

The Value Embodiment and Implementation Path of Medical and Health Big Data from the Perspective of Healthy China

Rui Zhang

School of Sichuan University, Chengdu 610000, China

ABSTRACT

In the context of the trend of population aging and the national desire for quality medical and health services, the "Healthy China" strategy came into being and has made certain achievements, and the construction of medical and health big data has also reached the stage of implementation, which not only systematises the party's original intention of serving the people wholeheartedly, but also promotes the economic development in the field of healthcare, and maintains the harmony and stability of China's society. It also promotes the economic development of the healthcare sector and maintains the harmony and stability of our society. In the future, China needs to break down information barriers and promote information sharing; promote technological innovation and accelerate the construction of basic engineering; strengthen the team construction and build a system of medical and healthcare talents; and carry out privacy protection and defence against the hidden danger of data leakage, so as to push forward the further development of national medical and healthcare big data.

KEYWORDS

Healthy China Strategy; Data Security; Healthcare Big Data.

1. INTRODUCTION

Health is a state of human, health issues related to economic development, social stability and well-being of people's livelihood, is China's goal to the next stage of positive progress must focus on solving major problems, health China strategy should be put forward. Healthcare big data, as a huge and diversified data system covering a wide range of fields such as national health management, disease prevention and treatment, has also been increasingly attached great importance by the Party Central Committee and the government of China, and is regarded as an important strategic direction to promote the improvement of national health, especially to meet the challenges of healthcare in an aging society.

2. BACKGROUND AND SIGNIFICANCE OF A HEALTHY CHINA

With the rapid development of the economy, the national demand for high-quality medical and health care has gradually manifested itself, and health issues cannot be ignored. At the same time, China, as a country with the largest elderly population, the increasingly serious aging trend also reminds the importance of medical health. As a result, the health business has gradually received attention and begun to develop. Compared with the international development history of the health business, although China started late, the development speed is amazing. Since 2015, when China first put forward the ambitious goal of "building a healthy China", after the 19th Party Congress, the "construction of a healthy China" has been formally established as a development strategy at the

national level, and the health of the population has been raised to an unprecedented strategic level. In 2022, the report of the 20th Party Congress reiterated the strategic significance of the construction of a healthy China, incorporating it into the new mission of comprehensively building a socialist modernised power, and explicitly proposed to build China into a healthy China by 2035, with a view to achieving an overall improvement in the quality of life of the people and the lasting prosperity of the society.

2.1. Background of Healthy China.

The "Healthy China" strategy is not a castle in the air, but a major initiative carefully planned and implemented by the Communist Party of China (CPC) in the light of the country's specific national conditions and the aspirations of its people. Along with the evolution of the country's development, the strategy has been gradually deepened into the Healthy China 2030 Programme.

Firstly, the health status of our people has improved significantly, and their desire for a high quality of life has become increasingly strong, especially in terms of their thirst for a healthy life. According to data released by the National Health and Wellness Commission, China's life expectancy has risen from 76.3 years in 2015 to 78.6 years in 2023, and the mortality rate for a variety of diseases has also declined. Meanwhile, in the context of the new era, the main contradiction in China's society has been transformed into the contradiction between the people's growing needs for a better life and unbalanced and insufficient development, in which the demand for a healthy life occupies an important position. The public increasingly expects to have access to higher quality public health services, basic medical services, etc., in order to enjoy a better quality of healthy life.

Secondly, the health of China's population still faces serious challenges. Although China's major health indicators are generally better than the average level of middle- and high-income countries, and the construction of a healthy China has achieved certain results thanks to the joint efforts of the Party and the people, the health of the population still faces many difficulties. On the one hand, China's residents are faced with multiple health challenges, such as the threat of major infectious diseases and emerging infectious diseases that cannot be ignored in the context of global integration, while domestic chronic diseases have also become a major public health problem. On the other hand, there is a significant gap between the supply of China's healthcare service system and the health needs of the population, and the contradiction between supply and demand is becoming increasingly prominent. According to surveys, the number of annual hospital admissions and the number of annual consultations in China continue to grow, and the total demand for medical services will remain at a high level in the future. However, due to the irrationality of the healthcare system and the uneven distribution of medical resources, the supply capacity of medical services is seriously lagging behind. As the population's demand for high-quality and diversified health services increases, the shortage of high-quality resources and the irrational structural layout of China's health-care system will be further accentuated.

