**ACADEMIC WRITING: TELEHEALTH AND TELEMEDICINE**

In the early 1990s the term telemedicine became well-known in health care. Then, in the 21st century the term telemedicine change to telehealth because telemedicine is more than delivering medical care and wider services. Telemedicine was started over forty years ago which the hospitals extend care of patients in remote areas. This service rapidly spread and become integrated into the ongoing operations of hospitals, speciality departments, home health agencies, private physician offices, and consumer’s homes and workplaces. Thus, growing variety of applications and services using two way video, email, smart phones, wireless tools and other forms of telecommunication technology. The word *Tele*- comes from an ancient Greek word of the same spelling that means distant.

The late 1960s in the United States where they need to have a system for distance education and teleconsultation facility between the Nebraska Psychiatric Institute and a remote state mental health hospital. The system named as closed-circuit television system. Other than that, cardiac surgeon Micheal DeBakery performed open heart surgery in the United States and transmitted the procedure live to a hospital in Geneva, Switzerland. He used Comsats Early Bird satellite. He describes the progressed of the operation and answered live questions from Geneva in 1965. This surgery called as telesurgery.

Telehealth can be defines as the integration of information, telecommunication, human-machine interface technologies and health technologies to deliver health care, to promote the health status of the people and to create health. In addition, it is the conjunction with better information and communication technology (ICT) growth in the healthcare delivery. It integrates the used of telecommunications and information systems as well as multimedia technologies to promote health care delivery and create health plan for the individual.

Telemedicine is the use of information technologies to exchange health information and provide health care services across geographical, time, social and cultural barriers. Hence, as an umbrella that covers any medical activities involving an element of distance. Telemedicine also make the information and communication technology (ICT) play roles supported the complex interactions between patients, doctor or nurse, consultant and medical equipment. In addition, it can define as the use of exchanged medical information from one site to another via electronic communications to improve a patient’s clinical health status. Telemedicine refers to the actual delivery of remote clinical services using technology.

At the early stage, the term telemedicine was used but later on changed to telehealth. It is because telehealth refers to a broader scope of services that includes telemedicine and other services that can be provided remotely using communication technologies. It can conclude that, telehealth including telemedicine and a variety of other services such as evaluation research, public health, consumer education, administration, evaluation research and, health professionals education. Besides that, the World Health Organization (WHO) makes a difference between telehealth and telemedicine. If telehealth is understood to mean the integration of telecommunication systems into the practice of protecting and promoting health, while telemedicine is the incorporation of these systems into curative medicine, then it must be acknowledged that telehealth corresponds more closely to the international activities of World Health Organization (WHO) in the field of public health. It covers education for health, public and community health, health systems development and epidemiology whereas telemedicine is oriented more towards the clinical apart. Thus, telemedicine is literally medicine practiced at a distance and telehealth is the delivery of health care services at a distance.

In mid 1996, Malaysian government launched multimedia super corridor which include in Vision 2020 for a long term development in order to achieve developed country status in 2020. To attract world class multimedia systems and software companies and jumpstart the industry, seven electronic flagship applications have been designed. There are electronic government, R&D clusters, worldwide web manufacturing, borderless marketing services, a national multipurpose smart card or called as myKad, smart schools and telemedicine. Then, in 1997 the Telemedicine Blueprint of Malaysia was published as reference document for the development of telehealth in Malaysia. Malaysian Health visions are to develop healthy citizens by a health system that is equitable, efficient, technologically appropriate, environmentally adaptable, and consumer friendly which is emphasis on quality, innovation, health promotion and respect for human dignity. Thus, the healthcare system in Malaysia need for a transformation in order to achieve this vision. So, they able increase life expectancy, increased expectations of consumer, rising healthcare cost and changing the pattern of disease. In addition, they focus on the individual and on wellness, care at home, and in the community, self empowerment through information, and seamless access to quality healthcare.

In Malaysia, telemedicine was implemented because to ensure Malaysian citizens are receiving the best medical treatment. The Malaysia’s Telemedicine Blueprint 1997 was initiative by the Malaysian government to employ the use of telehealth in the country healthcare systems. Telemedicine was one of the flagships of Malaysia’s Multimedia Super Corridor project. Based on The Telemedicine Blueprint, telemedicine must be aligned to support future healthcare system of Malaysia. There are several objectives or goals need to be achieved such as wellness focus, person focus, informed person, self-help, care provided at home or close to home, seamless and continuous care, services tailored as much as possible, and effective, efficient and affordable services. Telemedicine promote wellness throughout life through network based services and health management tools, provide accurate and timely information, increase the ability of individuals to manage health through knowledge transfer and interactive, and provide enhanced access, integration and timely of high quality services at reasonable cost.

