MEDINFO 2007
HISA Ltd Australia
© 2007 The authors. All rights reserved.

Telehealth Trends in Pacific Islands and Solutions for the Sustainable Operation

Isao Nakajima, Muhammad Athar Sadiq, Koredianto Usman
Yasumitsu Tomioka, Hiroshi Juzoji

Nakajima Laboratory Tokai University School of Medicine, Japan

Abstract

We are reporting our recent study and investigation concerning about telehealth activities in pacific islands and provide some support to keep self-sustainable operation. In pacific, three major telehealth operations are performed. However, all of them are facing strong obstructs sense for the following reason, 1) problem of running cost 2) lack of the social structure for the human resource development 3) limitation of the data speed. Based on this investigation, we are providing solutions (Universal service policy, ITU training course, and ETS-VIII satellite) in order to keep self-sustainable operation in Pacific Islands.

Keywords:

universal service fund, human resource development, isolated islands, ETS-VIII satellite

Purpose

We are reporting our recent study and investigation concerning about telehealth activities in pacific islands and provide some support to keep self-sustainable operation.

Investigation

Health professionals in various Pacific Island countries, particularly those working in rural and remote areas, have less opportunity than their peers in developed and even some developing countries to keep abreast with both technical and technological advancements in medicine and healthcare.

POLHN (Pacific Open Learning Health Network)

For their continuing education and professional development, distance education using a variety of media is an option that has been supported via funding from the Japanese Government.

In general, POLHN is a successful initiative based on actual web-based operation via internet with package media, like CD-ROM, the evaluation report, and the meeting discussions. The pilot open learning courses are well received by health professionals and the learning centers in each country, equipped with information, communication, technology (ICT) for open learning and health educational resources, are being used by countries for their health professional training and continuing education, including ICT skills trainings. There was a strong interest among the participating countries to contribute to the long-term sustainability of the POLHN and a desire for greater ownership by the countries, of the open learning centers. There was also consensus that it would be important to integrate POLHN as a component of national human resources for health programmes of the ministries of health, and that the network's coverage should be expanded to include other countries and to make it a Pacific regional learning network. There are two phase projects in the POLHN.

Phase One: the establishment of computer laboratories as resource centers for the health professionals (HPs) in ten countries in the Pacific (Cook Islands, Fiji, Kiribati, Marshals, Federated States of Micronesia, Palau, Samoa, Solomons, Tonga and Vanuatu) has been completed. Computer laboratory equipped with computers, servers, networked printers, data projectors, web cams and Internet connectivity. Various learning and reference materials are also available in the resource centers including the blue trunk library kit.

Phase Two: using the computer laboratories as resource centers for the continuing education of professional health workers of the Pacific started in later 2003.

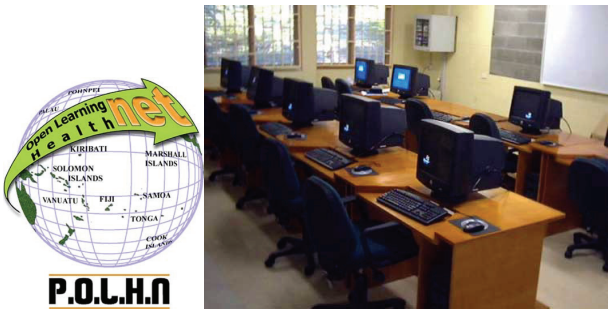

Figure 1 - PLOHN operation room in Solomon

Pacific Basin Telehealth Initiative

The U.S.-affiliated Pacific Islands jurisdictions represent over 2,200 small volcanic and coral islands stretching across 4,500,000 square miles, with about 400,000 inhabitants living on a landmass smaller than the state of Rhode Island. Due to their geography and isolation, coupled with limited finances, poorly developed infrastructures and lack of skilled staff, these islands provide an ideal environment for developing and implementing telehealth applications.

In 1999, the Health Resources and Services Administration (HRSA) launched a multi-year Pacific Basin health initiative to bring telemedicine to the region. This initiative came out of recommendations from two events the previous year: a HRSA-sponsored summit meeting in Rockville, Maryland with the health ministers from the six U.S.-affiliated Pacific Basin jurisdictions and the publication of the Institute of Medicine's report "Pacific Partnerships for Health: Charting a New Course." Both the report and participants at the summit identified telehealth (i.e., telemedicine and distance education) as a key strategy for improving primary care delivery, enhancing prevention activities and supporting the training of health personnel. This telehealthnet work has been funded by the OAT(Office for the Advancement Telehealth) of the U.S. Government.

