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T H E M E D
REVIEW

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The 2008 Physical Activity Guidelines for Americans: Implications for Clinical and Public Health Practice

Abstract: *The US government released its first formal recommendations on physical activity, the Physical Activity Guidelines for Americans, in 2008. By issuing the guidelines, the government has established increased physical activity as a major societal health target for the 21st century. The guidelines include recommendations of the types and amounts of physical activity that people should perform to gain important health benefits. Physicians and other health care providers can help people attain and maintain regular physical activity by providing advice on how to be active, appropriate types of activities, and ways to reduce the risk of injuries. Although training for providers on how to counsel patients about physical activity is limited, training of future providers offers an opportunity to improve this area of medical education. Public health practitioners have shifted their efforts to promote physical activity toward an environmental focus, usually incorporating organizational and community-level interventions. As federal health policy moves toward a greater emphasis on prevention of chronic diseases, it is expected that new resources will become available to*

support physical activity promotion in health care and public health settings. Familiarity with the guidelines should aid professionals in medicine and public health in responding effectively to these new expectations and opportunities.

Keywords: physical activity; guidelines; health promotion; clinicians; public health practice

since the mid-20th century, most communities have provided physical activity and sports programs through publicly funded recreation commissions. However, within the health care and public health sectors of society, physical activity promotion has not been a traditional priority. But times are changing, and over the past 30 years, the status of physical activity gradually has risen within the health care

 **General consensus exists that physicians and other health care providers should take the lead in assessing and counseling patients about lifestyle practices.** 

Promotion of physical activity has been a recognized and resourced goal of some major elements of American society for many decades. These include the education and community recreation sectors. Physical education has been an institution in American schools since the late 19th century, and

and public health arenas. Tangible, significant, and highly visible evidence of this trend is the release in 2008 of the first formal US government recommendations on physical activity, the *Physical Activity Guidelines for Americans*.

We believe that the government, by issuing the *Physical Activity Guidelines*

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for Americans, has established increased physical activity as a major societal health target for the 21st century. The overall goal of this article is to facilitate translation of the guidelines into professional practice. We achieve this goal by addressing 4 aims. First, we summarize the process that was followed in developing the physical activity guidelines. Second, we summarize key elements of the guidelines. Third and fourth, we discuss the theoretical and practical implications of the guidelines for professional practice in health care and public health, respectively.

The Guidelines Process

Authoritative organizations have been making physical activity recommendations to the American public since the 1970s. The American College of Sports Medicine (ACSM) began publishing its *Guidelines for Exercise Testing and Prescription* in 1975, and in 1978, ACSM published its landmark position stand titled, "The Recommended Quantity and Quality of Exercise for Developing and Maintaining Fitness in Healthy Adults."¹ These documents established the so-called exercise prescription as the state-of-the-art method for recommending exercise for health and fitness. In the mid-1990s, ACSM partnered with the US Centers for Disease Control and Prevention (CDC) in publishing a "public health recommendation" on physical activity that called for every adult to "accumulate 30 minutes or more of moderate-intensity physical activity on most, and preferably all, days of the week."²

These earlier recommendations on physical activity for health made important contributions to establishing physical activity as a significant focus in health care and public health. However, they did not carry the formal imprimatur of the US government. Since 1980, the government has issued, on a 5-year revision cycle, *Dietary Guidelines for Americans*. In the 2005 version of the *Dietary Guidelines*, physical activity was given considerable attention, particularly with regard to the interactive effects of diet and physical activity on energy balance, body composition, weight status,

and obesity. Although a focus on physical activity in the context of the *Dietary Guidelines* acknowledged the impact of physical activity on the prevention of excessive weight gain, some took exception to official federal physical activity policy being presented in guidelines that dealt primarily with diet.

Against this background, then Secretary Michael Leavitt of the US Department of Health and Human Services (DHHS) mandated that the department produce federal physical activity guidelines. Secretary Leavitt directed that his department follow a protocol analogous to the one followed in developing the *Dietary Guidelines*. Key steps in this process were as follows:

- *Institute of Medicine Review of the Need for Physical Activity Guidelines*: The Institute of Medicine (IOM) is an independent organization that performs evidence-based reviews of health-related issues for government agencies and nongovernment organizations. In 2006, an IOM panel was commissioned to advise Secretary Leavitt regarding the need for federal physical activity guidelines. This panel reviewed the relevant evidence and recommended that guidelines be developed. Secretary Leavitt accepted that recommendation.
- *Physical Activity Guidelines Advisory Committee*: A panel of experts, the Physical Activity Guidelines Advisory Committee (PAGAC), was appointed to perform a comprehensive and in-depth review of the scientific evidence that would inform physical activity guidelines. This panel worked for more than a year, reviewing the scientific literature regarding the effects of physical activity on a wide range of health outcomes. The major conclusions of the panel's review are summarized in Table 1. The full PAGAC report is available at <http://www.health.gov/paguidelines/committeereport.aspx>.³ This report provided the scientific foundation on which the guidelines were based.
- *Development of the Physical Activity Guidelines for Americans*: A team

of professional staff from the DHHS drafted the *Physical Activity Guidelines for Americans*. Working from the conclusions provided in the PAGAC report, the writing team worked with health communication specialists to produce a guidelines document that would effectively translate science-based recommendations to the general public.

