

Case Number : 132

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Main Facility : Mitoyo General Hospital

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Related Facilities : Toyama town office; Council of social welfare of Toyohama; Goda clinic; Saita town clinic; Masaki Ohara

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Number of Facilities : 4

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Practicality : Experimental

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Date of Start : 1998/1

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Date of End :

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Status : in progress

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Outline : Mitoyo General Hospital Association is a central hospital based on Kannonji-city and 4 towns of Toyohama, Ohnohara, Yamamoto, and Saida. It manages a national health insurance hospital with 415 beds, elderly care support centers, visiting care stations, and an elderly health institution, Watatsumien. It started visiting care in 1983 and visiting treatment in 1986. It cooperates with local practitioners in the treatment of serious patients. The elderly care support center in the Toyohama town established "At-home Care Special Committee" consisting of those in charge of medicine, health, and welfare in September 1992. The committee has performed case studies so that the functions could cooperate in at-home care. To support the patients at home and their families, the devices for telemedicine, including TV phones, were installed in medical institutions, patients' houses, and organizations involved in at-home care to promote information-oriented health, medicine, and welfare in the community. TV phone: Patients' images and voices Remote medical support system: images, voices, blood pressure, arterial blood oxygen saturation, pulse, electrocardiogram, and auscultatory sound.

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Technology - Materials : (1) Remote medical support system at the hospital (TMS-5101); (2) Remote medical support system at patients' houses (TMS-5001), and (3) TV phone (HV-300)

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Technology - Communication Lines : ISDN

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Characteristics : This project has been performed as one of the telemedicine model projects selected by the Ministry of Health and Welfare in 1997. The subjects were patients receiving the visiting care of the hospital for the after-effect of cerebral stroke and chronic respiratory failure.

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Evaluation : Operation: Patient's house: A public nurse of the hospital calls each patient to confirm his/her condition between 8:30AM and 9:30AM. A physician also calls each patient on the day of visiting treatment. In case emergency visiting treatment is required, a physician calls the patient over the TV phone to confirm her condition. Institution: A multi-point conference using the system is held every morning among the hospital, the town and city offices, and the social welfare conference for exchanging information. The hospital also makes contact with other institutions as required. Advantages: Patients at home: The patients and their families can convey their condition well to physicians over the TV phone. The anxiety about at-home care can be reduced (especially for terminal patients). Because the

condition of patients can be confirmed in advance over the TV phone, the visiting care and treatment can be prepared appropriately. The actions, instruction, and preparation at emergency can be made appropriately. Practitioner, the social welfare conference, town offices: The regular contact makes their cooperation closer. When the condition of a patient changes, appropriate actions can be taken between the hospital and practitioners. Disadvantages: The system and ISDN circuit could not be mounted in a few candidate patients' houses because they were too far or because there was no telephone circuit. It cost much to manage the system.

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Keywords : At-home medicine, visiting treatment, at-home terminal care, telemedicine

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References :

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Date Updated : 1999/3/9

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Case Number : 133

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Main Facility : Kagoshima Red Cross Hospital  
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Related Facilities : " Takeshima Dispensary, Ioujima Dispensary, Oosato Dispensary, Kurosima Dispensary, Mishima-mura, Kagoshima-gun, Kagoshima prefecture; Kuchinoshima Dispensary, Nakanoshima Dispensary, Tairajima Dispensary, Suwanosejima Dispensary, Akusekijima Dispensary, Kodakarajima Dispensary and Takarajima Dispensary, Toshima-mura, Kagoshima-gun, Kagoshima prefecture"  
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Number of Facilities : 11  
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Practicality : Practical  
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Date of Start : 1990/10  
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Date of End :  
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Status : in progress  
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Outline : A physician of the Kagoshima Red Cross Hospital visits each clinic in the isolated islands once a month, although a nurse is stationed permanently. This image transmission system is used to give instructions or decide whether delivery is required or not in case an emergency case or accident occurs.  
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Technology - Materials : Still image transmitting system using NTT's Visual Mate  
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Technology - Communication Lines : POTS  
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Characteristics : This system can be easily operated at low cost.  
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Evaluation : This system has been often used. It is useful for making a decision of whether the delivery with a helicopter is required or not.  
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Keywords :  
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References :  
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Date Updated : 1999/2/26  
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Case Number : 134

