Proactively Harness Innovation and Collaboration to Promote the Prevention and Control of Dementia and Foster a Dementia-friendly Society

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Executive Summary

Dementia is a progressive neurodegenerative condition with insidious onset, high disability rate and mortality rate. As dementia progresses, the patients may eventually lose their memory, ability of thinking and independence, and consequently, causing huge demand for long-term and intensive healthcare and care services, with tremendous burden on patients, their families, the healthcare system and the society as a whole.

As the population continues to age and dementia becomes more prevalent, the next five years will be a critical period for dementia prevention and control. The release of the *National Action Plan for Addressing Dementia in the Elderly (2024-2030)* (hereafter as "the Action Plan") signifies that the Chinese government fully recognizes the significant impact that dementia poses to the health of the elderly population and the socio-economic landscape. It also elevates the prevention and treatment of dementia and the development of a dementia-friendly society to the national strategic level.

To timely implement the Action Plan and address the existing challenges in dementia prevention and control - poor disease awareness, insufficient diagnostic and treatment capabilities, and low accessibility and affordability of diagnosis and medications - we need to make full preparations in areas such as institutional design, infrastructure construction, technological research and development, personnel capacity building, and resource coordination. Additionally, we must proactively promote early detection, diagnosis and treatment.

Lilly would like to propose the following three recommendations:

- **Accelerate policy implementation and enhance societal disease awareness driven by innovative mechanisms, and build a consensus on the preventability and treatability of dementia**

As the Action Plan involves multiple ministries, an efficient cross-ministerial

coordination and tracking mechanism is required to ensure its effective implementation. It is also recommended to adopt a forward-looking and flexible approach in budget formulation, policy making and implementation to ensure infrastructural construction, personnel capacity building, industrial development, while also encouraging the rapid translation of emerging technological innovations into improved health outcomes and better lives of people living with dementia.

In addition, it is recommended to enhance public awareness across society through multiple channels about the disease and the emerging diagnostic and therapeutic technologies. This will help change the current misconceptions and reduce the stigma surrounding dementia and foster a consensus that dementia is preventable, treatable and manageable across the society.

- **Establish systematic early screening mechanisms, improve the standardization of the diagnosis and treatment pathway and implement the comprehensive, synergized and seamless dementia prevention and control system**

Early detection, diagnosis and treatment are key to dementia prevention and control. Primary care institutions should play a greater role in the early screening and intervention of dementia. It is recommended to strengthen the infrastructural readiness of primary care institutions, enhance the capabilities of primary healthcare personnel, promote the use of innovative, convenient and standardized screening tools, and establish national early screening mechanisms when time is opportune.

Moreover, based on the existing tiered medical system and the integration of medical and elderly care systems, interconnectivity and synergy among institutions should be strengthened to facilitate smooth two-way referral between primary care institutions and higher-level hospitals, as well as collaboration between medical institutions and elderly care institutions. A closed loop covering screening, diagnosis, treatment, rehabilitation and care should be established, following a structured process: screening conducted in the primary care or community setting, high-risk individuals referred to a primary brain health center, complex cases referred to a comprehensive brain health center, and rehabilitation and care assumed by primary care institutions or communities.

- **Alleviate the economic burden of patients and the society by improving the development of the multi-layered insurance system and promoting silver economy**

Based on the fundamental and leading role of the basic medical insurance, a comprehensive and sustainable multi-layered insurance system should be

established, complemented by commercial health insurance and long-term care insurance. This will enhance the accessibility and affordability of advanced medical technologies, innovative medicines and high-quality care services, bringing hope to people with dementia and encouraging senior citizens to seek early diagnosis and treatment.

It is also recommended to promote the development of silver economy by increasing the supply of dementia-related technologies, products and individualized services, while leveraging economies of scale to reduce costs. This will bring tangible benefits to patients and a broader elderly population.

With the development of artificial intelligence, innovative biomarkers, and disease-modifying therapies such as amyloid targeting treatments, we are now more capable than ever of transforming dementia into a preventable and treatable disease.

As a global leading pharmaceutical company, Lilly has been dedicated to the research and development of innovative therapies and diagnostics for Alzheimer’s disease for nearly forty years. We fully support China's efforts to address dementia and are committed to collaborating with all stakeholders to improve the well-being of patients with Alzheimer’s disease and other dementias. Together, we aim to make meaningful contributions to dementia prevention and treatment and the creation of a dementia-friendly society in China.

