

*A Call to Action:*  
**Raising Awareness About**  
**Nutritional**  
**HEALTH**





# Learning Objectives

1. Recognize the current state of nutritional assessment and discuss the role of PAs in managing nutritional health in primary care patients
2. Incorporate screening and use of appropriate testing for nutritional deficiencies into routine patient care
3. Explain basic concepts in nutritional health
4. Review the nutritional needs in special populations such as patients with obesity, diabetes, and the elderly
5. Review nutritional supplements and other treatment strategies





# Pre-Test Questions

1. Generally, which is not part of a standard nutrition assessment?
  - A. A review of the medical record.
  - B. Height and weight.
  - C. A discussion of food preferences.
  - D. Allergy testing.





# Pre-Test Questions

2. The role of the PA in managing nutritional health in primary care does not include?

- A. Nutrition assessment
- B. Treatment of metabolic diseases and eating disorders
- C. Monitoring adherence to nutritional plan
- D. Referral to specialists





# Pre-Test Questions

3. Whose job is it to manage a patient's nutritional health?

- A. Physician
- B. Physician Assistant
- C. Nurse
- D. All healthcare providers



# Role of the PA in Nutrition Health Management





# Role of PA in Nutritional Health Management: Current State

- Data indicate that PAs:<sup>1,2</sup>
  - Often encounter nutrition issues in patient care
  - Are often asked nutrition-related questions
  - Are “not very comfortable” addressing issues related to nutrition
  - Lack the expertise and training required to confidently provide care
- Nutrition is linked to areas of most concern noted by PAs:<sup>1,2</sup>
  - Cardiovascular disease
  - Weight-loss diets
  - Overweight and obesity
  - Diabetes

1. Hanson CK et al. *J Physician Assist Educ.* 2013;24:6-13.

2. Hayes S et al. *J Commun Healthc.* 2017;10:47-54.





# Role of PA: Managing Nutritional Health in Primary Care

- Confusion exists. Whose job is it to manage a patient's nutritional health?
  - **Everyone's job!**
- PAs and physicians often identify and treat nutrition-related conditions reactively rather than proactively.
- Role of the PA: **Be proactive**
  - Nutrition assessment
  - Intervention
  - Counseling
  - Monitoring/Referral







# Role of the PA: Nutrition Assessment (ABCDs)

- **Anthropometric Data:**
  - Looks at body measurements, including weight, height, body fat, and waist
- **Biochemical Parameters:**
  - Obtained through patient-specific lab tests: proteins, lipids, glucose, metabolic profile, CBC, vitamin, and mineral levels if appropriate
- **Clinical Assessment:**
  - Includes information on patient's oral, physical and cognitive function, medical history, medication use, signs and symptoms of malnutrition, deficiency, or disease
- **Dietary History:**
  - Includes information on food and beverage consumption, dietary practices, beliefs, and supplement use





# Role of the PA: Intervention

- **Intervention:**

- Select an intervention
  - Sensitive to factors such as culture, age, socio-economic status, etc
  - Directed at the root cause/etiology of the nutrition-related issue
- Strive for preventing disease, as well as alleviating signs and symptoms of an existing diagnosis.





