

Making the Case for Nutrition Screening in Older Adults in Primary Care

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Many older adults are malnourished and frail; identifying those at risk, specifically in primary care, is a priority. Nutrition screening in physicians' offices, medical clinics, or healthcare centers is one way to identify those at risk who could benefit from treatment. Using the World Health Organization strategies, by Wilson and Jungler (1968) in "Principles and Practice of Screening for Disease," this article presents the case for why nutrition screening in primary care is a needed change in practice. Specifically, it is recommended that prefrail and/or frail older adults be targeted for nutrition screening to optimize identification and benefits of treatment from referred programs. Evidence exists that this approach is not only necessary but also feasible and practicable. *Nutr Today*. 2017;52(3):129–136

Good nutrition is an important aspect of a healthy lifestyle. If someone's diet is insufficient in vitamins or minerals, macronutrients, or energy to meet their body's requirements, they may be at risk for malnutrition. If a person is overweight or obese, they can still be malnourished when protein and micronutrients are consumed in inadequate amounts. Malnutrition is defined as "a state resulting from lack of intake or uptake of nutrition that leads to altered body composition (decreased fat free mass) and body cell mass leading to diminished physical and mental function and impaired clinical outcome from disease."^{1(p21)} In older adults specifically, nutritional deficiencies often coincide with frailty. Frailty is "a medical syndrome with multiple causes and contributors that is characterized by diminished strength, endurance, and reduced physiologic function that increases an individual's vulnerability for developing increased dependency and death."^{2(p393)}

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Malnutrition in community-living older adults is often attributed to long-standing inadequate intake. This inadequate intake is described in severe cases as "starvation malnutrition," although mild to moderate inflammation due to chronic disease may also be present, perpetuating malnutrition.³ In this context, (mal)nutrition risk is believed to precede malnutrition^{3,4} and is defined as the presence of risk factors known to lead to impaired nutritional status if left unchecked, as shown in the Figure.^{4,5} Malnutrition and frailty share similar phenotypes, evidenced by loss of body mass or wasting of muscle and/or fat tissue. Sarcopenia, commonly seen with frailty, is the gradual and general loss of skeletal muscle mass and strength, accompanied by risk of adverse outcomes⁶ and other conditions.⁷ Older adults who have the reduced muscle mass or strength of sarcopenia, but carry excess body weight, may be given a diagnosis of sarcopenic obesity.⁸ Although malnutrition is distinguished from frailty and sarcopenia, the overlap in these conditions is apparent, and all should be considered during screening and diagnosis.⁷ A key difference is how they respond to treatment; for example, wasting due to malnutrition will respond to refeeding. Social, economic, health (including medical and psychological conditions), and environmental determinants negatively influence food intake, are a common basis to nutrition risk and malnutrition in community-living older adults,^{4,9} and need to be considered as part of treatment interventions.

Screening is a standardized process for identifying those who are at risk.¹⁰ Secondary prevention through screening is a common activity of primary care, defined here as general practitioner (GP) services or community-based health professional clinics. Nutrition screening, specifically in primary care, is currently underused. Case finding may occur at the point of hospitalization or some other crisis points; however, malnutrition can be overlooked during those crisis points, which reiterates the need for screening in primary care. Screening programs may not be instituted in the community because of a variety of concerns. Some include the time and effort required to find those who will markedly benefit from nutrition treatment, lack of awareness of how to refer at-risk patients, and the willingness of those identified to be referred to other services.¹¹ Rather than advocating for nutrition screening in all older adults (eg, older than 65 years), we suggest that

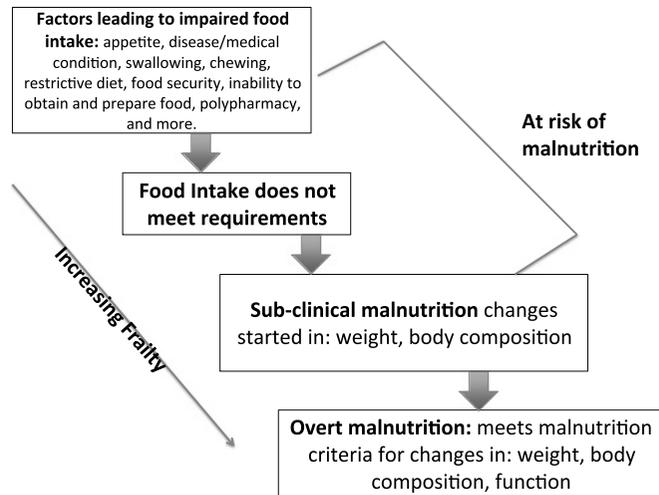


FIGURE. Relationship between food intake, malnutrition, and frailty (based on Figure 1 of Keller et al,⁴ 2007).

