

Case Number : 100

Main Facility : SAISEIKAI KANAGAWAKEN HOSPITAL

Related Facilities : "SUGIURA CLINIC, INTERNAL MEDICINE & CARDIOLOGY"

Number of Facilities : 1

Practicality : Experimental

Date of Start : 1997/6

Date of End : 1997/10

Status : finished

Outline : To introduce a TV phone system to at-home care, videotape recording of 3 patients receiving visiting care was taken and the results were evaluated.

Technology - Materials : Picsend-R, PC-Phoenix

Technology - Communication Lines : ISDN

Characteristics : The first trial of connecting a hospital and clinic in Yokohama.

Evaluation : (1) TV phones are useful for the cooperation between hospitals and clinics in that specialists in hospitals can observe the face, countenance, words, physical movement, and skin condition of patients. However, TV phones are not suitable for real-time image diagnosis nor data transmission. TV phones will be useful for the remote medicine of the department of neuro-internal medicine, neurosurgery, psychiatry, rehabilitation, or dermatology. (2) TV phones can be used in various ways in at-home care. TV phones not only show the countenance and movement of patients, but also provide patients' families with the opportunities to learn about care, nutrition, oxygen therapy, insulin injection, vesicoclysis, and rehabilitation at home (that is, patients' families have the function of a nurse). More advanced medical care may be possible over a TV phone while a visiting nurse stays at a patient's house.

Keywords :

References : <http://www.infoamori.ne.jp/misawa/kusanone/>

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Date Updated : 1999/3/4

Case Number : 101

Main Facility : "Department of Internal Medicine, Gonohe General
Hospital "

Related Facilities : Sannohe Central Hospital; Nanbu Hospital; Nagawa
Hospital; Momoishi Hospital; Misawa City Hospital;

Number of Facilities : 16

Practicality : Practical

Date of Start : 1997/11

Date of End :

Status : in progress

Outline : Various medical information (including images) is exchanged
and consultation is made among members (public and private
hospitals, clinics, and individuals) without a designated base
institution.

Technology - Materials : (General-purpose) personal computers

Technology - Communication Lines : Digital circuit (ISDN64K), Internet
(through commercial providers)

Characteristics : This is a semi-closed network everybody can access.
The members include various scales of hospitals and individuals in
the community.

Evaluation :

Keywords :

References :

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Date Updated : 1998/4/13

Case Number : 102

Main Facility : "Tokyo Women's Medical University, Department of Radiology"

Related Facilities : "Tokyo Women's Medical University, Aoyama Hospital, Department of Radiology"

Number of Facilities : 1

Practicality : Practical

Date of Start : 1997/4

Date of End :

Status : in progress

Outline : The system was experimentally run by employing Radworks (Windows NT) as a new work station until April 1997. Because the Multi-Media experiment by NTT was completed, the experiment was continued by substituting INS64 circuit for B-ISDN. The system put into practical use in January 1998.

Technology - Materials : Tokyo Women's Medical College Hospital: Workstation: Radworks (Windows NT), 2 Shirosato High Definition monitors, DICOM Server 4GB Aoyama Hospital: Images are transferred from TDIS (FCR, LT, MR) to the DICOM Server in the college hospital. Workstation: Radworks (the same one as the college hospital)

Technology - Communication Lines : ISDN (2B), night batch transfer

Characteristics : Among images accumulated in TDIS of the Aoyama hospital, only necessary ones are transferred to the DICOM server of the college hospital. After examined, the images are sent back to the workstation of the Aoyama hospital with reports. They were transferred as a batch at night to reduce the charge for using the circuit.

Evaluation : The system has been mainly used to transfer images for 2 to 5 cases per day for consultation from the Aoyama hospital. Normally, images are transferred with an automatic program at midnight, although those of emergency cases are transferred as required. Transfer and storage are performed according to the protocol of DICOM.

