HUNGER AND HEALTH IN OLDER ADULTS

PRESENTED BY: SEANNA MARCEAUX, MS RDN
OBJECTIVES

• Nutrition as we age
  - Special nutrient considerations as we age
  - Consequences of poor dietary intake

• Measuring our Impact
  - As meal or food providers, how do we know we are making an impact?
  - Two examples shared

• New and upcoming trend in this landscape
OLDER ADULT POPULATION

- 10,000 Americans turn 65 every day
- Trend will continue until at least 2030
- By 2035, all baby boomers will be older than 65
- First time in US older adults will outnumber children!

(Vespa et al 2018)
WHAT DO WE WANT AS WE AGE?

Maintain functional independence and quality of life!
Figure 6-1
Current Intakes: Ages 60 and Older

Average Daily Food Group Intakes Compared to Recommended Intake Ranges

Healthy Eating Index Score (on a scale of 0-100)

63
Core Elements that make up a healthy dietary pattern (including for adults 60+) include:

- Vegetables of all types
- Fruit, especially whole fruit
- Grains, ½ whole
- Dairy, fat free or 1%, etc.
- Protein foods, lean meats, eggs, seafood, beans, peas, lentils, nuts, seeds, soy
- Vitamin D, Calcium, B12
Percent Exceeding Limits of Added Sugars, Saturated Fat, and Sodium

**Added Sugars**
- Limit: 10% of total energy
- Males: 54%
- Females: 58%

**Saturated Fat**
- Limit: 10% of total energy
- Males: 80%
- Females: 77%

**Sodium**
- Limit: 2,300 mg
- Males: 94%
- Females: 72%

Average Intakes:
- Males: 247 kcal
- Females: 213 kcal
- Males: 269 kcal
- Females: 203 kcal
- Males: 3,799 mg
- Females: 2,802 mg
IMPORTANCE OF NUTRITION IN HEALTHY AGING

Good Nutrition  
Supports Healthy Aging  
Supports Independence

Malnutrition  
Leads to Poorer Health Outcomes  
Leads to Frailty and Disability
MALNUTRITION

Disproportionately Affects Older Adults

Contributing Factors Leading To Malnutrition Among Older Adults

- Disease-Associated Risk Factors
- Function-Associated Risk Factors
- Social & Mental Health Risk Factors
- Hunger & Food-Insecurity Risk Factors

Malnutrition in Older Adults
MALNOURISHMENT IN OLDER ADULTS - A HIDDEN EPIDEMIC
FACTORS STRONGLY INFLUENCING NUTRITIONAL WELL-BEING

- Taste & Smell Diminish
- Impaired Nutrient Absorption & Utilization
- Xerostomia
- Dysphagia
- Physical Disability
- Minority Status
- Low Income / Food Insecurity
- Poor Oral Health
- Body Composition Changes
- Polypharmacy
- Chronic Disease
- Living Alone
- Depression
- Poor Appetite
- Dehydration
- BMI
- Cognitive Decline
- Bereavement
- Dehydration
BODY COMPOSITION CHANGES– SARCOPENIA

Age-associated loss in skeletal muscle mass and function

- Inadequate nutrition
- Low physical activity
- Inflammation
- Multiple chronic diseases
MALNUTRITION

• Affects:
  - Independent living
  - Healthy aging
  - Severity of chronic conditions and disabilities

• Leads to:
  - Vulnerable immune systems
  - Poor wound healthy capacity
  - Physical disability
  - Poor quality of life
  - Higher health care and societal costs

“Although Aging is clearly programmed and progressive, a cohesive body of research finds that a healthy diet and weight management are able to not only reliably delay the onset of most typical diseases and functional losses in aging, but also arrest progression and severity, and even support remission for some conditions.”

Roberts et al 2021– Healthy Aging– Nutrition Matters: Start Early and Screen Often
FOOD INSECURITY VS HUNGER VS MALNUTRITION

- **Food Insecurity**— Household level of economic and social condition of limited or uncertain access to adequate food.