# Role of the PA: Counseling

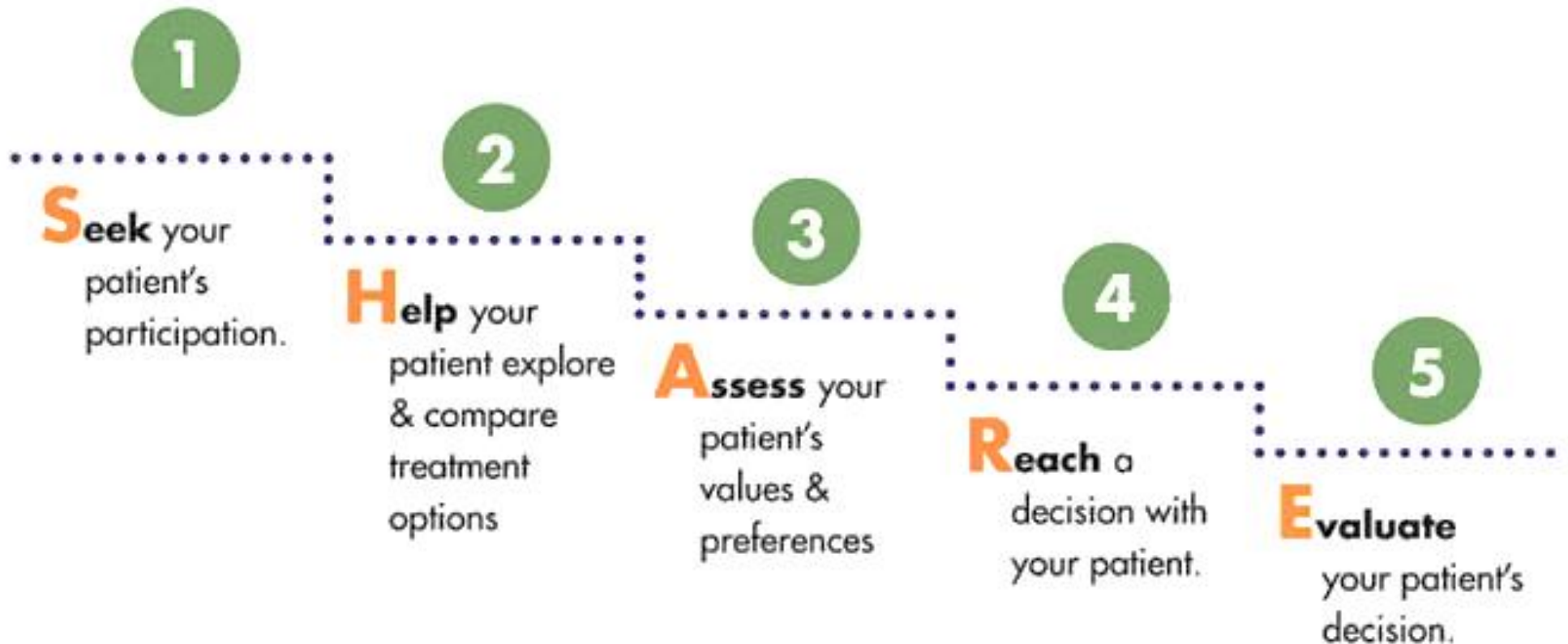
- **Counseling:**

- Promote responsible self-care by working with patients to:
  - Set priorities
  - Establish goals
  - Create a personal action plan specific to them
- Minimize judgmental criticism
- Probe for implicit and overt biases
- Shared decision making



# 5 Essential Steps of Shared Decision Making

- The SHARE approach is a 5-step process for shared decision making that includes exploring and comparing the benefits, harms, and risks of each option through meaningful dialogue about what matters most to the patient





# Role of the PA: Monitoring and Referrals

- **Monitoring:**

- Determine if the patient has achieved or is making progress toward the planned goals.
- Monitor the **ABCDs** of nutrition assessment.

- **Referrals:**

- Refer all patients to evidenced-based resources.
- Refer to a registered dietitian (RD) when not meeting goals.
- Refer to an RD for education and management of a chronic condition.



# Incorporating Nutrition Screening Into Routine Clinical Practice





# Incorporating Nutritional Screening Into Routine Patient Care

- **Defining Malnutrition:** “Nutritional imbalance”
- **Clinical Mindset:** “Primary Care Approach”
  - **Overnutrition (vs) Undernutrition Syndromes:**
    - **Overnutrition:** Obesity, diabetes, hypertension, heart disease, GERD, gout
    - **Undernutrition:** Iron deficiency, vitamin deficiencies, sarcopenia, osteoporosis, cancer, wounds
    - **Both ends of the spectrum:** Obesity, eating disorders, alcoholism, GERD (effects of chronic acid suppression), S/P bariatric surgery, polypharmacy, low SES (food access)
- **Nutritional risk varies by age and disease state:**
  - **Pediatrics:** Developmental growth, calcium, iron, etc
  - **Adults:** CAD, DM, HTN, HLD, stroke, CKD, etc
  - **Older Adults (> 50 y/o):** Protein, calories, appetite, food access, oral health, vision disorders, etc



# Incorporating Nutritional Screening Into Routine Patient Care

## General Approach:



### EMR

- Individual Patient Visits (vs) Population-based Metrics
- Pre-visit Planning – Screening Questionnaires
- During Visit – growth charts, weight/lab trends



### Screening Questionnaires

- The Challenge: So many tools to pick from and when/which to implement?
- MNA, SGA, NSAQ, NUTRIC
- Use of support staff (MA, RN to collect information and provider to review)



### Anthropometrics/Vitals

- BP, Weight, Height, BMI, Waist Circumference
- Trends: Reported Weight (vs) Documented Weight



### Physical Exam Findings



**Labs:** +/- depending on anthropometrics, history, questionnaires, and risk.







# Incorporating Nutritional Screening Into Routine Patient Care

- **Findings on Patient History:**

- **“Red Flags”**

- ❏ Changes in body weight (both weight loss and weight gain)

- Trends helpful!

