Community Based Nutrition Services: Policy to Practice

Jean Lloyd, AoA National Nutritionist
HCBS National Home & Community Based Services Conference

September 12, 2011
Overview

• Nutrition, health & functionality
• Federal nutrition policy
• Identifying nutrition need
• Nutrition interventions
Nutrition, Health & Functionality
Obesity Rates Have Significantly Increased & Doubled for 75+

Percentage of people age 65 and over who are obese, by sex and age group, selected years 1988–2006

Men

Women

Reference population: These data refer to the civilian noninstitutionalized population.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey.
Men & Women have Different Rates of Chronic Health Conditions; 7 of 8 Conditions are Nutrition Related

Percentage of people age 65 and over who reported having selected chronic conditions, by sex, 2005–2006

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>Hypertension</td>
<td>52</td>
<td>54</td>
</tr>
<tr>
<td>Stroke</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Asthma</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Chronic bronchitis or Emphysema</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Any cancer</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Diabetes</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Arthritis</td>
<td>43</td>
<td>54</td>
</tr>
</tbody>
</table>

Note: Data are based on a 2-year average from 2005–2006.
Reference population: These data refer to the civilian noninstitutionalized population.
Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey.
Healthy Eating and Physical Activity Prevent, Decrease Risk of and Manage Chronic Diseases Even in Older Adults

• Increase longevity
  – Even with cancer, heart disease
• Diabetes prevention
• Manage hypertension
• Best evidence for
  – Fruits, vegetables
  – Whole grains
  – Less salt, more potassium
  – Less saturated fat (animal fat)
  – Vitamin D, calcium supplements

http://www.never2early.org/images/photo_vegi-basket.jpg
High Fruits and Vegetables, Low Saturated Fat Increases Longevity

Baltimore Longitudinal Study of Aging

- Mean age 60 at start, 501 men, studied 18 yrs
  - 5 or more daily servings fruits and vegetables and < 12% calories from saturated fat
    - 31% decrease in death from any cause
    - 76% decrease in coronary heart disease (CHD)
- Each daily serving of fruits or vegetables
  - 6% reduction in death from any cause
  - 21% reduction in CHD mortality
- Each additional gram of saturated fat
  - 7% increase in CHD mortality

Tucker et al., 2003, http://jn.nutrition.org/cgi/content/full/135/3/556
Low Sodium Works Well in Older Adults: Dietary Approaches to Stop Hypertension Diet

- DASH diet rich in fruits, vegetables, whole grains, and low-fat dairy

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>Typical diet</th>
<th>DASH diet more</th>
</tr>
</thead>
<tbody>
<tr>
<td>23–41</td>
<td>-4.8</td>
<td>-1.0</td>
</tr>
<tr>
<td>42–47</td>
<td>-5.9</td>
<td>-1.8</td>
</tr>
<tr>
<td>48–54</td>
<td>-7.5</td>
<td>-4.3</td>
</tr>
<tr>
<td>55–76</td>
<td>-8.1</td>
<td>-6.0</td>
</tr>
</tbody>
</table>

Healthy Lifestyle Helps Older Adults After Myocardial Infarction

- 70+ yrs, men, women, Europe
- 426 people followed 10 yrs after MI
- Deaths decreased by:
  - 38% in non-smokers
  - 31% in physically active
  - 23% moderate alcohol consumption
  - 25% Mediterranean-type diet
  - 40% with 3 or more healthy behaviors


http://www.gov.mb.ca/healthyliving/images/nutrition/guide2_4.jpg
Diseases Affected by Diet & Future Nursing Home Use

Relative Risk for Nursing Home Admission Over the Next 20 Years at Age 45-64

<table>
<thead>
<tr>
<th>Condition</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Blood Pressure</td>
<td>1.00</td>
</tr>
<tr>
<td>High BP</td>
<td>1.35</td>
</tr>
<tr>
<td>High BP + inactivity</td>
<td>1.89</td>
</tr>
<tr>
<td>Diabetic</td>
<td>3.25</td>
</tr>
<tr>
<td>Diabetic + inactive</td>
<td>4.55</td>
</tr>
</tbody>
</table>

Body Mass Index, Waist Circumference & Associated Disease Risk

↑ Risk for Type 2 Diabetes, Hypertension, CVD

• Women
  – Overweight: 35 in., ↑ risk
  – Obesity: > 35 in., high risk

• Men
  – Overweight: 40 in., ↑ risk
  – Obesity: > 40 in., high risk

Body Mass Index, Abdominal Fat & Alzheimer’s Disease Risk

- Individuals with a parent or sibling with AD: 2 times risk of getting AD
- ↑ BMI associated with ↑ risk of AD
- Overweight individuals with ↑ abdominal fat: 2.3 times risk of getting AD
- Obese individuals with ↑ abdominal fat: 3.6 times risk of getting AD

Whitmer, et al. Central obesity and increased risk of dementia more than three decades later. *Neurology.* 2008 March.
PROTEIN ENERGY UNDERNUTRITION

• CLINICAL SIGNS
  – Wasting
  – Involuntary Weight Loss
  – ↓ Body Mass Index
  – ↓ Serum Albumin (protein)
  – Insufficient Nutrient Intake

• CONSEQUENCES
  – 2-3 times ↑ Complications & Mortality
  – ↑ 35-75% Hospital Care Costs

WEIGHT LOSS CONSEQUENCES

- ↓ Body Strength; Ambulation
- ↓ Resistance to Infection
- ↓ Immune Function
- ↑ Hip Fractures
- ↑ Pressure Ulcers, Bed Sores
- ↓ Independence
- ↓ Quality of Life
- Earlier Institutionalization
- ↑ Mortality Rates
Malnutrition Across Settings

