

# Taking Charge Of Our Health



A person's most precious and invaluable asset is his health. A healthy body promotes a healthy mind, so the saying goes. Malaysia realises this and aims to foster healthy individuals through the MSC's Telehealth Flagship Application.

People today are becoming increasingly proactive about seeking health information and participating in decisions about their medical care. Much of healthcare, perhaps 40 per cent, consists of the simple exchange of information between experts (physicians and nurses) and patients. With the advancement of information and communication technology (ICT), healthcare provision can be extended far beyond the current reaches, cutting through barriers such as physical, geographical, financial and time urgency.

As access to information becomes more easily available through such means as the Internet, people are becoming more informed and thus, taking on more responsibility for their own well-being. In light of this, the Malaysian government has incorporated in its primary areas for multimedia applications under the Multimedia Super Corridor (MSC) project, the Telehealth Flagship. Grouped under the 'Multimedia Development Flagship Applications' (as opposed to the 'Multimedia Environment Flagship Applications'), the Telehealth Flagship has long-term

objectives to support Malaysia's Vision 2020 to transform core elements of Malaysia's technology infrastructure and social systems in areas such as education or public administration, using multimedia technologies as a critical enabler in the process.

**“Malaysia’s Telemedicine initiative is not just point-to-point teleconsultation. It incorporates the full spectrum of multimedia technologies to bring about benefits to all players in the health sector. It will transform the healthcare services and shape new relationships between people and their healthcare providers. This will be known as telehealth.”**

In 1997, when the Telehealth Flagship (then called the Telemedicine Flagship) was launched, Datuk Chua Jui Meng, Malaysia's Minister of Health (MOH) stated that the aim of the Telehealth initiative is to keep Malaysians in the 'wellness' paradigm. It seeks to empower the individuals their families, and their communities to greater access and increased knowledge in personal healthcare management. Telehealth is more than just teleconsultation.

“It also focuses on the need to provide greater healthcare access and knowledge because it is actually based on the premise that the best healthcare is achieved when everyone involved (i.e. the public, healthcare providers, other government agencies, pharmaceutical industries and universities) has access to and shares useful healthcare information,” elaborated Gayah Gulam Haidar, senior manager at Multimedia Development Corporation (MDC) in charge of the Telehealth flagship.

The Telehealth initiative empowers individuals to manage their own personal health and integrates information to allow the smooth seamless flow of services and products throughout the healthcare system. Telehealth will play an increasing role in the future of healthcare as it offers a mechanism for reversing the healthcare pyramid from a focus on illness to an emphasis on self-care and for healthcare professionals to be partners of individuals. That is why the flagship underwent a name change from Telemedicine to Telehealth.

“Telehealth gives a wider scope as it encompasses the preventive and curative aspects as opposed to telemedicine, which seeks to cure only when the patient is ill,” said Gayah. The vision of the MSC Telehealth Flagship is to bring the people of Malaysia into a new health paradigm where people focus on their health instead of the illness as in the saying, prevention is better than cure.

### MSC Telehealth Flagship

Telehealth refers to the integration of information technologies, medical and health technologies, telecommunication technologies and human-machine interface technologies to deliver healthcare and promote the health status of people.

In Malaysia's Vision 2020, the health vision for the country states that it is to be a nation of healthy individuals, families and communities, through a healthcare system that is equitable, affordable, efficient, technologically

appropriate, environmentally appropriate and consumer friendly. It also places emphasis on quality, innovation, health promotion, respect for human dignity, individual responsibility and community participation towards an enhanced quality of life.

The MSC Telehealth Flagship application is based on this health vision. It intends to transform the industrial age healthcare system to an information and communication age healthcare system and aims to go beyond the traditional mode of healthcare delivery. It aims to provide greater access to higher quality healthcare to all Malaysians, by harnessing current and emerging multimedia and information technologies.

Ultimately, when all the infrastructure and systems have been put in place, linkages with other flagship applications like the Government Multipurpose Card and e-Government applications will further enhance the delivery of health services and lead to more effective use of resources throughout the country.