- **Hunger**— Individual level physiological condition that may result from food insecurity.

- **Malnutrition**— A state of deficit, excess, or imbalance in energy, protein or nutrients that adversely impacts an individual’s own body form, function and clinical outcomes.
FOOD INSECURITY (FI)

Texas ranks as the 5th highest state for senior food insecurity rates in the U.S. (Feeding Texas, 2020)

Food insecure older adults expected to increase by 50% in 2025!

Food insecurity associated with greater subsequent health care expenditures.

MEASURING SUCCESS

Are we making a difference?
Why Outcomes Matter for Meals on Wheels Programs

Justification of funding has moved from the concept of:

'Doing good in the community'  →  'a portfolio of investment'

Reduce uncertainty, reduce risk = creates value to our Stakeholders

experience-based
food consumption, satisfaction, self-reported health improvement

measurable outcomes
health, functional and healthcare related outcomes

WHY OUTCOMES MATTER

What are we doing right?
What improvements are needed?
New funding possibilities?

“Quality in a product or service is not what the supplier puts in. It is what the Customer gets out.”
-Peter Drucker (1909-2005)

We provide valuable service to a large population but the lack of data has led to lack of evidence-based need for our services.

“How do we demonstrate a need beyond outputs?”
(Thomas 2015)

**Outputs** - a measurement of something your organization does—“producing 3000 meals/day”

**Outcomes** - a measurement of the impact your organization has—“improved nutrition status in x clients”
WHAT WE KNOW

Nutrient Intake is lower in homebound population

HDM Meal contributes markedly to the participants’ intake

But do we improve malnourishment status?

MEASURING IMPACT ON MALNUTRITION
<table>
<thead>
<tr>
<th>Last name:</th>
<th>First name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex:</td>
<td>Age:</td>
</tr>
<tr>
<td>Weight, kg:</td>
<td>Height, cm:</td>
</tr>
<tr>
<td>Date:</td>
<td></td>
</tr>
</tbody>
</table>

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 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, 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

**Screening score (max. 14 points)**

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

*Self Reported: height overestimated, weight underestimated*

Barret et al 2015, Gorb 2007, Babiarczyk and Stema 2014
MINI NUTRITIONAL ASSESSMENT (MNA)

- Full MNA validated & considered Gold Standard (MDs assessments, biochemical, anthropometrics)

- Extensively tested for validity, sensitivity, specificity, reliability

- MNA validated & has high specificity, sensitivity, and diagnostic accuracy

- MNA most appropriate for elderly community setting (when compared with other tools)

Before Meals
~MNA~

Hot Meals delivered w/ human contact

After 3 mo. Meals
~MNA~
FY 2019

2 out of 3 new Meals on Wheels clients who were malnourished or ‘at risk’ improved in just 3 months
MEALS ON WHEELS PROGRAM SHOWN TO SIGNIFICANTLY IMPROVE NUTRITION STATUS

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IMPACT OF HOME-DELIVERED MEALS ON NUTRITION STATUS AND NUTRIENT INTAKE AMONG OLDER ADULTS IN CENTRAL TEXAS