- *Release and Dissemination of the Guidelines*: In October 2008, the first federal *Physical Activity Guidelines for Americans* were released by DHHS Secretary Leavitt. With that release, an ongoing effort to disseminate the guidelines was launched. A large network of organizations has signed on to support dissemination of the guidelines; information on this network is available at <http://www.physicalactivityplan.org/>.

The Guidelines

The *Physical Activity Guidelines for Americans* comprise recommendations regarding the types and amounts of physical activity that people should perform to gain important health benefits. Specialized guidelines are provided for youth, adults, and older adults, as well as special groups such as those with disabilities. Table 2 presents a summary of the guidelines. The complete guidelines are available at <http://www.health.gov/paguidelines/guidelines/default.aspx>.⁴

Innovative components of the guidelines, relative to previous physical activity recommendations, include the following:

- The guidelines make clear that the recommended dose of physical activity can be attained by performing moderate-intensity, vigorous-intensity, or combinations of moderate- and vigorous-intensity physical activity.
- The target dose of physical activity is presented in terms of physical activity accumulated across the week, rather than on a daily basis.
- Doses of physical activity up to twice the primary recommendation are endorsed as providing additional health benefits.

Table 1.**Major Conclusions From the Physical Activity Guidelines Advisory Committee Report³**

<p>All-cause mortality</p> <ul style="list-style-type: none"> Active men and women have approximately 30% lower risk of dying from all causes. The equivalent of 2 to 2.5 hours per week of moderate-intensity physical activity (PA) is sufficient to significantly reduce all-cause mortality rates.
<p>Cardiorespiratory health</p> <ul style="list-style-type: none"> Persons who obtain moderate levels of PA have a 20% lower risk of coronary heart disease (CHD) and cardiovascular disease (CVD) than least active persons. People who report higher intensities or amounts have a 30% lower risk of CHD and CVD than least active persons.
<p>Metabolic health</p> <ul style="list-style-type: none"> There is an inverse dose-response association between level of activity and risk of metabolic syndrome. Increased PA levels are associated with significantly reduced risks of developing type 2 diabetes.
<p>Energy balance</p> <ul style="list-style-type: none"> A dose of PA of 150 minutes per week results in a 1% to 3% weight loss. There is a dose-response relationship between level of activity and reductions in total and abdominal adiposity.
<p>Musculoskeletal health</p> <ul style="list-style-type: none"> Increased PA levels are associated with reduced risk of fractures, particularly the proximal femur. Greater volume of PA produces greater risk reduction. Endurance and resistance types of activity provide health benefits (improvements in pain, physical function, quality of life, mental health, and delayed onset of disability) to persons with osteoarthritis and other rheumatic conditions.
<p>Functional health</p> <ul style="list-style-type: none"> Active mid-life and older men and women have approximately a 30% lower risk of developing moderate or severe functional limitations compared with inactive individuals. Regular PA in older adults with existing functional limitations improves functional ability.
<p>Cancer</p> <ul style="list-style-type: none"> There is a moderate, inverse association between PA and the development of colon and breast cancers. Active people have reductions in risk of lung, endometrial, and ovarian cancers by 20%, 30%, and 20%, respectively.
<p>Mental health</p> <ul style="list-style-type: none"> Regular PA protects against the onset of depression symptoms and major depressive disorder and reduces depression symptoms.

- Specific recommendations are included for youth, older persons, pregnant women, and those with disabilities.

Implications of the Guidelines for Professional Practice in Health Care

General consensus exists that physicians and other health care providers should take the lead in assessing and counseling patients about lifestyle

practices. This consensus becomes even more imperative given the recent release of the *Physical Activity Guidelines for Americans*.⁴ The guidelines note that physicians and other health care providers can help people attain and maintain regular physical activity by providing advice on how to be active, appropriate types of activities, and ways to reduce the risk of injuries. Although training for providers on how to assess and counsel patients regarding physical activity is currently limited, the training of future providers offers an opportunity to improve

this area of medical education. Training and curricula should enhance the ability of providers to assess and counsel their patients on effective ways to incorporate recommended levels of physical activity into their lives.

