

Integrating Lanbuzheng into cerebrovascular health strategies worldwide: A policy-focused perspective

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Vascular cognitive impairment (VCI), post-stroke dementia, and neurodegenerative diseases (NDD) are burgeoning public health crises worldwide, particularly in regions undergoing rapid population aging. While current prevention relies on pharmaceutical management of risk factors, adherence and access remain significant barriers across diverse healthcare settings. This Perspective argues that *Geum japonicum* var. *chinense* (Lanbuzheng), a traditional herb with emerging real-world evidence from Western China, warrants systematic investigation as a cost-effective, multi-target preventive agent—with a primary focus on post-stroke cognitive protection (secondary prevention of post-stroke cognitive impairment, PSCI), while acknowledging preliminary signals for primary prevention in high-risk elderly populations (e.g., hypertension with cerebral small vessel disease). To operationalize this approach, we introduce the Multi-Target Sustainable Solution (MTSS) framework—a Lanbuzheng-based conceptual model that integrates vascular protection, blood-brain barrier stabilization, and neuroprotective strategies into a scalable, culturally adapted intervention for PSCI/NDD secondary prevention. We present a focused analysis of its plausible biological mechanisms, preliminary observational data from Chinese cohorts, and propose a concrete translational pathway grounded in the MTSS paradigm. Rather than advocating for immediate clinical adoption, we call for global stakeholders to collaboratively develop this botanical resource through targeted clinical trials, standardized cultivation, and its potential integration into community-based non-communicable disease (NCD) management programs, offering a globally rooted, evidence-informed complementary strategy for cerebrovascular resilience.

THE CEREBROVASCULAR PREVENTION GAP IN THE INCREASINGLY AGEING WORLD

The global community now faces an unprecedented demographic and epidemiological convergence. While the Western Pacific Region—home to some of the world's most rapidly ageing populations such as Japan, the Republic of Korea, Australia, and China—bears a particularly heavy burden of stroke and its long-term neurological consequences, this challenge is by no means confined to one area. In the United States alone, the annual cost of care for people with dementia reaches approximately \$100 billion.¹ Worldwide, an estimated 12.2 million new stroke cases occur each year, with survivors facing a persistently high lifetime risk of vascular cognitive impairment (VCI) and dementia across all regions.^{2,3} The economic and social toll is staggering, threatening to overwhelm healthcare systems globally and erode hard-won gains in life expectancy. This is a universal societal issue that urgently demands effective, multi-target, and sustainable solutions (MTSS; Figure 1).

Despite clear clinical guidelines for secondary stroke prevention, a substantial implementation gap persists. The cornerstone of prevention—life-long adherence to antiplatelets, statins, and antihypertensives—is hampered by cost, side-effects, and accessibility, particularly in rural and lower-resource settings. This gap creates an urgent need for safe, accessible, and sustainable complementary strategies that can be deployed at the population level, especially for:

Primary prevention: preventing first-ever stroke in asymptomatic at-risk individuals.

Secondary/post-stroke prevention: preventing recurrent events and post-stroke cognitive impairment (PSCI) in survivors.

Throughout this Perspective, we explicitly distinguish these paradigms and adopt post-stroke cognitive protection (secondary prevention) as the primary policy target, given stronger preliminary evidence and more feasible trial endpoints.

Within this context, the evidence-based, equity-oriented integration of traditional medicines into public health frameworks represents a strategic opportunity unique to the Western Pacific. This Perspective examines one such candidate: *Geum japonicum* var. *chinense*, known as Lanbuzheng. Rather than presenting a comprehensive review, we focus on its policy rationale: its alignment with regional health priorities, the preliminary evidence supporting its biological plausibility, and a feasible pathway for its rigorous evaluation and potential integration.

THE LANBUZHENG RATIONALE: FROM TRADITIONAL USE TO A MULTI-TARGET HYPOTHESIS

Lanbuzheng has a documented history in traditional Chinese and Miao medicine for treating dizziness and headaches—symptoms now recognized as potential proxies for cerebrovascular insufficiency. This traditional application provides an ethnobotanical hypothesis for its modern investigation. Critically, preliminary scientific research suggests a multi-target profile relevant to vascular brain health, which can be succinctly summarized as a three-pillar hypothesis:

Pillar 1: Vascular protection

Extracts of Lanbuzheng have demonstrated antiplatelet and endothelium-protective effects in preclinical models, modulating pathways similar to—but pharmacologically distinct from—conventional agents like aspirin and statins.

Pillar 2: Blood-brain barrier (BBB) stabilization

Its gut-microbiome-derived metabolite, urolithin A, has been shown to reinforce BBB integrity and mitigate neuroinflammation in models of cerebral hypoperfusion, a key mechanism in VCI.⁴

Pillar 3: Neuroprotection

Through enhanced mitochondrial function and provision of neurotrophic support, Lanbuzheng components may increase neuronal resilience to ischemic and metabolic stress.

This combination of vascular and direct neural effects positions Lanbuzheng not as a mere "alternative" to existing drugs, but as a potential modifier of the broader neurovascular environment. Its value proposition lies in this multi-target capacity and its origin as a low-cost, culturally accepted botanical resource within the region.

