

# NEUROLOGICAL DISORDERS

## public health challenges



World Health  
Organization



multiple sclerosis  
international federation



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# foreword



In the 19th century and at the beginning of the 20th, brain research belonged to many different areas that differed in methodology and targets: the morphological, the physiological and the psychological. The latter used to consider the brain as a black box where only the input and output were known but not at all the neuronal components and the way they interact with each other.

At the beginning of the third millennium, due to prolonged ageing, neurodevelopmental disorders are growing and a much deeper knowledge of the brain is necessary. Scientific and technological research, from molecular to behavioural levels, have been carried out in many different places but they have not been developed in a really interdisciplinary way. Research should be based on the convergence of different interconnected scientific sectors, not in isolation, as was the case in the past.

As this report demonstrates, the burden of neurological disorders is reaching a significant proportion in countries with a growing percentage of the population over 65 years old.

With this report go my best wishes that it be disseminated worldwide and that it receive the deserved attention of the Global Health Community in all the countries of the world.

**Rita Levi-Montalcini**  
1986 Nobel Prize in Medicine



# preface

Within its remit to provide leadership on all matters concerning health, one of the core functions of the World Health Organization (WHO) is to engage in partnerships where joint action is needed. WHO plays an important role in bringing crucial health-related topics to the agenda of policy-makers and health planners and in raising awareness of them among health-care professionals and all who have an interest in health matters.

WHO's Department of Mental Health and Substance Abuse carries out this role for the three different sets of issues for which it is responsible: mental disorders, substance abuse and alcohol-related issues, and neurological disorders. Two recent publications have focused attention on its work. *The world health report 2001 – Mental health: new understanding, new hope* is an advocacy instrument to shed light on the public health aspects of mental disorders, and the report *Neuroscience of psychoactive substance use and dependence* produced by the department in 2004 tackles the area of substance abuse and alcohol. We realized a similar exercise is needed in the field of neurological disorders.

The Global Burden of Disease study, the ongoing international collaborative project between WHO, the World Bank and the Harvard School of Public Health, has produced evidence that pinpoints neurological disorders as one of the greatest threats to public health. A clear message emerges that unless immediate action is taken globally, the neurological burden is expected to become an even more serious and unmanageable problem in all countries. There are several gaps in understanding the many issues related to neurological disorders, but we already know enough about their nature and treatment to be able to shape effective policy responses to some of the most prevalent among them.

To fill the vast gap in the knowledge concerning the public health aspects of neurological disorders, this document *Neurological disorders: public health challenges* fulfils two roles. On one hand, it provides comprehensive information to the policy-makers and on the other hand, it can also be used as an awareness-raising tool. The document has unique aspects that should be stressed. It is the result of a huge effort bringing together the most significant international nongovernmental organizations working in the areas of various neurological disorders, both in a professional capacity and in caring for people affected by the conditions. It is the fruit of healthy interaction and collaboration between these organizations and WHO, with its network of country and regional offices: health experts on

one hand working together with the extensive and competent world of professionals and researchers on the other. Some of these organizations have also contributed financially to this endeavour. This exercise thus demonstrates that such collaboration is not only possible but can also be very productive.

The document is distinctive in its presentation as it provides the public health perspective for neurological disorders in general and presents fresh and updated estimates and predictions of the global burden borne by them. Separate sections discuss some of the most important disorders in detail: dementia, epilepsy, headache disorders, multiple sclerosis, neuroinfections, neurological disorders associated with malnutrition, pain associated with neurological disorders, Parkinson's disease, stroke and traumatic brain injuries.

The document makes a significant contribution to the furthering of knowledge about neurological disorders. We hope it will facilitate increased cooperation and innovation and inspire commitment to preventing these debilitating disorders and providing the best possible care for people who suffer from them.



**Benedetto Saraceno**

Director, Department of Mental Health  
and Substance Abuse

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