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Developing a Long-term Care Model for Urban China: Lessons

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Abstract

Developing a sustainable long-term care (LTC) system poses a challenge globally and is particularly urgent in China given its rapidly aging population. Despite recent policy initiatives, China's LTC system remains at early stage. This study conducted a comprehensive literature review (PubMed, Google Scholar, EBSCO, CNKI) and applied recurrent theme and comparative analyses to examine mature LTC models in selected countries and identify critical success factors transferable to China's unique socioeconomic and cultural context. Six core elements associated with successful LTC models were identified. Insights from the United States, Japan, the United Kingdom, Germany, and Brazil provide actionable strategies that, with appropriate adaptation to China's socioeconomic and cultural context, can inform the development of an effective, sustainable, and culturally sensitive LTC model.

Introduction

Population aging is the most significant global demographic trend, presenting unprecedented challenges for LTC systems, particularly in developing countries [1]. LTC encompasses a broad spectrum of services aimed at assisting individuals aged 60 and older with limitations in independent living, including help with daily activities, respite care, home healthcare, adult day care, and nursing home care [2]. China faces a demographic problem of a rapidly aging population, a trend accelerated by the effects of the one-child policy [3, 4]. By 2035, the elderly population in China is projected to reach 400 million, accounting for over 30% of the total population [5].

Since the 1960s, developed countries have been aiming to develop LTC systems to address demographic shifts, focusing on sustainability, accessibility, affordability, and care quality [6–8]. Multiple nations have gained valuable insights in LTC development and have implemented comprehensive LTC models, such as USA, UK, and Japan. Although not perfect, models and strategies from these countries can potentially meet the needs of LTC [9, 10]. Some rapidly developing countries, including South Korean, Brazil and Cuba, having faced similar challenge as China, have also designed effective LTC systems suited to their unique needs. China can gain valuable insights by studying these countries' experiences [10, 11]. For instance, Japan's Long-Term Care (LTC) Insurance system exemplifies successful policy transfer and institutional adaptation[12]. Introduced in 2000, it effectively adapted Germany's social insurance model and the UK's community-care approach to its rapid demographic ageing and cultural preference for family- and home-based care, creating one of the world's most comprehensive and sustainable public LTC systems [13].

A comparative analysis of LTC systems from both developed and developing nations could help China create a culturally sensitive and effective model that addresses its unique challenges, which is the key aim of this paper. Specifically, we are aiming to focus on key factors influencing the supply and utilization of LTC system in selected countries with already implemented successful LTC models.

Methods

Factors extracted/analyzed

This study employed an iterative search approach, systematically focusing on key factors influencing the supply and utilization of LTC system. Through targeted literature searches, the influencing factors were identified, sorted, and screened based on their frequency of being mentioned in the literature.

Databases and keywords

Relevant articles were sourced from PubMed, Google Scholar, EBSCO, CNKI, and others, using keywords such as factors influencing LTC, LTC models, elderly care, pensions, financing, service location, technology, quality, cultural factors, government involvement, and performance.

Inclusion criteria

Systematic review, quantitative and qualitative research, topic focused on long term care for the elderly, published after 2010, published in an academic journal, published in English or Chinese language.

Exclusion criteria

Focus on clinical treatments, older adults are not the main target, published earlier than 2010, full text not available in English and Chinese.

Criteria for selection of countries

Based on the main factors influencing LTC and the actual condition in China, this study employed a comparative analysis to identify the components of the optimal LTC model that would be applicable to China. A total of five countries were identified, which include USA, Japan, UK, Germany, and Brazil. The selection emphasizes variation in economic development levels (high-income vs. middle-income), cultural contexts, funding mechanisms, service delivery approaches, and innovative features, rather than adopting any single country's model wholesale. Instead, the study extracts prominent characteristics, policies, or best practices from each for potential adaptation to China's context. (Also outlined in Table 1)

1. 1. Japan: As a neighboring country with shared cultural traditions, including Confucian values and filial piety [14], offers a highly structured universal LTC insurance system (introduced in 2000) that shifted responsibility from families to society, featuring rigorous needs assessment, prevention programs, significant public investment (around 2% of GDP), and advanced technology integration such as robotics[15].
2. 2. Germany and Japan exemplify successful implementation of advanced technologies in LTC, with Germany leveraging information technology alongside a mandatory universal insurance model that prioritizes informal care through cash benefits, prevention, and rehabilitation without means testing [16, 17].

