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Date Updated : 1996/12/9

Case Number : 58

Main Facility : Tokai University School of Medicine

Related Facilities : Isehara Medical Association; Odawara Medical Association; Kumagaya Medical Association; Gyoda Medical Association; Kumamoto Medical Association; NTT

Number of Facilities :

Practicality : Experimental

Date of Start : 1995/4/1

Date of End : 1998/3/31

Status : finished

Outline : An experiment of the system for the medical care at disasters and for the life-time medical care education was performed with the Internet through satellites. Medical care at a disaster was simulated including information exchange with remote places in Isehara city on February 27, 1997, in Odawara city on March 35, and in Ikuta city on Sep. 1 (The seventh metropolitan-prefecture-city disaster drill). A total of 37 medical lectures were transmitted to 20 remote terminals from September 3, 1997 to March 25, 1998. The minutes of the lectures were presented on the Internet home page, which can be accessed at any time. An questionnaire survey was performed to evaluate the system.

Technology - Materials : Educational special software, general-purpose Web browser

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Technology - Communication Lines : Satellite Internet (stationary satellites are used to transmit data from the server to receiving stations. Ground circuit is used when the receiving stations need to transmit some information, such as questions. In remote lectures, the server is controlled from a remote station through ground circuit. Materials are distributed on demand from the server through stationary satellites), satellite circuit, ATM, TCP/IP

Characteristics : Whether satellite Internet can be applied to medicine was examined paying attention to the digital broadcast properties. Because receiving stations are equipped with a parabola antenna at a diameter of 50cm, receiver/adapter, and general personal computers, they can use high-speed Internet circuit economically. With the help of the doctors' association, we could open 20 receiving stations for medical education (in Kanagawa, Saitama, and Kumamoto). Because the server and studio can be set separately, 4 studios (in Tokyo, Kanagawa, and Fukuoka) could be opened with 1 server (in Tokyo). Bi-directional live lectures could be transmitted among the remote places. Because general purpose protocols such as TCP/IP can be used, accumulable materials that could be accessed at any time could be prepared easily. When a disaster occurs and ground circuit cannot be used, Web pages and other data can be transmitted from the server to the receiving stations. Data can be accessed with the same manipulation as done in periodical programs even when a disaster occurs.

Evaluation : In the experiment on the medical care at a disaster, data from life-line organizations and companies as well as citizens

could be shared and examined among affected regions, surrounding regions, and remote places. The live remote lectures could transmit the latest medical information to all over the nation. Because this system allows bi-directional communication, questions to the lectures could be accepted. The accumulable materials were used as required. These technologies based on the application of satellite Internet to medicine can be put into practical use now.

Keywords : Satellite Internet, Medical care at disaster, Life-time education of medical care

References : "Haruki Y, et al. :Emergency medical system in a great disaster using communications satellite. Proceedings of the second Asia Pasific Association of Medical Infomatics Conference, 874-878, 1997"

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Date Updated : 1999/3/15

Case Number : 59

Main Facility : Kugayama Hospital

Related Facilities : Secom Home Medical System Co.

Number of Facilities : 1

Practicality : Experimental

Date of Start : 1996/10

Date of End :

Status : in progress

Outline : This experiment was designed to examine the image quality and function required for remote medicine by comparing the most popular simple TV phone system with high quality and function TV phone system. In response to the increased demands for at-home medical care, Kugayama Hospital established the section of visiting nursing to contribute to the at-home medicine in the community. In this experiment, the section of visiting nursing was connected with the houses of patients receiving visiting care with simple TV phone using analog public telephone circuit in order to examine the utility of remote medical care. Our visiting nursing section now provides at-home medical care for patients with the after effects of cerebrovascular disorder, those with chronic cardiac and respiratory organ diseases, those with dementia, and those with advanced malignant tumors. TV phone was installed at the patients' houses and was connected with the visiting nursing section to provide remote medical care in addition to existing visiting care. Based on the results of this experiment and the experiment using high image quality and function TV phone system, we will examine the utility of remote medical care in terms of medical demands and the possibility to make at-home medicine more efficient by remote medical care. We also intend to establish remote medical care in at-home medicine in terms of both hardware and software. This experiment also evaluates system technologies suitable for at-home use. As a part of it, INS 64 circuit and bi-directional CATV have been evaluated since 1997.