To implement this noble goal, the government has forged alliances with the private sector to develop pilot applications that will be implemented over a five-year period. The MSC Telehealth Flagship application has four components that address certain needs based on the current situation in healthcare, namely, Lifetime Health Plan (LHP) to address the need for a guide for individuals to care for themselves; Mass Customised / Personalised Health Information and Education (MCPHIE) to address the need to empower individuals by providing a source for healthcare information; Continuing Medical Education (CME) to address the need to continually upgrade healthcare,” providers with relevant and up-to-date knowledge and Teleconsultation (TC) to address the need to provide healthcare from a distance.

### Lifetime Health Plan (LHP)

“The LHP is a forward looking, personalised healthcare plan for the individual,” explained Dr Amiruddin Hisan, the physician in charge of implementing the most complex and encompassing of the four components. It takes into account the individual’s height, weight, allergies, practically everything about the individual before a healthcare plan is devised and provided. This plan will provide individuals with a guide on how they should take care of themselves at various stages of their lives.

The LHP is a healthcare guide based on several inputs, the lifetime health record (LHR), a care plan that suggests solutions to particular problems and a validation of the care plan by a healthcare provider before that patient uses the personalised lifetime health plan (PLHP). The LHR is in fact, a summary of an individual’s lifetime health record that is built up during the times that the individual visits his healthcare provider.



*With the Telehealth Flagship, the patients’ health information can be shared between hospitals and various health centres.*

“In order to build up the LHR, a Clinical Support System (CSS) needs to be in place to capture the required information,” said Dr Amiruddin. Among the components of the CSS are the hospital, clinical and pharmacy information systems that record specific health information about the patient. Currently, four hospitals, Kajang, Seremban, Ipoh and Kuala Lumpur, have incorporated the CSS into their processes, at various stages of completion. The implementation of these new systems have required a lot of training and re-training of the end users, i.e. the doctors and nurses, although the system has been carefully designed to be user friendly.

“In the long run, we plan to ensure that all hospitals use a standardised application to facilitate the sharing and transfer of information between hospitals and various health centres,” said Dr Amiruddin.

### Mass Customised / Personalised Health Information and Education (MCPHIE)

The MCPHIE component’s overall goal is to create and deliver quality health information and education to the individual using information technology, particularly multimedia and telecommunication. This component will provide health information, education and advice that is customised and even personalised for each individual. “This component of the flagship is for the general public where they may register themselves on the site ([www.telehealth.com.my](http://www.telehealth.com.my)) and obtain information and updates on areas of health of their specific interest,” said Gayah. The MCPHIE services will be available via the Internet interactively and also via healthcare providers or call centres.

“The MCPHIE component will provide information and education services for three target groups, namely, the mass or general public, customised or a specific target group, and also personalised groups,” said Dr Amiruddin.

In line with Vision 2020, Malaysians will be able to take control of their own health through the MCPHIE services. It will empower and encourage the individual to be responsible for his own state of health. With the support of professional information and health advice on how to lead a healthy lifestyle constantly at their fingertips, Malaysians will become more aware of health risks and become more proactive in maintaining their state of health and preventing illnesses.

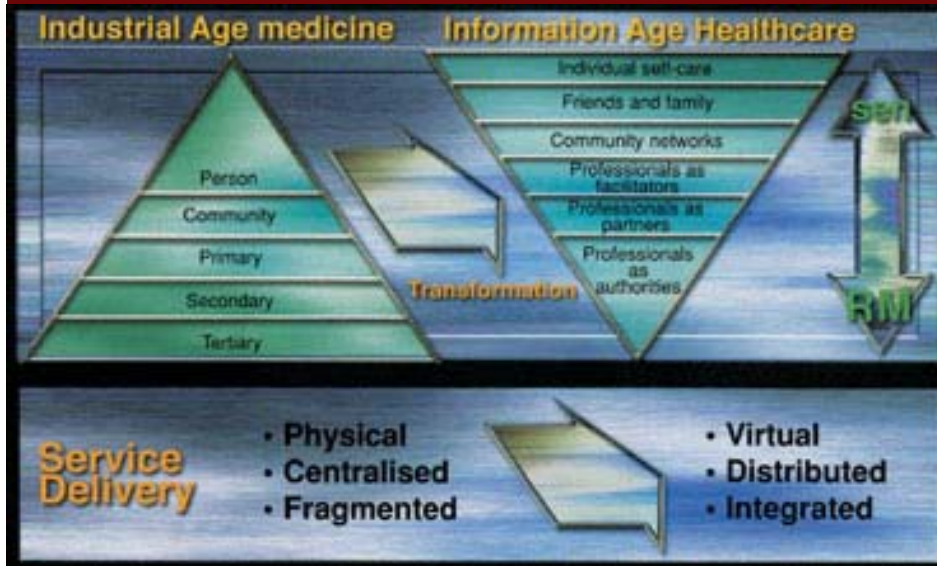
In the first year of the pilot implementation of MCPHIE, information available are on antenatal / perinatal care, cancer, cardiovascular disorders, injury and prevention and on healthy lifestyles. While in the second year, people will also be able to access information on food and water borne diseases, air borne diseases, respiratory disorders, endocrine and metabolic disorders, and renal and urinary tract diseases.

