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MEMORANDUM April 11, 2022

Subject: **Malnutrition in Older Adults**

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This memorandum was prepared to enable distribution to more than one congressional office.

This memorandum provides information about malnutrition in older adults. It is intended to present a broad overview of the topic, with a focus on the federal policy response to malnutrition in older adults.

The memorandum is organized into six sections:

- the first section offers a brief overview of malnutrition in older adults (see p. 1);
- the second section describes the potential risk factors for malnutrition in this population (see p. 4);
- the third section describes malnutrition screening and assessment, as well as quality measurement (see p. 9);
- the fourth section discusses evidence-based malnutrition care as a means to improve the provision of care in hospital settings (p. 16);
- the fifth section provides an overview of the federal role in addressing malnutrition in older adults, including examples of federal programs and activities that address this issue (p. 21); and
- the sixth section offers concluding observations regarding federal efforts to provide older adults with person-centered care that is critical to addressing such a complex and multifaceted issue (p. 30).

The term "older adult" generally refers to individuals who are 60 years of age and older. However, in the research summarized and cited in this memorandum, the age range for the older adult population may vary.

Overview of Malnutrition in Older Adults

Malnutrition, sometimes used synonymously with undernutrition, is defined as a nutrition imbalance that can affect both overweight and underweight patients. In 2012, the Academy of Nutrition and Dietetics and the American Society for Parenteral and Enteral Nutrition (ASPEN) issued a consensus statement recommending the use of a standardized set of characteristics to identify and document adult malnutrition status. Specifically, the consensus statement recommended using two or more of the following

characteristics: insufficient energy (calorie) intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation that may mask weight loss, and diminished functional status.[1]

Lack of adequate calories, protein, or other nutrients needed for tissue maintenance and repair can result in malnutrition.[2] Normative physiologic changes associated with aging affect nutritional status. Gastrointestinal problems, changes in sense of taste, polypharmacy (i.e., use of multiple medications), decreased appetite, and food insecurity[3] can all lead to decreased food intake and malnutrition in older adults.[4] Although data suggest that diet quality is highest among older adults aged 60 and older compared with other age groups,[5] older adults, like people in other age groups, are not meeting the recommended nutrient intakes. Older adults have an average score of 63 out of 100 on the Healthy Eating Index (HEI),[6] a measure of diet quality that assesses how well dietary intake aligns with the Dietary Guidelines for Americans.[7] For adults aged 60 and older, fruit, vegetable, whole grain, and dairy intakes are below recommended levels.[8] Moreover, older adults have unique nutrition considerations. For example, vitamin B12 intake is important for older adults, because the ability to absorb this nutrient decreases with age and can be hindered by certain medications.[9] Adequate protein intake is also important to prevent age-related loss of lean muscle mass, and current data indicate that 50% of women and 30% of men over the age of 70 are not meeting protein intake recommendations.[10]

Malnutrition is associated with a range of adverse effects, including increased morbidity and mortality, decreased function and quality of life, increased risk of falls, increased frequency and length of hospital stays, and higher health care costs.[11] Patients with malnutrition have higher hospital readmission rates

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[1] Jane White et al., "Consensus Statement of the Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition)," *Journal of the Academy of Nutrition and Dietetics* (May 2012), vol. 112, no. 6, pp. 730-738. This paper was published concurrently in the *Journal of Parenteral and Enteral Nutrition*, vol. 36, no. 3.

[2] Stephanie Winston Rinehart, Jennifer Noll Folliard, and Mary Pat Raimondi, "Building a Connection between Senior Hunger and Health Outcomes," *Journal of the Academy of Nutrition and Dietetics* (2016), vol. 116, no. 5, pp. 759-763.

[3] The U.S. Department of Agriculture (USDA) defines food insecurity as "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways." Limited access to nutritionally adequate food among older adults can contribute to malnutrition. See https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement/#insecurity.

[4] Stephanie Winston Rinehart, Jennifer Noll Folliard, and Mary Pat Raimondi, "Building a Connection between Senior Hunger and Health Outcomes," *Journal of the Academy of Nutrition and Dietetics*, (2016), vol. 116, no. 5, pp. 759-763.

[5] U.S. Department of Health and Human Services (HHS), Nutrition as We Age: Healthy Eating with the Dietary Guidelines, July 20, 2021, https://health.gov/news/202107/nutrition-we-age-healthy-eating-dietary-guidelines.

[6] USDA and HHS, Dietary Guidelines for Americans, 2020-2025, Ninth Edition, December 2020, p. 127, https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf.

[7] Federal Interagency Forum on Aging-Related Statistics (2020), "Older Americans 2020: Key Indicators of Well-Being," Washington, DC: U.S. Government Printing Office, p. 38, https://agingstats.gov/docs/LatestReport/OA20_508_10142020.pdf.

[8] USDA and HHS, Dietary Guidelines for Americans, 2020-2025, Ninth Edition, December 2020, pp. 126-127.

[9] Ibid. Vitamin B12 plays an important role in cellular processes, and a deficiency may impair neurological processes (e.g., diminished senses, spasticity, diminished memory). See Chapter 29 "Cobalamin (Vitamin B12)," in *Modern Nutrition in Health and Disease*, ed. Maurice Shils et al., 10th ed. (2006), pp. 489-490.

[10] USDA and HHS, Dietary Guidelines for Americans, 2020-2025, Ninth Edition, December 2020, p. 128.

[11] Lisa Söderström et al., "Malnutrition is Associated with Increased Mortality in Older Adults Regardless of the Cause of Death," *British Journal of Nutrition*, March 2017, vol. 117, no. 4, pp. 532-540. ML Barrett, MK Bailey, and PL Owens, "Non-maternal and Non-neonatal Inpatient Stays in the United States Involving Malnutrition, 2016," Agency for Healthcare Research and Quality (AHRQ), https://www.hcup-us.ahrq.gov/reports/HCUPMalnutritionHospReport_083018.pdf. A systematic review published by AHRQ in October 2021 found an association between malnutrition and increased mortality and length of hospital stay among hospitalized patients, but the strength of the association varied depending on the tool used to identify malnutrition and patient population. See Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative

than patients without malnutrition.[12] Malnutrition in older adults can lead to increased infections, pressure ulcers, imbalance in electrolytes, altered skin integrity, and weakness and fatigue.[13]

Although the estimated prevalence of malnutrition varies across studies and relevant populations, limited information is available about these studies' primary or underlying research, including source data and reference dates. This information can help researchers understand whether reported estimates of malnutrition prevalence are current and generalizable to the older adult population. In a 2012 consensus statement, the Academy of Nutrition and Dietetics and ASPEN reported that the prevalence of adult malnutrition ranges from 15% to 60%, depending on the patient population and identification criteria used.[14] Some studies have found that malnutrition affects more than 30% of hospitalized patients in the United States[15] and up to 60% of hospitalized older adults (aged 65 years and older).[16] According to research that cites the National Resource Center on Nutrition, Physical Activity and Aging, between 35% and 50% of older residents in long-term care facilities are malnourished.[17] Clinical malnutrition is more frequently observed and reported in institutional settings, such as hospitals and nursing homes. Although less information is available about the malnutrition rate in community-dwelling older adults, data indicate that it is a common, yet overlooked, occurrence.[18] One study based on a limited sample of older adults (aged 60 and older) in 2010 in one geographic region of the United States estimated that 56.3% of older adults were at risk of malnutrition and 5.9% were malnourished.[19]

However, malnutrition diagnoses rates are lower than malnutrition rates. For example, a study published in 2014 found that 3.2% of all U.S. hospital discharges in 2010 had a documented malnutrition diagnosis, and that those patients were more likely to be older.[20] In 2016, Avalere Health reported that up to 60% of

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Effectiveness Review No. 249 (prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002). AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, ES-1, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

[12] ML Barrett, MK Bailey, and PL Owens, "Non-maternal and Non-neonatal Inpatient Stays in the United States Involving Malnutrition, 2016," AHRQ, as cited by the American Society of Parenteral and Enteral Nutrition (ASPEN), "Malnourished Hospitalized Patients," Readmission Rates, https://www.nutritioncare.org/uploadedFiles/Documents/Malnutrition/MAW_2021/ASPEN-HCUP-Infographic-Readmission.pdf.

[13] Barbara Kamp, "Position of the American Dietetic Association, American Society for Nutrition, and Society for Nutrition Education: Food and Nutrition Programs for Community-Residing Older Adults," *Journal of the American Dietetic Association*, (2010), vol. 110, pp. 463-472.

[14] Jane V. White et al., "Consensus Statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition)," May 2012, *Journal of Parenteral and Enteral Nutrition*, vol. 36, no. 3, p. 276.

[15] Mark R Corkins et al., "Malnutrition Diagnoses in Hospitalized Patients: United States, 2010," *Journal of Parenteral Nutrition*, February 2014, vol. 38, no. 2, pp. 186-195. AHRQ, "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review Number 249, October 2021, p. 1, https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/cer-249-malnutrition-hospitalized-adults.pdf. Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249 (prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002). AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

[16] Abby C. Sauer et al., "Nurses Needed: Identifying Malnutrition in Hospitalized Older Adults," *NursingPlus Open*, May 2016, vol. 2, pp. 21-25.

[17] Angela M. Fraser, "Malnutrition in Older Adults in the United States," in *Handbook of Famine, Starvation, and Nutrient Deprivation*, eds. V. Preedy and V. Patel (Springer, Cham, 2018), https://doi.org/10.1007/978-3-319-40007-5_87-1.

[18] Kristina Norman, Ulrike Haß, Matthias Prilich, "Malnutrition in Older Adults– Recent Advances and Remaining Challenges," *Nutrients*, vol. 13(8), August 12, 2021, p. 2764.

[19] RA DiMaria-Ghalili, YL Michael YL, AL Rosso AL, "Malnutrition in a Sample of Community-Dwelling Older Pennsylvanians," *Journal of Aging Research & Clinical Practice*, 2013, vol. 2, no. 1, pp. 39-45.

[20] Mark R. Corkins et al., "Malnutrition Diagnoses in Hospitalized Patients: United States, 2010," *Journal of Parenteral*

patients are malnourished upon hospital admission, compared to 7% who are diagnosed with malnutrition.[21] A 2018 study assessed the rate of malnutrition diagnosis among all adult inpatients hospitalized at 105 academic medical centers, identifying 5% with a malnutrition diagnosis during a two-year period.[22]

Risk Factors for Malnutrition in Older Adults

According to the Gerontological Society of America (GSA), "malnutrition is a prevalent, serious, and often unrecognized health threat for older adults in the United States."[23] However, malnutrition is not just a health issue; it is a public health and safety concern. Malnutrition may negatively affect older adults' overall health and well-being, which in turn can have an impact on their ability to live independently. The vast majority of older adults prefer to age-in-place in their own homes and communities.[24] According to the GSA, advanced age alone is a risk factor for malnutrition, as both aging and chronic conditions associated with age can lead to declines in nutrition health and muscle mass.[25] Moreover, malnutrition plays an important role in the development of certain geriatric syndromes, which are complex conditions that occur in advanced age and have serious implications for older adults' health. These conditions include, but are not limited to, dementia, depression, incontinence, fall risk, visual and hearing impairment, wound-healing disorders, and frailty.[26] In addition, older adults are more likely to experience physical, cognitive, psychological, and social and economic changes as they age, which can affect diet and nutrition quality, access and availability of food, and how the physical body processes food.[27] These changes may place older adults at greater risk of malnutrition and health-related risk factors, such as mental and behavioral health and disease-associated illness or chronic conditions, as well as social and economic risk factors.

Researchers, health care professionals, and policymakers are increasingly interested about how social determinants of health shape health status, risk, and outcomes. Social determinants of health are "conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks."[28] Examples of social determinants of health include affordable housing, access to education, public safety, availability of healthy foods, access to health care, and environments free of toxins or other hazards.[29]

Nutrition, February 2014, vol. 38, no. 2, pp. 186-195.

[21] Avalere, "New Malnutrition Quality Measures will Lead to High Quality, Lower-Cost Care," published September 29, 2016, http://avalere.com/expertise/life-sciences/insights/new-malnutrition-quality-measures-will-lead-to-higher-quality-lower-cost-ca.

[22] Conrad M. Tobert, Sarah L. Mott, and Kenneth G. Nepple, "Malnutrition Diagnosis During Adult Inpatient Hospitalizations: Analysis of a Multi-Institutional Collaborative Database of Academic Medical Centers," *Journal of the Academy of Nutrition and Dietetics*, January 2018, vol. 118, no. 1, pp. 125-131.

[23] National Academy on an Aging Society, "Profiles of an Aging Society: What We Know and Can Do About Malnutrition," The Gerontological Society of America, Fall 2015, https://www.geron.org/images/gsa/malnutrition/malnutritionprofile.pdf.

[24] Joanne Binette, *2021 Home and Community Preference Survey: A National Survey of Adults Age 18-Plus*, AARP Research, November 2021, https://doi.org/10.26419/res.00479.001.

