

Symposium: Innovative Teaching Strategies for Training Physicians in Clinical Nutrition: The Nutrition Academic Award (NAA) Medical Schools

REAP and WAVE: New Tools to Rapidly Assess/Discuss Nutrition with Patients^{1,2}

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ABSTRACT Dietary changes can be helpful in preventing or treating a variety of prevalent health problems. Physicians can be helpful in helping patients make positive dietary changes, be physically active and lose weight, but, for a variety of reasons, many physicians do little nutrition counseling. There is a need for brief, user-friendly tools to enable physicians to rapidly and accurately assess patients' diets and exercise habits as well as provide information to aid the physician in delivering effective nutrition counseling. The purpose of this paper is to discuss two new tools, WAVE and REAP, that have been developed by the Nutrition Academic Award to help physicians and other health care providers conduct nutrition assessment and counseling with their patients in a practical and effective manner. The WAVE acronym and tool is designed to encourage provider/patient dialogue about the pros and cons of the patients' current status related to *Weight, Activity, Variety and Excess*. The Rapid Eating and Activity Assessment for Patients (REAP) is a brief validated questionnaire that is designed to aid providers in performing a brief assessment of diet and physical activity. An accompanying Physician Key aids the provider in discussing the patient's answers and counseling them appropriately. REAP and WAVE can be helpful tools to facilitate nutrition assessment and counseling in the provider office. Depending on patients' health priorities and how much time is available, these tools can be used in a variety of ways to discuss nutrition with patients during a clinical encounter in 1–9 min. *J. Nutr.* 133: 556S–562S, 2003.

KEY WORDS: • *dietary assessment* • *nutrition counseling* • *patient education* • *physician training*

Diet plays an important role in many diseases, including the most common health problems: heart disease, certain cancers, obesity, stroke, hypertension and type 2 diabetes mellitus (1–7). Nutritional problems are very prevalent in the United States. Over three quarters of U.S. adults consume fewer than five servings of fruits and vegetables daily (8). Only one third

consume $\leq 30\%$ calories from fat (9) and only 36% consume $< 10\%$ of calories from saturated fat (9). Only 46% meet dietary recommendations for calcium, with only 19% of girls aged 9–19 meeting these recommendations (9). Only 21% consume the recommended amount of sodium daily (9). The prevalence of obesity has also increased sharply (10,11), with over 60% of the population overweight or obese (12). Only 15% of adults do the recommended amount of physical activity, and 40% of adults engage in *no* leisure-time physical activity (9).

Dietary changes can be helpful in preventing or treating health problems such as obesity, hypertension and high blood cholesterol, and dietary counseling has been shown to reduce medication costs (13–22). The effectiveness of nutritional counseling in changing dietary habits has been found in a number of studies (23–25). Many national agencies stress the importance of physician involvement in lifestyle counseling (6,23,26–28). Dietary intervention studies in medical settings

¹ Presented as part of the symposium "Innovative Teaching Strategies for Training Physicians in Clinical Nutrition: The Nutrition Academic Award (NAA) Medical Schools" given at the 2002 Experimental Biology meeting on April 20, 2002, New Orleans, LA. The symposium was sponsored by The American Society for Nutritional Sciences. The proceedings are published as a supplement to *The Journal of Nutrition*. Guest editors for the symposium were W. Allan Walker, Division of Nutrition, Harvard Medical School, Boston, MA, and Brian Tobin, Division of Basic Medical Science, Mercer University School of Medicine, Macon, GA.

² Supported in part by National Institutes of Health grant HL 03948 (Linking Resources for Brown Medical Nutrition Education).

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have shown that physicians can be helpful in helping patients make positive dietary changes (29–34). Primary care physicians are also able to incorporate physical activity counseling into a regular office visit (35–42), and can be effective at weight loss counseling (43–48) as well.