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Main Facility : "Hamayuri Nurse Station, Rakuzankai Medical Corporation"

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Related Facilities : Iwate Prefectural Hospital; Koizumi Medical Office; Kanbayashi Medical Office

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Number of Facilities : 15

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Practicality : Experimental

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Date of Start : 1997/12

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Date of End :

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Status : in progress

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Outline : A remote medical system using TV phones and cable TV (CATV) circuits was developed as one of the telemedicine promotion model projects appointed by the Ministry of Health and Welfare in 1997.

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Technology - Materials : The TV phone terminal consists of a small autofocus CCD camera, liquid crystal TV monitor, and radio wave modulator for transmitting and receiving CATV. Full-screen dynamic pictures can be transmitted or received at a rate of 30 frames/second between 2 points (patient's house and visiting care station as well as patient's house and medical institution) using 4 CATV channels that have bi-directional relay function (2 ascending and 2 descending channels). The TV phone terminal was installed 12 houses of patients receiving visiting care, 1 visiting nursing station, and 3 medical institutions.

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Technology - Communication Lines : CATV

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Characteristics : High quality dynamic pictures can be transmitted at low cost only if empty CATV channels are secured. There are the following problems associated with the system: (1) because there are a small number of available CATV channels, images cannot be transmitted from multiple points at the same time; and (2) because the TV phone terminal consists of multiple components, it requires much space and its operation is relatively complicated.

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Evaluation : The nurses at the visiting nursing station can receive consultation from, and give instructions about care and treatment to, patients at home over the TV phone. When the nurse considers that the advice of a physician is required from the dynamic picture of the TV phone, she visits the patient's house, and reports the patient condition to a physician with the TV phone and requests him/her to give advice. This system is jointly operated by the municipal corporation, private medical institutions, and CATV company. It is also planned to accumulate the pictures of the TV phones as stationary images in the remote medical system so that they could be used as a data base. Because the data base can be accessed from the personal computers at the visiting nursing station, it will make physicians, visiting nurses, helpers, and public health nurses share information, and strengthen the cooperation among those in charge of health, medicine, and welfare.

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Keywords : TV phone, cable TV, at-home medicine

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References :

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Date Updated : 1999/3/15

Case Number : 135

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Main Facility : "Department of Neurology, School of Medicine, Chiba University"

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Related Facilities : Kurigasawa Day Home; Asahi Hospital

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Number of Facilities : 2

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Practicality : Experimental

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Date of Start : 1997/4

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Date of End :

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Status : in progress

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Outline : (1) A network for supporting the at-home care of elderly handicapped persons using a TV phone system was established from the viewpoints of various functions. The network has been used to support patients at home and their families and examined for its effects. (2) A TV phone system has been used to support the care of intractable nervous disease patients at home.

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Technology - Materials : Telemeet 50 by Matsushita Electronics

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Technology - Communication Lines : ISDN circuit

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Characteristics : A TV phone system was introduced to support the care and rehabilitation of patients at home, and its effects were examined quantitatively and qualitatively. It was also examined for the application to the support of intractable nervous disease patients at home.

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Evaluation : First step: Examination of the method to support at-home care using a TV phone system. The TV phone system was introduced at 7 patients' houses to support the at-home care of them. In general, it had no effect on the activity of daily living (ADL) and intellectual functions. However, it was useful for improving and maintaining the mental condition of patients with dementia-like symptoms. It was therefore expected that the system would be effective for correcting and preventing problem actions. The system had a relatively strong effect on the patients' subjective satisfaction probably associated with quality of life (QOL), and thereby improved the environment of at-home care. This was probably because the system improved the patients' ADL, psychiatric functions, and QOL as well as the condition of care providers. Second step: Rehabilitation with the TV phone system and construction of a care network. Based on the results of the first step, the effects of the system on physical functions and QOL were examined. Among 4 patients receiving rehabilitation through the TV phone system, 3 showed the slight increase in the score of Barthel Index, an index frequently used to evaluate ADL. Because the rehabilitation of patients in chronic stage was intended to improve their obsolete dysfunction, the problems of physical function were extracted and examined for each patient. The result showed many patients improved the range of motion, muscular force, basic motions, and locomotion. Patients were passive without countenance in the training before the TV phone system was introduced. However, after it was introduced, they came to enjoy the communication rather than rehabilitation. As they realized the reduction of joint pain, the increase in range of motion, and the

