

Research on the Innovative Mode of Internet Hospitals to Implement Medical Services in the Context of Digital Transformation

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Abstract: In today's rapidly developing science and technology, digital transformation has become the trend of development in various industries, especially in the medical industry. The background and significance of this transformation are self-evident. Digital transformation is a powerful driving force for the transformation of the healthcare industry in the next decade. Based on modern technologies such as big data, cloud computing and artificial intelligence, Internet hospitals can break through the limitations of geographical space, improve the convenience and efficiency of medical services, and provide more convenient and personalized medical services for hundreds of millions of patients. Therefore, in-depth research and discussion on the innovative model of Internet hospitals is of great strategic significance for building the future intelligent medical system.

Keywords: Digital transformation; Internet hospital; Medical services; Innovative mode

Introduction

With the rapid development of science and technology, and the worldwide digital transformation, Internet hospitals have become a new medical service model. In recent years, Internet hospitals have sprung up rapidly throughout the world. Therefore, the emergence and development of Internet hospitals require not only technological innovation, but also a policy environment that adapts to and adjusts to them. Policy-makers should encourage innovation and establish strict data security and privacy protection regulations to promote the healthy development of Internet hospitals.

1. Limitations of traditional medical service models

There are many limitations in the traditional medical service model to a certain context, which are increasingly prominent in modern society. Firstly, the limitations of time and space are a major issue, as patients often need to go to medical institutions in person, which is particularly inconvenient when traffic is busy or patients have difficulty moving. According to the World Health Organization, approximately 50% of the global population is unable to access basic medical services, largely due to geographical limitations. Secondly, under the traditional model, the uneven distribution of doctor resources has also led to differences in the quality of medical services, with significant disparities in medical resources between large cities and rural areas, as well as between developed and developing countries. In addition, face-to-face diagnosis and treatment methods may lead to low efficiency in collecting and analyzing medical information, affecting the accuracy and timeliness of diagnosis.

Furthermore, in terms of data management and utilization, there are also shortcomings in the traditional medical service models. Medical records are usually saved in paper form, making it difficult to achieve rapid retrieval and sharing of data. It not only affects the decision-making efficiency of doctors, but also limits the depth and breadth of medical research. In addition, patient privacy protection also faces challenges in data management, as traditional storage and transmission methods may increase the risk of data leakage.

2. The impact of digital transformation on healthcare services

2.1 Improving the efficiency and quality of medical services

In the digital transformation, Internet hospitals have significantly improved the efficiency and quality of medical services through innovative service models. For example, through cloud computing and big data technology, medical institutions can process and analyze massive patient data in real-time, making more accurate and faster decisions in disease diagnosis. In addition, convenient features such as appointment registration and online payment reduce the waiting time for patients in the hospital and improve the medical experience. Remote diagnosis and

treatment is another innovation. Especially in response to public health emergencies, Internet hospitals have reduced the risk of cross infection through video consultation, remote monitoring and other ways, while ensuring the continuity of medical services. In addition, by building comprehensive electronic health records, Internet hospitals can achieve seamless sharing of patient medical records, promote multidisciplinary collaboration, improve diagnosis and treatment efficiency, provide doctors with more comprehensive patient information, and help develop more accurate treatment plans. This data-driven decision support is the key to improving the quality and efficiency of medical services.

2.2 Changing patient's medical behaviors and experiences

In the digital transformation, Internet hospitals have significantly changed patients' medical behaviors and experiences by providing convenient online services. In the past, patients may have spent a lot of time on transportation, registration, and waiting for medical treatment, but now, through remote diagnosis and online consultation services, patients can obtain professional doctor's consultation from home, greatly saving time and energy. In addition, Internet hospitals use big data and artificial intelligence technology to provide personalized health management solutions for patients. By analyzing the health data of patients, potential health issues can be warned in advance, and patients can be guided to undergo preventive treatment, thereby changing their passive medical treatment situation and shifting to proactive health management. At the same time, Internet hospitals also focus on improving patients' medical experience. Through online evaluation systems and real-time feedback mechanisms, patient satisfaction has become an important indicator of service quality, which encourages medical institutions to continuously optimize service processes and improve service quality. For example, China's micro medical platform continuously improves its online diagnosis and treatment services by collecting and analyzing patient feedback, thereby enhancing patient satisfaction with medical treatment.

2.3 Promoting the integration and utilization of medical data

In digital transformation, the integration and utilization of medical data is a crucial aspect. With the rapid development of big data, cloud computing, artificial intelligence and other technologies, Internet hospitals have the ability to break the information islands and realize the comprehensive sharing and efficient use of medical data. For example, by building a unified data platform, patient data from different medical institutions, departments, and even devices can be integrated, providing a more comprehensive perspective for clinical decision-making. In practical applications, such as Google's DeepMind project, artificial intelligence is used to analyze a large amount of medical data to improve the accuracy and predictability of disease diagnosis. In China, Alibaba Health has established a medical big data platform to achieve standardized processing and analysis of electronic medical records, providing doctors with auxiliary diagnostic tools and effectively improving the quality and efficiency of medical services. These cases show that the integration and utilization of medical data is an important support for Internet hospitals to innovate service models and achieve personalized and precise medical treatment.

In the future, with the popularization of new technologies such as 5G and the Internet of Things, real-time data generated by medical devices will become more abundant, which will further promote the deep integration and utilization of medical data. By constructing intelligent prediction models, early disease warning can be achieved, medical resource allocation can be optimized, and a data-driven prevention oriented medical model can be truly realized.

