A New Vision for Chronic Osteoarthritis Management

Report of the May 2012 Chronic Osteoarthritis Management Initiative (COAMI) Work Group Meeting and Call to Action

September 2012
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Executive Summary: A COAMI Call to Action

Missed Opportunities to Detect and Treat Osteoarthritis (OA)

Imagine if the trigger for treating heart disease were a first heart attack, or for treating hypertension, a stroke. For some patients, these debilitating and often deadly symptoms are indeed the first signs of trouble. However, the treatment goals for these and other chronic conditions is to detect and modify risk factors early, before symptoms appear, so that the disease’s devastating outcomes can be prevented altogether.

Unfortunately, the same approach does not currently apply to osteoarthritis (OA), the most common type of arthritis and leading cause of disability in the United States.1 OA afflicts 27 million Americans — over 10 percent of adults in this country.2

Although a quarter of adults over the age of 60 experience significant pain and disability due to OA, it is by no means a condition affecting only older adults. OA interferes with work and activities of daily living, and also undermines the ability of patients to pursue the levels of physical activity recommended for weight loss, cardiovascular health, diabetes control, and other health goals. Since OA frequently co-occurs with other conditions, its adverse health effects — and contributions to health costs — are amplified.

OA should be viewed as a chronic condition, subject to screening for risk factors, prevention-oriented interventions, ongoing monitoring, and comprehensive care models typical of other chronic diseases. Instead, many patients and health care providers tolerate and expect pain and disability as an inevitable trajectory of OA and aging. In addition, many health care providers assume an inevitable, gradual progression to “joint death” and, often, joint “re-birth” in the form of knee and hip replacements.

Changing this paradigm — especially among health care providers — was the focus of the first Work Group meeting of the Chronic OA Management Initiative, or COAMI, held in Chicago, Illinois in May 2012, and convened by the United States Bone and Joint Initiative (USBJI). This Call to Action for a change in the paradigm of intervention is one of the products of this initial meeting.

A Clinical Rationale for Changing How OA is Managed

OA is a product of multiple risk factors, including obesity, genetics, aging, and the consequences of joint injuries and trauma. Even though some of these risk factors (such as genetics and aging) are not modifiable, they do offer the potential for identifying segments of the population at higher risk for OA so that they can be screened and treated earlier. Doing so could help reverse or at least slow the

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A New Vision for Chronic Osteoarthritis Management
considerable costs to our health care system — such as the $42.3 billion spent on 905,000 knee and hip replacements in 2009 alone (most associated with OA).³

OA often co-occurs with other chronic conditions (such as diabetes and obesity) and affects their progression as well. For example, people with OA are likely to experience enough joint pain and stiffness that they are unable to undertake the level of physical activity that could help them lose weight — and thus improve their outcomes for both OA and many other chronic conditions.

Even though OA is common, it is not consistently detected and treated. Half of OA patients are seen in primary care settings, where they may not report — or be asked about — their joint pain.⁴

Learning from Other Chronic Diseases

Although OA is a chronic, progressive, and debilitating disease, its management and treatment often has little in common with the approach used effectively for other chronic diseases.

Episodic and reactive care — in contrast to proactive, longitudinal, coordinated, and multidisciplinary care — represents many missed opportunities to treat OA more effectively and deprives patients of attainable options for pain relief, increased function, and decreased or slowed OA progression.

Changing the Paradigm

Many providers share with members of the public a lack of awareness about OA, its symptoms, and treatment options. Because so many people with or at risk for OA are seen in non-specialist settings such as primary care (and, increasingly, pediatric providers due to the child obesity epidemic and the increasing prevalence of sports injuries), a lack of provider awareness about OA constitutes a significant missed opportunity. Relatively little time is devoted to OA within professional education venues, across many different disciplines.

Even among providers who are aware of OA, additional barriers remain. Currently, multi-disciplinary approaches are not the norm for dealing with OA, nor is there a consistent set of recommendations or messages about measures to manage the pain and disability of OA, especially for patients with moderate symptoms on an ongoing basis.

Providers also lack basic tools for gauging levels of risk, disability, pain or loss of function, such as a joint health score that could be monitored over time. Screening tools or questions that have been tested in different settings (similar to the World Health Organization’s Fracture Risk Assessment Tool, or FRAX) also are lacking.


Paying attention to patients’ symptoms (beginning by asking about them in various settings), following up both proactively and longitudinally, and applying the principles of integrated, multi-specialty systems of care all would improve outcomes for the millions of people with OA. Moreover, these changes could be implemented now, and do not necessarily require additional research or testing. What they do require is increased visibility of OA among clinicians, so that OA is routinely considered when patients seek screening and treatment for other chronic diseases and conditions.

**Priority Actions**

In addition to disseminating this Call to Action through their respective professional networks and beyond, Work Group participants identified several other high-priority actions to increase the visibility of OA among health care providers and to take better advantage of opportunities to screen and treat those at risk. They include:

- **Convening an OA Management Conference** that would identify areas of agreement across disciplines/specialties within the health care system, identify gaps or areas of disagreement, review models of care and how to establish these for management of OA, specify gaps in research and treatment protocols, and set forth a rationale for research and management approaches based on patient-centered outcomes and functional status. In particular, the meeting would address the incomplete and inconsistent approaches to managing OA in patients with mild or moderate presentation of symptoms, and propose models, possibly leading to pilot programs. Agreements reached during the meeting would be published and disseminated more broadly.

- **Reaching out to other partners to include them in future COAMI work.** These include the U.S. Preventive Services Task Force, federal agencies involved in prevention, associations representing other chronic diseases, payors and insurers, researchers and practitioners in the weight management and nutrition arena, mid-level providers, and those involved in sports and sports medicine.

- **Exploring standardizing screening tools and indicators of OA, to make early diagnosis more consistent and likely.** These include developing key questions that could be incorporated into patient histories at initial and follow-up visits, as well as intake questionnaires about physical activity and limitations, or tools that indicate the likelihood of developing OA (similar to the World Health Organization’s Fracture Risk Assessment Tool, or FRAX).