Currently, all content is available in English, while most of the content is also available in Bahasa Melayu.

### Continuing Medical Education (CME)

The idea of continuously updating, developing or increasing the knowledge, skills and competency of healthcare professionals is not a new one. There are a variety of courses available for the healthcare professionals in the country who wish to further their studies. “However, previously, most of these healthcare professionals would then have had to leave their current positions to attend the full-time courses available at universities and training colleges,” said Dr Dang Siew Bing, the physician in charge of CME. “The CME component provides the option these healthcare professionals never had before.”

## Transformation from industrial age medicine to information age healthcare



audio visual technologies to create a virtual environment for various communities of healthcare professionals with common interests to interact and conduct discussions electronically. The

The CME aims to provide opportunities for all healthcare providers irrespective of where they serve to acquire and update their knowledge in healthcare and healthcare related areas. With the CME component, the healthcare institutions will not be losing their staff as their healthcare providers will be able to attend these courses on a part-time basis through the distance learning method which is available anytime and anywhere as long as there is Internet access.

“There are three main services in the CME,” elaborated Dr Dang. “The first is the electronic courses, the second, the virtual library and the third, the online professional community services.”

The electronic courses are delivered in two ways - the formal distance learning, which are programmes and courses offered by universities, and MOH training colleges; and the modular distance learning, which provides a packaged knowledge content of reasonable depth and breadth of a particular topic complete with self assessment. “The universities involved in this pilot phase of the formal distance learning are Universiti Sains Malaysia, Universiti Kebangsaan Malaysia and Universiti Malaya. The degree conferred from these programmes is a masters degree,” said Dr Dang.

The virtual library will allow healthcare professionals to access sources of information via the Internet such as medical journals, e-textbooks, evidence-based medicine database, clinical practice guidelines, related government and MOH reports, local and international databases and links to accredited websites. There will also be JIT CME (just-in-time CME) enabling healthcare providers to provide timely and appropriate information.

The online professional community services utilises online applications such as e-mail, chat, whiteboards and also

electronic courses will also be utilising these online applications and multimedia technologies to make them more interactive.

### Teleconsultation (TC)

“Teleconsultation is the use of multimedia technologies to facilitate consultation on healthcare between healthcare providers who are physically apart,” said Dr Ishak Ibrahim, the physician in charge of the teleconsultation component of the Telehealth Flagship application. In other words, TC uses ICT to link healthcare providers in various locations, usually in remote areas that do not have specialists in attendance at the healthcare centres, usually in *kampungs* (villages) to district and state hospitals. TC is already being used in Sarawak and some parts of the country, particularly remote areas, under TC projects initiated by the MOH apart from the MSC Telehealth Flagship.

“There are about 2,000 healthcare centres and hospitals throughout Malaysia but currently, only the pilot project is being implemented,” said Dr Ishak. At the moment, 41 sites are connected throughout the country with the exception of Sarawak, which has its own existing system. These sites are forwarding live cases across Malaysia, 24 hours a day, 7 days a week, delivering precise and cost effective healthcare solutions. Among the cases being sent are teleradiology, teledermatology and telecardiology.

