How To try this

CE 2.5 HOURS Continuing Education

By Rose Ann DiMaria-Ghalili, PhD, RN, CNSN, and Peggi A. Guenter, PhD, RN, CNSN

The Mini Nutritional Assessment

This tool can identify malnutrition in older adults before changes in biochemistry or weight are evident.

Ed Eckstein

Overview: Older adults are especially vulnerable to malnutrition, which often goes undetected and increases the risks of illness and death. The Joint Commission has required U.S. hospitals to provide nutrition screening to all patients within 24 hours of admission, but that doesn't cover patients in other settings, nor is there a standardized assessment tool for finding malnutrition in older adults. The Mini Nutritional Assessment is an effective, easily administered tool designed to identify older adults who have or are at risk for developing malnutrition. It consists of 18 questions and can be completed in about 15 minutes. A short form, containing the first six questions, can be used for screening. For a free online video demonstrating the use of this tool, go to http://links.lww.com/A221.

Ethel Kronin, age 72, scheduled for coronary artery bypass grafting and admitted to the cardiac surgery telemetry unit for observation, has a history of hypertension, diabetes mellitus, and arthritis. (This case is a composite, based on our experience.) She has lived at home alone since her husband of 49 years died two months ago. Her two children and three grandchildren live 40 miles away and visit on weekends. She says that she's sad and has had little energy since her husband's death, and her physician wanted to prescribe antidepressants, but she didn't want to take another pill. Two days ago, she felt "unusual heaviness" in her chest and visited her physician, who determined that she'd had a myocardial infarction and scheduled a cardiac catheterization. In accordance with hospital protocol, she'll be evaluated using the Mini Nutritional Assessment (MNA).

THE MINI NUTRITIONAL ASSESSMENT

In 1991 French, Swiss, and U.S. researchers developed the MNA as a "rapid and simple evaluation of the elderly at risk for malnutrition in order to facilitate early nutrition intervention."[1] Today it's one of the best tools for assessing nutritional status in older adults. In 2006 Guigoz reported that the MNA had been used in 36 studies to assess the nutritional status of 8,596 hospitalized older adults worldwide; of these, 50% to 80% were classified as either at risk for malnourishment or malnourished.[2] Other populations studied included community-dwelling, institutionalized, and cognitively impaired older adults.[2]

The MNA is currently used to assess older adults in clinics, nursing homes, and hospitals, as well as frail older adults in any setting. (For a comparison of two other geriatric nutrition assessment tools, go to http://links.lww.com/A364. e)

No single indicator is sufficient to diagnose malnutrition or undernutrition (an undersupply of nutrients). The MNA consists of 18 questions derived from four parameters of assessment: anthropometric, general, dietary, and subjective. The full MNA has two components—six screening questions in part 1 and 12 assessment questions in part 2—and can be completed in about 15 minutes.[2] When a quick screening is all that's needed, just the first six questions—also known as the MNA Short Form (MNA-SF)—can be completed in less than five minutes.

Part 1 is designed to detect "psychological stress or acute disease" or a decline in eating or weight in the past three months, as well as current mobility or neuropsychological problems and a decrease in body mass index (BMI). The "screening score"—the score for part 1—can be as high as 14 points. A score of 12 to 14 signifies normal nutritional status and no need for further assessment; 11 or lower indicates "possible malnutrition," and the interviewer proceeds to part 2.

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Web Video

Watch a video demonstrating the use and interpretation of the Mini Nutritional Assessment at http://links.lww.com/A221.

A Closer Look

Get more information on why it's important for nurses to screen older patients for malnutrition, as well as why the Mini Nutritional Assessment is the right tool for the job.

Try This: The Mini Nutritional Assessment

This is the tool in its original form. See page 55.

Online Only

Unique online material is available for this article. URL citations appear in the printed text; simply type the URL into any Web browser.

Why Screen Older Adults for Malnutrition with the MNA?

Older adults are particularly vulnerable to malnutrition: between 40% and 60% of hospitalized older adults either have malnutrition or are at risk for it,[1] and it increases the risks of illness and death.[2,3] For 10 years the Joint Commission has required U.S. hospitals to provide nutrition screening for all patients within 24 hours of admission. In settings outside the Joint Commission's purview, clinicians frequently fail to detect malnutrition in adults.[4-6] Therefore, the incidence and prevalence rates of malnutrition in hospitalized older Americans are unknown. Moreover, there is no standardized assessment tool that considers the unique nutritional needs of malnourished or at-risk hospitalized older adults.

