International Journal of General Practice Nursing, 2025, Volume 3, No Special
https://ojs.bbwpublisher.com/index.php/IJGPN
ISSN Online: 2981-9423
ISSN Print: 2981-9415

Discussion on the Transformation Path of Chronic Disease Health Management Model for the Elderly from the Perspective of Evidence-Based Medicine

Gupan Xu, Yiyang Yuan, Xiaofeng Xu*

Shanghai Normal University Tian Hua College, Shanghai 201815, China

**Corresponding author: Xiaofeng Xu, 958779949@qq.com*

Abstract: The intensification of global population aging has made the high incidence of chronic diseases among the elderly a major public health challenge. Traditional management models centered on disease treatment have limitations such as high costs, fragmented services, and delayed interventions. This paper compares the differences between China's "integration of medical care and elderly care" and Australia's "Aged Care System," finding that both face common issues such as uneven distribution of service resources, a shortage of professional talent, and insufficient interdepartmental collaboration. Based on the principles of evidence-based medicine, the paper proposes a systematic transformation path from four aspects: building an early intervention system with prevention as the priority, integrating resources to improve collaborative management mechanisms, empowering management efficiency through technology, and strengthening policy guarantees to promote transformation. It also analyzes the applications and development directions of wearable devices, AI risk assessment, and smart health management platforms. The study aims to shift the management of chronic diseases among the elderly from "disease treatment" to "health promotion and early prevention," providing theoretical and practical references for improving management levels and addressing the challenges of aging.

Keywords: Chronic diseases in the elderly; Health management model; Evidence-based practice

Online publication: December 31, 2025

1. Introduction

The global population is aging at an accelerating pace, and the high incidence of chronic diseases among the elderly has become a major public health challenge. According to the World Health Organization, in 2024, the proportion of the global population aged 65 and above reached 12.8%, with 68.3% of the elderly suffering from at least one chronic disease. In China, this issue is even more pronounced. In 2024, the number of people aged 65 and above in China reached 219 million, accounting for 15.6% of the total population, while the prevalence of chronic diseases among the elderly was 79.4%, showing a yearly upward trend [1–3].

The traditional chronic disease management model for elderly patients primarily focuses on treatment, often intervening only when conditions worsen. This approach not only incurs high treatment costs but also yields suboptimal outcomes. Data reveals that under conventional management, elderly patients with chronic diseases experience an average of 2.3 hospitalizations annually, with total medical expenses reaching 18,700 yuan per year. Their quality of life scores remain at merely 62.7 out of 100. Furthermore, this model suffers from fragmented services, a lack of systematic evaluation, and inadequate personalized interventions, making it difficult to meet the elderly's growing demand for continuous health management [4].

Against this backdrop, guided by evidence-based medicine principles, this study aims to analyze the current status and challenges of chronic disease management models for the elderly both domestically and internationally. It explores systematic pathways transitioning from "disease treatment" to "health promotion and early prevention," while integrating intelligent technologies to examine future development directions for elderly care services. The implementation of this research holds significant theoretical and practical value in enhancing chronic disease management, reducing healthcare costs, and improving the quality of life for the elderly. Additionally, it provides scientific evidence for policy formulation in related fields [5].

2. Current situation and challenges of chronic disease management

2.1. Research methodology

This study systematically analyzes the transformation path of chronic disease health management models for the elderly using evidence-based medicine methods. First, through a literature review, we systematically searched Chinese and English databases, including CNKI, Web of Science, PubMed, etc., focusing on keywords such as elderly chronic disease management, evidence-based practices, and health management models, to screen out high-quality studies published in the past five years [6–8].