1. Situation Analysis

1.1 Increasing population aging leads to a significant rise in the prevalence of dementia

China is undergoing a significant demographic shift, with the aging population rapidly increasing. According to the 2023 National Economic and Social Development Statistical Report, by the end of 2023, China's population aged 60 and above reached 297 million, accounting for 21.1% of the total population, and 217 million people were aged 65 and above, representing 15.4% of the population[1]. Due to low birth rates and high life expectancy, the issue of population aging in China will become more severe. Research predicts that by 2030, the population aged 65 and above in China may reach 20% of the total population, meaning China will become a “super aging society” by international standards[2].

As the elderly population increases in absolute number, proportion and average age, China faces more severe challenges in sustainable economic development and social governance. These challenges include increased medical costs, a heavier burden on the social welfare system, a shrinking labor force, rising public debt, and insufficient productivity and innovation, with the pressure on the medical system being the most prominent. The degree of population aging is correlated to the rising prevalence of dementia, which brings enormous pressure on patients, their families, the healthcare system, and the society as a whole. This is not only a public health issue but also a major challenge to healthy aging and sustainable socioeconomic development.

Dementia is a progressive and debilitating neurodegenerative condition with typical symptoms including memory loss, problems with thinking, trouble performing daily activities independently, loss of temporal and spatial orientation, impact on mood, etc. There are different forms of dementias, in which Alzheimer’s disease (AD) is the most common form and contributes to 60-70% of all dementia cases[3].

Age is one of the major risk factors for dementia. With the rapidly aging population, the prevalence of dementia is expected to increase significantly. According to a national cross-sectional epidemiological study in 2020, the

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1 2023 Statistical Report on National Economy and Social Development of the People’s Republic of China. https://www.stats.gov.cn/sj/zxfb/202402/t20240228_1947915.html.

2 Liang, J., Ren, Z., Huang, W., et al. China Demographic Forecast Report (2023). https://www.waitang.com/report/486576.html.

3 Zhang, J., Lu, Y., Li, H., et al. Disease burden of Alzheimer′ s disease and other dementias in Chinese residents between 1990 and 2019: an age-period-cohort analysis and prediction. *China Public Health*. 2020, (38) 5: 523-528.

prevalence of dementia was approximately 6.9%, meaning that nearly 15.07 million elderly people aged 60 and above in China may have dementia. If people with mild cognitive impairment (MCI) are also included—the stage with high probability of progressing to dementia if not properly intervened—the total number of elderly people with dementia or MCI in China would add up to 53.84 million[4].

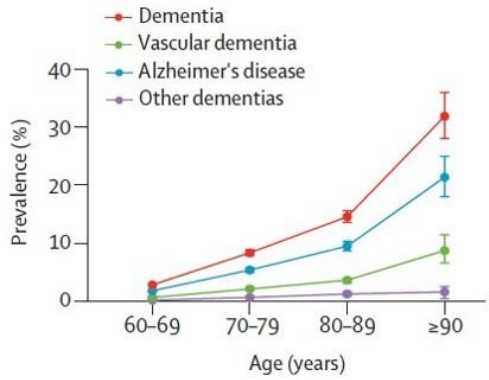

Figure 1: Prevalence of Dementia by Age Group

Additionally, the prevalence of dementia increases significantly with age, rising from 2.9% among those aged 60-69 years to 16.4% among those aged 80 and above (Figure 1)[5]. Statistics show that the elderly population aged 80 and above in China is expected to increase from the current 40 million to 80 million by 2035 and quadruple by 2050. The number of dementia patients in China is expected to grow rapidly in the next twenty to thirty years[6].

1.2 Dementia causes substantial disease and economic burden

Dementia is an extremely burdensome condition with high prevalence, high disability rate and mortality rate. According to World Health Organization, dementia is currently the seventh leading cause of death worldwide, and the fifth in China. In 2021, AD and other dementias caused approximately 2 million deaths worldwide, with China accounting for about a quarter, reaching 492,774 cases[7]. Dementia is also one of the main causes of disability and dependency among the elderly. In 2021, the disability adjusted life year (DALYs) due to AD and other dementias in China was 10,083,733 years, meaning the year loss caused by AD and other dementia, roughly equivalent to the DALYs of stomach cancer in China in 2021[8], in which 34.3% was attributed to disability and 65.7% to premature

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4 Jia, L., Du, Y., Chu, L., et al. Prevalence, risk factors, and management of dementia and mild cognitive impairment in adults aged 60 years or older in China: a cross-sectional study. *Lancet Public Health* 2020, 5: e661–71.

5 ibid.

6 Medium- and Long-term Multi-scenario Forecast of China's Population 中国人口中长期多情景预测结果数据集. China Population and Development Research Center. https://www.cpdrc.org.cn/sjzw/yjgj/202311/t20231124_17127.html.

7 Wang, G., Qi, J., Liu, X., et al. China Alzheimer's Report 2024. *Journal of Diagnostics Concepts and Practices*. 2024, (23) 3: 219-256.