[25] Profiles of an Aging Society, 2015.

[26] Kristina Norman, Ulrike Haß, Matthias Prilich, "Malnutrition in Older Adults– Recent Advances and Remaining Challenges," *Nutrients*, vol. 13(8), August 12, 2021, p. 2764.

[27] Nutrition and Aging Resource Center, "Aging Network's Role in Identifying Malnutrition and Abuse," October 2021, https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Facl.gov%2Fsites%2Fdefault%2Ffiles%2Fnutrition%2FIdentifying%2520Malnutrition%2520and%2520Abuse_FINAL.docx&wdOrigin=BROWSELINK

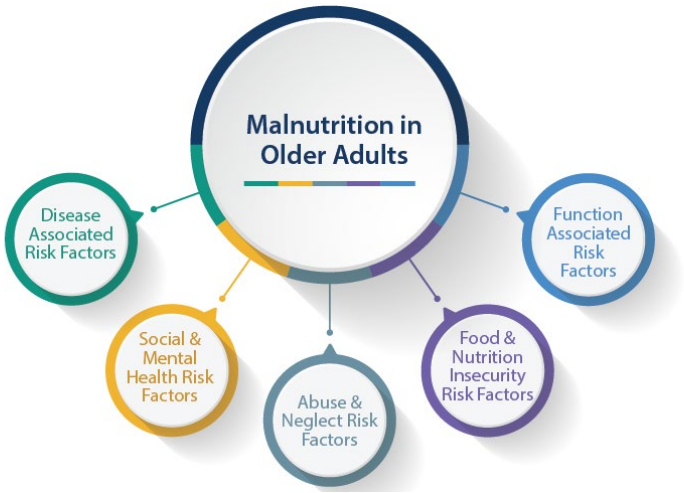
[28] U.S. Office of Disease Prevention and Health Promotion, "Social Determinants of Health," https://www. https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health.

[29] Ibid.

Factors that Lead to Malnutrition in Older Adults

The etiology, or cause, of malnutrition is complex and affected by multiple factors, including lifestyle, disease, and the aging process.[30] Effectively addressing malnutrition requires an understanding of the risk factors that can lead to it. Recent research has focused on potentially modifiable risk factors in certain populations that could be targeted to help prevent and treat malnutrition. **Figure 1** shows various categories of risk factors that can lead or contribute to malnutrition in older adults. Each risk factor category is described in greater detail below. Although evidence indicates that social and economic factors are generally related to malnutrition and malnutrition risk among older adults, less evidence exists indicating the extent or magnitude of specific risk factors.[31] The risk factor categories identified below provide a broad conceptual framework that can inform a public policy response and point to potential issues that policymakers may choose to focus on when addressing malnutrition in older adults.

Figure 1. Factors that Lead to Malnutrition in Older Adults



Source: CRS, adapted from Figure 1 from The Malnutrition Quality Collaborative, *National Blueprint: Achieving Quality Malnutrition Care for Older Adults*, Avalere Health and Defeat Malnutrition Today, 2020. The figure has been modified to include "Abuse & Neglect Risk Factors" as a separate category based on the Administration for Community Living, "Aging Network's Role in Identifying Malnutrition and Abuse," Nutrition and Aging Resource Center, updated October 2021, https://acl.gov/news-and-events/announcements/aging-networks-role-identifying-malnutrition-and-abuse.

Disease-Associated Risk Factors

Poor nutrition, including over- and under consumption of certain nutrients, is one risk factor associated with certain chronic conditions, such as cancer, obesity, diabetes, and heart disease.[32] Malnutrition in older adults can lead to poor health outcomes and further chronic illness by intensifying the effect of

[30] Kristina Norman, Ulrike Haß, Matthias Prilich, "Malnutrition in Older Adults–Recent Advances and Remaining Challenges," *Nutrients*, vol. 13(8), August 12, 2021, p. 2764; D. Volkert, E. Kiesswetter, T. Cederholm, et al., "Development of a Model on Determinants of Malnutrition in Aged Persons: A MaNuEL Project," *Gerontology and Geriatric Medicine*, June 21, 2019.

[31] Maria Besora-Morena et al., "Social and Economic Factors and Malnutrition or the Risk of Malnutrition in the Elderly: A Systematic Review and Meta-Analysis of Observational Studies," *Nutrients*, vol. 12(3), March 11, 2020, p. 737; M O'Keeffe, M Kelly, E O'Herlihy, "Potentially Modifiable Determinants of Malnutrition in Older Adults: A Systematic Review," *Journal of Clinical Nutrition*, vol. 38(6), December, 2019, pp. 2477-2498; Kristina Norman, Ulrike Haß, Matthias Prilich, "Malnutrition in Older Adults– Recent Advances and Remaining Challenges," *Nutrients*, vol. 13(8), August 12, 2021, p. 2764.

[32] U.S. Government Accountability Office, *Nutrition Assistance Programs: Agencies Could Do More to Help Address the Nutritional Needs of Older Adults*, GAO-20-18, November 21, 2019.

existing illness and disease conditions. Malnutrition can also lead to increased incidence of infection, including flu, pneumonia, and foodborne disease.[33] Older adults are at risk of poor nutrition because of the aging process. However, malnutrition is not an inevitable effect of aging and can be prevented or managed similar to other chronic diseases and conditions. Many chronic diseases are treated in part by consumption of a healthful diet, and research shows that good nutrition is a key component of healthy aging.[34] Malnourished older adults have reduced ability to maintain normal body functions, referred to as homeostatic reserves. This condition can diminish immune response, limiting an older individual's ability to recover from an acute illness or injury, and make individuals more vulnerable to medical complications. Research estimates that the annual burden of disease-associated malnutrition in U.S. adults aged 65 and older is $51.3 billion.[35]

Medical Condition-Related Risk Factors for Malnutrition

Many medical conditions can lead to decreased appetite or difficulty eating:

- Poor appetite
- Poor dentition, other oral health problems and dysphagia (i.e., difficulty swallowing food or liquid)
- Loss of taste and smell
- Respiratory disorders
- Gastrointestinal disorders
- Endocrine disorders
- Infections
- Physical disability
- Prescription drug interactions

Source: Angela M. Fraser, "Malnutrition in Older Adults in the United States," in *Handbook of Famine, Starvation, and Nutrient Deprivation*. eds. V. Preedy and V. Patel (Springer, Cham, 2018), https://doi.org/10.1007/978-3-319-40007-5_87-1.

Social and Mental Health Risk Factors

According to research, social isolation and loneliness can be linked to conditions that result in higher health risks, such as high blood pressure, heart disease, obesity, a weakened immune system, anxiety, depression, cognitive decline, Alzheimer's disease, and death.[36] In addition, changes in cognitive functioning and functional decline may lead to social isolation or depression, which may limit access to food and pose risks for developing malnutrition.[37] The effects of social isolation and loneliness may be greater for older adults because many of them live alone, particularly in advanced age. In 2020, about 27% (14.7 million) of all older adults living in the community lived alone (5 million men, 9.7 million women).[38] The proportion living alone increases with advanced age for both men and women; for

[33] Angela M. Fraser, "Malnutrition in Older Adults in the United States," in *Handbook of Famine, Starvation, and Nutrient Deprivation*, eds. V. Preedy and V. Patel (Springer, Cham, 2018), https://doi.org/10.1007/978-3-319-40007-5_87-1.

[34] Ibid.

[35] Julia T. Snider, Mark T. Linthicum, et al., "Economic Burden of Community-Based Disease-Associated Malnutrition in the United States," *Journal of Parenteral and Enteral Nutrition*, vol. 38 (supplement 2), November, 2014, pp. 77S–85S.

[36] National Institute on Aging, "Social Isolation, Loneliness in Older People Pose Health Risks," 2019, https://www.nia.nih.gov/news/social-isolation-loneliness-older-people-pose-health-risks.

[37] Melissa B. Aselage and Elaine J. Amella, "An Evolutionary Analysis of Mealtime Difficulties in Older Adults with Dementia," *Journal of Clinical Nursing*, vol. 19(1-2), January 2010, doi: 10.1111/j.1365-2702.2009.02969.x.

[38] U.S. Administration for Community Living, "2020 Profile of Older Americans," May 2021, https://acl.gov/sites/default/files/Profile%20of%20OA/2020ProfileOlderAmericans_RevisedFinal.pdf.

example, among women aged 75 and older, 42% lived alone. For older adults, the negative effects associated with living alone can increase with age, as the proportion of their leisure time spent socializing and communicating with others, such as by visiting friends or attending or hosting social events, declines. For example, the time older adults spent socializing and communicating with others was about 11% for those aged 55 to 64 and 7% for those aged 75 and over.[39]

Family relationships represent important social connections that affect individual well-being. When older individuals experience the death of a spouse or partner, that experience may lead to an increased risk of physical and mental health issues. Grief associated with the death of a loved one may manifest itself physically; sleep disturbances, physical pain, and gastrointestinal problems are not uncommon.[40] The death of a loved one may have broader implications for an older individuals' social and economic well-being, such as the loss of social and economic supports, caregivers, household income, and stable housing.[41] The death of a spouse may also lead to changes in social roles and household responsibilities, such as shopping for groceries or preparing meals. One study found that most older adults knew how to cook but knew less about cooking for one person or were less inclined to do so after cooking for a family for most of their lives.[42] Others in the same study noted that changes in their appetite or dietary needs required new ingredients and ways to prepare food that were unfamiliar.

Abuse and Neglect Risk Factors

Malnutrition may result from abuse or neglect by a caregiver or other individual whom an older adult relies on for assistance with personal care activities and other independent living activities, such as shopping, meal preparation, and medication management. Behaviors that constitute elder abuse and neglect, also referred to as elder mistreatment, are considered to be "intentional actions that cause harm or create a serious risk of harm (whether or not harm is intended) to a vulnerable elder by a caregiver or other person who stands in a trust relationship to the elder or failure by a caregiver to satisfy the elder's basic needs or to protect the elder from harm."[43]

Self-neglect is behavior that threatens a person's own health or safety, including refusal or failure to provide himself or herself with adequate food, water, clothing, shelter, personal hygiene, or medication.[44] Self-neglect is often considered distinct from elder abuse—the distinction being that self-neglect is a form of mistreatment that a person inflicts upon himself or herself (self-directed harm), whereas elder abuse is mistreatment inflicted by another individual (interpersonal harm). For example, a caregiver may

[39] Federal Interagency Forum on Aging-Related Statistics, *Older Americans 2020: Key Indicators of Well-Being*, Washington, DC, U.S. Government Printing Office, 2021, https://agingstats.gov.

[40] Susan Kowalski and Mary Bondmass, "Physiological and Psychological Symptoms of Grief in Widows," *Research in Nursing & Health*, vol. 31 (2008), pp. 23-30.

[41] James Poterba and Steven F. Venti, "Financial Well-Being in Late Life: Understanding the Impact of Adverse Health Shocks and Spousal Deaths," RRC Paper No. NB 17-03, National Bureau of Economic Research (2017); Toni P. Miles, Joseph C. Allegra, Amara Ezeamama, et al., "In a Longevity Society, Loss and Grief Are Emerging Risk Factors for Health Care Use: Findings From the Health and Retirement Survey Cohort Aged 50 to 70 Years," *American Journal of Hospice and Palliative Medicine,* vol. 33, no. 1 (2016), pp. 41-46.

[42] Andrea M. Warren, et al., "Taxonomy of Seniors' Needs for Food and Food Assistance in the United States," *Qualitative Health Research*, vol. 30, no. 7 (2020), pp. 988–1003.

[43] Richard J. Bonnie and Robert B. Wallace, eds., *Elder Mistreatment: Abuse, Neglect and Exploitation in an Aging America*, National Research Council (Washington, DC: National Academy Press, 2003).

[44] National Center on Elder Abuse (NCEA), "Frequently Asked Questions," Administration on Aging, https://ncea.acl.gov/FAQ.aspx; Krug, Etienne G., et al., eds. World Report on Violence and Health: Chapter 5, Abuse of the Elderly, 2002.

intentionally withhold food from or deliberately fail to provide proper nutrition to an older adult who relies on their care.

Older adults who experience trauma due to abuse or neglect may lose their appetite or stop eating.[45] Various behavioral, emotional, physical, and environmental signs may indicate malnutrition, such as changes in personality, depression or withdrawal, weight loss or gain, poor hygiene, changes in skin appearance, unexplained injuries, and unsanitary housing conditions.[46] However, these signs may also indicate abuse or neglect. As a result, health care and social service providers may find it challenging to identify malnutrition that results from abuse or neglect.