improvement of walking ability, they came to actively tackle the training. Moreover, the training produced rhythm in their life: they described "I can sleep well on the day of training" and "I prepare the training for a long time in front of the TV phone before the training starts." The TV phone system was considered to increase the burden on the care providers because it required that they attend the training to help the patients perform the training and communicate with trainers. However, as they realized the improvement of ADL and QOL of the patients by the TV phone system, they became active in taking care of them, which reduced their burden. The increased communication with trainers may have also contributed to the reduction of their burden. It was examined how much neurologic examination could be performed through the TV phone system. The basic movements of the limbs and the neurosurgical indicators, such as the limitation of ocular movement, the muscular force of the face, and the movement of the tongue, could be observed through the TV phone system in patients with the paralysis after cerebral apoplexy. The TV phone system seemed quite useful and economical for the patients who could not visit hospitals, especially for those with unstable nervous symptoms, because physicians could know the change in symptoms of patients at home. The TV phone system seemed also useful for patients with symptoms that changed in a day, such as those of Parkinson's disease. Physicians could observe such symptoms only at a fixed time in clinical setting. However, they could observe their change in a day with the TV phone system and devise an optimal administration method.

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Keywords : TV phone, care support, remote rehabilitation, community rehabilitation

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References : "Yoshiyama Y et al, Effectiveness of videophone to the elderly peoples in home healthcare, Japanese J Geriatric Psychiatry 9:425-430, 1998."

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Date Updated : 1999/2/25

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Case Number : 136

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Main Facility : "First Department of Surgery, Tokyo Medical  
University"  
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Related Facilities : Nemuro Municipal Hospital; Japan Nova Medical  
Institute  
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Number of Facilities : 2  
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Practicality : Practical  
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Date of Start : 1992/4  
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Date of End :  
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Status : in progress  
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Outline : This system has been mainly used for tele-cytology: it has  
been used for intra-operative quick diagnosis in the Municipal  
Nemuro Hospital because the hospital has no physician specializing  
in cytodiagnosis nor pathologist.  
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Technology - Materials : PATHTRAN 1000  
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Technology - Communication Lines : POTS  
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Characteristics : Instructions are given and discussion is made  
easily through a ordinal telephone circuit.  
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Evaluation : Because an analog circuit is used, this system is slow in  
transmitting images. However, the speed is sufficient for  
intra-operative quick diagnosis.  
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Keywords : Tele-pathology, tele-cytology, intra-operative quick  
diagnosis, cytodiagnosis  
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References :  
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Date Updated : 1999/3/10  
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Case Number : 137

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Main Facility : Kiyu-kai Oji Hospital

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Related Facilities : Kudo Clinic

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Number of Facilities : 1

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Practicality : Practical

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Date of Start : 1997/1

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Date of End :

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Status : in progress

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Outline : Continuous ambulatory peritoneal dialysis (CAPD) is one of the therapeutic methods for chronic renal failure and is useful for improving QOL. Patients exchange intra-peritoneal dialysis solution by themselves at home or outside home (4 times a day). Because CAPD requires patients to visit hospital only once or twice a month, the maintenance by patients themselves is important. A system to support at-home CAPD therapy was established. In this system, patients take digital photographs of (1) the outlet of the catheter for CAPD, (2) the discharge of the dialysis solution, and (3) the log containing dialysis records, blood pressure, and other information, and transmit them to hospital with mobile phones twice a week. In case any abnormality occurs, the photographs of the condition are quickly taken and transmitted. The medical staff at hospital confirms the images and calls the patients to give instructions.