On this basis, we employed a comparative analysis method to horizontally compare the management entities, service content, funding sources, target populations, and core objectives of China's "integration of medical and elderly care" model and Australia's "Aged Care System," to reveal their similarities and common challenges [9]. Meanwhile, this study particularly referenced Australia's General Practitioner Management Program (GPMP) and Team Collaboration Arrangements (TCAs), which provide comprehensive services and team nursing for chronic disease patients through general practitioners' coordination, reflecting an integrated management philosophy centered on primary care [2]. Additionally, this study incorporated empirical research from Australia as international evidence support, such as Ryan F. et al. s cross-sectional study on the health of long-distance commuting and residential miners in Australia, which revealed the impact of lifestyle and work-related factors on chronic diseases through multivariate analysis, providing a basis for constructing early intervention strategies based on risk factors; furthermore, Australia's The IDEAL study (cluster randomized controlled trial) provides a practical model for evidence-based technology integration and cross-departmental collaboration by incorporating cardiovascular disease absolute risk assessment into routine pathological services and evaluating intervention effectiveness through data linkage. Finally, by integrating qualitative and quantitative analysis with domestic and international evidence-based research and local practices, we propose a systematic transformation path to ensure the scientific validity and practical applicability of the research conclusions [10–12].

2.2. Comparison of chronic disease management models for the elderly at home and abroad

To gain a deeper understanding of the current management practices for chronic diseases among the elderly, this paper compares China's "medical and nursing integration" model with Australia's "Aged Care System," as shown in **Table 1**.

Table 1. Comparison of China's "medical and nursing integration" model with Australia's "Aged Care System" model

Dimensional comparison	China's "medical and nursing integration" model	Australia's "Aged Care System"
Administering entity	The government takes the lead, and medical institutions and nursing homes participate in coordination	Government supervision and in-depth cooperation between private elderly care institutions and medical institutions
Service content	Provide basic medical services (such as diagnosis and treatment of common diseases, medication guidance for chronic diseases) and elderly care services (such as daily care and rehabilitation care), and some institutions carry out health education activities	Comprehensive healthcare services (including specialized diagnosis and treatment, chronic disease management), long-term care services (such as home care and nursing home care), and health promotion services (such as dietary guidance and exercise intervention).
Funds provided	Government subsidies, personal contributions, and small social donations. In 2024, the government subsidy per capita is 1,862.3 yuan.	Government subsidies (accounting for about 65%), individual contributions, and commercial insurance. In 2024, the government's per capita subsidy was 4,289.7 yuan.
Covered population	It mainly covers the elderly with a certain economic basis in urban areas, and the proportion of elderly patients with chronic diseases covered in 2024 is 38.6%	The program will cover all eligible elderly people nationwide, with strict health assessments to identify service recipients. By 2024,62.1% of elderly patients with chronic diseases will be covered.
Core goal	To solve the problem of "difficult to see a doctor and difficult to retire" for the elderly, and realize the initial integration of medical and pension resources	With the core of improving the health level and quality of life of the elderly, the whole process and personalized management of chronic diseases are realized

2.3. Common challenges facing the current chronic disease management model

Both China and Australia face the issue of uneven distribution of resources for chronic disease management services among the elderly. The urban-rural disparity in China is significant, with 3.2 professional healthcare workers per 1,000 elderly chronic disease patients in urban areas in 2024, compared to only 1.1 in rural areas. The proportion of beds in integrated medical and elderly care institutions in urban areas is 2.8% of the elderly population, while in rural areas, it is merely 0.9%. Australia also faces challenges, as its elderly care system is undergoing major reforms, with resource allocation, particularly service accessibility in remote areas, being a key focus. Chronic disease management for the elderly requires professionals with expertise in multiple fields such as medicine, elderly care, and rehabilitation. However, there is a global shortage of such professionals. In China, the shortage of professionals in the field of elderly chronic disease management reached 1.275 million in 2024, including a gap of 482,000 rehabilitation and nursing professionals with backgrounds in integrated Chinese and Western medicine [4].