2.2. The Significance of a Healthy China.

Under the strong leadership of the CPC Central Committee and the State Council, our country has made every effort to promote the construction of a healthy China, and to promote the transformation from a disease-centred to a health-centred approach, and the reform and development of the health sector has achieved satisfactory results in the Twelfth and Thirteenth Five-Year Plan periods.

First, in terms of people's livelihood, to meet the people's health needs, promote the construction of a healthy life, and create a better life. 2015, China began to build a healthy China, the "Twelfth Five-Year Plan" and "Thirteenth Five-Year Plan" period of China's residents to improve life expectancy and medical service system, medical and health system framework construction are inseparable from the launch of this action. The improvement of life expectancy and the medical service system during the 12th and 13th Five-Year Plan periods, as well as the construction of the framework of the medical

and health system, are all indispensable to the launch of this initiative. Various data have proved the correctness of the Party's and the people's line, and to this day, the report of the 20th National Congress also states that China will continue to build a healthy China.

Secondly, the strategic aspect is conducive to promoting the modernisation of the national governance system and governance capacity in the field of health care. The modernisation of the national governance system and governance capacity requires the construction of a systematic and coordinated institutional system, the possession of governance capacity to cope with great challenges, and the resolution of various contradictions in the high-quality development of China in the new era. The construction of a healthy China encompasses China's response to the system and governance of medicine and healthcare, and is an important part of the national governance system and governance capacity. The construction of a healthy China is conducive to the improvement of China's governance system in the field of healthcare, and to the strengthening of China's governance capacity in the field of healthcare in the face of daily and major battles.

3. THE VALUE OF CHINA'S HEALTHCARE BIG DATA

Healthcare is a highly data-intensive industry, and due to the introduction of cloud computing, artificial intelligence and other emerging technologies, the data in this field are collected, stored and processed more efficiently in terms of technology, and the scale of the data is very large. The definition of healthcare big data in foreign countries mainly refers to "all health-related data of a natural person from birth to death, which may involve diagnosis and treatment information, case records and personal health and physiological information, etc.". Due to the late development of China's health career, the development level of China's healthcare big data is not as good as that of foreign developed countries, which is mainly called healthcare big data in China. As an important national basic strategic resources, healthcare big data has great significance in political, economic and social aspects, and it is imperative to mine the value of healthcare big data in China.

3.1. Political Aspects, Reflecting the Original Intent of Our Party.

Healthcare big data is the core data of healthcare, relying on healthcare big data to help build a healthy China reflects the strategic thinking of the Party and the government from focusing on high-speed economic development and ignoring the health hazards caused by environmental pollution and ecological deterioration to high-quality development and giving equal importance to both the economy and the ecology, and reflects the Party's ability to base on the actual, people-oriented, global health planning and wholeheartedly serving the people. The initial mission.

At a time of raging global epidemics, our party has delivered an excellent answer to our people and even to other countries by insisting on putting the health of the nation's people in the first place. And during this period, the role of electronic medical cards and electronic health records manifested itself as a national challenge that our country has withstood since the construction of Healthy China.

3.2. Economic Aspects, Development of Our Industries.

Health is the greatest productivity. On the macro level, a consensus has been reached on the contribution of investment in human capital to economic growth, and human health capital, as an important prerequisite for human capital, has its value in growing the economy. By maintaining and improving human health through investment in health, human productive capacity is largely increased, which is conducive to the sustained and healthy development of the country's economic strength.

On the micro level, healthcare is a promising emerging industry, and the health industry is a new growth point for people's livelihood and economy. In the "Healthy China "2030" Planning Outline", it is clearly put forward that by 2030, China will form a number of large-scale enterprises with strong

innovation ability and international competitiveness, and become a pillar industry of the national economy, and at the same time, it will actively promote the integration of health and pension, tourism, fitness and leisure industries, and cultivate the characteristic health management service industry, which will undoubtedly promote the healthy and powerful development of our economy. industries, and create a virtuous circle of health service industry clusters, which will undoubtedly promote the healthy and powerful development of China's economy. At present, the trend of population aging and the national need for healthy life also foretells the strong potential of this industry.