Importance of Physical Activity Counseling in the Clinical Setting

Growing evidence indicates that lifestyle behavior change is the cornerstone of primary, secondary, and tertiary prevention in the management of acute and chronic

Table 2.Key Elements—2008 *Physical Activity Guidelines for Americans*⁴

<p>Children and adolescents</p> <p>Children and adolescents should do 60 minutes or more of physical activity (PA) daily.</p> <ul style="list-style-type: none"> • Aerobic: Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic PA and should include vigorous-intensity PA at least 3 days a week. • Muscle strengthening: As part of their 60 or more minutes of daily PA, children and adolescents should include muscle-strengthening PA on at least 3 days of the week. • Bone strengthening: As part of their 60 or more minutes of daily PA, children and adolescents should include bone-strengthening PA on at least 3 days of the week.
<p>Adults</p> <ul style="list-style-type: none"> • Adults should do at least 150 minutes a week of moderate-intensity, 75 minutes a week of vigorous-intensity aerobic PA, or an equivalent combination. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week. • For additional health benefits, adults should increase their aerobic PA to 300 minutes a week of moderate-intensity, 150 minutes a week of vigorous-intensity aerobic PA or an equivalent combination. • Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week.
<p>Older adults</p> <ul style="list-style-type: none"> • When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow. • Older adults should do exercises that maintain or improve balance. • Older adults should determine their level of effort for PA relative to their level of fitness. • Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular PA safely.
<p>Women during pregnancy and the postpartum period</p> <ul style="list-style-type: none"> • Healthy women who are not already highly active or doing vigorous-intensity activity should get at least 150 minutes of moderate-intensity aerobic activity a week during pregnancy and the postpartum period. • Pregnant women who habitually engage in vigorous-intensity aerobic activity or who are highly active can continue PA during pregnancy and the postpartum period, provided that they remain healthy and discuss with their health care provider how and when activity should be adjusted over time.
<p>Adults with disabilities</p> <ul style="list-style-type: none"> • Adults with disabilities who are able should get at least 150 minutes a week of moderate-intensity or 75 minutes a week of vigorous-intensity aerobic activity. • Adults with disabilities who are able should also do muscle-strengthening activities of moderate or high intensity that involve all major muscle groups on 2 or more days a week. • When adults with disabilities are not able to meet the guidelines, they should engage in regular PA according to their abilities and should avoid inactivity.
<p>People with chronic medical conditions</p> <ul style="list-style-type: none"> • Adults with chronic conditions should consult their health care provider about the types and amounts of activity appropriate for them.

illness.⁵⁻⁸ The evidence related to physical activity was summarized in the *Physical Activity Guidelines Advisory Committee Report*.³ There is strong evidence that primary care providers can help patients initiate and maintain lifestyle behavior

changes, including those targeting physical activity, diet, weight, and smoking cessation.^{9,10} In one study, patients enrolled in a cardiovascular disease prevention program identified physicians as the most important source of support for helping

them to achieve and maintain a healthy lifestyle.¹¹ However, it is important to note that health care providers continue to identify significant barriers to their ability to address lifestyle behavior change with their patients.¹²

Provider Characteristics That Affect Physical Activity Counseling

Physical activity assessment and counseling traditionally have been included in discussions of overall lifestyle change efforts, including smoking cessation and weight control. When the Surgeon General's report on physical activity and health was published in 1996, the literature on the physician characteristics that influence assessment and delivery of lifestyle change counseling in the clinical setting was limited.^{13,14} Little progress has been made in the 15 years since the Surgeon General's report, although 3 important studies of provider-focused behavior change and effects on therapeutic lifestyle change strategies in the clinical setting have been published.^{15,16} However, there still is little evidence that any particular strategies directed at medical providers, either to remove barriers or increase support for physical activity counseling, result in effective long-term changes in physical activity assessment and counseling or in effective long-term changes in physical activity patterns of patients. Clearly, there is need for more work in this important area.

Health care providers face considerable barriers to assessment and counseling regarding physical activity and other lifestyle changes in the clinical setting. The barriers are consistent across the inpatient and ambulatory settings and are a major factor in patients' noncompliance with a preventive health care program.¹⁵ The major provider barrier in the outpatient ambulatory setting is limited resources.¹⁴ Persistent and increasing provider time restraints and lack of financial incentives or reimbursement are universally recognized as barriers to conducting physical activity counseling in the clinical outpatient setting. Also, lack of training and low confidence in the use of preventive strategies for long-term behavior change in patients are a major issue for providers.¹⁷⁻¹⁹ Provider preconceptions include poor knowledge of the benefits of therapeutic lifestyle changes, perceived ineffectiveness of preventive services, and lack of the skills necessary to provide positive patient-oriented counseling, such

as motivational interviewing. Enhanced medical education must address all of these limitations.²⁰

