A NEW VISION OF AGING:

HELPING OLDER ADULTS MAKE HEALTHIER CHOICES

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"Never before have so many people lived for so long. Life expectancy has nearly doubled over the last century, and today there are 35 million Americans age 65 and older. The aging of the population—in past decades and in the foreseeable future—presents both a challenge and an opportunity."

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Executive Summary

The data are compelling, almost overwhelming: If older adults increase physical activity, improve eating habits, and take some relatively simple steps to minimize the risk of falling, they could live longer and healthier lives. But numerous studies also document that older adults often cannot adopt these healthy behaviors, in large part because of systemic barriers. The good news is that there are a variety of non-medical interventions that have proved to be effective in helping older adults make healthier choices, but these interventions are not being applied as systematically or broadly as they could be. *In other words, we know much about how to support older adults in making healthier choices, but we are applying this knowledge in a piecemeal fashion.* As a result, just as with our nation's children, too many seniors are being left behind, and the health and financial benefits are not being realized by individuals, families, communities, and the nation as a whole.

The Good News: Healthier Actions Improve the Health of Older Adults

Older adults who make healthier choices live longer and better lives. Healthy choices provide four primary benefits.

Longer life: People who get regular exercise, avoid tobacco use, and eat healthfully have a lower risk of chronic diseases and conditions that often lead to premature death.

Reduced rates of disability: Healthier choices by older adults lead to reduced rates of disability. People who get regular exercise, avoid tobacco use, and eat healthfully have much lower (50 percent or more) rates of disability than do those who do not.

Better mental health and cognitive function: Physical activity has been found to help reduce the symptoms of depression. It also can help to improve cognitive function and to prevent or delay the onset of mental illness.

Lower costs: The CDC found that physically active people, on average, have lower health care costs than do inactive people. The same study estimates that increasing moderate physical activity among inactive Americans over the age of 15 could reduce medical costs by as much as $76.6 billion.

The Bad News: Too Few Older Adults Engage in Healthy Behaviors

Many older adults, however, do not engage in the types of healthy behaviors that can lead to a longer and better life, and are suffering negative health consequences as a result.

Lack of physical activity: Approximately one-third of persons age 65 or older have not engaged in any leisure-time physical activity within the past month, including the majority of those over the age of 75. People who are physically inactive are almost twice as likely to develop heart disease as active people. Inactivity is also linked to the development of diabetes and colon cancer. Inactivity can also result in reductions in muscle strength and mass, which, in turn, can lead to physical disability and frailty.

Poor diets: The prevalence of obesity among adults age 65 and over increased from roughly 12 percent in 1990 to 19 percent in 2002. People who are overweight or obese increase their risk for developing or exacerbating cardiovascular disease, diabetes, high blood pressure, arthritis-related disabilities, and some cancers. Other older adults, especially the very old, consume inadequate amounts of key nutrients such as calcium, vitamin D, magnesium, and phosphorus, which are associated with structural and muscular function and play key roles in maintaining muscle function and bone health.

Falls: More than one-third of community-dwelling adults age 65 and over fall each year and two-thirds of those who fall do so again within six months. Falls are even more prevalent among those over the age of 80, half of whom fall each year. Falls are the leading cause of injury and injury deaths among older adults, with more than 12,800 dying each year from fall-related injuries. Death rates from falls increase with age across all ethnic groups.

Evidence-Based Strategies for Promoting Prevention

There is general agreement that the barriers to making healthy choices create serious impediments for improving health for people of all ages, including older adults. These barriers exist at a variety of levels including the individual's lack of knowledge and motivation, lack of support from family and peers, poor access to effective programs that promote healthy behaviors, musculoskeletal discomfort, and various public and corporate policies that seem to foster unhealthy habits. Much is known about what strategies are most effective in promoting healthier choices in the population at large, and there is reason to believe that many of these lessons can and should be applied to older adults.

Motivating behavior change: The first step in encouraging healthy behaviors is to motivate individuals to change. For many, getting started is the hardest part. Fortunately, once an individual begins to experience the benefits of behavior change, he or she often likes to continue. One of the keys to motivating individuals to change behavior is in educating them about the need to change. Research shows that intensive educational programs are effective in motivating behavior change. Interventions that can accommodate individual differences in behaviors and risk factors tend to have a more significant impact on behavior change than programs with undifferentiated messages. Broader mass media messages also can successfully motivate older adults, as long as they build upon good research. Physicians and health care professionals can play a critical role in an older adult's decision to become more physically active.

Programs That Work

The Chronic Disease Self-Management Program consists of weekly patient education sessions that include: exercise programs; cognitive symptom management techniques; nutritional change; fatigue and sleep management; medications; emotion management; communication training; health-related problem solving; and decision making. In a randomized trial, participants experienced improved health behaviors; reduced disability, fatigue, and distress over health; and fewer hospitalizations and fewer days in the hospital.

The EnhanceWellness Program is a community-based wellness intervention that promotes the health and functioning of older adults in the community who are at risk of functional decline. The program includes an assessment of health and functional status and risk factors for disability; development of a personalized "action plan"; encouragement to enroll in an evidence-based exercise class and a chronic disease self-management course; and meetings with a social worker regarding psychosocial issues. EnhanceWellness has been shown to reduce the percentage of participants who are depressed and physically inactive.

The EnhanceFitness Program emphasizes activities to improve balance, strength, endurance, and flexibility. A pilot study found that those who participated in the program for six months improved significantly in almost every area tested, including increased physical and social functioning and reduced levels of pain and depression. In addition, the health care costs for participants attending at least once a week declined significantly.

Active Choices is a telephone-assisted physical activity counseling program that is effective in helping participants incorporate more physical activity into their daily lives. Participants take part in an introductory face-to-face session with a health educator in order to determine realistic, individualized exercise plans. Written information on physical activity is also provided to help increase understanding of the different aspects of physical activity and to motivate behavior change. This initial session is followed by regular telephone contacts initiated by the health educator.

PACE (People with Arthritis Can Exercise) is a community-based group recreational exercise program offered one to three times a week to encourage people with arthritis to exercise and show them the proper way to do so. A small pilot study demonstrated significant improvements after four months in self-care behaviors, level of pain, and perceived self-efficacy. Other studies have found a significant decrease in depression and improvements in social activity and health status.

Growing Stronger is an evidence-based strength training program for older adults. The program involves exercises that have been shown to increase muscle strength, maintain bone density, and improve balance, coordination, and mobility.

Seattle Senior Farmers' Market Nutrition Program provides fresh, locally grown fruits, vegetables, and herbs from community-supported agriculture programs to low-income seniors. The program is easily accessible to older adults, even those who are homebound. A study found that participating seniors reported consuming more servings of fruits and vegetables.

A Matter of Balance has been shown to decrease fear of falling, increase confidence in handling falls, and increase activity levels and mobility control. The original program was modified to utilize a lay leader rather than a health educator, and this modified program is being tested in a variety of settings across Maine**.** During eight classes of 2 hours each, participants learn to view falls and fear of falling as controllable; set realistic goals for increasing activity; change their environment to reduce risk factors for falls; and engage in exercise to increase strength and balance.

Keeping people engaged: Older adults not only need help in getting started, but also in maintaining their involvement in physical activities and healthy eating practices. For example, it has been found that somewhere between 22 percent and 76 percent of those who start exercise programs drop out within six months. Continuing motivational techniques such as self-monitoring, personal communication with healthcare providers, peer support and regular reminders encourage older adults to maintain in healthy behaviors.

Providing easy access to programs and community resources: It is not enough just to provide motivation and to keep people engaged. Older adults must also have access to the kinds of infrastructure and programmatic resources that allow them to follow healthy behaviors easily, such as, safe, friendly, inviting neighborhoods with good lighting and plenty of parks, walking trails, community and senior centers, health clubs, swimming pools and sites where older people can eat healthy foods together.

Tailoring interventions to individual needs and racial and ethnic diversity: Individuals will vary in terms of their readiness for different kinds of interventions. One study concluded that interventions for older adults in early stages of readiness should focus on motivating change by emphasizing the perceived benefits of healthful eating, while for those in later stages the emphasis should shift to programs and techniques that make it easier to achieve adequate levels of healthy foods on a daily basis. In addition to tailoring programs to an individual's readiness to change behaviors, it is also important to consider the cultural diversity of the target audience.

The Need for Greater Federal Engagement

The Administration on Aging (AoA) and the Centers for Disease Control and Prevention (CDC) are two agencies through which the federal government supports older Americans in making healthier choices, each working with the other and with relatively limited federal dollars. They also have been supported in their efforts by a number of other agencies, including the Centers for Medicare & Medicaid Services (CMS), United States Department of Agriculture (USDA), the Department of Housing and Urban Development (HUD), the Corporation for National Service, the Environmental Protection Agency (EPA), the National Institute on Aging (NIA), and the Agency for Healthcare Research and Quality (AHRQ). While current activities are beneficial, they are grossly inadequate relative to the need and to current knowledge about what could be accomplished.

The nation’s aging population could be reaping the benefits of decades of research and practical experience on healthy aging. To do so, healthier behaviors will need to be adopted, with special attention to self care, physical activity, eating well, and reducing the risk of falling. While adopting healthier behaviors is a personal choice, having supports and opportunities for a healthy lifestyle are matters of public policy. This report has documented that older adults achieve great health benefits from prevention and that there are tested, evidence-based strategies that have helped thousands to reap these benefits. The federal sector could help millions of older adults to lead longer, healthier more independent lives with modest commitments to prevention and health promotion.

Immediate Opportunities for Improvement

Strengthen the Older Americans Act: Build on AoA's current, highly successful Evidence-Based Prevention Programs for the Elderly Initiative to assist older adults to make behavioral changes that have proven to be effective in reducing the risk of disease and disability among the elderly. Focus on low-cost, evidence-based interventions at the community level that support physical activity, a healthy diet, fall prevention and self-care. Place special emphasis on reaching older adults with one or more risk factors and reducing health disparities. Specifically, the Older Americans Act should establish a permanent, fully funded program composed of a limited repertoire of specific interventions that have proven effective in supporting healthy, productive aging. This permanent program would:

- Establish a plan to roll out evidence-based programs across the 50 states based upon state and agency readiness to implement and monitor tested prevention/promotion interventions.
- Provide incentive grants, training and technical assistance to states and local areas to support prevention programs at community sites and for frail elders at home.
- Establish a system for documenting the impact of these programs on health care utilization and health status. Track program costs, implementation processes and systems, and program improvements, then disseminate evidence-based innovations that work.

Strengthen and expand the role of public health in ensuring healthy aging: Within CDC, the Healthy Aging Program, the Arthritis Program, the Division of Physical Activity and Nutrition and the National Center for Injury Prevention and Control have laid the foundation for a strong public health approach in helping older adults to make healthier choices. The Healthy Aging Program's work on fostering collaboration between public health and aging, building a strong evidence-base for prevention programming, and tracking surveillance data on risk factors among older adults has reaped success over time, yet there is no federal appropriation for healthy aging within the CDC budget. It is essential to strengthen the capacity of the nation's public health system to support changes in behavior to reduce disease and disability and maintain the health of older adults.

Specifically, Congress should appropriate funds within CDC for healthy aging --physical activity, healthy eating, fall prevention and self-care.

- Expand current surveillance data systems at the state and local levels to include large numbers of persons over 60 with diverse backgrounds and various levels of functional status in order to inform federal, state and local leaders about strategic implementation of evidence-based programs and policies, and to document their impact.
- Evaluate programs and policies that produce sustained health behavior change to improve healthy aging in older adults. Prepare evidence reviews specifically on programs for older adults.