Nurses typically perform the initial nutrition screening of hospitalized patients. In a survey of 114 attendees at the 2003 Clinical Nutrition Management Dietetic Practice Group Symposium, 74% reported that nurses bore the primary responsibility for nutrition screening at their facilities.[7] It's important, therefore, that nurses use a reliable and valid nutrition assessment tool developed specifically for the older adult, such as the Mini Nutritional Assessment (MNA).

In 2006 the sixth issue of the *Journal of Nutrition, Health and Aging* was devoted to the MNA. Experts in nutrition and geriatrics discussed several practical issues surrounding the clinical use of the MNA in acute care, subacute care, and long-term care. The issues raised included the need to modify some questions for greater clarity[8]; revisit the cutoff values for the anthropometric measures, which were based on data collected in France more than 20 years ago[9]; and revise the online guide for using the MNA to make it more accessible and easier to use[8] (for example, one problem is that the guide is written in British English and some expressions—such as asking a patient if she or he has "lost more than half a stone in weight" or eats a "pot of yoghurt" daily—don't translate clearly into American English). Interestingly, none of the discussants were nurses. Since nurses are the ones most likely to be using the MNA and screening patients for malnutrition, it will be important to have their feedback.

One issue identified was that not all hospitalized adults are elderly, and the MNA's validity has not been established in younger populations. It's important that assessment be age appropriate, and the MNA's validity for use in older adults has been established. Our concern is that while debate continues among nutrition experts as to what the "best" nutrition assessment tool may be, malnourishment will continue to go undetected in the elderly, leading to poorer outcomes. We strongly believe that nurses should be using the MNA, so that interventions can begin quickly when needed. We also believe that nursing needs to be represented in discussions of standardized nutrition assessment, especially assessment in acute care settings.

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Part 2 determines the presence of polypharmacy or pressure ulcers, the number of full meals eaten daily, the mode of feeding, whether the person lives independently, and the amount and frequency of specific foods and fluids. The patient reports nutritional and health status, and the practitioner determines midarm and midcalf circumferences. The "malnutrition indicator score"—the score for part 2—can be as high as 16 points. The total score for the full MNA will fall between 0 and 30 points: 24

Watch It!

Go to http://links.lww.com/A221 to watch a nurse use the Mini Nutritional Assessment to screen for malnutrition in a hospitalized patient and discuss how to administer it and interpret results. Then watch the health care team plan preventive strategies.

View this video in its entirety and then apply for CE credit at www.nursingcenter.com/AJNolderadults; click on the *How to Try This* series link. All videos are free and in a downloadable format (not streaming video) that requires Windows Media Player.

and higher indicates a well-nourished patient; 17 to 23.5 indicates a risk of malnutrition; lower than 17 indicates malnutrition.

The MNA is available in 15 languages, including Spanish. Non-English versions can be downloaded from the MNA Web site (www.mna-elderly.com/navigation_frames/clinicalpractice/navigation-clinicalpractice-frame-mnaforms.htm). (Because validity and reliability were established for the English version, those planning to administer it in other languages should contact the developers for further information.)

HOW TO ADMINISTER THE MNA

The MNA should be used as a part of a comprehensive assessment that employs other tools specific to geriatrics (many of which have been or will be highlighted in this series). For more information on screening older adults for malnutrition with the MNA, see page 52. To view the segment of the online video discussing assessment of nutrition in older adults using the MNA, go to http://links.lww.com/A222.

The MNA-SF (questions A through F) can be incorporated easily into an institution's admission assessment.