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Technology - Materials : Patient: (1) Digital camera: CAMEDIAC-800L (Olympus). (2) Communication adapter: T100 (Olympus). (3) DATA/FAX card: Digital data/Fax card 9300 Mark II (DoCoMo). (4) Mobile phone: Digital 800MHz, 9600bps (DoCoMo). Medical staff: (5) Server: Compaq Desk-Pro-XL6200 (Windows NT). (6) Lap top computer: Digital Hi-note - ULTRA II

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Technology - Communication Lines : Telephone circuit

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Characteristics : This system has the following advantages: (1) patients at home can provide visual materials for diagnosis, such as the photographs of the catheter outlet, discharge of dialysis solution, and log, for medical staff; (2) patients can report the details of abnormality at any time; and (3) patients can easily operate it.

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Evaluation : (1) This image transmission system was applied to 10 CAPD patients from January 1997. (2) Patients transmitted images regularly twice a week, and CAPD was well maintained. (3) The response to abnormality could be quickly made.

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Keywords : Continuous ambulatory peritoneal dialysis (CAPD), image transmission

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References :

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Case Number : 138

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Main Facility : Kiyu-kai Oji Hospital  
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Related Facilities : Ochanomizu Ekimae Pharmacy  
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Number of Facilities : 1  
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Practicality : Practical  
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Date of Start : 1998/4  
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Date of End :  
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Status : in progress  
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Outline : Continuous ambulatory peritoneal dialysis (CAPD) is one of the therapeutic methods for chronic renal failure and is useful for improving QOL. Patients exchange an intra-peritoneal dialysis solution by themselves at home or outside home (4 times a day). Because CAPD requires patients to go to hospital only once or twice a month, the maintenance by patients themselves is important. A system to support at-home CAPD therapy using mobile communication was established. The subjects of the system included 18 CAPD patients going to the Ohji Hospital, 4 hospital staff members, pharmacy outside the hospital, and manufacturers of CAPD devices. The subjects were linked with PDA to form a network, and mobile communication was made with the following contents: (1) communications from the patients to the hospital, including [a] daily records of CAPD therapy (once a week), [b] request to prescribe a dialysis solution, and [c] emergency contact and appointment of the next consultation; (2) communications from the hospital to the patients, including [a] data of blood obtained at the previous consultation and guidance and [b] control and guidance of at-home medicine; and (3) others, including [a] order of CAPD-related consumption goods, [b] communications between the manufacturers of CAPD devices and patients as well as product information, and [c] communications among patients.

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Technology - Materials : (1) PDA: Mobile Z (NTT-DoCoMo), (2) mobile phone: digital 800 MHz, 9600bps, DoCoMo  
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Technology - Communication Lines : Telephone circuit, Internet service provider, master net, 10-yen mail  
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Characteristics : (1) The mobile communication using easy and reliable PDA made at-home CAPD control easier. (2) This system is not a economic burden to participants. (3) This system is useful for eliminating the loneliness of at-home patients.  
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Evaluation : This system has been well maintained for 4 months since it was introduced. This hospital also manages an image transmission system for CAPD patients, and aims to develop an ideal at-home control using the 2 systems.  
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Keywords : Continuous ambulatory peritoneal dialysis (CAPD), mobile communication  
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References :  
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Main Facility : Ibaraki Prefectural University of Health Sciences  
Hospital

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Related Facilities : "Kasama Health Center; HEALTH CARE CENTER;  
Department of Health and Welfare, Kogashi Fukushima-no-mori, Koga  
City"

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Number of Facilities : 3

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Practicality : Practical

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Date of Start : 1998/1

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Date of End :

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Status : in progress

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Outline : This is a joint program between Ibaragi prefecture and municipalities in it, called "Ibaragi prefecture community rehabilitation network system." It is designed to activate rehabilitation of each community by connecting the Ibaragi prefectural Medical College Affiliated Hospital and the municipalities in the prefecture with TV phones. The program mainly supports the municipalities' functional training programs based on the Elderly Health Law, including evaluation, training, group training, and consultation. Moreover, it also holds lecture meetings and workshops for staff members and citizens, performs health programs including the training of care providers, the training for preventing bedridden patients, and health lessons, evaluates the training of at-home patients by getting a videotape recording of it and gives guidance based on it, and provides the information in the affiliated hospitals on prostheses and care apparatuses. The rehabilitation network of the target communities is established, and, at the same time, the rehabilitation network of the whole prefecture is developed.

