

# The Bone and Joint Decade. Strategies to Reduce the Burden of Disease: the Bone and Joint Monitor Project

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**ABSTRACT.** Musculoskeletal conditions are the major cause of morbidity and substantially influence health and quality of life, with enormous costs to health systems. This article describes the Bone and Joint Monitor Project, whose objective is to provide evidence to enable development of policies and strategies to improve the prevention and treatment of musculoskeletal conditions, relevant to their geographic and socioeconomic settings. By identifying the burden of disease and establishing strategies that can be implemented in routine clinical practice, musculoskeletal conditions can be managed more effectively and progress can be demonstrated through the establishment of routine health monitoring. With the interventions currently available, it is feasible that all people will be afforded the right to pain control, mobility, and independence. (J Rheumatol 2003;30 Suppl 67:6–9)

*Key Indexing Terms:*  
MUSCULOSKELETAL SYSTEM  
HEALTH POLICY

BONE AND JOINT DECADE  
WORLD HEALTH ORGANIZATION

Musculoskeletal conditions are the major cause of morbidity throughout the world and have a substantial influence on health and quality of life, inflicting an enormous cost on health systems. There is an increase in the number of older people throughout the world, along with changes in lifestyle, which will increase this burden. UN Secretary General Kofi Annan has declared that action must be taken now when he endorsed the Bone and Joint Decade, 2000–2010<sup>1</sup>.

The WHO's "Health 21: The Health for All Policy Framework in the WHO European Region"<sup>2</sup> identifies musculoskeletal conditions as a target, but at present national healthcare priorities in most countries do not offer redress. The Bone and Joint Decade aims to change this by improving health-related quality of life for people with musculoskeletal disorders throughout the world. This requires increased priority and resources, gained through advocacy and supported by evidence. The aim of the Bone and Joint Monitor Project is to provide evidence to enable development of policies and strategies to improve the prevention and treatment of musculoskeletal conditions, relevant to their geographic and socioeconomic settings. This initiative is being undertaken by means of a health needs assessment of musculoskeletal conditions, i.e., regarding the burden of musculoskeletal conditions, who is at risk, and the extent of evidence on the clinical and cost-effectiveness of interventions, in order to determine what can be achieved and how to achieve it. Moreover, the availability of services and outcomes will be examined to identify gaps and develop strategies to close them.

The most important gap to identify is the *avoidable* burden of disease, that is, the difference between what can be achieved by state-of-the-art treatments and what is being achieved in routine clinical practice (Figure 1). The difference between the actual burden of disease and what can be achieved by state-of-the-art treatments identifies the research agenda. In addition, the outcome of any implemented strategies has to be monitored. Benefits of such health needs assessment: Clinicians can base their practice on best available evidence; patients can actively participate in their own care; models of care will be developed; and health systems can provide appropriate cost-effective care.

The burden of musculoskeletal conditions has been identified by review and collation of existing data in collaboration with the WHO Global Burden of Disease 2000 Project, and will also contribute to the annual world health report. This was the focus of a WHO/Bone and Joint Decade

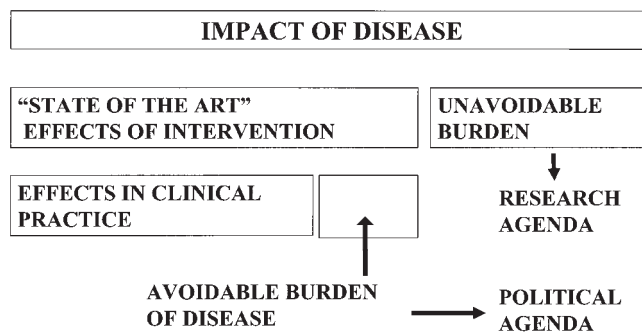


Figure 1. The impact of disease and what cannot be achieved with existing therapies identifies the research agenda. What is not being achieved in routine practice identifies the avoidable burden that can be reduced with the better application of existing interventions with more priority and resources.

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Scientific Group Meeting held in January 2000, the proceedings of which are published as a WHO Technical Report<sup>3</sup>.