Keywords : INS 64

References :

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Date Updated : 1999/3/12

Case Number : 103

Main Facility : "Department of Therapeutic Radiology & Oncology Kyoto
University, Graduate School of Medicine"

Related Facilities : Sizuoka City Hospital

Number of Facilities : 1

Practicality : Practical

Date of Start : 1998/4

Date of End :

Status : in progress

Outline :

Technology - Materials :

Technology - Communication Lines :

Characteristics :

Evaluation :

Keywords :

References :

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Date Updated : 1999/3/12

Case Number : 104

Main Facility : Towada City Hospital

Related Facilities : "Sishinohe Public Hospital, Abe Clinic, Misawa
Municipal Hospital, Gonohe General Hospital "

Number of Facilities : 4

Practicality : Practical

Date of Start : 1997/11

Date of End :

Status : in progress

Outline :

Technology - Materials :

Technology - Communication Lines :

Characteristics :

Evaluation :

Keywords :

References :

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Date Updated : 1999/3/12

Case Number : 105

Main Facility : "Department of Laboratory Medicine, Wakayama Medical
University"

Related Facilities : Kokuho Hidaka General Hospital; Wakayama
National Hospital

Number of Facilities : 2

Practicality : Practical

Date of Start : 1997/10

Date of End :

Status : in progress

Outline : The community medicine and welfare network workshop of the
Wakayama Prefectural Medical College established in 1995 examined
the practical use of remote intra-operative quick pathologic
diagnosis by transferring images as a part of remote medicine.
Among the core medical institutions in the prefecture, the above
institutions decided to participate in the project. After a
sufficient preparation period for the negotiation at practical
level and the training of technicians, the remote diagnosis system
was put into practical use.

Technology - Materials : OLMICOS/W (transfer of stationary images by
remote control) made by Olympus

Technology - Communication Lines : INS64

Characteristics : The system was put into practical use on the basis
of the agreement between the college and the medical institutions.
The project has not received any financial support. The
technicians of the medical institutions have not experienced any
pathologic examinations.

Evaluation : The images of 15 cases have been transferred by March
1998. So far, all the remote diagnoses by the transferred images
agreed with the diagnoses based on the direct microscopic
observation of the specimens. The transferred images were
qualitatively acceptable for diagnostic purposes. Because it took
only about 8 seconds for transferring 1 image, pathologists could
use it without frustration. These results indicate the usefulness
of the system.

Keywords : Tele-pathology, remote control, stationary image,
intra-operative pathologic diagnosis

References :

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Date Updated : 1999/2/25

Case Number : 106

Main Facility : "Department of Radiology, Wakayama Medical College"

Related Facilities : "Department of Radiology, Naga District Hospital"

Number of Facilities : 1

Practicality : Practical

Date of Start : 1997/11

Date of End :

Status : in progress

Outline : Among the whole body CT images taken in the National Health Insurance Naga Hospital, those difficult to make a diagnosis have been transferred to the department of radiology, Wakayama Prefectural Medical College. So far, the data including images and medical history about 10 cases have been transferred every week through a telephone line, and shown on an about 20 inch monitor in the department of radiology, Wakayama Prefectural Medical College. The receiving institution reads the images and send findings and diagnosis back to the Naga hospital by E-mails.

Technology - Materials : National Insurance Naga hospital: Computed Tomography (Vigar by Toshiba) 512 x 512

Technology - Communication Lines : Telephone line

Characteristics : No comment can be made because this was the first trial and the results obtained could not be compared with others.

Evaluation : At first, it took a few minutes to transmit an image, but, as the operator became familiar with the system, it became possible to transmit 15 images (head) in a minute. Therefore, the speed of the system is acceptable. Although the images compressed at a ratio of about 1:10 are transferred, they seemed to keep as the same quality as films.

Keywords : Tele-radiology

References :

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Date Updated : 1999/2/24

Case Number : 107

Main Facility : "Department of Ophthalmology, Asahikawa Medical College"

Related Facilities : Asahikawa Takasagodai Hospital; Kushiro Red Cross Hospital; Sapporo Memorial Eye Clinic; Jiseikai Inomata Hospital; Furano West Hospital; Oji General Hospital; Sapporo-Kosei General Hospital; Shizunai Municipal Hospital; Asahikawa Municipal Hospital Department

Number of Facilities : 10

Practicality : Experimental

Date of Start : 1997/10

Date of End : 1997/11

Status : finished

Outline : The experiment about real-time bi-directional transmission of three-dimensional ophthalmologic dynamic pictures was performed between the department of ophthalmology, Asahikawa Medical College and NTT Hokkaido Branch through a 6 Mbit/s high-speed personal digital circuit.