Screening Ms. Kronin. The nurse explains to Ms. Kronin that she'll be asking about nutrition as part of a routine assessment. Question A concerns appetite and eating: "Ms. Kronin, have you been eating less than usual in the past three months?" Ms. Kronin nods: "Since my husband passed away, I just don't feel like eating. When the kids come on the weekends, I eat a lot so they'll think I'm OK." The nurse asks, "During the week, do you eat a lot less or a little bit less than before your husband passed away?" Ms. Kronin says that she eats only a little bit less, and the nurse gives her a score of 1, *moderate loss of appetite.*

Question B addresses recent weight loss: "Ms. Kronin, have you lost any weight in the past three months?" She says she has lost about 5 lbs.—a score of 2, *weight loss between 1 and 3 kg (2.2 and 6.6 lbs.).*

Question C concerns mobility before admission: "When you're at home, do you have any trouble getting in and out of bed or a chair?" When Ms. Kronin says no, the nurse asks, "Do you sometimes go out, or do you tend to stay home?" Ms. Kronin takes daily walks, and the nurse gives this 2 points, *goes out.*

Question D considers psychological distress or acute illness within the previous three months. Because Ms. Kronin's husband died two months ago, the nurse gives this as 0 points, *yes.* Question E deals with neuropsychological problems, specifically dementia and depression. Because Ms. Kronin has been grieving and her provider had recommended antidepressants, the nurse gives a 0 for *depression.* (It can be difficult to differentiate grief from depression; in this case the provider's recommendation of medication and the patient's recent loss lead the nurse to score cautiously.)

The last screening question concerns BMI (weight in kilograms divided by height in meters squared). The nurse explains that she needs to perform a few calculations. She sees that in preadmission testing this patient's weight and height were 137 lbs. and 5′5″, and calculates a BMI of 22.8. Since Ms. Kronin's BMI falls between 21 and 23, the nurse records 2 points for question F. (The National Heart, Lung, and Blood Institute's free online BMI calculator works with either standard or metric units: www.nhlbisupport.com/bmi.)

Ms. Kronin's score so far is 7; she is at risk for malnutrition. The nurse explains that further questioning will give a better picture.

The full MNA. When the MNA-SF indicates malnutrition risk, the nurse should proceed with part 2 (questions G through R), and both the screening score and the malnutrition indicator score should be documented. When the total score indicates the risk of malnutrition or malnutrition itself, the primary care provider and the dietitian should be notified. An in-depth nutritional assessment should be performed and interventions implemented.

Assessing Ms. Kronin. Since Ms. Kronin lives independently, she receives 1 point for question G. Ms. Kronin reports taking four prescribed medications daily and receives 0 points for question H. And having inspected Ms. Kronin's skin while transferring her from the stretcher to the bed, the nurse records 1 point for question I: there are no skin ulcers.

The next questions are about food and eating. The nurse asks question J: "Do you usually eat a full meal—one that includes two or more different items—for breakfast, lunch, and dinner?" Ms. Kronin answers: "My husband used to cook breakfast, but now I just have coffee with skim milk in the

Online Resources

For more information on the Mini Nutritional Assessment (MNA) and other geriatric assessment tools and best practices, go to www.hartfordign.org, the Web site of the John A. Hartford Foundation–funded Hartford Institute for Geriatric Nursing at New York University College of Nursing. The institute focuses on improving the quality of care provided to older adults by promoting excellence in geriatric nursing practice, education, research, and policy. Another good source of information about the MNA is the tool's Web site (www.mna-elderly.com), which offers a comprehensive guide to its use, as well as an online scoring program.

For more information on best practices in the care of older adults go to www.ConsultGeriRN.org. The site lists resources and offers continuing education opportunities. For access to all articles and videos in the *How to Try This* series, go to www.nursingcenter.com/AJNolderadults and click on the *How to Try This* link.

morning." She usually has a full lunch and dinner, she says, and receives 1 point, for two full meals daily. Question K concerns protein intake. The nurse asks: "Do you consume dairy products—milk, cheese, yogurt—every day? Do you eat beans or eggs at least twice a week? Do you eat meat, fish, or poultry every day?" Ms. Kronin eats cheese sandwiches for lunch daily and frozen yogurt on the weekends; she has lima or kidney beans with dinner at least twice a week. She says that she doesn't eat meat, fish, or poultry every day. The nurse records 0.5 points for two yes answers to question K. Question L concerns fruits and vegetables: "You usually have fruit with lunch; how many other servings of fruits and vegetables do you eat per day?" Ms. Kronin says that she usually has a glass of juice and a vegetable with dinner; having two or more servings daily earns a score of 1. For Question M, which assesses fluid intake, the nurse asks, "How many cups of nonalcoholic fluid do you drink per day?" Five to six cups, Ms. Kronin says, for a score of 1. For question N, which concerns mode of feeding, the nurse asks whether Ms. Kronin can eat without assistance; she says yes, for a score of 2, *self-fed without any problem.*

Question O covers the patient's own view: "Would you say that you're poorly nourished or well nourished, or are you not sure?" Ms. Kronin says she isn't sure; she's had little appetite and has lost weight. The nurse records a score of 1, the patient *is uncertain of nutritional state.* For question P, she asks, "Do you think your health is not as good as, as good as, or better than the health of other people your age?" Again Ms. Kronin says she isn't sure, and the nurse records a score of 0.5 points.