targeted screening, specifically for frail older adults, is a feasible preventative step that has the potential to significantly improve health outcome and well-being of frail and prefrail older adults and ultimately impact healthcare costs. Identification of frailty can be based on the Fried criteria (potentially using the 7-point Clinical Frailty Scale¹²), which include shrinking, weakness, poor endurance and energy, slowness, and low physical activity level, with 1 to 2 of these conditions indicating prefrailty.¹³

Nutritional deficiencies often coexist with frailty, so targeted screening for older adults is needed.

There is an overlap in prevalence between malnutrition and frailty,^{14,15} and thus, focusing on frail or prefrail older adults for nutrition screening makes sense. We suggest that nutrition screening, followed by diagnosis and treatment in the community, can prevent or delay crisis events that may be, at least partially, attributed to malnutrition and frailty. Following the World Health Organization (WHO) strategies offered by Wilson and Jungler¹⁰ (1968) in “Principles and Practice of Screening for Disease,” this article presents the case for why nutrition screening in primary care is a needed change in practice, especially for frail older adults (Table).

PRINCIPLE 1: MALNUTRITION AND FRAILITY, IMPORTANT HEALTH PROBLEMS

Nutrition risk and malnutrition are associated with negative health outcomes, frailty, and potentially decreased

quality of life. Those at nutrition risk or malnourished are more likely to have increased morbidity, impaired wound healing, increased infections, and more complications than those who are well nourished.^{16,17} Those at risk are also more likely to live alone, have adult children do the grocery shopping, use oral nutritional supplements (ONSs), and be admitted to hospital, have a longer length of stay, and then be readmitted yet again.^{16,18} Frailty is associated with many similar conditions, including risk of functional decline, loss of independence, deterioration in health status, increased risk of hospitalization, and ultimately, increased risk of death.¹⁹

Targeting screening to people who are frail is logical due to the conceptual and prevalence overlap between these 2 conditions. We know that nutrition risk/malnutrition and frailty often coexist in older adults, with the potential to exacerbate each other and further conditions.¹⁵ Shrinkage or weight loss, exhaustion, weakness, and slowness are all symptoms consistent with malnutrition and represent 4 of the 5 Fried frailty criteria.¹³ The Cumulative Deficit Model is another way to classify frailty. This model considers the accumulation of deficits that decrease a person’s ability to combat stressors.²⁰

In Canada, as of September 2008, 4 million older adults living in the community (34%) were at risk of malnutrition.²¹ In the United States, 1 study estimated the community prevalence at 27% malnourished, 38% at risk, and 35% with normal nutritional status.²² It has been estimated that malnutrition/nutrition risk is related to an almost 4-fold increase in risk of frailty.²³ A study in Germany found that 98% of community-dwelling individuals who were considered well nourished were not frail, whereas only 50% of those who were frail had normal nutritional status.²⁴ Boulos et al²³ (2016) found that, in a sample of Lebanese older adults living in rural areas, of those identified to be frail, nearly 64% had poor nutritional status,

TABLE Justification for Nutrition Screening Based on the WHO Screening Principles (Wilson and Jungler,¹⁰ 1968)

