NUTRITION AND AGING SERVICES:

Screening, Innovating, Collaborating and Best Practices on Evaluating Impact

July 24, 2020

Aging is a priority for SNEB

"Recommit to an Ongoing Lifespan Approach and Address the Needs of a Growing Aging Population"

Speakers

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Associate Professor,
Extension Specialist
Iowa State University

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University of Florida

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Objectives

- Describe the challenges and opportunities in evaluating the impact of nutrition and aging services and programs in older adults.

- Understand strategies to enhance study design, measures, and collection of needed data to evaluate the impact of community nutrition and aging services and programs in older adults.

- Describe the challenges and opportunities related to nutrition risk screening of community-dwelling older adults, including the newly developed COAST (Comprehensive Older Adult Screening Tool).

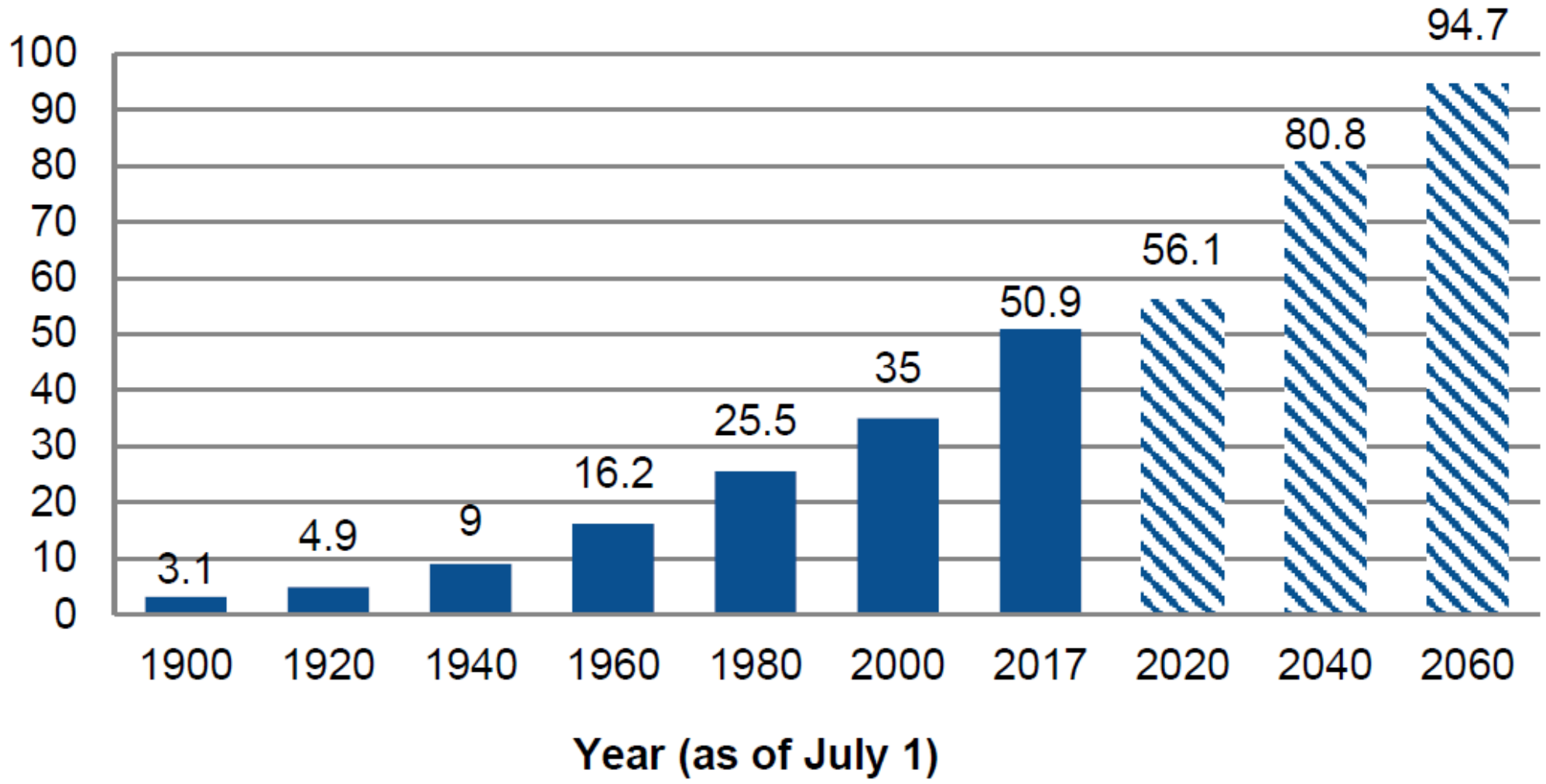
Disclosures

- No relevant disclosures

Funding

- This work was supported, in part, by:
  - GEO00805, National Institute of Food and Agriculture: Addressing Obesity/Weight Management and Chronic Disease Across the Lifespan through the Cooperative Extension Model, 06/27/16-06/15/21

Figure 1: Number of Persons Age 65 and Over: 1900-2060 (numbers in millions)



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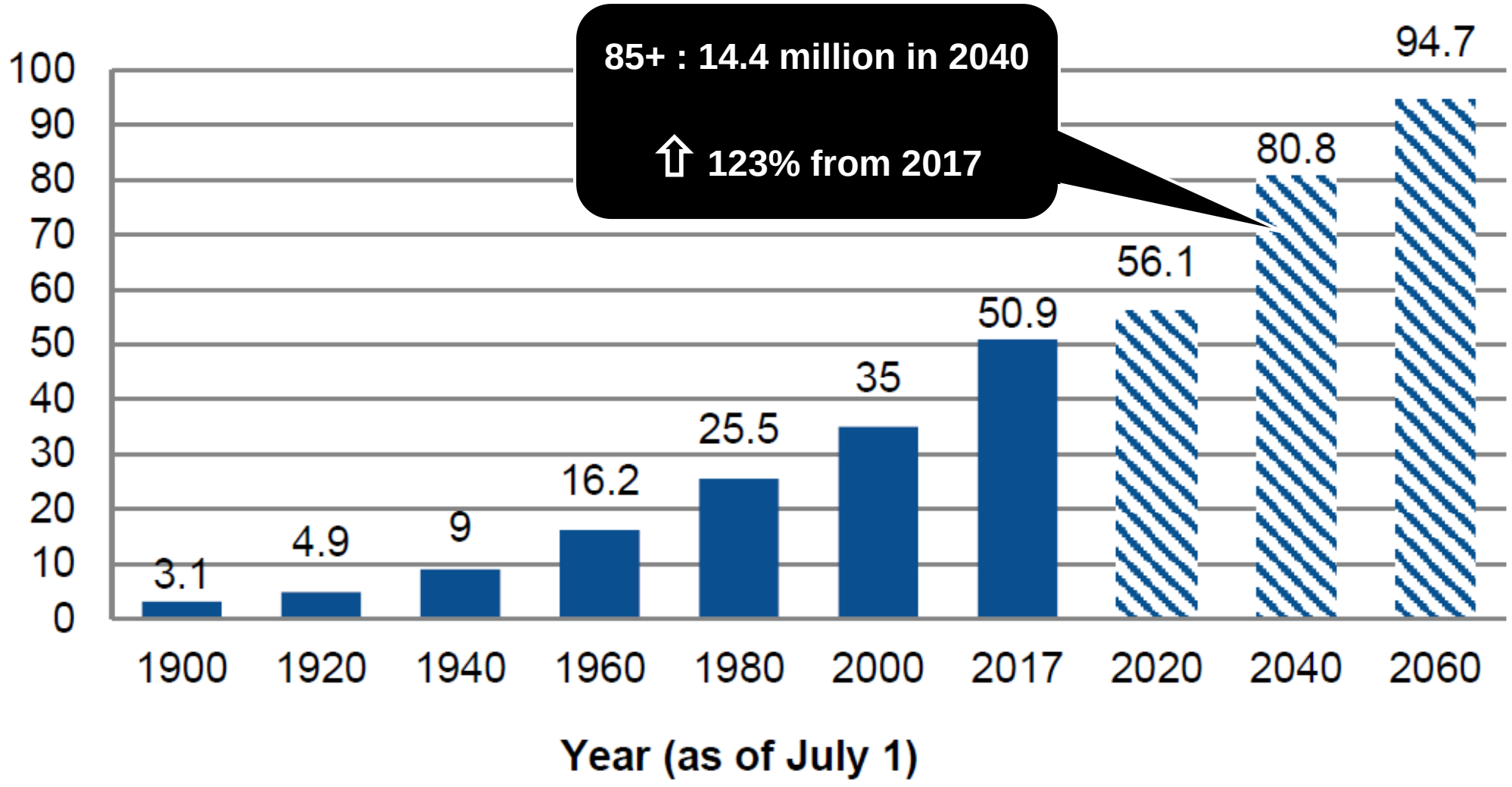
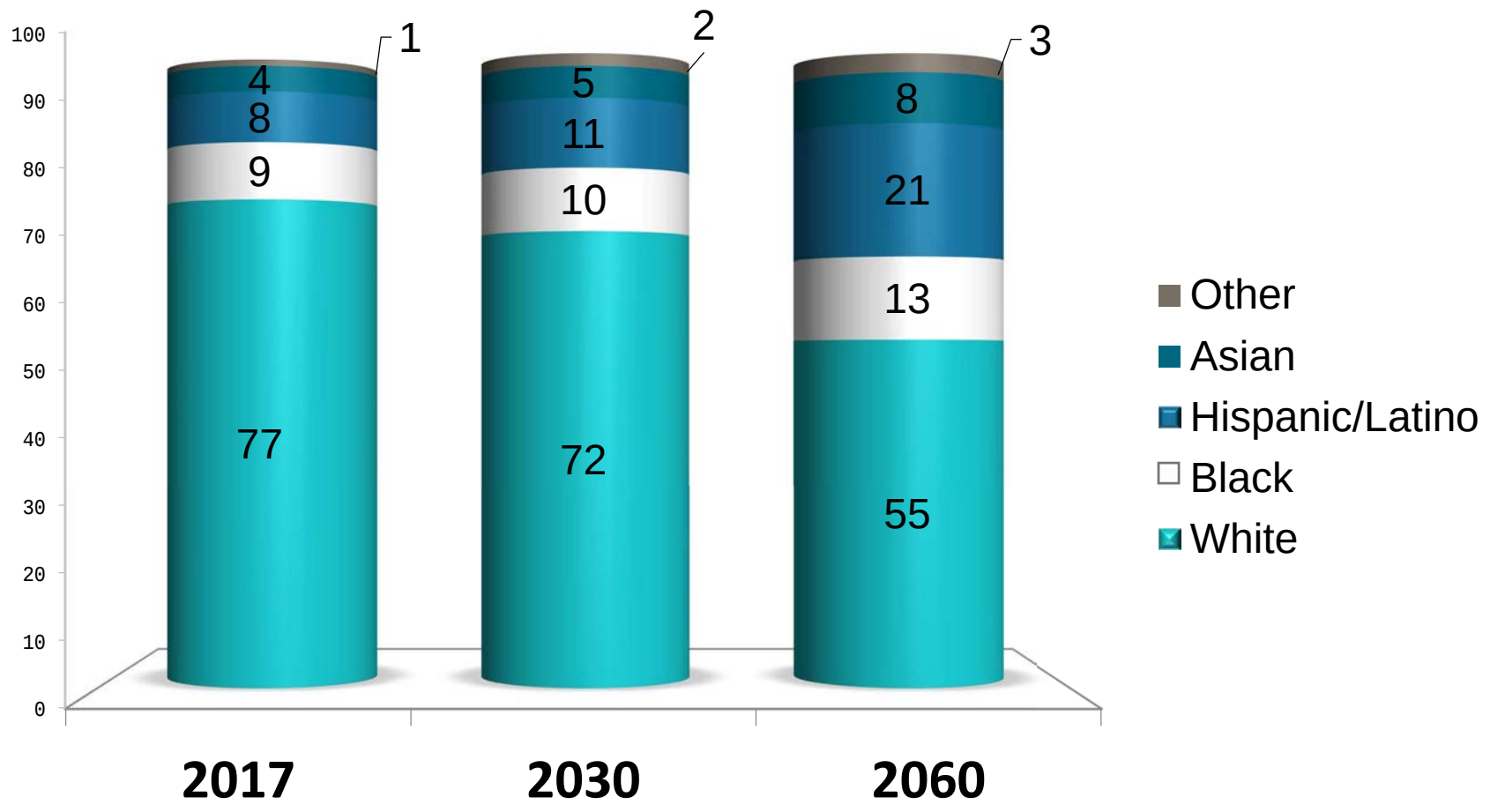