Food and Nutrition Insecurity Risk Factors

Food insecurity and health status are linked because lacking access to food can lead to poor health outcomes.[47] However, *food insecurity* differs from *hunger* and *malnutrition*. Hunger is the physical sensation of pain or discomfort from lack of food. As previously described, malnutrition is when the body does not receive enough nutrients to function properly. *Food security* and conversely *food insecurity*, as defined by the U.S. Department of Agriculture (USDA), focus on economic and other access-related factors associated with an individual's ability to purchase or otherwise obtain enough to eat.[48] Rather than focusing on individual behaviors that may result in the physical condition of being hungry (e.g., dieting or missing a meal due to illness), food insecurity focuses on the economic reasons for inadequate food or nutritional intake. Researchers estimate that about 7.1% of older adults (5.2 million) were food insecure in 2019.[49] In a systematic review of the literature, researchers found that when older adults reduce the quantity and quality of foods they consume to address food insecurity, that reduction is related to malnutrition or the risk of malnutrition.[50]

Some experts have advocated shifting from the concept of *food security* to a concept of *nutrition security*, which is defined in the research literature as "consistent access, availability, and affordability of foods and beverages that promote well-being and prevent (and if needed, treat) disease."[51] In addition to food access, nutrition security refers to diet and nutrition quality and health, which can help prevent and address malnutrition, particularly among older adults. Healthy eating can reduce the risk of chronic diseases or conditions and help individuals manage them. Conditions such as diabetes, heart disease, high blood pressure, and osteoporosis may require special diets in order to meet nutritional needs.

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[45] Administration for Community Living, "Aging Network's Role in Identifying Malnutrition and Abuse," Nutrition and Aging Resource Center, Updated: October 2021, https://acl.gov/news-and-events/announcements/aging-networks-role-identifying-malnutrition-and-abuse.

[46] Ibid.

[47] Marlus H.Q. Pereira et al., "Food Insecurity and Nutritional Status Among Older Adults: a Systematic Review," *Nutritional Review*, August 2, 2021.

[48] Alisha Coleman-Jensen et al., *Household Food Security in the United States in 2020*, ERR-298, U.S. Department of Agriculture, Economic Research Service, 2021.

[49] James P. Ziliak and Craig Gundersen, *The State of Senior Hunger in America 2019: An Annual Report*, prepared for Feeding America, August 2021, https://www.feedingamerica.org/research/senior-hunger-research/senior.

[50] Marlus H.Q. Pereira et al., "Food Insecurity and Nutritional Status Among Older Adults: a Systematic Review," Nutritional Review, August 2, 2021.

[51] D. Mozaffarian et al., "Prioritizing Nutrition Security in the US," *JAMA*, vol. 325 (16), April 2021, pp. 1605–1606. doi:10.1001/jama.2021.1915; Bipartisan Policy Center, *Improving Food and Nutrition Security During COVID-19, the Economic Recovery, and Beyond*, September 2021, https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2021/09/BPC-Health-Nutrition-Brief-1R03-compressed.pdf. See also USDA, "U.S. Agriculture Secretary Tom Vilsack Highlights Key Work in 2021 to Promote Food and Nutrition Security," January 21, 2022, at https://www.usda.gov/media/press-releases/2022/01/21/us-agriculture-secretary-tom-vilsack-highlights-key-work-2021.

Function-Associated Risk Factors

Function-associated risk factors include limitations with certain daily personal care activities, such as eating, and difficulty with oral motor functions, such as chewing and swallowing food. Oral sensory functions such as taste and smell also diminish in advanced age, which can lead to difficulty distinguishing spoiled or unsafe food and less enjoyment in the taste of food. Dental problems such as missing teeth, use of dentures, and dental decay can make chewing difficult and may lead older adults to decrease food consumption or to prefer soft, more easily chewed foods. About 19% of adults aged 65 and older no longer have any natural teeth; that percentage increases to 31% of adults aged 85 and older.[52] Oral health is an important component of an older adult's general health and well-being, and access to affordable oral health care is a potential issue for many older Americans. An estimated 29% of adults aged 65 and over have dental insurance; among those aged 85 and older, dental insurance coverage falls to 21%.[53] Traditional or "original" Medicare does not cover regular dental care.[54] In addition, side effects of some prescription drugs may cause appetite loss or nausea, or lead to dry mouth, which can interfere with swallowing. Side effects from prescription drugs may be compounded because many older adults take multiple medications. In addition, neurological disorders, such as Parkinson's disease, Alzheimer's disease, Huntington's disease, and stroke may negatively affect oral sensory and motor functions.

Mobility limitations are another function-associated risk factor that can affect nutrition. Older adults may have the economic means to purchase or acquire food, but they may be limited in their physical mobility and use assistive devices, such as a wheel-chair or walker, which may affect their ability to prepare meals or travel outside the home to purchase groceries. Malnutrition and weight loss can lead to muscle loss among older adults, a condition known as sarcopenia. This condition may increase the risk of falling due to lower body weakness or difficulty with walking or balance. Injuries related to falls among older adults can be serious, such as broken bones and head injuries.[55] According to research, in 2015 the total medical costs for falls totaled more than an estimated $50 billion, with federal health care financing programs such as Medicare and Medicaid paying 75% of these costs.[56]

Malnutrition Screening and Assessment

Nutrition screening is the process of identifying individuals who may be at risk of malnutrition and would benefit from nutrition assessment and intervention.[57] Generally, it is the first step in malnutrition care. Conducted by nurses, medical assistants, and dietetic technicians, often as part of the intake or admission process in community and health care settings, a nutrition screening can trigger a nutrition assessment, if needed.[58] While nutrition screening is intended to be short and simple, a nutrition assessment is an in-

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[52] Federal Interagency Forum on Aging-Related Statistics, *Older Americans 2020: Key Indicators of Well-Being*, Washington, DC, U.S. Government Printing Office, 2021, https://agingstats.gov.

[53] Ibid.

[54] Centers for Medicare & Medicaid Services (CMS), "Your Medicare Coverage: Dental services," https://www.medicare.gov/coverage/dental-services.

[55] Centers for Disease Control and Prevention, "Important Facts About Falls," at https://www.cdc.gov/falls/facts.html.

[56] CS Florence et al., "Medical Costs of Fatal and Nonfatal Falls in Older Adults," *Journal of the American Geriatrics Society*, March, 2018.

[57] The Academy of Nutrition and Dietetics defines *nutrition screening* as "the process of identifying patients, clients, or groups who may have a nutrition diagnosis and benefit from nutrition assessment and intervention by a registered dietitian nutritionist (RDN)." See Annalynn Skipper et al., "Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults," *Journal of the Academy of Nutrition and Dietetics*, April 2020, vol. 120, no. 4, p. 710.

[58] Academy of Nutrition and Dietetics, "Malnutrition Measures Specification Manual- Version 1.2—October 2017," p. 3, https://www.eatrightpro.org/-/media/eatrightpro-files/practice/quality-management/quality-improvement/malnutrition-

depth evaluation conducted by an RDN for those patients determined to be at risk for malnutrition during a nutrition screening.[59]

Table 1 lists commonly used nutrition screening and assessment (i.e., diagnosis) tools, some of which are described in more detail in the text below. The table lists screening tools first (in alphabetical order), followed by assessment tools (also in alphabetical order). While nutrition screening is distinct from nutrition assessment, the components of screening and assessment tools overlap, and the terms and tools sometimes are used interchangeably. This may result in nutrition screening tools being used to diagnose malnutrition, when their purpose is to identify patients at risk for malnutrition.[60]

Table 1. Commonly Used Nutrition Screening and Assessment Tools

Tool	Use	Population	Setting	Screening/Diagnosis Components
Malnutrition Screening Tool (MST)	Screening	Adults (including the elderly)	Acute care, inpatient, outpatient, residential aged-care facilities	Recent weight loss; recent poor food/nutrient intake
Malnutrition Universal Screening Tool (MUST)	Screening	Adults	Acute care and community	BMI, weight loss, acute disease effect score
Mini Nutritional Assessment-Short Form (MNA-SF)	Screening	Geriatric	Acute care, community, rehab, long-term care	Recent weight loss and diet history
Nutritional Risk Screening 2002 (NRS-2002)	Screening	Adults	Acute care	Recent weight loss, recent poor food/nutrient intake, BMI, and severity of disease
Nutritional Risk Index (NRI)	Screening	Adults (including the elderly)	Hospital	Current and usual weight
Nutrition Risk in Critically Ill (NUTRIC) score	Screening	Adults (critically ill)	ICU	Age, severity of illness, comorbidities, days between hospitalization to ICU admission
Short Nutritional Assessment Questionnaire (SNAQ)	Screening	Adults	Hospital outpatients	Weight loss and dietary intake
Academy of Nutrition and Dietetics (AND) and American Society for Parenteral and Enteral Nutrition (ASPEN) Malnutrition Consensus Criteria 1	Assessment	Adults	Hospital	Insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation (which may sometimes mask weight loss), diminished functional status as measured by handgrip strength

measuresspecificationmanual.pdf.

[59] Annalynn Skipper et al., "Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults," *Journal of the Academy of Nutrition and Dietetics*, April 2020, vol. 120, no. 4.

[60] Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249 (prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002.). AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, p. 2, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

Tool	Use	Population	Setting	Screening/Diagnosis Components
Adult Malnutrition Consensus characteristics (AMC)	Assessment	Adults	Hospital	Weight loss, energy intake, body fat, muscle mass, fluid accumulation, and grip strength
Global Leadership Initiative on Malnutrition (GLIM)	Assessment	Adults	Hospital	AND-ASPEN's criteria, etiologic influences (reduced food intake, hypercatabolic burden of disease), and phenotypic presentations (nonvolitional weight loss, low body BMI, low skeletal muscle mass) of malnutrition
Mini Nutritional Assessment (MNA)	Assessment	Geriatric	Acute care, community, rehab, long-term care	Diet history, anthropometry, medical history, and functional history
Nutrition Focused Physical Exam (NPFE)	Assessment	Adults	Hospital	Insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation (which may sometimes mask weight loss), diminished functional status as measured by hand-grip strength
Patient Generated Subjective Global Assessment (PG-SGA)	Assessment	Adults (includes oncology, renal and stroke)	Acute care	Medical history (weight, intake, gastro-intestinal symptoms, functional capacity) and physical exam
Subjective Global Assessment (SGA)	Assessment	Adults (includes surgical patients, geriatric, oncology, and renal)	Acute care, rehab, residential, or community	Medical history (weight, intake, symptoms, functional capacity, metabolic demand) and physical exam

Source: Modified from Table 1 in Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249 (prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002). AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, pp. 2-3, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

Notes: AND= Academy of Nutrition and Dietetics; ASPEN= American Society for Parenteral and Enteral Nutrition; BMI= Body Mass Index.

According to some stakeholders, inadequate malnutrition screening and challenges in diagnosing malnutrition are barriers to malnutrition care.[61] For example, in a 2013 paper, the Alliance to Advance Patient Nutrition ("Alliance") identified several barriers impacting the provision of nutrition care in the hospital setting, including inadequate screening for malnutrition.[62] Founded by the Academy of Medical-Surgical Nurses, the Academy of Nutrition and Dietetics, the Society of Hospital Medicine, and Abbott

[61] "Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition," *Journal of the Academy of Nutrition and Dietetics*, (2013), vol. 113, pp. 1219-1237; AHRQ, "Malnutrition in Hospitalized Adults," October 30, 2020, https://effectivehealthcare.ahrq.gov/products/malnutrition-hospitalized-adults/protocol#1.

[62] Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition," *Journal of the Academy of Nutrition and Dietetics*, (2013), vol. 113, pp. 1219-1237.

Nutrition, the Alliance formed in 2013 to highlight the costs of malnutrition in the hospital setting and to emphasize the importance of patient nutrition.[63] In 2016, Avalere Health attributed the gap between estimated malnutrition prevalence and malnutrition diagnosis to several factors, including lack of provider awareness of patients' nutrition status and how malnutrition information is tracked and communicated in the hospital medical record system.[64] One national survey found that about 36.7% of hospital-based professionals reported completing nutrition screening upon patient admission, 50.8% reported doing so within 24 hours, and 69% reported documenting the results in the patient medical record.[65] Although the Joint Commission—an organization that accredits and certifies more than 22,000 health care organizations and programs in the United States[66]—has required that all patients be screened for malnutrition within 24 hours of hospital admission, the definitions and tools used to do so vary and may affect estimates of malnutrition rates.

Nutrition Screening

As indicated in **Table 1**, different tools are used in different populations and settings. The Academy of Nutrition and Dietetics has highlighted the need for widespread use of valid and reliable malnutrition screening tools in identifying individuals at risk for malnutrition and referring them to an RDN for nutrition assessment and intervention.[67] However, the nutrition screening tools most commonly used have varying levels of validity, reliability, and generalizability.[68] In this context, some stakeholders such as the Academy of Nutrition and Dietetics have recommended the use of specific screening tools based on the available literature. Specifically, in April 2020, the Academy of Nutrition and Dietetics published a position paper concluding that the Malnutrition Screening Tool (MST) should be used to screen adults for malnutrition regardless of their age, medical history, or setting where care is received.[69] In the position paper, the Academy concluded that "replacing other malnutrition screening tools, especially those not rigorously validated, with the MST is expected to identify persons with malnutrition and provide consistent data to support nutrition practice and policy."[70] This conclusion was based on a systematic review of six malnutrition screening tools, which found that the MST showed moderate validity and reliability based on Grade I (Good/Strong) evidence, whereas the evidence supporting the conclusions for

[63] The work of the Alliance has since ended. In a statement of potential conflict of interest, Abbott Nutrition disclosed that it has provided funding to the member organizations of the Alliance. In addition, Abbott Nutrition "has been developing and marketing science-based nutritional products to support the growth, health and wellness of people of all ages for more than 85 years," see http://malnutrition.com/alliance/abbottnutrition.

