastric
- Orojejunal
- Transesophageal

- Gastrostomy (G-tube)
- Percutaneous endoscopic gastrostomy (PEG)
- Jejunostomy (J-tube)
- Percutaneous endoscopic jejunostomy (PEJ)
- Gastrojejunostomy

Enteral Feeding Formulas

- Standard polymeric
- High-calorie polymeric
- High-protein polymeric
- Polymeric with fiber
- Oligomeric
- Diabetic
- Immunomodulating
- Modular
- Pulmonary
- Renal

Potential Complications of Enteral Feeding

- Obstruction
- Lesions
- Sinusitis
- Aspiration
- Pulmonary complications

Potential Complications of Enteral Feeding

- Obstruction
- Lesions
- Sinusitis
- Aspiration
- Pulmonary complications
- Diarrhea
- Intestinal ischemia
- Epistaxis
- Metabolic disturbances

Parenteral Nutrition

Definition of Parenteral Nutrition (PN):

The intravenous administration of nutrients.

- Central PN: delivered into a large-diameter vein, usually the superior vena cava adjacent to the right atrium.
- Peripheral PN: delivered into a small-diameter peripheral vein, usually of the hand or forearm.

Parenteral nutrition should only be used when enteral nutrition is not possible

Examples of Conditions that may require Parenteral Nutrition

- May be required for those suffering from
  - Short-bowel syndrome
  - Gastrointestinal fistula
  - Bowel obstruction
  - Severe acute pancreatitis

Parenteral Feeding Formulas

Typical Concentrations:

- Central venous access
  - 25-35% dextrose, 2.75-6% amino acids

- Peripheral infusion
  - 5-10% dextrose, 2.75-4.25% amino acids

Potential Complications of Parenteral Feeding

- Associated with higher risk of:
  - Biliary diseases
  - Osteoporosis, osteomalacia
  - Catheter-related infections
  - Central venous access complications
  - Electrolyte imbalances
  - Hyperglycemia, Hyperlipidemia
  - Liver diseases, Thrombosis

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Infectious complications are frequently related to inadequate catheter care and patient education

Benefits of Nutritional Recovery

- Lower mortality rates
- Decreased complication rates
- Fewer wound infections
- Improved respiratory function
- Lower infective complications
- Earlier return to GI function
- Improved liver function
- Improved physical, emotional function
- Shorter rehabilitation

Considerations for Pediatric Patients

www.nutritioncare.org

Considerations for Pediatric Patients

- Study of tertiary care children's hospitals
  - 24% of children were malnourished
  - Can be related to
    - Illness (Secondary)
    - Non-illness (Environmental/behavioral)

Consequences

- Malnourished children are at risk of
  - Compromised immune systems
  - Increased susceptibility to infectious diseases
  - Negatively affected growth and development
  - Limited total bone growth long term
  - Hindered brain development
  - Delays in motor, cognitive development

Diagnosis of Malnutrition in Children

Factors

- Breastfeeding
- Contact with TB
- Cough lasting over 2 weeks
- Watery/bloody diarrhea
- Persistent/frequent diarrhea, vomiting

Diagnosis of Malnutrition in Children

Factors

- Breastfeeding
- Contact with TB
- Cough lasting over 2 weeks
- Watery/bloody diarrhea
- Persistent/frequent diarrhea, vomiting
- Known/suspected HIV infection/exposure
- Loss of appetite
- Recent contact with measles
- Decreased intake of food, fluids

Diagnosis of Malnutrition in Children

Symptoms

- Shock
- Dehydration
- Severe palmar pallor
- Bilateral pitting edema
- Ocular signs of vitamin A deficiency
- Localized signs of infection

Diagnosis of Malnutrition in Children

Symptoms

- Shock
- Dehydration
- Severe palmar pallor
- Bilateral pitting edema
- Ocular signs of vitamin A deficiency
- Localized signs of infection
- HIV infection
- Fever
- Mouth ulcers
- Skin changes
- Reduced appetite