WHO Screening Principles	Justification for Nutrition Risk Screening of Frail Older Adults
1. The condition sought should be an important health problem.	Malnutrition and frailty are both serious health problems that impact a large proportion of the older adult population in developed countries. Malnutrition and frailty often occur together and have several serious consequences such as hospital admission, morbidity, and mortality.
2. There should be an accepted treatment for patients with recognized disease.	Treatment strategies are known and shown to be effective for malnutrition. Treatments can include oral nutritional supplements, dietitian intervention, or improved diet quality, with an additional physical activity component for frail older adults.
3. Facilities for diagnosis and treatment should be available.	Primary care is a suitable location for nutrition screening because it can diagnose and connect people to available treatment strategies, such as referral to a dietitian, meal programs, and other food-focused services.
4. There should be a recognizable latent or early symptomatic stage.	A latent phase of malnutrition, which is denoted by the presence of risk factors that impair food intake, has been demonstrated. Most screening tools include only poor appetite as an early symptomatic stage; however, there are many other determinants of poor food intake that could be considered as early symptomatic stages of nutrition risk.
5. There should be a suitable test or examination.	Valid and reliable screening and assessment tools exist for malnutrition, and some are specific to older adults living in the community.
6. The test should be acceptable to the population.	Nutrition screening tools have demonstrated ease of use and acceptability to older adults.
7. The natural history of the condition, including development from latent to declared disease, should be adequately understood.	Research has shown that, if someone is not eating sufficient micronutrients, macronutrients, or energy to meet their body's requirements, they can be at risk for malnutrition and may also become frail. Determinants of poor food intake are known for community-living older adults.
8. There should be an agreed policy on whom to treat as patients.	A case-based approach may be beneficial, so only those who have a higher likelihood of being at nutrition risk will be screened. Policies should be in place regarding whom to screen and treat.
9. The cost of case finding (including diagnosis and treatment for patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole.	Using the case-based approach to identify and treat patients may be the economical approach because it is identifying those who would most benefit from treatment. Cost implications of this approach are unknown.
10. Case finding should be a continuing process and not a "once and for all" project.	Screening should be incorporated into the routine. Specific criteria and clinical judgment should be used to determine who should be screened and when, based on the local context. This screening process can be continually refined as it becomes embedded into routine.

with only 36% well nourished. For the same group, in those who were not identified as frail, approximately 90% were considered well nourished, and only 1.8% were considered malnourished.²³

On the basis of a systematic review, the estimated range for frail older adults living in the community is from 4%

to 59%²⁵ using the phenotype model of frailty. In the United States, 15% of older adults living in the community are estimated to be frail (phenotype model),²⁶ whereas in Canada, estimates are up to one-quarter of those older than 65 years using the Cumulative Deficit Model.¹⁹ On the basis of a systematic review, prefrailty is anticipated to

be higher at 35% to 50% in those older than 60 years and especially in women, with weakness being the most common criteria reported.²⁷ In the United States, prefrailty is estimated at 45% of the population older than 65 years.²⁶ Many people can recognize when a person is frail, but it is difficult to quantify and diagnose. Prevalence rates vary based on the screening and assessment tools used, as well as populations measured.

Malnutrition and frailty meet the WHO principle 1 for screening¹⁰ based on the associated health complications and high prevalence rates. The overlap of these 2 conditions further suggests that targeted screening for malnutrition within people who are potentially frail or prefrail is a worthy starting point for community-based screening.

PRINCIPLES 2.0 AND 3.0: MALNUTRITION DIAGNOSIS AND TREATMENT ARE POSSIBLE IN PRIMARY CARE

The second WHO principle is whether there is an accepted treatment of the condition being screened. Once malnutrition or nutrition risk is identified by screening and confirmed by assessment tools, such as the Subjective Global Assessment (SGA),²⁸ it can be treated by diet quality improvement, consultation with a dietitian, ONSs, and other treatment strategies. Treatment strategies for malnutrition and frailty overlap because treatment of frailty typically includes a combination of physical activity and nutrition interventions, particularly using ONSs.¹⁵ Most research has been conducted with ONSs, and this intervention mode will be used to demonstrate that malnutrition and frailty are remediable (principle 2).

A pivotal systematic review by Milne et al²⁹ suggested that ONSs contributed positively to weight status and had beneficial effects on mortality in those who were undernourished. Another³⁰ suggested that ONSs and physical exercise can reduce the risk of developing frailty and prevent functional decline, whereas a review by Manal et al³¹ also indicated that interventions using ONSs showed improvements in 1 or more frailty indicators or nutritional status. These diverse reviews using a variety of primary research have highlighted that malnutrition and frailty are treatable conditions, especially if intervention starts as early as possible. However, those who need treatment need to be identified; screening is the beginning of a process that results in treatment. There is no point in screening if it does not connect to a strategy to help fix the problem,^{4,11} and this is the basis for the third WHO principle.