[64] Avalere, "New Malnutrition Quality Measures will Lead to High Quality, Lower-Cost Care," published September 29, 2016, http://avalere.com/expertise/life-sciences/insights/new-malnutrition-quality-measures-will-lead-to-higher-quality-lower-cost-ca.

[65] Vihas Patel et al., "Nutrition Screening and Assessment in Hospitalized Patients: a Survey of Current Practice in the United States," *Nutrition in Clinical Practice*, August 2014, vol. 29, no. 4, pp. 483-490, as cited in Academy of Nutrition and Dietetics, "Malnutrition Measures Specification Manual- Version 1.2—October 2017," p. 4; see https://www.eatrightpro.org/-/media/eatrightpro-files/practice/quality-management/quality-improvement/malnutrition-measuresspecificationmanual.pdf.

[66] The Joint Commission, Frequently Asked Questions, "What is the Joint Commission," https://www.jointcommission.org/about-us/facts-about-the-joint-commission/joint-commission-faqs/.

[67] Academy of Nutrition and Dietetics, "Malnutrition Measures Specification Manual-Version 1.2—October 2017," https://www.eatrightpro.org/-/media/eatrightpro-files/practice/quality-management/quality-improvement/malnutrition-measuresspecificationmanual.pdf.

[68] Ibid. *Validity* means that the tool is able to measure or identify what it is intended to measure or identify, while *reliability* is a measure of internal consistency. *Generalizability* refers to the applicability of the findings to a broader population.

[69] Annalynn Skipper et al., "Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults," *Journal of the Academy of Nutrition and Dietetics*, April 2020, vol. 120, no. 4, p. 709-713.

[70] Annalynn Skipper et al., "Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults," *Journal of the Academy of Nutrition and Dietetics*, April 2020, vol. 120, no. 4, p. 712.

the other five nutrition screening tools was Fair (Grade II).[71] The systematic review identified several limitations in the available literature, including that no screening tool was found to have high validity, reliability, and agreement, and the need for more validation studies in the community and long-term care settings to increase confidence in existing tools.

CRS has not conducted a comprehensive review of the literature with respect to available screening tools and does not endorse any specific screening tools. Further, while some stakeholders have highlighted the importance of nutrition screening, questions remain regarding the extent to which nutrition screening improves clinical outcomes given limitations in the existing literature.[72]

Nutrition Assessment

A nutrition assessment, which is a comprehensive approach to diagnosing nutrition problems, involves examining dietary intake, anthropometric measures (e.g., weight), and laboratory data, as well as conducting a physical assessment, among other measures.[73] A nutrition assessment is typically completed by an RDN to diagnose malnutrition- and to subsequently guide interventions and nutrition care.

Several nutrition assessment tools are commonly used to diagnose malnutrition in older adults, particularly the Mini Nutritional Assessment (MNA) and the Subjective Global Assessment (SGA). The full MNA is an 18-question nutrition assessment developed for individuals aged 65 and older and includes four components: anthropometrics (e.g., BMI), self-reported health (e.g., health status), dietary intake questions (e.g., protein intake), and global assessment (e.g., medication usage).[74] The MNA yields a numerical score that can be used to diagnose an individual as malnourished. The SGA, in contrast to the MNA, does not yield a numerical score, instead relying on a health care professional to subjectively classify a patient as well nourished, with mild-moderate malnutrition, or severely malnourished.[75] The SGA is clinically focused and includes, among other things, questions about weight loss history, change in dietary intake, functional capacity, and a physical examination.[76] There is currently no universally accepted standard for nutrition assessment.

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[71] The six malnutrition screening tools evaluated were the MST, the Malnutrition Universal Screening Tool (MUST), the Mini Nutritional Assessment—Short Form (MNA-SF), the Short Nutritional Assessment Questionnaire (SNAQ), the Mini Nutritional Assessment—Short Form Body Mass Index (MNA-SF-BMI), and the Nutrition Risk Screening 2002 (NRS-2002). See Annalynn Skipper, Anne Coltman, Jennifer Tomesko, et al., "Adult Malnutrition (Undernutrition) Screening: An Evidence Analysis Center Systematic Review," *Journal of the Academy of Nutrition and Dietetics*, April 2020, vol. 120, no. 4, p. 669-708.

[72] Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249. (Prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002.) AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, p. 46, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

[73] Charles Mueller, Charlene Compher, Mary Ellen Druyan, and the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors, "A.S.P.E.N. Clinical Guidelines: Nutrition Screening, Assessment, and Intervention in Adults," January 2011, *Journal of Parenteral and Enteral Nutrition*, vol. 35, no. 1, p. 16.

[74] Nestle Nutrition Institute, Mini Nutritional Assessment MNA, https://www.mna-elderly.com/sites/default/files/2021-10/MNA-english.pdf. See also Yves Guigoz, "The Mini Nutritional Assessment (MNA) review of the literature—What does it tell us?," *The Journal of Nutrition Health and Aging*, November-December 2006, vol. 10, no. 6, pp. 466-485. Elsa Dent et al., "Malnutrition Screening and Assessment in Hospitalized Older People: A Review," *Journal of Nutrition Health and Aging*, February 2019, vol. 23, no. 5, p. 436.

[75] Elsa Dent et al., "Malnutrition Screening and Assessment in Hospitalized Older People: A Review," *Journal of Nutrition Health and Aging*, February 2019, vol. 23, no. 5, p. 436.

[76] Canadian Malnutrition Task Force, "Subjective Global Assessment Form," https://nutritioncareincanada.ca/sites/default/uploads/files/SGA%20Tool%20EN%20BKWT_2017.pdf. Elsa Dent, Emiel Hoogendijk, Renuka Visvanathan, et al., "Malnutrition Screening and Assessment in Hospitalized Older People: A Review," *Journal of Nutrition Health and Aging*, February 2019, vol. 23, no. 5, p. 436.

In response to concerns about a purported lack of consensus on malnutrition diagnostic criteria for application across clinical settings, in January 2016, several global nutrition societies convened the Global Leadership Initiative on Malnutrition (GLIM), which proposed a consensus scheme for diagnosing malnutrition in adults in clinical settings on a global scale.[77] GLIM proposed five nutrition assessment criteria, obtained from existing screening and assessment tools. The three phenotypic criteria (i.e., physical signs) are (1) non-volitional (i.e., unintentional) weight loss, (2) low body mass index, and (3) reduced muscle mass. The two etiologic (i.e., causal or explaining the origin of) criteria are (1) reduced food intake or assimilation and (2) disease burden/inflammatory condition. In this proposed scheme, a malnutrition diagnosis would require the presence of at least one phenotypic criterion and one etiologic criterion. Following a diagnosis of malnutrition, severity (i.e., moderate or severe malnutrition) would then be determined based on the presence of specific phenotypic criterion (e.g., percentage of weight loss). An October 2021 AHRQ report notes that, "GLIM recommendations have yet to be clinically validated or widely applied in clinical practice or research settings."[78]

While the approach proposed by GLIM includes screening and assessment, it "does not entail the robust detail of comprehensive nutrition assessment."[79] Instead, the GLIM consensus criteria would provide a malnutrition diagnosis that may then be complemented by more comprehensive nutrition assessments to provide the basis for intervention. Although comprehensive nutrition assessments are typically conducted by RDNs or other skilled nutrition practitioners, the GLIM criteria are intended to be readily applied by clinicians and other health care practitioners across clinical settings.[80] Some studies have aimed to validate the GLIM criteria in clinical practice, mainly by comparing its performance to the SGA.[81] An October 2021 AHRQ report notes that "GLIM recommendations have yet to be clinically validated or widely applied in clinical practice or research settings."[82]

The Malnutrition in Older Adults Project

Observers have identified gaps in the literature evaluating the utility of existing nutrition assessment tools in older adults, particularly tools used in non-acute care settings (e.g., in the community and long-term care settings).[83] In 2018, the Academy of Nutrition and Dietetics launched a Malnutrition in Older Adults

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[77] Tommy Cederholm et al., "GLIM Criteria for the Diagnosis of Malnutrition—A Consensus Report from the Global Clinical Nutrition Community," *Clinical Nutrition*, September 2019, vol. 38, pp. 1-9.

[78] Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249. (Prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002.) AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, p. 48, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

[79] Tommy Cederholm et al., "GLIM Criteria for the Diagnosis of Malnutrition—A Consensus Report from the Global Clinical Nutrition Community," *Clinical Nutrition*, September 2019, vol. 38, p. 6.

[80] Ibid.

[81] See, for example, Johane P. Allard et al., "GLIM Criteria has Fair Sensitivity and Specificity for Diagnosing Malnutrition when Using SGA as Comparator," *Clinical Nutrition*, September 2020, vol. 39, no. 9, pp. 2771-2777. Miriam Theilla et al., "Validation of GLIM Malnutrition Criteria for Diagnosis of Malnutrition in ICU Patients: An Observational Study," *Clinical Nutrition*, May 2021, vol. 40, no. 5, pp. 3578-3584. Júlia Epping Brito et al., "GLIM Criteria for Malnutrition Diagnosis of Hospitalized Patients Presents Satisfactory Criterion Validity: A Prospective Cohort Study," *Clinical Nutrition*, June 1, 2021, vol. 40, no. 6, pp. 4366-4372.

[82] Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249 (prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002). AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, p. 48, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

[83] "Malnutrition Matters! Latest Evidence for Nutrition Assessment and Interventions for Older Adults," Malnutrition in Older Adults Evidence Center Systematic Review and Evidence-based Practice Guidelines, presentation by Nancy Munoz, Anne Coltman, and Judy Simon at the Food & Nutrition Conference & Expo, October 19, 2021. Yves Guigoz, "The Mini Nutritional

Project, which began its work by conducting a scoping review "to identify the best available research that evaluates the validity and reliability of nutrition assessment tools" for older adults living in the community or in long-term care settings such as nursing homes.[84] (The group also looked at nutrition interventions in these settings.) The Malnutrition in Older Adults Project involves three processes: a scoping review, a systematic review, and guidelines development. In the scoping review published in the *Journal of the Academy of Nutrition and Dietetics* in October 2021, the authors identified a need for systematic reviews that evaluate the validity and reliability of nutrition assessment tools among older adults living in community and long-term care settings with, or at risk for, malnutrition. The authors concluded that such reviews are needed to guide development of evidence-based nutrition practice recommendations for older adults living in these settings.[85] The scoping review further noted that while the majority of older adults live in the community or long-term care settings, nutrition recommendations based on systematically reviewed evidence are lacking for this group.

Following the scoping review, an expert panel was assembled to conduct the systematic review, with experts separated into nutrition assessment and intervention groups.[86] The primary objective of the assessment group was to evaluate the validity and reliability of nutrition assessment tools for diagnosing malnutrition in older adults in the community and long-term care settings.[87] After applying the established inclusion and exclusion criteria, the remaining body of literature, which was limited, included two nutrition assessment tools: MNA and SGA. The systematic review, expected to be published in the *Journal of the Academy of Nutrition and Dietetics* in 2022, found that the MNA and SGA exhibited moderate validity in the community setting, although the MNA had only Grade III evidence (i.e., limited or weak) and the SGA had Grade II.[88] The MNA had no evidence of reliability, and the SGA exhibited low reliability based on Grade II evidence. In long-term care settings, both the MNA and SGA exhibited low validity (Grade II) and had no evidence of reliability.[89]

In the third step of the Malnutrition in Older Adults Project, the working group is developing evidence-based guidelines for older adults in community and long-term care settings, based on the results of the systematic review. These guidelines are expected to be published in the *Journal of the Academy of Nutrition and Dietetics* in 2022.[90]

Assessment (MNA) Review of the Literature—What Does it Tell Us?" *Journal of Nutrition Health and Aging*, November-December 2006, vol. 10, no. 6, pp. 466-485. Johane P. Allard et al., "GLIM criteria has fair sensitivity and specificity for diagnosing malnutrition when using SGA as comparator," *Clinical Nutrition*, September 2020, vol. 39, no. 9, pp. 2771-2777. Elsa Dent et al., "Malnutrition Screening and Assessment in Hospitalized Older People: A Review," *Journal of Nutrition Health and Aging*, February 2019, vol. 23, no. 5, pp. 431-441. Johane P. Allard et al., "GLIM Criteria has Fair Sensitivity and Specificity for Diagnosing Malnutrition when Using SGA as Comparator," *Clinical Nutrition*, September 2020, vol. 39, no. 9, pp. 2771-2777.