Changing Older Adult Racial and Ethnic Demographics



Administration on Aging, Administration for Community Living,, USDHHS, 2018 Profile of Older Americans

Living Arrangements

- Most (96%) of older adults live in the community
- Aging-in-place has health and emotional benefits *and* cost savings
- Women are more likely than men (36% v. 26%) to live alone

Saffel-Shrier, Johnson & Francis, 2019

Health Status – Physical Function and Disability

35%

Some disability

46%

Difficulties in physical functioning

Contribute to and result from poor nutrition

Health Status - Chronic Conditions

- Hypertension (55.9%)
- Heart disease, including heart failure (20.4%)
- Diabetes (20.8%)
- Certain cancers (23.4%)
- Osteoporosis
  - 70 – 79 years (16.4%)
  - 80+ years (26.2%)
- Obesity (34.7%)
  - Women 65 – 74 y (43.5%)

2 or more Chronic Conditions

Saffel-Shrier, Johnson & Francis, 2019; Health, United States, 2018, table 26

Income, poverty, health care costs

10% of older adults live in poverty

Prevalence higher among:
- Older women (10.5%)
- Hispanic (17.0%)
- Black (19.3%)

7.8% of older adults are food insecure
- 8.9% of those who live alone

Health care costs for 65 and older are **3x** that of working-age people

In 2014, older adults were 15% of the population and **34%** of all health care spending

Nutritional Risk

- Nutritionally inadequate
- Underweight and overweight/obesity
- Poverty, transportation, walkability
- Depression, social isolation
- Functional status, frailty, sarcopenia

Need for Older Adult Nutrition Education

- Rapidly growing older adult population
- Older adult health issues → many nutrition-related
- Rising health care costs
- Important role for nutrition and aging services
- Need ways to evaluate nutritional risk and outcomes

Saffel-Shrier, Johnson, and Francis, 2019; Image: https://isd194.org/community-education/k-12/adaptive-classes/we-need-you/

SNEB Position Paper

Position of the Academy of Nutrition and Dietetics and the Society for Nutrition Education and Behavior: Food and Nutrition Programs for Community-Residing Older Adults

Susan Saffel-Shrier, MS, RDN, CD[1]; Mary Ann Johnson, PhD[2]; Sarah L. Francis, PhD, MS, RD[3]

ABSTRACT

Given the increasing number and diversity of older adults and the transformation of health care services in the United States, it is the position of the Academy of Nutrition and Dietetics and the Society for Nutrition Education and Behavior that all older adults should have access to evidence-based food and nutrition programs that ensure the availability of safe and adequate food to promote optimal nutrition, health, functionality, and quality of life. Registered dietitian nutritionists and nutrition and dietetics technicians, registered, in partnership with other practitioners and nutrition educators, should be actively involved in programs that provide coordinated services between the community and health care systems that include regular monitoring and evaluation of programming outcomes. The rapidly growing older population, increased demand for integrated continuous support systems, and rising cost of health care underscore the need for these programs. Programs must include food assistance and meal programs, nutritional screening and assessment, nutrition

Nutrition educators should..

…be actively involved → clinical community linkages

…collaborate with dietitians and other health professionals

…monitor and evaluate outcomes

- *Key to funding!*

Community Nutrition Programs for Older Adults

USDHHS and Administration on Community Living – Older Americans Act (OAA)

- Congregate and home-delivered meals
- Chronic disease management and prevention programs

SNAP (Supplemental Nutrition Assistance Program) & SNAP-Ed

Senior Farmers Market Nutrition Programs

Child and Adult Care Food Program

Cooperative Extension Service, i.e.)

- Iowa State Extension – *Stay Independent: A healthy aging series*
- University of Minnesota Extension – *Seniors Eating Well*

Goals of USDA DHHS Community Nutrition

Reduce food insecurity, hunger, nutritional risk, and/or malnutrition

Promote socialization, health, and wellbeing

Delay adverse health conditions

Congregate Meal Programs a value proposition

Congregate meal programs

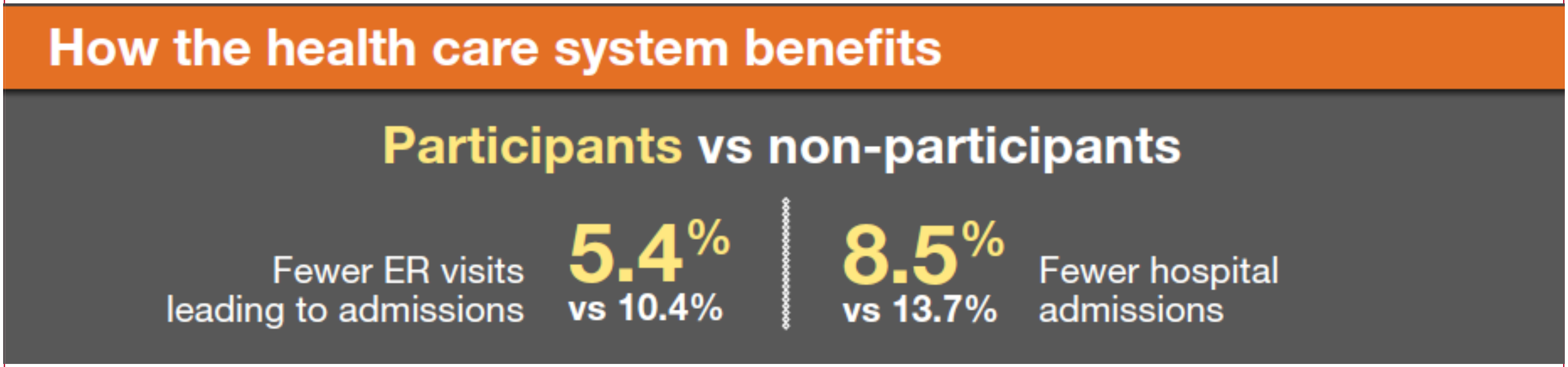
Serve adults 60+ (and in some cases, caregivers, spouses, and/or younger people with disabilities)

Provide meals in senior centers, schools, churches, farmers markets, and other community settings

Offer healthy meals, social engagement, access to community resources, volunteer roles

ACL 2019. https://acl.gov/sites/default/files/programs/2019-03/MealProgramValueProposition.pdf

Congregate Meal Program Impacts



ACL 2019. https://acl.gov/sites/default/files/programs/2019-03/MealProgramValueProposition.pdf

How meal program participants benefit

Higher quality diet

A healthy diet is essential to overall wellness

1 out of 2 older adults is at risk or is malnourished

80% of participants say a congregate meal program improved their health

Greater food security

Access to food is a social determinant of health

4.9 million seniors do not have reliable access to enough affordable, nutritious food

54% of participants say a congregate meal supplies 50% or more of total food for the day

ACL 2019. https://acl.gov/sites/default/files/programs/2019-03/MealProgramValueProposition.pdf