3.3. Social Issues, Promotion of Social Cohesion and Stability.

Health is the most important productive force, and the ultimate goal of national development is the health and well-being of the people, which is not only the original and beautiful vision of the Party and the people, but also a practical necessity. The ravages of health inequities and health problems such as chronic diseases and major infectious diseases that are difficult and expensive to see will affect the people's well-being and the harmony and stability of the country. The development of medical big data responds to the demands of the people's livelihood, effectively protects and improves the physical and mental health of our residents, helps improve medical services for the elderly and alleviate the pressure on young people's old age, and resolves social contradictions and maintains social stability.

4. DEVELOPMENT OF BIG DATA FOR HEALTHCARE IN CHINA

The 2015 Outline of Action for Promoting the Development of Big Data and the 2016 Guiding Opinions on Promoting and Standardising the Development of Big Data Applications in Healthcare are crucial to China's implementation of the construction of big data in healthcare . Around these two core documents, a number of specific policies have been released one after another, providing policy escort for the development of China's healthcare big data. Until now, China's healthcare big data construction has made certain achievements in terms of construction and application.

4.1. Stages of Development of Healthcare Big Data.

According to the history of the development of big data in the world, the development of medical big data in China is divided into four stages: the initial start-up stage, the technical innovation stage, the practical stage and the shared governance stage. Among them, the initial stage originates from the introduction of the term "big data", and the technological innovation stage is characterised by the great changes in data storage and data analysis technology, while China is now in the stage of implementation and practice. Based on the continuous innovation of big data analysis and processing technology, China has carried out a comprehensive integrated planning for the construction of big data in healthcare, provided strategic planning from the national to the local level, and started to implement a series of plans and concepts for the construction of big data in healthcare, and explored the optimal solutions and feasible paths for the construction of big data in healthcare in China, from the pilot stage to the promotion stage.

4.2. Healthcare Big Data Analytics Architecture.

In order to realise the value of medical and health big data, its architecture needs to be analysed. At present, there is a strong research progress on the classification of big data in foreign countries, and scholars in China have also proposed the analysis architecture and resource catalogue system of China's medical and health big data on the basis of relevant foreign standards combined with China's status quo, and explored the data management process and data resource classification of China's medical and health big data and achieved certain results.

4.3. Status of Big Data Construction in Healthcare.

It was mentioned earlier that China is in the aspect of landing practice of big data in healthcare, and this stage is mainly to implement the conception on the ground, and the core is to build the infrastructure of big data in healthcare. "China takes the Leading Group of Informatisation Work of the National Health and Family Planning Commission (NHFPC), the Big Data Office of the NHFPC, and the National Healthcare Big Data Security Management Committee as the organisational and management bodies, and takes the China Society of Health Information and Big Data in Healthcare, the National Institute of Big Data in Healthcare and the National Engineering Laboratory of Healthcare Big Data Application Technology as the research institutes to carry out research in the areas of strategy, regulations, Talent, technology and other aspects of the relevant pilot" . At present, each pilot region has started the construction of data centres with the support of relevant policies, and has formed a characteristic construction mode according to local conditions. Meanwhile, healthcare resource sharing platforms have been established, including different models led by the state and enterprises, each with its own merits.

4.4. Current Status of Big Data Application in Healthcare.

In terms of application, with the acceleration of the aging of China's population and the climbing national demand for high-quality healthcare, China's medical and healthcare big data industry is in the ascendant. With the support of national and provincial policies, on the one hand, the type and scale of China's medical data continue to grow, and the market size of various application solutions is huge. On the other hand, the scope of subjects of China's medical and healthcare big data continues to increase, including party and governmental institutions, enterprise organisations, healthcare institutions and other subjects; the application scenarios are rich, including decision-making optimisation, disease prevention, convenient medical consultation, personalised health management and other scenarios, which indicates that the medical and healthcare big data is not only applied to clinical decision-making and other medical treatment activities, but also applied to the daily personalised health management.

5. THE REALISATION PATH OF MEDICAL AND HEALTHCARE BIG DATA TO HELP HEALTHY CHINA

National health is related to the well-being of people's livelihood, according to the "Healthy China" 2030 "programme", we still have some health goals have not yet been achieved, in the next few years, we need to help the construction of healthy China strategy based on healthcare big data. At the same time, we will also enter the stage of shared governance in the development of healthcare big data, in which we still have a way to go.