[84] Lisa Moloney and Brittany Jarrett, "Nutrition Assessment and Interventions for the Prevention and Treatment of Malnutrition in Older Adults: An Evidence Analysis Center Scoping Review," *Journal of the Academy of Nutrition and Dietetics*, October 2021, vol. 121, no. 10, pp. 2108-2140.

[85] Ibid.

[86] "Malnutrition Matters! Latest Evidence for Nutrition Assessment and Interventions for Older Adults," Malnutrition in Older Adults Evidence Center Systematic Review and Evidence-based Practice Guidelines, presentation by Nancy Munoz, Anne Coltman, and Judy Simon at the Food & Nutrition Conference & Expo, October 19, 2021.

[87] Ibid.

[88] Ibid.

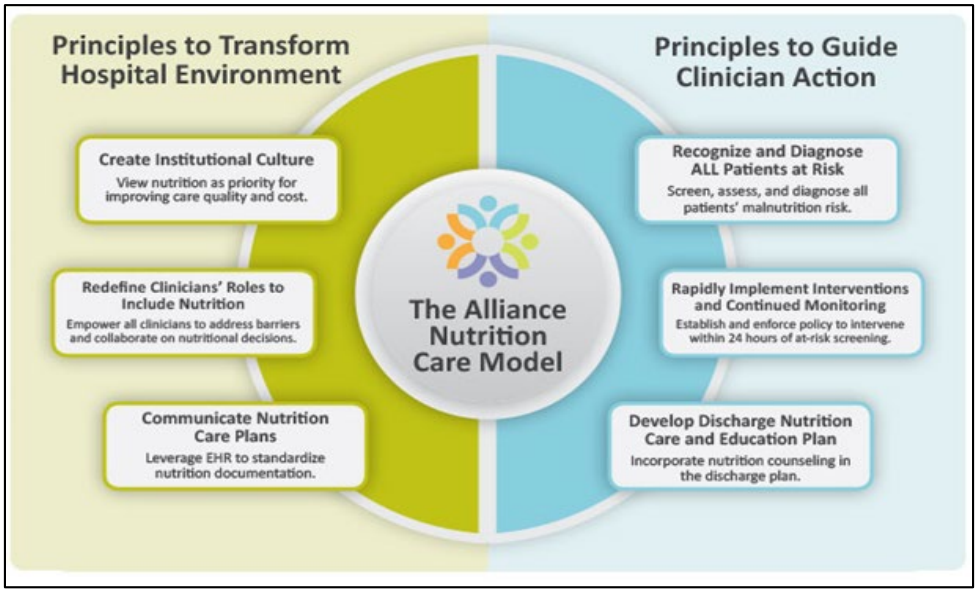
[89] Ibid.

[90] Ibid.

Evidence-Based Malnutrition Care

As noted above, the Alliance, in a 2013 paper, identified several barriers affecting the provision of nutrition care in the hospital setting, including inadequate staffing and delayed nutrition care,[91] among others.[92] Based on this work, also in 2013, the Alliance recommended an evidence-based nutrition care model to remediate malnutrition identified in hospitals in order to improve patient care and reduce hospital costs. This recommendation underscored that fact that to manage malnutrition, nutrition interventions should, among other things, involve collaboration across clinical disciplines (e.g., physicians, nurses, registered dietitians).[93] The model (see **Figure 2**) focuses on six key principles deemed as "essential elements of optimal patient nutrition care": (1) creating an institutional culture where all stakeholders (e.g., hospital administrators, dietitians) value nutrition; (2) redefining clinicians' roles to include nutrition care; (3) recognizing and diagnosing all malnourished patients and those at-risk; (4) rapidly implementing comprehensive nutrition intervention and continued monitoring; (5) communicating nutrition care plans; and (6) developing a comprehensive discharge nutrition care and education plan.[94]

Figure 2. Alliance Nutrition Care Model and Toolkit



Source: Alliance to Advance Patient Nutrition, "Alliance nutrition care model and toolkit," http://malnutrition.com/getinvolved/hospitalnutritiontoolkit, and Kelly Tappenden et al., "Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition," *Journal of the Academy of Nutrition and Dietetics*, (2013), vol. 113, pp. 1219-1237.

More recently, in 2020, Avalere and Defeat Malnutrition Today published a National Blueprint outlining key goals and associated strategies aimed at addressing malnutrition care in older adults. The National Blueprint broadly recommended four goals, including (1) improving quality of malnutrition care practices

[91] "[N]utrition care is often delayed due to the patient's medical status, lack of diet order, and time to nutrition consult." Kelly Tappenden et al., "Critical Role of Nutrition in Improving Quality of Care: An Interdisciplinary Call to Action to Address Adult Hospital Malnutrition," *Journal of the Academy of Nutrition and Dietetics*, (2013), vol. 113, p. 1222.

[92] Ibid. pp. 1219-1237.

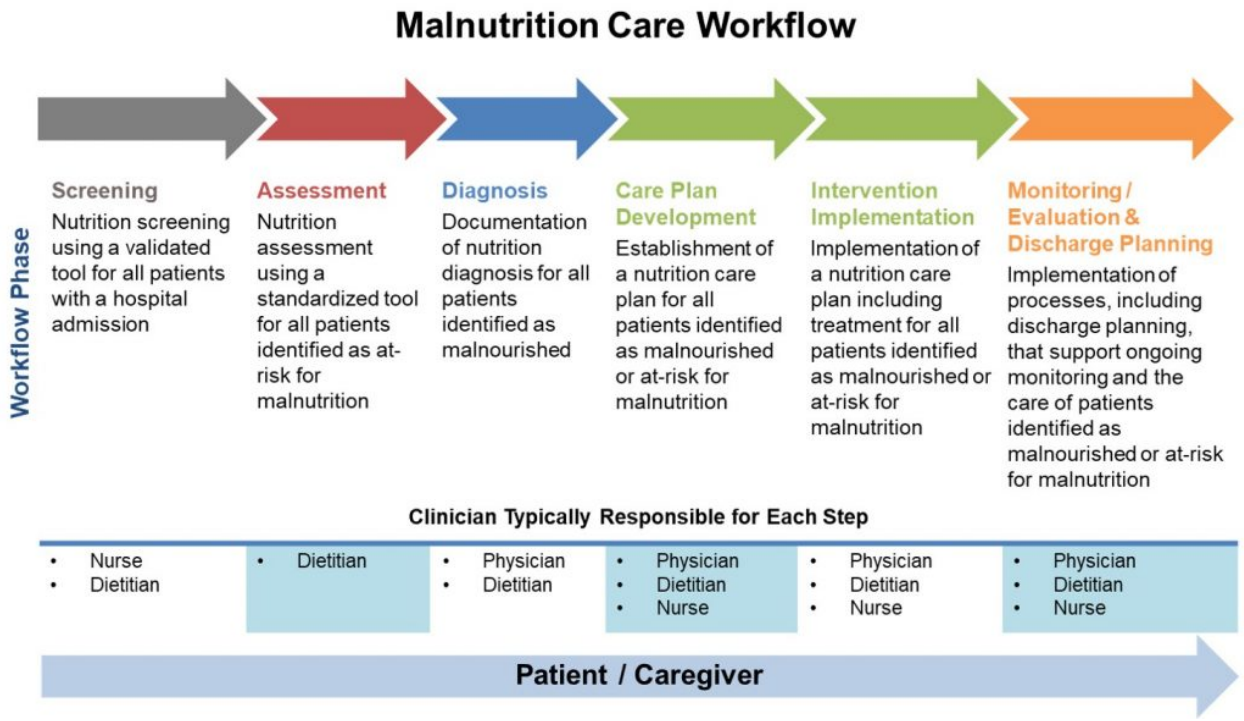
[93] Ibid.

[94] Ibid.

across all care settings, (2) improving access to high-quality malnutrition care and nutrition services, (3) generating clinical research on malnutrition quality of care, and (4) advancing public health efforts to improve malnutrition quality of care.[95] It noted that although some progress has been made in these areas, and specifically in acute care settings, less progress has been made in community and post-acute care settings, among others. In addition, the National Blueprint noted a continued need to generate both clinical research and evidence on malnutrition quality of care; to establish evidence-based care standards and performance benchmarks to improve malnutrition care; and to do so across the continuum of care, including in post-acute care and community settings.[96]

Malnutrition care involves several components, beginning with screening, assessment, and diagnosis. These are generally followed by (1) development of a care plan; (2) intervention implementation; and then (3) monitoring, evaluation, and discharge planning (see **Figure 3**).[97]

Figure 3. MQii Malnutrition Care Overview: From Screening to Discharge



Source: Malnutrition Quality Improvement Initiative (MQii), "MQii and the Nutrition Care Process," https://malnutritionquality.org/mqii-the-nutrition-care-process/.

Note: Quality measures developed by MQii address the stages of screening, assessment, diagnosis, and care plan development.

To improve the full scope of malnutrition care for older hospitalized adults, in 2013, the Academy of Nutrition and Dietetics and Avalere Health created a partnership that would eventually become the Malnutrition Quality Improvement Initiative (MQii). In collaboration with other stakeholders, this

[95] The Malnutrition Quality Collaborative, "National Blueprint: Achieving Quality Malnutrition Care for Older Adults, 2020 Update," Washington, DC: Avalere Health and Defeat Malnutrition Today, p. 6, 2020.

[96] Ibid. p. 13.

[97] Academy of Nutrition and Dietetics, "Malnutrition Measures Specification Manual- Version 1.2—March 2021," p. 5, https://malnutritionquality.org/wp-content/uploads/Malnutrition-Measures-Specification-Manual_v2_03252021.pdf.

initiative sought to "advance evidence-based, high-quality, patient-driven care for hospitalized older adults who are malnourished or at-risk for malnutrition."[98] The MQii is based on findings from literature reviews, landscape assessments, engagements with key stakeholders, and best practices research conducted to address gaps in malnutrition care, as well as to remediate the effect these gaps were having on patient outcomes. The initiative involves a two-pronged approach, including (1) a "toolkit" to facilitate the implementation of quality improvement initiatives by individual institutions, and (2) the use of quality measures, specifically electronic clinical quality measures (eCQMs)[99], to monitor and track progress toward improvement while implementing the toolkit's initiatives.[100]

In addition to this two-pronged approach, the MQii objectives include

- adopting malnutrition best practices at health care institutions through a nationwide MQii Learning Collaborative, with the goal of improving outcomes that are important to patients and clinicians, and
- improving nutrition risk identification and care as patients transition across care settings—for example, through integration into existing care transition pathways and accountable care models.[101]

To help support these objectives, the MQii developed the MQii Toolkit (the Toolkit), defined as "a guide for identifying and implementing clinical quality improvements for malnutrition care … designed to support changes among the care team's clinical knowledge and raise awareness of best practices for optimal nutrition care delivery."[102] The Toolkit is based on essential principles of quality improvement and "includes best practices for screening, assessing, diagnosing, and treating patients age 65 years and older, admitted to the hospital malnourished or at risk of malnutrition."[103] Although the Toolkit was developed to focus on care improvement for individuals over the age of 65, the materials and components may be applied to all adults (age 18 and above). The Toolkit includes materials and resources that support the steps needed to implement a malnutrition quality improvement initiative within a health care facility. These steps include making the case for implementing MQii in a facility, planning the initiative (e.g., raising awareness, building support and teams), selecting a quality improvement focus (e.g., malnutrition screening or diagnosis, nutrition assessment), and planning for data collection.[104]

The MQii Toolkit and eCQMs were tested in 2016 in six hospitals over a three-month implementation period, demonstrating that "the introduction of recommended malnutrition quality improvement actions helps hospitals achieve performance goals in nutrition care."[105] Specifically, this early pilot demonstrated that using the Toolkit improved malnutrition knowledge and improved clinical practices around screening, diagnosis documentation, and nutrition intervention.[106] This was the first MQii Learning Collaborative

[98] Malnutrition Quality Improvement Initiative (MQii), "About MQii," https://malnutritionquality.org/about-mqii/.

[99] An electronic quality measure, or eCQM, is defined as "a clinical quality measure expressed and formatted to use data from electronic health records (EHRs) and/or health information technology systems to measure healthcare quality, ideally data captured in structured form during the process of patient care." See ONC, "eCQI Resource Center," https://ecqi.healthit.gov/glossary/ecqm.

[100] MQii, "About the MQii," p. 4, 2018, https://malnutritionquality.org/wp-content/uploads/about-the-mqii.pdf.

[101] MQii. "About the MQii," https://malnutritionquality.org/about-mqii/.

[102] MQii, "The MQii Toolkit," p. 6, 2018, https://malnutritionquality.org/wp-content/uploads/the-mqii-toolkit.pdf.

[103] Ibid.

[104] MQii, "Complete Toolkit: A comprehensive guide to malnutrition quality improvement intended for printed use," Second Edition, 2018, https://malnutritionquality.org/wp-content/uploads/complete-mqii-toolkit.pdf.