- Intentional vs **unintentional weight change**

- ❏ Increase or **decrease in appetite** (anorexia)

- ❏ Financial limitations (food access)

- Access to healthy nutritious foods (vs) access to high-calorie, low-quality foods (i.e. fast foods)

- ❏ Chronic Conditions: Can be responsible for both weight gain and loss

- ❏ Swallowing/Chewing Issues

- ❏ Medications: can be responsible for both weight gain and loss





# Incorporating Nutritional Screening Into Routine Patient Care

- **Anthropometric findings on physical exam:**
  - BP: Salt intake
  - BMI
  - Waist Circumference (WC): Surrogate marker for visceral adipose tissue
    - Men > 102 cm
    - Women > 88 cm





# Incorporating Nutritional Screening Into Routine Patient Care (cont)

- **Non-specific Findings** (i.e. not always nutrition-related)
  - Hair Loss: inadequate protein, B12, and folate
  - Temporal Atrophy: general muscle wasting
  - Angular Palpebritis: riboflavin deficiency
  - Oral Health: too many to list (macronutrient deficiencies, vitamin C, D, B12)
  - Glossitis/Angular Cheilosis: low vitamin B complex
  - Peripheral Edema: poor nutritional status, protein malnutrition
  - Decreased Hand Grip Strength: decreased muscle mass
  - Poor Wound Healing: lack of vitamin C/zinc/protein/calories





# Using Appropriate Tests to Analyze Nutritional Deficiencies (Including Overnutrition)

- **Basic Laboratory Data:**

- A1C (prediabetes, diabetes)
- Lipids\*
- CBC/ferritin/vitamin B12/folate – anemia
- CMP (electrolytes, protein stores, albumin)
- Uric acid (gout management)
- Vitamin D (controversial)
- Celiac panel

- **Nutrition Specific Labs:**

Not all high yield

- Zinc, selenium, copper, manganese
- Vitamins B1 (thiamine), B6 (pyridoxine), A, K, E
- Biotin

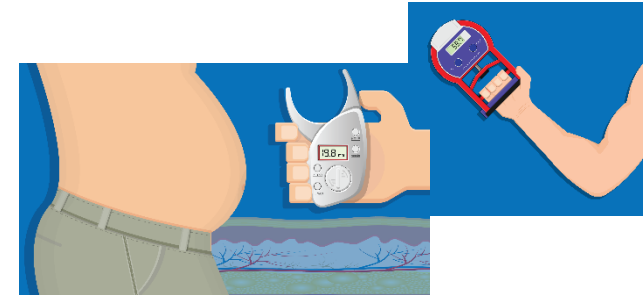
\*Vary depending on fasted/non-fasted state, whether on or off statins.  
CMP, comprehensive metabolic panel



# Using Appropriate Tests to Analyze Nutritional Deficiencies (Including Overnutrition)

## Scanning/Procedures:

- Body Composition Studies:
  - Poor clinical application:  
Handgrip Dynamometry, Skin-fold thickness – pros/cons
  - Better clinical application:  
Bioelectrical Impedance Analysis (BIA) – pros/cons









- DEXA (osteoporosis guidelines)
- EGD (GERD management)





# Nutritional Supplements and Other Treatment Strategies

## General Approach:

-  Identify the relevant risk factors and minimize the impact
-  Identify and remove barriers
-  Provide a recommendation or “prescription” for dietary needs
-  Identify foods, supplements, and programs (i.e. food stamps, WIC, meals on wheels, etc)
-  Monitor progress (intakes, weight, labs, dexa, mobility, strength)
-  Refer to nutrition professionals (RD) when necessary

## Supplements:

-  Make recommendation or prescription if treating documented nutritional deficiencies (i.e. anemia, B12 deficiency, etc)



# Nutritional Supplements

- **Contents:**

- Micronutrients
  - Vitamins
  - Minerals
- Macronutrients
  - Carbohydrates
  - Protein
  - Fat
- Botanicals (herbs)
- Other (eg, phytochemicals, zoochemicals)

- **Forms:**

- Capsules
- Softgels
- Tablets
- Liquids
- Powders
- Bars
- Beverages



# Nutritional Supplements – Special Populations

Target Population	Recommended Supplement(s)
Infants and small children	Iron (1 mg/kg for exclusively breast fed)* Vitamin D (400 IU/day)*
Women who may become pregnant	Folic acid (400-800 µg/day)†
Older adults (> 50 y)	B-12 (2.4 µg/day)† High calorie (for malnutrition)
Athletes	N/A
Disorders <ul style="list-style-type: none"><li>• Metabolic (eg diabetes)</li><li>• Under/over weight</li><li>• Cardiovascular</li><li>• Osteoporosis</li><li>• Brain/cognition</li><li>• Gastrointestinal</li><li>• Surgery</li><li>• Cancer</li></ul>	Disorder dependent

\*American Academy of Pediatrics

†Food Nutrition Board and US Preventive Services Task Force (USPSTF)

Academy of Nutrition and Dietetics Position. *J Acad Nutr Diet.* 2018;118:2162-2173.