- **Developing tools and prompts that promote patient engagement in learning about and managing OA (and pre-OA).** Tools and prompts that support patients in their self-management of OA as a chronic disease — similar to tools used for diabetes, hypertension, and heart disease and including innovative uses of technology, such as Smartphone apps — should be identified, strengthened, and disseminated far more widely.

- **Lending COAMI’s support to existing advocacy and awareness efforts and seeking specific opportunities to reinforce key messages,** particularly:
  - OA should be considered — and treated — in a more multi-disciplinary, coordinated, and prevention-oriented way, similar to other chronic diseases.
o Until OA is managed as a chronic disease, many opportunities to avoid costs, pain, disability, and loss of function will be missed.

o Like metabolic syndrome and pre-diabetes, a “pre”-OA condition should be more systematically identified and addressed among the patients of many health care providers.

o Health care providers can play a much stronger and more effective role in emphasizing the benefits of physical activity and weight management among their obese and overweight patients, and should elevate their efforts to support and motivate patients.

- **Developing and supporting an OA-specific research agenda to fill gaps in evidence and practice.** This is particularly true for the large number of patients with mild to moderate symptoms and limitations (as opposed to those with no or severe limitations about whom there is far more consensus about how to proceed clinically).
A Vision for Improved Management of Osteoarthritis (OA)

Osteoarthritis (OA) affects 27 million Americans today, and will affect millions more in the decades to come as our population ages, continues to gain and maintain excess weight, becomes less active, and suffers the after-effects of earlier sports- and work-related bone and joint injuries. Not every case of OA can be prevented, but the Chronic OA Management Initiative (COAMI) believes that a significant degree of the pain and disability caused by OA can and should be prevented or ameliorated.

How? As health care professionals, we should direct our efforts to treating OA more as the chronic disease it really is, rather than intervening once patients have significant pain or are disabled. This means asking patients about joint pain, mobility, and function before they bring it up (at which point much joint damage has likely already occurred), in whichever setting patients encounter members of their health care teams. It means adopting the best practices of other successful chronic disease models: working as a coordinated team with consistent and reinforcing recommendations for weight loss, physical activity, and pain management when these are indicated; as well as monitoring and following up with patients to assess adherence and/or progression of symptoms. Lifestyle changes that reduce excess weight and support physical activity are beneficial not only for the management of OA, but also can help reduce risks for diseases such as diabetes and heart disease — yet another reason for identifying and addressing the symptoms of OA earlier than is currently the norm.

Health care professionals cannot accomplish these shifts in the conceptualization of OA management alone. The Work Group and organizing committee of COAMI applaud and support the public awareness and public health initiatives of the Arthritis Foundation, Ad Council, Centers for Disease Control and Prevention, and Osteoarthritis Action Alliance, among others. As clinicians and researchers, we join these colleagues in calling for greater awareness and commitment to preventing and ameliorating the symptoms of OA among all sectors — the public, employers, health insurance payers, school systems, media, elected officials, and of course the health systems and teams in which we function.

With greater awareness, earlier screening and detection, more consistent and evidence-based treatment and interventions, and environmental and policy supports for these interventions, we are confident that our combined efforts for joint health will pay off by reducing the pain, disability, and costs for which OA is responsible.
**Introduction**

What if the trigger for treating heart disease were a first heart attack, or for treating hypertension, a stroke? For some patients, these debilitating and often deadly symptoms are indeed the first signs of trouble. However, the treatment goal for these and other chronic conditions is to detect and modify risk factors early, before symptoms appear, so that the disease’s devastating outcomes can be prevented altogether.

The same approach does not currently apply to osteoarthritis (OA), the most common type of arthritis. OA affects 27 million Americans — over 10 percent of adults in this country. A quarter of adults over the age of 60 experience significant pain and disability due to OA, but it is by no means a condition affecting only older adults, as the joint changes associated with OA usually start earlier in life. OA interferes with work and activities of daily living for adults of all ages, and also undermines the ability of patients to pursue the levels of physical activity recommended for weight loss, cardiovascular health, diabetes control, and other health goals. Since OA frequently occurs along with other conditions, its adverse health effects — and contributions to health costs — are amplified.

Despite these ripple effects for individuals, communities, and health systems, OA has not been viewed as a chronic condition, amenable to some of the same screening for risk factors, prevention-oriented interventions, ongoing monitoring, and comprehensive care models typical of other chronic diseases. Instead, many patients and health care providers tolerate and expect joint pain and disability as an inevitable trajectory of OA and aging. In addition, many health care providers assume an inevitable, gradual progression to “joint death” and, often, joint “re-birth” in the form of knee and hip replacements.

**COAMI Work Group Meeting Purpose and Participants**

Changing the paradigm of OA management — especially among health care providers — was the focus of the first Work Group meeting of the Chronic OA Management Initiative, or COAMI, held in Chicago, Illinois in May 2012, convened by the United States Bone and Joint Initiative (USBJI). During this meeting, Work Group members discussed elements of a new vision for OA treatment and prevention, explored barriers and obstacles to achieving that vision, and identified both general and specific opportunities for change. The meeting concluded with specific action steps and commitments from Work Group members and their respective organizations, which are summarized below along with other highlights of the Work Group discussions. (A meeting agenda is provided in Appendix A.)

Professional organizations representing health care professionals who treat patients with OA were invited to participate in this effort and name a representative to the Work Group. Work Group members include orthopaedic nurses and surgeons; specialists in rheumatology, rehabilitation and sports medicine; osteopathic physicians; physical therapists; and athletic trainers. In addition, the Work Group included epidemiologists, researchers, and health care providers who may not specialize in OA,

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but who are likely to encounter patients with OA and those at risk of developing OA in their practices: family physicians, pediatricians and pediatric nurses, nurse practitioners, and physician assistants.

Although the meeting’s emphasis was on the role of providers, the voice of patients with OA is always crucial in any discussion of outcomes and treatment paradigms; therefore, a patient representative was also a member of the Work Group. In addition, the meeting was an opportunity to reach out to groups whose members work with patients directly or indirectly impacted by OA, including the American Diabetes Association. (Please see Appendix B for a full list of meeting participants.)