[105] MQii, "About the MQii," p. 3, https://malnutritionquality.org/wp-content/uploads/about-the-mqii.pdf.

[106] H.J. Silver et al., "Effectiveness of the Malnutrition Quality Improvement Initiative on Practitioner Malnutrition Knowledge and Screening, Diagnosis, and Timeliness of Malnutrition-Related Care Provided to Older Adults Admitted to a Tertiary Care

effort to test and evaluate the implementation of the Toolkit and the eCQMs in hospital settings. The Learning Collaborative is intended to support dissemination of best practices in malnutrition care across the country, and to encourage the use of the malnutrition eCQMs to measure and monitor the impact of these interventions over time. The Learning Collaborative subsequently expanded in 2017 to include 50 hospitals, and it has generated evidence supporting the use of the MQii Toolkit and its scalability. For example, a 2021 study of 27 hospitals nationwide using the Toolkit showed that performance on all four of the eCQMs improved with cyclical implementation of the quality improvement (QI) initiatives.[107] As of January 2022, a total of 312 sites had participated across 38 states in the Learning Collaborative since its inception in 2016.[108]

Evidence-Based Care: A Systematic Review

A systematic review published by AHRQ in October 2021 assessed the effectiveness of hospital-initiated interventions for patients diagnosed with malnutrition. The review identified 11 randomized controlled trials (RCTs) that met the criteria for inclusion. Three of the studies had minimum age requirements of 60, 65, and 75, and only one study was conducted in the United States.[109] The RCTs assessed two types of interventions: (1) specialized nutrition care (consultation with an RDN to set protein and calorie intake goals) and (2) protein/calorie supplementation.

The systematic review found "moderate quality evidence" that hospital-initiated malnutrition interventions decreased hospital-based mortality compared with usual care, and found "low-quality evidence" that hospital-initiated malnutrition interventions improve quality of life compared with usual care. The evidence showed no difference between groups for certain outcomes of interest (i.e., length of stay, readmission rates, and hospital acquired conditions), and the evidence was considered insufficient for other outcomes of interest (i.e., activities of daily living and discharge disposition) due to study limitations and inconsistencies in the reported findings.[110]

Measuring Malnutrition

The Academy of Nutrition and Dietetics and Avalere Health have developed and tested a set of malnutrition eCQMs in hospitals using the Toolkit to measure performance and evaluate the effectiveness and impact of malnutrition QI initiatives at national and state levels. The four measures include (1) completion of a malnutrition screening within 24 hours of admission; (2) completion of a nutrition assessment for patients identified as at-risk for malnutrition within 24 hours of a malnutrition screening; (3) appropriate documentation of a malnutrition diagnosis; and (4) nutrition care plan for patients identified as malnourished after a completed nutrition assessment.[111] These measures address the care

Facility: A Pilot Study," *Journal of the Academy of Nutrition and Dietetics*, vol. 118, pp. 101-109, January 1, 2018.

[107] A.F. Valladares et al., "How a Malnutrition Quality Improvement Initiative Furthers Malnutrition Measurement and Care: Results From a Hospital Learning Collaborative," *Journal of Parenteral and Enteral Nutrition*, vol. 45, no. 2, pp. 366-371, February 2021.

[108] MQii, "MQii Learning Collaborative Participants," https://malnutritionquality.org/about-mqii/mqii-participants/.

[109] Stacey Uhl et al., "Malnutrition in Hospitalized Adults: A Systematic Review," Comparative Effectiveness Review No. 249 (prepared by the ECRI–Penn Medicine Evidence-based Practice Center under Contract No. 75Q80120D00002). AHRQ Publication No. 21(22)-EHC035. Rockville, MD: AHRQ; October 2021, p. 37, https://effectivehealthcare.ahrq.gov/sites/default/files/product/pdf/cer-249-malnutrition-hospitalized-adults.pdf.

[110] Ibid., p. 39.

[111] The four electronic clinical quality measures (eCQMs) are (1) National Quality Forum (NQF) #3087: Completion of a Malnutrition Screening within 24 hours of Admission; (2) NQF #3088: Completion of a Nutrition Assessment for Patients Identified as At-Risk for Malnutrition within 24 hours of a Malnutrition Screening; (3) NQF #3089: Nutrition Care Plan for Patients Identified as Malnourished after a Completed Nutrition Assessment; and (4) NQF #3090: Appropriate Documentation of a Malnutrition Diagnosis. See MQii, "Complete Toolkit: A comprehensive guide to malnutrition quality improvement intended for printed use," Second Edition, pp. 45, 2018, https://malnutritionquality.org/wp-content/uploads/complete-mqii-toolkit.pdf.

workflow areas of screening, assessment, diagnosis, and care plan development (see **Figure 3**). Having the Centers for Medicare & Medicaid Services (CMS) adopt these measures in its quality initiatives—specifically in hospital quality programs—is an eventual goal for MQii. Progress toward this goal relies on two steps: (1) endorsement of the measure(s) by the National Quality Forum (NQF) and (2) formal recommendation for inclusion in specific CMS quality programs by the Measure Applications Partnership (MAP) at NQF.[112]

The four malnutrition measures were initially reviewed by NQF's MAP in February of 2017 for recommendation for inclusion in the CMS Hospital Inpatient Quality Reporting (IQR) Program (and for what were at the time called the Medicare/Medicaid Electronic Health Record [EHR] Incentive Programs).[113] MAP did not recommend the measures for inclusion in the CMS Hospital IQR Program at that time. In addition, none of the four measures[114] as submitted by Avalere and the Academy of Nutrition and Dietetics received endorsement through the NQF Health and Wellbeing Project in 2017.[115] NQF did not endorse the measures at that time due to two main concerns: a lack of measure exclusions meant to decrease provider burden by limiting measure denominators, and a lack of robust and sufficient evidence supporting the link between the care processes (e.g., documentation of diagnosis) and improved health outcomes.[116]

With respect to inclusion in the Hospital IQR Program—the pay-for-reporting quality program at CMS for acute care hospitals—MAP recommended in its 2017 review that these measures be refined and resubmitted to NQF prior to going through rulemaking, with the exception of the documentation measure, which MAP did not support because of a stated need to move away from documentation measures.[117] MAP further recommended that the developer consider combining the three other measures into a single composite measure to decrease the reporting burden while still filling the malnutrition measure gap in the quality program.[118] At the time, had the measures received NQF endorsement and eventually been included in the CMS Hospital IQR Program through the rulemaking process, they would have been the first malnutrition measures—and the first malnutrition eCQMs—added to the IQR Program.

In response to this feedback, Avalere and the Academy of Nutrition and Dietetics collaborated to develop and evaluate the "Global Malnutrition Composite Score (GMCS)." This measure combined all four of the individual malnutrition eCQMs into a single composite measure, to be considered for both NQF

[112] For more information about MAP, see https://www.qualityforum.org/map/.

[113] NQF, "MAP 2017 Considerations for Implementing Measures in Federal Programs: Hospitals," February 2017, https://www.qualityforum.org/Publications/2017/02/2017_Considerations_for_Implementing_Measures_Final_Report_-_Hospitals.aspx.

[114] One of the four measures, #3089 Nutrition Care Plan for Patients Identified as Malnourished after a Completed Nutrition Assessment, was recommended by the Health and Well-Being Standing Committee for endorsement in 2017; it was not endorsed by the NQF's Consensus Standards Approval Committee (CSAC). Because it was recommended by the Health and Well-Being Standing Committee, it was the only measure of the four that was eligible for appeal. See National Quality Forum, Health and Well-Being 2015-2017 CSAC Memo, January 10, 2017, https://www.qualityforum.org/ProjectMaterials.aspx?projectID=80741.

[115] NQF, "Health and Well-Being 2015-2017 TECHNICAL REPORT," April 17, 2017, pp. 109-124, https://www.qualityforum.org/Publications/2017/04/Health_and_Well-Being_2015-2017_Final_Report.aspx.

[116] Ibid., pp. 28-33.

[117] NQF, "MAP 2017 Considerations for Implementing Measures in Federal Programs: Hospitals," pp. 10-11, February 2017, https://www.qualityforum.org/Publications/2017/02/2017_Considerations_for_Implementing_Measures_Final_Report_-_Hospitals.aspx.

[118] CMS defines a composite measure as "a measure that contains two or more individual measures, resulting in a single measure and a single score. A composite measure is meant to provide the user with a more complete picture of a quality issue overall, and each component measure must be tested for validity and reliability separately. In addition, the component measures must all share a similar orientation or focus; be supported by clinical evidence; and address a clinical care or outcomes gap. CMS, "CMS Measures Management System Blueprint." Version 17.0, September 2021, p. 22, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/Downloads/Blueprint.pdf.

endorsement and eventual inclusion in CMS quality reporting programs. The GMCS combined the four eCQMs with some variations from the original measures. The composite's component measures included (1) screening for malnutrition risk at admission; (2) completing a nutrition assessment for patients who screened for risk of malnutrition; (3) appropriate documentation of malnutrition diagnosis in a patient's medical record when indicated by the assessment findings; and (4) development of a nutrition care plan for malnourished patients, including the recommended treatment plan.[119] The NQF, in October 2021, officially endorsed the GMCS (NQF #3592e) pursuant to a recommendation for endorsement by the Prevention and Population Health Standing Committee during its fall 2020 review cycle.[120] This measure was reviewed—prior to its official endorsement—by MAP in 2020. In its final report to HHS in March 2021, evaluating relevant 2020 Measures Under Consideration (MUC), MAP stated that it provided conditional support for inclusion of the GMCS in CMS rulemaking (for both the Hospital IQR Program and the Promoting Interoperability Programs), pending endorsement by NQF.[121] The measure was not addressed in the 2021 MAP cycle and is not included in the CMS hospital reporting programs.

Role of Federal Policy

Addressing malnutrition and malnutrition risk for older adults raises several public policy issues, such as income security, public health, social services, and health care financing and delivery. In this context, such policy issues involve preventing and treating malnutrition, including through nutrition screening and assessment, intervention, monitoring, and the overall care of older adults who are malnourished and those at risk. Moreover, the impact and burden of disease can have important implications for federal policy with respect to the role of public programs that address malnutrition in older adults. In particular, this role includes the government's role in financing health care coverage for older adults and low-income individuals under the Medicare and Medicaid programs. The federal government also has a role in ensuring quality care for Medicare and Medicaid participants, including through the consideration and adoption of relevant quality measures in certain Medicare quality programs that address malnutrition. Public policy interventions also include federal programs and activities that collect data and conduct research to understand the scope and severity of disease to effectively target public health interventions to at-risk populations, and to provide access to medical and therapeutic interventions that address malnutrition.

Numerous federal agencies have a role in addressing diet and its link to chronic health conditions, including malnutrition.[122] Federal programs provide nutrition assistance to older adults through the provision of meals, food packages, and benefits redeemable for food. These programs are primarily administered by U.S. Department of Agriculture's (USDA's) Food and Nutrition Service and the U.S. Department of Health and Human Services (HHS) under the Administration for Community Living (ACL). State agencies, tribal organizations, local governments, and community-based organizations administer these programs at the state and local level. These entities also administer various health promotion and disease prevention activities, as well as the delivery of social services and supports that

[119] A.F. Valladeres, "Development and Evaluation of a Global Malnutrition Composite Score," *Journal of the Academy of Nutrition and Dietetics*, vol. 122, no. 2, pp. 251-253, February 1, 2022.

[120] NQF, "Prevention and Population Health, Fall 2020 Cycle: CDP Report: Technical Report," October 6, 2021, https://www.qualityforum.org/Publications/2021/10/Prevention_and_Population_Health_Final_Report_-_Fall_2020_Cycle.aspx.

[121] MAP, "Measure Applications Partnership 2020-2021 Considerations for Implementing Measures in Federal Programs: Clinician, Hospital & PAC/LTC," pp. 18-19, March 2021, file:///C:/Users/asarata/Downloads/map_2020-2021_considerations_for_implementing_measures_in_federal_programs_final_report%20(3).pdf.

[122] See U.S. Government Accountability Organization, *Chronic Health Conditions: Federal Strategy Needed to Coordinate Diet-Related Efforts*, GAO-21-593, August 17, 2021, for an inventory and discussion of programs.

can address the root cause of malnutrition. Financing for these services and activities come from a variety of public (i.e., federal, state, and local) and private funding sources.