5.1. Breaking Down Information Barriers and Promoting Information-Sharing.

Due to the enormity of the information network and the size of the data, an important problem currently exists in the form of data barriers. For example, different organisations use different system platforms for data collection and processing, and there is even a situation where the same organisation does not share data between different platforms, which are all problems that need to be solved at the stage of shared governance. To do this, the government needs to take the lead in data unification and platform consistency through policy standards, data platform construction, etc., to promote the interconnection and sharing of medical and health information, which not only improves the efficiency of medical data utilisation, but also facilitates disease management and health management for residents.

5.2. Promoting Technological Innovation and Accelerating the Construction of Infrastructure Projects.

Technological innovation is never-ending, and the sharing of big data in healthcare needs to emphasise the importance of a common data platform. This not only requires the government to take the lead in breaking down information barriers but also requires technological innovation. At present, China has already had several sharing platforms for healthcare data, but there is no commonality between these platforms, which is not conducive to the convenience of national healthcare. Therefore, it is necessary to develop technological science to dissolve the information barriers between regions, organisations and platforms, and establish a highly unified national healthcare big data platform to improve the integration rate of healthcare big data resources and the utilisation rate of healthcare information, which is also the infrastructure construction for the future of healthcare big data common governance and sharing.

5.3. Strengthening Team Building and Constructing a Medical and Healthcare Talent System.

The construction of healthcare big data is related to people's livelihood and is a huge undertaking for the benefit of the country and the people, which requires the joining of multiple forces in society and the construction of a healthcare big data talent system. Among them, is the backbone of this team, which is a composite talent with both healthcare data processing and data management capabilities. In the context of the future "Healthy China", a certain degree of understanding of the healthcare field is the first condition, followed by the need to master the corresponding degree of data management and application technology. At the same time, we not only need basic talents, but also need a certain proportion of middle- and high-end medical and healthcare big data talents, which together constitute a reasonable theoretical and practical talent system.

5.4. Privacy Protection and Defence Against Data Leakage Risks.

In fact, at present, there are government- and enterprise-led related healthcare big data platforms in China, and enterprise-led data sharing platforms are better than government-led platforms in terms of data utilisation, but this also makes the public worry about their data security, which on the one hand government-led platforms do better, and this is also a hidden danger in the utilisation and sharing of healthcare big data. The reason for this is that on the one hand, China has not formed a unified standard for the management of the application of medical and health big data, and on the other hand, the market management of data application is not in place, and the privacy and security of citizens' health information is not guaranteed. To address this problem, firstly, it is necessary for the state to regulate the privacy security management from the aspect of legislation and divide the responsibility of data protection; secondly, it is necessary to establish a regulatory system for the management of medical and healthcare big data application and realise the dynamic monitoring, so as to avoid the phenomenon of large-scale infringement on the privacy of the residents.

In short, under the background of "Healthy China" strategy, China will attach great importance to the construction of medical and health care field for a long time to come, and the construction of medical and health care big data plays a fundamental role. In order to improve people's livelihood and protect people's health rights and interests, the party and the state have promoted the construction of medical and health data to the stage of implementation, the next step China will enter the medical and health data sharing, the medical and health situation of our residents will be further improved.

REFERENCES

- [1] Qun Meng, Jianping Hu, Fangjie Dong, Longfeng Yang, Lili Zhang, Hao Xing, Yuefeng Li. Research on the construction of catalogue system of healthcare big data resources in China. *Chinese Journal of Health Information Management*. Vol. 14 (2017) No. 03. p. 387-391.
- [2] Vayena E, Blasimme A. Biomedical big data: new models of control over access, use and governance. *Journal of Bioethical Inquiry*. Vol. 14 (2017), No. 04. p. 501-513.
- [3] LI Houqing, YIN Cuiqun, FAN Jinyan. Research on the development of national strategy for healthcare big data in China. *Library*. Vol. 11 (2019). p. 30-37.
- [4] Guorong Chai, Jiaying Wang. Value mining and realisation of medical and healthcare big data under the strategy of "Healthy China". *E-Government*. Vol. 06 (2022). p. 99-110.
- [5] HU Yaolin, YU Donglei, WANG Jian. Development of healthcare big data in the context of "Healthy China". *Social Scientist*. Vol. 03 (2022). p. 79-87.