Malnutrition and frailty often overlap, and both are often treatable.

Primary care is focused on prevention, early diagnosis, and treatment, making it an appropriate setting for screening. Primary care supports screening processes for many conditions, such as risk for high blood pressure and diabetes. Thus, a nutrition care process that starts with screening has potential for this setting. Research has demonstrated that other community organizations (eg, meal programs) have less experience with screening or ensuring that appropriate care is provided for people at risk.¹¹ If we are to address malnutrition/nutrition risk that is occurring in the community before a frail older adult reaches a crisis situation and hospitalization, screening in GP offices and other primary medical clinics is needed. Embedding key steps of screening and referral to diagnose and treat malnutrition are important for making screening part of the routine in primary care.

Many healthcare providers, including dietitians and GPs, agree that nutrition screening is important and recognize the role they can play in identification of those who are malnourished or at risk.^{32,33} Screening needs to be followed by diagnosis (principle 3). Dietitians, the experts in nutrition assessment and treatment, are becoming more available in primary care. If dietitians are unavailable, physicians or other clinical professionals can be trained on how to make a diagnosis and confirm the malnutrition (risk) identified through screening tools. Standardized assessment tools, such as SGA, can be readily used in primary care,²⁸ making them more likely to be acceptable to the population and to the health professionals involved (principle 6). Another method of nutrition assessment, recommended by the Academy of Nutrition and Dietetics and the American Society for Parenteral and Enteral Nutrition, is that diagnosis is made when at least 2 of the following 6 criteria are present: insufficient energy intake, weight loss, loss of muscle mass, loss of subcutaneous fat, localized or generalized fluid accumulation, and diminished functional status.³⁴

At this point, nutrition screening of older adults does not yet occur regularly in primary care. Talking to others in primary care who do nutrition screening is 1 way to learn about how to implement screening. Dietitians working in primary care in Australia were interviewed and highlighted that some of the major barriers to nutrition screening were lack of time and knowledge among nondietetic staff. Factors that helped screening were policy and procedures, as well as training and education.³⁵ In France, 72% of GPs thought nutrition screening was useful. However, nutrition screening was only implemented every year by 26% of GPs. There were several factors mentioned to influence this low implementation rate, including forgetting to screen, time, and insufficient motivation, among others. The only factor that was a significant promoter of nutrition screening was the quality of information received about the importance and impact of malnutrition.³³ On the basis

of these results, having a solid foundation and awareness/education among the nondietetic members of the team will be a crucial aspect to implementing and sustaining nutrition screening.

Nutrition is generally lacking in medical/health professional education, and many practicing healthcare providers, including physicians, may not be aware of the importance of nutrition and the prevalence of malnutrition.³⁶ Basic training to increase knowledge and improve practice, such as increasing awareness of community resources including meal programs, is also needed. Staff can be trained regarding use of nutrition screening tools to identify the potential problem. These standardized tools are designed so that any trained professional can conduct the screening, not only a dietitian.

A previous *Nutrition Today* article focused on 7 steps to facilitate capacity building for nutrition screening with any tool, in any setting. Steps included involving stakeholders, selecting the right tool, and building an action plan that described how screening, diagnosis, and treatment can happen.¹¹ Further to this article, when starting to implement a screening tool, one must start small and think through the full process before proceeding. Questions to consider include as follows: Who will ask the screening questions? When will the questions be asked? Which tool will be used? What happens if a person is at risk? When will the dietitian become involved? How will dietitians follow up with those at risk? Is there another professional who can be trained to diagnosis malnutrition if dietitians are not accessible? How often should a person be screened? Can the screening tool highlight areas for intervention? Are community services available that could promote food intake, and what are their criteria for use? Many of these questions are specific to the context of primary care and the resources available within a practice or community. However, as previously described,¹¹ capacity can be built if the motivation to screen frail older adults for nutrition risk is already present.