Challenges and Opportunities

Program	Outcomes	Opportunities for Nutrition Educators
Older American‘s Act Programs (Congregate meals, Home delivered meals, chronic disease prevention/management, falls prevention)	↑ self-reported health, dietary intake ↑ food security ↑ remain in home	• Provide nutrition education • Improve program evaluation, nutiriton risk screening • Publish outcomes • Market/communicate impacts • Encourage referral from clinic to communitiy
Nutrition Sercies Incentives	Not available	
SNAP	↓ Food insecurity ↑ Nutritious food intake	
Senior Farmers Market Nutrition Program	↑ self-reported produce intake	
The Emergency Food Assistance Program (TEFAP)	Not available	
CACFP	Not available	
Extension Food and Nutrition Programs	Limited published evidence	

Nutrition Educator Role

- Understand factors influencing older adults' nutritional status
- Identify tools needed to document programming outcomes
- Work collaboratively with state and federal community-based food and nutrition programs
- *Conduct evaluation and publish!*

COMMUNITY-BASED PROGRAM EVALUATION—LESSONS LEARNED

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Disclosure Statement

- National Agricultural Research, Extension, Education, and Economics Advisory Board Member

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  - USDA's Supplemental Nutrition Assistance Program, SNAP, in collaboration with the Iowa Department Public Health
  - Administration for Community Living/Administration on Aging: Innovations in Nutrition Program and Services Grant 2017-2019

- This work was completed as part of the USDA NE-1439 Multistate Project "Changing the Health Trajectory for Older Adults through Effective Diet and Activity Modifications" and the USDA NE-1939 Multistate Project "Improving the health span of aging adults through diet and physical activity."

Learning Objectives

- Understand strategies to enhance study design, measures, and collection of needed data to evaluate the impact of community nutrition and aging services and programs in older adults.

- Describe the challenges and opportunities in evaluating the impact of nutrition and aging services and programs in older adults.

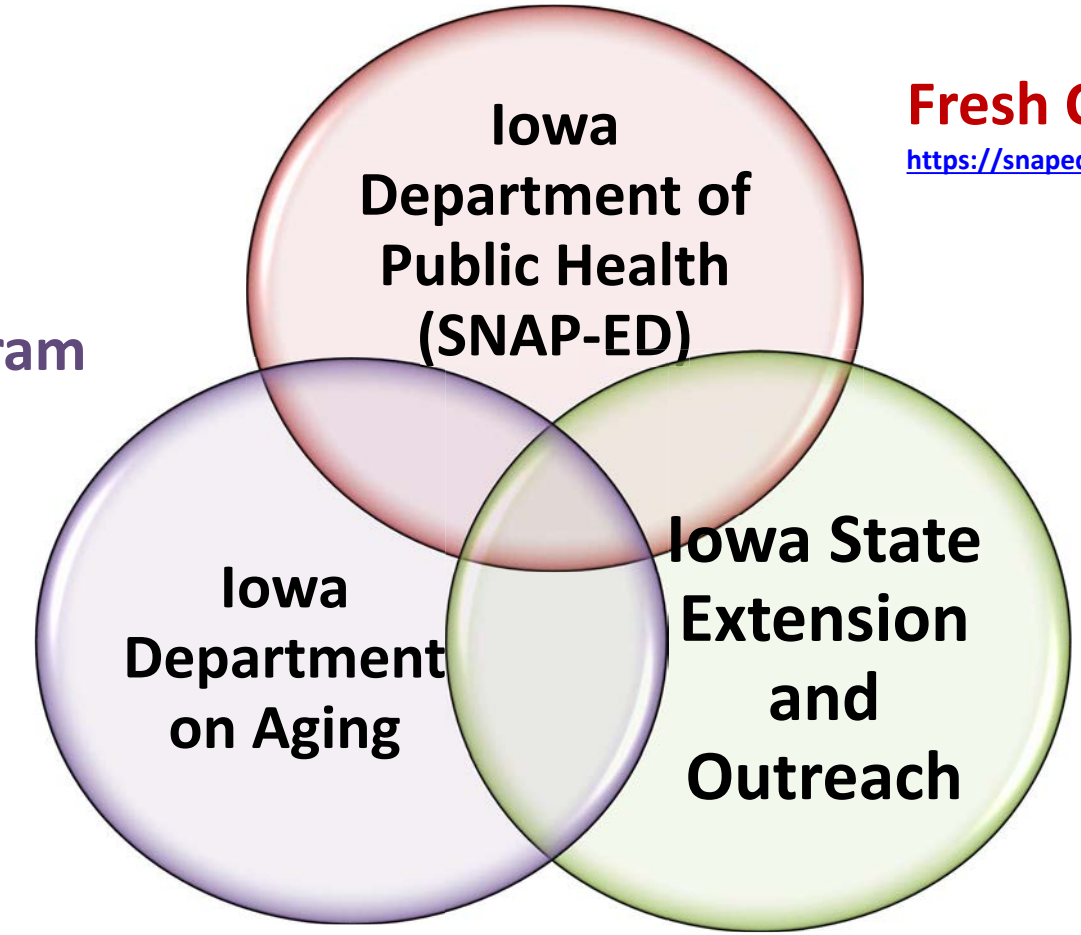
Position Statement

It is the position of the Academy of Nutrition and Dietetics and the Society for Nutrition Education and Behavior that older adults should have access to evidence-based food and nutrition programs that ensure the availability of safe and adequate food to promote optimal nutrition, health, functionality, and quality of life. Registered dietitian nutritionists and nutrition and dietetics technicians, registered, in partnership with other practitioners and nutrition educators, should be actively involved in programs that provide coordinated services between the community and health care systems ***that include regular monitoring and evaluation of programming outcomes****. The rapidly growing older population, increased demand for integrated continuous support systems, and rising cost of health care underscore the need for these programs.*

Saffel-Shrier, S., Johnson, M.A., & Francis, S.L. Position of the Academy of Nutrition and Dietetics and the Society for Nutrition Education and Behavior: Food and Nutrition Programs for Community-Residing Older adults. *Journal of Nutrition Education and Behavior*. https://doi.org/10.1016/j.jneb.2019.03.007

Iowa Collaborations

Congregate Meal Program



Fresh Conversations
https://snapedtoolkit.org/interventions/programs/fresh-conversations/

Stay Independent: A healthy aging series
https://www.extension.iastate.edu/humansciences/stay-independent

Words on Wellness (monthly newsletter)
https://www.extension.iastate.edu/humansciences/wellness

Conduct:

- Program needs and preference assessments
- Program evaluation
- Program fidelity

Social Marketing Theory

Lefebvre & Rochlin, 1997; Storey, Saffitz, & Rimón, 2008

IOWA DEPARTMENT OF PUBLIC HEALTH'S

FRESH CONVERSATIONS

September 2019
Volume 6, Number 9

A Healthy Living Newsletter for Seniors

How Much is Too Much?

Did you know that the Dietary Guidelines for Americans has recommendations for alcohol?

What's considered one drink?
While many of us just consider one glass or mug as "one drink," we may be fooling ourselves. According to U.S. Dietary Guidelines, "one drink" is technically: 12 ounces of beer, at 5 percent alcohol; 5 ounces of wine, at 12 percent alcohol; 1.5 ounces of 80 proof distilled spirits, at 40 percent alcohol.

How many drinks per day are considered too much?
What counts as "moderate" drinking isn't clear. For years, risky behavior meant more than one drink for women, two for men (women tend to be smaller and have proportionally less water weight than men, resulting in higher blood alcohol levels per drink).

A 2018 study published in *The Lancet* challenged the current standard of low-risk drinking, suggesting that drinking more than about six drinks per week raises the risk of cardiovascular disease and cancer.

Do you tolerate alcohol better as you age?
No. Older adults generally experience the effects of alcohol more quickly than when they were younger. They tend not to metabolize alcohol as quickly or efficiently, as the body changes with age.

What's up between alcohol and your liver?
The liver helps remove alcohol from the blood. It changes alcohol to a chemical called acetaldehyde, which is toxic. Too much of it can damage the liver and eventually limit the liver's ability to function.

Heavy drinking takes a toll on your health.
It can increase your risk of falling. It worsens conditions like osteoporosis, diabetes, high blood pressure, stroke and mood disorders; and increases your likelihood of certain kinds of cancer.[1]

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends that adults over age 65 limit their alcohol to no more than three drinks on any day and only seven drinks per week.

Want to Stay Injury-Free and Independent? Avoid Falls.

Some people believe there is nothing they can do to prevent falls. It happens.

It's true—it does happen—but there are many ways to reduce your fall risk.

- **Find a good balance and exercise program.** Look to build balance, strength and flexibility. Contact your local Area Agency on Aging for referrals. Find a program you like and take a friend.
- **Talk to your health care provider.** Ask for an assessment of your risk of falling. Share your history of recent falls.
- **Regularly review your medications with** your doctor or pharmacist. Make sure side effects aren't increasing your risk of falling. Take medications only as prescribed.
- **Get your vision and hearing checked annually** and update your eyeglasses. Your eyes and ears are key to keeping you on your feet.
- **Keep your home safe.** Remove tripping hazards, increase lighting, make stairs safe and install grab bars in key areas.
- **Talk to your family members.** Enlist their support in taking simple steps to stay safe. Falls are not just a seniors' issue.[2]

Anyone, at any age, can develop a drinking problem.

Binge Drinking Among Adults 65 and Older is on the Rise

Binge drinking can be harmful for older people because it increases the risk of injuries and falls and can make chronic health problems worse.

A new study analyzed recent national survey data on alcohol use from almost 11,000 people aged 65 years and older who completed the National Survey on Drug Use and Health. (2015-2017)

The researchers estimated that one in 10 adults in the U.S. who are 65 years of age and older are "current binge drinkers." This was defined as 4 or more drinks for women and 5 for men, in one sitting.