Technology - Materials : (1) Tele-meet D-4076 (1500/30) second 30 frame machine custom-made by Matsushita Communication Industry; (2) Three-dimensional display by Flowbel

Technology - Communication Lines : NTT high-speed personal digital personal circuit (6 Mbit/s)

Characteristics : The 3D color monitor displays left and right pictures (30 frames each) on a monitor, and shows 3D images by a circularly polarized panel. Stereoscopic view can be obtained with circularly polarized glasses.

Evaluation : Two-dimensional images cannot locate an affected site, while three-dimensional images can. The next target is to reduce the cost of the system by technological break-through and improving infrastructure in order to put it into practical use.

Keywords : Three-dimensional dynamic pictures, optical fiber (6 Mbit/s)

References :

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Date Updated : 1999/2/26

Case Number : 108

Main Facility : NTT metropolitan health administration center

Related Facilities : NTT oshima branch

Number of Facilities : 1

Practicality : Experimental

Date of Start : 1996/11

Date of End :

Status : in progress

Outline : Face-to-face remote health consultation with a video phone (TV phone conference system "Phoenix"). The Tokyo Central Health Control Center was connected with the office of Izu Ohshima through ISN-64, and "Phoenix" was installed at both sides. This system has been used to provide 39 employees in the office of Izu Ohshima with the opportunity to have health consultation. The equipment in the Ohshima office is set to transmit the latest data of blood pressure, pulse, body temperature, number of steps, and 1-channel electrocardiography. The physician at the Tokyo side and an user at the Ohshima side call each other at a predetermined time, and the user consults the physician face-to-face over the video phone. Examination data and diet menus are visualized using the white board function of the system so that they could talk while pointing images.

Technology - Materials : (1) NTT TV-phone conference system, "Phoenix"; (2) Measuring machine by Omron

Technology - Communication Lines : ISDN 64 circuit

Characteristics : Face-to-face real-time health consultation

Evaluation : The contents of health consultation can be easily understood because examination data are shown graphically and health instruction menus (foods, exercises, and posture) are visualized.

Keywords : Video phone, health consultation

References :

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Date Updated : 1999/2/25

Case Number : 109

Main Facility : "Matsumoto Research Center, Telecommunications
Advanced Organization of Japan(TAO)"

Related Facilities : Otarimura Clinic

Number of Facilities : 1

Practicality : Experimental

Date of Start : 1997/8

Date of End :

Status : in progress

Outline : Transmission of cassette-less CR X-ray images (2000 x 2000)
through a 64 kbps ISDN circuit

Technology - Materials : PC, cassette-less CR

Technology - Communication Lines : ISDN (1B)

Characteristics : Transmission of chest CR X-ray images for which
making a diagnosis is difficult.

Evaluation : Transmission of CR digital X-ray images through personal
computers

Keywords : Tele-radiology

References :

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Date Updated : 1999/3/8

Case Number : 110

Main Facility : "Department of Pathology, Tohoku University Hospital"

Related Facilities : Onagawa Municipal Hospital

Number of Facilities : 1

Practicality : Practical

Date of Start : 1997/4

Date of End :

Status : in progress

Outline : Remote pathologic diagnosis (intra-operative quick
diagnosis)

Technology - Materials : Olmicos (Olympus)

Technology - Communication Lines : INS 64

Characteristics : This system has been operated as a means for
tele-medicine in cooperation with the departments of radiology,
dermatology, and neurosurgery. There is no pathologic technician at
the sending side.

Evaluation : This system was started in the field of tele-pathology
that had made a good showing.