Technology - Materials : (1) TV phone for analog public telephone circuit (commercially available): 1/3 inch CCD camera, 4 inch TFT liquid monitor, dynamic picture resolution 160 x 120/320 x 240, maximum number of frames: 15/second, stationary image resolution 320 x 240/640 x 480, external camera (8mm VTR camera), VTR for recording(2) TV telephone for ISDN circuit (SwiftSite by Picturetell: 15 frames/second, resolution 352 x 288), 15 inch liquid crystal monitor, hand camera for magnifying affected sites (trial product), electronic stethoscope (3) TV phone for CATV (Trial product: NTSC・TV signal transmission, 512 scanning lines), 20 inch monitor, camera with gaze-controlling function, electronic stethoscope, hand camera for magnifying affected sites (trial product), DOS/V PC for recording and controlling images, and bi-directional CATV network (CATV station in Tokyo)

Technology - Communication Lines :

Characteristics : Analog public telephone circuit, ISDN circuit, bi-directional CATV circuit

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Evaluation : (1) This experiment is designed to examine the application of remote medical care to at-home medicine. (2) Because this system is assumed to be used for at-home medicine, inexpensive analog TV phone system that can be easily installed and operated is used. (3) The results of this experiment are compared with those of the experiments about high image quality and function phone system using INS1500, INS64, and CATV in order to determine the picture quality and functions required for remote medical care.

Keywords : In the first phase, case studies are performed by selecting at-home care nurses who perform drip, central venous, or tube feeding and the cases whose visual images of decubitus and the functional training of extremities are considered useful for checking the status of patients and guiding patients and care providers. In the second phase, on the basis of the results of the first phase, patient groups of specific diseases and statuses suitable for evaluation are selected, and case control studies are performed. Regular or irregular TV phone communication of twice or thrice a week is added to the current visiting care of once or twice a week. The visiting nursing section responds to the contact from a patient house at any time through the TV phone. At the visiting and remote care, complaints of patients, information from care providers, contents of inquiries, observations, examinations, actions, and instructions are recorded. In the visiting care, the items that cannot be or are sufficiently performed in the remote care are recorded. Based on these results, the actions that can be substituted by remote medicine and the groups of specific diseases and conditions to which remote medical care should be applied are identified. The accuracy of information is compared for medical examination items between the system using analog public telephone circuit and the high image quality and function system using INS1500, INS64, and CATV.

References : "(1)Satoki Homma et al:Potential impact of telemedicine through electronically meadiated interactivemedia, Proceedings of the 16th conference in medical informatics inJapan, 664-665, 1996 (2) Satoki Homma et. al:Preliminary selection of diagnostic for evaluation of telemedicine; Proceedings for the16thconference inmedical informatics in Japan, 666-667, 1996. (3)HOMMA S, Current State and Problems of Telemedicine, Journal of Hospital Engineering Association of Japan 40:139-142, 1998."

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Case Number : 60

Main Facility : Kugayama Hospital

Related Facilities : Kugayamaen Special Nursing Home for the Aged

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Number of Facilities : 1

Practicality : Experimental

Date of Start : 1995/10

Date of End : 1995/12

Status : finished

Outline : Remote medical care was attempted in elderly people. The hospital was connected with the elderly home located in the same premises through the ISDN circuit of INS net 1500. The physicians in the hospital examined the patients in the elderly home through the circuit. The subjects were 13 elderly people (77 - 91 years) in the home. The system was based on a TV conference system, and the equipment in the home included high pixel 3CCD camera, electronic stethoscope, and portable ultrasonic CT device. The data from the equipment are compressed in the hardware and transmitted to the hospital. The elderly people well adapt themselves to the system. The inquiries and visual and auscultatory examinations through the TV system provided almost the same amount of information as obtained by face-to-face examination. However, some of diagnostically important findings could not confirmed, and the system has to be further improved. It was also found that information obtained by medical examination was limited because TV conference system was a limited medium, and that it took too much time for examination. Therefore, remote examination is not suitable for new patients. However, in consideration of the digital image information storage technologies available, it may be useful when its use is limited to the follow-up of chronic diseases partly because .