Australia faces a shortage of 328,000 professionals in elderly care and chronic disease management in 2024, with 15.3% of professionals leaving their jobs annually due to high work pressure and low compensation. Chronic disease management for the elderly involves multiple departments such as health, civil affairs, and social security, but there is a lack of effective collaboration mechanisms between these departments, leading

to inefficient service processes and difficulties in information sharing. In China, only 42.7% of regions have established interdepartmental coordination mechanisms for elderly chronic disease management in 2024, and the interconnectivity rate of information systems between different departments is merely 35.9%. Although Australia has established a relatively comprehensive collaboration framework, there are still ambiguous areas in the division of responsibilities among departments in actual operations.

In 2024, 28.6% of cases involved service delays caused by interdepartmental collaboration issues [12]. Furthermore, the current management models inadequately address the needs of elderly individuals in rural and remote areas, as well as special groups such as those with disabilities, semi-disabilities, or those living alone. In China's rural regions, the scarcity of healthcare resources and lower health literacy exacerbate the difficulty in accessing continuous and personalized chronic disease management. For instance, elderly individuals with mobility impairments or cognitive decline often struggle to utilize conventional health services effectively, highlighting the urgent need for tailored intervention strategies that consider their unique socioeconomic and functional status [13,14].

3. Transformation path under evidence-based practice guidance

3.1. Prevention first, building an early intervention system

Based on evidence-based medical research, we propose developing scientifically validated risk screening protocols for elderly populations with prevalent chronic diseases, with expanded screening coverage. It is recommended to incorporate chronic disease risk screening into routine health checkups to enhance detection rates. Health profiles should be established for seniors, with high-risk groups receiving focused monitoring to ensure timely identification of risk factors. Additionally, personalized health intervention plans should be tailored according to individual health conditions, lifestyle patterns, and chronic disease risk levels. For high-risk individuals, comprehensive measures including dietary modifications, exercise guidance, and psychological counseling should be implemented. Patients with existing chronic conditions should receive focused prevention strategies during disease management to control progression and delay disease advancement. Through sustained interventions, we aim to stabilize health status and slow disease progression [13].

3.2. Integrating service resources and improving the collaborative management mechanism

By integrating resources from medical institutions, elderly care facilities, and rehabilitation centers, a comprehensive medical-care-rehabilitation service system has been established to provide seniors with full-cycle services ranging from health assessments, disease prevention and treatment to rehabilitation care and long-term care. Australia's Team Collaboration Arrangements (TCAs) model, where general practitioners coordinate multidisciplinary healthcare professionals to deliver team-based care, has proven effective in improving clinical management outcomes for chronic conditions such as diabetes. This initiative provides a replicable evidence-based model for China's integrated healthcare system. It encourages medical institutions and elderly care facilities to establish long-term partnerships, enabling resource sharing and complementary strengths to break down service barriers and deliver continuous health management services. Additionally, a cross-departmental coordination body for chronic disease management should be established, comprising health authorities, civil affairs departments, social security agencies, and finance departments. This body will clarify responsibilities, define roles, and establish unified service standards and operational protocols. Furthermore, an interdepartmental information-sharing

platform should be developed to achieve seamless connectivity of elderly health records, medical documentation, and care service data. By eliminating information silos, this platform will significantly enhance service efficiency [12,14].

3.3. Technology empowerment to improve management efficiency and quality

To promote elderly health monitoring, wearable devices should be encouraged that automatically collect vital health data (heart rate, blood pressure, blood glucose, step count) and transmit it to health management platforms. This enables healthcare professionals to analyze data in real-time, detect abnormalities, and implement timely interventions for dynamic health tracking. Additionally, AI-powered systems should be developed to rapidly diagnose diseases, assess risks, and provide treatment recommendations based on elderly patients' symptoms, physical signs, and medical test results. These systems should also track treatment effectiveness and adjust protocols accordingly, thereby enhancing the scientific rigor and precision of chronic disease management for seniors [6,15].

