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THE BURDEN OF MUSCULOSKELETAL CONDITIONS AT THE START OF THE NEW MILLENNIUM

Report of a
WHO Scientific Group

World Health Organization
Geneva

This report contains the collective views of an international group of experts and does not necessarily represent the decisions or the stated policy of the World Health Organization

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1. Introduction

A WHO Scientific Group on the Burden of Musculoskeletal Conditions at the Start of the New Millennium met in Geneva from 13 to 15 January 2000. The meeting was opened by Dr G. Harlem Brundtland, Director-General of the World Health Organization. The meeting, organized by WHO in collaboration with the Bone and Joint Decade, marked the launch of the Bone and Joint Decade 2000–2010.

1.1 Introduction by the Director-General

Dr Brundtland opened by stating that during the past century, average life expectancy had risen by nearly 20 years, an unprecedented achievement but one whose success had been very unevenly distributed as health and longevity had not been brought to all of the world's population.

The increased life expectancy recorded in recent decades, together with changes in lifestyle and diet, has led to a rise in the incidence of noncommunicable diseases, also seen in the developing countries. Noncommunicable diseases now cause nearly 40% of all deaths in developing countries, affecting people of a younger age than they do in industrialized countries. The epidemiological transition, with its double burden of infectious and noncommunicable diseases, means that many developing countries now struggle with a range and volume of disease for which they are not prepared.

Dr Brundtland discussed non-fatal outcomes, mentioning that although the diseases that kill attract much of the public's attention, musculoskeletal or rheumatic diseases are the major cause of morbidity throughout the world, having a substantial influence on health and quality of life, and inflicting an enormous burden of cost on health systems. She pointed out that rheumatic diseases include more than 150 different conditions and syndromes with the common denominators of pain and inflammation. Examples of the burden include:

- 40% of people over the age of 70 years suffer from osteoarthritis of the knee.
- 80% of patients with osteoarthritis have some degree of limitation of movement, and 25% cannot perform their major daily activities of life.
- Rheumatoid arthritis, within a decade of its onset, leads to work disability, defined as a total cessation of employment in between 51% and 59% of patients.
- Low back pain has reached epidemic proportions, being reported by about 80% of people at some time in their life.

- An estimated 1.7 million hip fractures occurred worldwide in 1990, the figure being expected to exceed 6 million by 2050. Osteoporotic hip fractures account for a large proportion of the morbidity, mortality and cost of the disease.

Dr Brundtland stated further that surveys involving several developing countries have provided valuable information on the magnitude of the problem, showing that the burden of rheumatic diseases is practically equal to that encountered in the industrialized world. She summarized the history of WHO activity in the area, which had its origins at the 1976 World Health Assembly when then Director-General Halfdan Mahler said: "Perhaps the most fundamental difficulty in regard to rheumatic diseases is that the problem is insufficiently appreciated and understood. Critical to this lack of appreciation is an information deficit." Since then, a community-oriented programme for the control of rheumatic diseases has been jointly initiated by WHO and the International League of Associations for Rheumatology.

In 1989, the WHO Scientific Group on Rheumatic Diseases undertook a state-of-the-art review of a very wide spectrum of conditions, from nonspecific aches and pains in joints to full-blown rheumatoid arthritis. The review provided evidence that rheumatic diseases cause more pain and disability than any other group of conditions in developed countries, and the same pattern of morbidity is now being seen in the developing world.

Dr Brundtland referred to a 1994 Study Group that increased understanding of the factors underlying the metabolic changes and considered possible ways of preventing osteoporosis and improving treatment (*1*). Surveys undertaken in developed countries indicated that, by the age of 70 years, more than one in four women had sustained at least one osteoporotic fracture, and the estimated lifetime risk for wrist, hip and vertebral fractures was estimated to be 15%, very close to that of ischaemic heart disease. Further, available data leave little doubt that osteoporosis is reaching epidemic proportions and that it will become increasingly important in most countries as a result of a proportionate increase of the elderly population, as well as a notable change in risk factors.

In implementing the recommendations of this Study Group, WHO has established a task force to draw up a strategy for osteoporosis management and prevention. The International Osteoporosis Education Project aims to improve the diagnosis and care of osteoporotic patients throughout the world, with special emphasis on developing countries.