Technology - Materials : (1) Communication system (TV conference system made by NTT); transmission part: transmission rate 1.536Mbsm, 30 frames/second; camera: 1/3 inch CCD, zoom with a magnification of 8, horizontal resolution 300TV; monitor: 21 inch color monitor, horizontal resolution 560TV(2) Diagnostic picture transmitting system (Hospital): monitor: 20-inch, made by Sony, horizontal resolution 600TV; VCR for recording: made by Sony, S-VHS, built-in TBC; personal computer for image processing: Apple Power Macintosh 8100/100AV (3) Diagnostic picture transmitting system (Elderly home): examination camera: made by Victor, 1/3-inch 3CCD, zoom with a magnification of 10, horizontal resolution 750TV; oral observation camera (hand-made); electronic stethoscope: made by Kimura, frequency characteristics 50-3000Hz; portable ultrasonic CT device (made by Hitachi Medico); autoanalyzer for blood pressure and electrocardiograms (made by SECOM)

Technology - Communication Lines : 2 circuits of INS net 1500: one is used for the communication system, and the other is used for the diagnostic picture transmitting system.

Characteristics : Commercially available advanced technologies, such as INS net 1500, are used to examine the effectiveness of remote medical diagnosis and select the promising target of application.

The medical effectiveness was evaluated in terms for (1) how much information required for diagnosis is obtained from a remote place, and (2) is it possible to list problems as accurate as done by face-to-face examination. The target range was examined on the basis of the experimental results.

Evaluation : Operation:The examination over the TV phone was performed once a week. At first, it was performed as a initial examination, and subsequently as repeat examination, placing emphases on findings. The examination included inquiry, ADL evaluation, Hasegawa-method intelligence test, physical examination, vital sign measurement, and examination of abdominal and chest echoes. Nurses assisted the elderly people in receiving examination and operating the equipment. After the remote examination, physicians saw them and confirmed the findings obtained by the remote examination. Evaluation:(1) Medical aspect: The items of the medical diagnostics and problem lists obtained through the remote examination were compared with those by the face-to-face examination. (2) Impressions of the subjects: A questionnaire survey was conducted. (3) Limitation of the media: diagnostic work was modeled as the operation to obtain information. The limitations of the remote examination was discussed on the basis on the observations of the experiment.

Keywords : Remote medicine, ISDN, TV conference system, medical examination, care for the elderly, limiting media, medical effectiveness

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References : "(1)Satoki Homma et al:Potential impact of telemedicine through electronically meadiated interactivemedia, Proceedings of the 16th conference in medical informatics inJapan, 664-665, 1996 (2) Satoki Homma et. al:Preliminary selection of diagnostic for evaluation of telemedicine, Proceedings for the16thconference inmedical informatics in Japan, 666-667, 1996"

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Date Updated : 1999/3/16

Case Number : 61

Main Facility : Department of Anesthesia and ICU National Children's Hospital

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Related Facilities : "Yodogawa Christian Hospital, Osaka; Childrens Hospital Los Angeles; The Hospital for Sick Children, Toronto"

Number of Facilities : 3

Practicality : Practical

Date of Start : 1992

Date of End :

Status : in progress

Outline : (1) TV phones were installed in the houses of patients receiving respiratory control to communicate with them and their family. (2) TV phones were installed in other hospitals to make conferences and refer patients among the hospitals. (3) TV phones were installed at the suppliers of medical devices and home oxygen to communicate with physicians and patients.

Technology - Materials : TV phone: Picsend R, NTT Photovision, and remote camera system by Hitachi and Aishin Cosmo

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Technology - Communication Lines : ISDN 64

Characteristics : (1) Small system was introduced so that families could buy it. (2) A remote camera system was attached to a commercially available TV phone so that the physician in the hospital could see the sites of interest by the camera. (3) Because a TV phone was installed at the ICU where specialists of respiratory control were available at any time, patients could be examined by specialists at any time.

