

# Reaching the Last Frontier: Video Conference Clinic in Belaga Health Clinic using the Tele-primary Care<sup>®</sup> System

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Belaga District, in the heart of Borneo, is probably the most remote district in Sarawak. Up until 3 or 4 years ago, it was only accessible by an 8 hour express boat journey from Sibul, the nearest big town. Although Belaga town is now accessible by land (50% are timber camp unsealed road) from Bintulu, the journey takes 5 hours and transport cost is high. Accessibility to Belaga by river is also subject to weather conditions and the town often gets cut off during the dry season and also during the wet season. All these pose immense challenges to the delivery of health care services to the people of Belaga and greatly reduce their accessibility to even basic health services. Access to specialist services is even more challenging as it is only available in Sibul and Bintulu; and visiting clinics in Belaga are infrequent due to the shortage of specialists and difficult transport.

Belaga Health Clinic located in Belaga town, is the largest health facility in the district serving a population of 30,000 (5,000 in Belaga town itself). However, it is only manned by allied health personnel, as the doctor post there has not been filled for more than 10 years. The assistant medical officers and nurses are able to manage routine cases. Cases requiring higher levels of care must either be referred to Sibul Hospital or Bintulu Hospital. Emergency cases have to be transported using helicopters.

The introduction of the Tele-primary Care<sup>®</sup> System to Belaga Health Clinic helped to overcome some of these logistic obstacles by allowing virtual access to specialists in Sibul Hospital through the internet. Using this system, the Paediatric Department in Sibul Hospital started a video conferencing clinic that allowed patients in Belaga Health Clinic to have face-to-face consultations with Paediatricians in Sibul Hospital. This paper describes how the clinic is managed, types of cases handled, benefits to patients and to staff, constraints faced, as well as recommendations for the future.

The purposed of this applied presentation is to identify the benefit of a video conferencing clinic in the Belaga Health Clinic. For this project, the 'action result' (questionnaire) method was utilized and the following questions were answered.

- What are the advantages experienced by using the video conferencing clinic?

- What are the obstacles associated with using video conferencing clinic? Is video conferencing clinic advanced enough to be used in communications and the care of patients?
- What is the general feedback from patients/parents who were seen in video conferencing clinic?
- What video conferencing clinic would work best for the health services?

A survey was sent to the health staffs of Belaga Health Clinic, Kapit, Sarawak. The result of the survey indicated that over 80 percent of the total staffs responded positively to having a video conferencing clinic.

## Challenges of rural health in Belaga District

Approximately 50% Belaga's populations reside in rural areas represented by 53 longhouses with average population density of only 2.5 persons per square kilometer. Overall, rural health in Belaga presents a number of unique challenges, which include inadequate infrastructure and climatic difficulties, isolated, undertrained and overworked health staff, unreliable and expensive transportation, little or no access to health education, great distances from advanced care or specialist care, limited access to adequate primary health care facilities, and inadequate follow-up health care.

Limited financial and human resources. For example, there was no permanent Medical Officer in Belaga Health Clinic for more than 10 years. Approximately 90 percent of rural population is currently covered with services provided by trained paramedics. About 50 percent of patients in rural areas had to travel on average 20 kilometers to the nearest health facility. Belaga district cover 30,000 populations, and a huge land areas. Because of these factors and due to isolation, climatic difficulties and poor transportation many people residing in rural areas have only limited access to adequate health care facilities and little or no access to information about benefits and health care options.

Professional isolation. Health care professionals working in rural areas face a huge challenge. Often working in small, isolated clinics or remote area, they are isolated from accessible consultation, educational opportunities. Such isolation and limitations as well as inadequate financial support has created major staff retention problem in rural areas of Belaga District.

### **Video Conferencing Clinic solutions**

One of the areas of modern medicine, which could offer efficient solution in terms of improvement of access to health care, is video conferencing. It is now one of the fastest growing advances in patient care and treatment. Through basic telecommunication (internet enhancement), the ability to transmit patient information and data to experts in "interpretation" is in fact revolutionizing many aspects of medical care. This could potentially become a core system providing integrated health services to the rural population of Belaga, a unique opportunity to greatly improve health services to rural populations and to reduce transport costs and other costs.

For example, a patient with a suspected cardiac or respiratory problem will be able to be correctly diagnosed almost instantly by the best professional person in Sibul Hospital, who may be, for example, 100 kilometers away. It does not matter where the patient is located, be it isolated clinic in Belaga district, for example. It is further possible for diagnostic opinions from specialist to be obtained utilizing this technology from anywhere, for example a physician from Sibul Hospital or experts from the Sarawak General Hospital.

The same concepts related to patient information will provide improved and efficient lifelong care of patients. In Belaga where approximately half of the population lives in a rural environment, video conferencing clinic will enable more efficient utilization of equipment, physicians, nurses, trained non-professionals, and facilities at reduced conventional costs.

### **Project description**

The Video Conferencing Clinic project entails a change from the transportation of patients to specialists to the transmission of information from experts to local provider or patient; i.e., to the point of need and vice versa. The purpose of the project is helping to meet the integrated health needs of population, which include both preventive and curative care, in view of Belaga's vast territory and low density of population in rural areas. The video conferencing clinic will utilize existing Teleprimary Care Project which uses communication via the Internet (MOH Network) as well as initiate digital communication channels via a satellite or other available forms. Currently,

Belaga Health Clinic is involved in Ministry Of Health Teleprimary Care Project and Electronic Medical Record system.

### **Project Costs**

We basically make use of the Teleprimary Care Project system and MOH Network for the video conferencing, in other word no extra cost for the internet access for both ends. For the additional accessories needed for the video conferencing to work the costs are as followed purchasing camera system and headphones.

#### *Project Constraints and proposed solutions*

The connection at present is subjected to occasional interruption due to network and weather problems. The patients still need to go to Belaga clinic. The sessions have to be prior arranged and the patient, the referring staff and the specialist have to be physically present at respective video conferencing rooms at the same time. The quality of the images and voice are acceptable when lines are good. Of course details of small lesions may not be visible. IN addition specialist relies on local medical paramedics for examination findings. Legal aspect of the consultation has been an issue without clear decision. Some of the common used medications and tests are made available at Belaga clinics.

### **Benefits of Project**

The outcome most commonly reported was patient or parent satisfaction with the consultation through video conferencing clinic.

The most frequently cited benefits were convenience and reduced travel time and costs, reduced waiting time for the appointment and consultation, and enhanced access to specialist care, perceived ability to communicate effectively with the care provider.

Cost savings are particularly pronounced when compared to in-person consultation which will involve patient transfer.

And overall ease of use, patients reported that they felt they were listened to and understood by their care provider.

Overall, patients seen by video conferencing clinic wanted to continue to receive these services in the future.

### **Recommendations**

This project illustrates the benefits for implementing a medical consultation system that overcomes the access problem due physical distance. Implementing the video conferencing system result in a cost savings and enhance patient referral to specialist, sharing of medical report and make full use of the MOH Network.

Development and implementation of video conferencing clinic enables long distance medical consultations using internet and digital

communications. This could bring real-time quality medical services to the remote areas such as Belaga District and will improve access to health services for populations residing in rural areas.

We therefore recommend that, all Health Clinics with the MOH Network should initiate video conferencing clinic for referral of cases to help in the delivering better health care for rural people.