8 Wu, Z., Xia, F. and Lin, R. Global burden of cancer and associated risk factors in 204 countries and territories, 1980–2021: a systematic analysis for the GBD 2021. *Journal of Hematology and Oncology*. 2024, (17) 119.

death[9].

Apart from the devastating impact on the quantity and quality of life of the patients, AD and other dementias also lead to a staggering socioeconomic burden. The burden includes direct medical costs (outpatient, inpatient, diagnostic and medication costs), direct non-medical costs (transportation and accommodation generated from hospital visits, nutrition and healthcare equipment costs, care costs, etc.), indirect costs (income loss of caregivers) and intangible costs (caregivers' psychological burden). Research shows that in 2015, the annual cost per Alzheimer's patient in China was USD 19,144.36, with total costs reaching USD 167.74 billion, equivalent to 1.47% of the national GDP in 2015. Based on predicted prevalence trends, without considering inflation and exchange rate fluctuations, the total socioeconomic cost of AD in China is expected to reach USD 507.49 billion by 2030 and USD 1.89 trillion by 2050[10].

Compared to other chronic diseases in the elderly, the costs of dementia not only include rising direct medical expenses but also significantly higher indirect costs, mainly due to informal care provided by family members. In China, about 90% of dementia patients live with their families. This caregiving model prevents informal caregivers from participating in socioeconomic activities, leading to losses in wage income, productivity, and human capital. Costs of caregiving and indirect costs from caregivers' income loss account for more than 50% of the total costs of dementia, not including the mental stress on caregivers that is hard to monetize[11].

1.3 The government's increasing attention to dementia leads to positive change in policy environment

The extent of population aging, the epidemiological trend of dementia and the incurred significant socioeconomic burden in China all indicate that we urgently need to take more comprehensive and systematic actions to address these challenges. As early as 2016, the *Healthy China 2030 Plan* specifically highlighted "strengthening effective interventions for dementia in the elderly" and "establishing a multi-level long-term care security system to promote healthy aging"[12].

Under this guiding policy framework, the National Health Commission (NHC) issued several action plans for the prevention and treatment of dementia over the

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9 ibid.

10 Jia, J., Wei, C., Chen, S., et al. The cost of Alzheimer's disease in China and re-estimation of cost worldwide. *Alzheimer's and Dementia*. 2018, 14: 483-491.

11 ibid.

12 Healthy China 2030 Plan. CPC Central Committee and State Council. https://www.gov.cn/zhengce/2016-10/25/content_5124174.htm

past five years. On December 31st, 2024, the NHC, along with other 14 central government authorities, released the *National Action Plan for Addressing Dementia in the Elderly (2024-2030)* (hereafter as "the Action Plan"), marking a comprehensive prioritization of addressing dementia in public health and social development agenda. The Action Plan sets out the overall goals for 2030, including raising awareness of the disease, conducting cognitive function screenings for the elderly, early interventions for high-risk groups, improving standardized diagnosis and treatment system to effectively curb the growth rate of dementia prevalence and create a dementia-friendly social environment.[13].

On local level, major cities in China have already begun pilot programs for early screening and medical services for cognitive impairment. For example, since 2019, the Beijing Municipal Health Commission has been conducting brain health screenings for elderly people aged 65 and above. By the end of 2023, approximately 1.2 million elderly people in Beijing had been screened, with nearly 30% showing some degree of cognitive impairment risk and nearly 10% at risk of dementia. According to the newly released *Standards and Service Workflows of Community Memory Clinics in Beijing (Trial)*, Beijing has established memory clinics in 79 community hospitals, standardizing infrastructure standards and work procedures, and providing training for healthcare practitioners (HCPs) in primary care institutions. In Shanghai, since 2019, the Shanghai Civil Affairs Bureau has been actively promoting pilot projects for dementia-friendly communities. By the end of 2023, a total of 220 subdistricts in five batches had carried out projects to raise disease awareness, conduct risk screenings, provide early intervention training, and support family caregivers.

2. Gaps and Challenges for the Construction of the Dementia Prevention and Control System

The Action Plan provides strong support to address the severe challenges of dementia in the elderly. Lilly welcomes this policy initiative and fully supports the Chinese government's efforts in dementia prevention and control, aiming to create a dementia-friendly social environment. At the same time, we also identified several challenges currently faced in addressing dementia.

2.1 The misconception of dementia and associated stigma impact patients' willingness to seek medical care.

13 National Action Plan to Address Elderly Dementia (2024-2030). National Health Commission and 14 other authorities. https://www.gov.cn/zhengce/zhengceku/202501/content_6996231.htm.