PRELIMINARY REAL-WORLD OBSERVATIONS: DATA FROM EASTERN CHINA

While robust randomized controlled trial (RCT) data are awaited, preliminary observational studies from Eastern China provide a crucial signal warranting further investment. Two examples illustrate this.

Post-stroke cognitive impairment (PSCI) cohort

A 2023 analysis from a Hangzhou hospital followed 240 ischemic stroke

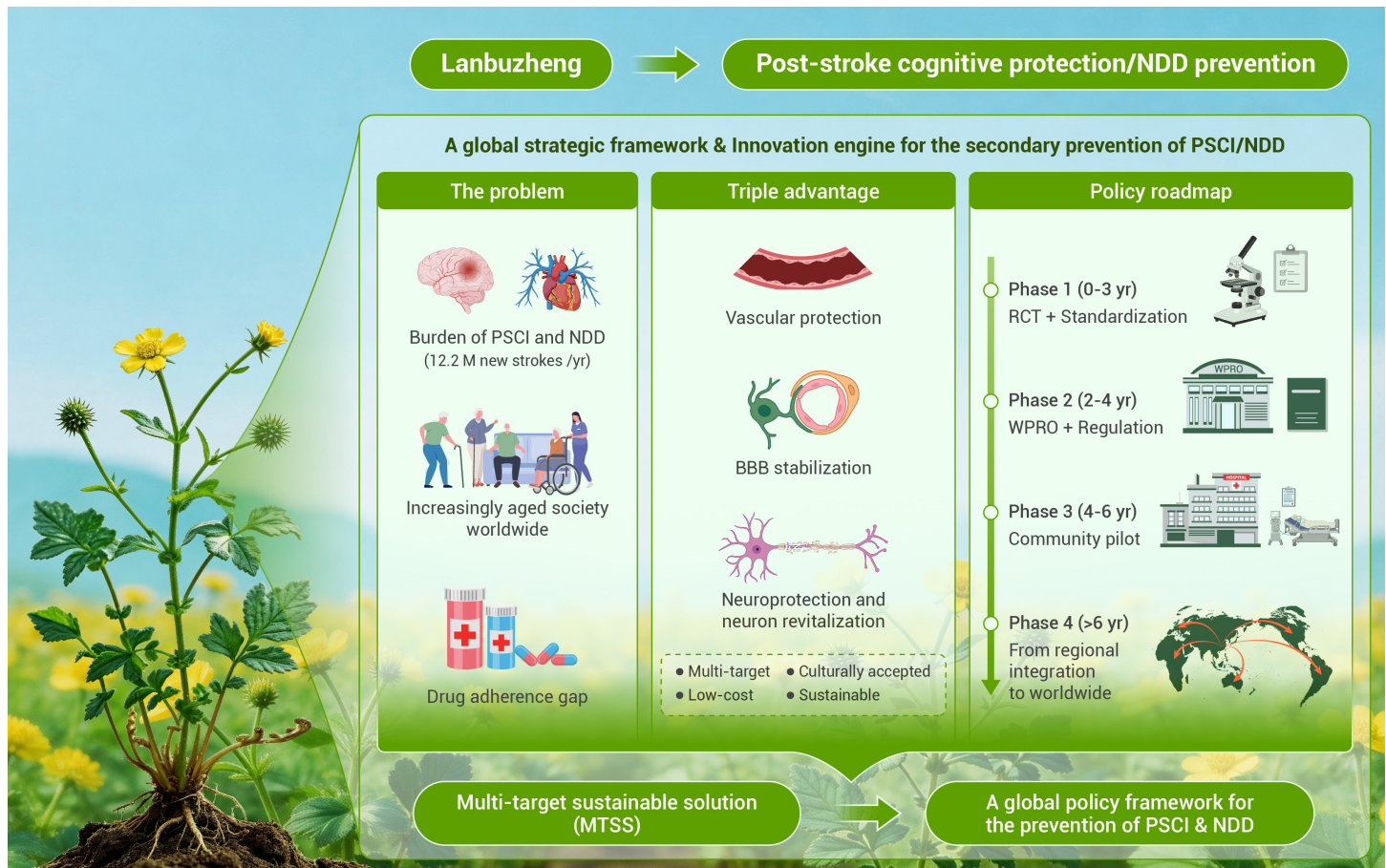


Figure 1. The MTSS framework for integrating Lanbuzheng into global cerebrovascular health strategies This Lanbuzheng-based conceptual model unifies vascular protection, BBB stabilization, and neuroprotective strategies into a scalable, culturally adapted intervention for the secondary prevention of PSCI and NDD. The four-phase policy roadmap outlines the translational pathway from evidence generation to global implementation.

survivors.⁵ Patients receiving a standardized Lanbuzheng extract alongside standard care showed a 35% relative risk reduction in significant cognitive decline over 24 months compared to those on standard care alone, as measured by the Montreal Cognitive Assessment (MoCA). This finding principally supports a secondary prevention/post-stroke cognitive protection role.