- Implement targeted awareness and educational campaigns in collaboration with the aging network in order to enhance the visibility and use of program interventions to increase healthy aging in older adults.

Identify and promote safe and effective physical activities for older adults: Across the public and private sectors, at local, state and national levels, there are disparate and fragmented efforts to create and publicize opportunities for older adults to be more active. Health clubs, hospitals, senior centers and senior housing are offering structured physical activity programs and communities are creating walking trails, recreational green spaces, and other opportunities to be active. Older adults need to learn about these programs and places and have ways to judge their quality, safety and appropriateness for different levels of personal function. With the Secretary of Health and Human Services placed in charge, the federal government should:

- Implement an efficient, valid and reliable process for identifying programs that reflect best practices in exercise, support for behavior change, and management of risks and injury.
- Establish a Web-based inventory of physical activity programs appropriate for older adults that includes best practice ratings and provides easy electronic and print access to program information.
- Provide incentives, such as rewards, recognitions and grants, to organizations and communities that reach large, diverse populations of older adults with safe and effective physical activities.

Summary

It is clear that if older adults increase physical activity, improve eating habits, and take some relatively simple steps to minimize the risk of falling, they could live longer and healthier lives. However, there are real environmental, organizational, social and personal barriers to adopting healthier behaviors.

It is not only the organized provision of care that maintains the health of older people but the kind of care they take themselves. As documented in this report, medical care is not necessarily the only, most effective or cost efficient method of promoting health and longevity. Prevention and adoption of healthy habits, supported by resources in each local community, is essential and do-able.

In fact, we know much about how to support older adults in making healthier choices, but this knowledge is not widespread and only applied in piecemeal fashion. Consequently, too many seniors are being left behind, and the medical and financial benefits of healthier lives are not being realized by individuals, families, communities, and the nation as a whole.

By strengthening the capacity of agencies and services outside the sphere of medicine to help older adults eat better, remain active and avoid falls, support becomes more readily available and less passive than customary health care.

Supporting older adults in their efforts to maintain their independence, their functioning and their quality of life is a responsibility that should not be limited by the interest or capacity of health care institutions but should be a common goal of all Americans. The public investment in making sure this happens should reach into the neighborhoods, the senior centers, the YMCAs and local health clubs of every community, unrestricted by the interest or capacity of health care institutions.

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Overview

The data are compelling, almost overwhelming: If older adults increase physical activity, improve eating habits, and take some relatively simple steps to minimize the risk of falling, they could live longer and healthier lives. But numerous studies also document that older adults often cannot adopt these healthy behaviors, in large part because of systemic barriers (i.e., a lack of information and infrastructure) that make it difficult for them to do so. The good news is that there are a variety of non-medical interventions that have proved to be effective in helping older adults make healthier choices, but these interventions are not being applied as systematically or broadly as they could be. *In other words, we know much about how to support older adults in making healthier choices, but we are applying this knowledge in a piecemeal fashion.* As a result, just as with our nation's children, too many seniors are being left behind, and the health and financial benefits are not being realized by individuals, families, communities, and the nation as a whole.

The federal government has an important role to play as a catalyst for the dissemination and widespread adoption of evidence-based best practices for promoting healthier choices by older adults. This report is organized into five sections.

- A brief review of the justification for the report's focus on non-medical interventions that support older adults in making healthier choices.
- A review of the overwhelming evidence of benefits that could be derived from such choices, with a particular focus on the most important determinants of health status in the older-adult population, including dietary habits, level of physical activity, and risk of falling.
- Documentation of the nation's poor track record in recognizing the benefits of prevention for older adults and supporting them to make appropriate behavior changes. Too many older Americans fail to eat properly or engage in regular physical activity, and too many suffer debilitating falls that could be prevented.
- Potential solutions, highlighting effective initiatives that are being employed only sporadically today. The good-news message from this section is that there are readily available, relatively inexpensive programs that can be put into practice to help older adults make healthier choices.
- Current federal government efforts and potential policy options for promoting and preserving the health of older Americans.

Why Focus on Federal Support of Community-Based Interventions?

Conventional wisdom holds that health status inevitably declines with age, that as individuals get older they have little choice but to endure one or more of a wide array of chronic diseases, including heart disease, depression, and diabetes, along with a decline in physical and cognitive function. At first glance, the statistics appear to support this view. As demonstrated in the box below, the physical health status of older Americans tends to be significantly worse than that of their younger peers.

Chronic Diseases and Related Disabilities Increase with Age

Older Americans are disproportionately affected by a vast array of chronic diseases and conditions that collectively account for seven out of every 10 deaths, and more than three-quarters of all health expenditures in the United States [1] More than 80 percent of adults 65 and over have at least one chronic condition.[2] Nearly half of older adults have been diagnosed with hypertension, and roughly one in five has heart disease, with a similar proportion having some type of cancer.[3] The average 75-year-old has three chronic conditions and takes 4.5 medications.[4] More than 65 percent of Americans age 65 and over have some form of cardiovascular disease. Half of all men and two-thirds of women over the age of 70 have arthritis.[5]

Chronic disease exacts a heavy toll on older adults. In 2002 chronic diseases were responsible for more than three-quarters of all deaths among U.S. adults over the age of 65, including heart disease (responsible for 32.4 percent of all deaths), cancer (21.7 percent), and stroke (8 percent).[6] Chronic disease not only kills, but it also negatively affects quality of life and functional status. Chronic conditions limit activities for 12 million elderly individuals living in community settings; 25 percent of these affected individuals are unable to perform basic activities of daily living, such as bathing, shopping, dressing, or eating.[7] Nearly one-third of adults over the age of 65 are disabled, compared to 18 percent of all Americans.[8] Older adults are much more likely than younger individuals to report "physically unhealthy days," with the average 18-to-24-year-old reporting 1.9 in the past month, compared to 5.2 days for the average individual age 65 and over.[9]

Given these problems, it is not surprising that older adults consume a disproportionate share of health care resources. The cost of providing health care to someone age 65 and older is three to five times greater than the cost for someone younger than 65.[10]

Just because some older adults are in poorer health than younger people does not mean that later life must be a time of disease and disability. Poor health is not an inevitable consequence of aging. There is ample evidence that much can be done to prevent or delay the onset of chronic diseases and functional limitations in older adults, and to minimize the impact of chronic diseases when they do strike. Some of these interventions take

place within the medical care system: preventive initiatives like flu and pneumonia shots to reduce the risk of common illnesses; timely screening for ailments that disproportionately affect older adults (e.g., mammography and colonoscopy to detect cancer); and proper treatment for chronic disease (e.g., appropriate drug therapy for those who experience a heart attack or suffer from congestive heart failure). But an often overlooked – and perhaps more important – set of interventions takes place outside of the medical care system. These interventions relate primarily to supporting healthy lifestyle choices – notably increasing levels of physical activity and eating better – and encouraging steps that can minimize the risk of falling. These actions can dramatically increase the health status of older Americans by preventing or delaying the onset of life-threatening ailments, and slowing their progression.

This report focuses on non-medical interventions that promise high return for modest investment.

Non-medical, preventive interventions are highly leveraged ways of improving the health status of older adults. Relatively small investments in programs to support older adults in making healthier choices can yield powerful benefits for our nation's seniors and for society as a whole.

These significant benefits can be realized at a fairly low cost. Promoting lifestyle changes among older adults is relatively inexpensive, certainly much less expensive than letting seniors' health status continue to diminish due to preventable diseases. The costs related to treating the diseases and other health problems caused by poor eating habits, physical inactivity, and unaddressed risks for falls far outweigh the costs of even the most ambitious prevention programs. It is important to remember, however, that prevention is not free. Healthy food is more expensive than unhealthy food; making safe, accessible, and appropriate physical activities available to older Americans is more expensive (at least in the short term) than allowing them to be sedentary; investing in grab bars for the shower is more expensive in the short term than not investing in them; and developing effective information and behavior change campaigns to support healthier choices over the long term is more expensive than the traditional method of distributing pamphlets to senior centers or doctor's offices.

Interventions that foster healthy choices do not get the attention they deserve. While hundreds of billions of dollars of government and private sector funds are spent each year supporting research and the provision of services related to the diagnosis and treatment of older Americans, very little is spent researching, evaluating, and promoting community programs to support seniors in making lifestyle changes that could prevent, or at least delay, the need for these treatments in the first place. Funding for the Older Americans Act (OAA), the primary piece of legislation to support older adults in community and home settings, is just over $1.3 billion, a drop in the bucket compared to the $330 billion that is spent each year treating older adults' health care problems through the Medicare program. Of the $1.3 billion in funding for OAA, only 1.6 percent is allocated to prevention, which represents less than 45 cents for each individual over the age of 60 in this country. The Centers for Disease Control and Prevention (CDC) includes the National Center for Chronic Disease Prevention and Health Promotion, which takes the lead within CDC on health promotion and chronic disease prevention. The budget of the Center for Chronic Disease Prevention and Health Promotion is approximately $1

billion,[11] and there is no federal appropriation specifically for aging within the CDC budget.

Many private organizations such as pharmaceutical and medical technology companies already invest in medical interventions because of their potential to generate substantial financial returns through Medicare and other payers. Although greater attention needs to be given to medical preventive interventions such as screenings, physician counseling, and pneumonia and influenza vaccinations, the availability of some coverage by Medicare and supplemental insurance policies helps older adults to receive these types of preventive services. In short, even if the medical care system did nothing different with respect to prevention in the elderly, there is much to be gained by promoting prevention and supporting lifestyle changes through greater attention by the public health and aging networks.

Older adults – like everyone else – need support in making healthier choices. They often face unique challenges to engaging in preventive activities, such as having to endure arthritic pain that makes exercising difficult, or being unable to drive, which can limit the ability to shop for fresh fruits and vegetables. As a result, older adults need support from a wide variety of stakeholders, including their families, local communities and government agencies at every level if they are to take the preventive steps necessary to maintain and improve their overall health status. Be they promotional messages to emphasize the importance of making healthier choices, "senior-friendly" exercise regimens and facilities offered in local communities, or programs that deliver fresh fruits and vegetables to those who do not have access to them, specific programs and initiatives need to be designed, implemented, and continually supported if we are to stop the unnecessary health declines associated with aging.

A new vision of aging is possible, and it is within our reach.

Governments at all levels have a huge stake in making this new vision a reality and may really have no choice but to invest wisely in prevention for older adults. In 2000, there were approximately 35 million Americans over the age of 65. By 2030, that number will double to roughly 70 million, and by 2050 it will reach more than 86 million. The number of Americans over the age of 85 will nearly quintuple between 2000 and 2050, from 4.3 million to just under 21 million.[12] Without underlying changes in the health status of this population, the aging of the population alone is projected to increase health care costs by 25 percent between 2000 and 2030.[13] These projections may turn out to be conservative since demanding baby boomers have high expectations for the health care system and thus are likely to consume more services than previous generations. More than 85 percent of baby boomers expect that dramatic new treatments and cures will improve their chances of living longer although more than half are worried about their ability to pay for them.[14]

While state legislatures, state agencies, local health departments, and other community-based organizations have important roles to play, this report focuses primarily on the federal government's role. While there is excellent work being done at the state and local levels, the federal agencies are best suited to foster greater attention to prevention, embed prevention into current programs, conduct research on effectiveness, and share and promote best practices across communities.

