Study on Management of Remote Medical Follow-up Service and Analysis of Demand

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Abstract:
Objective: The medical service organization faces the pressure of progressive market competition in the face of modern medical service, and the change of medical service mode, through strengthening the core competence of long-distance medical service, applying the scientific management theory to enhance the connotation of medical service. To achieve the scientific management of medical service.

Methods: Through literature search and analysis, the domestic and foreign literatures on medical follow-up service management were reviewed, and the new trends in recent years were reviewed and summarized.

Results: Through the study of the management of long-distance medical follow-up service, this paper expounds the theory of medical service-related theory, and finds the breakthrough point of applying these theories to the medical follow-up service. The concept and characteristics, object, carrier, value and demand of long-distance medical follow-up service were studied in detail. This has great help to improve the management level of medical service agencies, which is more conducive to meeting the needs of patients' medical services and the needs of the public, and can better meet the needs of medical institution management and the needs of patients' disease treatment.

Keywords:
Remote medical treatment; Follow-up service management; Follow-up service requirements; medical service

1 Preface
With the rise of service under the network environment, mobile internet technology has been widely used, modern service has distinct organizational network and information network characteristics, artificial intelligence and network communication have been widely used in medical service field, user application demand is released, The network-based long-distance service gradually becomes the new source and value-added point of the medical service organization's competitive advantage, so the medical service level has been improved greatly.

Through the network communication technology and the information management platform, the patient and the medical service personnel completes the medical service, uses the computer network communication technology and the medical combination the remote medical model arises. The Internet has changed face-to-face medical service, and the traditional way of communicating face-to-face with both sides is different, and the Internet age is a new challenge to the management of multi-resource medical service organizations.

As a new service mode _ long-distance medical follow-up service in the field of medicine, it is of new characteristics that the medical service organization should invest a large amount of equipment purchase funds and computer network professional technicians in the initial stage. As well as to the relevant medical staff to carry on the computer basic technical training and so on the input, virtually increases the hospital operating cost, at the same time for the hospital management also brought about the new question; In addition, after completion of the remote medical follow-up service management system does not necessarily recover soon, remote medical follow-up services will not immediately produce benefits, which is the largest contradiction is, There are many differences between remote medical follow-up service management and traditional medical follow-up service management.

The long-distance medical follow-up service using
computer multi-media technology also plays an important role in improving the quality of life after the patients and understanding the needs of various medical services for patients and groups. Real-time adjustment of medical service management strategy provides reference.

2 Literature review

Looking at home and abroad relevant papers and research literature, people have a great interest in every aspect of medical service management, and the study of "medical service management" theory is more and more intensive, but it is still in the initial stage to study the management of long-distance medical follow-up service. The general research stays at the level of the case study and individual patient case, not up to the theoretical height; some experts and scholars in the field of domestic medical service management have conducted an empirical study on some of the problems encountered during the follow-up service management of medical service organizations. Using the western theory of service management as the basic theory of the research, but the management level that touches is still relatively low, has not set up a truly perfect long-distance medical follow-up service management system, the focus of the focus is still limited to the patient treatment effect, In the study of branch and local problems such as convenience degree of service and internal management of hospital, there is no systematic analysis of remote medical follow-up service management from organization system, planning system, service requirement factor, long-distance planning and forecasting, management strategy formulation, medical service resource deployment, business process, To conduct in-depth research on quality evaluation, management mechanism and system.

The clinical follow-up service in this study refers to the use of family visits, outpatient appointments, or otherwise, in order to provide regular or non-regular knowledge of patients or medical services consumers who are or have received medical services at the Agency for a regular or irregular period, It is a means to obtain information about recovery of body, motion of disease, long-term curative effect and quality of life.[1]

To study the long-distance medical follow-up service, it is necessary to talk about telemedicine, which is a long-distance medical service activity based on the remote communication technology ICT (ICT). Polishuk[2], an American scholar, discussed remote medicine as early as possible. Remote Medical (RM) is a subject based on ICT technology, which is based on ICT technology. It is a subject of long-distance video, audio information transmission, storage, inquiry and display for medical service data, text, picture and audio image. Maxine[3], an American medical and communications scholar, also explains RM "means of providing medical services to a given population by means of communication and computer technology." The development of telemedicine is also through the following stages:

In the late 1950s, the concept of "The First Generation of Telemedicine (FGOT, the first generation of telemedicine)" was put forward as the use of "bidirectional television system" in the course of clinical medical service by American scholar Wittso. Then medical expert, Jutar et al., established long-range radiology and applied with clinical medical service; In the course of the study, they found that the technology could provide remote medical services to people in different places[4]. By the mid-1980s, Australia implemented Northwestern Remote Medical Plan[5] on the basis of ICT technology. In the FGOT stage, remote data transmission is only at the beginning of development due to the limitation of immature ICT technology, and the long-distance medical development in this stage is slow.