**Hospital**
- Malnourished: 39%
- At risk of malnutrition: 47%
- Well nourished: 14%
- Total: 1,384 patients

**Nursing home**
- Malnourished: 14%
- At risk of malnutrition: 53%
- Well nourished: 33%
- Total: 1,586 patients

**Community**
- Malnourished: 6%
- At risk of malnutrition: 32%
- Well nourished: 62%
- Total: 964 patients

**Rehabilitation**
- Malnourished: 50%
- At risk of malnutrition: 41%
- Well nourished: 9%
- Total: 340 patients

Kaiser et al. *JAGS* 2010; 58:1734-1738
MALNUTRITION

• Progressive effects
  – ↓ Muscle Mass
  – Weakness & Fatigue
  – ↓ Immune Response
  – Poor Wound Healing
  – Pressure Ulcers
  – ↓ Organ Function
  – ↑ Infection
  – ↑ Sepsis
  – Death (without nutrition intervention)

Nutrients & Diseases

- **B vitamins** – Blood Vessel Disease
- **Vitamin C, Carotenoids** – Eye Disease, immune function
- **Vitamin D, Calcium** – Osteoporosis
- **B Vitamins** – Brain Function, Nervous System
- **Fiber** – Type 2 Diabetes, Heart Disease, Constipation
- **Sodium, Potassium** – Blood Pressure
# INFECTION & WOUND HEALING

## Vitamin A
- 700 mcg RAE, F
- 900 mcg RAE, M

## Zinc
- 8 mg, F
- 11 mg, M

## Vitamin C
- 75 mg, F
- 90 mg, M

- Beef liver, sweet potato, carrot, spinach, butternut squash, mango, cantaloupe, collard greens
- Oysters, steak, crab, lamb, beef liver, yogurt, beans, spinach, milk, cheese
- Orange juice, grapefruit juice
- Cantaloupe, strawberries, oranges, pink grapefruit, watermelon
- Broccoli, green/red peppers, collards, asparagus, tomato, cabbages, potatoes, spinach
AGE-RELATED MACULAR DEGENERATION

**Vitamin E**
- 15 mg

**Vitamin C**
- 75 mg, F
- 90 mg, M

**Carotenoids**
- Dark yellow, orange fruits & veggies

**Lutein**
- Green vegetables

**Zeaxanthin**
- Eggs, citrus, corn

- Oils, fats, nuts, seeds, salad dressings, mayonnaise, margarine, leafy green vegetables, tomatoes, eggs, whole grains, wheat germ

- Citrus including juices, cantaloupe, strawberries, watermelon, broccoli, green/red peppers, collards, asparagus, tomato, cabbages, potatoes, spinach
## COGNITION & MENTAL HEALTH

### Folate
400 mcg
- Legumes: black-eyed peas, beans
- Beef liver, nuts, seeds
- Fortified grain products: cereals, pastas, flour

### Vitamin B₆
1.5 mg, F
1.7 mg, M
- Beef liver, potatoes, watermelon, bananas, spinach
- Trout, turkey, steak, pork, tuna, chicken
- Asparagus, cauliflower, broccoli, whole wheat bread, brown rice, oatmeal
MOBILITY, FALLS, FRACTURES

**Calcium**
1200 mg

**Vitamin D**
600 IU, 51-70yr
800 IU, >70 yr

**Vitamin K**
90 mcg, F
120 mcg, M

- Dairy products: milk, yogurt, cheese
- Sardines, kale, collard greens, tofu, broccoli
- Fortified orange juice
- Eggs, liver, fish, butter
- Fortified milk, fortified margarine, fortified OJ
- Liver, brussel sprouts, cabbage, spinach, broccoli, milk, eggs
Impact of Poor Diets on Health
Inadequate or Excess Nutrients & Calories

**AGE-RELATED CONDITIONS / DISEASES**
- Hearing Loss
- Macular Degeneration
- Other Sensory Changes
- Oral Health Problems
- Joint Disease: Knees, Hips
- ↓ Muscle Mass: Sarcopenia
- Cognition / Mental Health

**CHRONIC DISEASES**
- Heart Disease
- Hypertension
- Diabetes
- Osteoporosis
- Some Cancers: Colon, Breast
- Arthritis
- Obstructive Pulmonary Disease
- Renal Disease

**ACUTE CONDITIONS**
- Dehydration
- Pressure Ulcers
- Infections
- Pneumonia
- Influenza
- Fractures
- Tooth Abscesses
- Gum Disease

Without Adequate Healthy Safe Food & Nutrition Services:
- Deafness, Blindness, Reduced Smell & Taste, Chewing & Swallowing Problems
- Joint Destruction – Costly Replacements
- Confusion, Forgetfulness, Memory Loss
- Uncontrolled High Blood Pressure – Heart Attack, Stroke
- Uncontrolled Diabetes – Amputations, Blindness, Nerve Disorders, Dialysis
- Osteoporosis: Weakened Bones -- Decreased Mobility, Falls
- Decreased Immune Response – Flu, Colds, Upper Respiratory Infections, HIV/AIDS
- Decreased Organ Function & Organ Failure
- Wasting – “Dwindles” & “Failure to Thrive”
- Involuntary Weight Loss: ↓ Body Mass Index, ↓ Muscle Mass
- Excessive Weight Gain -- Obesity
- ↓ Serum Albumin – Protein Malnutrition
- Pressure Ulcers

Increased Morbidity & Mortality
Premature Institutionalization
Increased Morbidity & Mortality
Pressure Ulcers

Sleep Disturbance
Low Stamina

Reduced Quality of Life
Lessened Independence
Increased Healthcare Costs
IMPACT OF MALNUTRITION ON FUNCTIONALITY

Malnutrition

Underweight

Obesity

Limits Muscle Strength
Reduces Stamina
Prevents Physical Activity

Decreases ability to:
Perform ADLs & IADLs:
Eat, Walk, Grocery Shop, Prepare Meals
Grip Items & Lift Heavy Objects