3. 3. The United Kingdom pioneered market-oriented reforms in social services (separating purchasing from provision within the NHS framework) and provides a means-tested system supplemented by direct payments for user-directed care and strong support for informal caregivers[18, 19].
4. 4. The United States demonstrates diverse, market-driven innovations—including Continuing Care Retirement Communities (CCRCs), the Green House model, PACE programs, Active Adult Communities, and financial tools like reverse mortgages—within a mixed public-private system reliant on Medicaid for low-income groups and strict regulatory oversight[20, 21].
5. 5. Brazil, sharing similarities with China as a large-population, middle-income country, integrates LTC primarily within its universal public health system (SUS) and social assistance framework (SUAS), emphasizing cost-effective facility-based care, non-contributory pensions, and heavy reliance on family support while meeting basic needs [22, 23].

Data analysis:

Recurrent theme analysis and comparative analysis were used to identify factors that all or most LTC systems in the selected countries are harnessing to achieve positive outcomes for their LTC system.

Results

A total of 467 articles were identified through the literature search. Finally, 63 articles were selected for the final analysis.

The key parameters guiding this selection are summarized in Table 1.

Table 1. Characteristics of LTC systems in comparator countries selected for this research

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Country	Characterics	Why these experiences were selected
USA	1. Diverse range of services and mixed funding sources. 2. Comprehensive certification and regulatory for new LTC facilities. 3. Enhance quality supervision by improving the transparency of public-facing rating systems. 4. Telemedicine and remote monitoring are widely used. 5. National Palliative Care Research Center offers a well-defined structure and funding models, supporting the growth and accessibility of PHC services. 6. Emphasizes a market-driven approach, minimizing direct government intervention in LTC. 28 states still have filial responsibility laws.	1. In China, most elderly individuals have limited access to affordable LTC options, with newer models remaining costly. 2. Quality supervision is lacking. 3. "Smart LTC" technology is in its infancy. 4.PHC care services are scarce. 5. The government dominates the LTC system, while market mechanisms are underutilized, leading to inefficient resource allocation.
The UK	1. LTC requires means test. 2. Offers direct payments to low-income individuals. 3. Abolished the fixed retirement age. 4. Have well-established and highly accessible PHC systems.	1. China is "getting old before getting rich," universal LTC access is unrealistic. A means-tested approach is more practical. 2. Low-income families rely on informal caregivers, 3. the government has introduced a delayed retirement plan, inspired by the UK's model.
Germany	1. Adopted an informal care-led model, support caregivers. 2. Emphasis on preventive care. 3. Prioritizing inspections on patient outcomes to enhance quality supervision. 4. Advanced digital platforms to improve communication and coordination. 5. Universe access to LTC, but not entirely free, and requires cost-sharing.	1. In China, informal caregivers dominate LTC provision 2. Insufficient preventive measures for the elderly. 3. Technology use in the LTC system remains in its early stages, 4. Germany's access regulation offers a potential model for wealthier regions.
Japan	1. Needs-assessment system classifies individuals into 7 distinct levels, 2. Prevention program. 3. Traditional culture-Filial piety. 4. Prioritizing inspections on patient outcomes to enhance quality supervision. 5. High technology -Paro provides companionship and emotional support to elderly residents. 6. Universe access to LTC, but not entirely free, and requires cost-	1. Needs-assessment helps save LTC resources. 2. Japan excels in older adult prevention programs. 3. China's large group of empty nesters could benefit from the Paro robot program for companionship. 4. Using LTC outcomes to measure quality is a potential choice for China.
Brazil	1. Unified Health System provide the essential LTC. 2. National Immunization Program.	1. In developing countries like Brazil and Cuba, unified health systems offer essential LTC, providing a cost-effective solution. 2. A national immunization program presents a potential option for LTC.

Collectively, the selected cases encompass a diverse array of LTC policy frameworks, ranging from privatized and means-tested arrangements (as exemplified by the United States and the United Kingdom) to universal social insurance models (Japan and Germany) and publicly integrated systems embedded within broader health and social assistance structures (Brazil). Spanning both high-income and middle-income contexts, these examples illuminate adaptable policy strategies for addressing the multifaceted challenges posed by population aging. In particular, they highlight effective approaches to ensuring funding sustainability, maintaining service quality, enhancing user satisfaction, and incorporating technological innovations, thereby offering valuable comparative insights for the development of contextually appropriate LTC reforms in China.

