One in every five adults and 300,000 children have a diagnosed arthritic condition—the nation’s leading cause of disability. The term arthritis covers many different conditions, including osteoarthritis (OA), rheumatoid arthritis, lupus, and fibromyalgia. In the United States arthritis and other rheumatic conditions carry a staggering price tag of $128 billion annually in direct and indirect expenses. The most common form of arthritis is OA, a joint disease in which the cartilage thins as a result of injury, inflammation, or age; genetics may also play a role. An estimated 27 million American adults have OA, but its consequences can be prevented or alleviated with exercise, weight loss, physical therapy, medications, and other interventions, such as joint replacement.

This article reviews the national initiatives that have been developed to address the burden of OA. Among the organizations developing and implementing them are the Arthritis Foundation (AF) and its partners, which include the Centers for Disease Control and Prevention (CDC), the American College of Rheumatology, the U.S. Bone and Joint Initiative, and the Ad Council.

A PUBLIC HEALTH CRISIS
Some form of arthritis affects 50 million adults in the United States, and the CDC has predicted that that number will increase to 67 million, or 25% of the adult population, by 2030. All races and ethnic groups are affected by arthritis, including 36 million white adults, 4.6 million black adults, nearly 3 million Hispanic adults, and 1.6 million adults of other races. Of those with arthritis, non-Hispanic blacks and Hispanics report greater work limitations and more severe joint pain than whites do. Today 41% of the 50 million U.S. adults with arthritis report limitations in their usual activities because of arthritis.

Arthritis often affects people who have other chronic diseases, which can make it difficult for them to exercise to improve any of their comorbid conditions. For example, 52% of people with diabetes, 57% of people with heart disease, and 53% of people with hypertension have doctor-diagnosed arthritis. Obese people with arthritis are 44% more likely to be physically inactive than are those without it.

OA: the most common form. OA is a serious, painful, and sometimes life-altering joint disease mainly affecting the hips, knees, and hands. Its symptoms include joint pain, aching, stiffness, and swelling. Weakness and functional impairment from OA can be disabling and can result in joint replacement. OA is caused by a variety of factors, including genetics, mechanical stresses (such as injury), and systemic changes. Key public health facts about OA include the following.

- OA is the most common form of arthritis; the number of people affected is increasing. Murphy and colleagues found a lifetime risk of symptomatic knee OA of almost one in two.
- OA doesn’t affect just older people. A major joint injury can bring on early-onset OA within 10 years. Early-onset OA can also result when there are congenital abnormalities.
- OA affects some demographic groups more than others. More women than men have OA at all ages, and it is at least as prevalent among blacks as whites. Obesity or overweight and joint injury from any cause also increase the risk of OA, particularly in the knee.
Don’t sit still for arthritis pain.

Arthritis hurts. Physical activity can help. Studies show that 30 minutes of moderate physical activity three or more days a week can reduce pain and help you move more easily. If 30 minutes is too much, try 10 or 15 minutes at a time. Take a 15-minute walk. Then later, go for a 15-minute bike ride or swim. Or go dancing, wash the car, or rake some leaves. Make it more fun by asking friends or family members to join you. Keep it up, and in four to six weeks you could be hurting less and enjoying life more.

Physical Activity. The Arthritis Pain Reliever.
Call 1-800-283-7800 to learn more.

A message from The Centers for Disease Control and Prevention • The Arthritis Foundation • The Department of Health & Human Services

An example of a collaboration between the AF, the CDC, and the Department of Health and Human Services. Advertisement courtesy of Teresa Brady.
U.S. BONE AND JOINT INITIATIVE

In 2000 the U.S. Bone and Joint Decade was initiated nationally and internationally to raise awareness about the burden of musculoskeletal disease. The accomplishments of the decade included
- increasing the number of young investigators who have received research funding.
- increasing the formalized instruction of musculoskeletal medicine in medical schools to 80% through Project 100.
- offering public education programs such as Fit to a T (targeting bone health and osteoporosis), PB and J (Protect Your Bones and Joints, designed for adolescents), and Experts in Arthritis (aimed at the public and arthritis patients).
- assembling a community of advocates to increase awareness on Capitol Hill, raising funds for research, and improving access to care.