WHO envisions a way of improving community health through increased collaborative efforts with governmental and nongovernmental organizations. The aim is to increase the capacity of community control programmes to include a wide range of measures, from professional training, patient and family education, and community and patient participation to the enhancement of early detection, and effective treatment and rehabilitation. Further, such programmes should also become an integral part of health services, including existing primary health care systems. An association between chronic musculoskeletal diseases, such as osteoarthritis, low back pain, osteoporosis and gout, and such risk factors as obesity, physical inactivity, stress and smoking, provides opportunities to prevent these diseases through a change in lifestyle. Chronic musculoskeletal diseases can be prevented by including them in a more comprehensive noncommunicable diseases prevention and control programme. The potential in such an approach is great, and WHO is currently developing a global strategy to achieve this.

Dr Brundtland concluded by referring to the goal of the Bone and Joint Decade 2000–2010, which is to improve the health-related quality of life for people with musculoskeletal conditions throughout the world. She hoped that the WHO Scientific Group meeting would build on the foundations of combined efforts and expressed confidence that the outcome would not only be of great value to rheumatologists, physicians and health care workers throughout the world, but would also lead to action to bring relief and hope to the millions who suffer from musculoskeletal conditions.

1.2 Scope and aims

The goal of the Bone and Joint Decade 2000–2010 is to improve the health-related quality of life for people with musculoskeletal conditions throughout the world by raising awareness of the suffering and cost to society associated with these conditions, by empowering patients to participate in decisions concerning their care, by promoting cost-effective prevention and treatment, and by advancing the understanding of musculoskeletal conditions and improving prevention and treatment through research.

Musculoskeletal conditions are extremely common. Osteoarthritis and osteoporosis are particularly prevalent among older people, the number of whom is predicted to increase in all countries, most markedly in developing countries showing an improvement in health outcomes. Disability following road traffic accidents is expected to increase dramatically in developing countries. The question arises as to who will pay for the required medical and social care when, in

many parts of the world, the size of the labour force is declining. There are urgent reasons why, in the words of the United Nations Secretary-General Kofi Annan, we must act now.

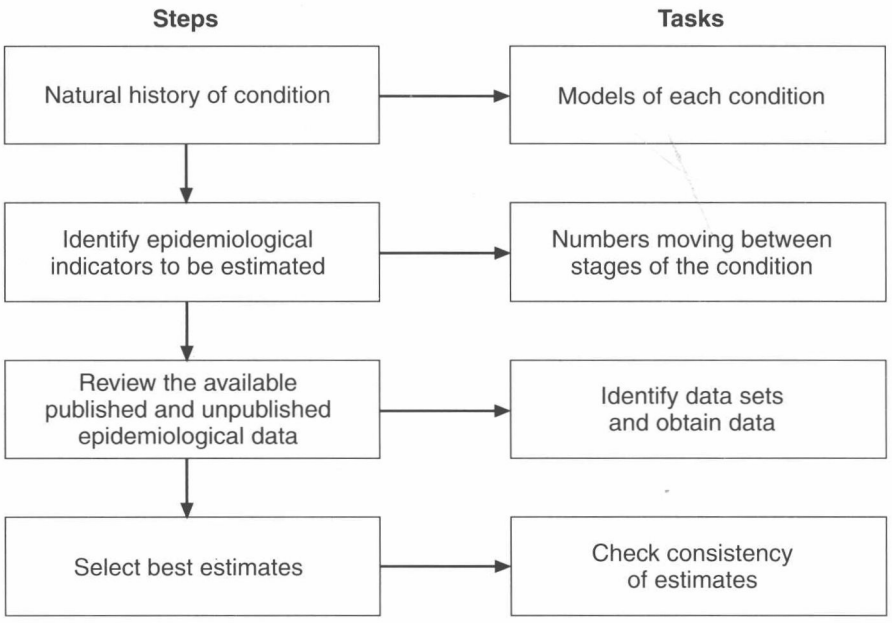
This meeting was part of a global health needs assessment, the Bone and Joint Decade Monitor Project, which will provide evidence enabling the development of priorities and strategies to improve the health-related quality of life for people with these conditions, relevant to their geographical and socioeconomic settings. The project aims to:

— identify the current global burden of musculoskeletal conditions;
— estimate its future magnitude;
— establish what can be achieved by effective prevention and treatment;
— establish the present provision of care and the ideal provision of care;
— determine costs and priorities;
— establish methods for monitoring the extent to which the goals are being achieved.