Dementia is a progressive condition with an insidious onset. When looking at AD continuum, it starts in the preclinical stage, an asymptomatic phase with neuropathologic changes defined by positive AD related biomarkers, which may last for 20 to 30 years. Research revealed that, depending on the staging of preclinical AD, 20% to 73% of patients may develop measurable cognitive symptoms that meet criteria for MCI[14]. The MCI stage may last on average for 3 to 5 years, with 91.6% of the patients eventually progressing to AD dementia[15], which can be further classified as mild, moderate or severe[16] [17] (Figure 2).

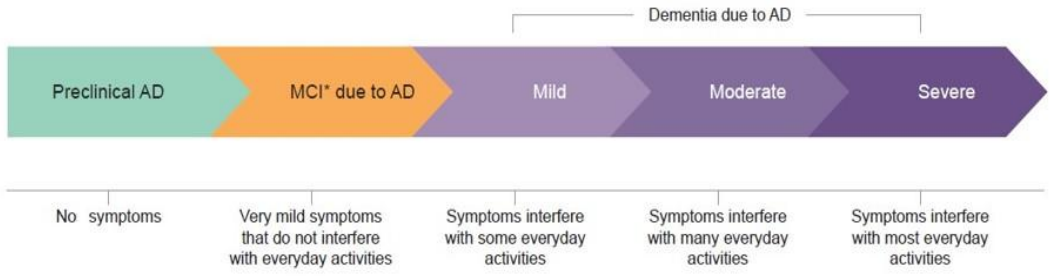

Figure 2: Alzheimer's Disease Continuum

Evidence suggests that therapeutic interventions during the preclinical stage may, to certain degree, prevent or delay the overall progression of the disease[18]. With the emergence of new disease-modifying therapies, especially those amyloid targeting treatments (ATT), we have the potential to extend the treatment window to the MCI stage or later. Unfortunately, most patients miss the effective intervention window due to delayed detection and diagnosis. A study shows that nearly 95% of patients in China are diagnosed with moderate to severe AD at their first visits to hospitals[19].

Research findings suggest that the misconceptions about dementia lead to a lack of willingness to proactively seek screening and treatment. Only 17% of

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14 Parnetti, L., Chipi, E., Salvadori, N., et al. Prevalence and risk of progression of preclinical Alzheimer's disease stages: a systematic review and meta-analysis. *Alzheimer's Research and Therapy*. 2019, 11 (7).

15 Öksüz, N.; Ghouri, R.; Taşdelen, B.; Uludüz, D.; Özge, A. Mild Cognitive Impairment Progression and Alzheimer's Disease Risk: A Comprehensive Analysis of 3553 Cases over 203 Months. *Journal of Clinical Medicine*. 2024, 13 (2): 518.

16 Gustavsson, A., Norton, N., Fast, T., et al. Global estimates on the number of persons across the Alzheimer's disease continuum. *Alzheimer's and Dementia*. 2023, 19: 658-670.

17 Rethinking Alzheimer's Disease: Detection and Diagnosis. European Brain Council. https://www.braincouncil.eu/projects/rethinking-alzheimers-disease/.

18 Rethinking Alzheimer's Disease Pathway: From Diagnosis to Care. European Brain Council. https://www.braincouncil.eu/projects/rethinking-alzheimers-disease/.

19 Zhang Y. and Zhang Y. Analysis on the first visit to hospital of 40 AD patients. 40 例首诊阿尔茨海默氏病患者情况分析 Journal of Frontiers of Medicine. 2020, 10 (24): 61-62.

respondents would seek medical consultation when experiencing subjective cognitive decline. Over 50% attribute their condition to the stress of life and work and adopt a wait-and-see attitude. Nearly 25% are unwilling to seek medical consultation because they believe AD is a normal part of aging (10.05%) or think that even if diagnosed, there are no effective treatments available (14.24%)[20] [21].

Moreover, the stigmatization of dementia is also a key factor preventing the elderly from actively seeking medical help in the early stages of dementia. The World Alzheimer Report 2019 shows that some dementia patients are reluctant to disclose their condition because they may be excluded from social activities, treated unfairly, or distanced by those around them. Some may even be joked about or abused for their symptoms. In China, 26.5% of the surveyed public and 19.4% of HCPs prefer to keep their dementia condition confidential[22]. Terminology carries information related to social identity and cognition. In the Chinese language, the term "dementia" can stigmatize patients with negative connotations. Such negative labels not only lead to public misconceptions about the disease and patients but also affect people's willingness to receive early screening and diagnosis[23].

2.2 The lack of systematic early screening mechanisms and insufficient diagnostic capabilities, along with underperformed referral between institutions, affect patients' access to timely, comprehensive, and seamless dementia diagnosis and treatment services.