In 2010 the organization built to support the U.S. Bone and Joint Decade decided to continue its efforts in the next decade as the U.S. Bone and Joint Initiative (see www.usbji.org) and embarked on a new plan focusing on four areas: assessing and disseminating data, improving access to musculoskeletal care, hosting interdisciplinary forums and programs, and increasing awareness and advocacy.

THE ARTHRITIS FOUNDATION AND ITS PARTNERS

The AF is “committed to raising awareness and reducing the impact of this serious, painful and unacceptable disease,” according to its Web site (www.arthritis.org). Through education campaigns and public policy and legislative efforts, the AF seeks a cure for arthritis and is the largest private, nonprofit contributor to arthritis research in the world, providing more than $380 million in research funds since 1948. Since 1975 the AF’s public health and policy activities have centered on the programs outlined below.

**The National Arthritis Act** was passed in 1975 through the efforts of the AF and its partners. It created a long-term national strategy to address arthritis and funded research, training, public education, and treatment.

**The National Arthritis Action Plan (NAAP).** In 1999 the AF and more than 90 of its partners created this national strategy, one of the United States’ first road maps for a chronic illness. As a blueprint for population-wide efforts to combat arthritis, the NAAP emphasizes four public health approaches: increasing prevention, expanding scientific research, improving social equity, and developing partnerships. (See Table 1.)

**The CDC.** In 2000 the federal government established an arthritis program at the CDC. It focuses on maintaining surveillance, awarding grants to establish arthritis programs in state health departments (a list is at www.cdc.gov/arthritis), and participating in a cooperative agreement with the AF. In collaboration with the AF, the CDC created public awareness activities in English and Spanish and has implemented evidence-based programs for people with arthritis (see www.arthritis.org/programs.php). These include an arthritis self-management course developed by Stanford University, an aquatic exercise program developed with the Y, and a land-based exercise program. They are offered in CDC-funded states and through the AF’s 10 regional affiliates.

### Table 1. The National Arthritis Action Plan

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<tr>
<th>Aim</th>
<th>Details</th>
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<td>Increase public awareness of arthritis as the leading cause of disability and an important public health problem.</td>
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<td>Prevent arthritis whenever possible.</td>
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<td>Promote early diagnosis and appropriate management for people with arthritis to ensure them the maximum number of years of healthy life.</td>
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<tr>
<td>Minimize preventable pain and disability due to arthritis.</td>
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<td>Support people with arthritis in developing and accessing the resources they need to cope with their disease.</td>
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<tr>
<td>Ensure that people with arthritis receive the family, peer, and community support they need.</td>
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These aims will be achieved through
- surveillance, epidemiology, and prevention research.
- communication and education.
- programs, policies, and systems.
The arthritis group at the CDC identifies and collects data on the disease by using the Behavioral Risk Factor Surveillance System, the National Health Interview Survey, and the National Health and Nutrition Examination Survey. It also publishes an annual report during Arthritis Awareness Month in May.

**Quality-of-care measures for people with arthritis.** Indicators for the treatment of rheumatoid arthritis and OA, including use of analgesics, were developed by the AF. They have been used by the American College of Rheumatology to improve the quality of care given to people with arthritis. The treatment indicators were submitted to the National Quality Measures Clearinghouse and posted at the end of 2006. (See [www.arthritis.org/quality-measurements-oa.php](http://www.arthritis.org/quality-measurements-oa.php) for one example.)

**The National Public Health Agenda for Osteoarthritis.** In early 2008 the CDC and the AF began to collaboratively seek ways to reduce the public health burden of OA over a three-to-five-year period. More than 75 partners from a variety of disciplines convened in the spring of 2009 at an OA summit, which resulted in The National Public Health Agenda for Osteoarthritis (OA Agenda). See Table 2 for its 10 recommendations; for the full document, see [www.arthritis.org/osteoarthritis-agenda](http://www.arthritis.org/osteoarthritis-agenda).