Acknowledgments

The COAMI Work Group meeting was convened and staffed by the U.S. Bone and Joint Initiative (USBJI) and a Program Committee of Work Group members, with educational grant support from Biomet, Lilly USA, Sanofi Biosurgery, and Zimmer, Inc.

The Clinical Rationale for Change

COAMI Chair Joanne M. Jordan, MD, MPH, set the stage for the Work Group meeting with an overview of the extensive — and increasing — toll that OA incurs on individuals and the health system overall. As noted above, 27 million Americans already are diagnosed with OA. Knee OA alone is estimated to affect 10.9 million Americans and is expected to reach 13.5 million by the end of this decade.7, 8

Risk Factors: Multiple and Modifiable

Multiple risk factors have been identified for the development of OA. These offer the potential for identifying segments of the population at higher risk for OA and targeting them with more intensive screening and interventions. Genetics play a role, as does the aging process in general, as damage to joints accumulates over a lifetime. Although genetic risk and aging are not modifiable, other OA risk factors are at least potentially so.

Excess body weight is a risk factor for OA in part because of the increased mechanical load it places on weight-bearing joints (particularly the knees); the obesity epidemic and sedentary lifestyles among both children and adults suggests that OA’s prevalence and incidence, already high, are likely to increase. The lifetime risk of symptomatic knee OA among those whose Body Mass Index (BMI) is 25 or less is 30.2 percent, but jumps to 60.5 percent for those whose BMI is over 30.9

Obesity is a major risk factor, but other factors come into play as well. Joint injuries and trauma — from sports, overuse, or other mechanisms — also increase the likelihood of OA. Individuals with a history of knee injury face a 56.8 percent lifetime risk of symptomatic knee OA, compared to 42.3 percent for those without such injuries.10 Occupations that require certain motions, particularly kneeling and squatting, also increase the likelihood of developing OA.

7 Dillon CF, J Rheumatol 2006;33:11-19.
Those patients most likely to benefit from screening and early intervention would include those individuals with any of the following: a family history of OA, age over 65 years, work in (or retirement from) occupations known to stress joints, history of joint injury or trauma, presence of nodal hand OA, and obesity.

**Escalating Costs**

Given the high prevalence of OA and the disability and medical interventions to which it often leads, it is not surprising that OA accounts for sizable figures in the direct and indirect costs of medical care in the United States. In 2009, 905,000 knee and hip replacements (the majority associated with OA) were performed, at a total cost of $42.3 billion. On average, patients with OA can expect to spend twice as much as an average patient on total direct medical charges. Due to the increasing prevalence of OA, these costs are expected to increase. For example, by 2030, the number of total knee replacements performed is expected to reach 3.48 million procedures — a 673 percent increase from 2005 levels.

**Co-morbidities: OA Rarely Surfaces Solo**

In part because of the older age ranges in which OA symptoms demand attention, the condition often co-occurs with and affects the treatment of other chronic health conditions: hypertension, metabolic syndrome, diabetes, cardiovascular disease, and obesity. Exercise is often the first-line treatment for these conditions, but can be difficult for people with OA because of OA-related pain and stiffness. An inability to exercise could lead to use of medications to treat diabetes or hypertension, for example, which might not be needed were the patient able to exercise effectively. Further, medications used to treat OA symptoms, particularly non-steroidal anti-inflammatory drugs, may have side effects that can aggravate some of these conditions, such as hypertension and cardiovascular disease. All of this contributes to added medical costs as a result of OA.

Over half (52 percent) of patients with diagnosed diabetes also have OA; estimates of the incidence of diabetes among OA patients range from 15 to 46 percent. The range in the latter figure may be due to the fact that half of OA patients are seen in primary care settings, where they may not report — or be asked about — joint pain, if their appointments are for diabetes management or other conditions. Approximately a quarter of primary care visits are related to OA, but variations in detection and treatment are common. This represents a significant missed opportunity for treating OA more effectively.

Diabetes is a prototypical example of how OA and other chronic health conditions affect the treatment and amplify the consequences of multiple conditions. Being overweight and sedentary can contribute to both joint pain and diabetes, but joint pain and excess weight then make physical activity even more difficult — creating a barrier to one of the ways that diabetes could potentially be controlled (weight

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12 Gabriel, et al. *J Rheumatol* 1997;24:719-725


14 Caporali, et.al. *Semin Arthritis Rheum* 2005;35 (Suppl1);31-37

15 van Dijk, et.al., *BMC Musculoskeletal Disorders* 2008;9:95-105

16 Bitten, *Am J Managed Care* 2009:15S230-S235
management) and contributing to a vicious cycle of progressive joint pain. Many patients with OA fear that physical activity will worsen their joint problems, when in fact many moderate forms of exercise — including walking and aquatic exercise — could help improve mobility and function, while also contributing to weight loss and improved overall health.

Data from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS) survey asked adults about the frequency and duration of physical activity (and inactivity) to demonstrate the interaction of OA and diabetes. Among respondents with neither arthritis nor diabetes, about 10 percent reported being inactive. Among those with arthritis, about 17 percent were inactive, compared to just over 21 percent of those with diabetes alone. But among those with both arthritis and diabetes, nearly 30 percent were inactive. Improving activity levels among this group in particular could benefit both diseases — and even modest changes could yield significant benefit. For example, the Framingham OA Study showed that for women, weight loss of just 10-12 pounds could significantly reduce the risk of developing symptomatic knee OA.

**Learning from Other Chronic Diseases**

Diseases as varied as diabetes, hypertension, asthma/Chronic Obstructive Pulmonary Disease (COPD), and rheumatoid arthritis share some commonalities that could point the way for more effective, proactive OA management. For example, emphasis on early disease identification, a multidisciplinary team approach to management, and deployment of varying interventions in response to disease stratification is typical of modern diabetes care. The treatment of hypertension also is notable for the regular follow-up that patients receive and the more holistic model of care employed to control and treat the condition. Increasingly, the goal of asthma and COPD care is prevention. The standard for patients with rheumatoid arthritis, in contrast to those with OA, involves early intervention, a drive toward remission, and incorporating patient-reported outcomes into daily practice.

The chart below compares intervention points for OA with those for osteoporosis, hypertension, and cardiovascular disease — each of which draws detection and intervention far earlier in the disease process.