Despite this evidence, many physicians do little nutrition counseling themselves nor do they refer patients to dietitians (49–54). Visits to primary care providers include nutrition counseling only 25–45% of the time (9,55,56), and the time spent averages only 1 min (56). Physicians often do not counsel overweight and obese patients to lose weight (57,58), and physicians do not regularly counsel patients on physical activity and, when they do, it is often when the patient is already overweight or ill (59,60).

Several barriers to conducting nutrition counseling in the physician's office have been identified. These barriers include not enough time, inadequate nutrition training in medical schools and residency, perceived lack of adequate counseling skills, failure to believe that diet change will be helpful, poor reimbursement and lack of an office structure and tools to facilitate nutritional counseling (51,52,61–65). Although most primary care physicians are interested in learning more about nutrition and feel that lifestyle counseling is an important responsibility for them, they lack confidence in their ability to change patient behavior (49,61,63,66–68). Many physicians also believe that patients do not want to and will not change dietary behaviors (69), a conclusion that is not evidence-based.

In 1999 there were an estimated 756.7 million physician office visits in the United States, 2.8 visits per person (70). About half of these were to primary care practitioners (70). Most adults view physicians as their single most credible source of health information. Patients consistently report preventive services as a high priority for their health care and want physicians to provide nutrition counseling (71). Data from the four-state Health Education and Research Trial revealed that 72% of patients would like their physician to talk to them about diet, and 66% of patients would like their physician to talk to them about weight loss (72,73). In addition, 95% agreed that they would change their diet and 93% agreed that they would lose weight if told to do so by their physician (72,73). Such data show that patients want their physicians to be involved in nutrition counseling, and they are willing to try to make changes. Patients, rather than being alienated by physician inquiry about lifestyle, expect and may even welcome it (71). Patients also cite physicians' failure to give such information as reasons not to request preventive services. Diet counseling of patients can strengthen the patient–physician relationship, enhance the quality of care received and enhance the patient's satisfaction with treatment (74). Thus, the lack of nutritional counseling by physicians is problematic (75).

When dietary counseling does occur, advice given may not be optimally effective in bringing about behavioral change. For example, the commonly offered advice, "Eat less saturated fat," may not be useful if patients do not know which of the foods they eat are high in saturated fat and what lower saturated fat alternatives might be. Similarly, the advice routinely given to diabetics, "Go on a 1200 calorie per day diet," may be too vague to allow successful implementation. In addition, such a diet is too extreme and difficult to achieve as an initial goal if a patient is consuming >1800 calories a day at baseline. In all of these instances, more effective advice could be given if the physician were able to provide more specific counseling based on the patient's baseline diet.

Unfortunately for physicians who lack formal training in

nutrition, an inability to gather baseline dietary information from patients may represent a significant barrier to delivering effective counseling. For these physicians, tools enabling them to rapidly and accurately assess patients' diets and exercise habits could be instrumental in allowing them to more effectively counsel patients. Furthermore, the utility of such tools could be increased if they were to provide information aiding the physician in discussing the patient's answers and counseling them appropriately. The purpose of this paper is to discuss two new tools that have been developed by the Nutrition Academic Award (NAA)⁴ Program to help physicians and other health care providers conduct nutrition assessment and counseling with their patients in a practical and effective manner.

Nutrition Academic Award

In 1997 the National Heart, Lung and Blood Institute (NHLBI) developed the Nutrition Academic Award Program, an initiative to improve nutrition training across a network of U.S. medical schools (76). (The NAA is discussed in detail in the overview paper of this symposium series.) One goal of the NAA is to identify and/or develop practical nutrition assessment and education materials that could be disseminated nationally for use by physician practices and for patient education. One of the first needs that the NAA investigators identified was for tools to help incorporate nutrition assessment into the medical interview. Tools that use brief acronyms have been used to help physicians identify alcoholism (77–81) and sleep disorders (82,83) in their patients. NAA wanted to develop a similar type of tool for nutrition.