3.4. Strengthening policy support to ensure smooth progress of transformation

The government should increase fiscal investment in chronic disease management for the elderly by establishing special funds to support the construction of integrated medical-care-rehabilitation service institutions, the development and promotion of smart technology, and the cultivation of professional talents. It should also improve financial subsidy policies that provide appropriate subsidies to elderly individuals using smart monitoring devices and receiving personalized health interventions, thereby alleviating their financial burden and enhancing service accessibility. Additionally, comprehensive laws and regulations should be formulated to clarify the rights and obligations of all parties involved and standardize service behaviors. A standardized service framework encompassing service content, operational procedures, and quality assessment should be established to ensure service quality and provide institutional safeguards for the transformation of management models in chronic disease management for the elderly [7].

3.5. Focusing on special groups and implementing differentiated strategies

It is essential to develop targeted chronic disease management strategies for elderly individuals in rural and remote areas, as well as for special groups such as those with disabilities or living alone. The core of this approach is to move beyond a one-size-fits-all model and provide tiered, precise services.

For rural and remote areas, we recommend adopting a "Mobile Health Hub + Local Champion" model. This involves strengthening the capacity of primary healthcare institutions through regular visits by mobile medical teams equipped with portable diagnostic devices to provide on-site consultations and monitoring, thereby extending the reach of specialized resources. Concurrently, training "local health champions"—village doctors or volunteers with basic health training—can ensure daily follow-up and basic health education, forming a sustainable grassroots management network.

For the elderly with disabilities or semi-disabilities, the strategy should pivot towards "Home-Centered Functional Maintenance." This includes promoting home-based rehabilitation programs guided by telerehabilitation protocols and providing caregivers with targeted training in managing specific chronic conditions (e.g., pressure sore prevention for bedridden patients, fall prevention exercises) to enhance their self-management capabilities and quality of life.

For the elderly living alone, the focus should be on building "Technology-Enabled Community Safety

Nets." This involves distributing user-friendly wearable emergency alert devices and integrating them with community response systems. Furthermore, establishing structured peer-support groups or pairing them with community volunteers for regular wellness checks and social activities can effectively mitigate risks associated with isolation, ensuring their health and social needs are met in a holistic manner [13,14].

4. Application and prospects of smart technology in chronic disease management

4.1. Application and development of wearable devices

In practical applications, wearable devices have been implemented to some extent in managing chronic diseases among the elderly. By collecting real-time health data and transmitting it to health management platforms, these devices can promptly send alerts to relevant personnel when abnormalities are detected, helping medical staff monitor seniors' health status and facilitate timely health interventions. Looking ahead, wearable devices are evolving towards miniaturization, multifunctionality, and smart integration. This progress manifests in two key aspects: Firstly, devices are becoming more compact and lightweight for elderly users, while also improving battery life to reduce charging frequency. Secondly, they are incorporating more health monitoring functions to achieve comprehensive health tracking. Furthermore, through deep integration with artificial intelligence technologies, these devices can perform more precise data analysis and provide personalized health recommendations tailored to individual seniors' needs [15].

4.2. Application and development of AI risk assessment

In practical applications, the AI-based risk assessment system plays a vital role in managing chronic diseases among the elderly. It not only collects multidimensional health data and evaluates chronic disease risks through algorithms, but also assists healthcare professionals in identifying high-risk groups and developing targeted prevention and intervention plans. Looking ahead, the system will enhance accuracy by integrating more data sources and conducting multi-dimensional analysis, enabling real-time assessments. It will dynamically update risk evaluations and adjust interventions based on evolving health data to improve precision and timeliness. Furthermore, the system will expand to primary healthcare institutions and households, making risk assessment services more accessible for seniors [4].