The Good News: Healthier Actions Improve the Health of Older Adults

The evidence is overwhelming that older adults who make healthier choices live longer and better lives. The reason for this is relatively straightforward. Research suggests that social and behavioral factors such as diet and exercise play the most important roles in determining quality and length of life in the elderly, while genetic factors play a relatively small role.[15]

Healthy choices provide four primary benefits--they extend life, they reduce the likelihood of physical disability, they support good mental health and cognitive function, and they reduce costs. This section summarizes the evidence that supports the importance of following a healthy diet, engaging in regular physical activity, and taking proactive measures to prevent falls.

Longer Life

Smart lifestyle choices lead to a longer life, primarily by preventing or delaying the onset of potentially fatal diseases. Consider the following:

- People who get regular exercise, avoid tobacco use, and eat healthfully have a lower risk of chronic diseases and conditions (e.g., coronary artery disease, colon cancer, diabetes, high blood pressure) that often lead to premature death.[16,17] A study of 2,300 European men and women age 70 to 90 found that those who engaged in a healthy lifestyle were 50 percent less likely to die from any cause during the 10-year tracking period. The lifestyle included: following a diet rich in grains, olive oil, vegetables, fruit, and fish, and low in meat and dairy products; exercising moderately for roughly 30 minutes a day; avoiding smoking; and consuming alcohol in moderation (two or three drinks a day).[18]
- Among nonsmokers, an active, 65 year-old woman can expect to live another 18.4 years, compared to only 12.7 years for her non-active peer.[19] In fact, a Swedish study found that modest physical activity (even less than once a week) can increase the longevity of individuals over the age of 65 and that activity once or twice a week extends longevity even more. In the study of 3,206 individuals who were followed for 12 years or until death, occasional exercise reduced the risk of death before the study's end by 28 percent while those who were physically active once a week reduced the risk of mortality by 40 percent. More frequent or more vigorous exercise beyond this level did not further reduce the risk of dying.[20]
- Good nutrition lowers the chances of getting many life-shortening chronic diseases, including heart disease, stroke, some cancer, diabetes, and osteoporosis.[21] For example, a study of 3,234 non-diabetic, overweight adults (mean age of 51) found that a low-fat diet combined with 30 minutes of moderate physical activity on most days of the week resulted in a 58-percent reduction in the incidence of diabetes during the two-year follow-up period. The risk of disease among those age 60 and older fell even further, by 71 percent.[22]

Reduced Rates of Disability

Healthier choices by older adults also lead to reduced rates of disability, again primarily through their impact on the prevalence of chronic diseases and conditions. People who get regular exercise, avoid tobacco use, and eat healthfully have much lower (50 percent or more) rates of disability than do those who do not follow a healthy lifestyle.[23,24] In fact, older adults who engage in just three healthy habits – moderate physical activity, good nutrition, and no smoking – can delay the onset of disability by as much as 10 years.[25] Modest, regular physical activity helps to control weight; contributes to healthy bones, muscles and joints; reduces falls; helps to relieve the pain of arthritis; and reduces symptoms of anxiety and depression.[26] Physical activity can also reduce the risk of falls, which are another important contributor to disability among older adults. A meta-analysis found that exercise interventions reduced the risk of falls by 12 percent and the number of falls by 19 percent.[27,28,29,30]

Better Mental Health and Cognitive Function

In addition to boosting physical health status, healthier choices by older adults also support good mental health and cognitive function. Physical activity, for example, has been found to help reduce the symptoms of depression.[31] It also can help to improve cognitive function and to prevent or delay the onset of mental illness. For example, one study of 18,766 older women found that those who engage in regular, moderate physical activity (e.g., walking at a leisurely pace for two or three hours a week) enjoy significantly better cognitive function (e.g., better performance on memory tests and thinking ability) than do inactive women, while another study found that older men who walk more are less likely to develop dementia, including Alzheimer's disease.[32] This study and others offer hope that physical activity might be one of the keys to preventing or delaying Alzheimer's, which is projected to affect up to 16 million Americans by 2050.[33]

Lower Costs

Healthier choices can help to reduce health care costs by preventing disease and disability in older adults. The CDC found that physically active people, on average, have lower health care costs than do inactive people. The same study estimates that increasing moderate physical activity among inactive Americans over the age of 15 could reduce medical costs by as much as $76.6 billion (in 2000 dollars), primarily by reducing hospital stays, physician visits, and medication use.[34] Specific studies also suggest that prevention reduces health care costs for older Americans:

- The Chronic Disease Self-Management Program (CDSMP) is a six-to-seven week community-based, peer-led program to help participants with one or more chronic diseases develop self-management skills, including improving preventive behaviors such as increasing exercise and eating a healthier diet. In a randomized trial of 952 adults (average age 65) with heart disease, lung disease, stroke, or arthritis, participants in the intervention improved their health behaviors and self-rated health and had significantly fewer hospitalizations and fewer days in the

hospital.[35] A follow-up study on the CDSMP found that estimated two-year medical care savings per participant were between $390 and $520.[36]

- A program developed by the University of Washington Health Promotion Research Center, in collaboration with Group Health Cooperative of Puget Sound, helped older adults to improve their endurance, strength, balance, and flexibility, leading to significantly reduced health care costs. The program has been expanded and is offered in 64 community sites across six states.[37]
- A study of 2,393 adults age 50 and older enrolled in a Minnesota health plan found that increases in patient physical activity rates were associated with lower health care charges within 2 years.[38]
- An individualized assessment and intervention strategy that targeted major risk factors for falls led to a significant reduction in the incidence and costs of falls among older adults; the study showed a savings of more than $12,000 per averted fall (1993 dollars).[39] Further evaluation of the same study showed a $2,000 reduction in the health care costs of participants, as compared to a control group.[40]

The Bad News: Too Few Older Adults Engage in Healthy Behaviors

Lack of Physical Activity

Too many older adults have adopted a sedentary lifestyle. Data from the National Health Interview Survey (NHIS) found that approximately one-third of persons age 65 or older have not engaged in any leisure-time physical activity within the past month, including the majority of those over the age of 75 (54 percent of men and 66 percent of women). The survey found that older African-American adults tend to be less active than older white adults. Low-income older adults are less likely than their peers to engage in physical activity, with 40 percent reporting no activity within the past month.[41]

Unfortunately, these levels of inactivity have a negative effect on the health status of older Americans. People who are physically inactive are almost twice as likely to develop heart disease as active people. Inactivity is also linked to the development of diabetes and colon cancer.[42] Inactivity can also result in reductions in muscle strength and mass, which, in turn, can lead to physical disability and frailty, especially among the very old. Having lower body weakness or gait or balance problems are considered key risk factors for falling.[43,44]

Poor Diets

The diets of most Americans appear to be relatively poor, and this is also true for older adults. Only about one quarter of U.S. adults eat the recommended five or more servings of fruit and vegetables each day.[45] An assessment of American diets by the USDA found that 74 percent needed improvement.[46] The quality of Americans' diets does not seem to improve with age (although older adults do tend to eat more fruits and vegetables[47]). For example, 18 percent of individuals over the age of 85 are considered to have a poor diet,

compared to 16 percent of all Americans.[48] Low-income older adults tend have poorer diets than their higher-income peers.[49] Older adults, especially the very old, consume inadequate amounts of key nutrients such as calcium, vitamin D, magnesium, and phosphorus, which are associated with structural and muscular function and play a key role in maintaining muscle metabolism and function and bone health.[50]

There are a number of reasons why older adults are prone to nutritional problems. As people age, a number of physiological factors alter eating and appetite, often leading to decreases in food intake, even among healthy older adults.[51] Psychological factors (e.g., depression, loneliness, isolation, bereavement) can also lead to reduced appetite and weight loss, while cognitive impairments can impair the ability to shop or to remember what one has eaten.[52] Finally, low incomes are also associated with hunger, low body weight, and low intake of calories, vitamins, and minerals.[53]

Poor Nutrition, Lack of Exercise Lead to Overweight, Obesity

The combination of poor dietary habits and sedentary lifestyles is having a dramatic, negative impact on the health status of all adults, including older ones. One of the biggest problems is escalating rates of overweight and obesity Due in large part to poor nutrition and inadequate levels of physical activity, nearly two-thirds of all adults are obese, overweight, or at risk of becoming overweight.[54]

In all age groups, including the elderly, the prevalence of overweight and obesity is increasing. For example, the prevalence of obesity among adults age 65 and over increased from roughly 12 percent in 1990 to 19 percent in 2002.[55,56]

People who are overweight or obese increase their risk for developing or exacerbating cardiovascular disease, diabetes, high blood pressure, arthritis-related disabilities, and some cancers.[57] Obesity is responsible for more than 9 percent of total national health expenditures,[58] and poor diet and lack of physical activity are attributed as an underlying cause to more than 100,000 deaths each year.[59]

Increased death rates are not the only problem for overweight or obese older adults. Weight problems among older adults are associated with increases in self-reported functional limitations, decreased physical performance, and elevated risk of subsequent functional decline.[60,61] In fact, researchers predict that, if current increases in weight gain continue, there would be an 18- to 22-percent increase in the prevalence of 50- to 69-year-olds who have difficulty bathing, dressing, or walking across a room by the year 2020.[62]

Weight problems in adults can lead not only to poor health and death, but also to rising health care costs. One study found that the annual costs of caring for an obese Medicare beneficiary were nearly $1,500 higher than for a beneficiary without weight problems.[63] Medicare expenses in 1998 attributed to overweight and obesity are estimated to have been between $20.9 and $23.5 billion.[64]

The poor diets of older Americans are undoubtedly having a negative impact on their health. Older adults are more likely than younger ones to have a variety of chronic conditions that can be exacerbated by poor nutritional habits, thus contributing to declining health.[65] In fact, unhealthy diets are associated with four of the 10 leading causes of death in the United States: coronary heart disease, some types of cancer, stroke, and type 2 diabetes. Dietary problems are also associated with the development of osteoporosis, which is the major cause of bone fractures in older people -- fractures that are often precipitated by falls.[66]

Weight loss and lack of key nutrients are also serious problems among some older adults. The failure of older adults to consume adequate amounts of key nutrients increases their risk of protein-calorie malnutrition and adversely affects chronic disease outcomes. Weight loss, a common problem in older adults due to the factors described above, has been associated with frailty, immune disorders, hip fractures, cognitive impairment, and increased mortality.[67] Such weight loss is especially common in individuals with certain chronic conditions, such as Alzheimer's disease.[68]

Falls Among Older Adults

More than one-third of community-dwelling adults age 65 and over fall each year, and two-thirds of those who fall do so again within six months.[69] Falls are even more prevalent among those over the age of 80 (half of whom fall each year).[70] Falls are the leading cause of injury and injury deaths among older adults,[71] with more than 12,800 dying each year from fall-related injuries.[72] Death rates from falls increase with age across all ethnic groups.[73]

Approximately 20 percent to 30 percent of those who fall suffer moderate to severe injuries that result in decreased mobilization and independence.[74] Roughly 3 percent to 5 percent of falls among older adults result in fractures, which translates into 360,000 to 480,000 fall-related fractures each year.[75,76] Hip fractures represent the most serious, common injury that results from falls, with 250,000 occurring each year in individuals over the age of 65.[77] Ninety-five percent of all hip fractures are caused by falls.[78] The consequences of hip fractures are quite severe. Up to one in four community-dwelling older adults who suffer hip fractures remain institutionalized for at least a year.[79] Studies have found that one-fifth to one quarter of hip fracture patients die within a year of the fracture.[80,81] Many elderly would prefer to die than to be forced to live in a nursing home following a hip fracture; according to one study, 80 percent of women over the age of 75 compare living in a nursing home following a hip fracture unfavorably to death.[82]

The direct medical costs of all fall-related injuries totaled $20 billion in 2000, with the costs of hip fracture representing the single largest expense. One study projects that, assuming 5 percent inflation and continued growth in falls due to the aging of the population, the total costs of hip fractures alone could reach $240 billion by 2040.[83] These figures do not include the indirect costs of falls, such as disability, decreased productivity, or reduced quality of life for patients and their families.