Description of WAVE

The WAVE acronym and tool is designed to encourage provider/patient dialogue about the pros and cons of the patients' current status related to Weight, Activity, Variety and Excess. WAVE has been described in more detail elsewhere (84). Briefly, the objectives of WAVE are to 1) provide a quick tool for primary care providers to discuss weight, physical activity and eating habits with their adult patients; 2) present a four-letter acronym that is easy to remember and use in provider–patient interactions; 3) identify weight, nutrition and physical activity issues that need to be addressed during the office visit or by referral to a dietitian; and 4) reinforce the importance of nutrition and physical activity in health promotion and disease prevention (84).

The WAVE Pocket Card is formatted as a one-page (front/back), two-column, two-row table, with each quadrant dedicated to a letter of the acronym. The front side addresses the assessment component (Fig. 1), whereas the reverse side provides recommendations for educating patients (Fig. 2). Within each letter grid, key questions and resources guide the primary care provider in assessment and education.

A provider can refer to the "Assessment" side of the WAVE card to quickly determine whether the patient's height and weight are greater than or equal to those listed for a body mass index (BMI) of 25 kg/m² (defined as overweight) (85) in the abbreviated BMI table displayed in the "W" quadrant. The Weight quadrant on the "Recommendations" side of the pocket card provides the clinician with suggested approaches to assist patients in initiating weight control. To quickly

⁴ Abbreviations used: BMI, body mass index; NAA, National Academic Award; NHLBI, National Heart, Lung and Blood Institute; REAP, Rapid Eating and Activity Assessment for Patients; WAVE, Weight, Activity, Variety and Excess.



Assessment

<h2>Weight</h2> <p>Assess patient's Body Mass Index.* Patient is overweight if BMI>25.</p> <table border="1"> <thead> <tr> <th>Height</th> <th>Body Weight lbs.</th> <th>Height</th> <th>Body Weight lbs.</th> </tr> </thead> <tbody> <tr> <td>4'10"</td> <td>≥119</td> <td>5'8"</td> <td>≥164</td> </tr> <tr> <td>4'11"</td> <td>≥124</td> <td>5'9"</td> <td>≥169</td> </tr> <tr> <td>5'0"</td> <td>≥128</td> <td>5'10"</td> <td>≥174</td> </tr> <tr> <td>5'1"</td> <td>≥132</td> <td>5'11"</td> <td>≥179</td> </tr> <tr> <td>5'2"</td> <td>≥136</td> <td>6'0"</td> <td>≥184</td> </tr> <tr> <td>5'3"</td> <td>≥141</td> <td>6'1"</td> <td>≥189</td> </tr> <tr> <td>5'4"</td> <td>≥145</td> <td>6'2"</td> <td>≥194</td> </tr> <tr> <td>5'5"</td> <td>≥150</td> <td>6'3"</td> <td>≥200</td> </tr> <tr> <td>5'6"</td> <td>≥155</td> <td>6'4"</td> <td>≥205</td> </tr> <tr> <td>5'7"</td> <td>≥159</td> <td></td> <td></td> </tr> </tbody> </table> <p>* Certain pts may require assessment for underweight and/or unintentional weight loss</p>		Height	Body Weight lbs.	Height	Body Weight lbs.	4'10"	≥119	5'8"	≥164	4'11"	≥124	5'9"	≥169	5'0"	≥128	5'10"	≥174	5'1"	≥132	5'11"	≥179	5'2"	≥136	6'0"	≥184	5'3"	≥141	6'1"	≥189	5'4"	≥145	6'2"	≥194	5'5"	≥150	6'3"	≥200	5'6"	≥155	6'4"	≥205	5'7"	≥159			<h2>Activity</h2> <p>Ask patient about any physical activity in the past week: walking briskly, jogging, gardening, swimming, biking, dancing, golf, etc.</p> <ol style="list-style-type: none"> Does patient do 30 minutes of moderate activity on most days/wk.? Does pt do "lifestyle" activity like taking the stairs instead of elevators, etc.? Does patient usually watch less than 2 hours of TV or videos/day? <p>If pt answers NO to above questions, assess whether pt is willing to increase physical activity.</p>	
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<h2>Variety</h2> <p>Is patient eating a variety of foods from important sections of the food pyramid?</p> <p>Grains (6-11 servings) Fruits (2-4 servings) Vegetables (3-5 servings) Protein (2-3 servings) Dairy (2-3 servings)</p> <p>Determine Variety and Excess using one of the following methods:</p> <ul style="list-style-type: none"> Do a quick one-day recall. Ask patient to complete a self-administered eating pattern questionnaire. <ul style="list-style-type: none"> What does pt think are pros/cons of his/her eating pattern? If pt needs to improve eating habits, assess willingness to make changes. 		<h2>Excess</h2> <p>Is patient eating too much:</p> <ul style="list-style-type: none"> Fat? Saturated fat? Calories? Salt? Sugar? Alcohol? <ul style="list-style-type: none"> Ask about serving/portion sizes, preparation methods and added fats like butter, mayonnaise, sour cream, salad dressing, etc. Does pt. eat 4 or more meals from sit-down or take-out restaurants per week? Does pt. indulge on the weekends? 																																													



