The 7th Vital Sign: Nutrition as Preventative Medicine

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Learning Objectives

1. Recognize factors that contribute to poor nutrition in home bound clients.
2. Discuss how the use of nutrition assessments can improve client well-being.
3. List nutrition interventions for specific diseases.
4. Identify key skills and knowledge needed by in-home caregivers for purchasing, preparing and serving safe and nutritious food to clients.

- Meet our client, Charlie C.
  - 71 years of age, diagnosed with COPD, heart failure, wears dentures
  - Lives alone and gets most meals from convenience store
  - You are asked to complete admissions paperwork

- Malnutrition in elders is widely unrecognized by healthcare professionals
  - Focus is on treating primary condition

- Malnutrition is a growing problem
  - Over 1 million elders are at risk
  - Economic burden of over $51 billion/year in U.S.
  - Majority of costs from COPD, depression, coronary heart disease and dementia

- Risk factors for malnutrition
  - Loneliness, depression, dementia, functional disabilities, ability to shop for and prepare food, decreased taste and smell, oral health problems, chronic illness, multiple medications and financial concerns

- Consequences of malnutrition
  - Longer hospital stays, higher readmission rates, increased mortality and morbidity, higher infection rate, skin breakdown, anemia, weakness and fatigue

- Warning signs of malnutrition
  - Weight loss, dull and dry hair, conjunctival dryness, receding gums, mental confusion, sensory loss and motor weakness.

- If you suspect a client at risk for malnutrition, screen and document the findings.

- 3 key factors for choosing a malnutrition assessment tool:
  - Reliable for use with your clients (elders, disabled, etc.) and validated through research
  - Ease of use for your staff
  - Access to supporting data such as height, weight, laboratory data, etc.
• What is required by OASIS?
  o Under patient history and diagnosis, M1033 “Risk for Hospitalization”
    ▪ 10 question checklist, but 5 or more are direct risk factors for malnutrition
    ▪ Sufficient nutrition can improve recovery time and decrease re-hospitalizations

• How do you assess nutrition status?

• Assessments recommended for elders
  o Mini Nutritional Assessment-Short Form (MNA-SF)  
    ▪ Accurate and reliable
    ▪ Inexpensive
    ▪ Quick
    ▪ Digital formats for IPad or IPhone
    ▪ Uses Body Mass Index (height and weight data is required)

  o DETERMINE Your Nutritional Health Nutrition Screening initiative
    ▪ Required by AOA and AAA
    ▪ Inexpensive
    ▪ Quick and simple
    ▪ Questionnaire only

  o You choose to screen Charlie for malnutrition as part of his admission
    ▪ Use DETERMINE-actual responses are on following page
      ▪ Status: HIGH NUTRITIONAL RISK
    ▪ Use this information when creating Charlie’s care plan
The 7th Vital Sign: Nutrition Interventions

Depression

- The relationship between nutrition and factors of human cognition, behaviors and emotions is an emerging discipline
- Nutrition can contribute to or affect treatment of depression

- Contributing factors to depression
  - Occurrences with other illness
  - Side effects of medications, such as nausea, loss of appetite, weight gain, craving sweets, diarrhea and sleepiness
  - Deficiency of key nutrients

- Nutritional deficiencies & depression
  - Omega-3 fatty acids
    - Essential for neural structure and brain function
    - Accelerates cerebral aging
    - Good sources include: salmon, oily fish, soy, nuts, flaxseed
  - B-complex Vitamins, Vitamins C, D & E
    - Essential for function of a healthy brain
    - Deficiencies have been linked to poor appetite, dementia, depression, anorexia, cognitive function and memory decline
    - Dietary sources include meat, fish, seafood, diary, eggs, beans, seeds, nuts, fortified breakfast cereal, grains, fruits and vegetables
  - Minerals
    - Important to mental health because they affect energy metabolism in cerebral cells and neurotransmitters
    - Anti-depressant medication can inhibit calcium absorption, leading to osteoporosis/broken bones and falls
    - Influence effectiveness of anti-depressant medications
    - Deficiencies contribute to cognitive dysfunction
    - Dietary sources include meat, seafood, dairy, dark and leafy greens, vegetables, soybeans, legumes, nuts and seeds, whole grain and fruit
    - Frozen and canned fruit and vegetables are a lower cost option and still a good source of vitamins and minerals.

