Research on Development of Health Management Industry Based on Big Data Technology

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Abstract. Big data technology, as a series of processing methods for mass data storage, calculation, statistics, analysis and processing, has played an important role in the development of China's industry and has continuously promoted the innovation and development of traditional industries. The health management industry is based on the current status of China's population, and the goal of personnel training covers the health screening, analysis, and decision-making of the entire life cycle of the population. Based on the large population base in China, there is a practical need for the integration of big data technology and health management. The analysis and processing of big data technology will also provide a more convenient reference for health management. The combination of big data technology and health management is also one of the directions for the development of public health. This article analyzes the current status of health management integration in the context of big data, analyzes the problems at the current stage, and proposes solutions to explore ways to provide a reference for the cross integration of health management and big data technologies.

1. Introduction
In the 1950s, the United States first proposed the concept of health management, which is mainly to establish a good cooperation agreement between medical institutions and insurance institutions, so that medical institutions can enjoy lower premiums and reduce the burden of claims of insurance institutions. In this regard, the concept of health management in the United States is based on the medical insurance system. Health management is mainly through the establishment of personal health files to collect basic medical and health data to facilitate the development of medical examination, treatment, insurance and other services. In practical applications, it is mainly to meet the needs of disease management[1].

China's health management is still in its infancy. In the 1990s, China proposed the concept of health management, whose main purpose was to scientifically interfere with the health of groups and individuals. Subsequently, a large number of health management companies focusing on medical examination business appeared. In 2005, health managers were included in the scope of national vocational qualification assessment. Subsequently, relevant policies have continuously guided and ensured the continuous development of the health industry. At the same time, with the aging of China's population and the impact of lifestyles on health, the chronic patient population is on the rise. According to the report on nutrition and chronic diseases of Chinese residents released by the Information Office of the State Council, the mortality rate of chronic diseases accounts for 86% of the total mortality rate and 76% of the total burden of diseases. At present, the elderly population in China has exceeded 250 million, and the population with hypertension alone has exceeded 260 million. The ageing of the population and chronic diseases have become worse. In 2017, the General Office of the
State Council issued China's Medium- and Long-Term Plan for the Prevention and Treatment of Chronic Diseases (2017-2025). It is mentioned that by 2025, the risk factors for chronic diseases will be effectively controlled. Premature mortality from respiratory diseases and diabetes is 20% lower than in 2015.

In this regard, improving the public's awareness and treatment of chronic diseases has become the focus of the work, but at this stage, the main problems of chronic diseases are the small coverage of disease diagnosis, the unbalanced level of diagnosis and the poor awareness of patients' own prevention. In September 2018, China decided to build a regional center for big data of medical and health, located in Jiangsu, Guizhou, Fujian, Shandong and Anhui, respectively. It will provide massive storage and big data analysis capabilities for clinical research, gene sequencing, new drug research and development, and health management. On big data projects, regional medical centers will gradually collect outpatient charges, electronic medical records, inspection data, medical imaging data, medical insurance data, genetic sequencing data, health smart device data, and third-party health management agency data.

2. Necessity of Healthy Big Data Industry Convergence

2.1 Needs for chronic disease management
At present, there are more than 300 million chronic disease patients in China. While increasing the risk of death and medical burden, the chronic disease group is showing a younger trend, which has a greater impact on residents' quality of life and physical health. Some people don't know the characteristics of chronic diseases, and fail to carry out effective health interventions on the diseases, which leads to serious complications caused by chronic diseases, resulting in heavy medical, economic and family burdens. With the development of China's economy, youth groups are under increasing social competition and work-life pressure, and the risk of chronic diseases is gradually increasing. Although the emergence of health check-up institutions provides regular reference for screening of basic diseases, the prejudice of the young and middle-aged group on the medical report has masked the prevalence of chronic diseases to some extent. In order to prevent and treat chronic diseases, China has increased its support for chronic diseases year by year, and now accounts for 70% of the total health expenditure. In the actual health management of chronic diseases, on the one hand, the establishment of electronic health files is continuously promoted, and on the other hand, the informationization of medical and social security institutions is gradually promoted. At this time, the support of big data technology is a process of continuously integrating personal health files, and a process of data sharing for medical institutions, insurance institutions, and social security institutions.