Systematic efforts to address these barriers have been made over the past decade, most notably in the area of smoking cessation. Strong evidence now supports the role of the primary care provider in assisting patients to increase internal motivation for smoking cessation and then to take positive and active steps to quit. This evidence has provided the stimulus for providers to use specific communication and counseling interventions—often referred to as motivational interviewing—with their patients. These communication approaches include use of “the 5 As” in clinical practice (ask, advise, assess, assist, and arrange).⁹ There is additional evidence that other provider communication and counseling behaviors also can increase patient motivation to take meaningful steps toward change.^{9,21-23}

Steps Forward for Medical Education

Enhanced training for health care providers in the skills needed to assess and deliver preventive counseling in the clinical setting must be an educational priority, performed in parallel with a new emphasis on preventive care in health care.

Making Physical Activity Assessment a Vital Sign

Two components of the 5 As are “ask” and “assess.” Asking about and assessing physical activity with all patients, making it in essence a vital sign in every clinic visit, demonstrates to the patient that the clinician believes that physical activity level is as important as other vital signs and that the patient should also. Until recently, an easy-to-administer physical activity assessment tool was not available. This barrier has been removed with the development of the Stanford Brief Physical Activity Survey,²⁴ a 2-question self-assessment tool that can be administered in the waiting room. This tool has been validated in working and retired populations and also against the longer and more burdensome 7-Day Physical Activity Recall.²⁵ It is reliable and

accurate, and the simple score can be recorded along with waist circumference, body mass index, and other more traditional markers of health status as part of a normal vital sign profile.

Enhancing Provider Communication, Relationship Building, and Counseling Skills—A Focus on Motivational Interviewing

Motivational counseling strategies have been applied to a wide range of health behaviors.²⁶ Seventy-two clinical trials were included in a recent meta-analysis of the role of motivational interviewing strategies in health-directed preventive behavior change. Overall, clinically meaningful effects (defined as a mean effect size of greater than 0.40) were observed with a broad range of behaviors, including alcohol and illicit drug use, medication adherence, diet and exercise change, and HIV risk reduction.²⁷ Most motivational interviewing interventions used in these trials consisted of very brief motivational counseling that can be learned and maintained by providers.^{26,28}

When incorporated into normal clinical interactions, these strategies can address a number of health care provider barriers. These include insufficient time, lack of confidence in raising a sensitive topic, and frustration with patient “resistance” to make a needed lifestyle change. Providers should gain an understanding of motivational interviewing with a clear understanding of the continuous nature of behavior change (stages of change theory²⁹), learn that behavior change is difficult for everyone,³⁰ and be exposed to the significant clinical evidence that even small changes (eg, in physical activity level, dietary intake, or body weight) can produce clinically significant improvement in physiological parameters and disease risk.^{5,8} Following that, providers can feel more confident that even small lifestyle behavior change in their patients is worthwhile. This will lead to encouragement rather than chastisement in provider-patient interactions and reinforce positive behavior change.³¹ Training new health care providers to

use such approaches in all preventive lifestyle efforts, particularly those directed at physical activity, must be a priority going forward.

Implications of the Guidelines for Professional Practice in Public Health

As noted above, promotion of physical activity has only recently become a priority of the public health community. However, in the 17 years since physical inactivity was formally declared a major risk factor for cardiovascular disease,³² much progress has been made. Notable landmarks have included release of a Surgeon General's report on physical activity and health,³³ conduct of a National Institutes of Health Consensus Conference on Physical Activity and Health, creation of a Physical Activity and Health Branch in the Chronic Disease Center at the CDC, and, of course, release of the *Physical Activity Guidelines for Americans*.³⁴ In this section, we review the body of knowledge on public health interventions to promote physical activity and discuss the implications of the new guidelines for public health practice.

Physical Activity Intervention Research

Traditionally, physical activity intervention research has focused on the individual. The vast majority of intervention studies have targeted young to middle-aged adults and demonstrated moderate effects, with larger effect sizes found in studies that included behavior modification.³⁵ Behavioral research has developed effective evidence-based interventions,³⁶ identified by systematic reviews from the US Community Preventive Services Task Force³⁷ and other agencies. The studies tend to include heterogeneous populations and have demonstrated little evidence of long-term maintenance of effects.³⁵ Most interventions to date are expensive and have limited external validity (eg, samples largely comprising relatively affluent white volunteers, settings that bear little resemblance to typical work-

places, schools, and neighborhoods). This limits their generalizability and dissemination to the population as a whole.

