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## Research of remote monitoring system in Hemophilia information management

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### ABSTRACT

With the deep development of medical reform, the remote medical treatment has become a controversial topic. The application of remote monitoring system in Hemophilia information management plays an important role in diagnosis and treatment of patients at home by combining information network of Hemophilia center with patients from client, which helps master the immediate information about the treatment and recovery of patients so as to set up database in the range.

### KEYWORDS

Remote monitoring; Hemophilia information system; Domestic treatment.



## INTRODUCTION

As the internet technology develops rapidly, the remote monitoring is getting growing extensive application, which plays a vital role in medical field through combining remote monitoring technology with network technology. With the acceleration of the medical reform and the popularity of informatization and networking, a growing number of applications in medical departments and medical service and basic net system have been gradually integrated and intends to be informationalized [1]. The remote monitoring and control is to monitor and control the remote side by local machine via network system like Internet / Intranet, in order to monitor and maintain the network separately.

The remote monitoring system of Hemophilia is guided by the patient- centered concept and constructed within three different levels as follows, namely, it relies on the Hemophilia information management system in the range of hospital regulations, taking hemophiliac families, Hemophilia management center and Hemophilia information administration into account. The remote monitoring system service takes advantage of advanced integrated technology of network information based on Hemophilia information management system to set up medical service system which is propagable and allows patients to diagnose for them at home.

The remote monitoring system is connected with Hemophilia information management platform, in which the images and data are stored. The monitoring system is mainly divided into two parts. One is the surveillance toward the patient, which can get remote control and supervision of patients about their treatment and recovery. The other is the surveillance toward the computer system and network equipment, which mainly aims to obtain information through the Internet.

## MAIN FUNCTIONS

### **Remote monitoring patients' opening windows and operating procedures**

Patients are the clients of the remote monitoring system; in another words, they are the subscriber terminal of the remote monitoring system. When the client under remote monitoring, the patients need to log in their user names and passwords in hemophiliac diagnosis center to be identified verification, if they are passed, they can be monitored. Then the diagnosis center will explain, answer the questions and help to operate on the patient's applying information management platform.

### **Remote monitoring patients' rehabilitation and exercise condition**

The patient will do his rehabilitation and exercise at home; the client's audio and video frequency will transmit the information to the hemophiliac diagnosis center through Internet/intranet so that the center can supervise and direct on the patient's rehabilitation and exercise.

### **Remote monitoring patients' log in time and checked problem records to be better known of the patient's problems and conditions**

The hemophiliac diagnosis center enters the database to check the patient's log in time and checked problem records to know the patient's current condition and existing problems, then gives the patient a comprehensive diagnosis through the remote monitoring system, so that the patient can get more conveniently treated by the doctor as soon as possible.

### **Remote support of the online external diagnosis**

Hemophiliac patients' repeatedly arthrorrhagia implicated joint motion, so they are restricted to look for a doctor, they cannot go outside easily. When there are problems, they can't be cured by the

doctor in time. As the remote monitoring system is applying, the patients can be identified verification by logging in their user name and password authorized by the hemophiliac diagnosis center, and then he can achieve the remote diagnosis. The doctor in the information management center can receive the audio and video frequency transmitting by the client, then give back the diagnosis and the treatment to the client through the internet.

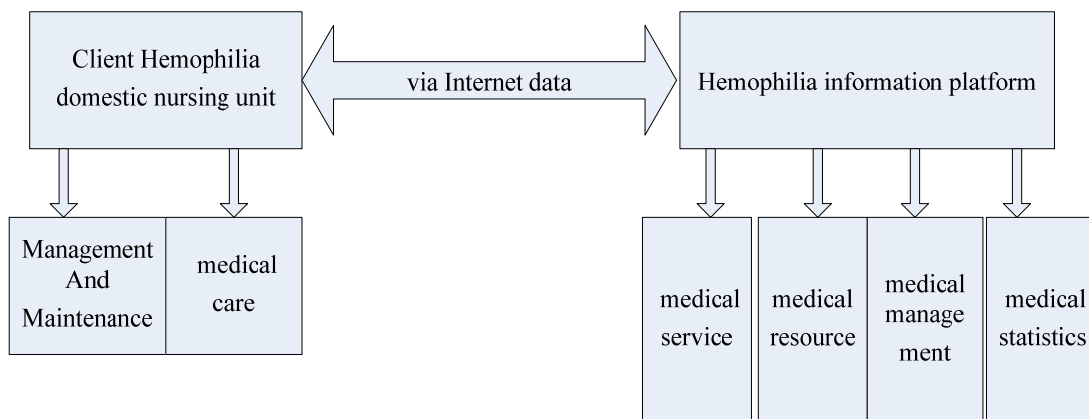
### Remote family training

As the patients easily bleed because of aggravating and mass activities, they seldom take part in the nursing, rehabilitation and diagnosis training. So using the image processing and transmission equipment to be the internet vision server, it can transmit the audio and video signal to the client through the internet, at the same time, receive the audio and video signal sending by the client then give back to the information management center to help the patient get more training and living knowledge.