Key factors identified for a LTC system

Recurrent topics explained

1. Government Involvement

The aging population poses a major challenge for governments, requiring them to develop national strategies for LTC system [24].

governments play a crucial role to ensure accessible, affordable services [11]. In addition to expanding services, they must oversee care quality, enforce licensing standards for public funding, and train informal caregivers [25].

Some countries are working to reform the government's role in the LTC model, with strategies aimed at gradually shifting from being a direct provider to a purchaser and regulator of LTC services, as seen in the USA [26].

2. Financing

Financing for LTC involves various sources and mechanisms to cover the costs associated with providing LTC services for the elderly[12]. It is fundamental to an LTC model, influencing its design, services, accessibility, care quality, sustainability, equity, and social justice [27].

Financing is influenced by the governing system, social security, and health insurance reimbursement. LTC models can be categorized into tax-based, social insurance-based, private insurance-based, and mixed models [7, 27]. Most countries use a tax-based LTC system, including the UK, while others, like Germany, Japan, and the Netherlands, have LTC insurance (LTCI). Most nations with tax or health insurance systems apply means testing for eligibility. LTCI-based countries have the highest LTC expenditure as a percentage of GDP (1.75%), followed by tax-based systems (1.54%) and health insurance-based systems (1.13%) [27]. Compared with other countries in the OECD, the USA spends less percentage of the GDP on the LTC system. The majority of funding is from private source, at around 55% in 2006[20].

3. Service location:

Across all countries, LTC is commonly delivered through three main models: home-based care, community-based care, and residential facilities [10, 26]. The concept of "aging in place"—growing older in one's own home—is widely recognized and preferred by most older adults, who value autonomy, independence, and staying close to familiar surroundings and loved ones. As a result, institutional care is often seen as a last resort [28, 29]. "Aging in place" is central to the HCBC model, which integrates home and community care for personalized support. It promotes independence, lowers infection and mental health risks, delays residential care, improves quality of life, and reduces societal costs while maintaining autonomy and community ties [30, 31].

All studied countries prioritize aging in place and HCBC. In the UK, 60% of public social care recipients now receive home care, up from nursing homes being the primary option three decades ago [32].

4. Cultural:

Culture fundamentally shapes LTC by influencing attitudes, expectations, and responsibilities around caregiving, including family involvement and societal roles.

A Swiss study highlights significant differences in LTC preferences between cultural groups, Latin-speaking individuals and German-speaking counterparts [33]. Despite these cultural differences, families universally remain the primary caregivers of LTC, even when formal care options are accessible. This underscores the central role of familial care in LTC system[11].

China and other Asian countries like Japan, Singapore, and South Korea emphasizes filial piety, the duty of children to care for their aging parents [14, 34]. Filial responsibility is legally mandated in some countries, like China and Singapore, and 28 US states still have such laws [11, 35, 36].

5. Integration of technology

The use of advanced technology in healthcare has a long history, but its adoption in LTC began later and has accelerated rapidly in recent years. Technologies such as AI, robotics, telemedicine, smart homes, and wearable devices improve care efficiency, address workforce shortages, enhance safety, and expand accessibility. They also support aging in place by enabling independent living through monitoring, fall detection, and medication reminders, while tools like virtual reality and social robots provide companionship, cognitive stimulation, and mental health support.

Information technology and big data aid policymakers and caregivers by tracking health trends and resource use, leading to more effective and sustainable LTC models. This integration is fundamentally transforming the delivery of care [37–39].

6. Quality supervision

Countries like the UK and the USA have implemented public-facing rating systems to enhance transparency, while Germany and Japan prioritize regulatory inspections with a growing focus on patient outcomes. This shift reflects an increasing emphasis on not just compliance but the real-world impact of care on elderly well-being [40–42].

Over the past two decades, China implemented efforts in LTC system, but lacked adequate quality supervision. In March 2017, the Ministry of Civil Affairs launched a nationwide initiative to improve care standards and facility quality. By the end of 2017, national service quality standards and an evaluation system were implemented, significantly enhancing care across the country [51].

Collectively, the selected cases encompass a diverse array of LTC policy frameworks, ranging from privatized and means-tested arrangements (as exemplified by the United States and the United Kingdom) to universal social insurance models (Japan and Germany) and publicly integrated systems embedded within broader health and social assistance structures (Brazil). Spanning both high-income and middle-income contexts, these examples illuminate adaptable policy strategies for addressing the multifaceted challenges posed by population aging. In particular, they highlight effective approaches to ensuring funding sustainability, maintaining service quality, enhancing user satisfaction, and incorporating technological innovations, thereby offering valuable comparative insights for the development of contextually appropriate LTC reforms in China.