“At present,” went on Dr Ishak, “on going training and change management activities are being carried out in all 41 sites by developing protocols that address the needs of respective regions, institutions and medical disciplines in order to integrate TC into the current healthcare system.”

The basic infrastructure required to implement TC are a leased line or ISDN dial up line, server and PC that is able to support the two types of consultation offered by the

MSC Telehealth TC project. The first type is the store and forward (offline consultation through e-mail and electronic data exchange), while the second type is the real time video conferencing (online interactive consultation through video and audio conferencing).

“TC is based on the concept of sharing of information, which will lead to better treatment and proper advice given to the patient,” said Dr Ishak. “The teleconsultation link can eliminate needless transfer of patients yet still provide the best care possible.”

### **MDC's Role**

“MDC's main role is to facilitate the implementation of the Telehealth Flagship by being the middleman between the parties involved such as healthcare centres, providers like hospitals and infrastructure providers like Telekom Malaysia,” said Gayah.



*From left, LHP project manager Dr Amiruddin Hisan, MCPHIE project manager Dr Lilli Jacob, Head of MOH Telehealth Dr Muhammad Arif Hashim, deputy director (technical) R. Kunaseelan and CME project manager Dr Dang Siew Beng.*

MDC also helps out in getting skilled workers such as programmers or technical experts who are critical at this early implementation stage to establish the system. MDC also provides support through negotiations, marketing and promotions of the flagship locally, seeking acceptance and adoption by healthcare providers and the general public. To date, MDC has been involved in several roadshows for potential users, i.e. healthcare practitioners, throughout the country. With the infrastructure in place, these roadshows and promotions will be extended to the general public this year.

“I remember one incident where a doctor in Sabah questioned the viability and necessity of the initiative when in

the current situation, some hospitals do not even have enough funds for medicine. So, why should they spend on PCs and other IT equipment?” recalled Gayah. “The then director general of the MOH Tan Sri Dato' Abu Bakar Suleiman replied saying that with the implementation of the Telehealth Flagship initiative, one day the need for medicine may not be as great as it is now as people will be leading healthier lives and following the wellness paradigm. I think that doctor did not realise that the overall benefits of the flagship is in the long run and we need to make an investment now to reap the benefits in the future.”

While some of us here are sceptical of the Telehealth Flagship, other countries are embracing the idea and have in fact, requested for the telehealth project to be implemented in their own countries. “We are currently in talks with Jordan on this and a few other Middle Eastern countries such as Bahrain and Dubai, and South Africa has expressed their interest as well, due to the promotions that we conducted overseas,” revealed Gayah.

“Obviously, people worldwide are ready for telehealth at the moment,” commented Gayah. “Telehealth initiatives have been implemented in bits and pieces everywhere around the world but not in an integrated manner as the MSC Telehealth Flagship initiative. It is the first worldwide comprehensive integrated initiative in telehealth.”

All that remains now is to get the healthcare practitioners to use the system. As the saying goes, the truth of the pudding is in the eating. Until people can access the system, they will not believe in it. The system has been made to be as user friendly as possible, considering the hectic schedules of healthcare practitioners. Thus, they need not spend more time than is absolutely necessary accessing and inputting data into the system.

The implementation of the Telehealth Flagship is regularly reviewed by the flagship coordination committee co-chaired by director general of the MOH and executive chairman of MDC. This committee looks into the integration and progress of the implementation.

The MSC Telehealth Flagship promises to lead Malaysians into a new paradigm of wellness in healthcare on both professional and personal or layman levels. Utilising the latest innovations in ICT, coupled with the determination to succeed, Malaysians will soon become a nation of healthier individuals who are empowered to determine their own state of health, mentally and physically. ●

# Leapfrogging into a new health paradigm

Dr Muhammad Arif Hashim, the man heading the implementation of the MSC Telehealth Flagship shares his views...

**"BASICALLY, THE MSC TELEHEALTH FLAGSHIP** is about delivering the best healthcare services to Malaysians and it is also an initiative that can be shared globally. It will not only assist you to care for yourself but will also enhance existing promotive and preventive care while continuing to deliver excellent illness services. In other words, it aims to consolidate and enhance the delivery of healthcare services from homes, health clinics, general practitioners' clinics, hospitals in the districts and major hospitals in the state capitals through a networked environment that is more than just simply being paperless.

