The value of action

Mitigating the global impact of neurological disorders

Summary

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Neurological disorders are the leading cause of disability and the secondleading cause of death worldwide. 1,2 Urgent action is needed to drive prevention, improve care effectiveness and leverage policymaking and funding to reach achievable advances in outcomes.

Economic prioritisation and targeted policies are critical steps towards reducing social and economic consequences of neurological disorders on economies worldwide. But the first step is developing a clear understanding of the issue and the significant nuances involved. An unfortunate truth is that **data on the burden of neurological disorders are scarce**, even in high-income countries (HICs), and especially in comparison to other non-communicable diseases.

The impact of neurological disorders is most felt in low- and middle-income countries (LMICs), where 70% of the global burden is concentrated.³ Yet the burden of neurological disorders is also significant in wealthier regions—the direct costs in Europe, for example, are greater than those for cancer, cardiovascular disease and diabetes combined.⁴ As populations increase and grow older, the burden will only increase, presenting a significant challenge to health systems and national economies.

A new Economist Impact programme, The value of action: mitigating the global impact of neurological disorders, seeks to contribute to a better understanding of the socioeconomic burden of neurological disorders by assessing the epidemiological burden, economic impact and current policy landscape on a multi-regional and disorder-specific basis. One of the first of its kind, this programme quantifies the value of action by assessing the indirect costs that would be avoided by reducing the substantial caregiver burden and productivity losses which characterise neurological disorders. Building a detailed economic picture spanning ten disorders, our analysis finds that 50% the total cost of neurological disorders is due to these indirect costs. We also found that scaling up prevention, treatment and rehabilitation efforts to adequate levels would save over \$4trn by 2030 across the 11 countries that we studied.

Our economic analysis covers the following ten neurological disorders:

- · stroke;
- Alzheimer's disease and other dementias;
- · multiple sclerosis;
- migraine;
- Parkinson's disease;
- spinal muscular atrophy;
- epilepsy;
- spinal cord injury;
- traumatic brain injury; and
- brain and nervous system cancers.

This new, rigorous, evidence-based platform provides stakeholders a deeper understanding of the amenable impact of neurological disorders, gaps in current policy and the value of action.

Table 1
Countries and regions included in study

The Americas	USA Brazil Colombia
Asia	China Japan
Europe	Germany Italy Romania UK
Sub-Saharan Africa and the Middle East	Kenya Lebanon

Limited prioritisation = limited resources and limited impact

Governments have generally failed to prioritise and take action on neurological disorders. For example, only 28% of LMICs have a dedicated neurological policy.⁴ Public health expenditure also remains low: just 12% of all countries in the World Health Organization's (WHO) Neurology Atlas report a separate budget for neurological disorders, indicating low awareness of the major economic toll faced by countries and individuals—and low prioritisation of the steps to mitigate this impact.⁵

Even in high-income countries, for example, neurology is a time-intensive discipline that is not always adequately compensated; in the US, neurologists have the second-highest burnout rate across all medical specialties. Meanwhile, carers receive inadequate support despite extremely stressful demands, and patients face unnecessary challenges. Employment protection against discrimination is lacking in many countries, for example, and long-term care often does not ensure patients' functional and emotional wellbeing. Prevention is also often inadequate, removing a vital opportunity to limit the individual, social and economic impact of neurological disorders from the outset.

What we found

Neurological disorders are not heterogeneous—

they consist of hundreds of different disorders that are faced by people living amid hugely varying health, economic and policymaking realities. Expanding access to interventions can reduce the economic impact of neurological disorders on individuals, carers, employers and wider society. Our research reveals disease-specific areas of improvement for several of the most common and burdensome neurological disorders, including the following:

Stroke

A large proportion of strokes are preventable—with the right focus, the physical and financial burden on individuals and society could be reduced.

· Alzheimer's disease

Social support must innovate rapidly to cope with the ever-expanding number of people diagnosed with Alzheimer's disease.

Multiple sclerosis

Better awareness of multiple sclerosis prevalence would boost research, potentially yielding lower-cost treatments. Many people experience significant delays between symptom onset, diagnosis and treatment; access for vulnerable populations must be expanded.

Migraine

Increased understanding of migraine is needed in LMICs. National strategies, policies and disease registries are lacking in many countries, and improved integrated care systems would facilitate timely treatment.

· Parkinson's disease

New and relatively inexpensive treatments could slow the progress of Parkinson's disease and improve care in resource-poor countries. Telemedicine and other digital technologies may aid with workforce shortages and improve prevention, diagnosis and treatment.

· Spinal muscular atrophy

Improving accessibility and equity in screening and treatment for spinal muscular atrophy is an obvious opportunity. National strategies and disease registries are lacking in most countries.

Epilepsy

Epilepsy symptoms can be an early signpost for many other neurological disorders. Epilepsy should therefore become a much higher global priority. Better research is needed to increase awareness, reduce misdiagnosis and stigma, and improve innovation in care.

Spinal cord and traumatic brain injuries

Spinal cord and traumatic brain injuries seem to be treated as an acute, unavoidable consequence of life, yet prevention is within reach. It requires the management of risk factors such as road safety, falls and alcohol overuse, and access to medical and social care. Vocational rehabilitation—in short supply in general and almost non-existent in LMICs—can significantly improve workforce participation and boost cost savings.

· Brain and nervous system cancers

More avenues for equitable access to treatments for brain and nervous system cancers (including tumours) need to be considered, given the significant financial burden.

Generally, many countries, especially LMICs, need improvements in data collection, prevention, integrated care, access to specialists and rehabilitation.

What do these results tell us?

Our analysis reveals the immense value that concrete action on neurological disorders would have for advanced and emerging economies alike. We found, for example, that scaling up rehabilitation to the required level across the ten disorders in question would save \$727bn by 2030 in the 11 countries in our study, while scaling up treatment would save \$911bn. Finally, \$2.4trn could be saved by expanding prevention to adequate levels.

Concerted action to improve access to prevention, effective and timely diagnosis, treatment, and rehabilitative and supportive care is sorely needed to achieve the potential savings revealed by our analysis. Neurological disorders must be made a national priority, through both policymaking and economic prioritisation.

Policy interventions aiming to reduce the burden borne by carers and help people with neurological disorders continue to live full, active lives, will limit the economic and social costs felt by society. This will yield the greatest benefits for both those directly affected and wider society.

When we think about the impact of preventing and managing neurological disorders at the global level, there is an opportunity to reduce early mortality and disability, and improve quality of life more generally. This may be a challenging feat to accomplish, particularly for resource-poor countries, but our analysis shows that even small measures can deliver some impact. Progress is not only achievable; it is critical to improving lives and meeting global goals around economic sustainability and resilience.

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