The Action Plan proposes a comprehensive and seamless dementia prevention and control system for the elderly, covering prevention, screening, diagnosis, treatment, rehabilitation, and care stages. It aims to meet the diagnostic and care needs of patients throughout the disease process. However, there are still several gaps and bottlenecks in the current dementia prevention and control system.

Although several cities in China have launched pilot projects for cognitive impairment risk screening, there is still a lack of systematic and standardized early screening mechanisms for dementia within the national healthcare system. This results in most elderly people's brain health not being checked in a timely manner,

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20 World Alzheimer Report 2019: Attitudes to Dementia. Alzheimer's Disease International. https://ncdalliance.org/sites/default/files/resource_files/WorldAlzheimerReport2019.pdf.

21 White Paper of the Survey on Pre-clinical AD Awareness and Consultation Rate 2021 阿尔茨海默病临床前期国人知晓率和就诊率调查白皮书 2021. https://www.sohu.com/a/582659573_121123713.

22 World Alzheimer Report 2019: Attitudes to Dementia. Alzheimer's Disease International. https://ncdalliance.org/sites/default/files/resource_files/WorldAlzheimerReport2019.pdf.

23 Jia, J., Ning, Y., Chen, M., et al. Ending age discrimination and stigma to promote healthy ageing in China. *Lancet*. 2022; 400 (10367): 1907-1909.

with only a few patients taking proactive and preventive measures in the early stages of the disease.

Ideally, the dementia diagnosis and treatment pathway for the elderly would be managed through a tiered diagnosis and treatment system, forming a closed loop through smooth two-way referral mechanisms. However, due to the relatively limited number and diagnostic capabilities of specialized neurologists in primary care institutions, they often cannot identify the disease at an early stage. In most cases, patients need to be referred to higher-level hospitals or directly go to tertiary hospitals for more comprehensive and precision diagnosis and treatment.

In addition, regular follow-up and compliance to long-term treatment after comprehensive diagnosis and treatment are crucial for the long-term control of the disease. However, surveys show that 24.39% of respondents have never had any follow-up examinations in hospitals, and only 39.01% were re-evaluated within six months after diagnosis and treatment. Furthermore, 19.68% of respondents diagnosed with Alzheimer's disease have never taken any medication, and less than 30% of patients adhere to medication for more than three years[24].

This situation not only requires an effective and smooth two-way referral mechanism to help patients continue regular follow-up and ongoing treatment and rehabilitation in primary care institutions after discharge but also necessitates enhanced coordination between the healthcare and care systems. Currently, the lack of interconnectivity between the two systems makes it difficult for dementia patients to receive long-term follow-up management and treatment after returning to the community or home.

2.3 The accessibility and affordability of innovative diagnostic and treatment products and high-quality services are relatively low, placing a heavy burden on dementia patients and their families.

The medical and long-term care costs for dementia are high, placing a significant economic burden on patients and their families. However, the current coverage provided by the basic medical insurance and commercial health insurance is insufficient, leading to low accessibility and affordability of innovative diagnostic and therapeutic products and services, leaving patients' medical needs largely unmet and affecting their willingness to seek medical help.

Currently, most AD drugs included in the National Reimbursement Drug List (NRDL) are symptomatic treatments that only help reduce or control certain AD-related cognitive and behavioral symptoms. Innovative AD drugs that have

24 ibid.

been approved and demonstrate solid clinical evidence of slowing disease progression have not yet been listed in the NRDL. The limited availability of affordable medication options, coupled with high diagnostic costs, leads to insufficient willingness to seek diagnosis and treatment.

As part of the multi-layered medical security system, there are only very few commercial health insurance products targeting early screening, intervention, hospitalization, and care services for AD. Moreover, only the cities of Zibo and Maoming have included AD medicines in the special drug catalog of their city-specific commercial health insurance products.

Care expenses account for more than half of the economic burden of dementia. Most dementia patients in China live with their families and receive home care, but the provision of insurance products for care services are far from enough. Although the exact long-term care costs for dementia patients in China are not yet studied, predictive studies show that by 2050, the total care costs for all disabled elderly people in China would reach USD 246.76 billion[25]. In 2016, China launched a pilot long-term care insurance program in 15 cities. By 2023, the pilot had expanded to 49 cities, with 183.31 million people participating in long-term care insurance. Only a few pilot cities, such as Shanghai, Suzhou, Qingdao, Shangrao, Chengdu, Nantong, and Guangzhou, have covered cognitive impairment by the long-term care insurance[26]. The care costs for the vast majority of dementia patients in China are still mainly borne by themselves.

3. Policy Recommendations

Based on the identified gaps, Lilly proposes the following three major policy recommendations to better harness the latest institutional and technological innovations, promote the dementia prevention and control and create a dementia-friendly society.

