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A Strategic Exploration of Integrating the New Ecology of Intelligent Medical Care into the Whole Oral Life Cycle Health Management

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Abstract: The new generation of information technology is driving the medical industry into the Health 4.0 era characterized by informatization, intelligence and digitization. The new ecology of intelligent medical care is to meet the various needs of social medical and health care in an intelligent way, so as to ensure that the whole population can obtain timely and personalized health management services based on the combination of prevention and treatment. Oral life cycle health management aims to achieve the whole-course health service and health protection from the fetus to the end of life, aiming at the main health problems and main influencing factors at different stages of life. The new ecology of intelligent medical care integrates into the whole-life oral health management, so that providing continuous health management and services throughout the whole life cycle from prediction and early warning to prevention and prognosis and promoting the reconstruction of the medical service model. In the context of the construction of digital China, the construction of an Internet+ Medical oral health management system is conducive to the upgrading of smart health application scenarios. Under the guidance of the concept of big health, the training of high-level science popularization talents is given priority to promote the formation of the main tone of oral health management in the whole life cycle, the transformation and upgrading of the management model, and the optimization of health science popularization services. Taking this as a reference, the new ecology of smart medicine is integrated into all links of oral health management in the whole life cycle, and the transformation of oral health promotion from "digitalization" to "digitalization" is realized with innovative and high-quality science popularization talent team, medical equipment and precise cloud-shared patient data.

Keywords: Health Management, Oral Cavity, Full Life Cycle, Intelligent Medical Care

1. Introduction

The development of digitalization and informatization in the oral medical industry is showing a thriving trend. The emergence of intelligent medical care has broken the traditional mode of medical treatment, and the behavior of dentists and patients has also changed. Under the influence of powerful information flow, scientific and technological innovation fully combines patients with medical staff, hospitals and medical equipment. Oral health management is integrated with the new ecology of intelligent medical treatment, so as to take the life cycle as the main line, and carry out continuous health management and services for different stages, including infancy, early childhood, childhood, adolescence, youth, adulthood, old age and so on. Fully implement the principle of disease prevention over treatment in the whole oral life cycle, improve the quality of life of the whole population and national health literacy.

2. Digital Transformation of Oral Health Management

China attaches great importance to the development of smart medical care, which provides a good policy environment for the integration and development of a new generation of information technology and health promotion. China's health management field has also opened a new pattern of 5G + "three early" full-cycle health management through continuous, dynamic and personalized health services. Nowadays, the technological changes led by innovation have greatly impacted the existing health management model and are constantly promoting the reconstruction of medical service models. To provide technical support for the construction of the whole-population, all-round and full-cycle health management service mode transformed from "treatment-centered" to "health-centered" [1].

"Teledentistry" provides oral care, advice, or treatment to patients through information technology, but does not have direct contact with the patient. It is widely used in orthodontics, endodontic disease, periodontal disease, early caries detection, oral health knowledge and other aspects [2]. In addition, for patients who need to be transferred due to regional problems but are difficult to be transferred, doctors can transfer relevant data to superior hospitals or directly carry out online consultation to realize data sharing. It forms a complete data link, breaks the information barrier and data island, and promotes the development of cross-boundary and cross-organization multi-granularity medical care cloud resource collaborative service mode [3-4].

Digital transformation is a high-level transformation aimed at building a dynamic digital business model by developing digital technologies and supporting capabilities on the basis of digital transformation and digital upgrading [5]. Research shows that about 63% of countries have suspended offline healthcare services, further highlighting how traditional "contact" healthcare has been affected by the pandemic [6]. Massive data will be generated in the medical process. Dental medical big data will not only generate medical expenses in the medical process, but also generate more complex medical data, such as oral clinical data, oral imaging data, etc [7]. The collection of these data promotes the emergence of intelligent healthcare, which utilizes advanced Internet of things technology to realize the interaction between patients and medical staff, medical institutions and medical equipment, and gradually achieve informatization. At the same time, medical big data enables major hospitals, dental clinics, and research institutions to share data, and can also accelerate the continuous innovation of oral medical technology, equipment and instruments, which is extremely beneficial to the oral health of all China and even all human beings [8-9]. In addition, 5G+ Medical will also focus on health management, precision medicine and telemedicine in order to provide a favorable guarantee for the realization of the "Healthy China 2030 Initiative" proposed by The State Council.