The OA Agenda is directed at “both the public and private sector: federal, state and local governments and policy makers, business and industry, non-profit organizations, foundations, and associations, insurers and healthcare providers, and patient advocacy and community organizations.” All play central roles in furthering the OA Agenda.

**Summit participants identified four public health strategies that can reduce pain, functional loss, and disability from OA and improve the quality of life for those with it: self-management education, physical activity, injury prevention, and weight management.**

**IMPLEMENTING THE OA AGENDA**

The OA Agenda was released in February 2010 in tandem with a national Ad Council campaign about OA. It was developed in partnership with the AF and the American College of Rheumatology.

The campaign focused on relating the message that “moving is the best medicine” and sought to

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**Table 2. A National Public Health Agenda for Osteoarthritis: 10 Recommendations**

| 1. | Self-management education should be expanded as a community-based intervention for people with symptomatic OA. |
| 2. | Low impact, moderate intensity aerobic physical activity and muscle strengthening exercise should be promoted widely as a public health intervention for adults with OA of the hip and/or knee. |
| 3. | Existing policies and interventions that have been shown to reduce OA-related joint injuries should be promoted, implemented and enforced. |
| 4. | Weight management should be promoted for the prevention and treatment of OA, and national nutrition and dietary guidelines for the general population should be followed by adults with OA so they select a quality diet while staying within their calorie requirements. |
| 5. | A national policy platform for OA should be established to improve the nation’s health through evidence-based clinical and community prevention and disease control activities, including core public health infrastructure improvement activities. |
| 6. | Systems to deliver evidence-based interventions should be expanded. |
| 7. | Quality of and equal access to evidence-based interventions for OA should be assured. |
| 8. | Workplace environments should be improved by adopting policies and interventions that prevent onset and progression of OA. |
| 9. | A well-designed communication strategy should be initiated and sustained to enhance understanding and change attitudes and behavior among consumers, health care providers, policymakers, employers and the business community, and community organizations. |
| 10. | Research and evaluation should be pursued to enhance surveillance, better understand risk factors, refine recommended intervention strategies, evaluate workplace interventions, and examine emerging evidence on additional promising interventions. |

**Source:** Centers for Disease Control and Prevention. [www.cdc.gov/arthritis/docs/OAagenda_recommendations.pdf](http://www.cdc.gov/arthritis/docs/OAagenda_recommendations.pdf).
create an urgent sense of awareness about OA and compel baby boomers with arthritis to realize that they can take simple steps to change the course of the disease. The ads targeted those ages 55 years and older who were living with or at risk for OA. Physical activity and weight loss were the focuses of the television and radio spots, posters, and outdoor print advertisements. The campaign drove people to the Web site www.fightarthritispain.org, where they could learn about decreasing pain and improving function.

**Knee OA screening questionnaire.** To help members of the public understand their risk and urge them to take action, the AF financed the development of an evidence-based screening tool for knee OA and posted an abbreviated version of it at www.fightarthritispain.org. The knee was chosen for the questionnaire because risk factors such as obesity play a greater role in the onset and progression of knee OA than in hand and hip OA and because it is the joint that is most commonly replaced by orthopedic surgeons. Kent Kwoh, MD, of the University of Pittsburgh, conducted a study to develop the screening tool for administration on paper or online. The research team started by reviewing observational epidemiologic studies on risk factors for the development of radiographic knee OA. They also reviewed existing screening tools and screening questionnaires from two large National Institutes of Health studies: the Health Aging and Body Composition Study and the Osteoarthritis Initiative. These sources were used to identify potential risk factors and create a 42-item questionnaire that elicited patient information on risk factors, frequency and severity of knee pain and related symptoms, and functional impairment.