A.S.P.E.N. Guidelines for Nutrition Support of Critically Ill Child

1. Provide screening & assessment; develop care plan
2. Assess energy expenditure
3. Determine individual's macronutrient requirements
4. Prefer enteral nutrition over parenteral nutrition
5. Recommendation against immune-enhancing diets/nutrients
6. Establish specialized nutrition support team in PICU

A.S.P.E.N.: American Society for Parenteral and Enteral Nutrition

Clinical and economic benefits of treating malnutrition

Economic Implications of Malnutrition

- Study of data from NHANES, NHIS
  - Estimated burden of disease-associated malnutrition (DAM) for 8 diseases studied was > $15.5 Billion
  - Dementia accounted for > $8.7 Billion
  - Depression accounted for $2.46 Billion

NHANES: National Health and Nutrition Examination Survey
NHIS: National Health Interview Survey
DAM: Disease-associated malnutrition

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- Canadian study of moderately malnourished patients
  - Length of hospital stay increased 23-34%
  - Total costs were 38% higher

Challenges and Opportunities in the Affordable Care Act (ACA)

Challenge:

- Reimbursement for costs associated with preventable events WILL be reduced

- ACA penalizes hospitals for higher than expected 30-day readmission rates

Challenges and Opportunities in the Affordable Care Act (ACA)

Opportunity:

- Prevention and treatment of malnutrition can:
  - Reduce readmissions
  - Optimize the quality of patient care
  - Improve clinical outcomes
  - Reduce costs

Am Health Drug Benefits. 2017 Jul;10(5):262-270.

Budget Impact of a Comprehensive Nutrition-Focused Quality Improvement Program for Malnourished Hospitalized Patients.

Sulo S[1], Feldstein J[2], Partridge J[3], Schwander B[4], Sriram K[5], Summerfelt WT[6].

Study focused on:

- malnutrition risk screening at admission
- prompt initiation of oral nutritional supplementation for at-risk patients
- nutrition support
- education for patients during the hospital stay and after discharge

Results:

- shortened length of stay from 7.2 days to 5.4 days
- 27% reduction in patients returning to hospitals within 30 days
- ~ cost savings of >$3800 per patient treated for malnutrition

JPEN J Parenter Enteral Nutr. 2013 Jul;37(4):482-97. doi: 10.1177/0148607113484066. Epub 2013 Jun 4.

Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition.

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At the Johns Hopkins Hospital, a team approach to the assessment and early intervention of malnutrition resulted in:

- reduced LOS by an average of 3.2 days in severely malnourished
- cost savings of $1,514 per patient

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Six principles used to drive improvement

Multidisciplinary Care Model to Improve Nutrition Intervention

1. Create a culture where all stakeholders value nutrition
2. Redefine clinicians' roles to include nutrition care
3. Recognize and diagnose all malnourished and at risk patients

Multidisciplinary Care Model to Improve Nutrition Intervention

1. Create a culture where all stakeholders value nutrition
2. Redefine clinicians' roles to include nutrition care
3. Recognize and diagnose all malnourished and at risk patients
4. Implement comprehensive nutrition interventions and continued monitoring
5. Communicate nutrition care plans
6. Develop a discharge nutrition care and education plan

Issues in Enteral Feeding: Malnutrition

Resource

- American Society for Parenteral and Enteral Nutrition (ASPEN)
  - **Website:** www.nutritioncare.org/
  - **Malnutrition Toolkit:** www.nutritioncare.org/Guidelines_and_Clinical_Resources/Toolkits/Malnutrition_Toolkit/

Issues in Enteral Feeding: Malnutrition

Summary

- Malnutrition is a significant clinical problem in acute and alternative health care settings in the United States
- Early recognition and treatment of malnourished patients has both clinical and economic benefits
- Establishing a multidisciplinary care model to improve nutrition intervention can drive meaningful improvement in the care of patients with or at risk for malnutrition

Issues in Enteral Feeding: Malnutrition

Thank you!

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