To address the last two questions the nurse measures the midarm and midcalf muscles. Both are within normal limits (22 cm or greater for midarm, 31 cm for midcalf), and Ms. Kronin receives 1 point for each. Ms. Kronin's total MNA score is 18—7 for part 1 and 11 for part 2—she is at risk for malnutrition. Her risk factors include weight loss, decreased appetite and intake, and depression, all of which may be related to bereavement. Further evaluation is needed to determine the extent to which depression contributes to her malnutrition.

CHALLENGES IN ADMINISTERING THE MNA

An older adult receiving total parenteral nutrition, tube feeding, or oral liquid nutritional supplements may have difficulty answering questions J, K, and L, which ask about the number of "full meals" and "servings" of protein and fruits and vegetables consumed. Vellas, one of the tool's developers, has said that the MNA was designed to assess nutrient intake under normal conditions.[3] For patients receiving total parenteral nutrition, tube feeding, or oral liquid supplementation, it's recommended that questions J, K, and L each be scored as 0.

Determining BMI requires measuring height, but some older adults cannot stand erect. In such cases, the patient's demispan—half the total arm span—should be used to estimate height. A stainless steel (nonstretchable) tape measure is all that's needed. (For directions on estimating height based on demispan measurement, see Appendix 2 in *A Guide to Completing the Mini Nutritional Assessment MNA:* www.mna-elderly.com/mna_guide.pdf). Knee height can be used instead of demispan to estimate height but requires the use of special calipers. Regardless of the method, it's essential that the height be measured; the patient's reported height shouldn't be used.

Ascertaining the BMI of patients who have undergone amputation is challenging.[4] Charts and figures are available that can assist in adjusting the BMI based on the amputated body part. (For example, see Osterkamp, "Current Perspective on Assessment of Human Body Proportions of Relevance to Amputees," *Journal of the American Dietetic Association,* February 1995.) This information should be kept on units that frequently provide care to patients with amputations; elsewhere, nurses should consult the unit dietitian for assistance in adjusting the BMI.

try this: Best Practices in Nursing Care to Older Adults
from The Hartford Institute for Geriatric Nursing
New York University, College of Nursing

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Series Editor: Marie Boltz, PhD, APRN, BC, GNP
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New York University College of Nursing

Assessing Nutrition in Older Adults

By: *Elaine J. Amella, PhD, APRN, BC, FAAN, Medical University of South Carolina College of Nursing*

WHY: While poor nutrition is not a natural concomitant of aging, older adults who experience several concurrent diseases are at higher risk for under- or malnutrition. Persons who are underweight (Body Mass Index < 19) and those who are overweight (Body Mass Index > 25) often have loss of muscle mass, a compromised immune system and have increased complications and premature death. The progression to malnutrition is often insidious, and is often undetected. The nurse plays a key role in prevention and early intervention of nutritional problems.

BEST TOOL: The **Mini Nutritional Assessment (MNA)** is an assessment tool that can be used to identify older adults (>65 years) who are at risk of malnutrition. It is a clinician-completed instrument with two components: screening and assessment. A score of 11 or less on the **screen** indicates a problem and the need for a completion of the assessment portion. The **assessment** score is then added to the screen score; if the total score on both parts totals 17 – 23.5, there is a risk of malnutrition, while a score of < 17 indicates existing malnutrition. The MNA should be supplemented with information regarding the patient's cultural factors, preferences, social needs/desires surrounding meals. A review of symptoms and objective clinical findings, including pertinent physiological measures used to assess nutritional status should be assessed (including serum pre-albumin, serum albumin, transferrin, and total lymphocyte count, as well as hemoglobin and hematocrit). A 72-hour food dairy, recording the patent's consumption, is another important supplement to the MNA.