# Nutritional Needs in Specialty Populations (Obesity, Diabetes, Elderly)



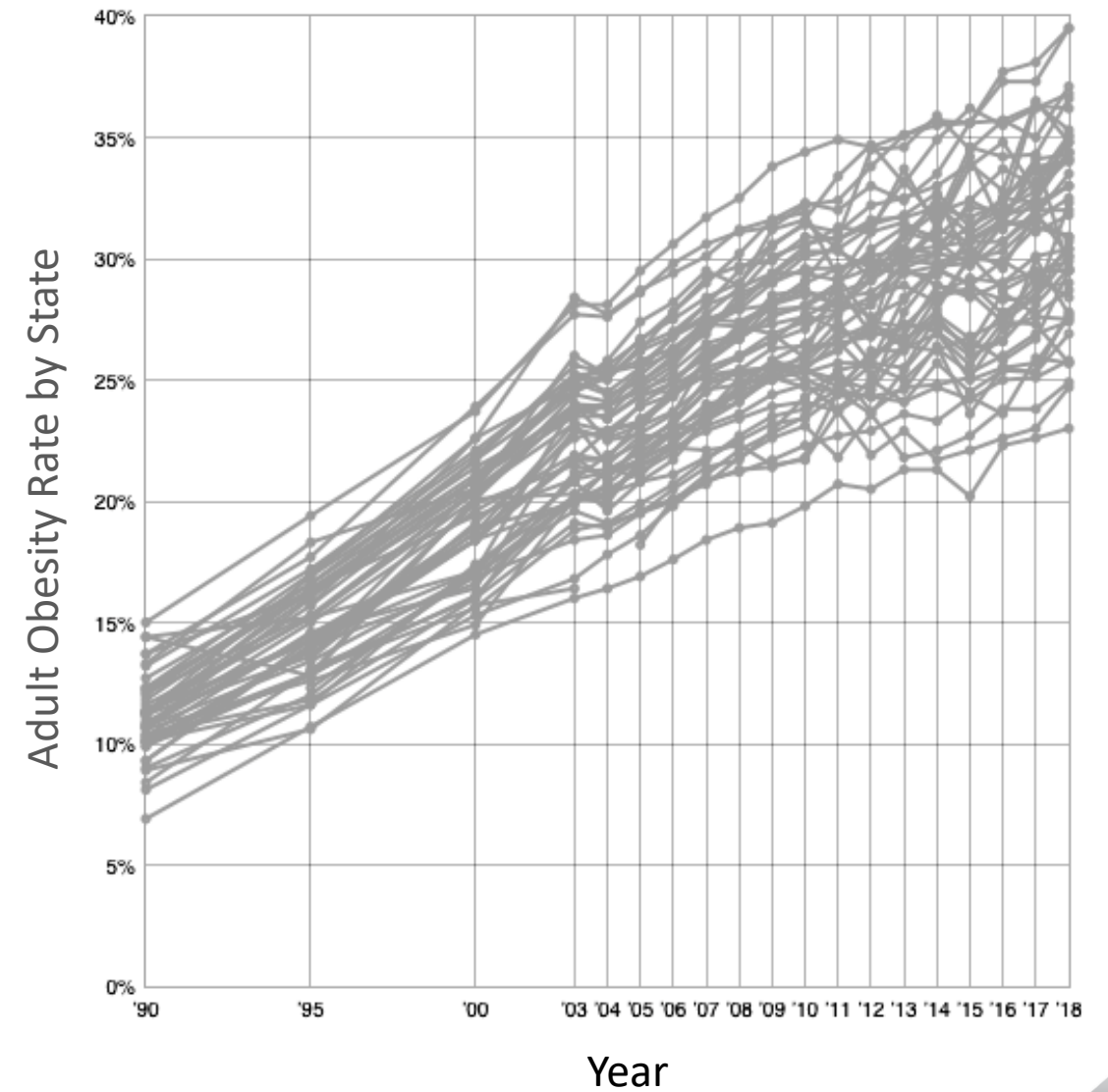
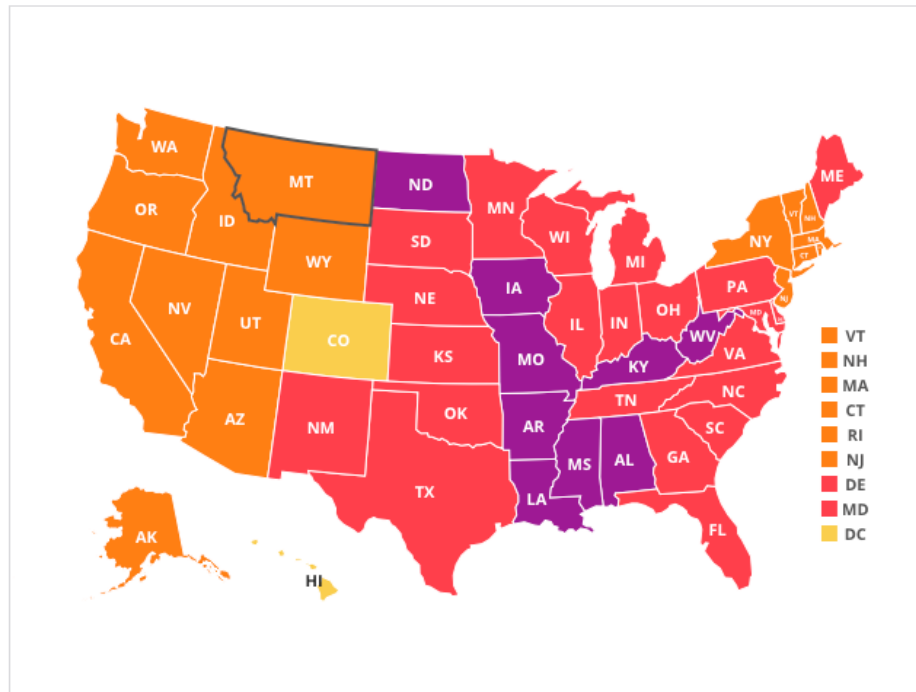
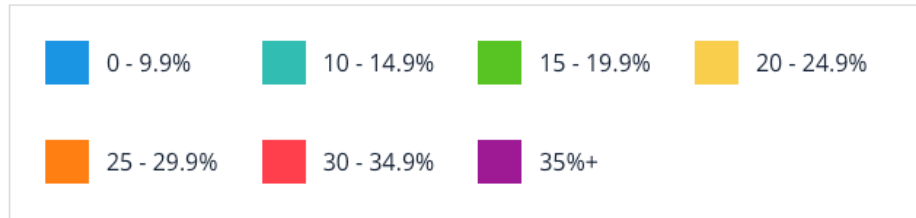