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Technology - Materials : Picture Tel. system 2000

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Technology - Communication Lines : NTT INS64 circuits (ISDN 6B)

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Characteristics : The introduction of tele-communication devices into rehabilitation has just begun. There are almost no cases of the systematic introduction and practical use of tele-communication devices in community rehabilitation. In this program, the utility of the devices in community rehabilitation will be examined.

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Evaluation : Tele-communication was started with Kasama city in January 1998, Hitachinaka city in May, and Furukawa city in November. Regular communications have been made twice a month, and case conferences, lecture meetings, and workshops are transmitted irregularly. The main functional training program includes the examination, evaluation, consultation, and training of patients going to health centers due to some disorder as well as the group gymnastics, group language training, and music therapy for them. Because clear dynamic pictures can be transmitted at a rate of 30 frames/second, the level of disorder and walking can be evaluated accurately. Although there were problems related with unclear pictures and insufficient guidance due to the communication through the TV phone, they could be solved in most cases with the help of the public health nurses, PT, and OT attending patients at

home. It is necessary to solve the issues such as the evaluation of utility and the method to secure dedicated staff members for the increasing number of participating municipalities.

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Keywords : TV conference system, community rehabilitation, community rehabilitation network system, ISDN, telemedicine, dynamic picture

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References :

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Date Updated : 1999/3/8

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Case Number : 140

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Main Facility : Bunkyo University  
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Related Facilities : "Angles University, Philippine; Suranaree  
University of Technology, Thailand"  
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Number of Facilities : 2  
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Practicality : Experimental  
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Date of Start : 1998  
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Date of End : 1999/3  
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Status : finished  
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Outline : It is a Continuing Medical Education program using IP-TV  
via a satellite. The system can transfer voice, small movie and  
still images unidirectly. We use POTS for discussion.  
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Technology - Materials : Satellite link. IP-TV. POTS.  
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Technology - Communication Lines : Dedicated satellitic line. POTS  
line.  
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Characteristics : Receiving terminals are economic. We can set up the  
terminals in developing countries without ISDN.  
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Evaluation : Practical.  
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Keywords : Satellinte. IP-TV  
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References :  
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Date Updated : 1999/3/18  
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Case Number : 141

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Main Facility : Tokai University School of Medicine  
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Related Facilities : "Private hospitals and clinics in Koriyama City,  
Fukushima Prefecture, Kumagaya City, Saitama Prefecture and Isehara  
City, Kanagawa Prefecture"  
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Number of Facilities : 17  
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Practicality : Experimental  
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Date of Start : 1998/9  
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Date of End : 1999/3  
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Status : finished  
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Outline : It is a BBS for health and welfare services on an intranet  
via POTS line.  
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Technology - Materials : Plain PC(Server and Client). POTS.  
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Technology - Communication Lines : POTS line.  
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Characteristics : Economic. High security.  
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Evaluation : Practical in near future.  
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Keywords : Intranet. POTS.  
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References :  
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Date Updated : 1999/3/18  
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Case Number : 142

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Main Facility : National Ohkura Hospital  
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Related Facilities : "International Medical Center of Japan;  
Communication Research Center; Mahidol University, King Mongkut's  
Institute of Technology, Ladkrabang"  
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Number of Facilities : 4  
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Practicality : Experimental  
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Date of Start : 1997/12/9  
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Date of End : 1999/2/3  
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Status : finished  
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Outline :  
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Technology - Materials :  
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Technology - Communication Lines :  
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Characteristics :  
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Evaluation :  
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Keywords :  
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References :  
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