This programme involves development of local health information network, infrastructure to improve health treatment, Teleconsultation (TC), Continuing Medical Education (CME), Mass Customized or Personalized Health Information (MCPHIE) and Lifetime Health Plan (LHP). All these sub-applications were related to each others. Firstly, Mass Customized or Personalized Health Information. This project is to provide health information affordable, reliable and high quality using information technology such as the internet, multimedia technologies and mass communications. The project will encourage individuals to take care of their health state and consequently support the government approach to enhance and promote their nations health. Second pilot project is Continuing Medical Education. It was developed to enhance or upgrade the healthcare knowledge through distant education and learning activities using multimedia technology. The project will avoid healthcare personnel from attends course offered by university and training colleges. So, they would not leave their current position. There were three main services offered such as the electronic courses, virtual library and online professional community services. There are two types of electronic courses which are formal distant learning and modular distant learning. In addition, virtual library were develop to help the healthcare professional perform their daily task such give access to the sources of information via the internet such as medical journals, e-books, medical databases and any sources related information. Lastly, online professional community services. Its function as utilize the internet applications such as email and related to create virtual environment for healthcare professionals to interact electronically. Other project is teleconsultation. It provides a platform for healthcare professionals consults their patients distant or remotely. This project use an offline applications such e-mail, or electronics data exchange and also via real time video and audio-conferencing. This project consists of four major parts which are cardiology, radiology, neurosurgery, and dermatology. Lifetime Health Plan also one of the telehealth flagship pilot projects. It was personalized for the individual and use as continuous medical care, informing the individual and healthcare providers with relevant medical information to maintain state of health of individual at the highest state. The project has three sub-application which are Clinical Support System (CSS), Healthcare Information Management and Support Services (HIMSS), and Personalized Lifetime Health (PLHP).

In 2004, the application restructured under the Medical Services Programme and the telehealth project was reviewed and the scope was reorganized into the seven components which are Lifetime Health Records (LHR), Personalized Lifetime Health Plan (PLHP), Health Online, Continuing Professional Development (CPD), Teleconsultation (TC), Call Centre and Group Data Services (GDS). Later on, in 2007 the integration with Integrated Health Enterprise reorganized the telehealth structure in five components namely Lifetime Health Records (LHR) and Services, Lifetime Health Plan (LHP), Health Online, Teleconsultation (TC), and Continuing Professionals Development (CPD). Continuing Professionals Development (CPD) is a replacement for Continuing Professionals Development (CPD). It is to enhance the capability and knowledge of healthcare professional. The services provided are virtual library, modular instant learning (MDL), calendar of CPD events, online activity monitoring, online directory, complement assessment and monitoring and evaluation of CPD.

Ministry of Health Malaysia had been produced the National Telehealth Policy to ensure the successful implementation of telehealth. This policy consist macro policies which are the issues of access, standards, confidentiality and privacy, accuracy and reliability, legislation, human resources development, ethical considerations, finance, research, monitoring and evaluation and structure and organisation. The objectives of this policy are ensure the health care providers and consumers realise the universal usage of telehealth and accept health as an integral part of the health delivery system, to ensure that telehealth services is affordable by consumers, to enhance the sustainability of telehealth as a part of health care delivery system, to ensure the integration within and between organisations, institutions, and other relevant health agencies. This policy also enhances improvement of quality in all aspects of telehealth services and to facilitate the improvements in equity and accessibility of health services in the manner of seamless care from primary to tertiary level.

Next, to implement this program successfully there are many challenges and obstacles to be encountered such as socioeconomic and cultural barriers. In Malaysia, there are four different types of hospitals which are the state general hospital, district hospital, national referral centre and special institution, and non-Ministry of Health hospitals. Some of places is hard to retrieve because the geographical problem. So, citizens could not use the facilities provided by the hospital. Besides that, the shortage of funding. Money is very important because to implement the project we need to buy hardware and software, hired skill staff and other equipments. Other challenge is technologies literacy. Some of the area in Malaysia still not expose with the technology especially in rural area. This will contribute to failure the projects and mission of the government. They do not know how to use communication and it lead to difficulty for them interact with the healthcare professionals. Other than that, difficulties of healthcare professionals communicate each other. It means the healthcare professionals difficult to communicate with other practitioners in the urban area or hospitals.

There are four aspects to be studied in using telehealth and telemedicine which are operational, technical, finance and time. According to the respondents, operation aspect is the most important because the system able to enhance the image of these hospitals and organization must provide enough training and supports to medical officers in operation of telemedicine. Few factors that contribute to the successful of telehealth are leadership and management. Top management plays important roles to ensure the implementation of telemedicine in hospitals. Besides that, the security and privacy also contributes to the success of telehealth. Other than that, sufficient basic infrastructures need to be considered in term of to enhance their knowledge and the able to utilize the programme.