# Section Objectives

- Recognize the importance of PA knowledge in treating 2 key epidemic diseases: obesity and diabetes
- Explain ways that PAs can apply nutrition principles to positively impact the current and future trajectory of obesity and diabetes in their patient population
- Describe the unique nutritional needs of the elderly
- Develop interventions to improve the overall health of our aging patient population

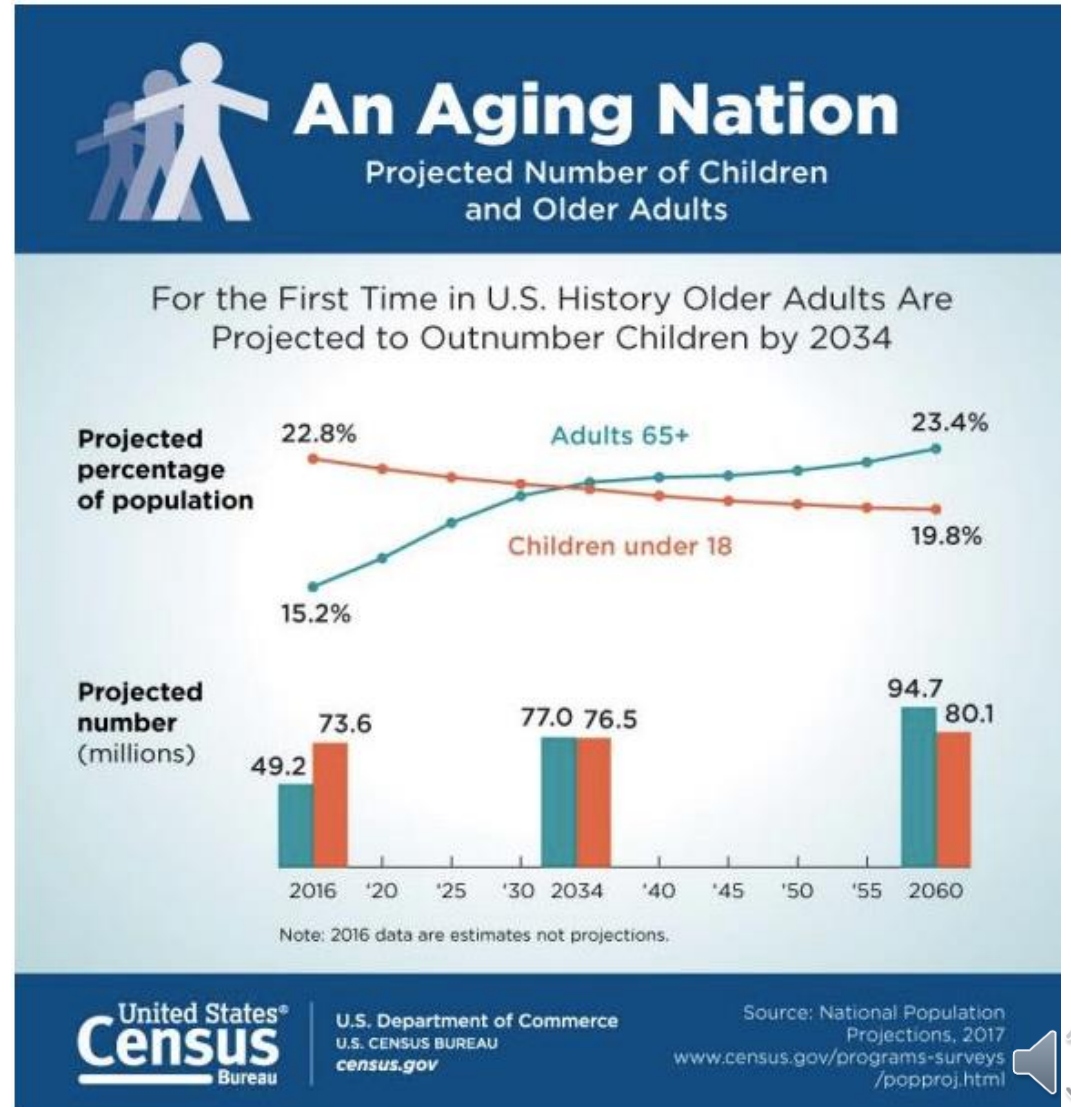


# Obesity: 2018



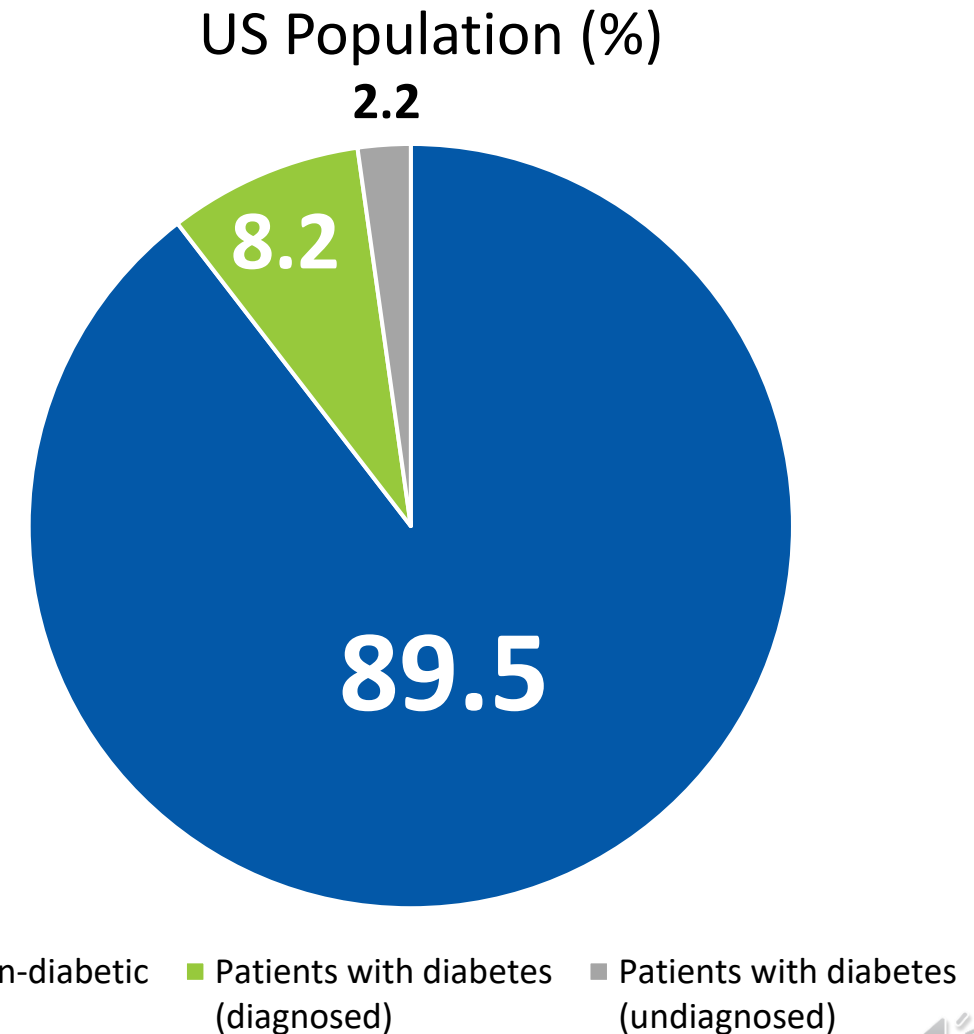
# Not Getting Any Younger

- By year 2034 older adults will edge out children in population size
- Middle aged outnumber children now!