The most important musculoskeletal conditions being considered are joint disorders such as rheumatoid arthritis and osteoarthritis, back pain and other spinal disorders, osteoporosis, and musculoskeletal trauma, including soft tissue and sports injuries. It is also important to measure musculoskeletal conditions as a whole, as there are many nonspecific regional pain syndromes that have a significant impact. Descriptive epidemiology requires clear definitions of the conditions and it was agreed for purposes of this project that the 1998 American College of Rheumatology criteria<sup>4</sup> be used for rheumatoid arthritis; osteoarthritis is defined by both radiological and symptomatic criteria; osteoporosis by the WHO definition based on bone density<sup>5</sup> and also by the occurrence of fractures of vertebrae, hip, or distal forearm; and back pain, regional, and general musculoskeletal pain should be defined by the localization, duration, and level of complaint. The incidence and prevalence of these conditions have been identified using these definitions where possible. The impact is being considered within the framework of the WHO International Classification of Functioning, Disability and Health<sup>6</sup> (Figure 2), which considers the impairment of body functions and structures, limitation of activities, and the restriction of participation that may relate to the health condition. All these are influenced by both environmental and personal contextual factors. The effect on body structures can be assessed, for instance, by loss of bone mass or fracture in osteoporosis or loss of cartilage in osteoarthritis. Generic and disease-specific instruments can be used to measure limitation of activities or restriction of participation. The socioeconomic effect also needs to be considered in terms of work loss, social support, and resource utilization. Finally, there is small but significant mortality associated with various musculoskeletal conditions.

A summary measure of the burden of disease is necessary to compare the effect of different conditions within a

### **WHO International Classification of Functioning, Disability and Health (ICF)**

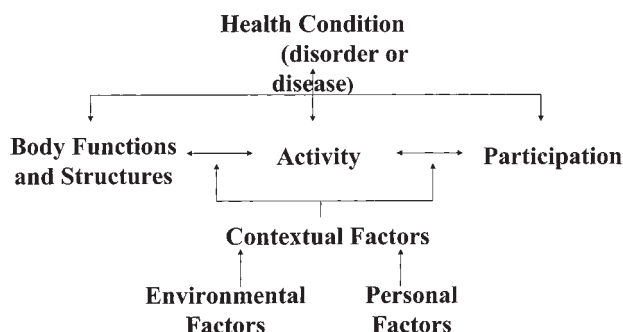


Figure 2. The WHO International Classification of Functioning, Disability and Health (ICF)<sup>6</sup>.

community so that priorities can be established. Such a summary measure requires a model of the condition along with the numbers of individuals within and moving between the different stages, as well as their health state at each stage of the condition. In most musculoskeletal conditions, people move from normal health to being at risk and then developing clinical manifestations. Many of these musculoskeletal conditions are persistent and progressive, and the person will move from an early and/or mild stage to a late and/or severe stage. The nature of the effect on the individual will vary at each stage, and this is described by the health state. The health state is measured by the effect on the relevant domains. The most important health domains for musculoskeletal conditions agreed at the WHO/Bone and Joint Decade scientific group meeting are overall well being, general health, physical health, social health, mental health, and barriers to participation.

Models of the stages and health states are being developed. For instance, in osteoporosis, a person will move from normality, with no effect on the different health domains, to being at risk when they may become anxious about possible future fractures. If they sustain a fracture, this is associated with pain, immobility, and inability to take a social role in its acute stage, followed by a post-fracture stage, where there may be longterm effects on their mobility, as well as pain and social isolation. A characterization of such health states for the different stages of musculoskeletal conditions needs to be further developed if the true impact is to be determined.

The economic influence of musculoskeletal conditions must also be considered. They were reportedly the most expensive disease categories in the Swedish Cost of Illness Study, representing 22.6% of the total cost of illness<sup>7</sup>. The greatest costs are indirect, relating to morbidity and disability. Studies have shown that for osteoporosis and arthritis the direct costs only represent between one-quarter and one-third of the total costs.