Increases Dependency
Increases Need for Caregiver Assistance
Increases Risk for Falls & Fractures

Threatens Independence  Reduces Quality of Life  Increases Healthcare Costs
Inter-related Factors Affecting the Nutritional Well-Being of Older Adults

Fig. 2
Nutrition Risk Factors

- **Health/medical**
  - Medical history
  - Age-related, acute & chronic conditions
  - Polypharmacy
  - Hospital admissions/readmissions/recent discharges
  - Nursing home/rehabilitation admission/readmission
  - Biochemical values
  - Anthropometrics, especially ht/wt, obesity/underweight
  - Involuntary weight loss
  - Oral health, chewing/swallowing
  - Poor food intake, poor quality diet, limited quantity
  - Loss of appetite
  - Taste & smell changes, textual sensitivities
Nutrition Risk Factors

- Economic/food security/food insecurity
  - Low-income
  - Food access, food deserts
  - Availability of affordable food
Nutrition Risk Factors

- Psychological
  - Depression, emotional status
  - Cognitive status
  - Dementia, Alzheimer’s Disease
  - Grief
Nutrition Risk Factors

- **Functionality**
  - Activities of daily living
    - Ability to feed oneself
  - Instrumental activities of daily living
    - Ability to shop
    - Ability to cook and prepare meals
  - Mobility
  - Physical activity/inactivity
Nutrition Risk Factors

- **Family/Community Resources**
  - Living arrangements
  - Kitchen facilities & equipment
  - Living alone
  - Marital status
  - Family caregiver
  - Neighbors/friends
  - Elder abuse, self-neglect
Food Security

- **Access** by all members of a household to food sufficient for a healthy life, including at a minimum, the ready availability of nutritionally adequate and safe foods and the assured ability to acquire acceptable food in socially acceptable ways.

Economic Research Service, USDA
Food Insecurity Adversely Affects Health and Functionality

• Food insecurity adversely affects the quantity and quality of food that people have to eat. Compared to the general US population, older adults who are food insecure:
  – Have ↓ food intakes, poorer nutrient intakes for calories, vitamins & minerals necessary for health
  – Are more likely to be in poor or fair health
  – Have higher body mass index, a risk factor for ↑ heart disease, hypertension, cancer & diabetes
  – Experience higher rates of diagnosed diabetes & depression

Food Insecurity Adversely Affects Health and Functionality

• Food insecurity adversely affects the quantity and quality of food that people have to eat. Compared to the general US population, older adults who are food insecure:
  – Are more likely to be socially isolated
  – Are more likely to be hospitalized more often
  – Have more ADL impairments

Food Insecurity Adversely Affects Health and Functionality

• Researchers estimate that food insecure older adults are so functionally impaired it is as if they are chronologically 14 years older.

• A 65 year old food insecure older adult is like a 79 year old.

Food Insecurity Rates Among Middle‐Aged and Older Adults

Figure 1. Food Insecurity Rates for Persons Age 40 and Older, by Age

Ziliak JP Gundersen C. Food Insecurity Among Older Adults: Policy Brief, August, 2011
AARP Foundation
Food Insecurity
Ziliiak & Gundersen, August 2011

• Food insecurity was stable from 2001-2007, but compared to 2001, food insecurity:
  – ↑ 63% for 40-49 year olds
  – ↑ 37% for 50-59 year olds
  – ↑ 26% for 60+

• Food insecurity has negative health outcomes at all ages
  – ↑ ADL impairment, depression, diabetes, and poor health among younger food insecure groups
Federal Food Policy

- Dietary Reference Intakes
- 2010 *Dietary Guidelines for Americans*
- Food Safety Code
- Older Americans Act
Dietary Reference Intakes

- Established by the Food & Nutrition Board of the Institute of Medicine of the National Academy of Sciences
- Funded by Federal Governments of the US & Canada
- Purposes:
  - Reduce nutritional inadequacy
  - Promote health
  - Reduce risk of chronic disease
  - Provide basis for nutrient management of nutrition-related chronic disease
  - Provide basis for assessing & planning diets for groups & individuals
Dietary Reference Intakes

• Establishes quantitative reference values for men, women, various age groups, & conditions

• Reference values:
  – Estimated Average Requirement (EAR)
  – Recommended Dietary Allowances (RDA)
  – Adequate Intake (AI)
  – Upper Tolerable Limit (UL)
  – Acceptable Macronutrient Distribution (AMDR)
Dietary Reference Intakes

• Establishes reference values for
  – Vitamins
  – Minerals
  – Energy, total calories
  – Carbohydrate
  – Fat
  – Protein
  – Fiber
  – Water, electrolytes

• For older adults
  – Ages 51-70, men & women
  – Ages 71+, men & women
Dietary Reference Intakes

• **Uses:**
  – Healthcare
  – Individual assessment & intervention
  – Group assessment
    • Food supply
    • Water supply
    • Contamination
  – Food labeling
  – Public health
  – Military applications
  – Meals in settings such as schools, nursing homes, congregate & home delivered meals, prisons, etc.
2010 Dietary Guidelines for Americans

- Science and evidence based
- Promote health/reduce chronic disease
- Basis for US Federal nutrition programs & health care
- Basis for individual healthy eating decisions for general public
- Updated every 5 years
- Published by HHS & USDA
HHS/USDA Dietary Guidelines Development Process

Phase 1: Dietary Guidelines Advisory Committee (DGAC)
- 13 member scientific advisory committee
- Systematic evidence-based review methodology, evidence-based library
- 6 public meetings/comments throughout
- 445 page advisory report

Phase 2: Review and comment on DGAC Report
- Public, 1159 comments; 50 organizations
- USDA and HHS agencies