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## Disease Phase

<table>
<thead>
<tr>
<th></th>
<th>Abnormal Physiology</th>
<th>Silent Disease</th>
<th>Symptomatic Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OA</strong></td>
<td>Joint metabolic abnormality</td>
<td>“Pre” radiographic</td>
<td>Painful radiographic OA</td>
</tr>
<tr>
<td><strong>Osteoporosis</strong></td>
<td>Bone metabolic abnormality</td>
<td>Bone loss</td>
<td>Fracture</td>
</tr>
<tr>
<td><strong>Hypertension</strong></td>
<td>High blood pressure</td>
<td>Vascular stiffness</td>
<td>Stroke</td>
</tr>
<tr>
<td><strong>Cardiovascular disease</strong></td>
<td>Hyperlipidemia</td>
<td>Atherosclerosis</td>
<td>Heart attack; heart failure</td>
</tr>
</tbody>
</table>

Source: Kraus VB, Nevitt M, Sandell LJ. *Osteoarthritis Cartilage* 2010;18(6):742-5

Although OA is a chronic, progressive, and debilitating disease, its management and treatment often has little in common with the approach used for other chronic diseases. Intervention points for those patients with osteoporosis, hypertension, and cardiovascular disease include detection and intervention far earlier in the disease process than is seen in patients with OA. Episodic and reactive care for patients with OA — in contrast to proactive, longitudinal, coordinated, and multidisciplinary care — represents many missed opportunities to treat the symptoms of OA more effectively and deprives patients of options for pain relief and increased function.

### Aligning with Parallel Initiatives

The COAMI’s efforts to improve OA management and patient outcomes would work in concert with several parallel efforts, especially those jointly pursued by the Arthritis Foundation, the Centers for Disease Control and Prevention (CDC), and the Ad Council. In 2010, CDC and the Arthritis Foundation published *A National Public Health Agenda for Osteoarthritis*, which puts forth 10 key recommendations designed to reduce the public health burden of OA within a 3- to 5-year time frame. (See box for a list of the recommendations; the full report is available from www.arthritis.org/osteoarthritis-agenda.)

Physical activity was one of the intervention strategies outlined in the *National Public Health Agenda for Osteoarthritis*; as a result, the Arthritis Foundation convened experts representing areas of expertise related to physical activity and arthritis, as well as various sectors that can influence physical activity...
levels, to outline key strategies. The resulting report — *Environmental and Policy Strategies to Increase Physical Activity Among Adults with Arthritis* — focuses on the benefits of physical activity and ways to make physical activity more convenient and accessible for adults with arthritis.

Although people with arthritis have disease-specific barriers to being physically active as well as high rates of co-morbidities, physical activity is an important but underused intervention that decreases pain, delays the onset of disability, improves physical functioning, mood and independence, and enhances quality of life, aerobic capacity, and muscle strength.

The report is designed to engage six important sectors — community and public health; health care; transportation, land use and community design; business and industry; parks, recreation, fitness and sport; and mass media and communication — as partners with a mutual interest in increasing physical activity among adults with arthritis using environmental and policy strategies. See box for the top recommendations; the full report is at www.arthritis.org/physical-activity.

With the support of the Ad Council, messages being disseminated directly to the public are that “moving is the best medicine,” that pain from OA can be improved with appropriate exercise, and that patients need not be restricted from pursuing activities they once enjoyed.

<table>
<thead>
<tr>
<th>Priority Environmental and Policy Strategies for Improving Physical Activity Among Adults with Arthritis</th>
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</thead>
<tbody>
<tr>
<td>Community and Public Health</td>
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<tr>
<td>Health Care</td>
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<tr>
<td>Transportation, Land Use, and Community Design</td>
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<tr>
<td>Business and Industry</td>
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<tr>
<td>Park, Recreation, Fitness, and Sport</td>
</tr>
<tr>
<td>Mass Media and Communication</td>
</tr>
</tbody>
</table>

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.
A New Vision for OA Management

A new vision was presented for how OA could be better managed by early identification of high-risk individuals and early intervention, ultimately yielding better outcomes for patients at all stages of disease. As depicted in the flow chart below, improved technology (allowing, for example, detection of molecular markers of OA) should improve ways of identifying patients much earlier in their disease process, which could be combined with other strategies that work together to better predict who is at risk for OA. Identifying who should be targeted for interventions, providers can then work together with patients to delay or even prevent the extreme joint damage that millions now experience as a consequence of multiple risk factors.

A Vision of the Future Management of OA

Work Group members discussed key elements of a vision for improved OA management that emphasizes prevention, detection, and achieving patient outcomes of reduced pain and increased function and mobility. These elements are summarized below in the form of a draft vision statement:

Osteoarthritis (OA) affects 27 million Americans today, and will affect millions more in the decades to come as our population ages, continues to gain and maintain excess weight, becomes less active, and suffers the after-effects of earlier sports- and work-related bone and joint injuries. Not every case of OA can be prevented, but the Chronic OA Management Initiative (COAMI) believes that a significant degree of the pain and disability caused by OA can and should be prevented or ameliorated.

How? As health care professionals, we should direct our efforts to treating OA more as the chronic disease it really is, rather than intervening once patients have significant pain or are disabled. This means asking patients about joint pain, mobility, and function before they bring it up (at which point much joint damage has likely already occurred), in whichever setting patients encounter members of their health care teams. It means adopting the best practices of other successful chronic disease models: working as a coordinated team with consistent and reinforcing recommendations for weight loss, physical activity, and pain management when these are indicated; as well as monitoring
and following up with patients to assess adherence and/or progression of symptoms. Lifestyle changes that reduce excess weight and support physical activity are beneficial not only for the management of OA, but also can help reduce risks for diseases such as diabetes and heart disease — yet another reason for identifying and addressing the symptoms of OA earlier than is currently the norm.