Since the 1980s, ICT levels have been rising, with countries and regions such as the United States and Western Europe growing at the fastest rate, using communications modalities such as satellite and integrated services Digital Network (ISDN), in remote medical consultation, consultation, and patient physical examination images ICT, Significant progress has been made in digital transmission such as X-rays, as well as long-distance military medicine, which is a "The Second Generation of Telemedicine (SGOT, the second generation of telemedicine)" whose development speed, scale and medical implications far outweigh the first-generation technology[7].

The first of the world's long-range medical applications is the United States. Since 1976, the U.S. government has
made good social and economic benefits using telemedicine services\cite{9}, followed by Europe's UK, Asia, Japan, South Korea and Mexico. As well as other relatively well-developed countries in Europe, the United States has also followed the United States, and has invested heavily in medical and health fields for research and application of telemedicine\cite{9}; Practical application of telemedicine in remote areas\cite{10}.

In the united states, where telemedicine is relatively mature, telemedicine is gradually being integrated into community health clinics to better serve residents, and doctors remotely diagnose and diagnose patients remotely and remotely on the network. Medical professionals were followed up by high-resolution television screens and face-to-face (FACE TO FACE) medical treatment, as well as providing medical advice to patients and monitoring the patient's vital signs in different places; Experts can also use video or audio-assisted medical facilities on the Internet to save both a large number of patients or medical service personnel on the road, as well as the same medical service effects\cite{8}.

Germany and Norway also do well in telemedicine services. In Europe, many countries are aware of the advantages of long-distance medical treatment to advantage of resource integration, and through various service platforms to integrate high-quality medical resources and to screen them. Launched the Remote Medical System Extension Project with a large number of remote medical service applications, the project participates in the research of the medical care, the researchers can provide patients with remote medical services through the system, for the development of long-distance medical care has played a role\cite{9}.

It was found that the development of long-distance follow-up services abroad was based on more theoretical studies, such as Gananalingham and Williams\cite{11}, who studied the different views of cancer patients, chronic diseases, general doctors and surgeons on follow-up. The journal Sciamanna et al.\cite{12} Analyzed the cost of oral anticoagulation follow-up through new technologies such as WEB mobile communication. The study of online follow-up systems, such as Kalmyakis and Banning\cite{13}, used remote networks to follow-up intervention to victims of sexual abuse, Franklin et al.\cite{14} Using JAVA technology to develop an Internet-based medical follow-up service management system for mobile phones and PDAs, and to use the system to investigate diabetes and cancer patients, it is found that the treatment follow-up compliance is helpful, And to facilitate patient self-management disease follow-up.

Diedifich et al.\cite{15} Based on Internet-based surveys, Internet-based surveys are much faster than telephone calls and are more informative than telephone calls, according to the survey. Ficker et al.\cite{16} Through the investigation, it is advantageous to follow-up through the open form such as network. With the development of the field of long-distance follow-up management science, the theoretical research will be more mature, perfect and systematic.

Our country's medical and health administration department has generally accepted the long-distance medical service from the beginning to the present positive promotion, and has carried on the document sex regulation to the long-distance medical service project, put forward the "Based on network communication technology, intelligent medical service can be used to provide medical-related services directly to patients in different places". Having made clear guidance at the national policy level, the health administration department has also actively worked out relevant supporting documents or norms to guide and prompt medical service providers to share the advantages of sharing the resources based on remote medical services, It can promote the improvement of medical service ability. At present, the research of long-distance medical follow-up service management has been paid more and more attention in the field of management. In recent years, the research on the management of long-distance medical follow-up service has the following aspects: (1) China's research on long-distance medical follow-up service is mostly in the research of platform construction, partial function of system and empirical research. At present, long-distance medicine has not systematized in quality control and legislation. The quality control of long-distance medicine is an important management link. How to solve this problem effectively has puzzled many scholars. Zhao Jie et al.\cite{17} expounded the meaning of telemedicine in his research, analyzed the present situation of long-distance medical service at home.
and abroad, and the challenge faced by remote medical service in our country, and applied the theory of service management to manage from strategy. This paper makes a research on the theory of operation management and process management, and puts forward some suggestions for the reasonable development direction of the future long-distance medical follow-up service management. (2) Research on medical service quality management and patient satisfaction. Medical service quality is essential to the survival of medical service institutions, Shao Wei-jun\[18\] proposes how to manage remote medical service quality effectively by strengthening internal and external management, and monitoring each remote medical service link. To investigate and analyze patients' satisfaction on a regular basis to improve the quality of medical service, provide guidance for the management decision-making and execution of institutions and managers. (3) Research on the technical implementation of remote medical care, information sharing of medical services and service evaluation. The medical service management research scholar\[19\], based on the theory research, has designed the open and active remote medical system structure model based on the intelligent agent technology, based on the theory research. (4) Start with the clinical practical effect of long-distance medical care, explore the experience of innovation management of long-distance medical follow-up service, and propose a new method to study. Zhou Haoshuang\[20\], based on the research idea of the long-distance medical follow-up service, looks for the enterprises and medical service organizations that have relevant computer software, and jointly constructs a hospital follow-up management service platform based on the hospital business system, And apply it to practice.