Nutrition Academic Award Program
Advancing nutrition, medical education, and clinical practice
Brown Medical School

FIGURE 1 Assessment side of WAVE card.

determine the patient's activity level, the provider next introduces the questions listed on the "A" quadrant of the "Assessment" side of the WAVE card. Examples of moderate amounts of physical activity are listed in the "Recommendations" Activity section.

Diet (defined on WAVE as Variety and Excess) may be evaluated by several methods. If there is sufficient time, the provider can conduct a very brief (3-5 min) 1-d recall of the patient's food-intake habits. Based on the foods reported, the provider can determine whether the patient appears to be eating appropriate numbers of servings from the Food Guide Pyramid (Variety) as well as whether he or she is eating too much fat, salt, sugar and calories (Excess) recommended in the Dietary Guidelines for Americans (86). An alternative to assessing diet via a 1-day recall would be the use of a self-administered food habits questionnaire, which patients could complete in the waiting room or at home. REAP, a new tool for measuring diet (variety and excess) is described below. The Variety and Excess boxes on the assessment side of the WAVE card include the number of servings recommended for each tier of the Food Guide Pyramid (87) as well as questions to determine whether the patient is eating excess amounts of certain nutrients. On the recommendations side of the WAVE card, Food Guide Pyramid food choices and servings sizes are given as well as food choices that provide excess amounts of

certain nutrients. The card also lists counseling tips to aid the practitioner in setting dietary goals with the patient.

The WAVE can be incorporated in the patient interview by the addition of about 5-10 min. A formative evaluation of the WAVE tool was obtained in conjunction with clinical training of medical students at two medical schools. In general the tool was found to be helpful in addressing patients' lifestyle and nutrition issues related to weight, activity and diet (84). The WAVE card and resources to facilitate incorporating the WAVE in patient interviews can be downloaded from the following web addresses: <http://biomed.brown.edu/courses/nutrition/naa/resources.html> and <http://www.utsouthwestern.edu/naa/wave.htm>. The template for the WAVE Pocket Card can be downloaded for reproduction as a 5" x 7" card to carry conveniently in a lab-coat pocket or in an 8 1/2" x 11" format. A Palm Pilot version of WAVE is also available at the Mercer University School of Medicine website: <http://med2.mercer.edu/ncvd/default.htm>.