Health care professionals cannot accomplish these shifts in the conceptualization of OA management alone. The Work Group and organizing committee of COAMI applaud and support the public awareness and public health initiatives of the Arthritis Foundation, Ad Council, Centers for Disease Control and Prevention, and Osteoarthritis Action Alliance, among others. As clinicians and researchers, we join these colleagues in calling for greater awareness and commitment to preventing and ameliorating the symptoms of OA among all sectors — the public, employers, health insurance payers, school systems, media, elected officials, and of course the health systems and teams in which we function.

With greater awareness, earlier screening and detection, more consistent and evidence-based treatment and interventions, and environmental and policy supports for these interventions, we are confident that our combined efforts for joint health will pay off by reducing the pain, disability, and costs for which OA is responsible.

Barriers and Obstacles

In an online survey completed prior to the meeting and during the meeting itself, participants identified a number of barriers and obstacles that stand in the way of achieving COAMI’s vision. These barriers include issues noted among patients, health care professionals, and the broader context of the health system and social norms and beliefs.

General Barriers and Obstacles

The obesity epidemic constitutes a serious obstacle to preventing and treating OA, since it serves as a major (but modifiable) risk factor for the development of progression of OA.

Misconceptions and lack of awareness about OA, its prevalence, symptoms, and impact also make it more difficult to prevent and treat, until its symptoms become more severe.

Sports injuries and other forms of joint trauma are a specific risk factor for OA. Some meeting participants noted that societal norms that emphasize “getting back in the game” after an injury may play a role, although others noted that there is no solid scientific evidence that this is the case.

Patient-level Barriers and Obstacles

Individual behavior changes, such as losing weight and increasing levels of physical activity, are difficult to initiate and to maintain. Unfortunately, few community supports exist to reinforce the message that weight management and physical activity are important, worthwhile behaviors. Many patients prefer to turn to medications as an easier, faster solution — which in turn creates pressure on providers to turn more quickly to pharmacological solutions before exploring other options that may take longer to result
in improvement in symptoms. A lack of awareness that OA is not a normal part of aging, as well as about the significance of and options of treatment for OA as a chronic condition, may lead patients to ignore or at least not report joint pain, creating missed opportunities for intervention and management.

**Provider-level Barriers and Obstacles**

Many providers share with members of the public a lack of awareness about OA, its symptoms, impact, and treatment options. Most people with or at risk for OA are seen in non-specialist settings such as primary care and, increasingly, pediatric providers (due to the obesity epidemic and the increasing prevalence of sports injuries). A lack of provider awareness about the need to address risk factors for or symptoms of OA, in addition to addressing a patient’s other health conditions, constitutes a missed opportunity. Relatively little time is devoted to OA or other musculoskeletal conditions within most professional education venues, across many different disciplines.

Even among providers who are aware of the symptoms of OA, additional barriers remain. Currently, multi-disciplinary approaches are not the norm for dealing with OA. There is not a consistent set of recommendations or messages about which modalities to use, when, and with whom. In particular, guidelines on how to treat younger patients, especially those with mild or moderate disease, are lacking.

Providers also lack easily accessible tools for gauging levels of disability, pain or loss of function, such as a joint health score that could be monitored over time. Screening tools or questions that have been tested in different settings also are lacking, such as a FRAX equivalent for OA. (FRAX is the World Health Organization’s risk assessment tool for osteoporosis).

The health system itself often serves as a barrier, either because providers and facilities are not accessible, or because care is delivered in such a way that coordinated care is more difficult to achieve.

**Opportunities for Change**

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Since the recommendations were to be targeted toward health care professionals, the Work Group primarily focused on identifying provider-level opportunities, barriers, and obstacles. Specific opportunities noted by Work Group members included the following:

- **Improving care coordination and practice**, to address the current state of episodic, fragmented, and inconsistent care. Although the Work Group’s scope does not currently include developing treatment guidelines, the urgent need for some compilation of evidence and identification of remaining gaps or inconsistencies within current guidelines for evaluation and management was a common refrain throughout the meeting. Under the umbrella term “algorithm,” Work Group members called for more consistent, readily available, evidence-based guidance for primary care, physical therapy, occupational therapy, and specialists (e.g., rheumatologists, orthopaedic surgeons).

Work Group members also saw a need for adapting, disseminating, and encouraging the use of screening tools by all health care professionals — e.g., tools such as the Functional Independence Measure (FIM) Score and for tailoring prevention to the needs of specific populations (e.g., those with diabetes and/or obese patients).
- **Building the research and evidence base.** Pre-OA biomarkers offer potential for detecting OA susceptibility much earlier than symptoms may appear, as well as for differentiating among different types of OA. A major research and evidence gap concerns the optimal interventions for the large group of patients with mild or moderate OA symptoms (as opposed to no or severe symptoms). A fuller research agenda is needed, especially one that demonstrates the return on investment (ROI) for both patients and providers of an earlier focus on OA.

- **Increasing awareness of OA among key audiences**, including patients, at-risk groups, providers, employers/insurers, and policy makers. Work Group members recognized that awareness campaigns already are being undertaken by the Arthritis Foundation and its partners, as noted above. Rather than duplicate these efforts, they expressed their support for them. They also had specific ideas and suggestions, including making function and motion appealing (to address the sense of resignation and inevitability that often greet loss of function and mobility), and to borrow the “pre”-disease concept and language from diabetes, to raise the awareness of the need and utility of early intervention among patients and their health care professionals. In addition, it was felt that these key audiences must be involved in improving the environmental and policy strategies needed to stop having disability perceived as the logical outcome of OA.

- **Exploring innovative uses of technology and social media.** Like patients with other diseases and chronic conditions, patients with OA could benefit from tailored reminders, tips, encouragement, and advice from their health care team, as well as professional organizations, delivered through telephones, electronically, and in print.

- **Disseminating COAMI recommendations more broadly.** Work Group members recommended publications, briefings, and other mechanisms for consistent delivery of COAMI messages within the broader community of health care providers, including a Call to Action and some type of consensus document (possibly as follow-up to future meetings) that would make the existing evidence base more accessible to all those who see patients with OA.

Many of these opportunities re-surfaced later in the meeting as more detailed action steps, described below.