Phase 3: Drafting and review of Dietary Guidelines
- Writing team: USDA and HHS nutritionists
- Independent review and Departmental clearance of Policy document
Science: Evidence Based Library

130 Research Questions

- Quality
- Quantity
- Objectivity
- Consistency
- Rigor
- Integrity
- Impact

- Transparency
- Generalizability
- Evidence grades
  - Strong
  - Moderate
  - Limited
  - Expert opinion
  - Grade not assignable
Science & Evidence Basis For
2010 Dietary Guidelines for Americans

- Dietary Reference Intakes

- Food Pattern Modeling Analysis (USDA Pyramid System)

- Consumption Data Analysis
Dietary Guidelines for Americans, 2010
Diet-Related Chronic Diseases and Conditions

• Obesity
• Cardiovascular disease
• Hypertension
• Diabetes
• Cancer
• Osteoporosis
## OAA Nutrition Program Serves People with Nutrition Related Chronic Disease

<table>
<thead>
<tr>
<th>Question</th>
<th>Home Delivered Meals % of Respondents</th>
<th>Congregate Meals % of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>48 (32% nationally)</td>
<td>32 (32% nationally)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>73 (48% nationally)</td>
<td>68 (48% nationally)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>35 (18% nationally)</td>
<td>26 (18% nationally)</td>
</tr>
<tr>
<td>Cancer</td>
<td>19 (22% nationally)</td>
<td>15 (22% nationally)</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>30</td>
<td>21</td>
</tr>
</tbody>
</table>

2009 AoA Survey of OAA Participants, January, 2010
Dietary Guidelines for Americans, 2010

Overarching Concepts

• **Maintain calorie balance** over time to achieve and sustain a **healthy weight**.

• **Focus on consuming nutrient-dense foods** and beverages.

• **Modify behaviors at all ages to accomplish goal**.
Overview

Control total caloric intake

Increase physical activity

Maintain appropriate caloric balance
Foods and Food Components to Reduce

• Reduce daily sodium intake to less than 2300 mg/day

• Further reduce to 1500 mg/day if
  Age 51+
  African American
  Have hypertension, diabetes, chronic kidney disease

• 1500 mg recommendation applies to about ½ of the US population, including children
Sodium Sources

- Order the following items from highest to lowest for the amount of sodium
  - 10 French fries, frozen, oven roasted
  - ½ cup prepared chocolate pudding
  - ½ cup sweetened applesauce
  - 1 slice whole wheat bread
  - 1 slice rye bread
  - ½ cup 1% fat cottage cheese
  - ½ cup tuna salad
  - 1 cup 1% milk
Sodium Sources

Goal: 500 mg/meal Per DGA Recommendations

• Order the following items from highest to lowest for the amount of sodium

1. ½ cup 1% fat cottage cheese 459 mg
2. ½ cup tuna salad 412 mg
3. 1 slice rye bread 211 mg
4. 10 French fries, frozen, oven roasted 194 mg
5. ½ cup prepared chocolate pudding 172 mg
6. 1 slice whole wheat bread 132 mg
7. 1 cup 1% milk 107 mg
8. ½ cup sweetened applesauce 2.5 mg

Foods and Food Components to Reduce

- Consume less than 10 percent of calories from saturated fatty acids by replacing them with monounsaturated and polyunsaturated fatty acids.

- Consume less than 300 mg per day of dietary cholesterol.
  - Up to 1 egg yolk/day
  - Small effect compared to saturated and trans fats
Advice to Reduce Sodium Intake

• Read the Nutrition Facts label, choose lower sodium foods
• Consume more fresh foods and fewer processed foods high in sodium
• Eat more foods prepared at home without salt
• When eating at restaurants, ask that salt not be added to your food
• Season with herbs/spices
<table>
<thead>
<tr>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce sodium intake to 1500 mg per day</td>
</tr>
<tr>
<td>Less than 10% of calories from saturated fat</td>
</tr>
<tr>
<td>Cholesterol less than 300 mg/day</td>
</tr>
<tr>
<td>Trans fat as low as possible</td>
</tr>
<tr>
<td>Solid Fats</td>
</tr>
<tr>
<td>Added Sugars</td>
</tr>
<tr>
<td>Refined Grains</td>
</tr>
<tr>
<td>Alcohol</td>
</tr>
</tbody>
</table>
Foods and Nutrients to Increase

*Individuals should meet the following recommendations as part of a healthy eating pattern while staying within their calorie needs.*

- **Increase vegetable and fruit intake.**

- **Eat a *variety* of vegetables, especially dark-green and red and orange vegetables **and beans and peas.**
Foods and Nutrients to Increase

• Increase the amount and variety of **seafood** consumed by choosing seafood in place of some meat and poultry.

• Replace protein foods that are higher in solid fats with choices that are lower in solid fats and calories and/or are sources of oils.
Foods and Nutrients to Increase

• **Use oils** to replace solid fats where possible.

• Choose foods that provide more **potassium, dietary fiber, calcium, and vitamin D**, which are nutrients of concern in American diets. These foods include **vegetables, fruits, whole grains, and milk and milk products**.
• Consume foods **fortified with vitamin B12**, such as fortified cereals, or dietary supplements.