PPHSN (Pacific Public Health Surveillance Network)

"Training in applied epidemiology and public health surveillance" is one of the five strategies of Pacific Public Health Surveillance Network (PPHSN). It aims to develop a regional pool of experts in public health surveillance and responsefor the Pacific Islands. The PPHSN was created in 1996 under the joint auspices of SPC (South Pacific) and WHO. The Goal is to improve public health surveillance and response in the Pacific Islands in a sustainable way. In 1996, the idea of a modular training programme with field-based components, involving universities, health development agencies and professional associations came up. This programme should be accredited by a training institution. From 1998 to 2001, SPC made a first move in that direction and ran two different series of subregional training sessions in surveillance, outbreak investigation and the use of Epi Info 6 software for surveillance activities. The overall objective of these training sessions was to build a critical mass of health professionals who share a common set of tools and methods for public health surveillance. SPC can also provide attachment and hands-on field training opportunities for trainees in public health practice. A memorandum of understanding was signed between SPC and FSM in 1999. The article suggests the areas of future FSM/SPC collaboration in public health surveillance: the accreditation of SPC courses by FSM; the addition of a microbiology component; the identification of opportunities for field training; and the evaluation and harmonisation of the training programme(s).

Considerations and our solutions

Based on these investigation, we understand that all of them are facing strong obstructs for the following reason, 1) problem of running cost 2) lack of the social structure for the human resource development 3) limitation of the data speed. So we are willing to provide solutions (an idea of Universal Service Policy, ITU telemedicine expert training course, and ETS-VIII satellite with free of charge) in order to keep self-sustainable operation in Pacific Islands.

Universal Service Fund

In order to reduce running cost of the operation, and to assist continuous self sustainable operation of tele-health in developing nations, especially remote island and isolated area, we have to consider a universal service fund.

The Universal Service Principles in the United State[3] are:

(1) Quality and rates.--Quality services should be available at just, reasonable, and affordable rates.

(2) Access to advanced services.--Access to advanced telecommunications, broadband and information services (Internet) should be provided in all regions of the territory.

(3) Access in rural and high cost areas.--Consumers in all regions of the territory, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services, broadband and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

(4) Equitable and nondiscriminatory contributions.--All providers of telecommunications services should make an equitable and nondiscriminatory contribution to the preservation and advancement of universal service.

(5) Specific and predictable support mechanisms.--There should be specific, predictable and sufficient public mechanisms to preserve and advance universal service.

(6) Access to advanced telecommunications services for schools, healthcare and libraries.--Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services.

(7) Additional principles.--Such other principles as the Joint Board and the Commission determine are necessary and appropriate for the protection of the public interest, convenience, and necessity.

Universal telecom service is implemented by the Universal Service Administrative Company. While contributions to the Universal Service Fund are required by telephone, wireless and VOIP service providers, these carriers generally recover this cost by passing on a surcharge to retail customers as a billing line item -- often labeled as USF charge. A surcharge of approximately 10% of interstate usage currently appears on telephone, wireless and VoIP bills. The Universal Service Administrative Company cur-

rently administers four distinct programs as authorized in the federal telecommunications Act of 1996.

Rural health care division of the Universal Service Administrative Company (USAC) is responsible for ensuring for health care providers in rural areas to obtain the benefits of the internet and current communications technology as provided for by the United States Congress and the Federal Communication Commission (FCC) through universal service support. The FCC established program funded 56 million U.S.D. in 2003(Fig.2), 400 million U.S.D. in 2004 to rural health care providers so that they don7t need to pay move than their urban counterparts for the communication services.

In addition to USF, another organization support telehealth in the U.S., it is the the OAT(Office for the Advancement of Telehealth) under the umbrella of the U.S. Department of Health and Human Services. This organization is promoting the use of helehealth technology for health care delivery, education, and health information services, and providing the funds more than $34.9 million U.S.D.