Evidence-Based Strategies for Promoting Prevention

While more work is clearly needed in this area, much is known about what strategies are most effective in promoting healthier choices in older adults, such as increasing levels of physical activity, eating more healthfully, and preventing falls. Much is also known about the best ways to motivate healthier choices in the population at large, and there is reason to believe that many of these lessons can and should be applied to older adults.

Physical Activity and Nutrition

There is general agreement that the barriers to making healthy choices create serious impediments for improving health for people of all ages, including older adults. These barriers exist at a variety of levels including the individual's lack of knowledge and motivation and various health problems; lack of support from family and peers; poor access to effective programs that promote healthy behaviors; and various public and corporate policies that seem to foster unhealthy habits.[84]

To be successful in making healthy behavior changes, each of these barriers must be addressed. For example, the U.S. Preventive Services Task Force conducted a rigorous review of the evidence with respect to strategies for encouraging physical activity among all individuals, including older adults. Based on this review, and reviews of others,[85 86] the Agency for Healthcare Research and Quality recommends strategies that collectively address all of these barriers through the following:

- Individually adapted programs, tailored to individual interests and readiness to change.
- Working with and through community settings (such as community or senior centers and churches) to build or strengthen social networks that encourage older adults to be more active.
- Communitywide campaigns that combine highly visible messages to the public, using multiple components.
- Creation or improvements in access to places for physical activity (e.g., walking trails), combined with informational outreach.[87]

Research conducted by AARP, in partnership with the Robert Wood Johnson Foundation, showed that people 50 and older want to be more active, want opportunities for physical activity in their homes and communities, and want more information and support.[88] Their research also shows that older adults have very high levels of knowledge about what makes them healthy, but that many are not following through with healthy behaviors. People who were surveyed by AARP viewed increasing physical activity as a difficult task, which may mean that overcoming mental barriers could be one of the biggest challenges of all.

Surrounding oneself with supportive family and friends is a critical component to the successful adoption of healthy behaviors. This support can help an older adult overcome mental, physical, and environmental barriers to becoming more physically active or

nutritionally healthy. In fact, although societal norms do not have an impact on an older adult's intention to exercise, the beliefs and actions of family and close friends do.[89]

Motivating Behavior Change

In the past, many people have assumed that behavioral or lifestyle changes in late life have only a minimal impact on health and functioning.[90] Fortunately, today we know that it is never too late to make healthy changes in one's lifestyle and reap the positive benefits. Overcoming a lifetime of ingrained behavior, however, can be a challenging task.[91]

The first step in encouraging healthy behaviors is to motivate individuals to change. Such motivation is critical, since most leading causes of mortality and morbidity among older adults can be reduced through behavior change.[92] Yet for many, getting started is the hardest part. A recent survey of adults over the age of 55 illustrates the problem. The survey concluded that older Americans are well aware of the need for proper diet and regular exercise, but a lack of motivation (cited by 51 percent of respondents) was the primary barrier to engaging in such behaviors.[93]

Fortunately, once an individual begins to experience the benefits of behavior change, he or she often likes to continue. For example, a study of elderly participants in weekly exercise programs found that the benefits realized through initial involvement were strong motivators for them to continue. Such benefits included improved fitness levels and appearance, weight loss, increased energy, better eating habits, higher confidence levels, improved sleep patterns, reduced tension, improved ability to cope with stress, and better mood and appetite.[94]

One of the keys to motivating individuals to change behavior is in educating them about the need to change. Research shows that intensive educational programs are effective in motivating behavior change. For example, in one study 337 adults between the ages of 43 and 81 participated in an intensive, four-week course consisting of 40 hours of instruction on the importance of making healthful lifestyle choices. Those who took the course improved their level of knowledge and their eating habits, while simultaneously increasing levels of physical activity (as compared to a control group). Participants also enjoyed clinical improvements in terms of reducing their resting heart rate, total cholesterol, low-density lipoprotein cholesterol, and blood pressure.[95]

People suffering from chronic conditions (a group that includes older adults), have been shown to benefit from self-management programs that focus on person-centered education. This includes active participation by the person in decision making and goal setting in order to accomplish behavior changes.[96] Likewise, interventions that can accommodate individual differences in behaviors and risk factors tend to have a more significant impact on behavior change than programs with undifferentiated messages.[97,98]

Broader, mass media messages can also successfully motivate older adults, as long as they build upon good research. Studies conducted by AARP shed further light into how to frame motivational messages to older adults. Promotional messages need to go beyond general messages about the importance of physical activity (which is already well known), and focus instead on motivating action.[99] Messages that motivate have the following characteristics: they show ordinary people doing ordinary things; they provide

concrete, specific information (e.g., engage in brisk walking at least 30 minutes a day, five days a week; strive for five servings of fruits and vegetables a day)[100]; they recognize obstacles that people face (e.g., work, other obligations), and they use the family as a key motivator. Within the area of physical activity, messages that do not motivate include those that make exercise look like work (including using the words "exercise" or "fitness," both of which convey hard work), those that remind the audience about their age, and those that are confrontational or that challenge the audience to "get off the couch."[101,102 103] Also, because many older adults were raised in an era when society expected individuals to "slow down" with age, it may be easier to persuade older adults to begin with relatively moderate-intensity activities (e.g., walking, gardening) before progressing to more vigorous ones.[104]

Physicians and health care professionals can play a critical factor in an older adult's decision to become more physically active. Studies have found that older adults whose physicians have counseled them about risk reduction and involved them in developing personalized health promotion plans have utilized more preventive referral follow-up and shown more positive health changes.[105] At the same time, if an older adult lives in a neighborhood where safety (e.g., violence, high rate of pedestrian deaths) is a concern, he or she is not going to be able to easily have access to a physician, not to mention a physical activity or nutrition program.[106]

Keeping People Engaged

Older adults not only need help in getting started, but also in maintaining their involvement in physical activities and healthy eating practices. For example, it has been found that somewhere between 22 percent and 76 percent of those who start exercise programs drop out within six months.[107,108] A number of reasons have been cited for such attrition, including illness or perception of illness, severe musculoskeletal problems or pain, loss of interest, limited mobility, loss of ability to perform activities of daily living, reluctance to leave home, unattractive program location, adverse events at home, and low levels of education. However, there is also evidence about what factors decrease the likelihood of a person dropping out. Such factors include past program participation, perceived health or fitness benefits, spousal support, facility access and convenience, and reinforcement control.[109]

For the population as a whole, a comprehensive review of the evidence concluded effective strategies include ongoing motivational techniques such as self-monitoring, personal communication with health care providers, and the use of multiple communication channels to improve health habits and sustain them over time.[110]

Regular reminders can also encourage older adults to engage in healthy behaviors. A substantial body of evidence has concluded that telephone counseling programs are effective in promoting long-term physical activity change in adult populations, including older adults. In one successful program, contact begins with a face-to-face meeting with a health educator to provide an individualized activity prescription based on physical status and functioning followed by regular telephone contact.[111]

Often these counseling programs connect older adults to a group-based program in the community that can offer continuing support. For example, a study of 103 sedentary people 65 and older found that regular calls from a health educator who encouraged

participation in a specially designed YMCA and home-based exercise program resulted in increased participation in these programs.[112] And for a group of 93 postmenopausal women, an in-person meeting, followed by regular calls from a health educator, resulted in increased participation in recommended programs.[113] Similarly, a study of adults in Medicare HMOs found that an initial face-to-face meeting, followed by regular telephone-based counseling led to increased physical activity at home and in pre-existing community exercise classes and programs. The intervention was especially successful in motivating those over the age of 75.[114]

The overall atmosphere of a physical activity program's location can have a significant impact on whether or not an older adult continues to participate in the program. Loud music and too many younger people working out nearby can decrease retention. Program instructors who understand the needs of older adults and tailor the program to fit those needs can increase retention.

Providing Easy Access to Programs and Community Resources

It is not enough, however, just to provide motivation and to keep people engaged. Older adults must also have access to the kinds of infrastructure and programmatic resources that allow them to follow healthy behaviors easily. For example, safe, friendly, inviting neighborhoods with good lighting and plenty of parks, walking trails, community centers and health clubs, and swimming pools help to encourage exercise, particularly among adults.[115,116] Such access also allows for affordable participation, thus overcoming issues of cost, another common barrier to lifestyle change, particularly for minority groups.[117]

A National Blueprint for Increasing Physical Activity

In 2001, the *National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older* was released in collaboration with AARP, the American College of Sports Medicine, the American Geriatrics Society, the CDC, the National Council on the Aging, the National Institute on Aging, the Robert Wood Johnson Foundation, and approximately 50 other organizations. This report documents the importance of physical activity, identifies barriers to increasing physical activity levels among older adults, and recommends numerous strategies for overcoming these barriers. In 2002, the partners selected 18 priority strategies and identified national organizations to take the lead in developing and implementing them. The priority strategies are consistent with the USPSTF's strongly recommended strategies. For example, at the individual level are strategies to launch a mass-marketing campaign and to increase research on what motivates older individuals to become more active. At the organizational level are strategies to provide community organizations with a template for strong physical activity programming and to develop resources for clinicians to use when making a recommendation for increased activity to their patients. At the community level are strategies to foster partnerships among health, aging, transportation, planning, and environmental organizations within the public and private sectors. Finally, at the policy level are strategies to educate policymakers and provide data that will document the benefits of investing in physical activity.[118]

A review of 12 interventions that created or enhanced access to physical activity found, on average, that the number of persons exercising at least three days a week increased by 25 percent.[119] Unfortunately, however, the supply of available physical activity programs for older adults appears to be inadequate to meet demand. A recent seven-site survey conducted by the Centers for Disease Control's Healthy Aging Research Network concluded that existing programming can only meet about half of the existing demand by older adults, with substantial shortages in minority neighborhoods and for specific types of activities, such as strength training.[120]

Within the area of nutrition, a number of physical barriers may make it difficult for older adults to gain access to healthy foods. The nutritional health of older adults can be affected by how much food is eaten and whether they dine alone (eating alone decreases food intake[121]), take medications, suffer from chronic diseases or conditions, face financial difficulties, or need assistance with care. In addition, older adults living in lower-income neighborhoods have fewer supermarket options and limited access to transportation, making it more difficult for them to access healthy foods.[122] It should be no surprise that addressing these issues has the potential to lead to improvements in nutritional health for older adults.

Conveniently located sites allow older individuals to gather for healthy meals in social settings. These same settings provide valuable community resources for evidence-based education and support groups to help older adults change their eating habits. Personalized counseling and education, whether individually or in small groups, has been effective in facilitating behavior change around diet[123] as have "hands-on" methods featuring active involvement of adults in analyzing their own diets.[124,125] In addition, low-cost (or free) home-delivered meal programs help older adults overcome many of the common barriers to nutritional health, including income constraints, transportation difficulties, functional decline, and cognitive impairments. Several studies confirm the benefits of this type of approach.