The specific aims of this meeting were to identify, review and compile data on all aspects of the global burden of musculoskeletal conditions, and then to establish widely used outcome measures that could be used to monitor changes in these conditions in all populations. The meeting focused on rheumatoid arthritis, osteoarthritis, osteoporosis, spinal disorders and major limb trauma. The problem of children in each of these categories was taken into consideration. Other conditions, such as gout, fibromyalgia, sprains and strains are important but were not specifically considered. Their burden was partly reflected by much of the information collected in general terms about pain or disability associated with musculoskeletal conditions as a whole. Data were identified and opinions were obtained which were relevant to all geographical and economic situations, providing information for the Global Burden of Disease 2000 Study (GBD 2000).

The measurement of the burden of musculoskeletal conditions (Figure 1) requires a model of the course of the different conditions. It also requires data, or a knowledge of the feasibility of collecting data, on incidence, prevalence and outcome. On the basis of these data, best estimates have to be made of the burdens in question. Summary measures of health which can be used to compare and contrast different conditions and are appropriate to musculoskeletal conditions have to be considered, and a consensus on the assessment of the conditions has to be achieved. Data were identified by a wide network of collaborators in different regions of the world as well as by the members of the Scientific Group. A large proportion of the data

Figure 1
Identifying the burden of disease



needed was not readily accessible or was unavailable for certain conditions in some geographical areas. The needs for additional data were identified.

The improvement in health-related outcomes requires the ability to monitor and determine whether and how this is being achieved. For this to be possible it is necessary to reach agreement on indicators and methods of application, the choice of which depends on the condition, the socioeconomic setting and the reason for using the data. In this way we hope to set evidence-based standards, establish priorities and develop methods of observing good practice. By measuring achievements and improving care it is possible to gradually improve the outcomes of people with musculoskeletal conditions, thus reducing the burden on both individuals and society.

Certain key activities undertaken during the Scientific Group Meeting are reported in subsequent chapters.

Incidence and prevalence

The available data on the frequency of the index conditions (rheumatoid arthritis, osteoarthritis, osteoporosis, spinal disorders and major limb trauma) and of musculoskeletal conditions in general in different

countries and continents were reviewed. With a view to measuring burden, agreement was reached on the preferred disease definitions for the index conditions. Challenges in interpreting the available data were considered. Gaps in data and the reasons for them were identified. Priorities for collecting additional data or for making estimates on the basis of data obtained in comparable populations were discussed.

Impact on the individual, family and society

Data were reviewed and expert opinion was sought in relation to the impact on both the individual and society in terms of the health-related quality of life, resource utilization and social consequences. The courses or different stages of the index conditions were discussed, and definitions were agreed for the purpose of identifying burden. Information from different countries and continents on the health and economic impact of the index conditions was reviewed. The reasons for gaps in data were identified. Differences in outcome between geographical and socioeconomic environments were considered, and possible explanations for the differences were examined. This work is continuing.

Measuring the health impact and economic burden of musculoskeletal conditions

The need for health indicators was considered, and the special requirements in respect of musculoskeletal conditions, particularly the index conditions, were reviewed. Routinely or potentially collected indicators, such as those used for official health statistics, were considered for their relevance to the index musculoskeletal conditions and for their availability in most populations.

The most relevant domains for measuring the different index musculoskeletal conditions were agreed. Methods of describing health status and the consequences of musculoskeletal disorders or injuries were investigated in order to facilitate the development of appropriate summary measures of health. An inventory of assessment instruments for musculoskeletal conditions was developed. Those most suitable for measuring the burden of the index conditions were identified, and their suitability for global application was discussed.

2. Global burden of disease

2.1 The Global Burden of Disease Study

The Global Burden of Disease Study, which began in 1992 (GBD 1990 — based on 1990 data), had three broad goals: to decouple