- Nutrition interventions for depression
  - Encourage omega-3 foods
  - Focus meals around fruits, vegetables and whole grains
  - Provide education, encouragement and assistance to the client
Cardiovascular Disease

- Includes heart disease, peripheral artery disease and hypertension
  - Increases risk of stroke and heart attack

- Contributing factors to cardiovascular disease
  - Weight and fluid retention increase work load of heart
  - Poor oral health increases risk by infection and inflammation
  - Poor appetite leads to muscle wasting-including the heart muscle
  - Malnutrition leads to lack of energy, muscle wasting, decreased strength and mobility
  - Ability to procure and energy to prepare food
  - Alcohol intake in excess leads to malnutrition
  - Diet restrictions, some self-imposed, decrease enjoyment in eating

- Cardiovascular disease and nutrition
  - 2015 Revised Dietary Guidelines
    - Overturned some old recommendations about cholesterol and sodium

- Cholesterol
  - Associated with heart disease
  - Dietary cholesterol doesn’t contribute to lipid cholesterol
  - Low cholesterol diets are not supported anymore, moderation is key
  - Limit saturated fats, focus on unsaturated fats
  - Dietary sources of cholesterol: meat, milk, poultry, fish and eggs

- Trans fats
  - Linked to heart disease and should be avoided
  - Removed from much of the food supply
  - Can still be found in bakery foods, donuts, refrigerated doughs, snack foods and canned frosting

- Salt
  - Modest relationship between salt and systolic blood pressure
  - Obesity is a larger risk factor to hypertension
  - Salt is an essential nutrient
  - Too much salt can be dangerous, moderation is key

- Choline/Carnitine
  - By-product of bacterial digestion of red meat, eggs and dairy (not the cholesterol)
  - Linked to development of heart disease

- Nutrition interventions for cardiovascular disease
  - Increase omega-3 fatty acids
  - Reduce salt to recommended limits
  - Increase fruits and vegetables, whole grains
  - Moderate amounts of red meat and eggs
  - Decrease sugar and sweetened foods and beverages
Lifestyle interventions for cardiovascular disease
- Relax food restrictions for better nutrition outcomes
- Lose weight, if needed
- Encourage exercise to increase (heart) muscle strength

COPD
- The long term destruction of lung tissue making it harder to breath
- 4th leading cause of death in the U.S.

  - Contributing factors to malnutrition in COPD
    - Inadequate calories lead to loss of weight and muscle mass
    - Difficulty eating due to heavy breathing, coughing and fatigue
    - Chronic mouth breathing alters taste of food
    - Headache or confusion from excess CO₂
    - Muscle wasting leads to loss of strength and mobility

  - COPD and nutrition goals
    - Provide enough calories to minimize weight and muscle loss of the diaphragm, respiratory muscles and skeletal muscles
    - Increase strength and muscle tone
    - Reduce weight (if overweight) to reduce pressure on lungs
    - Consuming recommended nutrients

  - Nutrition interventions for COPD
    - Protein
      - Enough to prevent muscle wasting and maintain lung strength
      - Avoid beans, fried, greasy foods and carbonated beverages that can cause gas and bloating
    - Omega-3 fatty acids
      - Reduces inflammation in lungs
      - Decreases sputum production
    - Calcium and Vitamin D
      - COPD increases risk factors for osteoporosis
      - Dairy products can increase mucus production
        - Try alternatives to dairy like soy or almond milk, fortified foods, leafy greens
      - ADA recommends supplementing calcium and Vitamin D in patients with COPD
    - Drink fluids
      - Unless fluid restricted, drink lots of fluids to thin mucus and clear airways
      - Drink at the end of meals to avoid feeling full
    - Season food without salt
      - Salt can cause water retention and make breathing more difficult
      - Use alternative seasonings
Mealtime interventions for COPD
- Eat the largest meal when energy is highest, usually the morning
- Eat several nutrient dense meals/snacks during the day
- Drink small amounts of fluids during the day to thin mucus and clear airways
  - Avoid carbonated beverages that can cause bloating
- Eat slowly and chew thoroughly to avoid swallowing air
- Modify food consistency if chewing is too exhausting
- Eat sitting up to ease pressure to the diaphragm
  - Avoid foods that may cause gas or bloating like beans or broccoli