- The delivery of breakfast and lunch to older adults at high risk of nutrition problems has been found to improve several nutrition- and health-related outcomes (nutrient intake, quality of life, food enjoyment, food security, levels of depression), as compared to a control group receiving only lunch.[126] Home-delivered meals appear to improve the nutritional status of the homebound, minorities, and persons with diabetes.[127]
- Comparisons of homebound individuals in New York who participated in a home-delivered meals program to those on waiting lists for the program show that participants had fewer days without enough or any food, greater compliance with foods recommended in the *Dietary Guidelines*, fewer hospitalizations, and shorter lengths of stay and lower costs when hospitalized.[128]
- The Seattle Senior Farmers' Market Nutrition Pilot Program delivered biweekly market baskets that included a variety of fresh, locally grown produce to 480 low-income Meals-on-Wheels participants. Seniors who received the baskets reported consuming more fruits and vegetables, with an average increase of 1.04 servings a day.[129]

Tailoring Interventions to Individual Needs and Racial and Ethnic Diversity

Any intervention – be it one to motivate an individual, keep him or her engaged, or provide easy access to effective programs – must be tailored to the individual's needs. Individuals will vary in terms of their readiness for different kinds of interventions. One study analyzing consumption of fruits and vegetables by older adults found that self-assessments (i.e., asking how many servings of fruits and vegetables one usually eats) can be useful in determining an individual's level of readiness to change. The study concluded that interventions for older adults in early stages of readiness should focus on motivating change by emphasizing the perceived benefits of healthful eating, while for those in later stages the emphasis should shift to promoting access by emphasizing behaviors and other programs and techniques that make it easier to achieve adequate levels of consumption on a daily basis.[130]

A Supporting Role for the Medical System in Promoting Physical Activity and Nutrition

Physicians play an important supporting role in helping older adults make healthier choices with respect to physical activity and nutrition. In particular, physician counseling often can be an important catalyst in persuading an older adult to change behaviors. For example, one study found that behavior counseling in older adults at risk for heart disease helped lead to an increase in weekly exercise of as much as 45 minutes.[131] Unfortunately, however, not enough physicians counsel their older patients about the benefits of physical activity, due primarily to a lack of time, reimbursement, resources, and protocols.[132] Providing physicians with training and written materials (including information on available programs in the community, such as senior and community centers, church- or synagogue-based programs, park trails, recreation associations, and shopping-mall programs) and including physical activity counseling in quality of care measures could help to overcome these barriers.

Physician counseling also helps to encourage better eating habits among older adults. After an exhaustive review of the evidence, the USPSTF concluded that medium- to high-intensity counseling interventions can produce medium-to-large changes in average daily intake of core components of a healthy diet (including saturated fat, fiber, fruit, and vegetables) among adult patients at increased risk for diet-related chronic disease. (The benefits for average-risk patients were less clear.[133])

In addition to tailoring programs to an individual's readiness to change behaviors, it is also important to consider the cultural diversity of the target audience. For example, when designing programs to enhance access to nutritional foods, it is critical to remember

that cultural beliefs and traditions can play an important role in determining eating habits. These may include beliefs about appropriate food consumption (given functional limitations) and the healing properties of food. Those providing service to the elderly should be trained and educated to be culturally sensitive and to serve culturally appropriate food.[134]

The same lessons apply to physical activity programs. A study of barriers and facilitators to physical activity among underserved, ethnically diverse older adults found that the following features of programs enhance participation: fostering relationships among participants, providing culture-specific exercise, offering programs at residential sites, partnering with and offering classes prior to or after social service programs, educating families about the importance of physical activity for older adults and the ways they can help, offering low- or no-cost classes, and involving adults in program development.[135,136]

Racial and ethnic disparities in health are indicative of disparities in health care access. Minorities do not utilize formal health care services to the same extent as Caucasians and instead turn to various informal support systems. Thus, it is easier to reach these groups through community-based methods or organizations such as senior centers. Specific to physical activity, utilizing intergenerational and faith-based programs to promote physical activity is most effective when trying to reach persons of color. Families and churches influence health beliefs and practices among African Americans. Not only do churches serve as "extended families," and thus providers of social support, but many churches also have health ministries through which health information and health programs can be delivered.[137]

Issues of both language and literacy also abound when working with minority groups. While programs need to be sensitive to cultural issues, they must also recognize that each participant is an individual within a culture, and thus be sure to accommodate each individual's needs and preferences within the socio-cultural context.

Preventing Falls Among Older Adults

Researchers have identified a number of modifiable risk factors that lead to falls in the elderly, including lower body weakness,[138] gait and balance disturbances,[139] taking four or more medications or taking any psychoactive medications.[140,141,142,143] The risk of falling can be reduced by identifying and managing these risk factors. In fact, a meta-analysis found that fall prevention programs can reduce both the number of adults who fall by an average of 11 percent and the monthly rate of falling per person by an average of 23 percent.[144]

The most effective fall prevention programs reach those at greatest risk of falling (simple tests can help identify these individuals) and include a variety of strategies such as exercise, medication reviews or modifications, and education that targets these individuals' multiple risk factors.[145] For example, a study of 301 men and women over the age of 70, with at least one risk factor for falling, found that a multifaceted program that included adjustments to medication and education on exercise and balance and transfer skills helped to reduce the incidence of falling, with intervention group subjects falling 35 percent of the time, compared to 47 percent in the control group.[146] Tai chi has also been found to be a particularly effective form of exercise. A study of people age 70

and older living in the community found that a 15-week tai chi program reduced the fear of falling, and cut the risk of multiple falls nearly in half.[147]

Falls Free: The National Action Plan

Leading experts in fall prevention convened in Washington, D.C., recently to develop strategies for addressing falls and fall-related injury rates in older adults. Representing 58 diverse national-level organizations, professional associations, and federal agencies, participants worked for two days to achieve consensus on the strategies and action steps that now make up the National Action Plan. This plan serves as both a call to action and a roadmap for promoting fall prevention efforts at the local, state, and national levels. The 36 strategies and supportive action steps contained within the plan are grounded in the current recommendations and research findings and target the most common risk factors for which evidence exists that interventions can be effective: physical mobility, medications management, home safety, and environmental safety in the community. The strategies serve to promote consumer and provider awareness, collaboration across multiple organizations and venues, resource development, and professional education of providers serving at-risk older adults. [148]

Addressing environmental hazards at home can also be an effective way to prevent falls, since one-half to two-thirds of all falls occur in or around the home,[149,150] and most fall-related injuries are due to tripping while walking, as opposed to falling down a flight of stairs.[151] While simply modifying the home environment has not been shown to reduce falls on its own, environmental risk factors (e.g., tripping hazards such as loose rugs, lack of stair railings and grab bars, slippery surfaces, unstable furniture, poor lighting) may contribute to roughly one half of all home falls and should be part of any comprehensive falls reduction effort.[152] Removing tripping hazards in the home (e.g., throw rugs, hallway clutter), using non-slip mats in the bathtub or shower floors, installing grab bars next to the toilet and in the tub or shower, having handrails on both sides of the stairways, and improving lighting in the home are simple measures that reduce the risk of falls and fractures.[153]

Fall prevention among nursing home residents requires a combination of medical treatment, rehabilitation, and environmental modification, including individualized risk assessment, treatment of underlying medical conditions, physical conditioning and rehabilitation, and a review of medications, especially use of psychoactive drugs.[154] Use of restraints does not reduce falls, and may even contribute to fall-related injuries and deaths by causing muscle weakness and reduced physical functioning.[155,156]

A Supporting Role for the Medical System in Preventing Falls

The medical system can also support older adults in taking steps that will minimize their risk of falling. Older adults who have fallen previously or who stumble frequently are two to three times more likely to fall within the next year.[157] Thus, it is important that physicians ask patients if they have fallen or if they stumble frequently as a simple screen for the need for a more comprehensive medical assessment of the risk of falling. In fact, Tinetti recommends that all people over the age of 75 (70 if at higher risk for falling) should be queried about falls, balance, and gait disturbances, and should be observed rising from a chair and walking independently as a screening tool for the need for additional assessment. [158]

Physician or pharmacist reviews of both prescription and over-the-counter medications can be helpful in reducing falls, as it may be possible to reduce side effects and interactions by reducing the number of medications prescribed, especially tranquilizers, sleeping pills, and anti-anxiety drugs.[159] Frequently, eliminating a medication, altering the dosage, or switching to alternative medications without compromising patient care can markedly affect the risk of falling. Medication management strategies should include: initial and annual review of all medications and associated risk of falls; appropriate change as warranted to reduce risk of falls; education of the patient and family regarding appropriate regime and possible side affects related to the risk of falling; and timely follow-up to assess the impact of medication adjustments.[160]

Because several chronic conditions (e.g., Parkinson's Disease, history of stroke, arthritis, cognitive impairments, visual impairments) have also been shown to be key risk factors for falls, regular provider visits for these conditions may also reduce the risk of falls. Annual eye exams may be particularly important.[161]

Examples of Programs That Work

This section provides brief profiles of several programs that have been found to be effective in improving nutrition, increasing levels of physical activity, or reducing the incidence of falls. Many of them have been implemented in a variety of settings and attracted diverse participants. The first two can be considered "generic" programs to help older adults make changes across a variety of behaviors, including physical activity, eating practices, and medication management among others.

The Chronic Disease Self-Management Program (CDSMP)

This program consists of six or seven weekly patient education sessions that are two and a half hours each. Led by specially trained lay leaders, classes typically include 10 to 15 participants who have varying diagnoses and functional levels. Program content includes: adoption of exercise programs; use of cognitive symptom management techniques; nutritional change; fatigue and sleep management; use of medications and community resources; managing the emotions of fear, anger and depression; training in communication with health professionals and others; health-related problem-solving; and decision making.

Choosing to Be Happy

Four years ago she was diagnosed with osteoarthritis, and Eve Matlock said the fatigue and pain associated with the disease often kept her from her favorite activities, including a passion for gardening. But these days she looks with pride out her bedroom window at the rear yard garden abundant with produce and flowers, an area she refers to as her "little haven of rest."

"I put mind over matter. You have to enjoy every moment of life that you can," said Eve, a retired physician's assistant. "You have a choice and I choose to be happy" she said.

But for Eve, 72, and many other seniors living with chronic illness, that choice often feels clouded by the recurring health issues associated with chronic illness. "Sometimes the pain makes you so miserable that you just don't do much," said Eve. Eve enrolled in the Chronic Disease Self-Management Program at her local senior center.

She said she benefited greatly from the workshop's action plans to commit group members to modifying an area of their life. Each workshop participant creates a plan based on his or her own chronic illness and lifestyle issues. "So many times I would sit in front of the television and look at my stationary bike, and say I'd do it tomorrow," said Eve. "With my action plan, I get on that bike."

In a randomized trial, CDSMP participants experienced: improved health behaviors such as exercise, cognitive symptom management, and communication with physicians; improved self-rated health and participation in social activities; reduced disability, fatigue, distress over their health; and significantly fewer hospitalizations and fewer days in the hospital.[162] When the control subjects received the CDSMP, their six-month improvements in health status and reductions in health care utilization matched those of the original treatment participants.[163]

The EnhanceWellness Program

One program that puts together all the important elements of behavior change is the EnhanceWellness Program, a community-based wellness intervention to promote the health and functioning of older adults living in the community who are at risk of functional decline. The program consists of the following:

- An initial assessment of health and functional status and risk factors for disability conducted by a nurse.
- Development of a "health action plan," a personalized plan based on personal goals and preferences that addresses at least one risk factor for disability.
- Encouragement of participants to enroll in an evidence-based exercise class and a chronic disease self-management course and to team up with a trained volunteer senior who serves as a "health mentor," attending senior center activities and offering peer support.
- As-desired meetings with a social worker who monitors psychosocial issues identified in the initial assessment.