Evaluation : Frequency of use: medical consultation over TV phone has been performed 3-5 times/month/patient, on average. Overseas conferences have been periodically performed once a month. Evaluation: This system is useful in the following points: the number of hospital visits of the patients whose medical condition suddenly changed was reduced; the number of visits to patients receiving respiratory control for maintaining an artificial respirator and monitor was reduced; medical cost and time of both patients and physicians were reduced; and medical support was given to Japanese patients and their families who stayed in the United States to receive the treatments for the diseases for which there were few specialists in Japan, such as cystic fibrosis, or to receive the treatments that could not be performed in Japan, such as cardiac transplantation.

Keywords : TV phone, ISDN 64

References :

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Date Updated : 1999/3/4

Case Number : 62

Main Facility : National Shikoku Cancer Center Hospital

Related Facilities : Yoshida general hospital

Number of Facilities : 1

Practicality : Experimental

Date of Start : 1996/1

Date of End :

Status : in progress

Outline : In addition to an intra-hospital image filing system (SCC-Net), Shikoku Cancer Center established a remote image filing system that allowed mutual use of images with other medical institutions. The endoscopic, MRI, and echographic images controlled by the data base of the center and stored in its server can be registered, searched for, referred to, or transmitted by the order from other institutions. To maintain security, files owned by only 1 institution cannot be searched for, nor referred to from other institutions. It is expected that this system will promote the common use of patient information and the cooperation of hospitals and clinics.

Technology - Materials : (1) Shikoku Cancer Center: TITAN2-300 + Fineworks: oracle relational data base, PPP server (2) Yoshida hospital: Macintosh + PCLINK (OKI-TA)

Technology - Communication Lines : In-hospital Lan + INS64

Characteristics : A new local medical server was installed for the local medical image filing system. A data base independent of SCC-Net was established in the local medical server. As described before, TCP/IP is used as communication protocol and ACR-NEMA as a file format in the search, transmission, and display of images in the image filing server of SCC-Net. To permit bi-directional communication, the same format is used in this local medical server. As shown in the figure, the center was connected with Yoshida Hospital through ISDN 64 circuit. An endoscopic image can be transferred in about 6 second. Because all the examination images can be stored in the disk at a local terminal and only images referred to are transferred, the transfer speed is practically acceptable. Key images can be extracted only with the operation with a mouse on thumbnail-format display. Images can be easily transferred only by selecting a destination from a pull-down menu, and clicking the transfer button with a mouse. Ultrasonic images are video-captured from NTSC, and can be stored and transferred. When an ultrasonic device compatible with DICOM will be introduced, communication will be possible with DICOM. To maintain security, users are controlled with account numbers and pass-words. Coding system will be introduced in future. This system seems to have wide application because it allows mutual image transfer with other medical institutions only with simpler procedures than conventional networks.

Evaluation : This local medical image filing system provides higher data transfer and easier operation than conventional systems. It is also designed to have a data base of all clinical information

including image and other examination results in futurc. All the information required for case examination in various conferences can be controlled, presented, or manipulated from a terminal. Because this system can be operated only with the knowledge about the Macintosh computer, those who are weak in computers can easily handle it. It is expected that the use of local medical information will promote the cooperation of hospitals and clinics.

Keywords : Hospital-clinic cooperation, image transmission, image filing, DICOM

References : "Med. Imag. Tech. 14(4):493-494, 1996"

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Date Updated : 1996/12/11

Case Number : 63

Main Facility : National Shikoku Cancer Center Hospital

Related Facilities : Ehime Medical Assosiation

Number of Facilities : 206

Practicality : Experimental

Date of Start : 1996/10

Date of End :

Status : in progress

Outline : Not a few physicians are unfamiliar with computers, and this blocks the spread of medical network. We developed software for writing a letter of introduction, "Gayuh," that can be easily handled even by users unfamiliar with personal computers. The software is characterized by the frequent use of GUIs (graphical user interfaces) and the disuse of a keyboard. A letter of introduction can be written manually on a form of the letter, and the format entered is digitized by a camera and input to a computer. It takes only a few seconds, and medical images can be attached only by pressing a button. This greatly reduces the time and communication cost for distributing the letters. The practical use of this system is now evaluated in an experiment using Ehime Pref. Physicians Local Medical Network.

