

Research on Top-Level Design of Smart Health Care Community System Based on Demand Orientation

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Abstract: At present, there are many issues related to the implementation of smart health care policies, the lack of top-level design for smart health care, the lack of a unified smart health care platform, the backward technology development and product design, the lack of smart health care professionals, and the lack of smart health care professionals. Lack of concepts and poor popularity of smart devices. The rapid growth of aging, the growing demand for health care and health services have brought enormous challenges to my country's economic development and social security. The smart old-age care system is a new model of old-age care that conforms to the development of my country's economy, society and science and technology, and it is the development direction of my country's innovative old-age care model. The development of emerging information technologies such as the Internet, big data, cloud computing, Internet of Things, and artificial intelligence has provided a new solution to the problem of the elderly, and "Internet +" has been fully developed. The method adopted in this paper is demand-oriented, which is a revolution in terms of production concept and sales concept, and has played a huge role in promoting the development of enterprises.

1. Introduction

With the continuous increase of the elderly population, the problem of aging has become a key issue of social concern, and the country's attention to health care issues has also increased year by year. At present, the problems of "getting old before getting rich", "no money for health care" and "no one for health care" have appeared in the whole society. Health and health care has become a hot topic of concern to the whole society. China's health care system is under increasing pressure[1]. The government attaches great importance to promoting the intelligent development of health care. As early as 2012, the National Aging Office put forward the concept of "intelligent health care", advocated the introduction of information technology, improved the level of informatization in the health care industry, and explored new formats of informatization health care[2]. The aging of my country's population is gradually developing towards the direction of deep aging, showing the characteristics of "two highs, one super and one independence": "two highs" refer to the "high growth" of the elderly population and the "aging" of the age structure. At the same time, the number of elderly people is very large; "Yi Chao" refers to the obvious trend of "low birthrate", and the burden of children's health care is increasing; increased in number[3]. How to build a strong, fair and sustainable health care security system covering urban and rural residents is a prominent problem facing China at present and for a long time to come. The development of the health care service industry also shows the trend of socialization, diversification, personalization and intelligence.

2. Problems Existing in the Development of Smart Health Care

2.1 Lack of Government Support and Large Investment, Insufficient Funds

The funds for community health care mainly depend on the elderly's own payment, community and street fundraising, and government funding. In recent years, the state has also formulated a series of financial support and protection policies to encourage and support social forces such as

enterprises, institutions, social groups and individuals to invest in the establishment of health care institutions. Strict or even harsh conditions have blocked many small and medium-sized private health care institutions. On the one hand, the government should increase public financial investment in rural health care services[4]. Finances at all levels should continue to increase investment in the rural health care service system, including infrastructure construction, supporting equipment and operating subsidies, etc., and give full play to the guiding and supporting functions of government funds to ensure stable funds for the construction of the rural health care service system. source. On the other hand, encourage and absorb private capital to join rural health care services[5]. The main body responsible for the health care service is unclear, the capital investment is seriously insufficient, and the guarantee function is weak. Although there are other sources of funding, such as: welfare lottery public welfare funds, social funding, individual donations, etc., these sources are not stable, and these funds are far from meeting the needs of community health care[6]. Insufficient funds are the bottleneck restricting the development of private health care institutions. According to the viewpoint of welfare pluralism, welfare is not necessarily covered by the state, and civil society should also participate. Welfare supply can come from four aspects, namely the state, the family, the business sector, and resource institutions.

The state is the main body of responsibility for the development of social welfare undertakings. Since the 1990s, due to the deviation in the understanding of social welfare socialization in some areas, the responsibility of the state as the main body of social welfare development has been diluted to a certain extent, resulting in a serious shortage of local governments' investment in health care services. Adopt encouraging policies to attract more non-governmental organizations and enterprises to invest in the health care service system. The economic subsidies received by private health care institutions mainly depend on the government's corresponding subsidy through the number of beds, and the high costs of corresponding construction and operation are still a huge burden for private health care institutions. The state's financial investment is low, and development funds are seriously insufficient, resulting in insufficient supply of health care services and weak welfare and security functions[7]. The initial investment of health care institutions is large, but the profit recovery period is long, and the lack of government financial support has greatly restricted the development of private health care undertakings, making it difficult for many health care institutions to provide superior and comprehensive health care services for the elderly. It is difficult to meet the increasingly diverse health care service needs of the elderly. Governments at all levels should formulate support policies and incentive mechanisms in accordance with relevant policies and regulations and in light of local conditions, and guide and encourage social forces such as enterprises, institutions, collective organizations, non-governmental organizations and individuals to adopt diversified cooperation modes, such as sole proprietorship, joint venture, cooperation, etc. , join in the construction of rural health care services[8]. Due to the serious division of interests among some government departments, it is difficult to implement some of the promised benefits. Therefore, due to the lack of government financial support, private health care institutions are difficult to sustain due to high investment capital and shortage of funds.