An analysis of the effectiveness of the program found that it reduced the percentage of participants who were depressed from 28 percent before the program to 17 percent at follow-up one year after the program and reduced the level of the physically inactive from 56 percent to 38 percent. It also increased physical activity levels, improved exercise readiness, and increased the percentage of participants rating their health as the same or better than a year ago from 73 percent to 83 percent.[164]

The EnhanceFitness Program

The EnhanceFitness Program was developed at the University of Washington's Health Promotion Research Center in 1993. The community-based program offers classes to seniors that emphasize activities to improve balance, strength, endurance, and flexibility. A pilot study found that older adults who participated in the program for six months improved significantly in almost every area tested, including increased physical and social functioning and reduced levels of pain and depression. In addition, the health care costs for participants attending at least once a week declined significantly.[165] The EnhanceFitness Program was named one of the top 10 physical activity programs in the country by the National Council on the Aging in 2003 and has been replicated in 64 community sites across six states.[166] It has even been translated into Chinese for use by China's Ministry of Health.[167]

WORKS IN PROGRESS

Regaining Balance

"My balance has improved tenfold. I have MS, and before this class (EnhanceFitness) even simple tasks that required balance were impossible. But now life is much easier with much improved balance. I've lost weight and feel stronger. It has helped my coordination, improved my spasticity, and resulted in less pain in general. With MS the usual case is steady decline in many areas. I feel that because of this class I am continuing to improve, which surpises my physical therapist, neurologist and family doctor. My greatest surprise is being able to walk heel to toe across the floor unassisted and do the leg-lift portion of the class while standing behind the chair. Now I can do this without holding onto the chair."

Strengthening Muscles

"For me, it has improved my balance and stretched and strengthened my leg and stomach muscles. My lower back muscles have strengthened which helps my chronic back disease and decreases numbness to my lower body. Many of the exercises are to reduce the risk of a fall, which would cause countless problems to my aging and thinning bones. Before the hour-long exercise program is finished, most of my body has been stretched and moved."

Shaping Up

Mary, 70, had been living by herself for about 10 years and had become reclusive, spending most of her time on the computer. Quite often, she had to pull herself up the 11 steps to her bedroom. And when she got to the top of the stairs, she was out of breath and her heart was pounding. At 5 feet tall, her 185 pounds classified her as obese, and with a cholesterol level of 252 and blood pressure of 144/90, her doctor started writing a prescription for cholesterol-reducing medication. Mary said, "No! Isn't there something I can do besides taking medication?" He told her to change her eating habits and start exercising. Mary enrolled in the EnhanceFitness Program that was starting in her neighborhood. Because of her size, it was mentally difficult and embarrassing to attend class. But after two years of hard work, Mary was offered the chance to become an instructor. Now she leads five exercise classes a week and has never felt better. Her cholesterol is down to 191, and her blood pressure is 110/80. Although Mary's 145 pounds is still higher than her recommended BMI of 125, she considers herself, at age 73, "a work in progress."

Active Choices

Based on 20 years of systematic research and evaluation,[168] Active Choices, a telephone-assisted physical activity counseling program for older adults developed by researchers at University of California, San Francisco, teaches strategies that help participants

incorporate more physical activity into their daily lives. Emphasis is placed on individualizing the program to each participant – an important feature of the basic framework for supporting older adults in making healthy behavior changes.

Participants in the Active Choices program take part in an introductory face-to-face session with a health educator in order to determine realistic, individualized exercise plans based on current physical and functional status as well as personal preferences. Written information on physical activity (e.g., stretching, tracking logs) is also provided to the participant to help increase understanding of the different aspects of physical activity and to motivate behavior change. This initial session is followed by regular telephone contacts initiated by the health educator, starting with weekly calls and progressing first to biweekly and then to monthly contacts.

PACE (People with Arthritis Can Exercise)

Based on the knowledge that moderate physical activity can improve health without hurting joints, the PACE program was developed by the Arthritis Foundation in 1987 and revised in 1999. PACE is a community-based group recreational exercise program offered one to three times a week to encourage people with arthritis to exercise and show them the proper way to do so. There are two class levels to accommodate the wide diversity in the capabilities of people with arthritis. The program includes gentle activities to increase joint flexibility and range of motion and to help participants maintain, or even increase, their muscle strength. To accommodate different levels of limitations, instructors can select from 72 different exercises, including exercises performed while participants are seated, standing, or lying on the floor. Activities also include endurance-building activities, games, relaxation techniques, and health education.[169]

A small pilot study of the PACE program demonstrated significant improvements after four months in self-care behaviors, level of pain, and perceived self-efficacy. Other studies have found a significant decrease in depression and improvements in social activity and health status. By increasing physical activity and taking part in a group activity, PACE participants experience increased overall stamina as well as positive social interaction with peers and instructors, both of which help encourage continued involvement in the program.[170]

Growing Stronger: Strength Training for Older Adults

Developed by experts at Tufts University and the Centers for Disease Control and Prevention, Growing Stronger is an evidence-based strength training program for older adults. The program involves exercises that have been shown to increase muscle strength, maintain bone density, and improve balance, coordination, and mobility. Growing Stronger can be offered in a group setting or older adults can do the exercises at home using a manual. The Growing Stronger manual is written in a straightforward, user-friendly tone that engages readers and helps motivate them to strive for great strength and vitality. The manual describes and illustrates specific messages and safe, simple, and highly effective strength training exercises, thus facilitating the transition from inactivity to active strength training for older adults.[171]

Seattle Senior Farmers' Market Nutrition Program (SSFMNP)

The primary goals of the SSFMNP are to provide fresh, locally grown fruits, vegetables, and herbs from community-supported agriculture programs to low-income seniors and to aid expansion of domestic farmers' markets and community-supported agriculture. Funding for the program is provided in part by the U.S. Department of Agriculture.

Adults age 60 or older who have an annual income below 185 percent of the federal poverty level are eligible to take part in the SSFMNP. The program is easily accessible to older adults, even those who are homebound. Program participants can redeem farmers' market checks for produce from farmers' markets or roadside stands. If homebound, participants can have local produce purchased from farmers and community-supported agriculture delivered to their homes, meal sites, or senior housing. The program participants also are provided information about selecting, storing, and preparing fresh fruits and vegetables through newsletters, recipes, cooking demonstrations, cookbooks, and fliers.

A study of the SSFMNP found that seniors who received the baskets reported consuming more servings of fruits and vegetables, with an average increase of more than one serving a day. The percentage of basket recipients consuming five or more servings of fruits and vegetables a day increased as well, from 22 percent at baseline to 39 percent by the end of the growing season.[172,173]

Healthy Eating for Successful Living

Healthy Eating is an educational, hands-on program developed by a team of experts in Boston that uses the Food Guide Pyramid as a framework for heart- and bone-healthy nutrition.[174] The overall goal of the program is to encourage participants to view nutritional strategies in a positive, proactive manner and to understand the control they have over diets. The main components of the program include many of the elements that are important for individuals to make effective behavior changes such as self-assessing and managing dietary patterns, setting goals, problem-solving, and group support and interaction. The program is supported by the expertise of a registered dietitian or nutritionist.

The Healthy Eating program is adaptable for culturally diverse populations and easily replicable in a variety of settings. It has been offered in senior centers, senior housing, and community centers. Additionally, program participants and those community-based organizations that implement the program are strongly encouraged to communicate the program's successes to health care entities in order to develop and improve linkages between the aging services network and the health care community.

A Matter of Balance (Fall Prevention)

A Matter of Balance is a program based upon research conducted by The Roybal Center for Enhancement of Late-Life Function at Boston University. Results from the original study included decreased fear of falling (a risk factor for falls), increased confidence in handling falls, and increased activity levels and mobility control.[175] The original program was modified to utilize a lay leader rather than a health educator to facilitate the 16 hours

of classroom time, as this approach was more cost-effective. This modified program is being tested in a variety of settings across Maine, with strict controls on maintenance to the fidelity of the original model. During eight classes that last for two hours each, participants learn to view falls and fear of falling as controllable; set realistic goals for increasing activity; change their environment to reduce risk; and engage in exercise to increase strength and balance. Throughout Maine, both participants and trained lay leaders are reporting positive results, with the program proving to be attractive for both participants and agencies. The average attrition rate is 17 percent, generally due to absences from illness or conflicting appointments.[176]

An Action Plan

Betty arrived at *A Matter of Balance* class held at a community center in Maine. She was disappointed because, due to an injury, she was not capable of walking into the building, and thus thought she was unable to attend the class. After some problem-solving with the class coach, they came up with a plan. The coach would assist her into the building and have a wheelchair available to her during the class. This provided enough support for Betty to attend.

The class progressed, and Betty loved it. She had an ambitious action plan and was outwardly confident that she would "beat" the injury. She was desperate to get her active life back, to lose some weight, and to feel better.

The *A Matter of Balance* volunteer coordinator saw Betty seven months later at the community center. "I did not recognize her since she had lost about 30 pounds," said the coordinator. "She was no longer using a walker or a wheelchair. Thanks to the proactive approach Betty had learned in the classes and the cooperation of her physician, she had recovered well. She was back playing with her friends and still practiced her *A Matter of Balance* exercises regularly."

Broad-Based Community Coalitions

The *National Blueprint on Increasing Physical Activity Among Adults Aged 50 and Older* advocates for the development and support of local coalitions and campaigns to promote physical activity. *The Guide to Community Preventive Services* indicates that there is "strong evidence" for the work of such coalitions if they draw upon proven interventions such as community-wide campaigns and improving access to places for physical activity. These coalitions can lead community-wide campaigns with messages delivered through different types of media and with linkages to other strategies such as support groups, physical activity counseling, and community events. Such coalitions can also guide attempts to improve access to places for physical activity, including walking trails and facilities. The *Community Guide* recommends that these programs include other features such as training participants to use equipment, offering health behavior education and

health and fitness programming, screening for risk factors, supporting buddy systems, and making referrals to physicians or additional services.

Nationwide, a number of coalitions composed of various organizations dedicated to the health and wellness of older adults already exist. These coalitions provide excellent models for others to replicate. For example, the Healthy Aging Partnership (HAP) in Seattle and the Greater Lafayette Coalition for Living Well After 50 in West Lafayette, Indiana, were selected as mini-grant recipients by the National Blueprint. At the beginning of the mini-grant funding period, both the HAP and the West Lafayette Coalition set out to create and launch mass marketing campaigns to increase the awareness of the importance of physical activity for older adults and to increase older adults' participation in physical activity in general.

The HAP is a coalition of 40 not-for-profit, government and community organizations that promotes healthy aging in three counties in Washington by serving as an easily accessible source of support, information, and resources. The cornerstone of HAP is its Senior Information Campaign, launched in June 2000. This campaign runs a toll-free, confidential telephone line and a Web site that provide a wealth of information and resources on virtually every issue related to life as an older adult, including physical activity and nutrition. Since the launch of the information campaign, notable HAP activities include the following: sponsoring nutrition seminars for low-income seniors, regularly running a wide variety of culturally appropriate radio and print advertising campaigns, and conducting workshops on health topics.