TARGET POPUTLATION: The MNA provides a simple and quick method of identifying older adults who are at risk of malnutrition. The MNA should be completed at regular intervals, no matter the setting.

VALIDITY AND RELIABILITY: The MNA is both a screening and assessment tool for the identification of malnutrition in the older adult. This tool eliminates the need for more invasive tests such as blood sampling. The MNA has been validated in many research studies in older adults throughout the world in hospital, nursing home and ambulatory care patients and in community screening. Internal consistency, inter-observer reliability and validity were shown to be acceptable (Beck, Oversen, & Schroll, 2001; Bleda, Bolibar, Pares, & Salva, 2002).

STRENGTHS AND LIMITATIONS: Unlike many other nutritional instruments, the MNA was developed to be user-friendly, quick, non-invasive, and inexpensive. The MNA has been tested predominantly on Caucasians with involvement of Mexican-Americans in studies conducted in New Mexico (Sheirlinkx, K., et al., 1998). A limiting factor may be clinician lack of familiarity with the requirement, in the assessment portion, of measuring both the mid-arm and calf circumference. One criterion to determine risk is based on a BMI less than 19 and actually gives maximum points for a BMI over 23 (item F in Screen). At this time, with the percent of Medicare enrollees who are classified as obese (BMI ≥ 30) at 22.5% (up from 11.7% in 1997), overweight (BMI ≥ 25 – 29.9) at 34.3% (up from 32.1% in 1997), and those underweight (BMI < 18.5) actually decreasing to 9.0% in 2002 from 16.9% in 1997, a reexamination of this criterion is needed (Thorpe & Howard, 2006).

MORE ON THE TOPIC:

Best practice information on care of older adults: www.ConsultGeriRN.org.

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Mini Nutritional Assessment Home Page: Most recent research with excellent information for both nurses and older adults: http://www.mna-elderly.com.

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Mini Nutritional Assessment
MNA®

Nestlé Nutrition
Grow. Heal. Thrive.

Last name: First name: Sex: Date:

Age: Weight, kg: Height, cm: I.D. Number:

Complete the screen by filling in the boxes with the appropriate numbers.
Add the numbers for the screen. If score is 11 or less, continue with the assessment to gain a Malnutrition Indicator Score.

Screening

A Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?
0 = severe loss of appetite
1 = moderate loss of appetite
2 = no loss of appetite ☐

B Weight loss during last months
0 = weight loss greater than 3 kg (6.6 lbs)
1 = does not know
2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs)
3 = no weight loss ☐

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

D Has suffered psychological stress or acute disease in the past 3 months
0 = yes 2 = no ☐

E Neuropsychological problems
0 = severe dementia or depression
1 = mild dementia
2 = no psychological problems ☐

F Body Mass Index (BMI) (weight in kg)/(height in m)²
0 = BMI less than 19
1 = BMI 19 to less than 21
2 = BMI 21 to less than 23
3 = BMI 23 or greater ☐

Screening score (subtotal max. 14 points) ☐☐
12 points or greater Normal – not at risk – no need to complete assessment
11 points or below Possible malnutrition – continue assessment

Assessment

G Lives independently (not in a nursing home or hospital)
0 = no 1 = yes ☐

H Takes more than 3 prescription drugs per day
0 = yes 1 = no ☐

I Pressure sores or skin ulcers
0 = yes 1 = no ☐

J How many full meals does the patient eat daily?
0 = 1 meal
1 = 2 meals
2 = 3 meals ☐

K Selected consumption markers for protein intake
- At least one serving of dairy products (milk, cheese, yogurt) per day? yes ☐ no ☐
- Two or more servings of legumes or eggs per week? yes ☐ no ☐
- Meat, fish or poultry every day yes ☐ no ☐

0.0 = if 0 or 1 yes
0.5 = if 2 yes
1.0 = if 3 yes ☐.☐

L Consumes two or more servings of fruits or vegetables per day?
0 = no 1 = yes ☐

M How much fluid (water, juice, coffee, tea, milk…) is consumed per day?
0.0 = less than 3 cups
0.5 = 3 to 5 cups
1.0 = more than 5 cups ☐.☐

N Mode of feeding
0 = unable to eat without assistance
1 = self-fed with some difficulty
2 = self-fed without any problem ☐

