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Supplementary information

Barriers to implementation of evidence into clinical practice in low-resource settings

In the format provided by the authors and unedited

Supplementary Table 1 | Barriers to implementation of evidence-based recommendations for neurological conditions in clinical practice in low-resource settings

	Pillars of the neurological quadrangle				**General/core**	**Mitigation strategies**
	Surveillance and research	**Prevention**	**Acute care**	**Rehabilitation**		
Description	Monitoring of burden, trends, and determinants, public awareness and prioritization based on burden	Primordial, primary and secondary prevention	Early detection, early diagnosis, appropriate and timely care e.g. for stroke	Transdisciplinary therapy to aid recovery and improve quality of life and productivity		
Stages of the implementation cycle						
Situational analysis: burden, evidence and gap analysis	Lack of high-quality data to assess the burden of disease, trends, and population-level impact of interventions	Lack of evidence-based characterization of modifiable risk and protective factors that can be targeted for prevention	Lack of context-specific data on practice gaps for acute care	Lack of context-specific data on practice gaps for rehabilitation		
Evidence generation: surveillance, randomized controlled trials, implementation science research	Lack of novel and efficient reliable and valid methods for generating regular frequent data on disease burden, DALYs and trend	Lack of evidence-based interventions for primordial, primary, and secondary prevention	Lack of evidence-based interventions for acute care	Lack of evidence-based interventions for rehabilitation		
Content of interventions: concise evidence-based recommendations	Lack of prioritized consistent methods for generating regular frequent data on disease burden, disability-adjusted life years and trend based on consensus recommendations from high grade of evidence	Lack of prioritized consistent consensus recommendations for prevention based on high grade of evidence	Lack of prioritized consistent consensus recommendations for acute care based on high grade of evidence	Lack of prioritized consistent consensus recommendations for rehabilitation based on high grade of evidence		
Political, legal, ethical, anthropologic and socioeconomic (PLEASE) cocreation and contextualization	Lack of PLEASE contextualization of pragmatic solutions for improving research and surveillance	Lack of PLEASE contextualization of pragmatic solutions for improving prevention	Lack of PLEASE contextualization of pragmatic solutions for improving acute care	Lack of PLEASE contextualization of pragmatic solutions for improving rehabilitation		

Communication: multidirectional user-friendly dissemination channels to all stakeholders: physicians, providers, patients, populace, payers, policy makers, partners	Lack of multidimensional involvement, communication, and empowerment of all stakeholders for effective implementation of solutions for improving surveillance	Lack of multidimensional involvement, communication, and empowerment of all stakeholders for effective implementation of solutions for improving prevention	Lack of multidimensional involvement, communication, and empowerment of all stakeholders for effective implementation of solutions for improving acute care	Lack of multidimensional involvement, communication, and empowerment of all stakeholders for effective implementation of solutions for improving rehabilitation		
Evaluation of implementation and feedback from end-users and stakeholders	Lack of framework for learning health systems, evaluating outcomes and impact of interventions for surveillance, prevention, acute care and prevention; identifying persisting gaps and designing new research to create new evidence address such needs					
Levels of implementation						
Patient level		-Poor brain health and mental capacity -Lack of awareness -Low health literacy -Poor risk factor screening and control	-Lack of awareness -Cultural and social believes causing delay presentation -Cost of treatment -Heavy traffic may hinder hyperacute care	-Cultural and social believes causing inappropriate long-term care	-Low health literacy -Cultural beliefs -traditional/non-orthodox care systems -Accessibility -Low demand for rehabilitation services due to lack of awareness -Stigma -Poverty -Lack of education -Out-of-pocket payment	-Improve brain health -Health education from reliable sources/social media -Patient support group -Famous victim to help with education -Engagement of community
Provider level	-Unaware of health surveillance role - Overwhelming workload	-Unaware of role in advocating for health to the public. -Overwhelming workload	-Lack of knowledge -Overwhelming workload -Insufficient local data lead to physician reluctance -Clinical inertia	-Lack of personnel	-Lack of knowledge -Clinical inertia -Overwhelming workload -Unaware of role on advocacy and disease prevention	-Education and training for health-care providers -Use technology to update their knowledge. digital tools, decision support tools -Improve local data collection -improve provider awareness about roles on advocacy and disease prevention - Telemedicine.

Systems level	-Stroke and other neurological conditions (epilepsy, dementia) are not set as priority -Limited budget for surveillance and research	-Unhealthy lifestyle and environment -Lack of implementation of policies designed to reduce unhealthy lifestyles including taxes on tobacco and alcohol, sugar and salt reduction, and trans-fat reduction -Lack of promotion of risk factor screening and an integrated non-communicable disease prevention social media (unfortunately, social media can be difficult to access in countries with limited resources)	-Unavailability of emergency management system for hyperacute and acute care -Limited access to investigations and treatment -Insufficient trained personnel -Cost of investigation and treatment -Lack of referral system	-Inadequate rehabilitation facilities and therapists	-Lack of trained health-care workers across different disciplines -Lack of equipment -Lack of medications -Lack of care pathways, protocols, and guidelines -Unhealthy lifestyle -Lack of adequate number of training institutions for health care workers -Poor allocation to health -Inadequate health insurance	-Prioritize neurological disorders as country burden -National/local data collection e.g. stroke registry and local pragmatic guidelines -Cost-effectiveness treatment analysis, budget relocation -Advocacy and endorsement by professional societies through establishment of political and economic case for interventions -Use of social media for advocacy and education -Telemedicine for patient selection -Infrastructure reorganization -Provide training to physicians and nurses -Policy to reduce unhealthy lifestyle -Promote risk factor screening e.g. blood pressure -Integrated programme for non-communicable disease prevention