In general, these nutrition assistance programs operate outside of the traditional health care financing and delivery system. However, there are a few exceptions. Medicaid, a joint federal state partnership, allows states the option to cover meals in the provision of home and community-based services (HCBS) for eligible older adults and individuals with disabilities. While original Medicare does not cover meals, some Medicare Advantage plans may cover meals as a supplemental benefit for a limited time.[123] Medicare Part B may cover medical nutrition therapy (MNT) services and certain related services for individuals with diabetes or kidney disease, or a kidney transplant.[124] In addition, financial incentives or penalties can be used to encourage health care organizations partner with community-based organizations to provide nutrition assistance and related services. These financing arrangements include, for example, managed care, accountable care organizations, and incentives to manage transitions of care from a hospital to a home, some of which may be financed by Medicare or Medicaid.[125]

The following sections describe programs and activities that are statutorily authorized or required to address malnutrition and specifically targeted toward older adults. These programs and activities are administered by the Administration on Aging (AOA) within the U.S. Department of Health and Human Services (HHS), Administration for Community Living (ACL).

Administration for Community Living

ACL administers domestic food assistance programs authorized under the Older Americans Act (OAA), referred to as the Nutrition Services Program, with the stated purpose of reducing malnutrition. In addition, ACL funds programs and activities that can identify, address, and prevent malnutrition in older adults living in their own homes or in community-based settings (i.e., assisted living facilities and similar residential care settings).

Other services funded under the OAA and administered by ACL provide outreach, education, and referral to community-based services. These services can help older adults and their caregivers access other federal, state, and local programs and benefits through related counseling and eligibility screening programs. OAA programs and services administered at the state and local level also fund activities that can address malnutrition through the provision of home and community-based services and supports, such as meal preparation, grocery shopping, transportation to group meal sites (i.e., congregate nutrition), medication management, and assistance with daily personal care activities that enable older adults to maintain their independence.[126]

These program interventions and activities are often delivered at the state and local level through community-based organizations that understand the needs of older adults in their communities, referred to as the Aging Network. The Aging Network includes state agencies (State Units on Aging, or SUAs), area

[123] Thomas Kornfield et al., *Medicare Advantage Plans Offering Expanded Supplemental Benefits: A Look at Availability and Enrollment*, Commonwealth Fund, February 2021, https://doi.org/10.26099/345k-kc32.

[124] Medical Nutrition Therapy Services may include nutrition assessment, individual and/or group nutritional therapy services, assistance in managing lifestyle factors that affect a chronic disease or condition, and follow-up visits to monitor progress. For more information, see CMS, "Medical Nutrition Therapy Services," at https://www.medicare.gov/coverage/nutrition-therapy-services.

[125] Maryland Department of Aging, *Addressing Malnutrition in Community Living Older Adults: A Toolkit for Area Agencies on Aging*, version 2, July 2019, https://acl.gov/sites/default/files/programs/Senior_Nutrition/MD_MalnutritionToolkit_508.pdf.

[126] For example, older adults participating in SNAP can use their benefits as a voluntary contribution toward the OAA meal if the nutrition service provider is authorized by USDA to accept SNAP benefits for this purpose. Administration for Community Living, "The Older Americans Act Nutrition Program Did You Know…?" May 2015, at https://www.acl.gov/sites/default/files/programs/2016-11/OAA-Nutrition-Program-FAQ.pdf.

agencies on aging (AAAs), and thousands of community-based organizations that are service providers for OAA-funded activities. With respect to malnutrition and malnutrition risk, these community-based organizations often coordinate with public health and other health care providers to address (1) social determinants of health, including the social and economic risk factors for malnutrition, and (2) participant access and quality of service delivery, by engaging in follow-up activities with clients who are referred to services. For older adults, providing contact information to a service provider may not be enough to establish access to services and needed care. Some older adults may need assistance in connecting and following up with a service provider to ensure service delivery.

Senior Nutrition Services Program

The Senior Nutrition Services Program, authorized under Title III of the Older Americans Act (OAA), provides grants to states and U.S. territories to support nutrition services programs for seniors aged 60 and older. OAA Title VI authorizes programs for nutrition services to tribal organizations and nonprofit organizations representing Native Hawaiians. As stipulated in the law, the program is intended to

- reduce hunger, food insecurity, and malnutrition;
- promote the socialization of older individuals; and
- promote the health and well-being of older individuals by assisting them to access nutrition and other disease-prevention and health-promotion services to delay the onset of adverse health conditions resulting from poor nutrition or sedentary behavior.[127]

The most recent reauthorization of the Older Americans Act (Supporting Older Americans Act of 2020; P.L. 116-131) included reducing malnutrition as a stated purpose of the Nutrition Services Program.

Program Funding

As the largest OAA program, the Title III, Part C, Nutrition Services Program received $807 million in annual discretionary funding in FY2022, accounting for one-third (37%) of the act's total funding ($2.2 billion). OAA Title VI funds for supportive and nutrition services to older Native Americans received $36.3 million.[128] Federal funding provides two separate formula grants to states, U.S. territories, and Indian tribal organizations to support (1) congregate meals in group settings (i.e., senior centers, community centers, and houses of worship) and (2) home-delivered meals for older Americans.[129] State Units on Aging (SUAs) administer the program at the state level and, in turn, award those funds to over 600 Area Agencies on Aging (AAAs), which oversee the program in their respective planning and service areas. In recognition of the relationship between the federal government and tribal organizations, funding under OAA Title VI is awarded directly by ACL to eligible Indian tribal and Native Alaskan organizations. OAA funding is also awarded directly to nonprofit organizations representing Native Hawaiians. In addition, the ACL administers the Nutrition Services Incentive Program (NSIP), which provides funds to the same entities to purchase food for these programs. The ACL awards a separate grant to states, U.S. territories, and tribal organizations for NSIP. **Table 2** provides a brief description of the various Senior Nutrition Program grants and eligibility information.

Grants for congregate and home-delivered nutrition services are awarded to states and U.S. territories based on a statutory formula that takes into account each entity's relative share of the population aged 60

[127] 42 U.S.C. §3030e.

[128] For more information on programs and funding under the OAA, see CRS Report R43414, *Older Americans Act: Overview and Funding*.

[129] The Older Americans Act (OAA) statute defines "older individual" as an individual aged 60 and older.

and over. States are required to provide a matching share of 15% to receive these funds. NSIP grants are awarded to states and other entities based on each entity's share of total meals served by the nutrition services program (both congregate and home-delivered meals) in all states, U.S. territories, and tribes during the prior year. NSIP grant awards do not have a matching requirement. States and other entities may choose to receive all or part of their NSIP allotments in the form of USDA commodities.[130]

Table 2. U.S. Department of Health and Human Services- Administration for Community Living (HHS-ACL) Senior Nutrition Programs

Program/ Authorizing Legislation	Description	Program Eligibility	FY2022 Funding (in millions)
Congregate Nutrition Program Older Americans Act, Title III, Part C, Subpart 1 (42 U.S.C. §3030e)	Meals provided by a qualified nutrition project provider to a qualified individual in a congregate or group setting (e.g., senior centers, schools, and adult day care centers, as well as social services). Meals are served in a program that is administered by SUAs and/or AAAs and meets all the requirements of the OAA and state and local laws.	Persons aged 60 and older and their spouses of any age; persons under age 60 with disabilities who reside in housing occupied by seniors where meals are served; persons with disabilities who reside at home with, and accompany, seniors to meals; and volunteers. In 2019, about 73.2 million congregate meals were served to about 1.5 million participants.	$515.3
Home Delivered Nutrition Program Older Americans Act, Title III, Part C, Subpart 2 (42 U.S.C. §3030f)	Meals provided to a qualified individual in his/her place of residence. Meals are served in a program that is administered by SUAs and/or AAAs and meets all the requirements of the OAA and state and local laws.	Persons aged 60 and older who are homebound and their spouses of any age; may be available to individuals who are under age 60 with disabilities if they reside at home with the homebound senior. In 2019, about 149.8 million home-delivered meals were served to about 882,000 participants.	$291.3
Grants to Native Americans: Supportive and Nutrition Services Older Americans Act, Title VI (42 U.S.C. §3057c)	Provides for the delivery of supportive and nutrition services comparable to services provided under OAA Title III (i.e., congregate and home-delivered meals) to older Native Americans.	Persons aged 60 and older who are American Indian, Alaskan Native, or Native Hawaiian. In 2019, 2.5 million congregate meals were served to about 59,000 participants and 2.5 million home-delivered meals were served to almost 29,000 participants.	$36.3

[130] The Nutrition Services Incentive Program (NSIP) was originally established by the OAA in 1974 as the Nutrition Program for the Elderly and administered by USDA. Congress transferred the administration of NSIP from USDA to (then named) HHS-AOA in 2003. In 2006, pursuant to P.L. 109-365, Congress rescinded states' option to receive commodities. However, in 2007, this option was reinstated through P.L. 110-19 (effective April 23, 2007), which authorized the transfer of NSIP funds from HHS to USDA for the purchase of commodities and related expenses. Obligations for NSIP commodity procurement are funded under an agreement between HHS-ACL and USDA-FNS. Most entities choose to receive their share of NSIP funds in cash, rather than commodities. In FY2021, five states chose to receive a portion of their share of the nutrition services incentive funds in commodities: Delaware, Kansas, Massachusetts, Montana, and Nevada. The FY2020 total value for these commodities was about $1.3 million (USDA, FNS, 2023 Explanatory Notes, pp. 35-155).

Program/ Authorizing Legislation	Description	Program Eligibility	FY2022 Funding (in millions)
Nutrition Services Incentive Program (NSIP) Older Americans Act, Title III, Part A, Section 311 (42 U.S.C. §3030a)	Provides funds to states, territories, and Indian Tribal Organizations to purchase food for or to cover the costs of food commodities provided by USDA for the congregate and home-delivered nutrition programs. Funds are allotted to states and other entities based on each state's share of total meals served during the prior year. Most states choose to receive their share of funds in cash, rather than commodities.	Compliant meals must meet the following requirements:[a] • served to a person who is eligible under the OAA and has not been means-tested for participation; • compliant with nutrition requirements; • served by an eligible agency; • served to a person who has the opportunity to contribute toward the cost of the meal.	$160.1

Source: Congressional Research Service based on ACL, *State Performance Report for State Units on Aging (Older Americans Act Titles III and VII, Chapter 3 and 4) Appendix A: Data Element Definitions*, Version 2.0, last revised September 15, 2021; FY2022 funding from Consolidated Appropriations Act, 2022 (P.L. 117-103) based on explanatory statement at https://www.congress.gov/117/crec/2022/03/09/168/42/CREC-2022-03-09-bk4.pdf#page=401.

Notes: AAA = Area Agencies on Aging; OAA = Older Americans Act; SUAs = State Units on Aging.

a. Title III NSIP Data Elements and Definitions: Quick Reference Guide.

Provider Requirements

Nutrition services providers are required to offer at least one meal per day, five or more days per week (except in rural areas, where provision can be less frequent).[131] The meals must comply with the Dietary Guidelines for Americans published by the Secretary of HHS and the Secretary of Agriculture. Providers must serve meals that meet certain dietary requirements based on the number of meals served by the project each day. Providers that serve one meal per day must provide to each participant a minimum of one-third of the daily recommended dietary reference intakes (DRIs) established by the Food and Nutrition Board of the National Academies of Sciences, Engineering, and Medicine. Providers that serve two meals per day must provide a minimum of two-thirds of the DRIs, and those that serve three meals per day must provide 100% of the DRIs.

Providers must comply with state or local laws regarding safe and sanitary handling of food, equipment, and supplies used to store, prepare, and deliver meals, and providers must implement meal programs using the expertise of dietitians and meal participants. Providers are encouraged to make arrangements with schools and other facilities serving meals to children to promote intergenerational meals programs. Where feasible, states must ensure that nutrition programs encourage the use of locally grown foods and identify potential partnerships and contracts with local producers and providers of locally grown foods.

Nutrition Screening, Education, and Counseling Services

In addition to meals, ACL funds nutrition-related services authorized under the OAA to older adults. Nutrition service providers may offer nutrition education, nutrition counseling, and other nutrition services, as appropriate, based on the needs of meal recipients. **Table 3** provides definitions for nutrition education and nutrition counseling services.

[131] Provider requirements for senior nutrition projects described in this section of the report are established under Section 339 of the Older Americans Act; 42 U.S.C. §3030g-21.

Table 3. Older Americans Act: Title III Definitions of Nutrition Education and Counseling Services

Service	Definition
Nutrition Education	A standardized service, as defined by the Academy of Nutrition & Dietetics (AND), that provides individualized guidance to participants who are at nutritional risk because of their health or nutrition history, dietary intake, chronic illness, or medication use, or to caregivers. Counseling is provided one-on-one by a registered dietitian and addresses the options and methods for improving nutrition status with a measurable goal.
Nutrition Counseling	An intervention targeting OAA participants and caregivers that uses information dissemination, instruction, or training to support food, nutrition, and physical activity choices and behaviors (related to nutritional status) in order to maintain or improve health and address nutrition-related conditions. Content is consistent with the Dietary Guidelines for Americans; is accurate, culturally sensitive, regionally appropriate, and considers personal preferences; and is overseen by a registered dietitian or individual of comparable expertise as defined in the OAA.

Source: ACL, *State Performance Report for State Units on Aging (Older Americans Act Titles III and VII, Chapter 3 and 4) Appendix A: Data Element Definitions*, Version 2.0, last revised September 15, 2021.