3.1 Accelerate policy implementation and enhance societal disease awareness driven by innovative mechanisms, and build a consensus on the preventability and treatability of dementia

3.1.1 Strengthen cross-ministerial coordination and tracking mechanisms and develop a forward-looking and flexible policy framework

Considering the demographic and epidemiological trend, the next five years will be a critical period for dementia prevention and control. The Action Plan sets

25 Xu, X. and Chen, L., Projection of long-term care costs in China, 2020–2050: based on the Bayesian quantile regression method. *Sustainability*. 2019, (11) 13: 3530

26 Wang, G., Qi, J., Liu, X., et al. China Alzheimer's Report 2024. *Journal of Diagnostics Concepts and Practices*. 2024, (23) 3: 219-256.

overall goals for 2030, requiring innovative mechanisms to drive accelerated and effective policy execution.

Firstly, establishing a comprehensive inter-agency coordination mechanism is essential for effective policy implementation. Dementia prevention and control involves the joint efforts of many ministries, which needs the establishment and improvement of the cross-ministerial coordination mechanisms to promote collaboration and efficient resource allocation. Japan could be a valuable reference. On January 1st, 2024, Japan's Basic Law on Dementia was officially implemented, requiring the establishment of an inter-ministerial committee led by the Prime Minister within the Cabinet to promote dementia healthcare policies. The committee, which is formed by 11 ministries, including the Ministry of Health, Labor and Welfare, regularly holds meetings to promote dementia-related policymaking and invites dementia patients and their families to attend for consultation.

In addition, it is necessary to break down and implement the overall planning goals in each ministry, setting specific, assessable, and trackable objectives. It is recommended to further strengthen the relevant goals in the Fifteenth Five-year Plans (2026-2030) of each ministry and field and regularly evaluate the progress and effectiveness of implementation.

At the same time, it is recommended to take a forward-looking and flexible approach in budget formulation, policymaking and implementation, encouraging the rapid translation of emerging technological innovations into improved health and lives of people living with dementia and enhancing the system readiness in areas like design of industrial, healthcare and elderly care policies, infrastructural construction, personnel training, and financial funding.

3.1.2 Conduct omnichannel education on diseases and innovative treatments to comprehensively enhance awareness of dementia

Actively promoting the public awareness that dementia is preventable and treatable, and encouraging high-risk groups to participate in early screening, diagnosis and treatment, will help control increasing dementia prevalence.

The awareness-raising should start with the elimination of the terminology with negative connotation and stigma of dementia. In Japan, where terms with negative connotations led to public discrimination against patients and misunderstandings about the disease, hindering early diagnosis and treatment. In 2004, Japan's Ministry of Health, Labor and Welfare changed the term "chiho" to "ninchi-sho" (cognitive disorder or 认知症), which promoted a positive shift in public understanding and attitudes towards patients, helping enhance patient rights. Therefore, it is suggested China also use a less derogative term instead in laws,

regulations, policy documents, academic and medical terminology, media reports, and daily communication to create a respectful and caring social environment for patients with dementia.

It is recommended to leverage digital technology to promote correct understanding of dementia and brain health through various channels. Besides conducting offline activities through traditional channels such as nursing homes, senior's universities, and community activity centers, the widespread use of smartphones among the elderly can facilitate extensive and diverse educational activities. Not only can self-testing be explored through digital scales, but online applications can also promote communication between the elderly and medical or care professionals, enabling individualized medical care and support. In the Netherlands, online application modules have been developed to meet the needs of different groups, such as providing disease information for the elderly, training information for caregivers and family members, and collecting clinical data for medical practitioners and researchers.

Finally, with the emergence of various innovative diagnostic and treatment solutions, along with breakthroughs in drug development supported by clinical data that can alleviate dementia-related symptoms and slow disease progression, it is recommended to increase public awareness and understanding of these innovative diagnostic and therapeutic technologies. This can help change people's pessimistic or wait-and-see attitude towards disease intervention and treatment, reduce fear of the disease, build confidence in medical treatment, and avoid missing the optimal treatment window.

3.2 Establish systematic early screening mechanisms, improve the standardization of the diagnosis and treatment pathway and implement the comprehensive, synergized and seamless dementia prevention and control system

3.2.1 Strengthen the diagnosis and treatment capabilities of primary care institutions, promote the application of innovative diagnostic technologies, and improve the early screening mechanism for dementia

Early screening lays the foundation for the prevention and control of dementia. Currently, several cities, including Beijing and Shanghai, have launched pilot projects for cognitive impairment and dementia risk screening and provided valuable experience in enhancing early screening capabilities, promoting research and development of screening technologies, and laying the groundwork for future nationwide screening services.