• Be food safe, **older adults**, and individuals with weakened immune systems (such as those living with HIV infection, cancer treatment, organ transplant, or liver disease) are more susceptible to **foodborne illness**

• Reduce intake to **1,500 mg sodium** among persons who are 51 and older and those of any age who are **African American**, or have hypertension, diabetes, or chronic kidney disease.
Increase

- Vegetables & fruits
- Variety of vegetables
- Whole grain products
- Fat free, low-fat dairy
- Variety of protein foods
Recommended Eating Pattern

*Dietary Approaches to Stop Hypertension - DASH*

- Based on random controlled, clinical trials by the National Heart, Lung, Blood Institute of the National Institute of Health, also researched internationally

- Various studies: original DASH, DASH-Sodium, DASH-Low fat

- Emphasis: vegetables, fruits, low-fat & fat-free milk & dairy products, whole grains, poultry, seafood, nuts

- Reduced hypertension, reduced cardiovascular disease, lowered mortality
<table>
<thead>
<tr>
<th>Food Group</th>
<th>1600 Calories</th>
<th>2000 Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grains</td>
<td>6 servings</td>
<td>6-8 servings</td>
</tr>
<tr>
<td>Vegetables</td>
<td>3-4 servings</td>
<td>4-5 servings</td>
</tr>
<tr>
<td>Fruits</td>
<td>4 servings</td>
<td>4-5 servings</td>
</tr>
<tr>
<td>Low-fat dairy</td>
<td>2-3 servings</td>
<td>2-3 servings</td>
</tr>
<tr>
<td>Lean meat, poultry, fish</td>
<td>3-4 servings or less</td>
<td>6 servings or less</td>
</tr>
<tr>
<td>Seeds, nuts, legumes</td>
<td>3-4/week</td>
<td>4-5/week</td>
</tr>
<tr>
<td>Fats &amp; oils</td>
<td>2 servings</td>
<td>2-3 servings</td>
</tr>
<tr>
<td>Sweets</td>
<td>3 or less/week</td>
<td>5 or less/week</td>
</tr>
</tbody>
</table>
## USDA Food Pattern

### Per Day

<table>
<thead>
<tr>
<th>Food Group</th>
<th>1600 Calories</th>
<th>2000 Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits</td>
<td>1½ cups</td>
<td>2 cups</td>
</tr>
<tr>
<td>Vegetables</td>
<td>2 cups</td>
<td>2 1/2 cups</td>
</tr>
<tr>
<td>Grains</td>
<td>5 oz equiv.</td>
<td>2 oz equivalent</td>
</tr>
<tr>
<td>Protein foods</td>
<td>5 oz equivalent</td>
<td>5 1/2 oz equivalent</td>
</tr>
<tr>
<td>Dairy</td>
<td>3 cups</td>
<td>3 cups</td>
</tr>
<tr>
<td>Oils</td>
<td>22 grams</td>
<td>27 grams</td>
</tr>
<tr>
<td>Maximum SoFAS Empty Calories</td>
<td>121 calories</td>
<td>258 calories</td>
</tr>
</tbody>
</table>
Healthy Diet

• **Food Components**
  – Fruit, vegetables
  – Whole grains
  – Low fat, fat free dairy
  – Low fat meat, poultry, fish
  – Lower saturated fat, added sugar & salt

• **Low income households must spend more time and money to consume palatable, nutritious meals***

*http://www.ers.usda.gov/AmberWaves/November08/Features/AffordHealthyDiet.htm*
Consumer Messages

• Enjoy your food, but eat less.
• Avoid oversized portions.
• Make half your plate fruits and vegetables.
• Switch to fat-free or low-fat (1%) milk
• Compare sodium in foods like soup, bread, and frozen meals—and choose the foods with lower numbers.
• Read food labels
• Drink water instead of sugary drinks.
2009 Food Code

• Produced by the U S Public Health Service, Food & Drug Administration
• Model code updated on a regular basis
• Adopted by State Health Departments
• Defined “highly susceptible” populations who are at greater risk of foodborne illness
• Included individuals in hospitals, assisted living, nursing homes, adult day care, & “nutritional or socialization services such as senior centers”
2009 Food Code

Dietary Guidelines for Americans

Food Safety Principles

• Clean
  – Hands
  – Surfaces
  – Foods: Fruits & Vegetables; Seafood, meat & poultry

• Separate
  – Separate foods when shopping
  – Separate foods when preparing & serving foods

• Cook and Chill
  – Keep foods at safe temperatures (hot & cold)
2009 Food Code

Dietary Guidelines for Americans

Food Safety Principles

• **Risky Eating Behaviors**
  – Raw or undercooked foods (runny eggs, raw ground beef)
  – Unpasteurized milk & milk products (cheese)
  – Raw seafood

• **Specific Populations at Increased Risk**
  – Older adults, young children, individuals with weakened systems
OAA Nutrition Program

Purpose: Section 330

- **Reduce** hunger & food insecurity
- **Promote** socialization of older individuals
OAA Nutrition Program
Purpose: Section 330

- **Promote** the health & well-being of older individuals by assisting individual gain access to nutrition and other disease prevention and health promotion services to delay the onset of advanced health conditions resulting from poor nutrition health or sedentary behavior.
## Demographic Home Delivered Meals Congregate Meals

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Home Delivered Meals</th>
<th>Congregate Meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total People Served</td>
<td>880,135</td>
<td>1,686,093</td>
</tr>
<tr>
<td>In Poverty</td>
<td>44% (9.7% census)</td>
<td>34% (9.7% census)</td>
</tr>
<tr>
<td>Minority</td>
<td>29% (19% census)</td>
<td>28% (19% census)</td>
</tr>
<tr>
<td>Rural</td>
<td>37% (19.6% census)</td>
<td>41%(19.6% census)</td>
</tr>
<tr>
<td>High Nutritional Risk</td>
<td>52% of all HDM participants</td>
<td>19% of all Cong. participants</td>
</tr>
</tbody>
</table>
### US OAA 2009 State Program Report