Lifestyle interventions for COPD
- Exercise
  - Shown to improve overall strength and endurance, reduce symptoms and fatigue
  - Contribute to stronger respiratory muscles and improved breathing

Diabetes Mellitus
- Diabetes is a problem of growing concern for elders
  - $245 billion/year economic burden in the U.S.
  - Diabetes in the senior population is increasing at a high rate
  - Without intervention, these trends will continue to increase
- Diet can prevent and treat diabetes
  - Prediabetes can be reversed
  - Lifestyle changes can drastically improve diabetes
  - Caregivers should reinforce and encourage positive health habits

Diabetes and nutrition goals
- Keep blood glucose in normal range
- Keep blood lipids in normal range
- Control blood pressure

Nutrition interventions for diabetes
- Control carbohydrate intake
  - The amount of carbohydrate is more important than the source
    - Some carbs are more nutrient dense than others
- Be consistent with meals and snacks
  - Eat at regular times
  - Don’t go too long between meals
- Balance food with exercise
  - Even brief exercise, like a walk around the block, can lower blood sugar levels
Mealtime interventions for diabetes

- Use tools (measuring cups, kitchen scale, hands for estimating) to measure serving sizes
  - The amount of carb is more important than the source

- Be consistent with the number of carb choices at each meal or snack

- Alcohol can cause high or low glucose levels depending on many factors
  - Work with a healthcare professional if a client would like to drink alcohol

- Easing diet restrictions will prevent the client from feeling deprived of their favorite foods
  - Moderation is key

- Respect personal and cultural preferences
  - Involve the client in the decision making process in food or lifestyle changes
  - Help increase awareness of beneficial nutrition therapies
  - Increase awareness of beneficial effects of physical activity
  - Follow up is key to demonstrate the importance of the recommendations and that the caregivers do care

Nutrition Care Plan

- Review Charlie’s nutrition assessment and diagnosis to create the following plan

Diet interventions

- Serve nutrient dense foods and fruits & vegetables
- Get enough calcium and Vitamin. D, but use alternatives to dairy
- Include nuts, soy and fish as good sources of protein and omega-3’s
- Avoid beans, broccoli, fried or greasy foods & carbonated beverages that can cause gas and bloating
- Limit salt to prevent fluid retention

Mealtime interventions

- Eat the main meal when energy is highest, usually in the morning
- Go to the table and eat sitting up helps alleviate pressure on the lungs
- Take small bites and chew well to prevent swallowing air
- Small frequent meals take less energy to eat
- Drink fluids between meals or after eating to prevent feeling full
- Sip throughout the day to keep mucus thin

General interventions

- Involving Charlie in setting goals help to increase personal meaningfulness and increases motivation to improve current situation
- Exercise will increase muscle strength of the heart, respiratory muscles and overall strength and endurance
- Encourage time outdoors each day
  - natural sunlight increases Vitamin. D. and helps prevent osteoporosis
- Provide encouragement and point out progress
Putting the Care Plan into Practice

- Direct care staff should be competent in the following:
  - Making meals smell, taste and look appealing
    - Clients will consume more calories if the food appeals to the client
  - Knowledge of handling, cooking and storing food safely
    - Elders are at a higher risk for food borne illness, much of which is preventable
  - Food sources of nutrients (carbohydrates, protein, sodium, etc.)
    - For example, for a client who needs extra protein or should avoid high sodium foods
  - Nutrients function in the body
    - For example, understanding how fiber and fluids can help improve digestion and prevent constipation
  - Planning meals and grocery shopping
    - Planning meals that are balanced in nutrition and buying foods that are healthful and within the grocery budget
  - Basic cooking techniques
    - Using available ingredients to create meals while preserving nutrition and offering variety to the elder

Effective Nutrition Training

- 6 elements of a training program
  - Create learning objectives
    - Determine what needs to be learned. What are the goals of the training?
  - Use a variety of teaching methods
    - Everyone learns differently and will respond better to multiple training methods
  - Kitchen facility with hands-on practice
    - As with training in nursing skills, the actual equipment is used (blood pressure cuff, Hoyer lift, etc.) the same should be the case with cooking skills (using a knife or food thermometer)
  - Safe and inclusive environment
    - Caregivers can “try out” new skills without the fear of messing up or being criticized by the client
    - Advice can be offered and camaraderie is built within staff
  - Tools to evaluate the effectiveness of the training
    - Are they learning what needs to be learned?
    - Evaluate with a written assessment or skills check
• Opportunity for feedback from learners, administrators and clients
  • Is the program effective?
  • How could it be improved?