PRINCIPLES 4.0 TO 7.0: NUTRITION RISK HAS EARLY SYMPTOMS AND SIGNS, AND SUITABLE SCREENING TOOLS ARE AVAILABLE

Keller⁴ and others³ have described the progression from nutrition risk to malnutrition, focusing specifically on the mechanism of inadequate food intake to meet the body's requirements. Essentially, a variety of determinants influence food intake, and when this becomes unbalanced or inadequate, a variety of micronutrient, macronutrient, or energy deficits result. If these deficits continue, changes in body composition and function occur, noted as weight loss, wasting, weakness, poor immunity, and so forth (principle 7).

Many screening tools exist for malnutrition (principle 6). Finding the right screening tool for the setting and population is important. In a busy clinical environment, a long and subjective tool is not feasible. The chosen tools should be short and easy to use and make sense for the people who visit that healthcare environment. The tool needs to be reliable and valid for use in that setting when compared with a criterion standard such as the SGA,²⁸ making it able to recognize early symptoms or risk factors (principle 5). Most screening tools, primarily developed for a hospital setting, focus on weight loss or being underweight, poor appetite or low intake, and sometimes, the effects of disease on nutritional requirements.³⁷ Only poor appetite and low intake, believed to precede weight loss and other physical changes and thus considered upstream risk factors,⁵ are routinely collected in these tools. In the community setting, there are many other risk factors for inadequate intake to consider, such as chronic conditions and their impact on activities of daily living, income, and so forth.

One tool, SCREEN (Seniors in the Community: Risk Evaluation for Eating and Nutrition), includes several questions that identify behaviors that precede weight loss, including intake of specific food groups and risk factors that can impair food intake.^{38,39} In addition to identifying an earlier stage of potential poor nutrition (such as change in living situation, making it more difficult for an individual to obtain or prepare food), these risk items can lead directly to a variety of intervention considerations that are at the root cause of poor intake. For example, 1 item, "Is biting or chewing food difficult for you?", can lead to counseling around food choice or referrals to assess and improve oral health. The SCREEN can be self-administered and there is even an online self-management version (Nutri-eSCREEN) that provides automatic feedback based on the individual's responses.⁴⁰ The SCREEN has been shown to be highly acceptable to older adults¹¹ and can be used in diverse settings, including telephone administration. An 8-item version makes it highly feasible for clinical environments and has been validated against the criterion of a dietitian's clinical judgment.³⁹

Screening tools are available.

When selecting an appropriate tool, one must consider the options and then test out the tools by screening a few people in the practice. This experience will show how long it takes to screen using each tool, how easy or difficult it is to ask the questions, and whether it is clear what action should be taken next. One should have a few colleagues try it out as well and compare how it works for different

patient groups and from a few different perspectives and make sure not to launch into full implementation of screening with all targeted patients before choosing an appropriate tool and having the assessment and treatment plans in place.

PRINCIPLES 8.0 TO 10.0: TREAT THE RIGHT PEOPLE BY CONTINUALLY TARGETING NUTRITION SCREENING TO FRAIL COMMUNITY-LIVING OLDER ADULTS

As online tools such as Nutri-eSCREEN⁴⁰ are becoming more common for self-management through awareness building, changing attitudes and, potentially, behavior, there is now value in screening of a targeted population that is more likely to be malnourished and require referrals to key community services and resources to mitigate this risk. Keeping in mind the growing population of older adults and the limited resources within our healthcare system, a targeted or “case finding” approach is a feasible way forward for nutrition screening. In this targeted approach, only individuals with a high likelihood of nutrition risk would be screened. Recognizing the overlap between malnutrition and frailty could come into play here because frailty or prefrailty could be used as a justification for screening. This leads to the question of how to determine those who are potentially frail or prefrail. Following the 5 Fried criteria, self-reported or observed slowness, weakness, or exhaustion at routine visits could trigger this process. The 7-point Clinical Frailty Scale¹² can also be used to identify frailty based on clinical judgment.