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Home Delivered Meals</th>
<th>Congregate Meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live Alone</td>
<td>54%</td>
<td>44%</td>
</tr>
<tr>
<td>% Female</td>
<td>66%</td>
<td>65%</td>
</tr>
<tr>
<td>% 60 - 74 years</td>
<td>30%</td>
<td>45%</td>
</tr>
<tr>
<td>% 75 – 84 years</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>% 85 years or older</td>
<td>34%</td>
<td>19%</td>
</tr>
<tr>
<td>% Nursing Home eligible (3 or more ADLs)</td>
<td>39%</td>
<td>N/A</td>
</tr>
<tr>
<td>% with 3+ IADLs</td>
<td>76%</td>
<td>N/A</td>
</tr>
</tbody>
</table>
## US OAA 2009 Participant Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Home Delivered Meals % of Respondents</th>
<th>Congregate Meals % of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Meal Provided ½ or more of total food for day</td>
<td>63</td>
<td>58</td>
</tr>
<tr>
<td>Don’t always have enough $ or Food Stamps to buy food</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>Choose between food &amp; medication</td>
<td>17</td>
<td>NA</td>
</tr>
<tr>
<td>Choose between food &amp; rent or utility</td>
<td>15</td>
<td>NA</td>
</tr>
<tr>
<td>Receive food stamps</td>
<td>15</td>
<td>7</td>
</tr>
</tbody>
</table>

2009 AoA Survey of OAA Participants, January 2010
## US OAA 2009 Participant Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Home Delivered Meals</th>
<th>Congregate Meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair or Poor Health</td>
<td>56</td>
<td>29</td>
</tr>
<tr>
<td>Stayed overnight in hospital in past year</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Stayed overnight in nursing home in past year</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Alzheimer’s Disease</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Diabetes</td>
<td>35 (16% nationally)</td>
<td>26 (16% nationally)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>73 (48% nationally)</td>
<td>68 (48% nationally)</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>48 (32% nationally)</td>
<td>32 (32% nationally)</td>
</tr>
</tbody>
</table>
## US OAA 2009 Participant Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Home Delivered Meals % of Respondents</th>
<th>Congregate Meals % of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meal enabled living at home</td>
<td>93</td>
<td>62</td>
</tr>
<tr>
<td>Eat healthier foods as result of the program</td>
<td>86</td>
<td>78</td>
</tr>
<tr>
<td>Eating meals improves health</td>
<td>87</td>
<td>80</td>
</tr>
<tr>
<td>Meals help feel better</td>
<td>91</td>
<td>87</td>
</tr>
<tr>
<td>See friends more often</td>
<td>NA</td>
<td>87</td>
</tr>
<tr>
<td>Recommend to a friend</td>
<td>96</td>
<td>97</td>
</tr>
</tbody>
</table>
Indentifying Nutrition Need
Indentifying Nutrition Need

- Food security/insecurity
- Nutrition screening & assessment, clinical process
- ADL/IADL impairments
- Home and community based care assessments
Food Security
http://www.ers.usda.gov/Briefing/FoodSecurity/

• Food security is updated yearly by USDA based on the Current Population Survey done by Census Bureau

• Tools – The Guide
  – U S Household Food Security Module
  – US Adult Food Security Module
  – Six Item Short Form of the Food Security Survey Module
  – Self-Administer Food Security Survey Module for Youth Ages 12 and older
Food Security Measurement Tool
6 Question Module
30 Day Time Period

**Questions 1 & 2:**

- During the last 30 days, how often was this statement true:
  - The food that we bought just didn’t last, and we didn’t have money to get more.
  - We couldn’t afford to eat balanced meals.

- Response categories:
  - Often
  - Sometimes
  - Never
Questions 3 & 4:
• During the last 30 days, did you or other adults in your household ever
  • Cut the size of your meals because there wasn’t enough money for food?
  • Skip meals because there wasn’t enough money for food?
• Response categories:
  • Yes, on 3 or more days
  • Yes, on 1 or 2 days
  • No
Food Security Measurement Tool
6 Question Module
30 Day Time Period

Questions 5 & 6:
• In the last 30 days,
  • Did you ever eat less than you felt you should because three wasn’t enough money to buy food?
  • Were you ever hungry but didn’t eat because you couldn’t afford enough food?
• Response categories:
  • Yes
  • No
Food Security Status Assessment

• Food security status is assigned as follows:
  – Raw score 0-1 High or marginal food security
  – Raw score 2-4 Low food security
  – Raw score 5-6 Very low food security
**Nutrition Screening**

**Nutrition Assessment**

- **Nutrition Screening**
  - Process of identifying individuals at risk for poor nutritional status
  - Short process, limited prioritized questions
  - Performed by non healthcare professional

- **Nutrition assessment**
  - Process of determining an individuals’ nutritional status
  - Long process, includes medical history, diet history, physical examination, anthropometric parameters, biochemical values, economic, food access, IADL/ADL impairments, individual /family information
  - Performed by a healthcare professional e.g. dietitian
Nutrition Care Process

• Screen for nutrition risk
• Assess for nutrition status
• Perform nutrition diagnosis
• Determine & implement nutrition intervention
• Perform nutrition monitoring & evaluation
• Usually done in a clinical setting, hospital, nursing home, limited use in HCBS
Expected Outcomes of Nutrition Screening & Assessment

- **Screening**
  - Determination of need
  - Prioritizing of individuals based on need
  - Research informed

- **Assessment**
  - Individualized nutrition care plan
  - Determination & implementation of appropriate interventions
  - Research informed
  - Interventions based on nutrition diagnosis
Nutrition Screening & Assessment Tools

• Nutrition Screening Initiative (NSI)
  • DETERMINE Your Nutritional Risk Checklist
  • Level 1, Level 2
• Mini-Nutritional Assessment (MNA)
• Malnutrition Screening Tool (MST)
Nutrition Screening Initiative Checklist (NSI)

- **Public Awareness Purpose:** to increase awareness of nutrition risk factors by community dwelling older adults

- **Not designed as a clinical tool**, not designed to measure malnutrition

- **Level 1 Screen** – to be used by social service professionals in community programs to determine nutrition risk & community interventions

- **Level 2 Screen** – to be used as an assessment tool by health care professionals in clinical settings
Nutrition Screening Initiative Checklist (NSI)