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Discussion

Learning from advanced international practices does not imply replicating another country's pension model in its entirety. Instead, the proper approach is to tailor these lessons to the specific circumstances of one's own country. By selectively adopting effective measures, it is possible to address particular challenges. These valuable insights may come from a variety of countries, each offering solutions to specific issues.

Every country explored in this research places significant emphasis on LTC systems, but the role of governments in elderly care varies across nations. For instance, compared to Germany, the U.S. government prioritizes the marketization of LTC services, with less direct involvement in service provision. In contrast, the Chinese government maintains a leading role in its LTC system, actively participating in nearly every aspect of LTC system [26, 43].

Financing will be the top challenge for the China. China faces insurmountable challenges in implementing universal LTCI. As it "grows old before getting rich," relying on a single funding source is insufficient to address this issue [44]. A promising solution is to integrate healthcare and long-term care services with diverse funding sources, aligning with developmental trends for a more sustainable future.

The location of services significantly impacts accessibility, affordability, community integration, and sustainability in LTC models. Globally, there's a shift toward aging in place through HCBC. In 2010, China introduced a three-tiered system emphasizing home-based care, supported by community and institutional services, known as the "90-7-3" structure. This aims for 90% of elderly care at home, 7% through community services, and 3% in institutions [34, 42]. To promote HCBC, the government has implemented policies such as expanding community canteens for the elderly [45].

Culture's influence on LTC is comprehensive, influencing the delivery of care, the expectations of both caregivers and recipients, and the overall effectiveness of care [46, 47]. In China, demographic changes are making traditional elder care by children unsustainable, and enforcing filial responsibility through legal measures is challenging due to the ambiguity of existing laws [14]. The impact of culture on LTC is evolving, with a shift from relying on offspring as primary caregivers to alternative caregivers, self-purchased services, and government-provided care. This change supports the development of HCBC.

Many developed countries have already integrated advanced technologies into LTC. The U.S. employs telemedicine and remote monitoring (e.g., Mercy Virtual Care Center) to improve accessibility and efficiency [40]. Japan leads in robotics, with therapeutic robots like Paro providing companionship in care facilities [41, 42]. Germany uses digital platforms for real-time coordination among caregivers, families, and providers, enhancing care integration [43].

China was a late adopter of high technology in the LTC sector, referred to as "smart LTC," which utilizes information and intelligent control technologies to connect LTC participants, including government agencies, communities, healthcare institutions, and caregivers [48]. China launched the "Action Plan for

the Development of Smart LTC Industry (2017–2020)" as a foundational step toward integrating technology into LTC services [49, 50].

Despite challenges such as high costs, privacy concerns, and difficulties in elderly technology adoption, high technology offers significant potential to improve care quality and support aging in place. As a result, it is becoming an indispensable part of LTC systems worldwide.

Quality supervision is essential in LTC systems to ensure services for the elderly are safe, effective, and tailored to their physical, mental, and emotional needs. The government should play a central role in overseeing LTC quality. Adequate financing supports stronger enforcement of standards and robust inspections, while technologies like electronic health records (EHRs), telemedicine, and monitoring systems enable real-time data, responsive interventions, and more personalized, efficient care. Despite the Chinese government has put a lot of effort into quality supervision, there is still considerable room for China to enhance and refine the quality supervision of its LTC system.

Each country's LTC system has distinct strengths and challenges. The UK emphasizes fairness and strong state involvement but faces efficiency issues. The U.S. prioritizes market-driven efficiency, yet suffers from fragmentation and limited equitable access. Germany balances fairness and efficiency through mandatory LTC insurance, though it struggles with financial sustainability and incomplete cost coverage. Japan's universal LTC insurance offers broad coverage but is hampered by a severe caregiver shortage. Brazil integrates LTC with healthcare and shows socioeconomic potential, but remains underdeveloped and lacks a people-centered focus.

China can integrate the most effective elements from these international models to build an optimal LTC system. Over the past two decades, government efforts have concentrated on expanding facilities and nursing beds. However, global trends such as "aging in place" have proven successful elsewhere. China should therefore shift toward demand-side support by continuing policies like delayed retirement, strengthening informal care networks, and adopting innovative approaches such as the elderly mutual assistance model—where recently retired individuals volunteer to care for frailer seniors and earn service hours redeemable for their own future care.