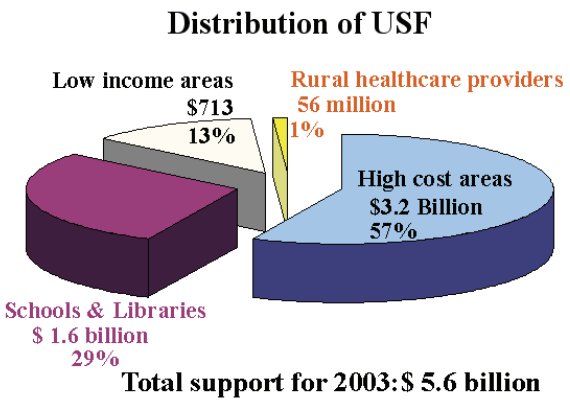

Figure 2 - Distribution of the Universal Service Fund in the US in 2003

Human resource development

The objectives of our cooperation related Pacific Island through ITU, APT, NICT, Sasakawa Fund, and other private sectors in developed nations is to bring research teams in health care field, governments sectors in island, and other stakeholders in the region to discuss the different applications of telecommunication and information technology in the health care sector. Based on our investigations, we intend to invite some researchers from Pacific Islands to provide an opportunity to study more advanced telehealth at the ITU Telemedicine Expert Training Course in the Shonan Campus, Hiratsuka Japan from 2006 to 2009.

To familiarize themselves with the specifications and implementation details of telehealth;

To assist in the management of the transition process from IPv4 to healthcare specialist to end user(client); and

To share information on the development and deployment of telehealth to other countries and regions.

WINDS satellite for broadband network

WINDS is currently under joint development by JAXA and the National Institute of Information and Communications Technology, as part of the e-Japan Priority Policy Program of the Japanese government's IT strategy headquarters. WINDS will be launched by an H-IIA Launch Vehicle in the fiscal year 2007 to establish the world's most advanced information and telecommunications network (the broadband transponder of Ka-band). It is expected that this information and telecommunications network's speed and capacity will be much higher than anything achieved previously. The WINDS satellite communication system aims for a maximum speed of 155Mbps (receiving) / 6Mbps (transmitting) for households with 45-centimetre aperture antennas (the same size as existing Communications Satellite antennas), and ultra-high speed 1.2 Gbps communication for offices with five-meter antennas. In addition to establishing a domestic ultra high speed Internet network, the project also aims to construct ultra high speed international Internet access, especially with Asian Pacific countries and regions that are more closely related to Japan. We believed that the WINDS can support the infrastructure of the tele-halth network in pacific.

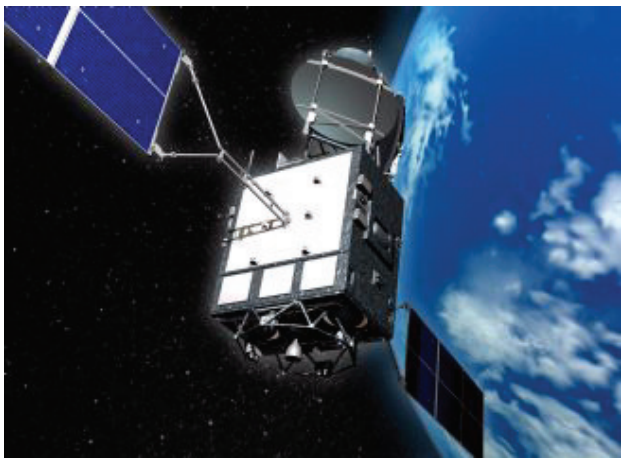

Figure 3 - Ka-band broad band circuit for the Pacific with WINDS satellite

Acknowledgments

This study was supported by the APT-HRD, NICT and PIDO (a self-funded initiative of the Sasakawa Pacific Islands Nation Fund)

References

[1] I. Nakajima, S. Chida: Telehealth in the Pacific: Current Status and Analysis Report (1999-2000), J. of Medical Systems, 24, 6:pp321-331, 2000.
[2] M.A. Sadiq, et.al.Expanding the role of Universal Service Fund to Rural telemedicine in Developing Countries, proceedings of the APAMI 2006,pp220-223, 2006. ISBN-13:978-957-29330-1-5
[3] Definition of Universal Service by WikiediA, http://en.wikipedia.org/wiki/Universal_service

Address for correspondence

Isao NAKAJIMA: js2hb@ets8.jp