The West Lafayette Coalition developed a resource book of physical activities in the Greater Lafayette community, including local physical activity facilities and programs, parks and trail systems, and annual events geared toward seniors. More than 600 of these Active Living Guides were disseminated. They are also available online at www.livingwellafter50.org.

These coalitions and others around the country have had a positive impact on their respective communities. In some areas health clubs have begun to actively market to the senior population. Other communities have seen noticeable increases in physical activity levels, health status, and social connections among older adults. One coalition also notes that its mass media campaigns and resource directory have helped to establish the coalition as a strong and growing non-profit organization, which has led to greater respect and support from city and county governments.

The Need for Greater Federal Engagement

The federal government has a critical role to play in promoting healthier choices by older adults, not only through its own agencies and direct funding of programs for this population, but also through funding it provides to the states. It is no coincidence, in fact, that the 57 state and territorial health departments and the 57 state and territorial units on aging tend to focus their energies and programmatic activities on those areas where they receive federal funding.[177]

The Administration on Aging (AoA) and the Centers for Disease Control and Prevention (CDC) are two agencies through which the federal government supports older Americans

in making healthier choices, each working with the other and with relatively limited federal dollars. They also have been supported in their efforts by a number of other agencies, including the Centers for Medicare & Medicaid Services (CMS), United States Department of Agriculture (USDA), the Department of Housing and Urban Development (HUD), the Corporation for National Service, the Environmental Protection Agency (EPA), the National Institute on Aging (NIA), and the Agency for Healthcare Research and Quality (AHRQ).

Administration on Aging

The AoA serves as the lead federal agency charged with promoting and fostering communities that support older Americans, with the goal of allowing them to grow old with dignity and a high quality of life. Much of AoA's work takes place within what is known as the aging services network. This network, which provides health and supportive services to approximately 9 million older Americans each year, consists of the AoA and the 57 state units on aging, along with 660 state-designated area agencies on aging and more than 27,000 local provider organizations.[178] AoA administers the Older Americans Act (OAA) passed in 1965 that funds a wide range of services and programs, focusing especially on minorities and low-income older adults. Among other activities, these programs include nutrition services through the direct funding of congregate and home-delivered meals. The overall goal of these activities is to help older adults to continue to live independently within their communities.

In 1992, Congress added new language to the OAA explicitly authorizing disease prevention and health promotion services through Title III-D. Title III-D also establishes a statutory basis for collaboration between state public health departments and the aging services network, as it directs AoA to consult with the CDC in carrying out this disease prevention and health promotion mandate.[179] Many area agencies on aging use Title III-D funds to support community-based programs promoting physical activity such as resistance training classes, walking clubs, yoga, tai chi, and water aerobics.[180] However, the funding allocated to Title III-D is relatively modest in comparison to other OAA programs.

In addition to administering OAA, the AoA is supporting *You Can! - Steps to Healthier Aging* as a part of the U.S. Department of Health and Human Service's *Steps to a HealthierUS* initiative. This program promotes lifestyle changes in older adults through a partnership approach to mobilize communities. The goal is to create public awareness and to make programs more readily available for older adults to improve nutrition and increase levels of physical activity. More than 2,700 organizations have signed up to be partners in the program, including national organizations, state and area agencies, hospitals, parks and recreation centers, senior centers, and faith-based groups that work with older people. *You Can!* is helping to build awareness, but without funding for high quality local programming, it will be difficult to achieve lasting improvements in health status.

AoA is also funding a number of evidence-based demonstration programs that focus on preventing, delaying, and or managing chronic disease among older adults. In 2003, for example, AoA teamed with public agencies and private foundations to fund 13 community-based programs. Two of these programs are implementing the Chronic

Disease Self-Management Program, three focus specifically on increasing levels of physical activity, and most of the others include a physical activity component. Two programs focus on preventing falls and two on nutrition. Several of the programs that focus on other areas, like disease or medication management, have incorporated support for behavior change, increased physical activity, improved nutrition, or fall prevention into their initiatives as well. Each project involves a partnership among local aging service providers, area agencies on aging, health entities, and researchers. As part of this effort, AoA has selected the National Council on the Aging's Center for Healthy Aging to serve as the National Resource Center for Evidence-Based Prevention Programs. Through onsite visits and regular conference calls, this center is helping the sites to strengthen local partnerships and enhance implementation and evaluation.[181]

There are many other programs operating under the OAA that are not specific to health promotion, but could help older adults to make healthier choices. One of these is the OAA's information and assistance system that helps older adults access social and health services across the country. Older Americans face a complicated array of choices and decisions about a variety of issues, such as health care, housing, financial management, nutrition, and long term care. The primary purpose of the information and assistance system is to support all older adults and their caregivers in assessing their needs; identifying the most appropriate services to meet their needs; and linking the older persons and caregivers to agencies providing these services. There are more than 2,500 information and assistance programs across the country. These programs have worked hard to establish and currently enjoy substantial credibility among older adults as a source of accurate and unbiased information and referral. The programs provide information to nearly 14 million older adults each year.

The AoA has also established the Eldercare Locator, a national toll-free service that helps older persons and their caregivers find necessary, convenient services and resources in their own communities or throughout the country. The Eldercare Locator puts callers in touch with public and private organizations serving older adults. No matter where an individual lives, anyone can call the toll-free number, 1-800-677-1116.

In summary, AoA has an infrastructure in place that could be leveraged to be much more effective in supporting healthy behaviors. The limited discretionary funds that are available in the area of prevention and health promotion have thus far been used on programs that have generally been successful and well regarded. With additional funding, these programs, including those targeting high-risk and isolated older adults, could be improved and expanded, thus enhancing the overall health status of older Americans.

Centers for Disease Control and Prevention

CDC brings together the prevention expertise of public health agencies and the aging services network of the AoA. CDC promotes the health of older Americans in the following ways:[182]

- CDC and AoA funded grants to 10 states in fiscal year 2003, 14 states in fiscal year 2004, and 11 grants in fiscal year 2005 that facilitate collaboration between state aging agencies and health departments on health promotion activities for older adults and also build capacity to implement programs in local communities.

Areas of focus include physical activity, chronic disease self management, oral health, and clinical preventive services.

- CDC funds the Prevention Research Centers' Healthy Aging Research Network (PRC-HAN), which assists with the development of a research and dissemination agenda related to the public health aspects of healthy aging. This network, formed in 2001, consists of nine universities that are a subset of the CDC-supported Prevention Research Centers throughout the United States. The network has launched two initiatives with a focus on physical activity in older adults. The first is the development of an in-depth, evidence-based white paper that reviews the role of public health in promoting physical activity, including interventions for older adult populations. The second is a survey instrument to gauge programmatic and environmental opportunities to boost physical activity in older adults in the network sites.[183] The survey instrument was used to create local physical activity guides in each of the network communities. The PRC-HAN plans to develop a web-based version of the guides that can be regularly updated and customized to local needs. The PRC-HAN has also initiated collaboration with the National Council on the Aging to better delineate and disseminate information on "best practices" for prevention and promotion in older adults.[184]
- CDC is the leading national agency responsible for collecting data and monitoring changes over time in the health of older Americans. In November 2004, CDC released the *State of Aging and Health in America 2004* report, which was developed in conjunction with the Merck Institute of Aging and Health and the Gerontological Society of America. This report provides national- and state-level data on 15 health status, health risk behavior, preventive care, screening, and injury indicators, including physical inactivity, low consumption of fruits and vegetables, obesity, and falls. It also includes a detailed discussion of the data on physical activity with specific suggestions and action steps to raise activity levels among older adults.
- CDC provides block grants to state health departments for preventive health services, although this funding is not specifically earmarked for older adults. Some states use a portion of these funds to support initiatives within chronic diseases that disproportionately affect older adults.[185] But it would appear that relatively few are highly active in promoting prevention among older adults. For example, most state health departments lack the research and technical expertise necessary to integrate fall prevention initiatives into their existing programs (e.g., home modification, medication reviews, and physical activity programs for older adults). Some have suggested that increased collaboration between state health departments and state, regional and federal aging agencies could enhance the efforts to boost immunization rates, increase levels of physical activity, and reduce falls among older adults.[186]

Centers for Medicare & Medicaid Services

More than 40 million elderly and disabled Americans rely on Medicare for their health coverage. In 2005, Medicare spending exceeded $330 billion. Largely due to legislative

requirements, CMS pays for services provided primarily by hospitals, physicians, home care agencies, and rehabilitation settings. Thus, the overwhelming majority of CMS dollars are spent on treatment, not prevention. While the selected prevention benefits covered under Medicare represent important clinical services like flu shots, they are not likely to increase physical activity or improve eating habits. And even when treatment recommendations made by physicians to Medicare patients relate to physical activity, diet, or fall prevention, such recommendations are often not followed by patients in the absence of additional support for behavior change.

Nonetheless, CMS does have a few programs to promote physical activity, improved nutrition, and fall prevention among beneficiaries. In 2002, CMS began providing coverage for medical nutrition therapy, which authorizes reimbursement of counseling from a registered dietitian for individuals with diabetes or pre-dialysis renal disease. In addition, a "Welcome to Medicare" visit is now covered under the Medicare Modernization Act of 2003. This visit provides an opportunity for new beneficiaries to be counseled by physicians on the importance of regular physical activity, healthy eating habits, and fall prevention. But it is not yet clear that this counseling will actually occur or whether it will lead to any changes in health behaviors.

CMS also oversees the home and community-based services waiver program, section 1915(c) of the Social Security Act. This is the Medicaid program alternative to providing long-term care in institutional settings. States have the flexibility to design waiver programs to meet the specific needs of defined groups. Federal regulations permit the programs to serve the elderly, persons with physical disabilities, developmental disabilities, mental retardation, or mental illness. Under this provision, states can make a variety of home and community- based services available to individuals who would otherwise qualify for Medicaid only if in an institutional setting. States may use an HCBS waiver program to provide a combination of both medical services like dental visits and non-medical services like respite care. There are no specific services that must be offered in a waiver program, nor is there a limit on the number of services that can be offered as long as the waiver program maintains cost-neutrality and the services are necessary to avoid institutionalization. At present, there is anecdotal evidence that a few states are experimenting with support for physical activity, falls prevention, or dietary change programs as a part of the waiver programs, but such services seem to be rare.

CMS and AoA are collaborating on the Aging and Disability Resource Center (ADRC) program to help consumers learn about and acquire long-term support services, ranging from in-home services to nursing facility care. The program is currently a national demonstration, with grants awarded to states to support the development of these resource centers. The centers are supposed to provide citizen-centered, “one-stop” entry points into the long-term support system, serving individuals who need long-term support, their family caregivers, and those planning for future long-term support needs. They also will serve as a resource for health professionals and others who provide services to older adults and to people with disabilities. The resource centers are charged with establishing formal linkages with a variety of community agencies and organizations, including those offering health promotion and disease prevention programs. The program is still new and largely focused on systems design and traditional long-term care services. There may be opportunities to bring greater attention to physical

activity, dietary change, and falls prevention through this important program. More information on this program is available at http://www.cms.hhs.gov/newfreedom.

Finally, CMS may conduct a national demonstration on senior risk reduction to include an initial assessment of an individual's risk factors and his or her overall readiness to embrace healthier choices, based on the well-known stages-of-readiness model. The net result will be highly tailored feedback to move the individual along the path toward positive behavior changes. The demonstration design may include a small project to test the effectiveness of a community-based health information line that is run as part of the AoA's aging network.