For these reasons, public health has shifted its efforts to promote physical activity toward an environmental focus, usually incorporating multiple levels of intervention. This section examines 2 segments of the evidence base that have the greatest relevance for public health agencies: organizational intervention, relating to both internal operation and external work in the broader community, and community-level intervention, for which public health agencies are usually drivers, in coordination or funding or both.

Organizational-Level Interventions

Interventions that focus on organizations allow for a wide range of strategies, from individual and educational efforts to physical and social environmental approaches³⁸ to policy and regulatory initiatives. Schools and workplaces are the most critical and common settings for implementing active living practices that are integrated into daily activities and procedures, because of their potential for broad reach and high levels of exposure, particularly in low-socioeconomic status and diverse ethnic populations.³⁹ The workplace is a particularly important venue for promoting physical activity in women and less affluent workers because these people tend to have less discretionary time (due to longer work hours and commutes, less decisional latitude, less flexible time schedules, and a greater share of family care responsibilities)^{40,41} and fewer resources for active leisure (in terms of access to recreational facilities and money for equipment and fee-based activities).^{35,42}

Built environment modifications, such as restricting nearby parking or employee drop-off to people with disabilities and providing group interventions such as short activity breaks on paid time, rely less on individual initiative and motivation and more on structuring the workplace to promote activity. These modifications may prove more effective than past efforts, such as walking groups during lunchtime or exercise classes after work.^{43,44} Examples of promising

intervention strategies include peer-led physical activity interventions with factory workers, delivered during regular safety meetings; end-of-day exercise sessions during paid time for convalescent home aides; stretch breaks throughout the day on manufacturing floors; installation of slowed hydraulic or skip-stop elevators (which stop only at alternate floors, requiring employees to go up or down 1 or more flights of stairs to get to "skipped" floors); and requiring able-bodied employees to park in remote parking lots and use commissaries and meeting rooms in distant buildings.

A number of studies have evaluated school-based programs to promote physical activity. Most recent studies have targeted organizational policies and practices, with physical education, recess, and in-class activity in subject area classes as the 3 main targets for intervention. A recent Cochrane review⁴⁵ identified 395 studies conducted between 1980 and 2008 and determined that 26 school-based physical activity interventions were relevant to public health practice and of sufficient quality to be included in the review. Positive effects were observed for duration of physical activity and television viewing but not for leisure-time physical activity. Changes to the school curriculum and printed educational materials were the minimum elements that resulted in positive effects.

Structural integration of brief bouts of group physical activity within work, school, and leisure time may be particularly useful in communities of color.⁴⁶ For example, dance traditions are normative behavior, even among middle-aged and older adults of color. Structured, 5- to 10-minute group exercise breaks, using music and modified sports moves or dance steps, integrated into organizational routine have been embraced in government and community-based human services agencies,^{43,47} schools,⁴⁸ churches,⁴⁹ corporations,⁵⁰ and professional sports organizations.⁵¹

Population-Level Interventions

The literature includes relatively few contemporary population-level

multistrategy physical activity intervention trials and even fewer that reflect the ethnic and socioeconomic diversity necessary to reach public health goals.⁵² A recent review⁵³ found that most of these interventions are built on the ideas developed in the multiple risk factor trials of the 1970s to 1980s and share 6 broad strategies (with variations among projects): (1) social marketing through local mass media; (2) targeted communication vehicles; (3) activity prescription and individual counseling by health professionals; (4) voluntary and nongovernment organization partners; (5) setting-specific strategies in schools, worksites, senior centers, and shopping malls; and (6) environmental change strategies. Most used the name of the city or region and incorporated the main message in marketing efforts (eg, Agita Sao Paulo, 10,000 Steps Rockhampton, the Bootheel Heart Project, and Project WOW [Walk the Ozarks to Wellness]).^{52,53} These interventions represent a burgeoning area of research because of their enormous potential to produce the magnitude of sociocultural change needed to increase physical activity and improve the public's health. They also face significant challenges to engaging communities, particularly marginalized groups.

Published community-level physical activity interventions that target youth are extremely rare. For example, a review identified no youth-focused community-level controlled studies.⁵⁴ One recent and effective US demonstration project was the VERB social marketing campaign.^{55,56} VERB's huge budget, by public health standards (in excess of \$150 million by a direct congressional appropriation), was spent primarily on commercial ads targeting different segments of the youth population.⁵⁷ During the first year, the campaign was most effective among girls, children with previously low activity levels, those from urban areas, and those whose parents had less than a high school education. These subgroup differences disappeared over time, with equal effectiveness population-wide. Unfortunately, VERB funding was withdrawn, despite these successful outcomes, after only 3 years.