Rapid Eating and Activity Assessment for Patients (REAP)

Because traditional dietary assessment methods are often too difficult, expensive and time-consuming to administer in a clinical setting, brief diet assessment questionnaires have been



Recommendations

<h2>Weight</h2> <p>If pt is overweight:</p> <ol style="list-style-type: none"> State concern for the pt, e.g., "I am concerned that your weight is affecting your health." Give the pt specific advice, i.e., <ol style="list-style-type: none"> Make 1 or 2 changes in eating habits to reduce caloric intake as identified by diet assessment. Gradually increase activity/decrease inactivity. Enroll in a weight management program and/or consult a dietitian. If patient is ready to make behavior changes, jointly set goals for a plan of action and arrange for follow-up. Give pt education materials/resources. 		<h2>Activity</h2> <p>Examples of moderate amounts of physical activity:</p> <ul style="list-style-type: none"> Walking 2 miles in 30 minutes Stair walking for 15 minutes Washing and waxing a car for 45-60 minutes Washing windows or floors for 45-60 minutes Gardening for 30-45 minutes Pushing a stroller 1 1/2 miles in 30 minutes Raking leaves for 30 minutes Shoveling snow for 15 minutes <ol style="list-style-type: none"> If patient is ready to increase physical activity, jointly set specific activity goals and arrange for a follow-up Give pt education materials/resources. 	
<h2>Variety</h2> <p>What is a serving?</p> <p>Grains (6-11 servings) 1 slice bread or tortilla, 1/2 bagel, 1/2 roll, 1 oz. ready-to-eat cereal, 1/2 cup rice, pasta, or cooked cereal, 3-4 plain crackers</p> <p><i>Is patient eating whole grains?</i></p> <p>Fruits (2-4 servings) 1 medium fresh fruit, 1/2 cup chopped or canned fruit, 3/4 cup fruit juice</p> <p>Vegetables (3-5 servings) 1 cup raw leafy vegetables, 1/2 cup cooked or chopped raw vegetables, 3/4 cup vegetable juice</p> <p>Protein (2-3 servings) 2-3 oz. poultry, fish, or lean meat, 1-1 1/2 cup cooked dry beans, 1 egg equals 1 oz. meat, 4 oz. or 1/2 cup tofu</p> <p>Dairy (2-3 servings) 1 cup milk or yogurt, 1 1/2 oz. cheese</p> <p>See instructions 1-4 under Excess.</p>		<h2>Excess</h2> <p>How much is too much?</p> <p><i>Too much fat, saturated fat, calories</i></p> <ul style="list-style-type: none"> > 6 oz/day of meat Ice cream, high fat dairy products Fried foods High fat snacks and desserts Eating out > 4 meals/wk <p><i>Too much sugar, calories</i></p> <ul style="list-style-type: none"> High sugar beverages Sugary snacks/desserts <p><i>Too much salt</i></p> <ul style="list-style-type: none"> Processed meats, canned/frozen meals, salty snacks, added salt <ol style="list-style-type: none"> Discuss pros and cons of pt's eating pattern keeping in mind Variety & Excess. If patient is ready, jointly set specific dietary goals and arrange for follow-up. Give pt education materials/resources. Consider referral to a dietitian for more extensive counseling and support. 	

FIGURE 2 Recommendations of WAVE card.

developed for practice settings (e.g., 88–93), although they all address nutrition issues for a specific health problem only (e.g., high blood cholesterol) and/or do not address major nutritional issues in a brief, user-friendly format. A dietary assessment tool for use in a health care practice environment should meet certain criteria. It should be easy to administer by health care providers or office staff; be easy for patients to complete—ideally without assistance; provide feedback that is immediate and compatible with in-office evaluation; have low associated costs; and address dietary issues that are national nutrition priorities for adults (92). To meet these needs, the NAA developed the Rapid Eating and Activity Assessment for Patients (REAP) tool. REAP has been described further elsewhere (94).

Briefly, REAP has been designed to assess diet related to the Food Guide Pyramid (87) and the 2000 U.S. Dietary Guidelines (86). REAP includes questions to assess intake of whole grains, calcium-rich foods, fruits and vegetables, fat, saturated fat and cholesterol, sugary beverages and foods, sodium, alcoholic beverages and physical activity (see excerpt in Fig. 3). REAP also includes questions regarding whether the patient shops and prepares his/her own food; ever has trouble being able to shop or cook; follows a special diet; eats or limits certain foods for health or other reasons; and how willing the patient is to make changes to eat healthier.