**High-Priority Actions**

In order to narrow the list of opportunities to a more manageable, targeted list, Work Group participants developed a set of criteria to prioritize next steps. COAMI priority actions should be designed to:

- Have an impact.
- Delineate and target different stages and types of OA (e.g., doctor-diagnosed from patient-reported; idiopathic or primary vs. secondary).
- Avoid reinventing the wheel.
- Be practical (e.g., recommendations for providers should be realistic enough to be incorporated into practice).
- Promote common, reinforcing messages.
- Be evidence-based.
- Be tailored to subpopulations and minorities at greatest risk.
- Be sustainable.
- Be easily disseminated.

Work Group members then identified seven high-priority actions.

1 Priority Action 1. Develop an OA Call to Action, specifically geared to health care professionals, to be disseminated and promoted by Work Group members among their professional networks to all who treat patients with OA, policy makers, and the public.

Work Group members agreed to produce and disseminate a brief Call to Action document that makes the case for OA as a chronic disease, explains opportunities for change, provides a synopsis of the Work Group meeting discussions and a rationale for action steps, suitable for sharing with their colleagues, peers, policy makers, and the public. The group also discussed developing collateral materials (such as a slide deck) that would help readily make the case for COAMI’s priorities. Ideally this document would note that many different types of health care providers have a role to play in improving the management of OA and in fostering the environmental and policy changes that enhance better patient outcomes and function.

2 Priority Action 2. Convene an OA Management Conference.

Building on the OA Call to Action, Work Group members discussed convening another 2- to 3-day meeting, possibly as an OA Management Conference, that would identify areas of agreement across disciplines/specialties within the health care system, identify gaps or areas of disagreement, review models of care and how to establish these for management of OA, specify gaps in research and treatment protocols, and set forth a rationale for research and management approaches based on patient-centered outcomes and functional status.

In particular, the meeting would address the incomplete and inconsistent approaches to managing OA in patients with mild or moderate symptoms, the establishment of models or Centers of Excellence, and possibly pilot programs.

The meeting might also lead to development of a consensus document, which could take the form of one or more algorithms, to streamline the available evidence and information in one place, making it more accessible to different providers and health systems. It would address lifestyle issues central to managing OA (movement, exercise, management of depression), offering recommendations for how providers can incorporate these into busy practices and patient encounters.
Although the document alone would not constitute comprehensive clinical treatment guidelines, it could serve as a starting point for another group willing to take this step (e.g., the Osteoarthritis Research Society International, or OARSI) and could be an important step on the road to a more multi-disciplinary road to treatment. Even though the conference proceedings would not constitute treatment guidelines, they could still produce helpful guidance in the form of flow charts that reflect the best current evidence along the spectrum from no symptoms, to moderate symptoms, to severe symptoms, to identify which patients are best served by which modality, and when. They also could offer comparisons with other models of chronic disease management.

With the continued success of public awareness campaigns by the Arthritis Foundation and others, providers (especially in primary care) will need to be prepared for newly activated and engaged patients — and this document should help with an initial response to questions and referrals from these patients. (See also Priority Action 5, regarding tools and prompts that promote patient engagement.)

3 Priority Action 3. Reach out to other partners to include them in future COAMI work.

To disseminate COAMI’s message throughout the health care and public health systems and among patient advocacy groups, Work Group members recommended not only continued partnership with groups already represented within COAMI, but consciously ensure the voice of the person with OA is present and connect to other relevant partners as well. These include:

- The U.S. Preventive Services Task Force, which may consider its own guidelines about OA prevention and screening as research, evaluation tools, and intervention options expand;

- Federal agencies involved in prevention (particularly CDC) and comparative effectiveness research and shared medical decision-making (e.g., the Centers for Medicare and Medicaid Services, the Agency for Healthcare Research and Quality, the National Institutes of Health, and the Patient Centered Outcomes Research Institute);

- Associations representing other chronic diseases — especially those that have developed models that could be replicated and could change how OA is managed in the future (the American Heart Association, American Diabetes Association, and groups whose members treat conditions whose incidence and/or management is affected by OA);

- OA Action Alliance;

- Health care payors and insurers;

- Researchers and practitioners from the weight management and nutrition community;
- Professional associations of mid-level providers or nurse navigators and health educators, who could play an important role in educating patients (similar to the model for diabetes care and management);

- Researchers and practitioners involved in sports medicine, especially those playing a role in responding to sports-related injuries at all levels (e.g., coaching organizations; the National Football League; the National Federation of High Schools; the National Collegiate Athletic Association; and professional associations).

Individual COAMI members can reach out to contacts in these groups, briefing them on the Call to Action recommendations, inviting their participation in upcoming events such as the OA Management Conference, and understanding their perspectives on opportunities and barriers to more effective OA management.

4 Priority Action 4. Explore standardizing screening tools and indicators of OA, to make early diagnosis more consistent and likely.

Work Group members noted that many opportunities to detect OA early are missed because patients do not report pain, discomfort, or family histories relevant to OA, nor are they routinely asked or prompted to do so, as OA is frequently considered a normal consequence of aging, with impact only on quality of life. Identifying a limited number of brief key questions that could be asked as a routine part of patient interactions would help considerably, as would reaching some consensus on activity and functional measures. Patient intake questionnaires could ask basic questions about levels of pain, physical activity, and limitations. Existing tools could be adapted for this purpose (e.g., the Get Up and Go Test; or FIM, Arthritis Foundation’s evidence based risk assessment tool for knee OA), or a new hybrid tool with recommended question(s) could be developed. In addition, the Work Group would like to explore how Electronic Health Records (EHRs) could be used to identify at-risk patients, identify and track disparities in presentation, revise prevalence and incidence estimates, and track their progress over time. A specific set of recommended screening questions and tools would be a tangible and useful outcome of the OA Management Conference, similar to the Fracture Risk Assessment Tool (FRAX) developed by the World Health Organization (WHO). The FRAX is based on individual patient models that integrate clinical risk factors as well as bone mineral density, and includes algorithms that yield a 10-year probability of fracture (of hip fracture or other major osteoporotic fracture). The tool is available electronically (via computer or Smartphone app) or in a paper version.19 This acknowledges, however, that objective measurement tools, such as DEXA for fracture risk, do not currently exist for OA.