Keywords : Tele-medicine, tele-pathology, and community medicine

References :

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Date Updated : 1999/3/8

Case Number : 111

Main Facility : "Department of Pathology, Tohoku University Hospital"

Related Facilities : Ishinomaki City Hospital

Number of Facilities : 1

Practicality : Practical

Date of Start : 1998/1

Date of End :

Status : in progress

Outline : Remote pathologic diagnosis (intra-operative quick
diagnosis)

Technology - Materials : Olmicos (Olympus)

Technology - Communication Lines : INS64

Characteristics : Although there is a pathologic technician at the
sending side, he is not a cytotechnologist.

Evaluation : This system has been used according to predetermined
surgical schedule.

Keywords : Tele-pathology, intra-operative quick diagnosis, community
medicine

References :

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Date Updated : 1999/3/12

Case Number : 112

Main Facility : NTT Kyushu General Hospital

Related Facilities : NTT VYC Telemedicine Team

Number of Facilities : 1

Practicality : Experimental

Date of Start :

Date of End :

Status : in progress

Outline : A volunteer organization by young employees of NTT, Virtual Young Company (VYC), provide information on health and medicine and give advice as a news group (or bulletin board or conference room) style.

Technology - Materials : Personal computer communication through an intranet

Technology - Communication Lines : ISDN 64 circuit

Characteristics : It is difficult to understand the explanation of physicians in an actual clinical setting, while patients can ask questions at any time and physicians can fully answer them on a net. There were cases where it could provide users with full explanation about their or their family's serious diseases, such as cancer and heart diseases. Moreover, users could obtain the second opinion about their diseases.

Evaluation : Even 1 physician can manage the net because it is operated as a news group style when there are not so many users. Although it could provide only text information, it was effective in many cases.

Keywords : Intranet, news group, on-line medical consultation

References : "Tsuchiya H, Nohara K: Bulletin board system on an internet for health care and medical consultation. Journal of Telemedicine and Telecare 3:176, 1997."

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Date Updated : 1999/3/12

Case Number : 113

Main Facility : Tokai University School of Medicine

Related Facilities : "Technology & Development Division, Communication Research Center, Ministry of Telecommunications; University of Ottawa Heart Institute; Communications Research Centre, Industry Canada "

Number of Facilities : 3

Practicality : Experimental

Date of Start : 1998/1/31

Date of End : 1998/2/18

Status : finished

Outline : The experiment about remote conference for 2.5 hours was conducted twice between Tokai University Medical School and Ottawa University Cardiac Institute using an international broad-band (45Mbps) ATM communication network and high vision technology (MPEG2 compression). The Japanese side transmitted an cardiac operation experiment in a pig (Batista's modified method) and artificial blood vessel replacement of the human thoracic descending aorta. The Canadian side transmitted minimum invasive direct coronary artery by-pass (MIDCAB) operation and the preventive education and rehabilitation of coronary diseases. Conferences were conducted, and a questionnaire survey was conducted.

Technology - Materials : High vision camera and cine-camera

Technology - Communication Lines : High vision conversion, communication satellite (over the Pacific Ocean and in Canada), Internet in Canada, ATM, MPEG2 (HDTV)

Characteristics : This is a rare experiment of bi-directional high-vision communication by connecting 2 places 10,000km away using a high-speed digital circuit. This was valuable for examining the international medical use of high definition dynamic pictures. The problems related with time difference (14 hours) and language (Japanese and English) in international remote medicine were solved.

Evaluation : The international circuit was installed for an experimental purpose, and its profit was not considered. High vision images provided much higher definition than NTSC images and astonishing presence. However, it was practically acceptable to down-convert the high-vision surgical records to NTSC signals. Further break-through of communication technologies and medical examination of contents transmitted are necessary to put the remote conference based on high-vision images into practical use.