3. Diversified Applications in Oral Life Cycle Health Management

In the post-epidemic era, the emergence of intelligent medical care has greatly promoted the economic revival and the development of big health industry [10]. In addition, it can also help to make the health care industry to better realize the wisdom management of the people, equipment and environment, and perform oral clinical diagnosis and treatment of the whole population and the whole life cycle more accurate. Which is manifested in the cloud storage and cloud processing of medical big data, and using cloud data to conduct AI-assisted diagnosis, assist medical decision-making and formulate diagnosis and treatment plans. It promotes the reform and transformation of the dental industry with the attitude of innovation and integration to create multiple application scenarios [11].

Childhood is a stage prone to caries, and the health of deciduous teeth will affect the development of permanent teeth, so this period is regarded as a critical period for oral health management. Digital health management model can be popularized in this period, and maximizing the application of digital health management model to popularize caries prevention concept to achieve the best effect of early oral health promotion [12-13]. 3D digital early correction in adolescence with the help of digital correction technology, the oral data of patients can be accurately collected, so that doctors can provide accurate diagnosis and treatment plans. Adulthood is a stage of high incidence of periodontal diseases, under the application of the new ecology of intelligent medical treatment, the combination of prevention and treatment can be better achieved. The digital platform will be used to fully popularize the concept of oral health promotion and to implement the concept of disease prevention is greater than cure under the guidance of "treating diseases before they occur". With the technological innovation, the application of digital medical equipment plays a great role in improving the prevention and treatment effect of periodontal disease. Periodontal health is also an important factor to prevent peri-implant inflammation and improve the success rate of implantation. Furthermore Oral health in adulthood can greatly promote the oral health of the elderly [14-15]. Oral health in the elderly is closely related to systemic diseases, early oral health intervention can reduce the incidence of systemic chronic diseases caused by periodontal disease, such as cardiovascular disease, diabetes, hypertension and so on. At the same time, with the support of 5G technology, the application scenarios of intelligent medical treatment are more extensive. With the advent of the era of big data, portable wearable devices play a very important role in promoting the development of the medical and health field, and provide greater space for the implementation of remote real-time monitoring and health monitoring [16-17].

Under the high quality development of 5G+Medical, the construction of telemedicine system becomes feasible. Remoting robotic surgery and other equipment to achieve the subsidence of high-quality medical resources and reduce the

difference in regional medical resources [18]. In this view, it has become a reality to rely on Internet + Medical health to improve the accessibility of oral health services for the whole population throughout the life cycle.

4. Popular Science Echelon Empowers Smart Medical Care

In the face of the national strategic pattern of talent power and digital China, strengthening the construction of high-quality science popularization talents is an essential step in the current process of oral health management [19]. With the continuous deepening of disease research, people's demand for and attention to health management is getting higher and higher, and big health came into being as a kind of overall concept. Big health refers to the different needs of the whole population for health management according to the development of the era development and social demand, emphasizing the ability and awareness of self-health management with the whole life cycle as the service length, and popularizing various risk factors and misunderstandings affecting health to the whole population [20]. The concept of big health accompanies the whole life cycle to build a big health oral medical ecology, and implements at the level of oral health management, starting from prevention to health care, treatment, monitoring and rehabilitation. Promote innovative reform with the concept of big health to promote the cultivation of Medical + Communication composite talents, strengthen the familiarity and application of popular science talents with the digital platform, and build a full-cycle service model that integrates prevention and treatment [21]. Digital platforms such as mobile phone mini programs and Apps can not only enable the whole population to obtain the required oral health science knowledge online anytime and anywhere, but also to obtain convenient services such as intelligent appointments and intelligent guidance provided by digitalization, as well as personal oral health electronic records within the whole life cycle [22]. Targeted science popularization should be carried out according to different age stages, which are prone to different diseases. In the process of promoting the echelon training of popular science talents, it has a promoting effect on the establishment of patient electronic oral health files. Using the big data management model, the patient's health data can be monitored regularly, and the hospital's medical resources can be effectively integrated. That is to build an oral health management service system based on popular science talents to maintain oral health throughout the life cycle. In addition, the innovative training of health science popularization talents can react to the innovative development of the new ecology of intelligent medical care, and help the cutting-edge technologies such as artificial intelligence to accelerate the transformation and upgrading of oral health management model and strengthen the optimization of health promotion services in the whole life cycle.

5. Prospect

Based on the development of Internet + medical, artificial intelligence is promoted to drive technological innovation which accelerates the realization of the value of oral health management throughout the life cycle. Apply 5G technology to realize the closed loop of in-hospital and out-of-hospital oral health management services in the whole life cycle and the transformation of oral health promotion from digital to digital intelligence.

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