19 For more information, see http://www.shef.ac.uk/FRAX/
5 **Priority Action 5. Develop tools and prompts that promote patient engagement in learning about and managing OA (and pre-OA).**

Ideally, patients will learn more about OA — their own, or that of relatives and colleagues — through public awareness campaigns. For some, this will be enough to motivate patients to learn more on their own, and/or with guidance from a health care provider. Others will need more support and encouragement. Either way, tools and prompts that support patients in their self-management of OA as a chronic disease — similar to tools used for diabetes, hypertension, and heart disease — should be identified, strengthened, and disseminated more widely.

Specific patient engagement and support tools mentioned by Work Group participants as candidates for further development and/or dissemination included Exercise is Medicine™,<sup>20</sup> the Arthritis Foundation’s *Environmental and Policy Strategies to Increase Physical Activity among Adults with Arthritis* report, and specific interventions that move beyond generic (and thus often ignored) weight loss and physical activity recommendations. These could include Smartphone applications, tools that prompt questions from patients (e.g., following Shared Decision Making models of patient engagement), and tools that help patients gauge and report changes in outcomes such as pain, function, and mobility.

6 **Priority Action 6. Lend COAMI’s support to existing advocacy and awareness efforts and seek specific opportunities for synergy with these initiatives.**

As noted above, other organizations and coalitions have invested in national campaigns to increase awareness about OA. Rather than duplicate existing efforts, COAMI Work Group members see their role as helping to connect their own organizations, colleagues and patients to these initiatives. At the same time, they recognize the value of endorsing and reinforcing several key messages. These include:

- OA should be considered — and treated — in a more multi-disciplinary, coordinated, and prevention-oriented way, similar to other chronic diseases.

- Until OA is managed as a chronic disease, many opportunities to avoid pain, disability, loss of function, and escalating costs will be missed.

- Like metabolic syndrome and pre-diabetes, with additional research, a “pre”-OA condition could be more systematically identified and addressed among the patients of many health care providers.

- COAMI members believe that health care providers can play a much stronger and more effective role in emphasizing the benefits of physical activity and weight management

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<sup>20</sup> Exercise is Medicine™ (EIM) is geared to health care providers, asking them to pledge to assess and review every patient’s physical activity program at every visit. The EIM Website (www.exerciseismedicine.org) includes links for providers, health and fitness professions, members of the public, and the media.
among all patients — especially those who are obese and overweight — and should elevate their efforts to support and motivate patients.

Priority Action 7. Develop and support an OA-specific research agenda to fill gaps in evidence and practice.

At either end of the OA spectrum — patients with no symptoms and patients with severe symptoms — COAMI Work Group members feel there is a fair amount of agreement about how to proceed. But for the large group in the middle — those with mild to moderate symptoms and limitations — the sequence and duration of various interventions is murkier, and thus far more varied. COAMI Work Group members called for a review of current evidence and perhaps a randomized clinical trial to yield more conclusive answers about what works for this group of OA patients, and under what conditions. What should initial strategies be? If these fail or are less effective, what should be tried next?

Another relatively unexplored research topic involves how OA and its risk factors could be identified and tracked — e.g., using EMRs. This approach also could yield insights about effective treatments, their sequence, and timing.

COAMI Work Group members noted how little time is devoted to educating clinicians about musculoskeletal conditions in general and OA in particular. A survey of incoming residents, interns, and practicing health professionals in a variety of fields and education programs could help gauge current levels of understanding of OA and point the way towards more intensive education about OA in the near future. Today’s health professions students are going to see an even higher volume of patients with pre-OA and OA than current health care providers. Advancing their understanding and “OA radar” earlier in their training is imperative.

Work Group Commitments

At the close of this inaugural meeting, COAMI Work Group members agreed to review and endorse the OA Call to Action and disseminate it within their own organizations and networks (Priority Action #1, above). They also agreed to participate in upcoming meetings — particularly the planned OA Management Consensus Conference (Priority Action #2, above). As materials and consensus documents become available, COAMI Work Group members agreed to share these with colleagues and others within their professional networks, as well as through other communications channels (e.g., Website links, newsletters).

To avoid duplicating efforts and to inform one another about related initiatives already under way, COAMI Work Group members also agreed to begin inventorying what their own and other organizations are doing in terms of screening, interventions, advocacy efforts, and research studies. A readily accessible inventory of existing treatment guidelines also would be useful, even though it is not within COAMI’s scope to take on the task of developing comprehensive treatment guidelines or algorithms.
Although meeting participants could not necessarily commit their organizations’ resources during the initial meeting, they did make some preliminary commitments to help advance COAMI’s vision in the near future. These are summarized in the table below (with the understanding that some may require additional discussion).