To sum up, it is found that there is not much research on the management of long-distance medical follow-up service at home and abroad, especially in theory research.

3 Remote medical follow-up service management theory

3.1 Basic concept

3.1.1 Medical follow-up service

Medical follow-up is also referred to as follow-up, referring to the use of telephone, telegraph, letter or other means of communication for patients who have received treatment in this institution, regularly associated with the patient, understanding and recording changes in the patient's condition. Or ask patients to return to their former medical service agencies regularly to conduct disease review, and medical experts according to the results of the patient's disease treatment and rehabilitation guidance is a medical observation method, is to the patient's body recovery, Therapeutic effects as well as a continuous follow-up of the development of the disease\[21\]. Medical follow-up is beneficial to the communication between doctors and patients, to avoid or reduce the medical service, because of the lack of information in the process of diagnosis and treatment errors, the treatment of disease and the recovery of the patient's body is of great significance.

The follow-up of medical treatment is an effective way to judge the curative effect of clinical application. In clinic, the collection, classification and arrangement of medical information for patients receiving medical service can be classified and collated to improve medical service level, enrich medical service content, safeguard MSQ and improve the middle of medical service. At the end of the year, the management system will improve the technical level of medical research. Through the medical follow-up, we can collect, master the most original, objective medical treatment service information data, and analyze it, find out the shortcomings in medical service, and improve the technical level of medical workers. And to improve the service level of medical service institutions and post-medical service management, so as to provide better medical services for patients.

3.1.2 Remote medical follow-up service

MLong-distance medical follow-up service, from the point of view of medical service technology and clinical application, is to use ICT technology to diagnose the outcome of medical diagnosis, hospitalization information and rehabilitation nursing condition. Information and services, such as medical service counselling and health education, are a new pattern of medical follow-up for patients who can provide medical services for long-range patients and as an effective tool for communication between doctors and patients, And to some extent alleviate the financial burden for
some patients.

Long-distance medical follow-up services make the sharing of high-quality medical services in different places possible:

First, we can improve the level of medical follow-up in remote areas, play a big role in medical service and the radiative benefits of dominant subjects.

Second, it can provide patients with convenient, rapid and timely medical and health services.

Third, long-distance medical follow-up services greatly reduced the cost of medical services, and lightened the patient's medical and economic burden.

Fourth, long-distance medical follow-up services can reduce the risk and pain of rescuing or transporting patients.

Fifthly, the management of long-distance medical follow-up promotes the improvement of the technical level of medical service and the development of hospital information.

The treatment of the patient's disease is a long-term, systematic medical service process, the medical service personnel want to know in time the patient's physical recovery and the disease whether worsen and so on, must pass the medical follow-up and other means to understand, The medical staff, based on the outcome of follow-up, evaluated the treatment methods, summarized the treatment experience, and summarized the diagnosis and treatment of some patients with special diseases. Long-distance medical follow-up based on Internet technology, clinical medicine and engineering intelligent control technology can provide more convenient and quick medical service for patients. And through computer and server related network equipment, and information system management platform can classify, summarize, provide reference and reference for medical research; When a similar disease is encountered again during the medical follow-up service, a mature or better treatment plan can be produced pertinently, in time and effectively for the treatment of patients.

Based on ICT's medical service mode, it has some particularity, which is manifested in the medical follow-up service provided by it, which requires computer network engineer to participate in, in order to better serve the patients, the remote medical follow-up service management usually establishes the exclusive service team, Thus, the remote medical follow-up service object consists of two parts: (1) Decision-maker, manager, manager, and server. Specific in the medical service organization is attended by all levels of management and technical backbone, including hospital director, department director and relevant department head of the hierarchical remote medical service team, specific implementation of related services, they are service managers and managers. (2) Patient or medical service consumer. It is not only the object of long-distance medical follow-up service, but also the object of long-distance medical follow-up service management.