Public Health Practice

Physical activity promotion did not explicitly appear among the core functions of public health until 1993. Nutrition, on the other hand, has been part of the public health practice infrastructure since its inception in the mid-1800s because of the need to ensure food and water safety and to promote maternal and child health. For this reason, chronic disease and obesity prevention efforts at the federal, state, and local levels are markedly skewed toward improving eating habits and nutrient-rich food choices. Public health practice in physical activity is in its infancy.

The 1996 Surgeon General's report³³ represented a landmark in recognizing physical activity as central to public health. This document summarized the health benefits and surveillance data and signaled the recognition of physical activity as a public health policy issue worthy of widespread attention. The creation of the Physical Activity and Health Branch at the CDC provided a national infrastructure for building public health capacity for physical activity, through training courses in physical activity and public health, modest block grant funding for state health departments, and networking and communications support in the formation of a National Society of Physical Activity Practitioners in Public Health.

By default, responsibility for promoting physical activity in public health agencies often has been assigned to nutrition staff, with few additional resources and often little training or interest.⁵⁸ CDC-funded physical activity promotion programs, at varying stages of development, exist in at least 28 state health departments. Progress, however, is slow. The California Department of Public Health, for example, only recently increased its physical activity staff from 2 positions to 14, to address the needs of the more than 30 million residents of the state.⁵⁹ Local health departments rarely have dedicated physical activity staff, although a few models for developing such programs in areas with large African American populations are emerging.^{42,44,60}

Conclusions

The *2008 Physical Activity Guidelines for Americans* lay out, in great detail, the types and amounts of physical activity needed for maintenance of good health. These new guidelines are important to the health care and public health communities because their release demonstrates the increasing prominence of physical activity promotion as a national health goal. In the future, it seems likely that practitioners in medicine and public health will be held to higher standards for promoting physical activity in individual patients and in the population. And as federal health policy moves gradually toward a greater emphasis on prevention of chronic diseases, it is expected that new resources will become available to support physical activity promotion in the health care and public health settings. Familiarity with the *Physical Activity Guidelines for Americans* should aid professionals in medicine and public health in responding effectively to these new expectations and opportunities. **AJLM**

References

1. American College of Sports Medicine. The recommended quantity and quality of exercise for developing and maintaining fitness in healthy adults. *Med Sci Sports*. 1978;10:vii-x.
2. Pate RR, Pratt M, Blair SN, et al. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA*. 1995;273:402-407.
3. US Department of Health and Human Services (USDHHS). *Physical Activity Guidelines Advisory Committee Report, 2008*. Washington, DC: USDHHS; 2008.
4. US Department of Health and Human Services (USDHHS). *2008 Physical Activity Guidelines for Americans*. Washington, DC: USDHHS; 2008. <http://www.health.gov/paguidelines/default.aspx>. Accessed May 13, 2009.
5. Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med*. 2002;346:393-403.
6. Brunner E, White I, Thorogood M, Brostow A, Curle D, Marmot M. Can dietary interventions change diet and cardiovascular risk factors? A meta-analysis