The researchers also found that 24% of older people who reported at least one binge drinking episode in the previous month had chronic conditions such as high blood pressure, cardiovascular disease and diabetes.[3]

Try Tai Chi for strengthening your balance.

Did you know that 22% of adults in Iowa drink excessively, the 3rd highest among all states and more than the national rate of 18%.

Fresh Conversations is developed by: Iowa Dept. of Public Health http://idph.iowa.gov/im
Iowa Dept. on Aging http://www.aging.iowa.gov

Falls are the Leading Cause of Injury Death for Older Americans

Falls threaten seniors' safety and independence and generate enormous economic and personal costs.

- 1 in 4 Americans aged 65+ fall each year.
- Every 11 seconds, an older adult is treated in the emergency room for a fall.
- Every 19 minutes, an older adult dies from a fall.
- By 2020, the annual direct and indirect cost of fall injuries is expected to reach almost 68 billion."

Don't let pride get in the way. Walkers and canes can greatly reduce fall risk.

Kay's smile is sure to light up any room, including the Guttenberg Senior Center.

Kay Cherne lives across the street from the meal site and is typically the first one to the center each day. She's an avid fan of putting puzzles together, reading and quilting. She enjoys the companionship, activities and tasty meals at the site.

Kay shares that the *Fresh Conversation's* program has helped her eat healthier. "I learn how to eat differently at the meetings. And, there is often a nice selection of produce to take home."

Kay finds daily visits to the local fitness center and attending *Fresh Conversations* helps keep her diabetes in good control. She shares that when she sees facilitator, Ammi Hugo, out walking it motivates her to be active and stay healthy.

Fall Risk Screening is a Medicare Benefit

Tell your friends! When people first become eligible for Medicare, they are entitled to a "Welcome to Medicare Preventive Visit" (or Initial Prevention Physical Exam) that must include screening for both fall risk and home safety. Subsequently, all Medicare enrollees are entitled to an "Annual Wellness Visit" that includes falls and safety screenings.

Sources:
[1] Yaeger, S. "Quiz: Alcohol and Your Health." AARP. Retrieved August 1, 2018. https://www.aarp.org/health/healthy-living/info-2018/alcohol-quiz.html#quest1
[2] Hall, B.H., Moore, A.A., Ferris, R., Palamar, J.J. "Binge Drinking Among Older Adults in the United States, 2015 to 2017." Journal of American Geriatrics Society. July 2018. Retrieved August 1, 2018. https://onlinelibrary.wiley.com/doi/abs/10.1111/jgs.15571
[3] National Council on Aging. Falls Prevention
[4] National Council on Aging and Center for Disease

Decoding Answers (page 4): 1. One Drink; 2. Tolerate; 3. Falls; 4. Vision; 5. Medications

Recipe of the Month

Hurry Up Baked Apples

Serving size: Half of an apple

INGREDIENTS
- 2 medium size tart apples (Granny Smith, Braeburn, Cortland, Jonathan, Fuji)
- 1 teaspoon white or brown sugar, packed
- ¼ teaspoon ground cinnamon
- 2 tablespoons oatmeal
- 2 tablespoons (total) raisins, sweetened dried cranberries, chopped walnuts or other nuts
- 1 container (6-ounces) low fat vanilla yogurt

DIRECTIONS
1. Cut apples in half lengthwise. Use spoon to remove cores and hollow out a space 1" or more deep. Arrange apple halves, cut sides up, in microwavable dish. Cut thin slices off bottoms to keep from tipping.
2. Combine sugar, cinnamon, oatmeal, raisins, cranberries, and nuts. Fill each apple half with sugar mixture.
3. Cover with plastic wrap. Fold back one edge ¼" to vent steam.
4. Microwave 3 to 3½ minutes or until apples can be cut easily. Remove from microwave. Let sit a few minutes.
5. Spoon yogurt over the top.

This recipe is provided by Iowa State University Extension and Outreach. For more recipes like this, visit the Spend Smart. Eat Smart. website at http://spendsmart.extension.iastate.edu. Spend Smart. Eat Smart. is a registered trademark of Iowa State University.

Recipe tip: These are great as a dessert, as a snack or for breakfast.

Take Action Corner

This month I will...

Core Strength

Do you have trouble getting out of bed or a chair or find it difficult to stoop to put on socks and shoes? You need strong core muscles for these activities.

Core muscles include the muscles around the front and back of your trunk and pelvis. They're not easy to see like arm and leg muscles.

And the good news is, you don't need to drop and do 25 sit ups to see improvements. Doing simple knee lifts while sitting in a chair can strengthen your core.

Decoding Healthy Behaviors

A	B	C	D	E	F	G	H	I	J	K	L	M
12	5	19	10	3	21	17	25	14	24	2	23	15

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
22	7	26	9	1	18	11	6	13	26	4	16	8

1. "___ ___ ___ ___ ___ ___ ___ ___ ___ ___" differs between types of alcohol.
   7 22 3 10 1 14 22 2
2. Older adults ___ ___ ___ ___ ___ ___ ___ ___ alcohol less than younger people.
   11 7 26 3 1 12 11 3
3. Drinking can increase your risk for ___ ___ ___ ___ ___.
   21 12 26 26 18
4. Regular ___ ___ ___ ___ ___ ___ checks can help you prevent falls.
   13 14 18 14 7 22
5. Sorne ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ can increase your risk for falling.
   15 3 13 14 19 12 11 14 7 22 16

Program developed by Iowa Department of Public Health in partnership with Iowa Department of Human Services and Department on Aging. This material was funded by USDA's Supplemental Nutrition Assistance Program—SNAP. This institution is an equal opportunity provider.

FRESH CONVERSATIONS

IDPH IOWA Department of PUBLIC HEALTH

IOWA STATE UNIVERSITY
Extension and Outreach

Fresh Conversations Timeline

2011-2012

Pilot Study

Francis, S.L., MacNab, L., & Shelley, M. A theory-based newsletter nutrition education program reduces nutritional risk and improves dietary intake for congregate meal participants. *Journal of Nutrition in Gerontology and Geriatrics*, 33: 91-107.

2013-2014

Formative Work to revise program

2015-2016

Statewide Impact Study

Lillehoj, C.J., Yap, L. Montgomery, D., Shelley, M., Francis, S. L. Nutritional risk among congregate meal site participants: benefits of a SNAP-Ed Program. *Journal of. Nutrition in Gerontology and Geriatrics*. https://doi.org/10.1080/21551197.2018.1516592

2016

Facilitator Evaluation

Bahl, M., Yap, L., Francis, S.L., Montgomery, D., & Lillehoj, C. SNAP-Ed Program for Older Adults: Facilitators' Perspectives. *Journal of Nutrition Education and Behavior*. 51(4), 486-491.

2017-2019

Fidelity Assessment & Program Satisfaction Survey

Contrady, A., Francis, S.L., & Montgomery, D. Fresh Conversations: Helping Older Adults Make Lifestyle Changes. Poster presentation at the Food and Nutrition Conference and Expo, Philadelphia, PA October 2019.

2020 Impact study

~Cancelled due to COVID-19. Rescheduled for 2022~

Fresh Conversations Publications

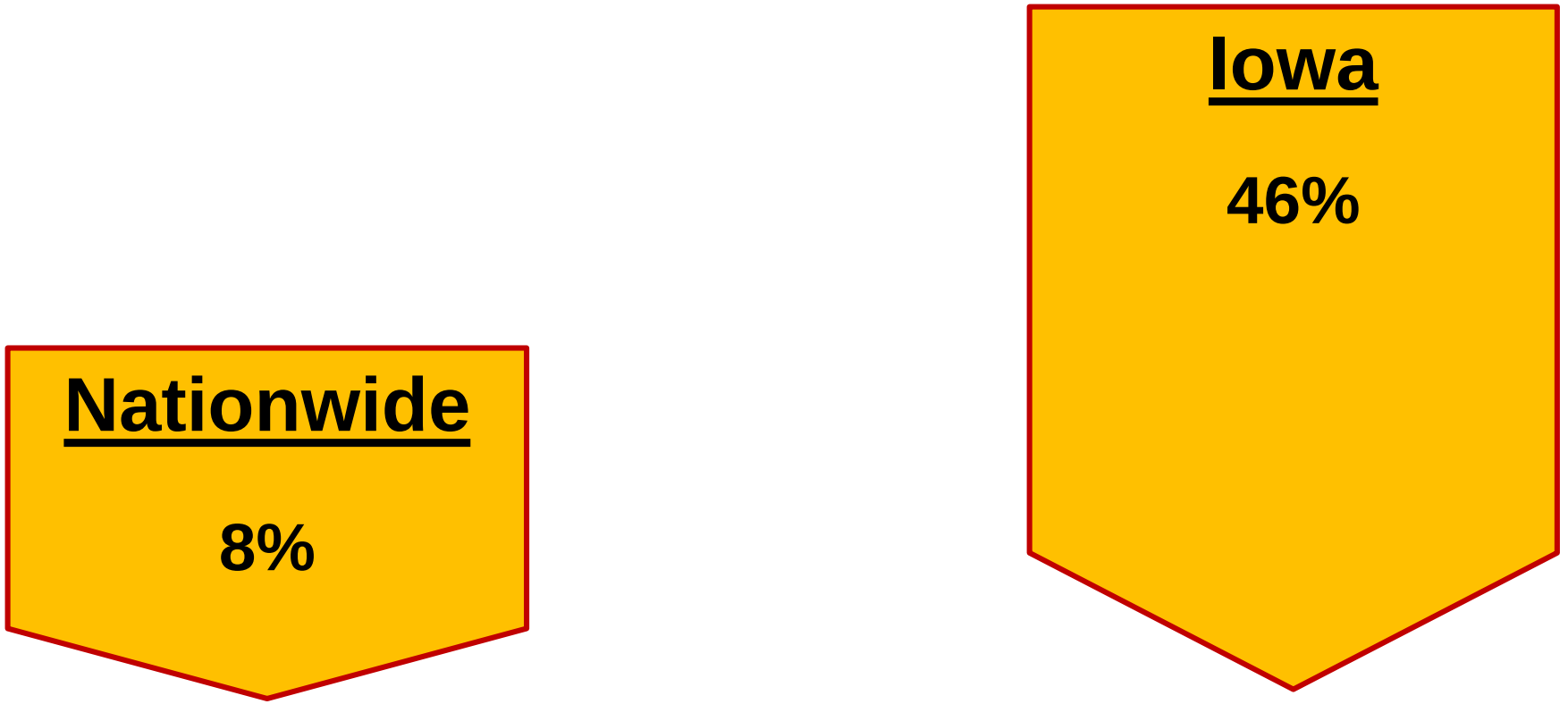
- Francis, S.L., MacNab, L., & Shelley, M. A theory-based newsletter nutrition education program reduces nutritional risk and improves dietary intake for congregate meal participants. *Journal of Nutrition in Gerontology and Geriatrics*, 33: 91-107.