This review offers valuable insights for health policy, highlighting how comparative analysis of multiple countries can help shape China's future LTC model. As a developing nation experiencing rapid population aging, China must learn from international experiences, adapt them to local conditions, and develop efficient, sustainable solutions to meet growing LTC demands with limited resources. Future research should focus on concrete implementation steps to optimize China's LTC system.

Declarations

Author Contribution

A=Haibin Shi B= Dr. LinkovC= Dr. ShensaD=Dr. ShieuA, B, C, and D wrote, edited and reviewed the original draft. All authors also collaborated in methodology and investigation. A, B did Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, ResourcesA prepared SoftwaresB supervised the project

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Figures

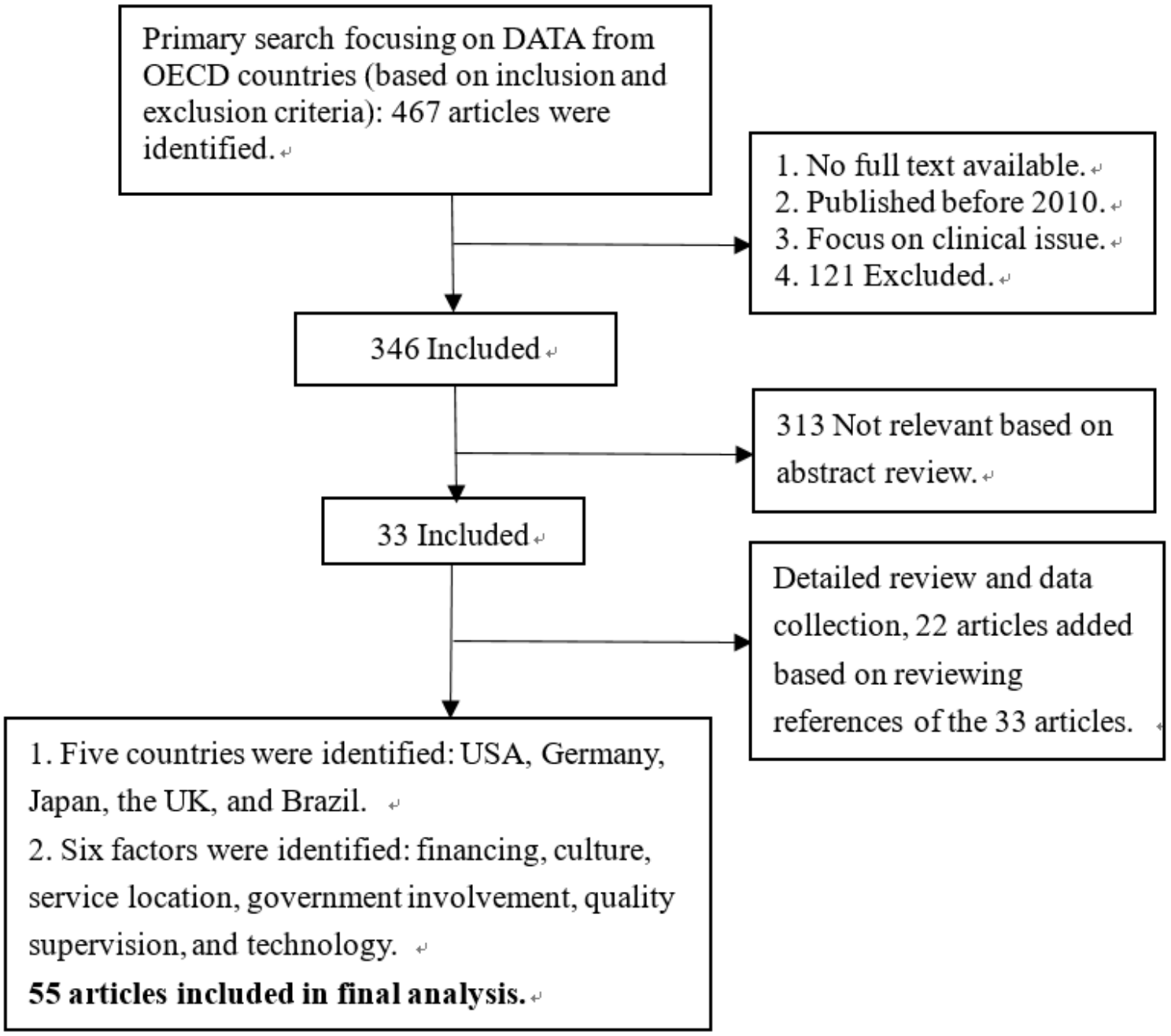

Figure 1

Study flow

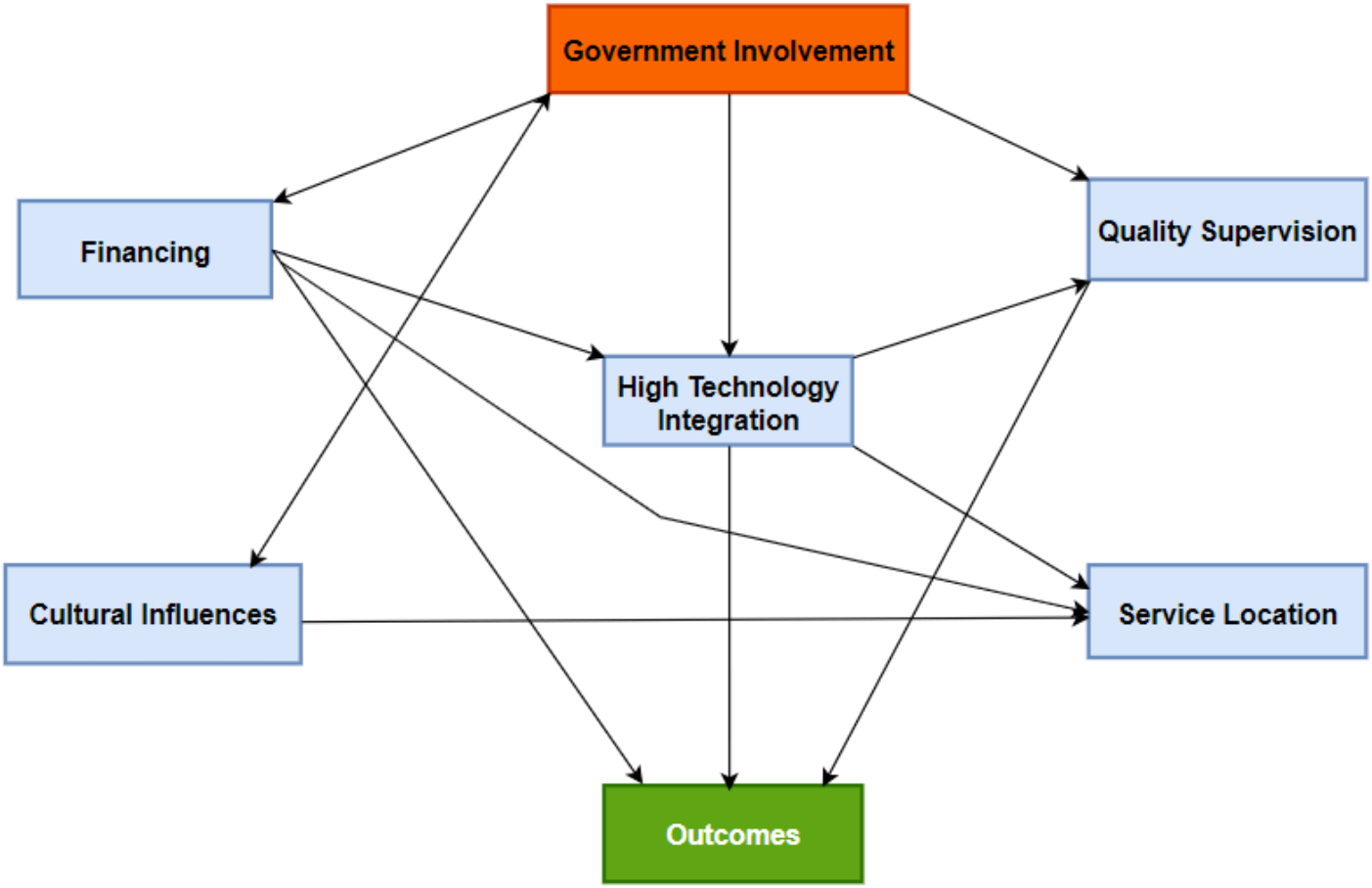

Figure 2

Key characteristics of well-functioning LTC models: Preliminary work to establish new working model for China