Technology - Materials : Macintosh or Windows 95 compatible computers

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Technology - Communication Lines : Ehime Prefecture Doctors' Association Network (Intra-net)

Characteristics : The most important characteristic of Gayuh is the disuse of a keyboard. Because many graphical user interfaces are used, it is very user-friendly. A letter of introduction can be written manually on a format of the letter, and the format entered is digitized by a camera and input to a computer. Because it takes only a few seconds, it can be used in outpatient clinics. Medical images can be attached only by pressing a button, and a digitized introduction letter can be delivered as a E-mail. Therefore, this software greatly reduces the time and communication cost for distributing introduction letters. Because the software can make a data base of the letters, it is expected that the software will help control a tremendous amount of data. Images are compatible with ICOM. Files from DICOM devices can be received and displayed on a personal computer.

Evaluation : Not a few physicians are unfamiliar with computers, and this blocks the spread of medical network. Particularly, many of practitioners responsible for local medicine are old, and the spread of personal computers is low. The interface of the "Gayuh" has had good reputation among them, although its use has just begun. It is too early to evaluate the software.

Keywords : Local medicine, cooperation of hospitals and clinics, a letter of introduction, image transmission, DICOM

References : "(1)Masanori Akiyama et. al:Development ofelectric medical information transfer system without keyboard, Proceedings

of the 16th conference inmedical informatics inJapan, 626-627, 1996
(2) Masanori Akiyama et al:The Regional medical Information system in the Ehime Medical Association with security, Proceedings of the 16th conference in medical informatics inJapan, 520-521, 1996

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Date Updated : 1996/12/11

Case Number : 64

Main Facility : Kagoshima University Hospital

Related Facilities : Oshima Prefectural Hospital; Setouchi-cho Rural Clinic; Kikai-cho Kokuho Clinic;

Number of Facilities : 3

Practicality : Experimental

Date of Start : 1996

Date of End :

Status : in progress

Outline : A remote image diagnosis medical information network system was established and evaluated. Using telephone circuits, the system was connected with remote clinics (Setouchi Remote Clinic and Kikai-cho National Insurance Clinic), a remote base hospital with specialists (Prefectural Ohshima Hospital), and a prefectural base hospital (Kagoshima University Medical School Affiliated Hospital). It was designed so that clinics and hospitals could share the same images transmitted through telephone circuits and the base hospital could support the treatments and diagnosis at remote clinics and hospitals.

Technology - Materials : Image linking device, X-ray film digitizer, chart scanner, photomagnetic disk drive, digital camera, and IC card read writer for each of the clinics and hospitals on the network

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Technology - Communication Lines : INS64

Characteristics : This system is designed to support the remote image diagnosis of the regions around the Amami-Ohshima Island in Kagoshima Pref. Images are transmitted among hospitals and clinics. This system is also linked with existing CT equipment in the Setouchi Remote Place Clinic because it complies with the same specifications. To secure the images transferred, remote authorization, message authorization, and encryption system has been introduced.

Evaluation : Operation and evaluation will be scheduled in 1997

Keywords :

References :

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Date Updated : 1999/3/10

Case Number : 65

Main Facility : National Ohkura Hospital;