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Abstract: Objective: This study aimed to measure changes in nutrition risk and nutrient intake after older adults received home-delivered meals (HDM) for 3 months. Design: This study used a pre-posttest study design, with data collected before and after 3 months of HDM services. Setting: Two HDM programs that serve the metropolitan areas of Austin and San Antonio, Texas. Participants: Study participants were aged 60 years or older, without dementia or terminal illness, and receiving HDM in Austin, Texas and San Antonio, Texas for 3 months. Measurements: The Nutrition Screening Initiative (NSI) and Mini Nutrition Assessment—Short Form (MNA-SF) were used to assess nutritional risk. The National Cancer Institute Diet History Questionnaire II (DHQ II) was used to assess nutrient intake over the past month. Results: After receiving 3 months of HDM, nutrition status significantly improved as measured by the NSI and MNA-SF. More participants met or exceeded the recommended dietary allowances (RDA) for magnesium and zinc after receiving HDM compared to before receiving HDM. Dietary supplement intake was associated with a higher nutritional risk. Conclusion: Improvements in nutrition status were found after 3 months of receiving HDM, whereas intake of most nutrients did not change significantly. Results of this study provide further evidence that HDM can reduce nutritional risk of older adults, and may inform HDM programs on the differences of NSI and/or MNA-SF to assess nutritional risk of clients.
MEASURING SUCCESS
IMPACT ON FOOD INSECURITY
USDA FOOD SECURITY QUESTIONNAIRE

- Food bought didn’t last and didn’t have money to get more
- Couldn’t afford to eat balanced meals
- Ever cut the size of or skip meals because there wasn’t enough money for food (how often)
- Eat less than you felt you should because wasn’t enough money for food
- Every hungry because there wasn’t enough money for food
SCORING GUIDE

0 = High Food Security
1 = Marginal Food Security
2-4 = Low Food Security
5-6 = Very Low Food Security

Eligibility for our Breakfast Meal Program
Prioritize the most food insecure (5-6)
Before Meals
~USDA FSQ~

Hot Meals delivered with human contact

One Year Later
~USDA FSQ~
New Enrollees identified as Food Insecure
FY 20

51%

83%

% improvement after 1 Year
FY 21
DEFINING ‘ECONOMIC INSECURITY’ IN YOUR POPULATION

- % ‘low income’?
- % ‘living in poverty’?

Recommend using:  https://elderindex.org/

The Gerontology Institute at the University of Massachusetts Boston developed The Elder Index—estimates the minimum amount seniors need to meet monthly expenses, based on county, household size, housing and health status.
Health vs. Healthcare
Is There a Difference?
Factory dumping toxic chemicals into river

Upstream Solution:
• Focus on the source of contamination
• End factory dumping

Downstream Solution:
• Buy filters to treat the water before drinking, or
• Consume bottled water

Affordability of both? Socioeconomic disparities in illness would be expected.

People living near this river become sick from drinking water

Braveman et al 2011
This is Healthcare
This is Health
How many of these statements are true?

- Americans live longer than people in other developed countries
- The US health system is ranked in the top 10% worldwide
- Medical care is the most significant contributor to our health outcomes
ZERO
SOCIAL DETERMINANTS

Social and Economic Factors 40%

Health Behaviors 30%

Clinical Care 20%

Physical Environment 10%

EXPENDITURES (2016)

Hospitals

Providers

Medications

Medical Equipment

Nursing Homes

Home Health

Insurance and Government Admin

Investment

Public Health

Medical Services $3.3 T 97.5%

$81 B 2.5%

Adapted from:
Health and Social Care Spending as a Percentage of GDP

Adapted from:
Health and Social Care Spending as a Percentage of GDP

LIFE EXPECTANCY

Life Expectancy at Birth in Years

Adapted from:

- AUS
- CAN
- FR
- GER
- NETH
- NZ
- NOR
- SWE
- SWIZ
- UK
- USA

Healthcare
Social Care
Life Expectancy
What if the healthcare industry were responsible for health?
DIABETES MANAGEMENT AT HOME – RANDOMIZED CONTROL TRIAL

Randomize

Control Group (waitlist)
N= 80

MOWCTX MTM Group
N= 120
2 MTM Trays + MTM Snacks
(10 meals + 5-10 snacks/week)

Drop Ship MTM Group
N= 120
2 MTM Trays + MTM Snacks
(10 meals + 5-10 snacks/week)

Traditional MOWCTX Meal Program
(5 MTM trays + 5 Cold Bag/week)

6 months

6 months
MEALS ON WHEELS
CENTRAL TEXAS
50 YEARS STRONG