3. Innovative mode of Internet hospital

3.1 Remote diagnosis and online consultation services

Remote diagnosis and online consultation service is an important component of the innovative model of Internet hospitals, which greatly broadens the boundaries of medical services. With the rapid development of technologies such as 5G and AI, remote diagnosis and treatment enable medical experts to overcome geographical limitations and provide timely professional advice to patients in remote areas or those with limited mobility. For example, TeladocHealth in the United States provides comprehensive tele-medicine services, covering over 150 million users, effectively alleviating the problem of uneven distribution of medical resources. In addition, China's micro medical platforms also provide 7 * 24-hour medical consultation services to hundreds of millions of users through online consultation functions, reducing the threshold and time cost of seeking medical treatment.

In practice, strategies that can be learned include applying big data and AI technology for auxiliary diagnosis to improve the accuracy of remote diagnosis and treatment. By constructing an intelligent diagnostic model, doctors can obtain more comprehensive patient information and assist in making more accurate judgments. For example, Alibaba Health's "ET Medical Brain" has successfully played an important role in assisting diagnosis, disease prediction, and other fields. However, the implementation of these innovative models also requires continuous scientific research investment and interdisciplinary cooperation to ensure the continuous innovation and optimization of medical services.

3.2 Artificial intelligence assisted diagnosis and decision support

In Internet hospitals in the process of digital transformation, artificial intelligence (AI) plays a crucial role in assisting diagnosis and

decision support. AI technology can process and analyze massive amounts of medical data, including medical record information, imaging diagnosis, gene sequences, etc. , providing doctors with more accurate diagnostic recommendations and personalized treatment plans. For example, IBM's Watson Health Platform has been successfully applied to the diagnosis of complex diseases such as tumors. Through deep learning and natural language processing technology, it helps doctors understand complex medical literature, improve the accuracy and efficiency of diagnosis and treatment.

In addition, the ability of AI in decision support cannot be ignored. For example, Google's Deep Mind Health can analyze the health status of patients in real-time through AI algorithms, predict possible complications, thereby providing real-time updated decision support for doctors to make appropriate treatment plans. It is helpful of the intelligent decision support system to reduce medical errors, optimize the allocation of medical resources, and improve the overall quality of medical services. However, the application of AI also faces some challenges, such as data privacy protection, algorithm transparency, and interpretability. In practical operation, it is necessary to ensure that AI systems can provide safe and reliable services centered on patients while complying with relevant regulations. Therefore, future research and policy formulation should focus on building a sound data security framework and promoting the standardization and verifiability of AI algorithms to promote the healthy development of AI in Internet hospitals.

3.3 Implementation of personalized and precision medicine

In the innovation mode of Internet hospitals, the realization of personalized and precision medical treatment is the key breakthrough point. With the rapid development of technologies such as big data, artificial intelligence, and genomics, medical services are shifting from a "one size fits all" model to patient-centered personalized treatment plans. For example, cancer targeted therapy based on patient genotype can customize more effective treatment strategies and significantly improve survival rates by analyzing the patient's genetic information. In addition, using machine learning algorithms, doctors can predict disease progression and treatment response, thereby formulating more accurate treatment plans in the early stages. However, achieving personalized and precision healthcare also faces many challenges, such as standardization and interoperability of data, as well as how to effectively utilize health data while protecting patient privacy. In addition, doctors and medical institutions need continuous education and training to adapt to new diagnostic and treatment models. For example, China's micro healthcare industry has achieved cross institutional and interdisciplinary medical data sharing by building health data centers, providing doctors with accurate patient information and assisting in the implementation of personalized healthcare. However, it also requires a significant investment of resources in data security and privacy protection.

In the future, with the popularization of technologies such as 5G and the Internet of Things, real-time health data of patients will become more abundant, which will further promote the development of personalized healthcare. For example, wearable devices can monitor the vital signs of patients in real time, combined with artificial intelligence analysis, doctors can adjust treatment plans in a timely manner, achieving truly preventive and predictive healthcare. It requires policymakers, healthcare practitioners, and technology companies to jointly explore and establish new data management and usage mechanisms to ensure that the advantages of technological progress can fully benefit every patient.

4. Conclusion

In the era of digital transformation, the rise of Internet hospitals has undoubtedly brought revolutionary changes to the medical service model. This innovative model not only breaks the geographical limitations of traditional medical care, achieves optimized allocation of medical resources, but also shows great potential in improving medical service efficiency and improving patient experience. Firstly, through remote diagnosis and treatment, online consultation and other functions, Internet hospitals enable patients to enjoy high-quality medical services at home and even at home, which greatly alleviates the problem of uneven distribution of medical resources. At the same time, this model also reduces the cost of seeking medical treatment for patients and reduces the physical and mental pressure caused by long-distance travel and waiting. Secondly, the application of big data, artificial intelligence and other technologies in Internet hospitals makes disease prevention, diagnosis and treatment more accurate and personalized. Doctors can provide more scientific diagnosis and treatment recommendations based on the electronic health records of patients, combined with advanced algorithms, in order to improve the quality of medical services. Moreover, the operation mode of Internet hospitals is more flexible, and they can quickly adjust the service content and mode according to the market demand. For example, through deep integration with health apps, smart devices, etc. , comprehensive health services such as health management and disease warning can be provided.

In general, the innovative model of Internet hospitals has brought new possibilities for medical services, and also provided new ideas for coping with public health challenges such as aging population and high incidence of chronic diseases. It's expected that through continuous practice and exploration, Internet hospitals can better serve people's health and promote the prosperity and progress of China's medical industry.

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