Related Facilities : National Mito Hospital; IBARAKI Children's Hospital

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Number of Facilities : 2

Practicality : Experimental

Date of Start : 1996/10

Date of End : 1997/2

Status : finished

Outline : This project has been conducted as an investigation by the Association of High-Vision Promotion Supporting Center about the remote medical consultation in power supply regions. The outline and objectives of this investigation are quoted from the plan of the project as follows: As the society is aging with less children and increasing nuclear families, the welfare actions for the health of residents have become more important in power supply regions. However, many of the regions are located at remote places, and are lacking in medical institutions, technologies, and information. The residents are strongly requesting the medical care at the same level as that in cities. It is expected that such gap between remote places and cities will be eliminated if various medical resources concentrated in large medical institutions in large cities, such as specialists and their skills and knowledge, will be provided for physicians in remote power supply regions as information and will become the basis for the communication between the physicians and their patients. From this point of view, a multi-media communication system based on computers and high definition image technologies, such as high vision, was developed in 1995. A long-term experimental survey for several months was conducted by connecting large hospitals in cities with remote clinics in power supply regions using the system to evaluate the effectiveness, utility, economy, and developability of the tele-medicine (remote medicine) and its applicability in the medicine for children. The results more than expected were obtained. Based on the results, in this year, a bi-directional multimedia medical network is established among national medical institutions, medical institutions in power supply regions, and at-home patients requiring treatment and rehabilitation (both adults and children) using analog and digital telephone circuits. Extensive and general experimental investigation is performed on the network to contribute to the improvement of the medicine and welfare of the residents in power supply regions.

Technology - Materials : The description of equipment is quoted from the plan of this investigational project as follows: (1) Development and establishment of multimedia systems for at-home patients: Two systems (A and B) are established in consideration of the needs of patients, performance of care providers, operability, and economy, and they are installed at the houses of the patients. (2) Development and establishment of a multimedia system for physicians in charge: the physician in charge (hospital) has functions to directly communicate with patients and to indirectly exchange or update information for patients through a communication server. #A system: analog telephone circuit, analog

TV phone, Internet terminal, modem, monitor, and camera; #B system: ISDN circuit, TV phone, Internet terminal, TA/DSU, monitor, and camera #Physician's system: ISDN circuit, TV phone, TA/DSU, computer camera, #Fetal heart rate and labor pains transfer system

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Technology – Communication Lines : ISDN circuit, analog telephone circuit

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Characteristics : Actual medicine will be able to be started within 1 year.

Evaluation : not yet

Keywords : Pregnancy control, pregnant women, pregnancy examination, fetal control

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References :

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Date Updated : 1999/3/16

Case Number : 66

Main Facility : WAKAYAMA Medical Association

Related Facilities :

Number of Facilities :

Practicality : Experimental

Date of Start : 1971/11

Date of End : 1972/7

Status : finished

Outline : As a part of the project to maintain the remote medical system that linked 71 regions without doctor in Wakayama pref. using a communication network, Wakayama Pref. Doctors' Association performed an experiment of the system in Kozagawa-cho and Nakatsu village in the above period.

Technology - Materials : (1) Picture related equipment: monochrome technical TV camera and monochrome TV set for bi-directional transmission (2) Other equipment: Fax (designated as facsimile terminal equipment in those days) for transmitting electrocardiograms and other patient data (letters and sketch)

Technology - Communication Lines : Special 3C2V coaxial cable for the experiment. Telephone line used for transmitting frequency-modulated electrocardiograms

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Characteristics : The experiment was performed by installing a communication channel for several kilometers by ourselves. Frequency-modulated electrocardiograms were transmitted through telephone line (data transmission was prohibited). The electrocardiograms could be read even after transmitted for a long distance (200 km) with the communication quality of those days.

Evaluation : Patients could obtain relief and satisfaction when they saw physicians even over the TV phone. Physicians could substantial physical findings including electrocardiograms and observations of face and tongue when nurse or a public health nurse assisted at the patient side.

Keywords : DPC (direct patient care)

References :

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Date Updated : 1998/4/20

Case Number : 67

Main Facility : Kyoto University Hospital

Related Facilities : "Osaka Unibersity Hospital, Osaka Teishin Hospital, BBCC(Association of Broadmand-ISDN Business chance &Culture Creation)"

Number of Facilities : 3

Practicality : Experimental

Date of Start : 1996/3

Date of End : 1998/3

Status : finished

Outline : We performed a basic experiment about the video conference system based on wide-area networks. The targets of the system included remote medical conference and consultation. The experiment examined how a wide-area network was affected by using the main components of medical video conferences, such as the quality of dynamic pictures, voices, and white board (stationary images) and the common use of a pointer. Four points were linked with the major back bones of Internet in Japan, Sinet and Imnet. It also quantitatively determined the deteriorated performance of the network with the increased load by the TV conference. Based on the results, we identified the bottleneck of the current communication networks and proposed an ideal communication infrastructure. The same experiment was performed for the lecture-on-demand system using a video server.