# Diabetes in the US: Diagnosed and Undiagnosed

- Prevalence (2018): 34.2 million
  - 10.5% of US population
- Of this 34.2 million, 7.3 million were undiagnosed
  - 2.8% of US population
  - PAs play pivotal role in diagnosis
- Prevalence (diagnosed + undiagnosed) increases with age (26.8% of adults  $\geq$  age 65)
- New Cases: 1.5 million annually
- Prediabetes: 88 million adults (2018)





# Type 2 Diabetes Prevention: Asymptomatic Adults

Testing should be considered in overweight or obese adults (BMI  $25 \text{ kg/m}^2$  or  $23 \text{ kg/m}^2$  in Asian Americans) who have 1 or more risk factors:

- First-degree relative with diabetes
- High-risk race/ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
- History of CVD
- Hypertension (140/90 mmHg or on therapy for hypertension)
- HDL cholesterol level  $< 35 \text{ mg/dL}$  ( $< 0.90 \text{ mmol/L}$ ) and/or a triglyceride level  $> 250 \text{ mg/dL}$  ( $> 2.82 \text{ mmol/L}$ )
- Women with polycystic ovary syndrome
- Physical inactivity
- Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)





# Obesity + Diabetes = Diabesity

- **Treating Obesity Often = Preventing & Treating DM**
- **Forever is the best option: no dieting on/off switch**
- **No BEST diet**
- Nutritional approaches: Much overlap
  - Mediterranean diet
  - Therapeutic lifestyle diet
  - DASH: Dietary Approaches to Stop Hypertension
  - Ketogenic diet (caution for hypoglycemia)
  - Ornish diet
  - Vegetarian
  - Intermittent fasting (caution for hypoglycemia)
  - Commercial diet programs (supplements)



# Obesity Algorithm: Take A Look

- EBM based Information:
- <https://obesitymedicine.org/obesity-algorithm/>



## Obesity Algorithm<sup>®</sup>

2020

IMPORTANT PRINCIPLES FOR THE EFFECTIVE  
TREATMENT OF PATIENTS WITH OBESITY.

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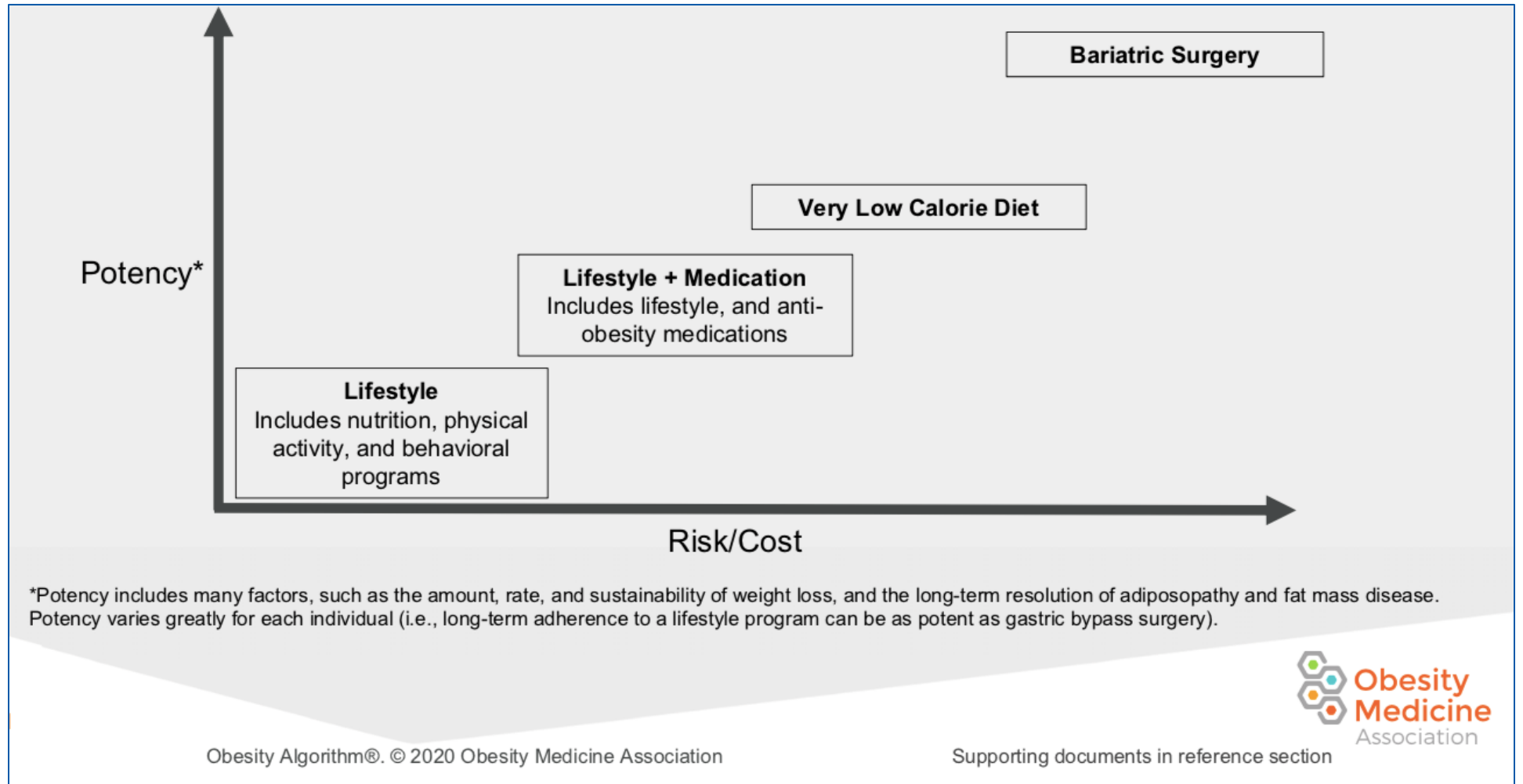
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# Obesity Algorithm: 2020