2.2 Needs for health management decisions
The core of big data technology is to obtain valuable analysis by mining, processing, and analyzing disordered data. Big data analysis based on group electronic health records can provide a reference for clinical treatment approaches and specific choices through computer simulation technology, and predict possible health risks for early detection. Support for big data can provide a reference for refined management of health management, which can improve diagnostic accuracy and drug effectiveness. At the same time, compared with traditional evidence-based medicine and personal experience medicine treatment methods, big data health reference will also innovate medicine Model to inject new vitality into the development of medicine and health management.

2.3 Needs for the development of the health industry
With the development of China's economy and the improvement of residents' living standards, more and more people are paying attention to sub-health issues, and the prospects for the development of the health industry are very broad. The construction of medical informatization under the support of existing data technology has facilitated hospitals, patients, and clients to make information consultations such as appointment consultation, cost details, and report inquiry. It has optimized the allocation of relevant hospital resources, improved the patient's medical experience, and promoted more
convenience Medical treatment process. In this regard, based on the construction of medical informatization, individual and group disease models established through big data support can play an important advantage in disease prediction. Depending on the construction of big data platforms, promoting the sharing of medical data is beneficial to health Industrial upgrading, optimizing industrial resources.

2.4 Needs for personalized medical development

Personalized medicine is not only a personalized service, but also reflected in precision medicine relying on individual health. Traditional medicine is passive medicine based on individual symptoms and laboratory and imaging examinations. The specific treatment is often a passive treatment that follows the patient's condition, that is, the treatment after the patient's symptoms appear. Relying on the support of big data, through the collection of personal health information, a more accurate medical diagnosis will predict the individual's potential disease risk, provide individuals with effective prevention and treatment measures, thereby preventing the possibility of emerging diseases and reducing the cost of disease treatment.

3. Problems in the Healthy Big Data Industry

3.1 Limitations of existing medical models

The current medical model is mainly for the treatment of diseases. In the outpatient statistics of tertiary hospitals, the proportion of patients with chronic diseases exceeds 50%[2], and the total cost of treatment exceeds 70%[3]. Although the population of patients with chronic diseases is large and the burden of treatment is heavy, the development of chronic diseases is indeed a long-term process. The treatment options are not complicated, and most chronic diseases can be prevented through intervention understanding. In the current health management market, the main body of the industry is the health examination department, but the biggest problem of the current health examination is the lack of necessary academic support. Therefore, the health examination can only be positioned to provide the most basic individual medical analysis services. Individual or group medical data is integrated for academic analysis and processing to maximize the use of resources.

3.2 Lack of basic medical data

The basis for the management of individual health is the establishment of individual electronic health records, of which health data is the most basic data. Due to the differences in the processing, analysis, transmission, and presentation of medical data by large medical and health departments and community medical institutions, it is difficult for individual medical data to be continuously stored and integrated. In this regard, the individual health data at this stage only reflects the current health status, and cannot be compared through the collection and analysis of basic medical data to promote more rational medical treatment.

3.3 Lack of data processing platforms

Individual health data can be electronically traded in multiple places, such as medical institutions, insurance institutions, and pharmacies, but data between institutions cannot be directly linked and shared. In this regard, the unified electronic platform can maximize the utilization of data, but at this stage due to the independent operation of various health-related departments, it is difficult to achieve a unified platform for personal data.

3.4 Data security issues

Individual health data is part of personal privacy, and the security of information is very important at the time of electronic information conversion[4]. The premise of the processing of individual big data is the extensive collection of personal information. However, in this process, there are many sources of information input. The input platforms and equipment are different. How to ensure that information is
not stolen in the process of transmission and storage has practical technical requirements. At the same time, the electronic information directly reflects the individual's health level, and the correctness of the information directly reflects the individual's health status. The collection of individual electronic data should emphasize accuracy and safety.

3.5 Lack of cross talent
The analysis of health big data is based on relevant talents. The requirements of talents are integrated with computer science, information science, control science, artificial intelligence, life science and other disciplines, mainly with highly educated and specialized researchers. According to the McKinsey report, the talent gap for big data talents and advanced data analysts in the US market alone was as high as 190,000 in the US market in 2018, and the talent gap for big data talents in US companies was as high as 1.5 million. At present, the cultivation of relevant talents in China is in its infancy. A comprehensive discipline should be set up to combine technology, business and data, and a composite talent specialty should be set up in existing medical universities to vigorously cultivate cross-training talents. However, the cultivation of cross-training talents should be market-oriented, enterprise-oriented, and application-based, to avoid deviations in graduate talents trained by universities.