<table>
<thead>
<tr>
<th>Organization</th>
<th>Initial Commitments</th>
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<tbody>
<tr>
<td>American Academy of Family Physicians</td>
<td>Convey importance of OA in family practice.</td>
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<tr>
<td>American Academy of Nurse Practitioners</td>
<td>Share COAMI recommendations and messages through journal pieces, white papers, e-mail alerts to members, and the organization’s annual conference.</td>
</tr>
<tr>
<td>American Academy of Orthopaedic Surgeons</td>
<td>Share evidence-based guidelines as these become available, participate in public campaign roll-out regarding exercise/physical activity and OA.</td>
</tr>
<tr>
<td>American Academy of Pediatrics</td>
<td>Encourage Call to Action to address developmental, injury and obesity issues to increase relevance for pediatricians.</td>
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<tr>
<td>American Academy of Physical Medicine and Rehabilitation</td>
<td>Share OA Call to Action with AAPM&amp;R membership.</td>
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<tr>
<td>American Academy of Physician Assistants</td>
<td>Conduct survey to document extent of OA coverage in PA curriculum and opportunities for improvement.</td>
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<tr>
<td>American College of Physicians</td>
<td>Help identify algorithms; share OA Call to Action with members.</td>
</tr>
<tr>
<td>American College of Sports Medicine</td>
<td>Sign on to OA Call to Action; contribute to development of consensus/practice guidelines based on ACSM experience/model.</td>
</tr>
<tr>
<td>Arthritis Foundation</td>
<td>Share COAMI recommendations with AF’s Board members and regional representatives to reach more primary care providers and other key constituencies reach out to chronic disease partners (especially ADA, AHA).</td>
</tr>
<tr>
<td>American Medical Society for Sports Medicine</td>
<td>Work with partners (e.g., APTA) on functional outcomes assessment and short measure that could be used as patient self-report of injury/trauma.</td>
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<tr>
<td>Organization</td>
<td>Initial Commitments</td>
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<tr>
<td>American Medical Women’s Association</td>
<td>Disseminate OA Call to Action.</td>
</tr>
<tr>
<td>American Physical Therapy Association</td>
<td>Educate members about OA; Disseminate OA Call to Action; Recommend possible functional assessment tools.</td>
</tr>
<tr>
<td>American Orthopaedic Society for Sports Medicine</td>
<td>Include COAMI recommendations in monthly Association Society newsletter; encourage participation in OA Consensus Conference.</td>
</tr>
<tr>
<td>American Osteopathic Association; American College of Osteopathic Family Physicians</td>
<td>Educate members about OA.</td>
</tr>
<tr>
<td>Institute of Pediatric Nursing</td>
<td>Build primary care armamentarium to identify OA risk during patient history.</td>
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<tr>
<td>National Association of Orthopaedic Nurses</td>
<td>Share COAMI recommendations through newsletter, Website and Association’s Education Committee.</td>
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<tr>
<td>National Athletic Trainers’ Association</td>
<td>Incorporate OA into education components for early career practitioners; note role of athletic trainers as gatekeepers.</td>
</tr>
<tr>
<td>National Hispanic Medical Association</td>
<td>Share COAMI recommendations through Association’s newsletter and include Web links for more information; explore possibility of OA plenary session and/or workshops at NHMA’s national conference.</td>
</tr>
<tr>
<td>National Medical Association</td>
<td>Explore/promote Get up and Go Test and FIMS as screens of patients’ disability and function levels; continue focus on health disparities in OA; disseminate COAMI recommendations and events.</td>
</tr>
<tr>
<td>Osteoarthritis Research Society International</td>
<td>Review Exercise is Medicine materials; Support intake questions to track OA in EMR formats; Identify quality of care measures; Identify Grand Rounds opportunities for OA education; explore possibility of OA algorithm development with OARSI Guidelines Committee; explore the possibility of development of OA-risk assessment instrument for use in clinical settings.</td>
</tr>
<tr>
<td>United States Bone and Joint Initiative</td>
<td>Coordinate dissemination of OA Call to Action; convene OA Management Conference.</td>
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</tbody>
</table>
Next Steps

Once the OA Call to Action has been reviewed and approved, it will be disseminated to all COAMI members in a format suitable for distribution and briefings of colleagues, policy makers, and the public, including companion materials such as slide decks and sample newsletter content.

In addition, USBJI staff will work with the COAMI Program Committee to follow up on planning for a Consensus Conference as well as other items included in the priority actions and COAMI Work Group member commitments listed above.

By moving quickly to capture and disseminate the Work Group’s recommendations, USBJI and the COAMI Program Committee hope to maintain the momentum and enthusiasm of this initial meeting, advancing the group’s vision for a new approach to managing OA more effectively in the future.
Appendix A: COAMI Work Group Meeting Agenda

Thursday, May 10, 2012

1630 – 1645  Welcome and Introductions
Kimberly J. Templeton, MD
President, United States Bone and Joint Initiative

Joanne M. Jordan, MD, MPH
Chair, COAMI Work Group Meeting

1645 – 1715  Review of Agenda and Ground Rules
Nicole Lezin
Facilitator

1715 – 1745  Current Situation and Clinical Rationale for Change
Joanne M. Jordan, MD, MPH
Chair, COAMI Work Group Meeting

1745– 1815  Vision Discussion

Friday, May 11, 2012

0800– 0830  Re-cap of Day 1 Discussions; Review of Agenda for Day 2
Joanne M. Jordan, MD, MPH
Chair, COAMI Work Group Meeting

Nicole Lezin
Facilitator

0830 – 0915  Concerns/Barriers Discussion

0915 – 1000  Possibilities for Addressing Concerns/Barriers

1015 – 1030  Criteria for Selecting Possibilities/Action Steps

1030 – 1100  Shortening the List of Possibilities
  • Apply Criteria
  • Categorize/Sort Possibilities (Work Group preparations)
  • Select Priorities in Each Category

1100 – 1200  Small Group Work on Action Steps for High-Priority Possibilities

1300– 1400  Reports from Small Groups

1400 – 1445  Discussion/Refinement Action Items
Participant and Organization Commitments

1445 – 1515  Next Steps
Dissemination of Work Group Recommendations

1515 – 1525  Summary
Joanne M. Jordan, MD, MPH
Chair, COAMI Work Group Meeting

Thanks and Final Words
Kimberly J. Templeton, MD
President, United States Bone and Joint Initiative
Appendix B: COAMI Work Group Meeting Participants

Chair
Osteoarthritis Research Society International
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Director, Master of Science in Nursing Program
Lead Faculty, Orthopedic NP Concentration
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Associate Physician in Chief
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American Academy of Physical Medicine and Rehabilitation
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Chief Public Health Officer
Public Health Department
Arthritis Foundation
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American Medical Society for Sports Medicine
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Sports Medicine Physician
Lakeshore Orthopaedics
Manitowac, WI
American Medical Women’s Association
United States Bone and Joint Initiative
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American Orthopaedic Society for Sports Medicine
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American College of Osteopathic Family Physicians
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Family Physician
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National Athletic Trainers’ Association
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National Hispanic Medical Association
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Chairwoman, National Hispanic Medical Association
Director, UCSF-Fresno Latino Center for Medical Education and Research
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Little Rock, AR

Patient Representative
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Private Client Manager
U.S. Trust, Bank of America Private Wealth Management
Chicago, IL

United States Bone and Joint Initiative
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Lead Clinical Practice Specialist
American Physical Therapy Association
Alexandria, VA

Facilitator
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Cole Communications
Aptos, CA

Staff Liaison
Toby King, CAE
Executive Director
United States Bone and Joint Initiative
Rosemont, IL