In Review
  o Screen all elders for malnutrition
    ▪ Screening assessments are simple to use and provide actionable data
  o Nutrition interventions should be part of the care plan
    ▪ Simple interventions can make a remarkable difference in an elders well-being and quality of life
  o Direct care staff need basic knowledge of nutrition and food preparation
  o The whole care team should offer consistent education and support
    ▪ Emphasizes the importance of nutrition to the client and shows you care

We Want to Hear Your Nutrition Success Stories

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The information provided in this presentation is intended to provide general information about nutrition and lifestyle interventions for persons with COPD, depression, coronary heart disease and diabetes based upon information believed to be reliable. It is not provided as a professional service or as medical advice, and is not a substitute for professional medical advice which should be first obtained and followed by any person with the above named diseases.
The 7th Vital Sign: Nutrition as Preventative Medicine Bibliography


DETERMINE YOUR NUTRITIONAL HEALTH

The warning signs of poor nutritional health are often overlooked. Use this checklist to find out if you are at nutritional risk.

Read the statements below. Circle the number in the “Yes” column for those that apply to you. Add the circled numbers to get your nutritional risk score.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have an illness or condition that made me change the kind and/or amount of food I eat.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I eat fewer than two meals a day.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>I eat few fruits, vegetables, or milk products.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I have three or more drinks of beer, liquor, or wine almost every day.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I have tooth or mouth problems that make it hard for me to eat.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I don’t always have enough money to buy the food I need.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>I eat alone most of the time.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>I take three or more different prescribed or over-the-counter drugs each day.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Without wanting to, I have lost or gained ten pounds in the last six months.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I am not always physically able to shop, cook, and/or feed myself.</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Total 13

Refer to the Determine Your Nutritional Health handouts to learn more about the warning signs of poor nutritional health.

Nutritional Health Score

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 2</td>
<td>Good</td>
</tr>
<tr>
<td>3 - 5</td>
<td>Moderate Nutritional Risk</td>
</tr>
<tr>
<td>6 or More</td>
<td>High Nutritional Risk</td>
</tr>
</tbody>
</table>

Adapted from: The Nutrition Screening Initiative • 1010 Wisconsin Avenue, NW • Suite 800 • Washington, DC 2007
The Nutrition Screening Initiative is funded in part by a grant from Ross Products Division of Abbott Laboratories, Inc.
## Mini Nutritional Assessment (MNA®)

### APPENDIX 2

Complete the screen by filling in the boxes with the appropriate numbers. Total the numbers for the final screening score.

#### Screening

**A** Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?
- 0 = severe decrease in food intake
- 1 = moderate decrease in food intake
- 2 = no decrease in food intake

**B** Weight loss during the last 3 months
- 0 = weight loss greater than 3 kg (6.6 lbs)
- 1 = does not know
- 2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs)
- 3 = no weight loss

**C** Mobility
- 0 = bed or chair bound
- 1 = able to get out of bed / chair but does not go out
- 2 = goes out

**D** Has suffered psychological stress or acute disease in the past 3 months?
- 0 = yes
- 2 = no

**E** Neuropsychological problems
- 0 = severe dementia or depression
- 1 = mild dementia
- 2 = no psychological problems

**F1** Body Mass Index (BMI) (weight in kg) / (height in m)^2
- 0 = BMI less than 19
- 1 = BMI 19 to less than 21
- 2 = BMI 21 to less than 23
- 3 = BMI 23 or greater

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If BMI is not available, replace question F1 with question F2. Do not answer question F2 if question F1 is already completed.

**F2** Calf circumference (CC) in cm
- 0 = CC less than 31
- 3 = CC 31 or greater

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### Screening score
(max. 14 points)

| 12-14 points: | Normal nutritional status |
| 8-11 points: | At risk of malnutrition |
| 0-7 points: | Malnourished |

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Ref. 


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For more information: [www.mna-elderly.com](http://www.mna-elderly.com)