The goal of the REAP tool is to aid providers in performing a brief dietary assessment to supplement the standard medical history and physical examination. The best use of this tool is at an initial visit or yearly physical. Patients can either fill out the instrument in the waiting room or have it sent home to complete before their appointment. REAP takes the patient about 10 min to complete, and is written at approximately a 5th-grade reading level.

An accompanying Physician Key aids the provider in discussing the patient’s answers and counseling them appropriately. The REAP Physician Key includes sections on patients at risk, further evaluation and treatment as well as counseling points/further information for each major dietary area (see example in Fig. 4). For example, if a patient answers on REAP

that he or she usually/often eats or drinks <2–3 servings of milk, yogurt or cheese a day, the Physician Key advises the provider that patients at risk are 18- to 50-y-olds consuming less than two servings of dairy products per day or those aged 14–18 or 51+ years who consume less than three servings. The Key then advises the provider to inquire into reasons for low intake, including lactose intolerance, and if the patient is unable to consume dairy, to suggest lactose-reduced/free dairy products, nondairy high calcium foods or consider supplementation. The key also discusses that dairy products are a good source of calcium and vitamin D, and that adequate calcium and vitamin D intakes are important in the prevention and treatment of osteoporosis (e.g., 95–97); high calcium intakes may help to prevent colon cancer (e.g., 98,99); and adequate calcium and dairy food intakes are important in the treatment of hypertension (e.g., 100–102).

REAP has undergone a series of evaluations, including a feasibility study with medical students and practicing physicians, a validation study with medical students and cognitive assessment testing with consumers. REAP was then modified to improve its look, utility and efficacy, and a reliability and validation study was done with the public (94). Pilot testing of REAP with physicians and medical students revealed high rankings on such parameters as usefulness, ease and practicality, and the validation studies with medical students and consumers indicated that REAP has excellent reliability scores, correlates well with the Healthy Eating Index scores (103) and reflects intake of most food groups and nutrients related to the Dietary Guidelines (94). Current versions of REAP and its accompanying Physician Key may be used with permission and are available online at www.biomed.brown.edu/courses/nutrition.

Implications and conclusions

Because time has been shown to be a major barrier to providing nutrition counseling in the physician’s office, it is important that WAVE and REAP can be used for dietary assessment and counseling in a time-efficient manner. De-

Rapid Eating Assessment for Patients (REAP)

Please check the box that best describes your habits.

TOPIC	In an average week, how often do you:	Usually/ Often	Sometimes	Rarely/ Never	Does not apply to me
MEALS	1. Skip breakfast?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	2. Eat 4 or more meals from sit-down or take out restaurants?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
GRAINS	3. Eat less than 3 servings of whole grain products a day? Serving = 1 slice of 100% whole grain bread; 1 cup whole grain cereal like Shredded Wheat, Wheaties, Grape Nuts, high fiber cereals, oatmeal, 3-4 whole grain crackers, ½ cup brown rice or whole wheat pasta	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
FRUITS & VEGETABLES	4. Eat less than 2-3 servings of fruit a day? Serving = ½ cup or 1 med. fruit or 4 oz. 100% fruit juice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	5. Eat less than 3-4 servings of vegetables/potatoes a day? Serving = ½ cup vegetables/potatoes, or 1 cup leafy raw vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
DAIRY	6. Eat or drink less than 2-3 servings of milk, yogurt, or cheese a day? Serving = 1 cup milk or yogurt; 1½ - 2 ounces cheese	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	7. Use 2% (reduced fat) or whole milk instead of skim (non-fat) or 1% (low-fat) milk?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Rarely use milk <input type="radio"/>
	8. Use regular cheese (like American, cheddar, Swiss, Monterey jack) instead of low fat or part skim cheeses as a snack, on sandwiches, pizza, etc?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Rarely eat cheese <input type="radio"/>

FIGURE 3 Excerpts from REAP.