- Lillehoj, C.J., Yap, L. Montgomery, D., Shelley, M., Francis, S. L. Nutritional risk among congregate meal site participants: benefits of a SNAP-Ed Program. *Journal of*. *Nutrition in Gerontology and Geriatrics*. https://doi.org/10.1080/21551197.2018.1516592

- Bahl, M., Yap, L., Francis, S.L., Montgomery, D., & Lillehoj, C. SNAP-Ed Program for Older Adults: Facilitators' Perspectives. *Journal of Nutrition Education and Behavior*. 51(4), 486-491.

- Contrady, A., Francis, S.L., & Montgomery, D. Fresh Conversations: Helping Older Adults Make Lifestyle Changes. Poster presentation at the Food and Nutrition Conference and Expo, Philadelphia, PA October 2019.

Declining Congregate Meal Site Participation



Administration for Community Living (ACL), 2017 & Heritage Agency on Aging

Iowa Congregate Meal Program (CMP) Timeline

2011

CMP Needs and Preference Assessment

(Prospective participants)

Hoerr, K., Francis, S.L., Margrett, J., Peterson, M., & Franke, W. Promoting the Congregate Meal Program to the Next Generation of Rural-Residing Older Adults. *Journal of Nutrition in Gerontology and Geriatrics,* 35(2): 113-23.

2018

CMP Needs and Preference Assessment (Current & Prospective participants)

Schultz, S., Francis, S.L., Russell, C., & Getty, T. Congregate Meal Program—How can we make it more appealing? *Curr Dev Nutr*., June 13; 3(suppl 1); p15-014-19. doi:10.1093/cdn/nzz050. Poster presentation at the Nutrition 2019 Conference, Baltimore, MD. June 2019

2018-19

CMP Program Awareness Assessment

(service providers)

2018-2019

Impact Study

(control group design study; participants).

Iowa CMP Publications

- Hoerr, K., Francis, S.L., Margrett, J., Peterson, M., & Franke, W. Promoting the Congregate Meal Program to the Next Generation of Rural-Residing Older Adults. *Journal of Nutrition in Gerontology and Geriatrics,* 35(2): 113-23.

- Schultz, S., Francis, S.L., Russell, C., & Getty, T. Congregate Meal Program—How can we make it more appealing? *Curr Dev Nutr*., June 13; 3(suppl 1); p15-014-19. doi:10.1093/cdn/nzz050. Poster presentation at the Nutrition 2019 Conference, Baltimore, MD. June 2019

Project Insights

- Surveys and questionnaires are viewed by most participants as a burden—make sure to explain purpose
- If relying on others to help with evaluation distribution and completion—get their buy-in from the beginning
- Share the findings with those involved with the project

What considerations do you make when planning a program evaluation?

Considerations Made...

- What are the goal outcomes for the program being assessed?
- What validated tools are available to measure these anticipated outcomes?
- Are these validated tools:
  - able to be completed by participants without assistance?
  - short to ease participant burden
- What are potential barriers to implementation?
- What are the potential burdens for the program staff?

Common Tools Used Across Studies

- Dietary Screening Tool (Bailey et al., 2007; Bailey et al., 2009)
  - Assesses nutritional risk based on dietary intake frequencies
- Healthy Eating Self-Efficacy Scale (Schwarzer & Renner 2000)
  - Assesses one's confidence in making healthy food choices when faced with various barriers
- Food Security (6-items and/or 2-tem) (Economic Research Service, 2020; Hager et al., 2010)

Dietary Screening Tool

- Validated with older adults
- Completed in <10 minutes
- Nutritional risk classification
  - <60 points: “at nutritional risk”
  - 60-75 points: “at possible nutritional risk”
  - >75 points: “not at nutritional risk”

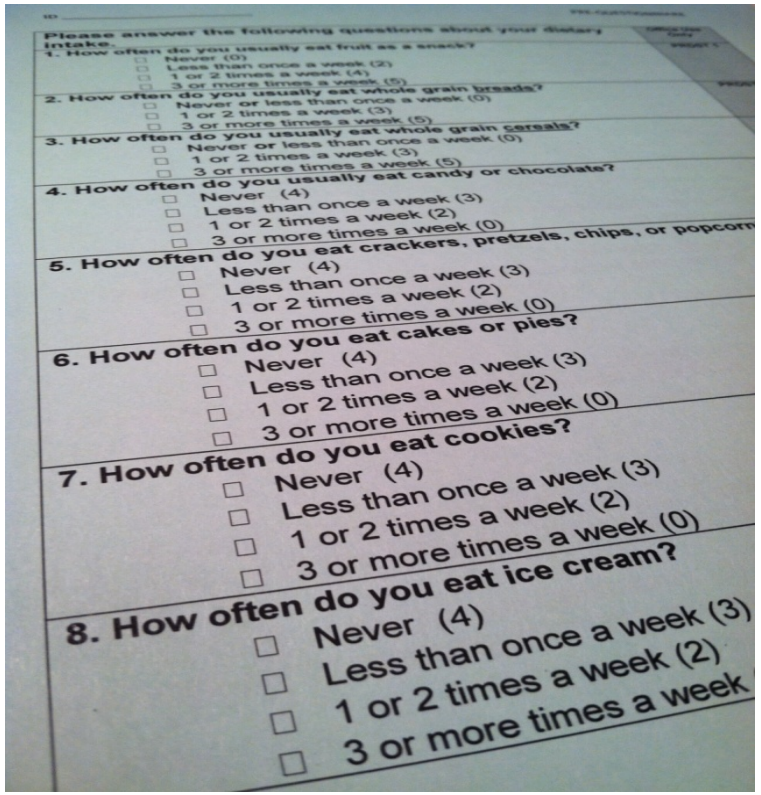


Photo by: Lindsay MacNab

(Bailey et al., 2007; Bailey et al., 2009; Ventura-Marra, 2018)

Dietary Screening Tool

Dietary Pattern	Diet Category	Total Points
PRUDENT	Whole Fruit and Juice	15
	Vegetables	15
	Total and Whole Grains	15
	Lean Protein	10
	Dairy	10
WESTERN	Added Fats, Sugars, and Sweets	25
	Processed Meat	10

(Bailey et al., 2007; Bailey et al., 2009)

Self-Efficacy

- **I can manage to stick to healthful foods even if I**:
  - need a long time to develop the necessary skills (e.g. label reading, cooking, etc).
  - have to try several times until it works (e.g. until it becomes a new habit).
  - have to rethink my entire way of eating (e.g. eating more produce, buying lean meats, etc)
  - do not receive a great deal of support from others when making my first attempt (e.g. family/friends make fun of my new food choices, or I am offered high sugar or high fat foods).
  - have to make a detailed plan (e.g. shopping list, menu, meal plan, etc)

Schwarzer & Renner, 2000

Food Security

- 6-Item Short Form (ERS, 2020)
- 2-Question Form (Hager et al., 2010)

Best Practices for Community-Based Program Evaluation

- Accept there will be limitations in the study design but still design as strong of a long-term evaluation plan as you can.
- Determine the sample size you need to assess impact.
- Include program staff in study design—***convey the importance of continued evaluation and its impact on funding***
- Utilize mix-method approaches toward program evaluation to ensure qualitative and quantitative impact assessment.
- Publish to provide evidence of impact.

Acknowledgements

- **Iowa Department of Public Health**
  - Doris Montgomery, MS, RD (retired)
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  - Marilyn Jones
- **Iowa Department on Aging**
  - Carlene Russell, MS, RDN (retired)
  - Alexandra Bauman, RDN
- **Francis Lab Members Involved with studies mentioned**
  - Annette (Annie) Contrady, RDN (2018- Present)
  - Morgan Bahl, RDN (2015-2017; 2019-Present)
  - Savannah Schultz, MS (2018-2020)
  - Catherine Rudolph, MS (2016-2019)
  - LeLee Yap, MS, RDN (2014-2016)
  - Lindsay MacNab, MS, RDN (2012-2015
  - Kara Hoerr, MS, RDN (2010-2012)

SCREENING FOR MALNUTRITION RISK AMONG OLDER ADULTS

Nutrition and Aging Services: Screening, Innovating, Collaborating and Best Practices on Evaluating their Impact. July 24, 2020

Wendy Dahl PhD RD

Associate Professor, Food Science and Human Nutrition Department

Objectives

- Describe the challenges and opportunities related to nutrition risk screening of community-dwelling older adults.

- Describe the validity and reliability of the COAST (Comprehensive Older Adult Screening Tool), as well as the feasibility of its use in the community.

We need a valid, practical tool to effectively evaluate nutrition education programming targeting nutrition risk reduction.