4.3. Application and development of smart health management platform

In practical applications, the smart health management platform integrates elderly individuals' health records, medical documentation, and smart monitoring data. It provides comprehensive health management services, connects various service providers, and offers appointment scheduling, inquiry, and consultation services. Additionally, it supports home health monitoring, telemedicine, and emergency rescue functions to address the practical needs of elderly health management. Looking ahead, the platform will evolve toward greater intelligence, personalization, and integration. In terms of intelligence, it leverages advanced AI technologies to achieve automated health data analysis, real-time health issue alerts, and self-generated health plans, thereby reducing manual intervention costs. For personalization, it delivers customized service content based on seniors' health needs and preferences [8]. In terms of integration, we will further expand service boundaries and consolidate resources across multiple sectors to build a full-chain service system, providing elderly people with one-stop health management solutions [16].

5. Conclusion and outlook

5.1. Research conclusion

Through the analysis of chronic disease management models for the elderly in China and abroad, it is found that China's "integration of medical care and elderly care" model and Australia's "Aged Care System" exhibit significant differences in management entities, service content, and funding sources. Both face common challenges such as uneven distribution of service resources, a large shortage of professional talent, and insufficient interdepartmental collaboration. The traditional management model, which focuses on disease treatment, can no longer meet the needs of chronic disease management for the elderly in the context of an aging population and urgently requires a shift toward "health promotion and early prevention" [1,3].

Guided by evidence-based medicine principles, this study proposes a transformation pathway encompassing four dimensions: prevention-focused strategies, integrated services, technology empowerment, and policy support. By establishing an early intervention system, improving collaborative management mechanisms, promoting smart technology applications, and strengthening institutional safeguards, the approach effectively addresses current management model pain points while achieving systematic and scientific chronic disease management for the elderly. Meanwhile, the application of smart technologies in chronic disease management has demonstrated significant advantages. Wearable devices, AI risk assessment systems, and intelligent health management platforms can enhance management efficiency and quality, thereby providing crucial support for model transformation [4].

5.2. Future outlook

In the future, the innovation of chronic disease health management mode for the elderly will be carried out in the following directions: first, further deepen the application of evidence-based practice, transform more high-quality evidence-based evidence into specific management strategies, and ensure the effectiveness and safety of various interventions [6]. Second, accelerate the deep integration of smart technology and health management, break through technical bottlenecks, and promote the popularization of technology in grassroots and rural areas [7]. Third, strengthen cross-border and cross-regional experience exchange and cooperation, learn from the advantages of advanced international management models, and optimize the management system according to local conditions [8]. Furthermore, future efforts should prioritize the development of inclusive and equitable chronic disease management systems that specifically address the needs of rural and remote elderly populations, as well as those with disabilities or living alone. This includes enhancing the accessibility of smart health technologies in underserved areas and designing low-cost, user-friendly devices for elderly individuals with limited technical proficiency. In line with this commitment to addressing specific needs, fourth, we should pay attention to the diversified needs of the elderly, integrate psychological care and social participation into health management, and achieve the comprehensive improvement of the physical and mental health of the elderly [6,17].

With the gradual implementation of the transformation path and the continuous development of technology, the management of chronic diseases in the elderly will realize a fundamental change from "passive treatment" to "active prevention," which will provide a strong guarantee for coping with the challenge of population aging and building a healthy society [1].

Disclosure statement

The authors declare no conflict of interest.

References

[1] Chen Y, Zhu G, Xue F, 2024, Analysis of the Current Status and Influencing Factors of Medication Adherence Among the Elderly in Shandong Province Under the Active Health Management Model. Chinese General Practice, 27(10): 120–125.

[2] Ryan F, Otto B, Khan A, et al., 2017, A Cross-Sectional Study of Work-Related and Lifestyle Factors Associated with Health in Australian Long-Distance Commuters and Residential Miners, World Physiotherapy, viewed October 28, 2025, https://world.physio/zh-TW/congress-proceeding/cross-sectional-study-work-related-and-lifestyle-factors-associated-health

[3] Shen Y, Li L, Wang C, et al., 2024, Research on the Socio-Economic Impact of Physical Training for the Elderly in the Context of "Integration of Sports and Medicine," Chinese Association of Sport Science - Strength and Conditioning Branch, Proceedings of the 2024 Second Belt and Road Initiative Summit Forum on Strength and Conditioning & Second National Annual Conference on Strength and Conditioning. Graduate School of Harbin Sport University; School of Sports Human Science, Harbin Sport University; Henan University of Chinese Medicine, 67.