4. Suggestions

4.1 Increase technical support
The practical application of big data is mainly divided into three levels: descriptive analysis, predictive analysis, and guidance analysis. Among them, guided analysis is the most advanced application method, that is, through technical means analysis to guide what to do now. Considering the gap between China and developed countries, we must first develop technology platforms and design data centers through technology platforms. For example, companies such as Baidu, Alibaba, and Tencent can rely on existing technology platforms to develop big data applications, which is also in the forefront in China. The second point is to promote the sharing of big data. Not only can the receipt of data be collected more quickly, but also the analysis of forecasting and guidance through the analysis of background technology is more accurate. In terms of health big data, the advantages of setting up multiple electronic platforms for personal electronic records are obvious. Consideration should be given to building medical data that can be used by residents' electronic health files, and developing platforms and terminal software supported by big data, so that data collection can develop from static to dynamic[5]. In this regard, the development direction of big data should be formulated at the national level and the legal system level, increase technical support, and promote the healthy and sound development of the big data industry.

4.2 Promote the informatization of the pharmaceutical industry
The arrival of the Industry 4.0 era has brought new impetus to the growth of the global economy. The adjustment of the industrial structure and the intelligent industry have become the trend of future development. In China, as a high-tech enterprise, the pharmaceutical industry should actively respond to industrial changes and accelerate the construction of information technology in the industry. The pharmaceutical industry should develop from the traditional relatively isolated development model to the direction of systemization and industrialization. The establishment of digital platform will improve the integration of research and sales. At the same time, the platform provides information technology support for the development of health industry in data collection, data sharing and data security.

4.3 Cultivating cross-type big data talents
In the training of big data talents, considering the conditions for the establishment of cross-cutting talents, the previous talent training in the direction of big data was mainly concentrated at the master's and doctoral stages. In response, the Ministry of Education began to approve the establishment of the majors of “Data Science and Big Data Technology” and “Big Data Technology and Application” in
2016. As of now, more than 300 colleges and universities in China have established majors in Big Data technology. Improved basic security in personnel training. Because big data technology is a multi-disciplinary and multi-technical application, it should also consider its interdisciplinary characteristics in the training of big data talents. In the training of healthy big data talents, attention should be paid to the integration of medical and health disciplines. In this regard, considering the application type of talent employment, consideration should be given to the establishment of cross-college teachers, innovative engineering training courses, the establishment of a multi-disciplinary cross-integrated curriculum system, and the integration of school-enterprise cooperation training models to ensure the cutting-edge nature of big data talent and practicality.

4.4 Improving the security of health management information
Health and medical big data refers to health and medical related data generated in the process of people's disease prevention and health management. Medical and health enterprises must also consider the issue of information security while collecting medical information data. At present, health and medical big data are usually generated from medical institutions, physical examination institutions, but these institutions generally lack professional capabilities for medical data analysis. Considering the problem of data security, medical institutions and others are always cautious. Enterprises are not motivated to share data. In the process of building a big data platform and pooling healthy big data, it is necessary to share information. In this regard, we should pay attention to information security issues in data acquisition, storage, mining, application, operation, and transmission, and prevent data resources. Agglomeration risks and potential risks of new technology applications.

5. Conclusion
Big data technology is a fast-developing data processing method in the current era of science and technology. It has the characteristics of mass, value, diversification, rapidity, and authenticity. Big data technology can mine potential value information in a large amount of data and provide a reference for decision making. Health management is the service, prediction, evaluation and management for solving problems related to the health industry. It has become an integral part of the medical system abroad. However, the development of health management in China is relatively slow, which is not only reflected in the public's concept of health management, but also reflected in the development of industrialization. However, with the development of our country's economy and society and the improvement of public health concepts, the concept of health management will gradually penetrate into the population. The development of big data technology has brought convenience to medical informatization. The sharing of electronic files and inspection results will become practical and feasible, which will promote the development of health management in the new era.

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