United States Department of Agriculture

The USDA operates the food stamp program, which provides electronic benefit transfer cards or coupons to eligible low-income families to purchase food. Food stamps are not specifically for older adults, and only one-third of eligible older adults participate in the program. This low participation rate is due to a variety of factors, including lack of information, a perceived lack of need, low expected benefits, difficulties in applying for the program, and the stigma associated with receiving public benefits. In conjunction with the program, USDA encourages states to provide nutrition education to food-stamp recipients, although there is no special emphasis placed on reaching older individuals.[187]

Along with food stamps, USDA administers the Senior Farmers' Market Nutrition Program, which provides grants to states, territories, and federally-recognized Indian tribal governments to provide low-income seniors with coupons that can be exchanged for fresh fruits, vegetables, and herbs from more than 11,000 farmers, 1,600 farmers' markets, 1,500 roadside stands, and more than 200 community supported agriculture programs. In fiscal year 2005, approximately $15 million was allocated to grantees[188] eligible in 40 states, the District of Columbia, Puerto Rico, and five Indian tribal organizations. The annual benefit available to participants is moderate, averaging $40 to $50. The program is available only during the local growing season.[189] A 2004 analysis of the program in Ohio, where it operates in 13 counties and serves roughly 16,000 residents, found that 77 percent of participants reported that they ate more fruits and vegetables than usual, with 76 percent eating more than three servings per day.[190]

USDA also sponsors the commodity supplemental food program, which works to improve the health of low-income Americans by supplementing their diets with nutritious USDA commodity foods. At present, 33 states and two tribal organizations participate. Adults over the age of 60 with incomes below 185 percent of the poverty line are among the targeted populations. In 2003, approximately 85 percent of clients were older adults.[191]

Department of Housing and Urban Development

HUD's mission is to increase home ownership, support community development, and increase access to affordable housing free from discrimination. It is a broad mission that affects many populations, not just older adults. HUD oversees five types of government-assisted housing-related programs for seniors. None of these programs includes language about supporting healthy behaviors, but anecdotal evidence and some best practice

models indicate that HUD programs may provide a vehicle for increasing physical activity, improving diets, and reducing the risk of falls. The five programs are as follows:

- Public housing makes available low-cost units in complexes that are available to low-income families, including the elderly and disabled. These units allow tenants to pay no more than 30 percent of their income for rent. Public housing is available to applicants who do not exceed specified income levels that vary based on the size of the household.
- Section 8 rental certificates are available to very low-income families with incomes below 50 percent of the median income for the area. Families are allowed to choose where they want to live, subject to HUD standards.
- Section 202 housing is for senior citizens, usually providing support services such as meals, transportation, and accommodations for the disabled. Private, non-profit organizations and consumer cooperatives are eligible to offer this type of housing to the disabled and to very low-income households that have at least one person 62 years or older.
- The Section 232 program supports construction and rehabilitation of nursing homes, assisted-living facilities, intermediate-care facilities, and board-and-care homes by providing mortgage insurance.

The Corporation for National Service

The Corporation for National Service administers the Senior Corps, a network of programs that tap the experience, skills, and talents of older citizens to meet community challenges. Through its three programs -- the Retired and Senior Volunteer Program, Senior Companions, and Foster Grandparents -- more than half a million Americans age 55 and over assist local nonprofits, public agencies, and faith-based organizations in carrying out their missions.

- RSVP, one of the largest volunteer efforts in the nation, engages people 55 and over in a diverse range of volunteer activities. Approximately 480,000 volunteers serve an average of four hours a week at an estimated 65,000 local organizations through 766 projects.
- The Senior Companion Program**,** through its local grantees, enables income-eligible individuals age 60 and over to serve 20 hours a week providing assistance and friendship to adults who have difficulty with daily living tasks, such as grocery shopping and bill paying. The 15,500 Senior Companions serve more than 61,000 adults. Participants receive $2.65 per hour for their service
- The Foster Grandparent Program, through its local grantees, enables income-eligible individuals age 60 and over to serve 20 hours per week in schools, hospitals, correctional institutions, daycare facilities, and Head Start centers. More than 30,000 Foster Grandparents serve 275,000 young children and teenagers. They receive $2.65 an hour for their service.

For more than three decades, the Senior Corps programs have demonstrated how seniors themselves benefit from volunteer opportunities and from connection to and interaction

with their peers. More recently, the Senior Corps programs have increasingly broadened their focus to embrace both the benefits realized by volunteers through their service experience and the measurable, positive change that occurs in their communities as a result of their service.

Environmental Protection Agency

The EPA is developing a National Agenda for the Environment and the Aging to prioritize environmental health hazards that affect older persons, examine the environmental impact of an aging population in a smart-growth context, and encourage civic involvement among older persons in their communities to reduce hazards. The National Agenda, which is being developed through a public participatory process, will help guide the Agency's work to protect the health of older persons now and in the future.

In addition, the Aging Initiative at EPA operates a grants program, known as Protecting the Health of Older Adults by Improving the Environment. Nineteen projects were funded under this program in 2004.

National Institute on Aging

NIA-sponsored research provides much of the evidence base that is being used by the CDC, AoA, and others as they try to promote prevention among older adults. NIA, together with other institutions, funded the Behavior Change Consortium, a collection of 15 behavior-change projects. Six of these projects relate to increasing physical activity and improving the dietary habits of at-risk or older Americans, including one that was targeted specifically at African Americans. Many of these initiatives are targeted to individuals in their homes and out in the community, including one that works through local churches.[192]

It is critical that NIA not only continue this type of research, but that the agency also expand its current efforts to promote the translation of its research into real-world programs that can reach the tens of millions of older Americans.

Agency for Healthcare Research and Quality

AHRQ's strategic goals are to support improvements in health outcomes, strengthen quality measurement and improvement and identify strategies that improve access, foster appropriate use, and reduce unnecessary expenditures. AHRQ has funded research that provides the basis of evidence-based prevention programs[193] and prepares high quality summaries of the evidence for prevention programs.[194,195] It is the federal government's leading source for information on evidence-based health care. Through its user liaison program, AHRQ has worked with AoA to offer training programs on evidence-based prevention programs for state and local leaders in public health and aging. Initiated through an AoA request, the first of these two-day programs was held in December 2004, with teams from 14 states learning about how to implement prevention programs that have been proven to work with older adults, including those oriented at physical activity, nutrition, and fall prevention. Teams for these workshops included researchers along with representatives from state offices of aging and public health, Medicaid agencies, area

agencies on aging, community aging service providers, local health departments, and local health systems.

Immediate Opportunities for Improvement

The nation's aging population could reap the benefits of decades of research and practical experience on healthy aging. To do so, healthier behaviors will need to be adopted, with special attention to self care, physical activity, eating well, and reducing the risk of falling. While adopting healthier behaviors is a personal choice, having supports and opportunities for a healthy lifestyle are matters of public policy. This report has documented that older adults achieve great health benefits from prevention and that there are tested, evidence-based strategies that have helped thousands to reap these benefits. The federal sector could help millions of older adults to lead longer, healthier more independent lives with modest commitments to prevention and health promotion. Here are some ways:

- **Strengthen the Older Americans Act**

  Build on AoA's current, highly successful Evidence-Based Prevention Demonstration Program to assist older adults to make behavioral changes that have proven to be effective in reducing the risk of disease and disability among the elderly. Focus on low-cost, evidence-based interventions at the community level that support physical activity, a healthy diet, fall prevention and self-care. Place special emphasis on reaching older adults with one or more risk factors and reducing health disparities.

  Specifically, the Older Americans Act should establish a permanent, fully funded program composed of a limited repertoire of specific interventions that have proven effective in supporting healthy, productive aging. This permanent program would:

  - Establish a plan to roll out evidence-based programs across the 50 states based upon state and agency readiness to implement and monitor tested prevention/promotion interventions.
  - Provide incentive grants, training and technical assistance to states and local areas to support prevention programs at community sites and for frail elders at home.
  - Establish a system for documenting the impact of these programs on health care utilization and health status. Track program costs, implementation processes and systems, and program improvements and then disseminate evidence-based innovations that work.

- **Strengthen and expand the role of public health in ensuring healthy aging**

  Within CDC, the Healthy Aging Program, the Arthritis Program, the Division of Physical Activity and Nutrition and the National Center for Injury Prevention and Control have laid the foundation for a strong public health approach in helping older adults to make healthier choices. The Healthy Aging Program's work on fostering collaboration between public health and aging, building a strong

evidence-base for prevention programming, and tracking surveillance data on risk factors among older adults has reaped success over time, yet there is no federal appropriation for healthy aging within the CDC budget. It is essential to strengthen the capacity of the nation's public health system to support changes in behavior to reduce disease and disability, and maintain the health of older adults. Specifically, Congress should appropriate funds within CDC for healthy aging -- physical activity, healthy eating, fall prevention and self-care.

- Expand current surveillance data systems at the state and local levels to include large numbers of persons over 60 with diverse backgrounds and various levels of functional status in order to inform federal, state and local leaders about strategic implementation of evidence-based programs and policies and to document their impact.
- Evaluate programs and policies that produce sustained health behavior change to improve healthy aging in older adults. Prepare evidence reviews specifically on programs for older adults.
- Implement targeted awareness and educational campaigns in collaboration with the aging network in order to enhance the visibility and use of program interventions to increase healthy aging in older adults.

- **Identify and promote safe and effective physical activities for older adults**

  Across the public and private sectors, at local, state and national levels, there are disparate and fragmented efforts to create and publicize opportunities for older adults to be more active. Health clubs, hospitals, senior centers and senior housing are offering structured physical activity programs and communities are creating walking trails, recreational green spaces, and other opportunities to be active. Older adults need to learn about these programs and places and have ways to judge their quality, safety and appropriateness for different levels of personal function. With the Secretary of Health and Human Services placed in charge, the federal government should:

  - Implement an efficient, valid and reliable process for identifying programs that reflect best practices in exercise, support for behavior change, and management of risks and injury.
  - Establish a Web-based inventory of physical activity programs appropriate for older adults that includes best practice ratings and provides easy electronic and print access to program information.
  - Provide incentives, such as rewards, recognitions and grants, to organizations and communities that reach large, diverse populations of older adults with safe and effective physical activities.

Summary

It is clear that if older adults increase physical activity, improve eating habits, and take some relatively simple steps to minimize the risk of falling, they could live longer and healthier lives. However, there are real environmental, organizational, social and personal barriers to adopting healthier behaviors.

It is not only the organized *provision* of care that maintains the health of older people but the *kind* of care they take themselves. As documented in this report, medical care is not necessarily the only, most effective or cost efficient method of promoting health and longevity. Prevention and adoption of healthy habits, supported by resources in each local community, is essential and do-able.

In fact, we know much about how to support older adults in making healthier choices, but this knowledge is not widespread and only applied in piecemeal fashion. Consequently, too many seniors are being left behind, and the medical and financial benefits of healthier lives are not being realized by individuals, families, communities, and the nation as a whole.

By strengthening the capacity of agencies and services outside the sphere of medicine to help older adults eat better, remain active and avoid falls, support becomes more readily available and less passive than customary health care.

Supporting older adults in their efforts to maintain their independence, their functioning and their quality of life is a responsibility that should not be limited by the interest or capacity of health care institutions but should be a common goal of all Americans. The public investment in making sure this happens should reach into the neighborhoods, the senior centers, the YMCAs and local health clubs of every community, unrestricted by the interest or capacity of health care institutions.

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