O Self view of nutritional status
0 = view self as being malnourished
1 = is uncertain of nutritional state
2 = views self as having no nutritional problem ☐

P In comparison with other people of the same age, how does the patient consider his/her health status?
0.0 = not as good
0.5 = does not know
1.0 = as good
2.0 = better ☐.☐

Q Mid-arm circumference (MAC) in cm
0.0 = MAC less than 21
0.5 = MAC 21 to 22
1.0 = MAC 22 or greater ☐.☐

R Calf circumference (CC) in cm
0 = CC less than 31 1 = CC 31 or greater ☐

Assessment (max. 16 points) ☐☐.☐
Screening score ☐☐
Total Assessment (max. 30 points) ☐☐.☐

Malnutrition Indicator Score
17 to 23.5 points at risk of malnutrition ☐
Less than 17 points malnourished ☐

Ref. Guigoz Y, Vellas B and Garry PJ. 1994. Mini Nutritional Assessment: A practical assessment tool for grading the nutritional state of elderly patients. *Facts and Research in Gerontology.* Supplement #2:15-59.
Rubenstein LZ, Harker J, Guigoz Y and Vellas B. Comprehensive Geriatric Assessment (CGA) and the MNA: An Overview of CGA, Nutritional Assessment, and Development of a Shortened Version of the MNA. In: "Mini Nutritional Assessment (MNA): Research and Practice in the Elderly". Vellas B, Garry PJ and Guigoz Y, editors. Nestlé Nutrition Workshop Series. Clinical & Performance Programme, vol. 1, Karger, Bâle, in press.

Measuring midarm and midcalf circumferences requires only a stainless steel tape measure. But because older adults usually have decreased muscle and skin tone, obtaining accurate measurements can be challenging.[4] As one of us (RAD-G) reported in an earlier article for this journal, "shortening of the spine and alterations in skin thickness, turgor, elasticity, and compressibility can alter anthropometric measures" in older adults.[5] Further study of the MNA is needed to determine the statistical impact of such changes on the total score, as well as their clinical significance.

Although the MNA has been used widely in research, little is known about its use in clinical practice in this country. The American Society for Parenteral and Enteral Nutrition (ASPEN) recently surveyed nutrition specialists, including physicians, nurses, dietitians, and pharmacists, about the MNA. Those who reported using the MNA in clinical practice said it was quick, easy to use, accurate, and objective. (One of us, PAG, coauthored the survey instrument and analyzed the unpublished data. For more on the survey, see *How Useful Is the MNA in Clinical Practice?* online at http://links.lww.com/A365. e)

That said, the tool has limitations. First, it was designed to evaluate nutritional status rapidly, not to measure changes over time. For example, it may be used to assess changes in nutritional status after intervention,[2] but more research is needed. Second, obtaining midarm and midcalf muscle circumferences is not a routine part of nursing care. Third, the MNA was developed more than 20 years ago, using BMI and anthropometric reference ranges that were standard at that time. Obesity among the elderly was far less common; the standards for BMI and midarm and midcalf circumferences may be outdated. Finally, the MNA was developed on the basis of Western diets and anthropometry and hasn't been validated for use in non-Western cultures.[3] It's important to consider cultural background and individual diet when using the MNA.

INTERPRETING AND USING THE RESULTS

The developers of the MNA caution that "no nutritional intervention should be based solely on the MNA"; its results should be one part of a comprehensive assessment.[6] If a patient's MNA score indicates good nutritional status, clinicians are advised to monitor for signs of weight loss periodically, with detailed evaluation if significant weight loss occurs.[6] If the MNA score indicates a risk of malnutrition, a detailed nutritional assessment and referral to a nutrition specialist are warranted. Some patients may need to begin oral nutritional supplementation.[6] If the MNA score is indicative of malnutrition, a detailed nutritional assessment and referral to a nutrition specialist are essential. The specialist will look at biochemical markers (such as plasma albumin levels), dietary intake, and anthropometric measures to determine severity; nutritional intervention is "clearly indicated."[6] The type of intervention will depend on underlying illness, feeding method, and ability to digest food. Interventions should be based on current ASPEN guidelines for parenteral and enteral nutrition, which are applicable in cases of malnutrition as well (www.nutritioncare.org/wcontent.aspx?id=532). Some patients may have advance directives pertaining to nutritional support. To view the segment of the video discussing interpretation of the MNA, go to http://links.lww.com/A224.