- Developed by the NSI, an collaborative group of the American Dietetic Association, the American Academy of Family Medicine, and the National Council on Aging
- Tools available at http://www.jblearning.com/samples/0763730629/Frank_Appendix10D.pdf
- Funded by Abbott Laboratories
Nutrition Screening Initiative Checklist (NSI)

• 10 Questions
  • I have an illness or condition that made me change the kind and/or amount of food I eat (2)
  • I eat fewer than 2 meals/day (3)
  • I eat few fruits or vegetables, or milk products (2).
  • I have 3 or more drinks of beer, liquor or wine almost every day (2)
  • I have tooth or moth problems that make it hard for me to eat (2)
Nutrition Screening Initiative Checklist (NSI)

• **10 Questions**
  • I don’t always have enough money to buy the food I need (4)
  • I eat alone most of the time (1)
  • I take 3 or more different prescribed or over-the-counter drugs a day (1)
  • Without wanting to, I have lost or gained 10 pounds in the last 6 months (2)
  • I am not always physically able to shop, cook and/or feed myself (2)
NSI Scoring

- 0-2 = Good; recheck nutrition score in 6 months
- 3-5= You are at moderate risk; see what can be done to improve your eating habits & lifestyle
- 6 or more= You are at high nutritional risk; bring this checklist the next time you see your doctor, dietitian, or other qualified health or social service professional. Talk with them about any problems you have.
Mini-Nutritional Assessment (MNA)

- **Purpose:** To screen for malnutrition or risk of malnutrition
- **Reliable, valid, sensitive clinical tool**
- **Recommended for clinical use as part of a Comprehensive Geriatric Assessment (CGA)**
- **Developed & funded by Nestles**
Mini-Nutritional Assessment (MNA)

- Tools for Use in the CGA
  - Cognitive status (Mini Mental Exam)
  - Affective status (Yesavage Geriatric Depression Scale)
  - Mobility – Gait & Balance (Tineti Performance Oriented Mobility)
  - Functional Status – Activities of Daily Living (Katz Scales)
  - Functional Status - Instrumental Activities of Daily Living (Lawton Scales)
  - Nutritional Adequacy (MNA)
Mini-Nutritional Assessment (MNA)

- **QA** 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

- **QB** Weight loss during the last 3 months
  - 1 = does not know
  - 2 = weight loss between 1 & 3 kg (2.2-6.6 lbs)
  - 3 = no weight loss
Mini-Nutritional Assessment (MNA)

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

- **Q D** Has suffered psychological stress or acute disease in the past 3 months?
  - 0 = yes
  - 2 = no
Mini-Nutritional Assessment (MNA)

- Q E Neuropsychological problems
  - 0 = severe dementia or depression
  - 1 = mild dementia
  - 2 = no psychological problems
Mini-Nutritional Assessment (MNA)

- **Q F1** Body Mass Index (BMI) (weight in kg) / (height in m2)
  - 0 = BMI less than 19
  - 1 = BMI 19 to less than 21
  - 2 = BMI 21 to less than 23
  - 3 = BMI 23 or greater
  - If BMI is not available, place question with F2

- **Q F 2** Calf circumference (CC) in cm
  - 0 = cc less than 31
  - 3 = cc 31 or greater
MNA Scoring

- Screening score (max. 14 points)
- 12-14 points: Normal nutritional status
- 8-11 points: At risk of malnutrition
- 0-7 points: Malnourished
Subjective Global Assessment (SGA)
Australia, Canada

- Medical History
  - Weight change
  - Dietary intake change
  - Gastrointestinal symptoms (2 weeks +)
  - Functional capacity

- Physical Examination
  - Loss of subcutaneous fat
  - Muscle wasting
  - Ankle/sacral edema
  - Ascites
Malnutrition Screening Tool (MST)

- Developed in Australia
- Combination of nutrition screening questions with high sensitivity & specificity of Subjective Global Assessment (SGA)
- Tool available at
- 2 questions
  - Q1 Have lost weight recently without trying?
  - Q2 Have you been eating poorly because of a decreased appetite?
MST Questions

- **Q1** Have you lost weight recently without trying?
  - No=0
  - Unsure=2
  - If yes, how much weight have you lost?
  - Determine weight loss score
    - 2-13#=1
    - 14-23#=2
    - 24-33#=3
    - Greater than 33#=4
    - Unsure=2
MST Questions

- **Q2** Have you been eating poorly because of a decreased appetite?
  - No=0
  - Yes=1

- Total Score 0-5

- MST score equal or greater than 2: At Risk of Malnutrition
Determination of IADL/ADL Functioning

- Instrumental Activities of Daily Living (Lawton Scales)
  - The inability to perform 1 or more of the following 8 IADLs without personal assistance, stand by assistance, supervision or cues:
    - Preparing meals
    - Shopping
    - Medication management
    - Managing money
    - Using the telephone
    - Doing heavy housework
    - Doing light housework
    - Transportation ability
Determination of IADL/ADL Functioning

• Activities of Daily Living (Katz Scales)
  – The inability to perform 1 or more of the following 6 ADLs without personal assistance, stand by assistance, supervision or cues:
    • Eating
    • Dressing
    • Bathing
    • Toileting
    • Transferring in & out of bed
    • Walking
State HCBS Uniform Assessments Purpose: Determine Eligibility & Need for Services

Domains

- Demographic characteristics
- Living arrangements
- Financial resources
- Safety
- Health

Domains

- Medical history/conditions
- IADL/ADL impairments
- Health insurance
- Caregiver support
- Receipt of other programs/services
- Consumer direction
Common Nutrition Interventions
Based on Nutrition Care Process

• Food and/or Nutrient Delivery
• Nutrition Education
• Nutrition Counseling
• Nutrition Coordination of Care
Food and/or Nutrient Delivery