- of randomized controlled trials. *Am J Public Health*. 1997;87:1415-1422.
7. Venditti EM. Efficacy of lifestyle behavior change programs in diabetes. *Curr Diab Rep*. 2007;7:123-127.
 8. Look AHEAD Research Group. Reduction in weight and cardiovascular disease risk factors in individuals with type 2 diabetes: one-year results of the Look AHEAD trial. *Diabetes Care*. 2007;30:1374-1383.
 9. Curry SJ, Orleans CT, Keller P, Fiore M. Promoting smoking cessation in the healthcare environment: 10 years later. *Am J Prev Med*. 2006;31:269-272.
 10. Jordan TR, Dake JR, Price JH. Best practices for smoking cessation in pregnancy: do obstetricians/gynecologists use them in practice? *J Womens Health*. 2006;15:400-441.
 11. Mosca L, McGillen C, Rubenfire M. Gender differences in barriers to lifestyle change for cardiovascular disease prevention. *J Womens Health*. 1998;7:711-715.
 12. Cook S, Drum ML, Kirchoff AC, et al. Providers' assessment of barriers to effective management of hypertension and hyperlipidemia in community health centers. *J Health Care Poor Underserved*. 2006;17:70-85.
 13. Pearson TA, Kopin LA. Compliance of providers to guidelines. In: Burke LE, Ockene IS, eds. *Compliance in Health Care Research*. Armonk, NY: Futura; 2001:285-297.
 14. Pearson TA, McBride PE, Miller NH, Smith SC. 27th Bethesda Conference: matching the intensity of risk factor management with the hazard for coronary disease events. Task Force 8: Organization of Preventive Cardiology Service. *J Am Coll Cardiol*. 1996;27:1039-1047.
 15. Pearson TA, Laurora I, Chu H, Kafonek S. The Lipid Treatment Assessment Project: a multicenter survey to evaluate the percentages of dyslipidemic patients receiving lipid-lowering therapy and achieving NCEP target LDL-C goals. *Arch Int Med*. 2000;160:459.
 16. Pearson TA, Peters TD. The treatment gap in coronary artery disease and heart failure: community standards and the post-discharge patient. The ACCEPT Study (American College of Cardiology Evaluation of Preventive Therapeutics). *Am J Cardiol*. 1997;80:45H-52H.
 17. McBride PE, Plane MB, Underbakke G. Hypercholesterolemia: the current educational needs of physicians. *Am Heart J*. 1992;123:817-824.
 18. Orlandi MA. Promoting health and preventing disease in health care settings: an analysis of barriers. *Prev Med*. 1987;16:119-130.
 19. Walsh JM, McPhee SJ. A systems model of clinical preventive care: an analysis of factors influencing patient and physician. *Health Educ Q*. 1992;19:157-175.
 20. Falk M. Compliance with treatment and the art of medicine. *Am J Cardiol*. 2001;88:668-669.
 21. Broers S, Smets E, Bindels P, Evertsz' FB, Calff M, de Haes H. Training general practitioners in behavior change counseling to improve asthma medication adherence. *Patient Educ Couns*. 2005;58:279-287.
 22. Brug J, Spikmans F, Aartsen C, Breedveld B, Bes R, Ferreira I. Training dietitians in basic motivational interviewing skills results in changes in their counseling style and in lower saturated fat intakes in their patients. *J Nutr Educ Behav*. 2007;39:8-12.
 23. Schwartz RP, Hamre R, Dietz WH, et al. Office-based motivational interviewing to prevent childhood obesity: a feasibility study. *Arch Pediatr Adolesc Med*. 2007;161:495-501.
 24. Taylor-Piliae RE, Norton LC, Haskell WL, et al. Validation of a new brief physical activity survey among men and women aged 60-69 years. *Am J Epidemiol*. 2006;164:598-606.
 25. Taylor-Piliae RE, Haskell WL, Iribarren C, et al. Clinical utility of the Stanford brief activity survey in men and women with early-onset coronary artery disease. *J Cardiopulm Rehabil Prev*. 2007;27:227-232.
 26. Rollnick S, Mason P, Butler C. *Health Behavior Change: A Guide for Practitioners*. London: Churchill Livingstone; 1999.
 27. Miller WR. Enhancing patient motivation for health behavior change. *J Cardiopulm Rehabil*. 2005;25:207-209.
 28. Erickson SJ, Gerstle M, Feldstein SW. Brief intervention and motivational interviewing with children, adolescents, and their parents in pediatric health care settings: a review. *Arch Pediatr Adolesc Med*. 2005;159:1173-1180.
 29. Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: application to addictive behaviors. *Am Psychol*. 1992;47:1102-1114.
 30. Hyman DJ, Pavlik VN, Taylor WC, Goodrick GK, Moye L. Simultaneous vs. sequential counseling for multiple behavior change. *Arch Intern Med*. 2007;167:1152-1158.
 31. Wing RR, Venditti E, Jakicic JM, Polley BA, Lang W. Lifestyle intervention in overweight individuals with a family history of diabetes. *Diabetes Care*. 1998;21:350-359.
 32. Fletcher GF, Blair SN, Blumenthal J, et al. Statement on exercise: benefits and recommendations for physical activity programs for all Americans. A statement for health professionals by the Committee on Exercise and Cardiac Rehabilitation of the Council on Clinical Cardiology, American Heart Association. *Circulation*. 1992;86:340-344.
 33. US Department of Health and Human Services (USDHSS). *Physical Activity and Health: A Report of the Surgeon General*. Atlanta, GA: USDHSS/Centers for Disease Control and Prevention; 1996.
 34. Pratt M, Epping JN, Dietz WH. Putting physical activity into public health: a historical perspective from the CDC. *Prev Med*. 2009;49:301-302.
 35. Marcus BH, Williams DM, Dubbert PM, et al. Physical activity intervention studies: what we know and what we need to know: a scientific statement from the American Heart Association Council on Nutrition, Physical Activity, and Metabolism (Subcommittee on Physical Activity); Council on Cardiovascular Disease in the Young; and the Interdisciplinary Working Group on Quality of Care and Outcomes Research. *Circulation*. 2006;114:2739-2752.
 36. King AC, Sallis JF. Why and how to improve physical activity promotion: lessons from behavioral science and related fields. *Prev Med*. 2009;49:286-288.
 37. Kahn EB, Ramsey LT, Brownson RC, et al. The effectiveness of interventions to increase physical activity: a systematic review. *Am J Prev Med*. 2002;22(4S):73-107.
 38. Bopp M, Fallon E. Community-based interventions to promote increased physical activity: a primer. *Appl Health Econ Health Policy*. 2008;6(4):173-187.
 39. Sorensen G, Barbeau E, Stoddard AM, Hunt MK, Kaphingst K, Wallace L. Promoting behavior change among working-class, multiethnic workers: results of the Healthy Directions—Small Business Study. *Am J Public Health*. 2005;95:1389-1395.
 40. Yancey AK, Pronk N, Cole B. Environmental and policy approaches to obesity prevention in the workplace. In: Kumanyika SK, Brownson RC, eds. *The Handbook of Obesity Epidemiology and Prevention*. New York: Springer; 2007.
 41. Wolin KY, Bennett GG. Interrelations of socioeconomic position and occupational and leisure-time physical activity in the National Health and Nutrition Examination Survey. *J Phys Act Health*. 2008;5:229-241.
 42. Yancey AK, Ory MG, Davis SM. Dissemination of physical activity promotion interventions in underserved populations. *Am J Prev Med*. 2006;31(suppl):S82-S91.
 43. Crawford PB, Gosliner W, Strode P, et al. Walking the talk: fit WIC wellness programs improve self-efficacy in pediatric obesity prevention counseling. *Am J Public Health*. 2004;94:1480-1485.