→ Mobility issues
→ Multiple chronic diseases
→ Multiple medications
→ Overweight or obese
→ Eating alone
→ Eating < 3 meals per day
→ Issues with food access…

Malnutrition and the Older Adult

5.6% of community-dwelling older adults are malnourished?

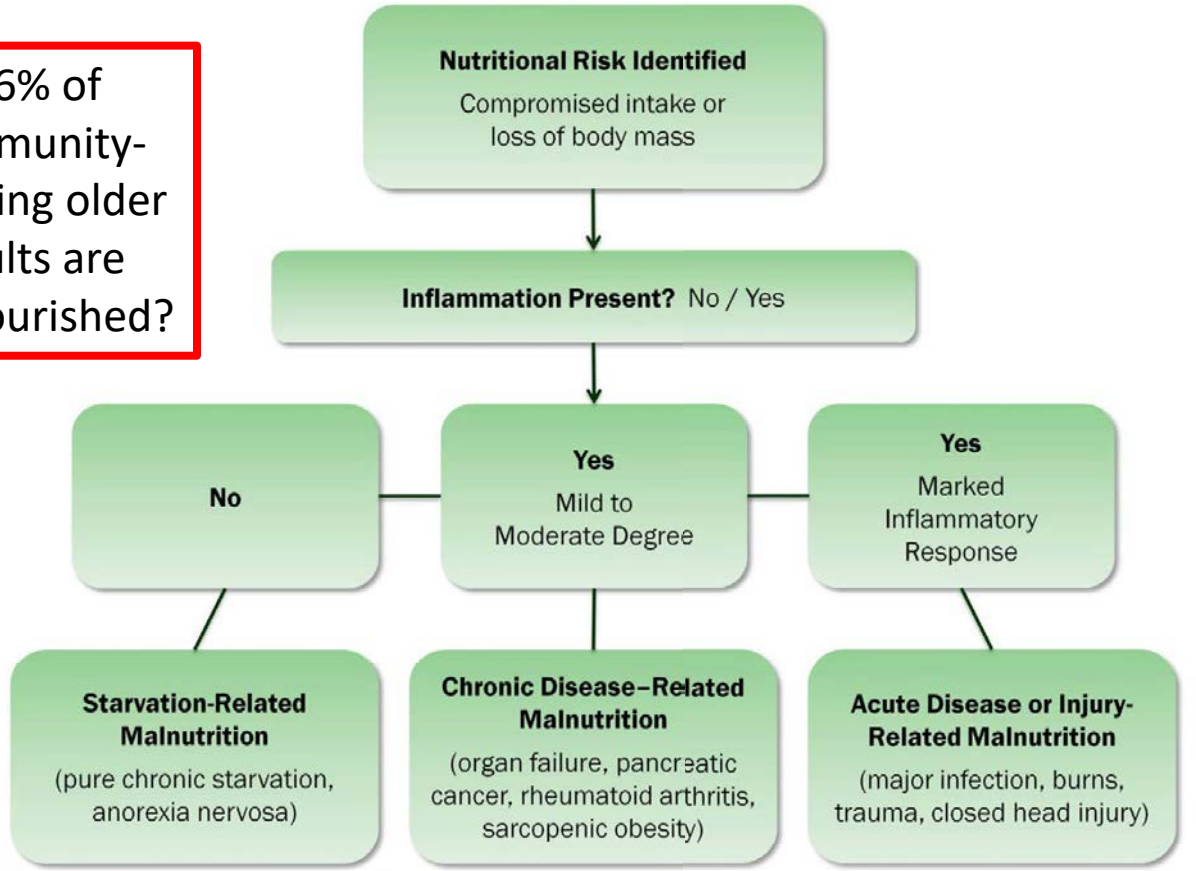


Figure. Etiology-Based Malnutrition Definitions. Adapted with permission from reference (8): Jensen GL, Bistrian B, Roubenoff R, Heimburger DC. Malnutrition syndromes: A conundrum vs. continuum. *JPEN J Parenter Enteral Nutr.* 2009;33(6):710-716.

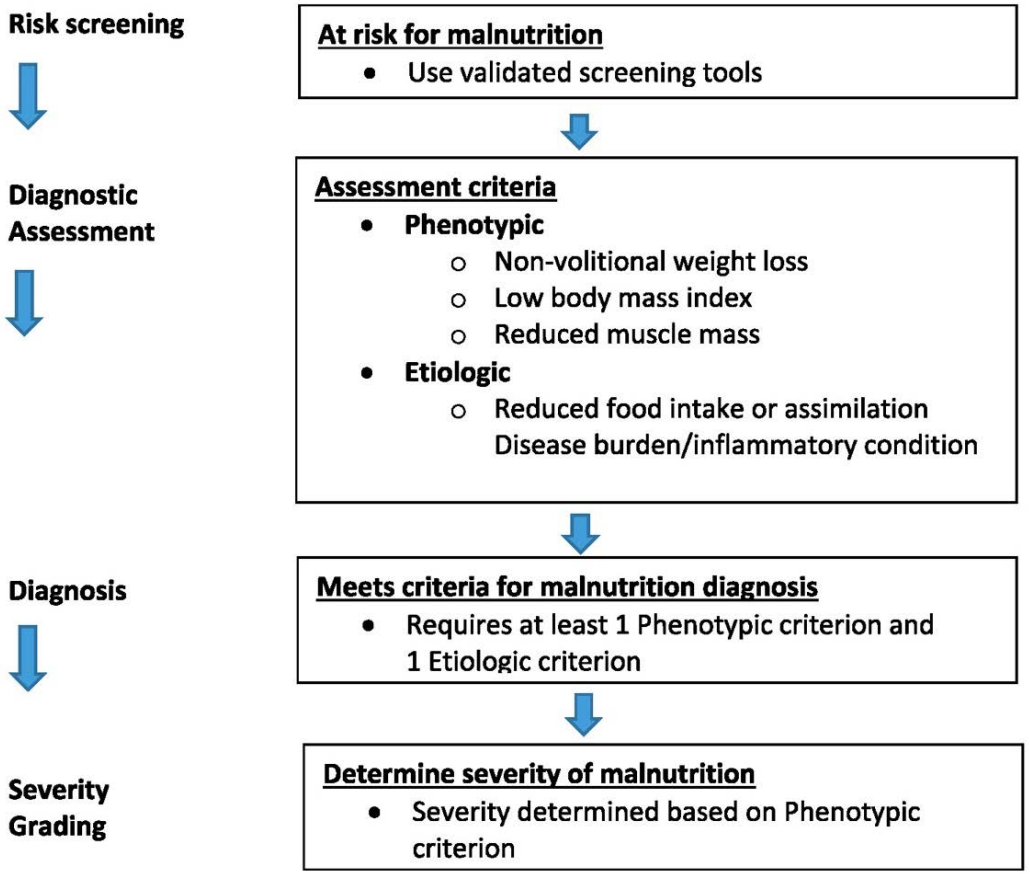


Fig. 1. GLIM diagnostic scheme for screening, assessment, diagnosis and grading of malnutrition.

Kaiser *et al*., 2010; White *et al*., 2012; Cederholm *et al*., 2019

FROM THE ACADEMY

Position Paper

Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults

- Recommends MST to screen adults of *all* ages (including older adults) for malnutrition purposes of triaging referral for assessment by registered dietitians.
- Lack of evidence on the validity of MST to assess programs outcome for SNAP, home-delivered meals or congregate meals.

MALNUTRITION SCREENING TOOL (MST)	
Have you lost weight recently without trying?	
No	0
Unsure	2
If yes, how much weight (kilograms) have you lost?	
1–5	1
6–10	2
11–15	3
>15	4
Unsure	2
Have you been eating poorly because of a decreased appetite?	
No	0
Yes	1
Total	

Score of 2 or more = patient at risk of malnutrition.

*Not tested US community settings, false positives, and unknown predictive validity

Skipper *et al.*, 2020; Ferguson *et al.*, 1999; Dwyer *et al.*, 2019

Position of the Academy of Nutrition and Dietetics and the Society for Nutrition Education and Behavior: Food and Nutrition Programs for Community-Residing Older Adults

USDHHS and USDA food and nutrition programs, recommended these outcomes:

- decrease risk of malnutrition;
- prevent or reverse unintended weight loss;
- improve dietary alignment with 2015-2020 DGA

….as determined by validated screening and assessment tools

"The OAA Nutrition Program should recommend the use of validated nutritional risk tools…to assess program effectiveness."