In addition, creating and delivering a seamless integrated healthcare service to the public that is assisted by the MSC-MOH Telehealth Flagship Application needs to span across all stakeholders and all parties involved in care delivery and will include individuals, families, neighbours and their communities, healthcare providers and other players in the health industry.

It was previously called the Telemedicine Flagship but this only refers to the practice of medicine from a distance or teleconsultation. Now, that's only a small part of the whole health concept. The idea behind the Flagship is much more than that. So, in 2000, the name was changed to Telehealth.

There are 5 different perspectives that have been incorporated into the Telehealth Flagship Application in order to realise the national health goals:

- i) The need for face-to-face or remote consultation with healthcare providers when required.
- ii) The need for health records of individuals to be properly kept and accessed.
- iii) The need to share the management plans of individuals between healthcare practitioners in order to provide accurate advice.
- iv) The need to provide continuing and just-in-time medical education for healthcare providers to deliver the best care and advices to the individuals and the population.
- v) The need to provide individuals with health information to assist themselves towards self-care and self-empowerment in order to ensure a prolonged wellness state.

As such, the Telehealth Flagship has four components, namely, the continuing medical education, mass customised personalised information and education, lifetime health plan and teleconsultation. There fore, teleconsultation or telemedicine would not have been sufficient to cover the whole spectrum of the vision for health. The Telehealth Flagship Application needs to assist in the preventive, curative, palliative and rehabilitative care activities of individuals. Again, it is obvious that telemedicine would be an inappropriate term for an initiative that covers so much more.

And as with any introduction of new services, numerous challenges can be expected from the users. So, the implementation of the Telehealth Flagship, too, faces several challenges, which can be divided into four categories:

1. Designing and planning.
2. Implementation.
3. Awareness, acceptance and usage of telehealth services.
4. Achieving national aspirations.

The first - the designing and planning - was a fairly an easy one to overcome because numerous professionals and experts from the various fields were brought together to design the telehealth blueprint. This was done in 1997. Thus, there were adequate experts to provide ideas to ensure that the concept will assist to realise the health vision. In fact, the planning of the Telehealth Flagship took less than a year to complete.

The second challenge is the implementation of the project where there is a need to interpret the planning concept. This includes organisation, staffing, leading and controlling the implementation. There are many ways to get to the same place or to derive or achieve the same outcome. It is very dynamic and consumer expectations change periodically. Therefore, at times, activities need to be streamlined and refocused. This utilises enormous resources, particularly non-capital resources.

For example, technology is very important in the implementation of this flagship even though the

Telehealth Flagship is not technology driven. We need to be constantly aware of new technology that is being developed and if adopted will likely provide better health outcome. The Personal Device Assistants (PDA) were not thought to be relevant to medical practitioners before, but they can now use these gadgets to share clinical information of their patients and control of their schedule even when they are away from health facilities. PDAs assist in the portability of health records and health plans.

In addition, the true potential and benefits of the health records in the health card in Mykad is still untapped. When its potential is fully realised, new challenges will emerge.

Third is the promotion of awareness and usage of the Telehealth initiatives. Great impact will be made on the Malaysian public if they can use the Telehealth deliverables as part and parcel of their daily activities. Sadly, not everyone is keen on maintaining his or her health in a wellness state at all times. Not many of us view health as an asset. If we were to realise this, then the need and demand for quality health information and health management plans will rise.

The final challenge is ensuring the aspirations of the nation via the MSC flagship applications are met. The implementation of the Telehealth Flagship must lead to Malaysia being the global the telehealth hub, which has high continuous revenue earning potential for the nation. In addition, the right technology transfer from abroad and R&D must be effected to ensure competitive advantage.

Various delivery channels must be provided for public convenience to assist in the retrieval of some of the healthcare services from home. As such, the Internet must be viewed as one of the major delivery channels. Appropriate infrastructure is being placed in health centres and hospitals and families need to be encouraged to utilise these services from the home through the Internet. Continuous change management and training must be put into practice to ensure continuous acceptance and usage of these services." ●