44. Yancey AK, Kumanyika SK, Ponce NA, et al. Population-based interventions engaging communities of color in healthy eating and active living: a review. *Prev Chronic Dis.* 2004;1:A09.
45. Dobbins M, De CK, Robeson P, Husson H, Tirilis D. School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6-18. *Cochrane Database Syst Rev.* 2009;(1):CD007651.
46. McKeever C, Faddis C, Koroloff N, Henn J. Wellness Within REACH: mind, body, and soul: a no-cost physical activity program for African Americans in Portland, Oregon to combat cardiovascular disease. *Ethn Dis.* 2004;14(suppl 1):S93-S101.
47. Lara A, Yancey AK, Tapia-Conye R, et al. Pausa para tu Salud: reduction of weight and waistlines by integrating exercise breaks into workplace organizational routine. *Prev Chronic Dis.* 2008;5:A12.
48. Honas JJ, Washburn RA, Smith BK, Greene JL, Donnelly JE. Energy expenditure of the physical activity across the curriculum intervention. *Med Sci Sports Exerc.* 2008;40:1501-1505.
49. Wilcox S, Laken M, Anderson T, et al. The Health-e-AME faith-based physical activity initiative: description and baseline findings. *Health Promot Pract.* 2007;8:69-78.
50. Heinen L, Darling H. Addressing obesity in the workplace: the role of employers. *Milbank Q.* 2009;87:101-122.
51. Yancey A, Winfield D, Larsen J, et al. "Live, Learn and Play": building strategic alliances between professional sports and public health. *Prev Med.* 2009;49:322-325.
52. Yancey AK, McCarthy WJ, Taylor WC, et al. The Los Angeles Lift Off: a sociocultural environmental change intervention to integrate physical activity into the workplace. *Prev Med.* 2004;38:848-856.
53. Mummery WK, Brown WJ. Whole of community physical activity interventions: easier said than done. *Br J Sports Med.* 2009;43:39-43.
54. van Sluijs EM, McMinn AM, Griffin SJ. Effectiveness of interventions to promote physical activity in children and adolescents: systematic review of controlled trials. *BMJ.* 2007;335:703.
55. Huhman M, Potter LD, Wong FL, Banspach SW, Duke JC, Heitzler CD. Effects of a mass media campaign to increase physical activity among children: year 1 results of the VERB campaign. *Pediatrics.* 2005;116:e277-e284.
56. Huhman ME, Potter LD, Duke JC, Judkins DR, Heitzler CD, Wong FL. Evaluation of a national physical activity intervention for children: VERB campaign, 2002-2004. *Am J Prev Med.* 2007;32:38-43.
57. Huhman M, Bauman A, Bowles HR. Initial outcomes of the VERB campaign: tweens' awareness and understanding of campaign messages. *Am J Prev Med.* 2008;34(suppl):S241-S248.
58. Lord FM, Novick MR. *Statistical Theories of Mental Test Scores.* Reading, MA: Addison-Wesley; 1968.
59. Dorfman L, Yancey AK. Promoting physical activity and healthy eating: convergence in framing the role of industry. *Prev Med.* 2009;49:303-305.
60. Brownson RC, Ballew P, Brown KL, et al. The effect of disseminating evidence-based interventions that promote physical activity to health departments. *Am J Public Health.* 2007;97:1900-1907.