## FUNCTIONS AND STRUCTURES

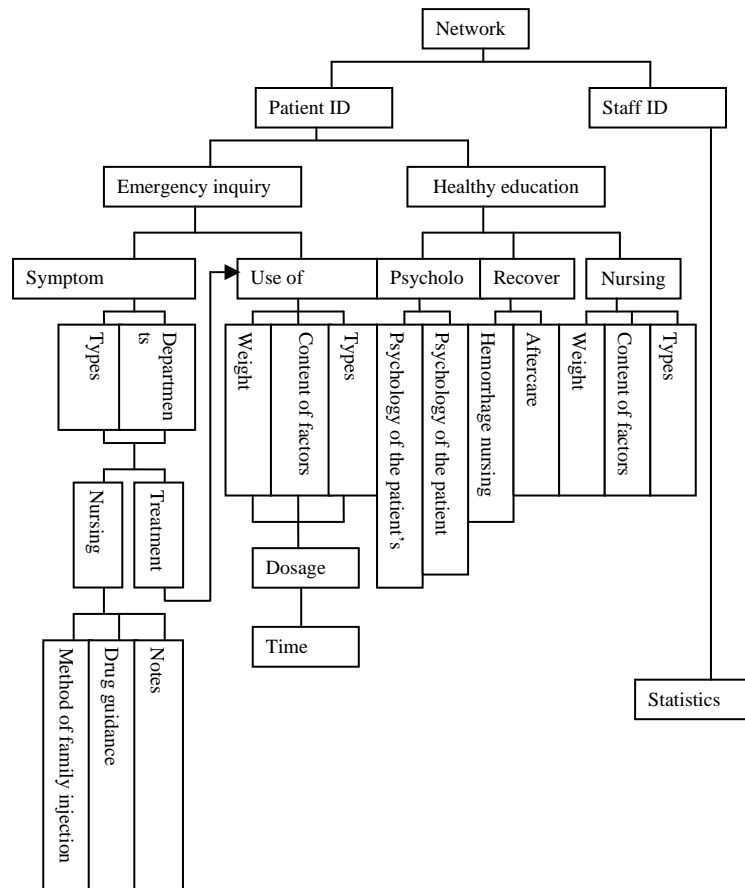
Remote monitoring is the combination of the facility control technology and communication technology. As the monitoring of remote equipment is always conducted in different places, the video information on the spot is so important that the operators can take next steps according to the monitoring of video for the on-site facility. The video frame plays a vital role in the application of remote monitoring, while there is a great deal of information in the video frame. There are some certain requirements on the communication circuits. Generally the video and audio signals are separated to conduct and the channels; waveband and frequency channels they conduct are listed in the following table.

**Hemophilia Telemedicine Information System**



The system adopts the design of layering and module. The system can be divided into several modules, namely remote consultation module, remote consultation module, remote training module, remote management module, medical information announcement module and system management module. The user's account can be administered intensively by the system of unified identity authentication management.

The system function module is as follows.



### CONCLUSION

With the in-depth development of China's reform and opening up, the tendency of situation is the further development of telemedicine network. Hemophilia center of Information network could be connected with the patients control network through the remote monitoring and also could master the rehabilitation, treatment of patients at any time, so as to establish network data and resources. Remote monitoring could realize the collection of patients family condition, and get the field monitoring data, so that provide the foundation of remote consultation and diagnosis; Remote monitoring does not require patients to go to the hospital, just do diagnosis, treatment, nursing, rehabilitation guidance at home, so as to reduce the medical cost and allay the pain of patients. At the same time, remote monitoring accelerates the overall construction of information system in hospital, improves the comprehensive benefit and the efficiency of the medical department, and regards the medical information as a service of medical and health institutions, in order to do better service to patients and society. Remote monitoring, because of its favorably endowed advantages, it enhances the quality of patients' life, reduces hospitalization costs, and also has the positive effect in improving the level of diagnosis, treatment and hospital medical efficiency as well as optimizing the allocation of medical resources. Consequently, this research has significant meaning of how to put the remote monitoring into effect.

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