The benefit of telehealth for patients is improved access to services. Patients able to meet with their healthcare personnel without face to face. They may use video-conferencing and this give wider access for both sides. This is also more timely diagnosis and treatment to patients because they can see their healthcare personnel anytime and anywhere. This service helps patients especially elderly or isolated that difficult to leave home to access health and support services. Besides that, better in-home care. Some of patient comfortable stay at home because more privacy, improve quality of life, reducing social isolation, improve self-management, and telemonitoring can be valuable for elder with chronic conditions. The benefit of telehealth for health professionals is facilitating team-based and multidisciplinary care. It means the healthcare personnel from different speciality like allied heath and specialist can interact and discuss as a team the treatment plan for a patient even they separated by geography. Besides, to enhanced access to professional development and support. They can improve their knowledge not in clinical field only but non-clinical field. Example of continue medical education such as videoconferencing and online collaborative applications such as virtual classrooms can be used by busy practitioners.

Apart from Malaysia, there are other countries that have implemented telehealth such Vietnam, United States, Singapore, and Australia. At a general hospital in Orange, New South Wales, Australia, beds have been linked to a clinical information portfolio computer system to give staff immediate access to patients' conditions from a central location. Besides, Singapore hospitals have invested in ICU IT solutions to enable critical care medical staff to actively monitor patients in ICUs from remote locations. The Hanh Phuc International Women and Children hospital in Vietnam has a central maternal-fetal monitoring station as well as wireless foetal monitoring solutions which provide clinicians with vital information to track patients throughout the labour and delivery period. Surgeons at the Methodist Hospital in Houston, the United States, use a robotic system controlled from a remote location to unblock the arteries of patients with blocked peripheral arteries. Using video and integrated medical devices, medical experts are now providing services to communities in the most remote areas (New Straits Times, 2012).

Other than that, to know the internal and external conditions and situations the study has been done. They use SWOT analysis to know the result. Strength of this program are national level strategy for the development of telemedicine, national level organization established to develop and promote telehealth, long existence and tradition of telehealth and established telecommunication networks. The weaknesses of this program are national strategy for telehealth in needs to be updated because of rapid development of the information technology, telecommunication networks in needs to be upgraded to meet the needs for further development of telehealth, lack of business modelling and operating mechanism for telehealth, and uneven accessibility. Then, the opportunities. There are slower but upcoming population leaves the country few more years to develop its telehealth networks and technical booming of ICT is providing telehealth much better platform than ever before. Lastly, threats for telehealth programs which are changing disease patterns and lack of trained professionals.

In conclusion, this term closely allied with the term health information system but a health information system refers to electronic medical records and related information systems. Some of the hospitals have implemented paperless and firmless hospital. During the time telehealth application launched, the Ministry of Health launched their Total Hospital Information System projects which are Hospital Selayang and Hospital Putrajaya. They also need to motivate the clinician to participate in telemedicine programme. They also must eager to use the art information technology while performing their tasks. This programmes shows that the government is in the right track although having some delayed in the execution. Besides that, it is worth to invest to get a better system for healthcare and the existing system may be improved from time to time.

**REFERENCES**

http://www.portalcentre.com/codenavia/portals/msc/images/pdf/magazines/april\_2002/apr\_2002\_taking.pdf

http://thestar.com.my/news/story.asp?file=/2007/2/25/nation/16930102&sec=nation

http://pdf.aminer.org/000/245/483/investigating\_technology\_implementation\_in\_a\_neurosurgical\_teleconsultation\_program\_a\_case.pdf

http://www.nbn.gov.au/files/2012/02/11597\_DBCDE\_NDES\_factsheet\_benefits-of-telehealth-WEB-ACCESSIBLE.pdf

http://www.eimjm.com/Vol2-No1/Vol2-No1-I4.htm

http://en.wikipedia.org/wiki/Telehealth

http://cybertelemedicine.blogspot.com/2010/03/development-of-telemedicine-in-malaysia.html

Mansour Saeed Alharthi (2012). Telehealth practice in eight countries: New Zealand, Australia, the USA, Canada, UK, Malaysia, china and india. Retrieved on 3rd May 2013 from:

http://mro.massey.ac.nz/bitstream/handle/10179/3538/02\_whole.pdf?sequence=1

Progressing towards using telehealth. Retrieved on 3rd May 2013 from: http://www.nst.com.my/nation/general/progressing-towards-using-telehealth- 1.172809