Primary care institutions should play a greater role in the early screening and

intervention of dementia. It is recommended to strengthen the infrastructural readiness of primary care institutions and enhance the capabilities of primary healthcare personnel in cognitive function screening and early intervention. Currently, Beijing has organized trainings for healthcare practitioners in primary care institutions on the clinical manifestations of cognitive impairment, AD diagnosis and staging, cognitive impairment scales and assessments, medical and non-medical interventions, and care for patients with cognitive impairment. This has established standardized processes for the early identification and management of cognitive impairment.

Although blood-based biomarkers are currently still under development and only available in research settings, they show potential to support early detection and diagnosis of AD. Additionally, cutting-edge digital technologies such as virtual reality (VR) and artificial intelligence (AI) are gradually being applied in early screening based on digital scale assessments or language fluency evaluations, providing convenient and cost-effective screening solutions for MCI and AD[27] [28]. In the future, as blood-based biomarkers, VR, AI, and other technologies continue to mature, early screening and identification of dementia will become more convenient and standardized, making it possible to include mass cognitive function screening in the national basic public health service package at an opportune time.

3.2.2 Build a synergized and seamless dementia prevention and control system supported by smooth two-way referrals and integrated medical and care services

Over the past decade, China has continuously deepened the reform of its healthcare system, with positive institutional progress on tiered medical system and integration of medical system with elderly care system. It is recommended to continue strengthening these positive measures and enhancing accessibility, convenience, and continuity of medical services, forming a solid foundation for the post-diagnosis dementia prevention and control system. Healthcare and care institutions should not only continue to build their capacities according to their functions, but also strengthen coordination and interconnectivity between them. This mainly includes two aspects: 1) smooth two-way referrals between primary care institutions and higher-level hospitals; 2) collaboration between medical institutions and elderly care institutions.

Currently, various research institutions have proposed brain health management

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27 Rethinking Alzheimer's Disease: Detection and Diagnosis. European Brain Council. https://www.braincouncil.eu/projects/rethinking-alzheimers-disease/.

28 Wang, G., Qi, J., Liu, X., et al. China Alzheimer's Report 2024. *Journal of Diagnostics Concepts and Practices*. 2024, (23) 3: 219-256.

models composed of three levels of institutions. These models are based on clearly defined roles of each institution and standard referral pathways, forming a closed-loop system covering screening, diagnosis, treatment, rehabilitation, and care. The process includes the screening in the primary care or community setting, high-risk individuals referred to primary brain health center, complex cases referred to comprehensive brain health center, and rehabilitation and care assumed by primary care institutions or communities[29].

It is recommended to accelerate the infrastructure and personnel capacity building of brain health management centers at all levels, establish standardized systems for patient registration, data flow, and mutual recognition of diagnostic results, and set up smooth referral channels to ensure convenient and efficient diagnosis and treatment pathways.

Additionally, since most patients will eventually receive care at home or in community elderly care institutions after diagnosis and treatment, an interconnected and coordinated medical and care system will help better manage follow-up examinations, maintain necessary medical interventions, secure long-term treatment effects, and ultimately delay the progression of dementia.

The interconnectivity and coordination between the medical and care systems require a closer coordination mechanism between the health commissions and civil affairs authorities. This includes clearly defining the roles and functions of subordinate institutions, reasonably allocating resources, jointly formulating and implementing workflows covering the entire process, and promoting the comprehensive and seamless dementia prevention and control system based on the complementary advantages of the medical and elderly care systems.

3.3 Alleviate the economic burden of patients and the society by improving the development of the multi-layered insurance system and promoting silver economy

3.3.1 Establish a multi-layered insurance system for medical and care services to reduce the burden of dementia patients and their families

In light of the high costs of dementia treatment and care services, it is crucial to establish a comprehensive and sustainable insurance system. This will not only improve the accessibility and affordability of advanced medical technologies, innovative medicines, and high-quality care services, but also reduce the financial burden of medical and care expenses for dementia patients.

It is recommended to fully leverage the fundamental and leading role of basic

29 Wang, Y., Chen, X., Lu, L., Guidelines for the Construction of Brain Health Centers (2024). *Chinese Journal of Neurology*. 2024, (57) 10: 1045-1050.

medical insurance and bring hope for treatment to AD patients by including innovative medicines and therapies with high clinical value in the NRDL. This will also encourage high-risk groups to actively participate in early screening and intervention, effectively delay disease progression, and reduce the burden on individuals and society.

In the meantime, it is recommended to encourage commercial insurance companies to actively play a supplementary role to basic medical insurance. More flexible, customized, and diversified commercial health insurance products should be developed to meet the different needs of the elderly population. This could include coverage for cognitive assessments, PET-CT scans, innovative treatments, and hospitalization, thereby enriching the market supply of commercial health insurance products for dementia prevention and treatment.

