

Epilepsy Burden Shifts as Aging and Health Inequalities Persist

Researchers map three decades of epilepsy change, exposing persistent inequalities and new pressures from aging populations and stroke-related disease

CHINA, August 14, 2026 /EINPresswire.com/ -- Epilepsy remains a major global health challenge, with its burden increasingly shaped by population aging and unequal access to care. Now, researchers show that although epilepsy mortality has declined substantially, 87.9% of associated disability-adjusted life years are concentrated in low- and lower-middle-income countries. In China, regional, urban-rural, and healthcare-tier disparities persist, while stroke-related epilepsy and aging populations are reshaping disease patterns and creating new demands for prevention, diagnosis, and long-term care globally.

Epilepsy remains a major public health challenge, but its burden is changing in ways that reveal health inequalities. Global Burden of Disease Study 2021 (GBD 2021) data indicate that about 51.7 million people worldwide live with active epilepsy. From 1990 to 2021, absolute numbers increased with population growth and aging. Yet 87.9% of epilepsy-associated disability-adjusted life years (DALYs) were concentrated in low- and lower-middle-income countries. In China, approximately 9–10 million people have epilepsy.

Addressing this challenge, a research team led by Professor Xin Shi, Dean at the School of Health Management, Institute of Health Sciences, China Medical University, China, along with Professor Lei Chen from the Department of Neurology, West China Hospital of Sichuan University, China, examined global and Chinese epilepsy patterns through a three-dimensional framework covering biological determinants, health system performance, and social determinants of health. The review integrated GBD 2021 findings, Chinese provincial evidence, and health system assessments to examine disease trends, inequalities, healthcare-tier barriers, and special populations. The study was published online in the journal *Neuroprotection* on July 27, 2026.

The analysis showed progress in China: between 1990 and 2021, age-standardized mortality for idiopathic epilepsy fell by 56.6%, while the age-standardized DALY rate decreased by 43.2%. However, the disease spectrum is shifting toward middle-aged and older populations, with stroke and dementia as important structural foundations for epilepsy. Regional inequality was pronounced, with mortality in western provinces approximately nine times that in eastern areas. Rural treatment gaps reached 60%–90%, with more than 90% of centers in tertiary hospitals, mainly in eastern China.

“China’s experience shows that reducing mortality does not automatically eliminate inequity in epilepsy care,” says Prof. Shi. “The next stage must address where patients live, how primary care functions, whether medicines are affordable, and how stigma influences treatment-seeking.” Approximately 89% of patients report feeling stigma, while people with rare epilepsy syndromes may experience diagnostic delays, treatment resistance, and household burdens. Strengthening primary-level case identification and referral is central to narrowing care gaps.

The authors propose a whole-chain strategy aligned with the World Health Organization Intersectoral Global Action Plan on Epilepsy and Other Neurological Disorders 2022–2031. Priorities include integrating epilepsy prevention with stroke, injury, and perinatal programs; improving risk identification after stroke and severe traumatic brain injury; strengthening psychiatric and cognitive comorbidity management; and exploring telemedicine and artificial intelligence for remote EEG interpretation and diagnosis. China’s epilepsy center network, which by 2025 included 526 centers across tertiary, secondary, and primary levels, may support international collaboration when adapted to local health-system capacity and cultural context.

“Epilepsy governance needs to move beyond awareness toward accessible, equitable, and continuous care,” says Prof. Chen. “By strengthening primary care, improving referral pathways, protecting patients from discrimination, and reducing financial and social barriers, health systems can better respond to an aging population and changing disease spectrum.” In the longer term, coordinated action could support earlier diagnosis, consistent treatment, and better quality of life while advancing global neurological health goals.

Overall, the review presents China’s epilepsy experience as an example of both progress and unfinished work. Mortality has declined, and specialized networks have expanded, but regional, urban-rural, and healthcare-tier gaps remain. The authors emphasize that combining prevention, risk assessment, stronger health systems, economic protection, and stigma reduction will be essential to reduce epilepsy-related inequalities and improve outcomes.

Reference

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About West China Hospital of Sichuan University, China

West China Hospital of Sichuan University is one of China's leading academic medical centers, integrating healthcare, medical education, research, and innovation. Founded in 1892, the hospital has over 130 years of excellence and is recognized for treating complex and critical diseases. It houses 54 clinical departments, advanced research platforms, and nationally recognized specialties, serving millions of patients annually. The institution is internationally renowned for clinical excellence, multidisciplinary collaboration, translational research, and

medical training, while maintaining leadership in innovation, emergency medicine, precision healthcare, and global academic partnerships and collaboration.

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About Professor Xin Shi from China Medical University, China

Prof. Xin Shi is Dean and Professor of the School of Health Management, Institute of Health Sciences, China Medical University, China. A Fellow of the European Academy of Sciences and Arts, he is an independent principal investigator, doctoral supervisor, and internationally recognized scholar. His research focuses on whole-life-cycle health management, multi-omics, disease prevention, early diagnosis, rehabilitation evaluation, and immersive technologies for behavioral and sociomics-based healthcare innovation. He has held leadership roles at Manchester Metropolitan University in the UK and Karaganda Medical University in Kazakhstan. His research achievements were recognized in the UK's RAE 2014 and REF 2020. He has secured substantial funding.

About Professor Lei Chen from West China Hospital of Sichuan University, China

Prof. Lei Chen is a Neurologist and Professor at the Department of Neurology, West China Hospital of Sichuan University in Chengdu, China. She serves on the editorial boards of *Epilepsy & Behavior*, *Clinical Neurology and Neuroscience*, *Precision Clinical Medicine*, and the *Chinese Journal of Epilepsy*, among other domestic and international journals. Her research centers on the etiology, mechanisms, and diagnosis of epilepsy, with particular emphasis on noncoding RNA regulation in refractory epilepsy, brain imaging, and precision diagnosis and treatment for women with epilepsy across the life course. She established Asia's first prospective cohort of women with epilepsy, laying the real-world evidence foundation for sex-specific epilepsy research and clinical management. Building on this platform, she further developed an innovative seizure warning and monitoring model, pioneered noninvasive antiseizure drug concentration detection technology, established guidelines for rational antiseizure medication use and dose adjustment during pregnancy, and constructed comprehensive precision treatment protocols for women with epilepsy spanning the entire reproductive journey. She has also contributed to the development of clinical guidelines for managing epilepsy during pregnancy. Internationally recognized for her contributions, she has received the American Academy of Neurology (AAN) International Scholarship Award and the American Federation for Medical Research (AFMR) Henry Christian International Award. Her national honors include the National March 8th Red-Banner Holder, Sichuan Provincial Academic and Technical Leader, Sichuan Provincial Outstanding Young Scientist, National Most Beautiful Science and Technology Worker, and Tianfu Science and Technology Elite.

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