2.2 Professional Nursing Staff Are Few and of Varying Quality

According to the results of spss analysis, 34 elderly people think that the staff's service attitude is average, accounting for 24.3%, and 33.3% of the elderly have a general attitude or below; 48 people think that the professional ability of life care service personnel is average. people, accounting for 34.3%, and 43.5% of the elderly with a general attitude or below; 54 people, accounting for 38.6%, think that the professional ability of medical and nursing service personnel is average, and the elderly with a general attitude or below A total of 50.7% of them vigorously trained professional nursing staff. At present, the lack of professional nursing staff in rural health care services is a common phenomenon. With the rapid growth of the aging population and the increasing demand for health care services, at least nearly 10 million professional health care nursing staff are needed, and only more than 20,000 people have obtained qualification certificates[9]. Compared with the demand, the number of professionals is seriously insufficient. The overall quality of the health care

service team is not high, and the professionalization of employees is lagging behind. Even those who have obtained qualification certificates are less attractive to professionals due to the lower wages offered by the community, resulting in frequent changes in personnel[10]. The quality of health care professionals is uneven, and there are not a few professionals with low quality and ability, which seriously affects the satisfaction of the elderly with their needs for health care services. The professional quality of the practitioners in many health care institutions is generally low, and they lack the knowledge and skills to care for the elderly, let alone give them some understanding and help psychologically.

14.6% of the elderly are disabled or semi-disabled in urban areas, and more than 20% in rural areas. These elderly people need professional care and care. According to the ratio of the elderly to the nursing staff of 3:1, the country needs at least 10 million health care nursing staff. Most health care institutions basically have no professionals in health care, with low professional quality and weak service awareness. Strictly regulate the professional team. The personnel who are engaged in the professional team of health care services shall be subject to a certificated job system, and those who have served in health care institutions shall be regularly trained. Wages are lower and less attractive to professionals, resulting in frequent turnover of personnel[11]. Most of the volunteers are college students, out of their understanding of the society, rather than their recognition of the value of volunteer services; some volunteer activities are initiated by the Women's Federation or the Communist Youth League, pursuing a certain effect, focusing on form over content, resulting in volunteer services that cannot last for a long time. Persistence, with a temporary nature. The overall quality of the service team is relatively low, and the professional level, business ability and service quality cannot effectively meet the needs of the service objects.

3. Top-Level Design of Smart Health Care Community System Based on Demand Orientation

3.1 Strengthen the Top-Level Design of Smart Health Care and Promote the Healthy Development of Smart Health Care

A sound and well-structured top-level design is a necessary guarantee for the development of smart health care services. The government should give full play to the leading role of planning, and formulate relevant plans for health care services at different levels in terms of policies and regulations, land finance, norms and standards, and industrial support. Establishing a modern elderly service system that can meet the needs of my country's huge elderly population and different levels of health care is a grand systematic project, in fact, it is to reshape the huge social subsystem of the elderly population. The construction of the smart health care model is a systematic project involving the participation of all social subjects. In the process of constructing the top-level design of smart health care, it is necessary not only to coordinate the implementation of social systems and policies, but also to consider the relationship with other health care models. Integration and complementarity, to achieve the coherence of upper and lower policies and implementation processes. In the construction of smart health care, if we want to find a way of smart health care with local characteristics, we must proceed from reality and do a good job in top-level design. In terms of policy, it is recommended that the government, together with the Office of Aging, the Health and Family Planning Commission, the Public Security, the Economic and Information Commission and other departments, jointly formulate effective policies for smart health care and benefit the people, and uniformly standardize service standards, technical standards, and charging standards. Since we are in an era of highly developed informatization, this process of remodeling must have distinctive features of informatization. Strengthening the top-level design is the key to building a smart health care service system. The realization of smart health care requires the establishment of a big data center that matches the needs and evaluation of health care services. The construction of a health care data platform is the future development of my country's smart health care. Solid foundation. Monitoring equipment for the elderly involves many aspects, and the form of data collected will vary from manufacturer to manufacturer. To solve this problem, we install a local server in the elderly's home to regularly receive abnormal data information sent by various

monitoring equipment. The main flow of the alarm prompt operation is shown in Figure 1.