# Elderly: Nutritional Needs

- Aging body has specific needs
  - Bone Health: Calcium and Vitamin D
  - Vitamin B12
  - Reduce risk of CVD, DM and promote “regularity”
    - Fiber
    - Hydration
  - Electrolytes: K+, Na+
  - Good Fats: PUFA, MUFA





# Elderly: Lean Body Mass

- Optimizing protein consumption
  - Estimated that 38% of men and 41% of women have dietary intakes <RDA
- Sarcopenia: Loss of muscle mass & strength
- Less responsive to anabolic stimulus
  - Improves with increased protein intake
- Experts recommend a protein intake between 1.2 and 2.0 g/kg/day or higher (RDA recommended intake is 0.8 g/kg/day)
  - Up to 30-35% of total caloric intake
  - Protein intake may need to be restricted in patients with advanced renal or liver disease



# Commonly Available Supplements for Elderly Malnutrition

Powders	Company	Product Name	Usage
	Nestle	Sustagen, Sustagen Neutral	Create milk drink supplements or fortify meals
	Abbott	Ensure Powder	
	Proform	Proform	
	Prime Nutrition	Enprocal	
	Nutricia	Polyjoule	
<b>1.0 – 1.5 cal/ml</b>	Abbott	Ensure, Ensure Plus	Used as routine milk based supplement
	Nutricia	Fortisip	
	Nestle	Resource Protein, Resource Plus	
<b>Fruit Based</b>	Nutricia	Fortijuice	Residents who prefer fruit-based fluids over milk-based fluids
	Nestle	Resource Fruit Beverage	
	Abbott	Enlive Plus	
<b>2.0 cal/ml</b>	Abbott	TwoCal	Residents with very small appetites are provided with medical rounds
	Nestle	Resource 2.0, Benecalorie	





# Elderly: Dentition Impacts Nutrition

- Tooth Loss: 20% of elderly have zero teeth!<sup>1</sup>
  - Missing teeth and dentures affect chewing
  - Softer, easy-to-chew foods work better
- Gum Disease: 68%<sup>1</sup>
- Untreated Tooth Decay: 96% have cavity history and 20% have untreated tooth decay<sup>1</sup>
- Dry mouth/reduced saliva flow: Rx and OTC play a role<sup>1</sup>
- Tooth loss in the elderly has been associated with both weight loss<sup>2</sup> and obesity<sup>3</sup>

1. [https://www.cdc.gov/oralhealth/basics/adult-oral-health/adult\\_older.htm](https://www.cdc.gov/oralhealth/basics/adult-oral-health/adult_older.htm).

2. Ritchie CS et al. *J Gerontol A Biol Sci Med Sci*. 2000;55(7): M366-M371.

3. Sheiham A et al. *Br Dent J*. 2002;192(12):703-706.





# Elderly: Eye Health

- Goal: Prevent cataracts, macular degeneration, glaucoma
- Promote intake of lutein and zeaxanthin (related to vitamin A and beta-carotene)
  - Kale
  - Sweet potatoes
  - Strawberries
  - Fatty fish
  - Green Tea





# Summary

- Malnutrition is prevalent
- Malnutrition impacts disease states that PA's encounter often.
- The PA profession has a role to play in managing nutritional health in primary care patients
- PA's can incorporate screening into routine patient care





# Post-Test Questions

1. Generally, which is not part of a standard nutrition assessment?
  - A. A review of the medical record.
  - B. Height and weight.
  - C. A discussion of food preferences.
  - D. Allergy testing.







# Post-Test Questions

2. The role of the PA in managing nutritional health in primary care does not include?

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3. Whose job is it to manage a patient's nutritional health?

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- B. Physician Assistant
- C. Nurse
- D. All healthcare providers





# Reference Organizations

- **Diabetes:** American Diabetes Association. Standards of Medical Care in Diabetes – 2020. *Diabetes Care*. January 2020. Volume 43, Supplement 1. Published annually.
- **Obesity Algorithm:** Obesity society.  
<https://obesitymedicine.org/obesity-algorithm/>
- **Elderly:** Academy of Nutrition & Dietetics. Eatright.org
- **CDC:** Wealth of Information