Evidence-based strategies are needed to reduce the burden of musculoskeletal conditions. In any strategy for prevention the whole population can be targeted for conditions as common as musculoskeletal disorders. Such strategies are aimed at identifying risk factors that influence musculoskeletal health, such as lack of physical activity, injuries, obesity, inadequate calcium intake, smoking, and alcohol. Many of these risk factors also carry risk for other health problems and therefore any strategy targeted to reduce musculoskeletal conditions will further benefit other areas of health. Strategies for prevention are, however, more cost-effective if high-risk individuals or those with early features of the condition are targeted. Much can now be achieved in the management of musculoskeletal conditions, but improvement in health will be limited if these interventions are not utilized by all those who can benefit. Osteoarthritis can be managed by pain control and self-

management, and arthroplasty is a very cost-effective procedure<sup>8</sup>. There are now effective disease modifying agents for rheumatoid arthritis, which have significantly altered its course<sup>9</sup>. Rehabilitation programs for back pain can reduce its enormous socioeconomic impact. Risk of fracture can be significantly reduced by a variety of pharmacological interventions<sup>10</sup>. Musculoskeletal trauma can be prevented in many cases by accident prevention programs, and more effective acute management can improve outcomes.

The European Bone and Joint Health Strategies Project, which is being coordinated by the Monitor Project, aims to close the gap between what can be achieved and what is being achieved by developing a common public policy based on existing knowledge to deal with risk factors of musculoskeletal health and to enable people with musculoskeletal conditions to enjoy their full health potential. Recommendations will be made for the dissemination and implementation of these policies at a regional and district level throughout the European Community. The project is supported by the European Commission and participating organizations are the Bone and Joint Decade with supporting organizations, the European League Against Rheumatism, the European Federation of National Associations of Orthopaedics and Traumatology, and the International Osteoporosis Foundation.

Recommendations are being developed by identifying evidence-based interventions from systematic reviews and guidelines. From this, strategies will be developed that will prove cost-effective in clinical practice to improve outcome of those with or at risk of musculoskeletal conditions. Policies can then be based on what is achievable and what is needed. Evidence for interventions has been identified in terms of effectiveness in dealing with symptoms, most commonly pain; tissue damage, such as low bone mass or fracture in osteoporosis; and activities and participation. Interventions are being considered in terms of lifestyle, and pharmacological, surgical and rehabilitative considerations. From the evidence, recommendations will be made that also combine the size of effect of an intervention, the timing of benefits, and the importance of the problem being treated. Strategies are then being developed that are aimed at the healthy population, those at risk, those at an early or mild stage, and those at a late or severe stage of the condition. In general, interventions targeting those at risk or with early disease are most cost-effective. The challenge is identifying such individuals for this selective case-finding approach.

The difficulty, however, is not in the development of preventive strategies but rather in their implementation: while there are numerous evidence-based guidelines for musculoskeletal conditions, few are being implemented. Barriers to implementation and ways to overcome them need to be identified. The aim of the European Bone and Joint Health Strategies Project is to develop policies that will have a major influence on health related to several

musculoskeletal conditions by integrating key strategies relevant to individual conditions. Examples of possible policies common to musculoskeletal conditions would be early access to appropriate care, access to multidisciplinary care, empowerment and active participation by those with musculoskeletal conditions, or greater public awareness of the importance of musculoskeletal conditions and what can be done for them. When developing strategies to improve health, it must be recognized that healthcare is only one part of this — lifestyle and living conditions and genetics and ageing all play major roles.

The implementation of health policy requires justification: Why are a policy and its goals important? What evidence supports the policy? How likely to achieve its goals? Barriers by way of inadequate human, physical, and financial resources and facilitating elements, such as quality of evidence, advocacy and political expediency, need to be identified. Implementation needs clear, specific objectives supported by evidence and examples of good practice. The benefits of these policies for the various musculoskeletal conditions can now be easily debated based on the quality of data. Advocacy is also necessary, but there is no substitute for good evidence and program evaluation to demonstrate benefit achieved.

There are various steering mechanisms that can be used to facilitate implementation: legislation; economic tools including fees, contractual arrangements by agreement with healthcare reimbursement organizations, audit, expert opinion; and promotional campaigns for the general public. However, in many examples implementation is often the result of good fortune and political expediency, although this must be underwritten by good evidence. Sustaining any policy requires evaluation of outcome achieved; the European Health Monitoring Project is identifying a set of indicators that can be used to monitor health status of musculoskeletal conditions, which will allow the effects of any policies to be measured.

In conclusion, by identifying the burden of disease and by establishing strategies that can be implemented in routine clinical practice, musculoskeletal conditions will be more effectively managed; moreover, progress will be demonstrated by the establishment of routine health monitoring relevant to musculoskeletal conditions. With the interventions currently available, it is feasible that all people will be afforded the right to pain control, mobility, and independence.

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