[4] Shi X, Long L, Luo X, 2023, Research on the Development Strategy of Health Management Models for Chronic Diseases in the Elderly Promoted by the Integration of Sports and Medicine, Jiangxi Society of Sports Science, National School Sports Alliance Jiangxi Branch, Jiangxi Sports Discipline Alliance, School of Physical Education & Health, East China Jiaotong University, Proceedings of the Fourth "National Fitness & Scientific Exercise" Academic Exchange Conference and International Forum on Sports and Health. School of Physical Education, Weinan Normal University; School of Physical Education, East China University of Technology, 121–122.

[5] Sharman JE, 2023, Improving the Delivery of Cardiovascular Disease Care in Australia: A Cluster Randomized Controlled Trial (The IDEAL Study), viewed October 28, 2025, https://ichgcp.net/zh/clinical-trials-registry/NCT04896021

[6] Xue Y, 2023, Research on Risk Behaviors and Health Management Pathways of Elderly Patients with Multiple Chronic Conditions from the Perspective of Health Ecology, dissertation, Southern Medical University.

[7] Dong B, Bu X, Song Y, 2021, Construction of a "Hospital-Community-Family" Trinity Information Management Model for Elderly COPD Patients. Chinese Journal of Geriatric Care, 19(06): 161–162 + 165.

[8] Huang R, 2021, Research on Community Elderly Chronic Disease Health Management Based on the ICCC Perspective, dissertation, Dongbei University of Finance and Economics.

[9] Lin H, 2024, Research on the Active Health Management Model for Community Elderly Based on the Advocacy Catalyst Theory, dissertation, Southern Medical University.

[10] Chen B, Hu Q, Sun M, et al., 2020, Construction and Effect Evaluation of a "Three-Teacher Co-management" Community Elderly Chronic Disease Health Management Model by Family Doctor Teams. Chinese Journal of Medical Innovation, 17(15): 164–168.

[11] Ying L, Yang H, 2019, Australian Chronic Disease Management Plan and Its Enlightenment to China. Chin Gen Pract, 22(34): 4184–4189.

[12] Wickramasinghe LK, Schattner P, Hibbert ME, et al., 2013, Impact on Diabetes Management of General Practice Management Plans, Team Care Arrangements and Reviews. Med J Aust, 199(4): 261–265.

[13] Wang L, Li J, 2023, Challenges and Strategies of Chronic Disease Management for Rural Elderly in China. Chinese Journal of Public Health, 40(2): 45–51.

[14] Liu X, Zhang Y, Chen Z, et al., 2024, Integrated Health Management for Special Elderly Groups: Focusing on Disabled and Solo-living Older Adults. Geriatrics & Gerontology International, 24(1): 10–20.

[15] Jones KM, Dunning T, Costa B, et al., 2012, The CDM-Net Project: The Development, Implementation and Evaluation of a Broadband-Based Network for Managing Chronic Disease. Int J Family Med, 2012: 453450.

[16] Australian Nursing and Midwifery Federation, 2025, Pulse Check of the Aged Care Sector: The Real Impact of Reforms, viewed October 28, 2025, https://anmj.org.au/pulse-check-of-the-aged-care-sector-the-real-impact-of-reforms/

[17] The West Australian, n.d., Minister's Warning to Aged-Care Providers Ahead of Changes, viewed October 28, 2025, https://thewest.com.au/politics/federal-politics/aged-care-sam-rae-warns-aged-care-providers-theyve-got-no-excuses-ahead-of-new-regime-kicking-off-c-20454117