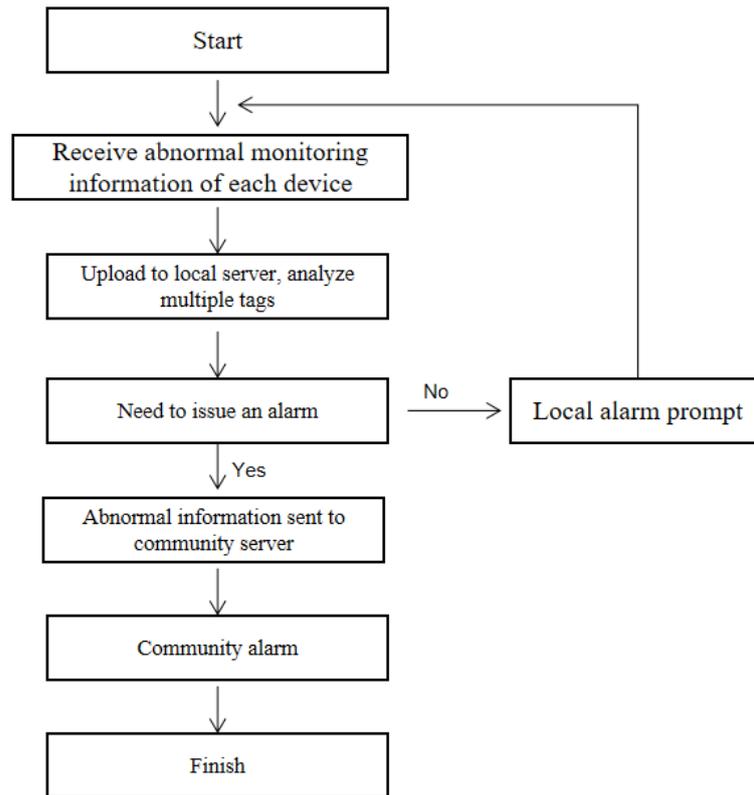


Fig.1 Abnormal Alarm Prompt

The top-level design needs to solve three problems: first, to solve the problems of government planning, management and supervision; second, to solve the problems of healthy, coordinated and green development of the smart health care industry; third, to solve the problems of health care objects And the diversity, hierarchy and normative issues of family needs. In terms of service quality supervision, improve the health care service process specification and evaluation index system; in the construction of smart health care standard system, formulate product standards for smart health care equipment, and establish unified standards for equipment interfaces, data formats, transmission protocols, testing and measurement, etc. Realize the open sharing of data information between different devices. This system has the characteristics of openness, complexity, emergence, hierarchy and massiveness. According to Qian Xuesen's systematic classification and definition, it is a multi-dimensional and multi-level complex giant system, which requires top-level design to effectively coordinate and rationalize planning. Smart health care is a benign combination and collaborative sharing of modern science and technology and intelligent equipment, which requires breaking barriers and divisions among regions, departments, institutions and third-party platforms to realize the sharing of information resources. Ai Bank is an important part of the smart community elderly care service system.

Volunteer service management system is combined to form a new love volunteer service management system. The organizational structure of Ai Bank is shown in Figure 2.

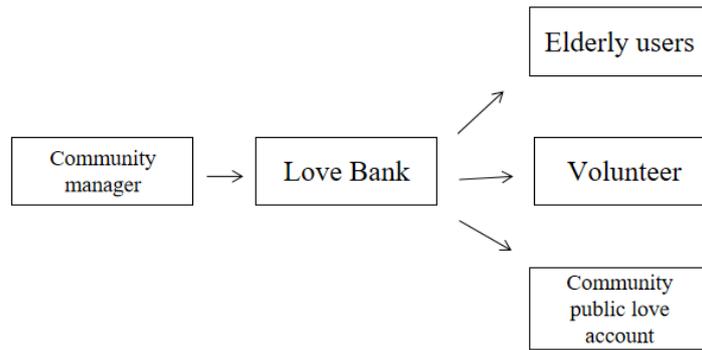


Fig.2 Organization Chart of Ai Bank

In terms of financial support and investment and financing, it is necessary to uniformly design and classify subsidies, improve the accuracy of subsidy policies, and give full play to the role of special funds for health care. Raise funds to improve financial support for the construction of smart health care. To meet the various needs of the elderly through effective platform construction and resource integration.