Community-based vascular health screening

An ongoing project in Ningbo has observed that elderly residents with habitual consumption of Lanbuzheng tea exhibit a lower burden of white matter hyperintensities (WMH)—a biomarker of cerebral small vessel disease—on brain MRI, independent of major vascular risk factors. This lends tentative support to a possible primary prevention effect in high-risk elders.

These studies, while observational and requiring validation, are precisely the type of real-world data that should trigger a coordinated regional research agenda. Given the strength of the PSCI signal versus the exploratory nature of the tea-consumption data, this Perspective adopts post-stroke cognitive protection as the primary policy target for Lanbuzheng integration, with primary prevention framed as a secondary, longer-term research objective.

A TRANSLATIONAL ROADMAP FOR THE WESTERN PACIFIC REGION

The journey from traditional use to public health integration demands a structured, collaborative, and evidence-driven pathway. We propose a three-phase roadmap for regional stakeholders, including health ministries, research institutes, and traditional medicine authorities.

Throughout Sections 4–5, “Lanbuzheng” refers to the botanical entity *Geum japonicum* var. *chinense* as a defined intervention pending formal specification of preparation and dosage (Priority Action 2); the terms “extract” or “tea” are reserved for descriptions of specific cited studies.

Phase 1: Evidence generation and standardization (years 0–3)

Priority Action 1. Conduct a multicentre Phase I/II proof-of-concept RCT

across the region (e.g., sites in China, South Korea, and Australia). The trial should primarily target post-stroke patients with mild-to-moderate cognitive impairment (secondary prevention of PSCI), with an exploratory arm in elderly individuals with hypertension and confluent white matter hyperintensities (WMH)—i.e., extensive, coalescent areas of increased signal on T2-weighted MRI indicating advanced cerebral small vessel disease—or minor non-disabling stroke. Neuroimaging biomarkers (change in WMH volume or cerebral blood flow) may serve as secondary endpoints.

Priority Action 2. Establish regional Good Agricultural and Collection Practices (GACP) and chemical fingerprinting standards to ensure product quality and batch consistency, a fundamental prerequisite for any clinical research.

Phase 2: Policy and regulatory dialogue (years 2–4)

Priority Action 3. Convene a regional working group under the auspices of the WHO Regional Office for the Western Pacific (WPRO) to develop a consensus on evidence requirements for integrating similar botanicals into cerebrovascular health guidelines.⁶

Priority Action 4. Explore regulatory pathways for Lanbuzheng as a “Health Food” with function claims or a listed traditional medicine for health maintenance, distinct from a therapeutic drug claim.

Phase 3: Implementation science and service integration (years 4–6)

Priority Action 5. Design and pilot community-based implementation models. For example, integrating standardized Lanbuzheng products into existing hypertension or diabetes management programs in community health centres, with rigorous monitoring of adherence and outcomes.

Priority Action 6. Develop regional education and training materials for healthcare providers on the appropriate evidence-based role of botanicals like Lanbuzheng within integrative cerebrovascular prevention strategies.

CHALLENGES AND A CALL FOR COLLABORATIVE ACTION

Significant challenges exist. The evidence base remains nascent, requiring significant investment in rigorous RCTs. Variability in individual response, linked to gut microbiome composition for metabolite activation, must be understood. Perhaps most crucially, a collaborative framework involving biomedical researchers, traditional medicine practitioners, regulators, and public health officials is essential to navigate the complex path from herb to health strategy.

We are not concluding that Lanbuzheng is proven, but that it is promising enough to be prioritized. The ageing populations worldwide cannot afford to ignore any plausible, safe, and cost-effective avenue for preventing vascular cognitive decline. Lanbuzheng represents a test case for whether the global community can leverage its unique traditional knowledge and scientific capability to develop innovative, context-specific solutions to its most pressing health challenge.

In doing so, Lanbuzheng's proposed trajectory exemplifies the operationalization of the integration of evidence-based traditional medicine into national health systems—particularly in resource-constrained settings where affordable, culturally resonant interventions can yield the greatest population-level impact.

CONCLUSION

Cardiovascular and cerebrovascular diseases remain the leading cause of death and disability worldwide—a relentless threat that continues to outpace our current prevention efforts. The time for a coordinated, scientific, and policy-focused investigation is now; we cannot afford to wait any longer. The MTSS framework offers a structured pathway for translating the multi-target potential of Lanbuzheng into a scalable, culturally adapted intervention for the

secondary prevention of PSCI and NDD (Figure 1). Through phased evidence generation, regulatory dialogue, and community-based implementation, this botanical resource could contribute meaningfully to global cerebrovascular resilience—and to the millions of families who are counting on solutions that are both effective and accessible.

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AUTHOR CONTRIBUTIONS

J.S. drafted the manuscript and designed the summary figure. S.G. provided academic support and encouragement regarding the mechanistic basis of functional foods for health promotion. S.S. offered valuable recommendations on the large-scale local cultivation of Lanbuzheng. All authors contributed to the manuscript and approved the final version.

DECLARATION OF INTERESTS

The authors declare no competing interests.