Keywords : International telemedicine, high vision, ATM

References : "(1)Yoshikazu Okada et al:Evaluation of the drug information leaflet in term of a convenience of patients, Proceedings of the 18th conference in medical informatics in Japan, 240-241, 1998(2) Yasuo Haruki et al:Vertical of evaluation indexes for hospital information system, Proceedings of the 18th

conference in medical informatics in Japan, 474-475, 1998 (3)
Kazuyoshi Okada et al: Evaluation of a series of lectures using
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Date Updated : 1999/3/17

Case Number : 114

Main Facility : Nagoya Institute of Technology; Nagoya University
Hospital

Related Facilities : Kamiida First General Hospital

Number of Facilities : 1

Practicality : Experimental

Date of Start : 1998/2

Date of End :

Status : in progress

Outline : This experiment was designed by the department of radiology,
Nagoya University Medical School to support the clinical medicine
of Kami-Iida Daiichi General Hospital using ISDN circuits
available at practical cost and a new user-friendly software
product for remote medicine. That is, (1) the possibility to
support diagnoses at daily clinical level was examined, and (2) the
development of a new software product that accumulated data as a
data base was examined.

Technology - Materials : (1) Terminal: View Send Medical by Meron
Systems, (2) Film digitizer: VIDER VxR-12, and (3) Photomagnetic
disk drive: Ricoh RS9200.

Technology - Communication Lines : ISDN 6B (384kbps)

Characteristics : ISDN circuits available at practical cost and a new
user-friendly software product for remote medicine were used to
examine the possibility to support diagnoses at routine clinical
level.

Evaluation : CT and MRI images were regularly transmitted to the
Nagoya University Medical School Affiliated Hospital to make
remote image diagnoses. The results showed the system could be put
into practical use.

Keywords : ISDN, remote image diagnosis

References :

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Date Updated : 1999/2/25

Case Number : 115

Main Facility : Nagoya Institute of Technology; Nagoya University Hospital

Related Facilities : Toyota Memorial Hospital; Kamo Hospital

Number of Facilities : 2

Practicality : Experimental

Date of Start : 1998/4

Date of End :

Status : in progress

Outline : Cable TV stations in the Nishi-Mikawa region surrounding Toyota city jointly provide digital information communication service through an existing cable TV network. The service can be accessed from the Internet, and performs the business about medicine, welfare, education, and prevention of disasters and crimes. In the medical business, a broad medical information system that incorporates general hospitals and other medical institutions is constructed based on the cable TV networks.

Technology - Materials : Terminal: View Send Medical (Meron Systems)

Technology - Communication Lines : CATV network (between Toyota Memorial Hospital and Kamo Hospital), and ISDN 6B (384 kbps, among Toyota Memorial Hospital, Nagoya University Medical School Affiliated Hospital, and Nagoya Industrial College)

Characteristics : Remote medicine by the high-speed image transmission through CATV networks

Evaluation : Toyota Memorial Hospital is connected with Kamo Hospital through a CATV network, and Toyota Memorial Hospital, Nagoya University Medical School Affiliated Hospital, and Nagoya Industrial College are connected with 3 INS 64 circuits to make the first step to construct the broad medical information system. The establishment of a stable operation style and the possibility to introduce the system into routine clinical setting are examined.

Keywords : CATV network, remote medical image diagnosis

References :

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Date Updated : 1999/2/25

Case Number : 116

Main Facility : "Department of Public Health and Environmental
Science, School of Medicine, Tokyo Medical and Dental University"

Related Facilities : "Home Care Support Station - MOMO, Niiza, Saitama;
Home-visit Nursing Care Station, Niiza, Saitama"

Number of Facilities : 2

Practicality : Experimental

Date of Start : 1997/4

Date of End : 1997/12

Status : finished

Outline : TV phones were installed in relevant medical institutions
to examine the utility and possibility of a care model for
providing patient-oriented service.

Technology - Materials : Tele-care terminal

Technology - Communication Lines : INS 64

Characteristics : Experiment about a model to support the preparation
and management of patient-oriented program in the local network of
at-home care using a tele-care system.

Evaluation : (1) Because patients and their families could have
contact with multiple at-home care providers and select the
contents of care by themselves, they could have confidence in
themselves and came to participate in social life. (2) The
communication between bed-ridden or withdrawn patients had a peer
counseling effect. As a result, they became active and came to
desire social relation. (3) Because patients, their families, and
care providers could have the instructions from remote specialists
at the same time in the patients' houses, the contents of the care
by rehabilitation trainers, nurses, and care providers were unified,
and patients could obtain consistent service.

Keywords : Network of multiple support institutions

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