3.2 Advocate the Concept of Smart Health Care and Comprehensively Promote the Implementation of Policies

Wisdom is the use of diversified information technology to closely link the elderly, family members, communities, medical institutions, medical staff, and even related institutions, so that the daily life of the elderly is in a state of remote monitoring and efficiently respond to the diversity of the elderly. , differentiated needs, in order to achieve the physical health and life convenience of the elderly. The core concept of Wisdom is “people-centered”. Its essence is to provide all-round and all-round services for the elderly by relying on the Internet, big data, cloud platform and other information technologies, combining with the needs of the elderly and combining with traditional models. From the policy level, in response to the national “Internet +” action opinions, implement the information service plan under the background of “Internet +”, formulate a smart development action plan that conforms to the city's conditions, and establish smart service standards that are suitable for the city's market conditions. specification. The combination of wisdom + health care is the future trend. The state has issued a series of policies to promote the combination of wisdom and health care. From the industry level, smart industry standards and supporting policies and regulations should be gradually improved, and industry and industry service supervision and evaluation mechanisms should be introduced.

Guide and promote the comprehensive development of Internet + through government work planning, and ensure the healthy and sustainable development of the smart industry through policies and regulations. At present, the combination of wisdom and health care has achieved certain results. The combination of Internet + and health care is connected, and through platforms such as the Internet and big data, wisdom can be integrated into life care, medical care, spiritual comfort, hospice care, and finance. The model is the hot trend in the future. In recent years, the political bureau has released many documents to promote the cause, but there is no specific policy support and industry standards in terms of wisdom. The content of wisdom is more often found in the work plans and career development plans of the government or civil affairs. Push slowly. The government should give full play to its functions, increase human, financial and material support for the combination of health and wellness, advocate the concept of “people-oriented”, and build an integrated and comprehensive system with the help of doctors and service personnel in the entire service system. An innovative system combining smart health and wellness.

4. Conclusions

Under the dual background of the country's vigorous development of smart health care and Shanghai's active promotion of smart city construction, Shanghai is gradually piloting and

promoting smart health care services. Some districts and streets have taken the lead in completing the transformation and upgrading from traditional health care to smart health care. It effectively eliminates the chronic diseases such as low resource utilization efficiency, dislocation of supply and demand, and uneven service quality of traditional health care methods. Rehabilitation is the most important social and economic problem facing the aging society. It is necessary to focus on strengthening top-level design, strengthen infrastructure construction as the main attack point, strengthen the construction of professional talent teams as the breakthrough point, promote industrial transformation and upgrading as the focus, and improve social recognition as the key point to explore the establishment of wisdom. A new model of wellness. It is also necessary to introduce a series of preferential policies in finance, land, taxation, financial subsidies, etc., to widely encourage social organizations of all parties to participate in the construction of smart health care, share development results, and benefit people's livelihood.

References

- [1] Tian X. Research on the realization path of smart old-age care in Suzhou based on intelligent recommendation system[J]. *Journal of Intelligent and Fuzzy Systems*, 2018, 35:1-13.
- [2] Stavropoulos T G, Papastergiou A, Mpaltadoros L, et al. IoT Wearable Sensors and Devices in Elderly Care: A Literature Review[J]. *Sensors*, 2020, 20(10):2826.
- [3] Hong Y S. Smart Care Beds for Elderly Patients with Impaired Mobility[J]. *Wireless Communications & Mobile Computing*, 2018, 2018:1-12.
- [4] Ho A, Quick O. Leaving patients to their own devices? Smart technology, safety and therapeutic relationships[J]. *Bmc Medical Ethics*, 2018, 19(1):18.
- [5] Spinellis, Diomidis. The Elusiveness of Smart Healthcare[J]. *IEEE Software*, 2017, 34(6):4-6.
- [6] He D, Ye R, Chan S, et al. Privacy in the Internet of Things for Smart Healthcare[J]. *IEEE Communications Magazine*, 2018, 56(4):38-44.
- [7] Yang Y, Zheng X, Guo W, et al. (Revised Version) Privacy-preserving Smart IoT-based Healthcare Big Data Storage and Self-adaptive Access Control System[J]. *Information Sciences*, 2018, 479.
- [8] Fleming J, Calloway R, Perrels A, et al. Dying comfortably in very old age with or without dementia in different care settings – a representative “older old” population study[J]. *Bmc Geriatrics*, 2017, 17(1):222.
- [9] Mano L Y, Barros V A, Nunes L H, et al. ENLACE: A Combination of Layer-Based Architecture and Wireless Communication for Emotion Monitoring in Healthcare[J]. *Mobile Information Systems*, 2019, 2019(8):1-12.
- [10] Ahad A, Tahir M, Sheikh M A, et al. Technologies Trend towards 5G Network for Smart Health-Care Using IoT: A Review[J]. *Sensors*, 2020, 20(14):4047.
- [11] O'Callaghan S, O'Mahony C. 'Smart' wound dressings for advanced wound care: a review[J]. *Journal of Wound Care*, 2020, 29(7):394-406.