In order to meet the diverse needs of patients, medical service providers can use remote medical follow-up service management platform and patients to carry out real-time, dynamic communication, can give full play to the advantages of long-distance medical treatment, on the remote medical follow-up service management platform, Implementation of high-quality medical services, enhance their competitiveness. Clinicians or nurses use tele-medical service carrier _ information service management platform, communication network and electronic signal to provide remote medical service to patients, and deliver information and data about medical diagnosis, treatment, nursing, consultation and education. Medical experts through the management platform can obtain the patient's relevant medical clinical data through analysis and judgment can detect the early symptoms of the disease in time, and can be ready to communicate with the patients, to provide immediate medical services for patients. The service management platform can transmit laboratory results and medical image digital images remotely, and monitor the change of clinical examination data at any time, and correct the treatment plan in time.

3.1.2 Requirements analysis of remote medical follow-up service

The application of the medical service management system based on internet and modern multimedia technology has created a more cost-effective and high-effective health care environment for patients with disease. Using the home monitoring and consultation of the long-distance network, it reduces the risk of medical service
environment transportation (e.g., the patients may have improper methods, delay of time, etc. during the rescue and transportation) and how to guard against the disease risk. Through telemedicine service, patients can access medical advice and health instruction from different local medical experts to meet face-to-face communication and prevention and treatment of medical professionals in different places. The telemedicine service model has gradually been accepted by the society, and the remote medical follow-up service management system has been popularized gradually with the development of ICT-n information management system, and also gained the attention of the medical service organization's administrator.

(1) Patients' disease treatment compliance needs
"therapeutic compliance" is technically referred to as "compliance and compliance", also known as medical compliance and consistency (Concordance). Dr Liao Ming-ming et al. (2012) defines the basic features of an accepted medical service for a particular population (a patient receiving medical services) to expose and explain some treatment failures (or adverse medical service events) in the literature. In an investigation of cancer patients, Huang Xuewei and Wang Li found 72.99 percent of patients want doctors (or hospitals) to inform their diagnosis results; At the same time, the data also showed that compliance was affected by the patient's role in the treatment of disease.

(2) The need for medical follow-up services for the development of "personalization"
With the increase of people's economic income, living standards are rising, patients and families in the purchase of medical services, hope to comfort, human-oriented development, patients in the hospital or after the hospital discharge home, can choose a variety of services, can make an appointment on the network, consultation, Long-distance medical services such as consultation and follow-up of medical experts will be invited, so patients can enjoy the convenience of long-distance network medical service.

(3) The Necessity of Network Development of Medical Service
Medical knowledge and information service form the cornerstone of medical service management, and medical service personnel perform auxiliary diagnosis, adjunctive therapy, remote follow-up and other remote medical services through ICT, intelligent equipment, medical professional knowledge and service management platform. It can realize the acquisition and transmission of physical and physiological information data in different places, and transmit it to medical service experts, long-distance medical care has the function of intelligentization, quickness of transmission, simplification of service, low cost of input, and short-term treatment. Convenience of face-to-face communication between doctors and patients.

(4) Market-oriented and professional requirements for medical services
With the reform and opening-up, the development of market economy, the improvement of living standards of residents, the diversification of patients' health needs, the state allows medical services to enter the market, many private hospitals have mushroomed in the market economy, the survival of the fittest, They also have to gain more market share in order to survive. Actual patients receiving medical services and potential patients who are likely to receive medical services are part of the market resources, and market competition among hospitals is forcing health-care providers to upgrade their technical content and service levels. It is very important to make use of the new technology's long-distance network medical service specialization construction.

(5) The need for scientific management of medical service institutions
The combination of medicine, informatics, management and intelligent control technology has promoted the long-distance medical development. Now the research of the long-distance medical follow-up service is still in the exploratory stage, the follow-up service management system is imperfect, and the research on the theory is also on the surface. Medical service operation management theory research has been in a non-systematic state, sometimes in order to cope with the temporary needs of management, directly adopt other similar social services field information system management theory. Huang Pei Jian put forward to study the remote medical service management, is the medical service organization service and
the patient, the service and the society need, is advantageous to the whole medical service information management technology promotion, also benefits the service management system competition key to the service quality enhancement.

4 Conclusions

The improvement of a new long-distance medical follow-up service management system can not be separated from the management science and the intelligent control science. The remote medical management based on ICT can provide scientific management process for medical service organization, strictly control the cost of service, and innovate medical service mode. Enhance medical follow-up service quality and credibility to provide support; At the same time, to find out the deep-level patient service demand in the medical service, increase the distance medical service way and the scope, and establish a lasting relationship with the patient to provide the link.

References