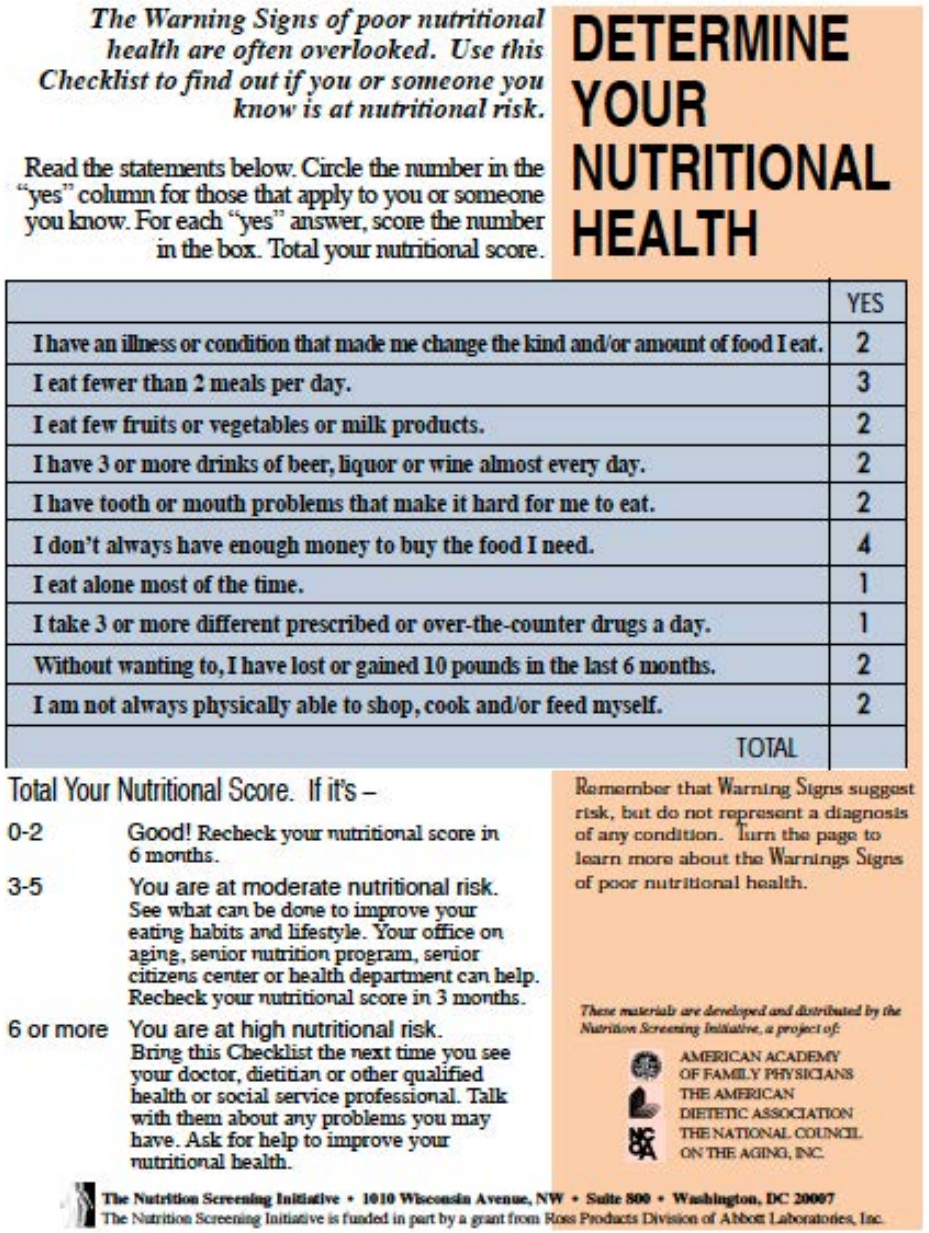
- MNA - Mini Nutritional Assessment
- DST - Dietary Screening Tool
- MST - Malnutrition Screening Tool
- SCREEN II: Seniors in the Community: Risk Evaluation for Eating and Nutrition

Saffel-Shrier *et al.*, 2019

DETERMINE Checklist

Older Americans Act Nutrition Program congregate meal sites report on Determine questions.

Intended for awareness and nutrition education - not been shown to be valid for nutrition screening.



The Warning Signs of poor nutritional health are often overlooked. Use this Checklist to find out if you or someone you know is at nutritional risk.

Read the statements below. Circle the number in the "yes" column for those that apply to you or someone you know. For each "yes" answer, score the number in the box. Total your nutritional score.

DETERMINE YOUR NUTRITIONAL HEALTH

	YES
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 per 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 mouth problems that make it hard for me to eat.	2
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
TOTAL	

Total Your Nutritional Score. If it's –

0-2 Good! Recheck your nutritional score in 6 months.

3-5 You are at moderate nutritional risk. See what can be done to improve your eating habits and lifestyle. Your office on aging, senior nutrition program, senior citizens center or health department can help. Recheck your nutritional score in 3 months.

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 may have. Ask for help to improve your nutritional health.

Remember that Warning Signs suggest risk, but do not represent a diagnosis of any condition. Turn the page to learn more about the Warnings Signs of poor nutritional health.

These materials are developed and distributed by the Nutrition Screening Initiative, a project of:

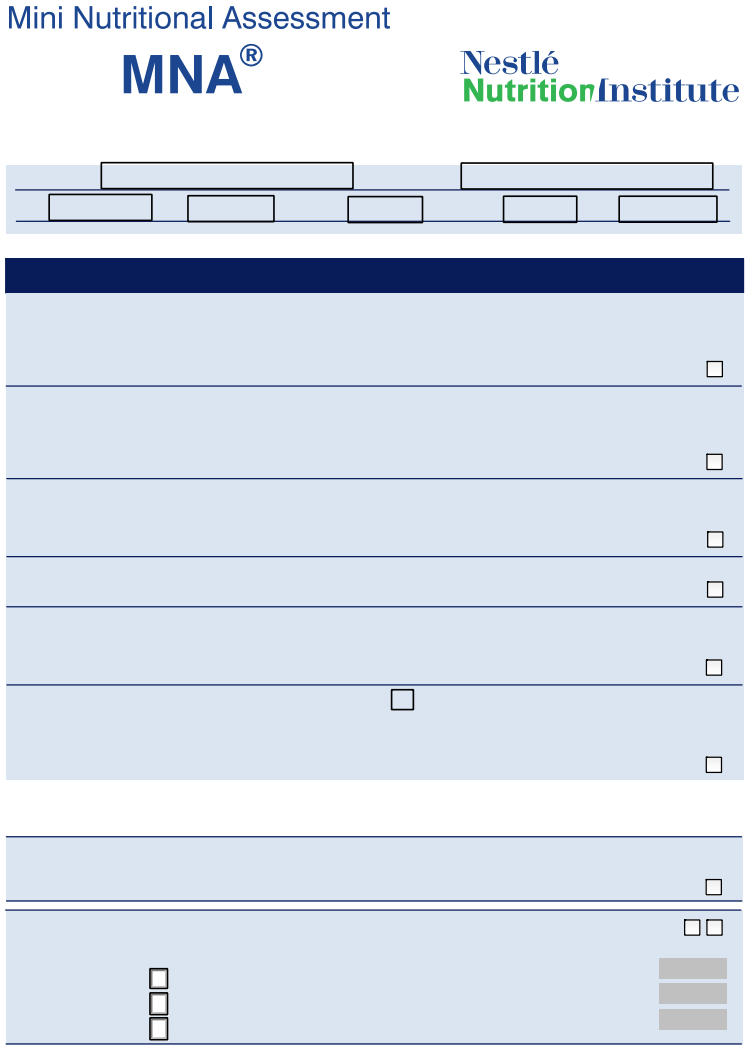
AMERICAN ACADEMY OF FAMILY PHYSICIANS
THE AMERICAN DIETETIC ASSOCIATION
THE NATIONAL COUNCIL ON THE AGING, INC.

The Nutrition Screening Initiative • 1010 Wisconsin Avenue, NW • Suite 800 • Washington, DC 20007
The Nutrition Screening Initiative is funded in part by a grant from Ross Products Division of Abbott Laboratories, Inc.

Sahyoun *et al.*, 1997; Wellman *et al.*, 2005

MNA-SF®

- Anthropometric measurement and calculation is challenging time and impractical in many community settings.
- Good sensitivity and specificity to detect community-dwelling older adults at risk of malnutrition ***validated against the MNA®*** but…
- ***Validity issues*** as extensively tested against the MNA® *vs*. other assessment tools (e.g. Subjective Global Assessment)
- Shown to be a useful tool for frailty screening



Isautier *et al.*, 2019; Soysal *et al.*, 2019

SCREEN I, II and III

SCREEN I: 15 items on weight change, skipping meals, limiting foods, appetite, food-group intake, fluid intake, chewing and swallowing problems, meal replacements, number of meals, meal preparation, and grocery shopping.

SCREEN II & II-AB: Revised to 14+ items and 8-items

- Designed for needs assessment in addition to screening.

SCREEN III: 3-item version showed construct validity but problems with misclassification of risk

Keller *et al*., 2005; Morrison *et al.*, 2019

Is SCREEN appropriate for CMS and other higher risk populations?

SCREEN I - CMS attendees (n = 136; 77.1 ± 8.9 y)

- 68% at nutritional risk – confirming low specificity
- Appetite, swallowing/chewing problems, and significant weight change triggers were uncommon
- Poor diet quality (inadequate intake of dairy, fruits, and vegetables) was a major contributor to nutritional risk.

Dwyer et al. reviewed validity, reliability, and feasibility of screening tools for identifying risk of protein-energy malnutrition (PEM) for community-dwelling older adults and **Recommend SCREEN II**

Springstroh *et al.*, 2016; Dwyer *et al.*, 2019

COAST Development

Goal - to develop a *practical* and *feasible* malnutrition screening tool – a **C**omprehensive **O**lder **A**dult **S**creening **T**ool

- Targeting congregate meals
- Brief and easily administered in the community - excluded anthropometrics (e.g. height, weight, circumference) and calculations.

Long-term goals

- To identify individuals at high nutritional risk in need of additional food-based nutrition interventions.
- To promote widespread evaluation of the effectiveness of nutrition education programs to at-risk, community-dwelling older adults.

Key indicators from the literature

Weight loss: "Have you lost weight recently without trying?" from the MST

Appetite: Have you been eating ***less food*** because of a decreased appetite? was adapted from MST

Change in food intake: Do you have an illness or condition that has made you change the kind and/or amount of food [you] eat? from DETERMINE

Quality of diet: "In general, how healthy is your overall diet?" a previously validated, single-item, self-rating of diet quality.

Intake of protein foods: Do you consume….? adapted from the MNA

van der Pols-Vijlbrief *et al.*, 2014; Ferguson *et al.*, 1999; NSI, 1994; Loftfield *et al.*, 2015; Vellas *et al.*, 1999

COAST study 1 – Validation

Objective: To determine the validity of COAST against the full MNA®

Content validity (n = 5 experts)

Readability (n=35 adults >60 y)

Ease of use (n=42 adults >60 y)

- 96% found it “easy” or “very easy”

Methods:

- A cross-sectional study of adults (≥ 60 y) was conducted at congregate meal sites and similar sites frequented by older adults in Florida.
- MNA®, COAST, and demographics were collected by interview.