To trigger identification of frailty and/or malnutrition, an age cut point could also be used. Frailty has been demonstrated to increase with age,¹⁵ and an arbitrary cut point to start nutrition and frailty screening, such as 75 years old, could be set. Furthermore, postdischarge from hospital is a potentially ideal time to screen because nutritional status can deteriorate in the hospital. Other social or economic changes that can be risk factors for both frailty and malnutrition (loss of spouse, loss of driver’s license, etc) could be further stimuli for screening.

In line with principle 10, case finding should be a continuous process. Unfortunately, research is lacking on the implementation of a case finding approach to demonstrate its cost-effectiveness (principle 9). Considering that the other principles for nutrition screening of frail older adults in primary care are met, future research should focus on demonstrating screening efficacy for improvement of nutrition status after screening and treatment, and cost-effectiveness of this secondary prevention. As part of this determination of cost-effectiveness, funding for referrals to dietitians or other services should also be examined.

WORKING TOGETHER WITHIN THE HEALTHCARE SYSTEM IS CRITICAL TO SUCCESS

Having worked through the WHO principles, there are a few other aspects to consider when making the case for nutrition screening of frail older adults, including the importance of integration with the rest of the healthcare system. Because 20% to 50% of patients admitted to hospitals are malnourished,^{16,17} some hospitals are starting to incorporate or have already incorporated nutrition screening into their admission process. A variety of algorithms to support care pathways are available. The Integrated Nutrition Pathway for Acute Care is an evidence-based algorithm aiming to optimize nutrition care. It outlines a path that includes screening, assessment, appropriate levels of care during admission, and connection to community services, including a dietitian, before discharge if required.⁴¹ Research to date is scant on postdischarge nutrition care and benefits attributed to this care. Working within a coordinated system between acute and primary care is anticipated to have benefits; however, it is unknown what models are feasible and effective within nutrition care.

A multipronged approach is needed to identify and treat those at risk of both frailty and nutrition. Having nutrition screening of frail older adults at a variety of levels such as routine annual visits, at admission to hospital, and postdischarge from hospital either through home care and/or primary care will help to make sure that people are identified and have the opportunity to receive the nutrition care they need in the community. Screening at different healthcare touch points for an older adult will help to raise awareness with the individual, family, and other care providers on the importance of nutrition to overall health. Not everyone will want various services that can support food intake,¹¹ but we need to make sure that people know the options if/when they want to do something about the problem. Having more than 1 avenue or health profession discussing nutrition risk and food intake with community-living older adults has been demonstrated to potentially improve awareness of the variety of services available, and start the process for receiving support.¹¹

GETTING SCREENING INTO THE COMMUNITY

We believe that using a targeted, rather than global, screening approach will assist with appropriate use of resources and help to ensure that the right people are receiving the right care at the right time. To effectively get screening into community practice, the whole team, including physicians, nurses, dietitians, and other health professionals, needs to be aware of its importance and support the initiative in various capacities. For example, nutrition screening does not need and should not be

performed by a dietitian who is a specialist resource that is unable to see everyone and should be prioritized to the most severe cases of malnutrition. Screening questions can be asked by anyone who is trained, and the score will identify whether a dietitian referral is appropriate. For implementation of screening to be effective and sustainable, practices should outline a feasible and realistic plan to follow. You must start small and not jump into full screening before the team is aware of its importance or before you have tested a few tools. Research is also underway in Canada to increase our understanding of how groups, such as family health teams, have incorporated screening into their routines. Principles of change management should also be considered for incorporating screening into practice.

SUMMARY

Nutrition risk and malnutrition, especially among the frail older adult population, are prevalent. Nutrition screening does occur at some points in the healthcare system, specifically acute care. However, primary care is a key setting for secondary prevention and is well equipped to undertake screening and referral for diagnosis and treatment of malnutrition. Using evidence, we have made the case for targeted screening of frail older adults in the community using Wilson and Junglier's principles of developing a screening program. Nutrition screening in primary care is feasible and an important opportunity to identify those who can most benefit from treatment. All but 1 principle, on the cost-effectiveness of screening, have been met. Practitioners are encouraged to consider how nutrition screening can be brought into the primary care setting and how better linkages to acute care can be made with respect to nutrition care of the frail older adult. Researchers and practitioners need to map out care algorithms for the community, study implemented programs to learn from their success, and demonstrate the cost-effectiveness of screening in this setting.

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