With this report go my best wishes that it be disseminated world-wide and it receive the deserved attention of the global health community in all the countries of the world

— Rita Levi-Montalcini, Nobel Prize in Medicine, 1986
Neurological Disorders:
Public health challenges

This WHO report endeavours to contribute to the knowledge base regarding public health aspects of neurological disorders. It is hoped that it will inspire and facilitate increased cooperation, innovation and commitment in preventing neurological disorders and providing the best possible care for people suffering from them.

- Provides comprehensive information about the public health perspective for neurological disorders.
- Presents fresh and updated estimates and predictions of the global burden for neurological disorders for 2005, 2015 and 2030.
- Constitutes a useful awareness-raising tool.
- Neurological disorders covered:
  - Dementia
  - Epilepsy
  - Headache disorders
  - Multiple sclerosis
  - Neuroinfections
  - Neurological disorders associated with malnutrition
  - Pain associated with neurological disorders
  - Parkinson’s disease
  - Stroke
  - Traumatic brain injuries.

- Collaborative effort of World Health Organization (WHO), professional experts and 10 international nongovernmental organizations working in the areas of various neurological disorders:
  - Alzheimer’s Disease International
  - European Parkinson’s Disease Association
  - International Association for the Study of Pain
  - International Bureau for Epilepsy
  - International Headache Society
  - International League Against Epilepsy
  - Multiple Sclerosis International Federation
  - World Federation of Neurology
  - World Federation of Neurosurgical Societies
  - World Headache Alliance

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

Rita Levi-Montalcini
Nobel Prize in Medicine, 1986
EVIDENCE FOR A PUBLIC HEALTH FRAMEWORK FOR NEUROLOGICAL DISORDERS

1. The burden of neurological disorders is already high and is increasing further

- Neurological disorders, impairments and sequelae are currently estimated to constitute over 6% of the global burden of disease.
- For example, worldwide 50 million people have epilepsy; 24 million people are affected by Alzheimer and other dementias.
- Around 6.8 million people die every year because of neurological disorders.
- These disorders are found among all age groups and in all geographical regions, but especially high in many low and middle income countries.
- Many low income countries face the double burden of a continuing high level of infections—including some that result in neurological disorders (e.g. HIV and malaria)—and increases in noncommunicable diseases including neurological disorders.
- The number of people with neurological disorders is estimated to increase considerably in years to come. It is forecast that the number of people affected by dementia (already counted in tens of millions) will double every 20 years.
- The socioeconomic demands of care, treatment and rehabilitation put a strain on entire families, society, community and nations. A study conducted in Europe estimated that the annual economic cost of neurological diseases (dementia, epilepsy, migraine and other headaches, multiple sclerosis, Parkinson’s disease and stroke) amounted to €139 billion.

2. Stigma and discrimination are associated with most of these disorders

- Because of stigmatization, affected individuals or those responsible for their care may not seek treatment, hoping to avoid the negative social consequences of diagnosis. Indeed, in some communities, the stigma leads to the denial of basic human rights. Stigma aggravates the vicious cycle of illness and social negative reaction and leads to social exclusion and discrimination.
- For example, epilepsy, particularly in developing countries, is considered contagious or the sign of a curse or possession, with blame for the condition attached to the family as well as to the patient. This results in substantial reduction in societal opportunities such as education, marriage or work, and exclusion from community activities.

3. Cost-effective interventions are available

- Treatment of epilepsy is one such cost-effective intervention. Up to 70% of people with epilepsy could become seizure free with antiepileptic drug treatment, but the proportion who remain untreated at any given time is greater than 80% in most low income countries.
- Aspirin is by far the most cost-effective intervention both for treating acute stroke and for preventing a recurrence. Nevertheless, the coverage of the affected population with this inexpensive treatment is still extremely low.

4. Many neurological disorders can be prevented and treated

- A number of strategies implemented at policy level by governments through legislation, tax or financial incentives can prevent neurological disorders. For example, policies encouraging the use of seatbelts or motorcycle helmets can prevent injuries. This also results in prevention of other disorders secondary to trauma such as epilepsy.
- Control of cardiovascular diseases including stroke can be handled through a comprehensive approach taking account of a variety of interrelated risk factors including blood pressure, cholesterol, smoking, body mass index, low levels of physical activity, diet and diabetes. (A comprehensive national strategy thus combining prevention, community-based health promotion and access to treatment can substantially decrease the burden associated with cardiovascular diseases, including stroke).
- Many neuroinfections such as poliomyelitis, and the neurological consequences of infections (e.g. Hemophilus influenzae type B (Hib)), can be prevented by immunization. Meningitis caused by Hib has been nearly eliminated in the industrialized world by routine vaccination, however still persists in developing countries. BCG vaccination is recommended because of its high protective efficacy against serious forms of the disease in children (73% for meningitis and 77% for miliary tuberculosis).
Disability consequent to neurological disorders can be decreased by rehabilitation programmes and policies. For example, building ramps and other facilities to improve access by disabled people falls beyond the purview of the health sector but is nevertheless very important for comprehensive management of people with disability.

5. Resources are available, however inadequate and inequitably distributed

Despite the huge burden they cause, neurological conditions are largely absent from the international health agenda. Moreover, country health plans frequently do not cover neurological disorders at the same level as other illnesses, creating significant economic difficulties for patients and their families.

According to Neurology Atlas (WHO, 2004), on average, there was one neurologist per 100 000 population worldwide in the reporting countries, ranging from one per 20 000 population in the European Region of WHO to one per three million population in the African Region.

Not only are resources inadequately allocated for neurological services, there is also inequity in their distribution across countries and populations. This is particularly true for people living in low and middle income countries as well as for poor population groups in high income countries.

A clear message emerges from this report: unless immediate action is taken globally, the neurological burden is expected to become an even more serious threat to public health.

RECOMMENDATIONS FOR ACTION

In order to reduce the burden of neurological disorders, a few measures need to be implemented across a wide range of sectors and disciplines. They are not a universal blueprint, however, and will have to be adapted to local conditions and capacities.

In certain low and middle income countries with limited human and financial resources, it may be difficult for governments to apply some of these recommendations on their own. In these circumstances, it is suggested that countries work with international agencies, nongovernmental organizations or other partners to put their plans into practice.

Commitment from decision makers is the first essential step to decrease the burden caused by neurological disorders.

Societal and professional awareness of public health aspects of neurological disorders needs to be raised through global and local campaigns and initiatives.

Innovative strategies to address the associated stigma and discrimination need to be part of the public health activities for neurological disorders.

The most promising approach for reducing the burden of these disorders is to strengthen neurological care within the existing health systems.

Rehabilitation needs to complement the other key strategies for neurological care such as promotion, prevention and treatment.

Defining the priorities for research, building national capacity and intensifying international collaboration are some of the important ways for bringing about the changes that people with neurological disorders need.