Nutrition Academic Award
REAP Physician Key for Diet Assessment and Counseling

Question(s)	Patients at risk	Further evaluation and treatment	Counseling points/Further info
Meal pattern Q# 1	Patient skipping breakfast	<ul style="list-style-type: none"> Consider risk for undernutrition Explore etiology including medical and psychiatric conditions, socioeconomic issues, shopping and cooking capabilities, degree of life stress Further w/u, treatment, referral as appropriate 	<ul style="list-style-type: none"> If skipped meals are due to poverty or lack of facilities, refer pt to community resources, i.e. congregate meal programs, Meals on Wheels, food bank and pantries Skipping breakfast is correlated with obesity as well as a higher fat overall diet Normalizing meal pattern may help with weight management
Dining out Q# 2	Patients eating out often	<ul style="list-style-type: none"> Query reasons for frequent restaurant meals If lack of shopping/cooking knowledge and skills, or time are a barrier, patient may benefit from referral to a dietitian 	<ul style="list-style-type: none"> Restaurant portions are often larger than necessary contributing to obesity Restaurant meals are often high in saturated fat, sodium, and calories contributing to hypercholesterolemia, hypertension, and obesity
Grains Q# 3	Patient eating <3 servings whole grains a day	<ul style="list-style-type: none"> Inquire into reasons for low intake or avoidance of whole grains Counsel appropriately (suggest easy ways to incorporate whole grains such as high fiber breakfast cereal, sprinkling wheat germ on yogurt, eating cereal as a snack) 	<ul style="list-style-type: none"> Fortified or whole grain products are a good source of folate and other vitamins and minerals. Adequate folate intake may decrease the risk for CHD and colon cancer and decreases the risk for fetal neural tube defects Whole grain products are also a good source of fiber and vitamin E Adequate fiber intake may decrease the risk of hypercholesterolemia and certain cancers Higher vitamin E intakes may prevent the development of CHD, and higher intakes of vitamin E from foods are associated with lower CHD mortality

FIGURE 4 Excerpts from REAP physician key.

pending on how much time the provider has to spend with a patient and the patient's need for nutrition counseling, WAVE and REAP can be used in a variety of ways to facilitate nutrition counseling in <10 min, as shown in **Table 1**.

If a provider has 8–9 min, he or she could implement the entire WAVE protocol as discussed earlier using a 1-d recall to assess diet. In only 6–7 min, the provider could implement the WAVE protocol using REAP instead. With only 3–5 min, a provider could simply administer and discuss the patient's results from REAP, including goal setting, for instance. If the provider only has 1–2 min, he or she could simply discuss the importance of nutrition and assess the patient's readiness to change; give the patient REAP to take home and set individual dietary change goals. During this time, the provider would also give the patient nutrition handouts/web resources and/or refer to a registered dietitian or community resources. Further guidelines for nutrition counseling by physicians are discussed in detail elsewhere (e.g., 104–106). Some patients, especially those with multiple dietary and/or medical problems, should

also be referred to a dietitian for further dietary assessment and counseling and may require medical nutrition therapy.

REAP and WAVE can be helpful tools to facilitate nutrition assessment and counseling in the provider's office. These tools could be used by physician assistants, nurses and other health care providers in addition to physicians. Future activities planned for REAP and WAVE include developing case-based training materials for using the tools; developing a version of WAVE for pediatric patients; computerizing the tools; developing accompanying patient education materials; and disseminating the tools through various channels.

ACKNOWLEDGMENT

We thank Doreen Salgueiro for her help in preparing this manuscript.

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TABLE 1

*Using WAVE and REAP to conduct nutrition counseling
in less than 10 min¹*

Time you have	Action
8–9 min	WAVE protocol with 1-day recall
6–7 min	WAVE protocol with self-assessment (i.e., REAP)
3–5 min	REAP only with goal setting, etc.
1–2 min	Discuss importance of nutrition and assess readiness to change; give patient REAP to take home and set own goals; provide handouts/Web resources and/or refer

¹ WAVE, weight, activity, variety, excess; REAP, rapid eating and activity assessment for patients.

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