COAST study 1 - Validation

Results

- COAST items were retained based on their correlation with the total MNA® score (internal consistency reliability)
- COAST items were significantly correlated with the total MNA score (criterion validity)
- Upper cut-point of 6 (out of 8 points): 74% sensitivity, 74% specificity, and 84% area under the curve (AUC)
- Lower cut-point of 5 displayed 100% sensitivity, 88% specificity, and 95% AUC

Categories by score out of 8

- **7 or 8: low risk**
- **5 or 6: moderate risk**
- **0 to 4: high risk**

Upper cut-point of the MNA-SF 72% sensitivity, 89% specificity, and 91% AUC
Lower cut-point demonstrated 75% sensitivity, 97% specificity, and 99% AUC.

Cronbach alpha (reliability - internal consistency) was 0.71

Participant characteristics

	n = 298
Age, y	77 ± 9
Range	60-100
Sex, *n* (%)	
Male	59 (20)
Female	239 (80)
BMI, kg/m^2	29.5 ± 6.5
Range	17-56
Race, *n* (%)	
White	209 (70)
Black	71 (24)
Others	18 (6)
Ethnicity, *n* (%)	
Hispanic or Latino	20 (7)
Not Hispanic or Latino	260 (87)
Unknown or Not Reported	18 (6)

Alabasi *et al.*, in review; Alabasi *et al.*, 2018

COAST

1. "Have you lost weight recently without trying?"[1]

   Yes
   No

2. Have you been eating less food because of a decreased appetite?[1]

   Yes
   No

3. Do you have an illness or condition that has made you change the kind and/or amount of food you eat?[2]

   Yes
   No

4. "In general, how healthy is your overall diet?"[3]

   Poor
   Good
   Very good

5. Do you consume…

   - Dairy products (milk, cheese, yogurt) or soymilk at least once a day? Yes No
   - Meat, poultry (e.g. chicken), fish/seafood, or eggs every day? Yes No
   - Legumes (e.g. beans), soy products, nuts, or seeds at least twice a week?[4] Yes No

[1]Ferguson et al. 1999. Nutrition;15(6):458-64.
[2]Nutrition Screening Initiative (NSI). 1994. Wash Nurse;24(2):14-5.
[3]Loftfield et al. 2015. J Nutr Educ Behav;47(2):181-7.
[4]Vellas et al. 1999. Nutrition;15(2):116-22

https://edis.ifas.ufl.edu/fs393

COAST (Interview)

First name: _____Last name: _____Date_____

1. "Have you lost weight recently without trying?"[1]

   0 = Yes
   1 = No ☐

2. Have you been eating less food because of a decreased appetite?[1]

   0 = Yes
   1 = No ☐

3. Do you have an illness or condition that has made you change the kind and/or amount of food you eat?[2]

   0 = Yes
   1 = No ☐

4. "In general, how healthy is your overall diet?"[3]

   0 = Poor
   1 = Good
   2 = Very good ☐

5. Do you consume…

   - Dairy products (milk, cheese, yogurt) or soymilk at least once a day? Yes No
   - Meat, poultry (e.g. chicken), fish/seafood, or eggs every day? Yes No
   - Legumes (e.g. beans), soy products, nuts, or seeds at least twice a week?[4] Yes No

   0 = If 0 yes response
   1 = If one yes response
   2 = If two yes responses
   3 = If three yes responses ☐

Screening score (subtotal max. 8 points) ☐
7-8 points: □ At low risk of malnutrition
5-6 points: □ At moderate risk of malnutrition
0-4 points: □ At high risk of malnutrition

[1]Ferguson et al. 1999. Nutrition;15(6):458-64.
[2]NSI. 1994. Wash Nurse;24(2):14-5.
[3]Loftfield et al. 2015. J Nutr Educ Behav;47(2):181-7.
[4]Vellas et al. 1999. Nutrition;15(2):116-22.

COAST - ES

1. "¿Ha perdido peso usted recientemente sin intentarlo?"[1]

   0 = Sí
   1 = No

2. ¿Ha estado usted comiendo menos alimentos debido a una disminución de apetito?[1]

   0 = Sí
   1 = No

3. ¿Tiene usted una enfermedad o condición que le ha hecho cambiar el tipo y la cantidad de alimentos que come?[2]

   0 = Sí
   1 = No

4. "En general, ¿Qué tan saludable es su dieta?"[3]

   0 = Pobre
   1 = Buena
   2 = Muy buena

5. ¿Usted consume…

   • Productos lácteos (leche, queso, yogur) o leche de soya al menos una vez al día? Sí No

   • Carne, ave de corral (p.ej. pollo), pescado/mariscos, o huevos todos los días? Sí No

   • Legumbres (p.ej. frijoles), productos de soya, nueces o semillas al menos dos veces por semana?[4] Sí No

[1]Ferguson et al. 1999. Nutrition;15(6):458-64.
[2]Nutrition Screening Initiative (NSI). 1994. Wash Nurse;24(2):14-5.
[3]Loftfield et al. 2015. J Nutr Educ Behav;47(2):181-7.
[4]Vellas et al. 1999. Nutrition;15(2):116-22

COAST - ES (Entrevista)

Primer nombre: _____ Apellido: _____ Fecha: _____

1. "¿Ha perdido peso usted recientemente sin intentarlo?"[1]

   0 = Sí
   1 = No ☐

2. ¿Ha estado usted comiendo menos alimentos debido a una disminución de apetito?[1]

   0 = Sí
   1 = No ☐

3. ¿Tiene usted una enfermedad o condición que le ha hecho cambiar el tipo y la cantidad de alimentos que come?[2]

   0 = Sí
   1 = No ☐

4. "En general, ¿Qué tan saludable es su dieta?"[3]

   0 = Pobre
   1 = Buena
   2 = Muy buena ☐

5. ¿Usted consume…

   • Productos lácteos (leche, queso, yogur) o leche de soya al menos una vez al día? Sí No

   • Carne, ave de corral (p.ej. pollo), pescado/mariscos, o huevos todos los días? Sí No

   • Legumbres (p.ej. frijoles), productos de soya, nueces o semillas al menos dos veces por semana?[4] Sí No

   0 = Si no respondió ningún sí
   1 = Si respondió un sí
   2 = Si respondió dos sí
   3 = Si respondió tres sí ☐

Screening score (subtotal max. 8 points) ☐

7-8 puntos: □ Bajo riesgo de malnutrición
5-6 puntos: □ Riesgo moderado de malnutrición
0-4 puntos: □ Alto riesgo de malnutrición

[1]Ferguson et al. 1999. Nutrition;15(6):458-64.
[2]NSI. 1994. Wash Nurse;24(2):14-5.
[3]Loftfield et al. 2015. J Nutr Educ Behav;47(2):181-7.
[4]Vellas et al. 1999. Nutrition;15(2):116-22.

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COAST 2 study

Aim: To determine if risk of malnutrition as determined by the COAST was associated with muscle mass and strength in community-dwelling older adults

Design: A cross-sectional study measuring COAST, weight, height, hand-grip strength, body composition by bioelectric impedance analysis (BIA).

Results: Using BIA nutritional parameters, all participants were assessed as normal nutritional status.

Nutrition status	Participants
High risk of malnutrition	4%
Moderate risk of malnutrition	42%
Low risk of malnutrition	54%

Participants	n = 136
Age, y (range)	76 ± 10 (60-97)
Sex, n (%)	
Male	29 (21)
Female	107 (79)
BMI (range)	27.7 ± 6.1 (18 – 61)
Race, n (%)	
White	127 (93)
Black	3 (2)
Others	6 (5)
Ethnicity, n (%)	
Hispanic or Latino	1 (0.7)
Not Hispanic or Latino	134 (98.5)
	1 (0.7)

The ENAFS Effectiveness Implementation Trial – stay tuned

A curriculum developed by Linda Bobroff, UF professor emeritus, covering nutrition, food safety, healthy living, diabetes, hypertension, fall prevention etc.

Aim: To test the effectiveness of the ENAFS program (Nutrition Module 1) at reducing nutritional risk (using COAST) and increasing participant nutrition knowledge and health-related behaviors as well as other AAA priority outcomes.

Extension and research collaboration lead by Carlin Rafie, Department of Human Nutrition, Foods, and Exercise at Virginia Tech

Conclusions and Future Work

- County, state and national data on nutrition risk using a ***validated screening tool*** to identify those at highest risk and evaluate the effectiveness of food and nutrition education programs is needed.
- SCREEN II shows promise but requires US testing in specific target populations

COAST

- A brief, practical and valid tool for the CMS population (in Florida)
- Although easy to self-complete, depending on the functional and literacy levels of the target group, it may be most appropriate to screen by interview.

Research needed/in progress

- Cross-validation – home-bound older adults
- Test-retest reliability, inter-rater and intra-rater reliability by interview
- Test against another malnutrition comparator?
- Predictive validity – its association with onset of malnutrition, need for additional services such as homecare, or admission to long-term care.
- Testing as a pre and post tool for nutrition education program evaluation, specifically to determine if nutrition education improves the nutritional risk of high-risk community-dwelling older adults.

Protect the Future of Food and Nutrition Programs for Older Adults

- Opportunity for nutrition educators
- Work collaboratively with state and federal community-based food and nutrition programs
- Balance study design rigor with feasibility
- Include staff in design and evaluation plan
- Consider mixed methods

- Choose validated tools
  - Think critically about options
  - COAST
- *Conduct evaluation and publish!*
  - *KEY TO FUNDING!!!!*

QUESTIONS?

Nutrition and Aging Services: *Screening, Innovating, Collaborating and Best Practices on Evaluating Impact*

July 24, 2020

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