Note: OAA = Older Americans Act.

Nutrition counseling programs can assist older adults one-on-one with personalized guidance and advice on nutrition, diet, and healthy eating goals. Nutrition service providers can individuals who are malnourished or at risk of malnutrition. Malnutrition screening, using a validated malnutrition screening tool, can be conducted by social services or community health workers. To assess nutrition risk, the OAA Senior Nutrition Programs use the DETERMINE Your Nutritional Risk Checklist published by the Nutrition Screening Initiative, which is a screening tool used primarily in community-based settings. States are required to report to ACL the nutrition risk scores for those clients who received congregate, home-delivered, or nutrition counseling services. Individuals whose nutritional health score is 6 or higher on the DETERMINE checklist are defined as having *high nutritional risk* (see **Table 4**).[132]

Table 4. Nutrition Screening Initiative: The DETERMINE Checklist

		Score if "Yes"
Disease	I have an illness or condition that made me change the kind and/or amount of food I eat.	2
Eating Poorly	I eat fewer than two meals per day.	3
	I eat few fruits, vegetables, or milk products.	2
	I have three or more drinks of beer, liquor, or wine almost every day.	2
Tooth Loss/Mouth Pain	I have tooth or mouth problems that make it hard for me to eat.	2
Economic Hardship	I don't always have enough money to buy the food I need.	4
Reduced Social Contact	I eat alone most of the time.	1

[132] ACL, "State Performance Report for State Units on Aging (Older Americans Act Titles III and VII, Chapter 3 and 4) Appendix A: Data Element Definitions," AOA, Version: 2.0, updated September 15, 2021, at https://oaaps.acl.gov/Resources/techRes.

		Score if "Yes"
Multiple Medications	I take three or more different prescribed or over-the-counter drugs a day.	1
Involuntary Weight Loss/Gain	Without wanting to, I lost or gained 10 or more pounds in the last six months.	2
Needs Assistance in Self-Care	I am not always physically able to shop, cook, and/or feed myself.	1
Elder Years > Age 80	I am over 80 years old.	1
	Total Nutritional Score: 0 to 2 = Good 3 to 5 = Moderate Nutritional Risk 6 or more = High Nutritional Risk	

Source: The Nutrition Screening Initiative, *Report of Nutrition Screening I: Toward a Common View*, Washington, DC, 1991.

Other Senior Nutrition Program Activities

Other activities administered by ACL provide information, research, technical assistance and resources to increase the evidence-base and effectiveness of OAA Senior Nutrition Programs. These activities are briefly described below.

Nutrition Innovation Grants

Since FY2017, Congress has required HHS to use a portion of the department's annual appropriations for evidence-based senior nutrition activities by requiring HHS to reserve 1% of amounts available within ACL's Aging and Disability Services Programs budget account for Congregate Nutrition, Home-Delivered Nutrition, and NSIP. For example, in FY2021 ACL used $9.1 million to fund nutrition innovations grants.[133] Such amounts were to be made available for evidence-based practices that enhance senior nutrition, including medically-tailored meals. With this annual funding, beginning in FY2017, ACL has funded anywhere from 4 to 11 "Innovations in Nutrition" grantees annually.[134] Grants support certain innovative and promising practices that address quality, effectiveness, and program outcomes within the aging services network. Projects have included developing modified meals for individuals with reduced oral or dental function; increasing partnerships and connections with health care organizations for referrals and other client information sharing; and assisting nutrition providers to identify older adults with elevated suicide risk or mental health distress, among other topics. Beginning in FY2020, grants were awarded under two funding options: (1) demonstration grants to support innovative and promising nutrition services practices, and (2) research grants to increase evidence-based models for nutrition services delivery.

Nutrition and Aging Resource Center

In addition to supporting nutrition innovation grants, ACL provided federal funding for the National Resource Center on Nutrition and Aging (NRCNA). The purpose of the NRCNA is to provide information, resources, training, and technical assistance to the Aging Network regarding senior nutrition services that "modernize the provision of senior nutrition services" and "promote program excellence,

[133] HHS, "FY2022 ACL Justification of Estimates for Appropriations Committees," p. 60, at https://acl.gov/about-acl/budget.

[134] ACL, "Innovations in Nutrition Programs and Services," October 19, 2021, at https://acl.gov/programs/nutrition/innovations-nutrition-programs-and-services-0.

service quality, business acumen and models for social entrepreneurship."[135] The NRCNA aims to enhance the aging service network's knowledge of nutrition services with respect to health promotion and disease prevention, as well as nutrition science and clinical evidence regarding meals and nutrition services.[136]

Technical Expert Panel on Older Adult Food Insecurity and Malnutrition

In December of 2021, ACL announced it was seeking individuals with expertise in older adult food insecurity and/or malnutrition to join a technical expert panel (TEP) in 2022.[137] The panel is to include members from SUAs, AAAs, other federal agencies, the Aging Network, special interest advocacy organizations, academia or research organizations, and policymakers. According to ACL, the TEP will recommend ways to improve the National Survey of Older Americans Act Participants (NSOAAP), which is an annual national survey conducted by ACL that collects data and information about OAA service participants, service quality, and participant-reported outcomes. The TEP is tasked with ensuring the inclusion of appropriate survey questions while considering survey length.

Disease Prevention and Health Promotion

ACL funds disease prevention and health promotion programs and activities authorized under OAA that address various risk factors associated with malnutrition in older adults. Community-based disease prevention and health promotion activities aim to improve health and well-being, as well as manage chronic disease and reduce injury. In addition, preventive health services can help reduce the need for medical treatments and interventions. Nutrition-related prevention programs and activities include education about nutrition, including healthy food choices, food safety, nutrition facts, and cooking techniques and recipes, among other topics. **Table 5** provides OAA program definitions for these health promotion services. The most recent reauthorization of the OAA (Supporting Older Americans Act of 2020; P.L. 116-131) included screening for malnutrition in the definition of disease prevention and health promotion services under OAA Section 102(14).

Table 5. Older Americans Act: Title III Definitions of Health Promotion Services

Service	Definition
Health Promotion: Evidence-Based	Activities related to the prevention and mitigation of the effects of chronic disease (including osteoporosis, hypertension, obesity, diabetes, and cardiovascular disease), alcohol and substance abuse reduction, smoking cessation, weight loss and control, stress management, falls prevention, physical activity, and improved nutrition. Activities must meet ACL/AoA's definition for an evidence-based program.[a]

[135] Ibid.

[136] The National Resource Center for Nutrition and Aging's (NRCNA's) web-site is available at https://acl.gov/senior-nutrition.

[137] Administration for Community Living, "Technical Expert Panel on Older Adult Food Insecurity and Malnutrition," December 27, 2021, https://acl.gov/news-and-events/announcements/technical-expert-panel-older-adult-food-insecurity-and-malnutrition.

Service	Definition
Health Promotion: Non-evidence Based	Health promotion and disease prevention activities that do not meet ACL/AoA's definition for an evidence-based program. Activities may also include those defined in OAA Section 102(14); for example, the following: (A) health risk assessments; (B) routine health screening, which may include hypertension, glaucoma, cholesterol, cancer, vision, hearing, diabetes, bone density, oral health, immunization status, and nutrition screening (including screening for malnutrition); (C) nutritional counseling and educational services for individuals and their primary caregivers; (D) evidence-based health promotion programs, including programs related to the prevention and mitigation of the effects of chronic disease, infectious disease, and vaccine-preventable disease; prevention of sexually transmitted diseases; and alcohol and substance abuse reduction, chronic pain management, smoking cessation, weight loss and control, stress management, falls prevention, physical activity, and improved nutrition; (E) programs regarding physical fitness, group exercise, and music therapy, art therapy, and dance-movement therapy; (F) home injury control services, including screening of high-risk home environments and provision of educational programs on injury prevention (including fall and fracture prevention) in the home environment; (G) screening for the prevention of depression and screening for suicide risk, coordination of community mental and behavioral health services, provision of educational activities, and referral to psychiatric and psychological services; (H) screening for fall-related traumatic brain injury and other fall-related injuries, coordination of treatment, rehabilitation and related services, and referral services related to such injury or injuries; (I) educational programs on the availability, benefits, and appropriate use of preventive health services covered under Medicare law (Title XVIII of the Social Security Act); (J) medication management screening and education; (K) information concerning diagnosis, prevention, treatment, and rehabilitation concerning age-related diseases and chronic disabling conditions; (L) services that are a part of responses to a public health emergency or emerging health threat; (M) gerontological counseling; (N) screening for the prevention of negative health effects associated with social isolation and coordination of supportive services and health care to address negative health effects associated with social isolation; and (O) counseling regarding social services and follow-up health services based on any of the services described in subparagraphs (A) through (N).

Source: ACL, *State Performance Report for State Units on Aging (Older Americans Act Titles III and VII, Chapter 3 and 4) Appendix A: Data Element Definitions*, Version 2.0, last revised September 15, 2021; OAA Section 102(14), 42 U.S.C. §3002.

Notes: ACL/AOA = Administration for Community Living/Administration on Aging.

a. For background and definition of evidence-based programs, see ACL, "Health Promotion," at https://acl.gov/programs/health-wellness/disease-prevention.

OAA Title III, Part D, Evidence-Based Disease Prevention and Health Promotion Programs, received $24.8 million in annual discretionary funding in FY2022. Grants for evidence-based disease prevention and health promotions services are awarded to states and U.S. territories based on a statutory formula that takes into account each entity's relative share of the population aged 60 and over. Additional discretionary funding provided under OAA Titles II Aging Network Activities and Title IV, Research and Demonstration Grants, can also be used for "non-evidence-based" disease prevention and health promotion activities. ACL also administers chronic disease self-management and falls prevention activities, which receive mandatory funds from the Prevention and Public Health Fund (PPHF).[138] For

[138] Section 4002 of the Affordable Care Act (ACA, P.L. 111-148, as amended) established the Prevention and Public Health Fund (PPHF) and funded it with a permanent annual appropriation to be administered by the Secretary of HHS. The PPHF authority

FY2022, $8.0 million was provided for chronic disease Self-Management Education and $5.0 million was provided for Falls Prevention through PPHF.

Concluding Observations

Malnutrition in older adults is a complex condition that is affected by multiple factors, including lifestyle, disease, and the aging process. However, estimating the size and magnitude of this condition in the older U.S. population is difficult due to limited data. Despite such limitations, it is important for policymakers to understand the risk factors associated with malnutrition in order to effectively address it. Much of the research and focus on health care delivery and quality of care, including quality measurement related to malnutrition, is focused on care delivered in a hospital setting. This focus is likely due to the Joint Commission's requirement that all patients be screened for malnutrition within 24 hours of hospital admission. However, the definitions and tools used to screen and diagnose malnutrition in hospitals vary, and several barriers affect the provision of nutrition care in the hospital setting. For example, inadequate malnutrition screening and challenges in diagnosing malnutrition are barriers to malnutrition care. In addition, there are gaps in the research literature evaluating the utility of existing nutrition assessment tools in older adults, particularly their use in non-acute care settings (e.g., in the community and long-term care settings). Moreover, the role that primary or specialty care plays in malnutrition screening, assessment, and care delivery is unclear. For instance, hospitals may be more responsive to screening and assessment because they generally have registered dietician nutritionists (RDNs) on staff to conduct patient assessments and develop care plans.

Numerous federal agencies have a role in addressing diet and its link to chronic health conditions, including malnutrition. In general, these nutrition assistance programs operate outside of the traditional health care financing and delivery system. Policymakers may be interested in exploring how federal financing programs such as Medicare and Medicaid can address malnutrition, particularly in community and long-term care settings. The Senior Nutrition Services Program, authorized under Title III of the Older Americans Act (OAA), and administered by ACL, provides grants to states and U.S. territories to support nutrition services programs for seniors aged 60 and older. The program specifically addresses the issue of malnutrition in the older adult population. OAA Title VI authorizes similar nutrition services programs to tribal organizations and nonprofit organizations representing Native Hawaiians. The most recent reauthorization of the OAA (Supporting Older Americans Act of 2020; P.L. 116-131) explicitly included reducing malnutrition as a stated purpose of the Senior Nutrition Services Program. In addition, such programs may offer nutrition education, nutrition counseling, and other nutrition services, as appropriate. Other OAA programs provide funding for disease prevention and health promotion programs and activities targeted at older adults that can address various risk factors associated with malnutrition. Although OAA funding is intended to address malnutrition in older adults, among other purposes, further partnerships and coordination with the broader health care financing and delivery system are likely needed, given the OAA's limited discretionary funding and focus on community-based interventions. Federal efforts to foster these connections may provide older adults with necessary health care and social services, along with person-centered care that is critical to addressing such a complex and multifaceted condition in older adults.

directs the HHS Secretary to transfer amounts from the fund to HHS agencies for prevention, wellness, and public health activities. For more information, see CRS Report R44796, *The ACA Prevention and Public Health Fund: In Brief*.