Technology - Materials : A video conference system (Communique! by Insoft) was used on a workstation (SS-20, SUN microsystem). Cell-B method was employed to compress video data. UDD/IP was used as a communication protocol. Errors were detected and outflow data quantity was adjusted with the applications used. For determining performance, the information on response time, traffic, and channel was obtained with ping, netstat, and traceroute, respectivcly. Wide area traffic was also determined with a LAN analyzer and with the cooperation with backbone network managing organizations.

Technology - Communication Lines : Ethernet (10MBPS) was used for communication in the segment where terminals were connected. Some facilities used high-speed LAN, such as ATM.

Characteristics : This project quantitatively demonstrated the limitations and possibility of the remote medical conference on the current Internet, and presented a standard to avoid confusing shared wide-area networks.

Evaluation : The experiment was performed at fixed dates ant time because it loaded too much on wide-area networks. It was performed twicc in 1996. Because few studies have quantitatively demonstrated the effect of the video conference application on networks, this study has provided valuable data. Because the response of a network depends on its band width and use, channel control, and use of applications, the results of this experiment cannot be used as a general guideline. However, they present a determination method for preparing a guideline.

Keywords : Remote medical conference, remote consultation, video conference system, wide-area network, load on network, lecture-on-demand

References :

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Date Updated : 1998/4/20

Case Number : 68

Main Facility : NTT Kyushu General Hospital

Related Facilities : One hospital in a mountainous area; Two offices on two islands where each one nurse serves about 100 residents; One office on one island where a physician works for 1000 residents; Two nursing homes for the elderly in mountaineous areas; One residence of a patient with atopic dermatitis (All locates in the Kyushu area of southwestern Japan.)

Number of Facilities : 7

Practicality : Experimental

Date of Start : 1996/12

Date of End : 1997/6

Status : finished

Outline : Hospitals in remote place and clinics in remote islands: Exchange of medical information including stationary images, dynamic pictures, and files (MS-OFFICE). Special care elderly home: Medical support Patients' home: Remote medicine

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Technology - Materials : Phoenix (image transmission system + Windows), digital camera, image scanner

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Technology - Communication Lines : INS net 64

Characteristics : Phoenix provides the exchange of various medical information including stationary images, dynamic pictures, and files (MS-OFFICE) in an inexpensive manner. Since more than half of the manned islands in Japan are located around the Kyushu island, it is a matter of great significance to introduce remote medicine in Kyushu.

Evaluation : (1) Medical information can be exchanged in various ways: for example, physicians at remote places can discuss stationary images, text information, and figures in a face-to-face manner. (2) The quality of stationary images is acceptable for diagnostic purpose. (3) Medical consultation can be provided among patients, physicians, and co-medicals. For example, a patient with atopic dermatitis transmitted the images of the affected sites, and a physician could make a diagnosis on the basis of them; a nurse transmitted the images of bedsores, and physicians in NTT Kyushu Hospital taught how to treat them; and a physician received professional advice about the therapeutic policy about rare thrombasthenia from another physician. (4) The system is useful for physicians and co-medicals as a post-graduate education tool. They can make presentations in the same manner as in the meetings of academic associations. (5) Users have to get familiar with personal computers to a degree.

Keywords : Remote medicine, stationary images, dynamic pictures, image transmission, Phoenix, Windows, file transmission, digital camera, INS net 64

References : "(1)Tsuchiya H: Telemedicine using a desktop conference system (Phoenix) in Kyushu, Japan. Telemed J 1998 Spring;4(1):43-8 (2) Tsuchiya H, Nohara K: Bulletin board system on an intranet for