To validate the questionnaire, it was mailed to selected participants from two of the five clinical centers involved in the Osteoarthritis Initiative. Participants had either no evidence of knee OA or definite radiographic knee OA at baseline. In addition, knee X-rays from each participant’s most recent visit were read by an experienced musculoskeletal radiologist to avoid misclassification. The study produced a screening tool for knee OA that could be used in epidemiologic studies and in prevention efforts. After a person completes the questionnaire, an assessment of risk—mild, moderate, or high—and tailored recommendations for discussing the result with her or his physician are given. Data on the number and characteristics of those taking the questionnaire (age group, sex, ethnicity, race, and weight) along with the classification of risk are being collected.

**Table 3.** Policy and Environmental Strategies for Improving Physical Activity Among Adults with Arthritis

<table>
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<tr>
<th>The Osteoarthritis Action Alliance working group on physical activity has proposed several strategies, including the following.</th>
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<td><strong>Community and Public Health</strong></td>
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<td>Public health, aging services networks, faith-based organizations, and other community agencies should invest in the delivery of evidence-based physical activity programs for adults with arthritis in convenient settings.</td>
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<td><strong>Health Care</strong></td>
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<td>Licensed health care professionals should ask arthritis patients about physical activity levels at every visit, screen for arthritis-specific barriers to physical activity, encourage physical activity, and recommend evidence-based community interventions or rehabilitation therapies when appropriate.</td>
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<td><strong>Transportation, Land Use, and Community Design</strong></td>
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<td>Policies should be put in place and reinforced to create or expand efforts to promote active living environments that can support adults with arthritis being physically active.</td>
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<td><strong>Business and Industry</strong></td>
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<td>Comprehensive worksite wellness programs should be inclusive and explicitly incorporate the needs of adults with arthritis without requiring disclosure of arthritis diagnosis and make arthritis information widely available.</td>
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<tr>
<td><strong>Park, Recreation, Fitness, and Sport</strong></td>
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<td>Park, recreation, fitness, and sport professionals should receive training on how to adapt and modify physical activity programs and exercises for adults with arthritis and assist them in initiating and sustaining appropriate physical activity.</td>
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<tr>
<td><strong>Mass Media</strong></td>
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<td>Available evidence-based physical activity interventions for adults with arthritis should be promoted through information, guidelines, signage, media promotion, and public outreach.</td>
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Preventing and Managing OA

OSTEOARTHRITIS ACTION ALLIANCE

Spearheaded by the AF and the CDC, the Osteoarthritis Action Alliance (www.oaaction.org) is a group of organizations committed to working together to implement the recommendations outlined in the OA Agenda. An inaugural meeting in April 2011 included leaders in the fields of aging, public health, arthritis care, women’s and minority health, chronic disease prevention, physical activity, injury prevention, weight management, and consumer affairs. The participants mapped out initial priorities for advancing some of the recommendations detailed in the OA Agenda, including the following:

• working to increase the physical activity levels of people with or at risk for knee or hip OA
• making state and federal policymakers aware of the connection between obesity and increased OA risk and integrating OA into the national policy discussion about obesity prevention and management
• expanding self-management education as a community-based intervention for people with symptomatic OA
• advancing the widespread adoption of rules and policies in organized sports, recreation, and school athletics to prevent joint injuries that can lead to OA

Future initiatives. In addition, the Osteoarthritis Action Alliance formed a physical activity working group that will support the implementation of the Environmental and Policy Strategies to Increase Physical Activity among People with Arthritis report. Some examples of strategies included in the report are having clinicians ask their arthritis patients at every visit about their physical activity levels and screening for arthritis-specific barriers to physical activity. Physical activity can have many benefits for patients with arthritis and other common chronic conditions, but pain and fatigue may prevent activity.17

These environmental and policy strategies could help to expand the public health framework for arthritis by, for example, encouraging changes in physical and social environments that would support activity in adults with arthritis. A report on the group’s recommendations will be released in March 2012 (see Table 3 for a summary).

Increasing OA research. As a result of the AF’s advocacy efforts, the Congressionally Directed Medical Research Programs at the Department of Defense recently awarded about $1.5 million for OA research. Members of the armed services are 50% more likely than civilians to receive an OA diagnosis.18 As troops are returning home from Iraq and Afghanistan, the AF continues to advocate federal funding of OA research through this program. ▼

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REFERENCES