Considering that more than half of the economic burden related to dementia comes from care, it is suggested that the long-term care insurance should play a more critical role in the multi-layered insurance system for dementia. Currently, over 90% of regions carrying out long-term care insurance pilot programs raise the long-term care insurance funds by directly appropriating from the basic medical insurance funds, and an independent funding system has yet to be established. Therefore, in order to effectively reduce the burden of care, it is recommended to gradually establish an independent, diversified, and sustainable funding system for long-term care insurance and accelerate the establishment of the long-term care system as proposed in the 2025 State Council Government Work Report. In Japan, The Long-Term Care Insurance Act effective in 2000 requires local government to formulate independent budgets to ensure the sustainability of the long-term care insurance fund.

3.3.2 Promote the development of silver economy and increase the provision of dementia-related technologies, products and individualized services

The development of the silver economy can create a positive impact on improving the prevention and control of dementia. With technological advancements, the expansion of the aging-related industry, and the increased provision of aging-friendly products and quality services, economies of scale will be achieved to reduce the prices of products and services, thereby benefiting dementia patients and the broader elderly population.

China has been actively promoting the development of the smart elderly care industry and the silver economy[30]. The application of digital health services can

30 Action Plan for the Development of Smart Healthcare and Elderly Care Industry (2021-2025). Ministry of Industry and Information Technology. October 10, 2021. https://www.gov.cn/zhengce/zhengceku/2021-10/23/content_5644434.htm.

provide personalized, high-quality, and more cost-effective medical and care services for patients and caregivers. With the advancement of digital and communication technologies, VR has been applied to the rehabilitation of patients with cognitive impairments, considered an accessible, cost-effective, comprehensive, and flexible option[31]. Emerging technologies such as remote monitoring, wearable devices and sensors, mobile applications, and socially assistive robots can be used to prevent falls among the elderly, effectively improving the independent living abilities of dementia patients and the elderly population. The development of brain-computer interfaces (BCI), AI, and humanoid robots for elderly care applications is gradually progressing, which will better meet the personalized needs of the elderly population. To further promote the development and application of cutting-edge technologies, it is recommended to establish a flexible regulatory framework to ensure their safety and effectiveness, and to encourage continuous research, innovation, and commercialization. Additionally, education and training programs could be developed for community workers, family members, professional caregivers, and volunteers to better apply these technologies in real care settings.

At present, there is still a significant gap for quality care services. Currently, the vast majority of dementia patients are cared for by their family members, in the meantime, there are only about 300,000 registered long-term caregivers in China. However, it is foreseeable that this model will experience a fundamental change in the future, creating a huge market demand for professional care services. It is recommended to guide and train more professionals to engage in long-term care work through incentive policies and vocational training based on the newly released national occupational standards for long-term caregivers in 2024.

Reducing the burden on dementia patients, families, and society as a whole requires joint efforts from multiple aspects. On the one hand, a multi-layered insurance system composed of basic medical insurance, commercial health insurance, and long-term care insurance will help improve the accessibility and affordability of medical and care services. On the other hand, with the development of the silver economy and the advancement of science and technology, the provision of age-appropriate products and services will become more abundant, and economies of scale will help reduce the costs of products and services and bring benefits to more dementia patients and their families in need.

4. Conclusion

We are at a critical moment in the prevention and control of dementia. To

31 Qiu, R., Gu, Y., Xie, C., et al. Virtual reality-based targeted cognitive training program for Chinese older adults: A feasibility study. Geriatric Nursing. 2022, 47: 35-41.

accelerate the implementation of the National Action Plan, we must make comprehensive preparations in key areas such as policy framework design, infrastructure construction, technological research and development, personnel capacity building, and resource coordination. Additionally, enhancing cross-ministerial collaboration, raising public awareness of the disease, and fostering a consensus that dementia is preventable, treatable, and manageable are essential steps.

Our collective efforts should focus on establishing a seamless, well-integrated, and comprehensive dementia prevention and control system that ensures early detection, accurate diagnosis, and effective treatment. Furthermore, we need to develop a comprehensive, multi-layered insurance system and promote the development of the silver economy through technological advancements and an abundant supply of age-friendly products and services, thereby reducing the burden of dementia and building a dementia-friendly society.

With the development of AI, innovative biomarkers, and disease-modifying therapies such as amyloid targeting treatments, we are now more capable than ever of transforming dementia into a preventable and treatable disease. As a global leading pharmaceutical company, Lilly has been dedicated to the research and development of innovative therapies and diagnostics for AD for nearly forty years. We fully support China’s efforts in addressing dementia and are committed to collaborating with all stakeholders to enhance the well-being of patients with AD and other dementias. Together, we strive to advance dementia prevention and treatment and contribute to building a dementia-friendly society in China.