Regardless of score, the MNA should be repeated every three months in all older adults.

Interpreting the results. The MNA "demonstrates good sensitivity compared to a variety of nutritional parameters" such as anthropometry, biochemistry, or dietary intake, according to Guigoz's 2006 review.[2] And the tool can identify those at risk for malnutrition *before* biochemical or weight changes appear. This is important because, as Guigoz states, "progressive undernutrition often goes undiagnosed," and malnutrition has been linked with adverse conditions including diminished cognitive function, bad teeth, and poor eyesight.[2] Among the hospitalized elderly, low MNA scores have been associated with longer hospitalizations and higher rates of discharge to nursing homes and death.[2] And in general, MNA scores of 27 or higher have been associated with "successful aging" and lower rates of osteoporosis and death within three years.[2]

Sharing the results. MNA results should be documented in the medical record and communicated to the primary care provider, dietitian, pharmacist,

and social worker, as appropriate. Regardless of score, the MNA should be repeated every three months in all older adults. The need for repeated evaluation should be stated in the discharge instructions. Before discharge, nurses should provide dietary guidelines to patients and primary caregivers and remind patients to discuss nutrition status with the primary care provider at discharge. To view the portion of the video in which experts discuss the importance of nutrition assessment in older adults, go to http://links.lww.com/A223.

An older adult whose MNA score is between 17 and 23.5 is considered at risk for malnutrition "with good prognosis given early intervention."[7] The nurse should recommend that the patient have a dietary history taken by a dietitian and that medications be reviewed by a pharmacist for their potential effects on food intake or interactions with foods. If the patient has cognitive impairment, the nurse should ask the patient's primary caregiver the extent to which it interferes with eating and drinking. Findings should be discussed with the patient's primary care provider.

An MNA score below 17 indicates protein-energy malnutrition. The nurse should consult with the primary care provider, the dietitian, and a nutrition support specialist. A complete nutritional assessment should be performed, and caloric and protein needs should be calculated. Other possible causes of malnutrition, such as increased metabolic needs caused by an underlying condition, should be identified. Nutritional intervention should begin immediately. To view the segment of the video discussing care planning, go to http://links.lww.com/A225.

Discussing results with Ms. Kronin. The nurse tells Ms. Kronin that her score indicates she is at risk for malnutrition and she'll need to be reevaluated after her surgery. The nurse reviews the importance of eating three balanced meals daily and recommends a consultation with the dietitian and a meeting with the pharmacist to review medications. She says she'll talk with the primary care provider about adding oral supplements between meals during Ms. Kronin's hospitalization.

CONSIDER THIS

What evidence supports using the MNA? The MNA has demonstrated moderate reliability and construct validity (the degree to which a tool measures what it's designed to measure—in this case, nutritional status) in the screening of malnutrition and risk of malnutrition in older adults, including those hospitalized, living in the community, living with or without memory impairment, and living in various Western countries (France, Spain, Sweden, and the United States). It can detect malnutrition before changes in weight or serum protein levels are evident. It may not be valid in non-Western populations. Data on psychometric properties of the MNA are as follows (for more information, see "Define Your Terms," October 2007):

- *Reliability.* Holm and Soderhamn reported a Cronbach's α coefficient of 0.65 in their study of 59 Swedish adults with memory impairment.[8] Other studies have determined the MNA's equivalence as ranging from 0.51 to 0.89.[2]
- *Validity.* A number of studies have demonstrated that the MNA is a moderate-to-good predictor of malnutrition and the risk of developing malnutrition, although its predictive value increased when biochemical markers were added or assessment by a physician was done to corroborate the findings.[1]
  - *Sensitivity.* The sensitivity of the MNA—its ability to identify people who are malnourished—has been reported as 70% or higher in nine studies.[9-17] The MNA-SF's sensitivity ranges from 86% to 100%.[16, 18, 19]
  - *Specificity.* The specificity of the MNA—its accuracy in identifying those who are not malnourished—has been examined in three studies and is 70% or higher.[10, 14, 16] The specificity of the MNA-SF ranges from 30% to 100%.[12, 15, 20]

For more on the MNA's psychometric properties, go to http://links.lww.com/A366. ▼

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Routine use of a Try This *tool may require formal review and approval by your employer.*

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