• **An individualized approach** for food/nutrient provision including **meals & snack, enteral/parental feeding & supplements**

• **Services available under the OAA**
  • Required congregate & home delivered meals
  • Meet Dietary Reference Intakes; *Dietary Guidelines for Americans*; local & state food code

• **Services available under Medicaid Waivers, optional**
  • In some states, home delivered meals
  • In some states, meals in adult day care
  • Nutrient requirements for meals vary by state, may/may not meet the same requirements as evidenced based OAA requirements
  • In some states, liquid nutrition supplements
Nutrition Education

• A formal process to *instruct or train a client and/or caregiver in skill or knowledge* to help manage or modify food choices and eating behavior to *maintain or improve health*

• **Services available under the OAA**
  • Required service under Title III C, may also be provided under Title III B, D or E
  • Service may be provided by a nutrition professional or overseen by a nutrition professional

• **Services available under Medicaid Waiver, optional**
  • Difficult to determine
Nutrition Counseling

• A supportive process, characterized by a collaborative counselor-client relationship to set priorities, establish goals, & create an **individualized action plan to treat existing conditions & promote health**

• Service available under the OAA
  • Required under Title III C, may be provided under Titles III B & D
  • Limited utilization

• Service available under the Medicare Waiver, optional
  • Difficult to determine
Medical Nutrition Therapy

• **Medicare Benefit**
  • Federal legislation, 2001: “nutritional diagnostic therapy, and counseling services for the purpose of disease management, which are furnished by a registered dietitian or nutrition professional”*
  • Ordered by a physician
  • Current coverage: diabetes, pre-dialysis renal disease
  • Preferred practitioner, registered dietitian or for diabetes, certified diabetes educator

Coordination of Nutrition Care

• **Consultation with, referral to or coordination of nutrition care** with other health care providers, institutions, agencies or social and/or food assistance programs that can assist in treating, managing nutrition-related problems & concerns

• **Services available under the OAA**
  • Most often the realm of case /care management, might be part of benefits counseling, options counseling, ADRC activities, consumer directed service

• **Services available under the Medicaid Waiver, optional**
  • Difficult to tell, but probably within the realm of the case/care manager
Meal Considerations for Care Plans

• **Nutrient content**
  – Provides 1/3 of the DRI
  – Meets the 2010 DGAs
  – Meets state/local food code

• **Frequency of service**
  – 5 or 7 days/week
  – 1 or 2 times/day

• **Special Requirements**
  – Therapeutic needs
  – Cultural/ethnic needs
  – Religious needs, Kosher, Halal, vegetarian for Buddhists
Meal Considerations for Care Plans

• Modifications
  – Content for specified health conditions
  – Texture or specific types of food for specified health conditions

• Storage capacity/reheating equipment availability
  – Oven, microwave, refrigerator, freezer

• Ability to reheat meals, IADL/ADL impairments or availability of caregiver

• Choice, flexibility

• Delivery
  – Hot
  – Cold
  – Frozen
Accommodating Choice/Consumer Direction

• Choice categorized by
  – Time/days of service
  – Service location or place
  – Restaurant voucher programs
  – Café style service
  – Menu/meal choice
  – Food item choice
  – Food source, local versus food distribution company
  – More than 1 meal/day
  – Fee for service/private pay options, using fair market value versus cost reimbursement methodology
  – Customer service emphasis
Nutrition Supplements

• **Multi-vitamin/mineral supplements**
  – Drug/nutrient interactions
  – Medical conditions, prescriptions
  – Physician approval

• **Liquid Supplement Products**
  – Acceptance
  – Supplement or replacement, perhaps offer conventional food snack
  – Taste fatigue
  – Taste sensitivities
  – Timing

• **Need for follow-up, weigh/measure, anthropometrics**
• **Supplements cannot take the place of conventional food**
USDA Food Assistance Programs for Older Adults

• Supplemental Nutrition Assistance Program (SNAP)
  http://www.fns.usda.gov/snap/

• Child & Adult Care Feeding Program (CACFP)
  http://www.fns.usda.gov/cnd/Care/Default.htm

• Commodity Supplemental Food Program (CSFP)

• The Emergency Food Assistance Program (TEFAP)

• Seniors Farmers’ Market Nutrition Program (SFMNP)
  http://www.fns.usda.gov/wic/SeniorFMNP/SeniorFMNPoverview.htm
2010 Dietary Guidelines for Americans Resources

- www.health.gov/dietaryguidelines
- www.healthfinder.gov
- www.dietaryguidelines.gov
- www.nutritionevidencelibrary.gov
- www.choosemyplate.gov
- www.myfoodapedia.gov
Resources

- www.aoa.gov
- www.agingstats.gov
- www.agidnet.org
- www.nutrition.gov
- www.cnpp.usda.gov

Office of Disease Prevention and Health Promotion
Resources

• www.fda.gov  Food & Drug Administration
• www.foodsafety.gov  Federal gateway to information
• www.cdc.gov  Centers for Disease Control & Prevention
• www.nih.gov  National Institutes of Health
• www.nhlbi.nih.gov  National Heart, Lung, Blood Institute of the NIH, DASH diet information
• http://ods.nih.gov  Office of Dietary Supplements
• www.iom.edu  Institute of Medicine
Resources

- Food Security Briefing Room, Food insecurity tools
  http://www.ers.usda.gov/Briefing/FoodSecurity/

- Nutrition Screening Initiative Tools
  http://www.jblearning.com/samples/0763730629/Frank_Appendix10D.pdf

- Mini Nutritional Assessment
  http://www.mna-elderly.com/
Resources

- Malnutrition Screening Tool
Questions/Discussion
Thank You
Jean.lloyd@aoa.hhs.gov
202-357-3582

JEAN L. LLOYD