Telemedicine: National Policies, Strategies and Guidelines for Implementation

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Telehealth → E-Health

Integration of information, telecommunication, human-machine interface and health technologies to promote the health status of the people and to create health.

[Scope subsequently expanded to encompass e-management (including e-finance) components so as to overlap with present understanding of e-health.]
The blueprint states the need for a transformation of the healthcare system in Malaysia in order to achieve this vision and to meet the challenges of a changing pattern of disease from infectious diseases to lifestyle diseases, rural-urban migration, increased life expectancy, increased expectations of consumers, inequitable distribution of resources and rising healthcare costs. It points out the advantages to be derived through use of information and communication technologies.
Requisites for optimum lifetime health outcomes

Health consumer

- access
- consumer health information

Health care provider

- Lifetime health record
- provider health information
TOTAL IT SOLUTION OF A HEALTH FACILITY

MSC Telehealth Backbone

Pre-Consultation
• Physical Examination

Consultation
• Clerking history & current episode
• Review Summary: History → Current Episode
• Review Progress: Current Episode

Post-Consultation
• Discharge
• Discharge Summary
• Next Appointment
• Referral Letter
• Medical Report
• Disease Notification

Order Investigation(s): Lab or Image
• Order Drug Prescription
• Review Investigation Result(s)
• Progress Charting
• Generate PLHP, HRA (Only Telehealth)
• JIT-CME & MCPHIE Interface (Only Telehealth)
• TeleConsultation
• Updating MyKad (Only Telehealth)

Order & Result Management System

PMS
Registration → Admission
→ Appointment → Scheduling
→ Queue Management → Billing

CSS
PHIS
LIS
RIS
PACS
CCM

ADMIN
HR
FIS
ASSET
STOCK

CIS

Current modules in Telehealth
Modules not in Telehealth
LEADING HEALTHCARE INTO THE INFORMATION AGE

HEALTH VISION

HEALTHCARE GOALS

HEALTHCARE SERVICES

MULTIMEDIA TOOLS & TECHNOLOGIES

MULTIMEDIA NETWORKS

CHANGE STRATEGIES

ENABLING FRAMEWORK

Vision

Goals

Services

Tools and Technologies

Networks

Organization

Processes

People

Finance

Policies, laws, regulations, standards, technology
Introduction

- Every resident of Malaysia will be provided with an e-lifetime health record and an e-lifetime health plan.
- Every resident will have a smart card (myKad) which will have a component of the lifetime health record.
- Means by which “seamless continuous lifetime health care” is provided at health care facilities and at home.
A nationwide eLHR requires not only technical mechanisms but also national policies and practices addressing threats while facilitating access to health data during encounters in different health care settings but also in an interactive manner in the consumers homes.

Organisational policies establish the goals that technical mechanisms serve.

Policies should outline ownership and rights, appropriate uses and access to information, create mechanisms for preventing and detecting violations, and set sanctions.
National Telehealth Policy

- A 95-page document produced by the Ministry of Health Malaysia which addresses the high level policies that are necessary to ensure the successful implementation of telehealth. It consists of macro policies that encompass all the four sub-applications and specific policies relevant to each sub-application.

Objectives of National Telehealth Policies

- to ensure that health care providers and consumers realise the universal usage of telehealth and accept telehealth as an integral part of the health delivery system
- to ensure safe practice of telehealth
- to ensure that telehealth services are affordable by all communities
- to enhance the sustainability of telehealth as part of health care delivery system
- to ensure the integration within and between organisations, institutions and other relevant health agencies for optimisation of positive health outcome
- to enhance improvement of quality in all aspects of telehealth services
- to facilitate the improvement in equity and accessibility of health services in the manner of seamless care from primary to tertiary level.
Enpowering the Consumer

- **Improving Access to Healthcare.** Telehealth shall be an integral part of the healthcare systems, which shall be made equitable, accessible and affordable.
- Telehealth shall be made available widely and not be restricted by geographical, administrative or institutional boundaries.
- The use of telehealth facilities will enable specialised tertiary healthcare services to be extended not only to those rural and undeserved areas but also to urban areas where high costs may inhibit access to care.
- Telehealth facilities shall be installed in healthcare facilities to facilitate teleconsultation between the primary-care physician, other healthcare providers and patients with the specialist providers.
Enpowering the Consumer

- The use of telehealth facilities shall be opened to all healthcare providers and not just to doctors, provided they receive appropriate training and be credentialed to deliver such expertise and opinion.

- Healthcare facilities can be linked to homes to facilitate home-based treatment. Terminals would be provided at workplaces, schools, universities and other areas where there are congregations of individuals to increase accessibility to telehealth services.

- Internet and web technologies will be used to enable access by the public to information on the consumer health portal and others sources of health information.

- Incentives to both providers and consumers such as tax breaks will be considered to increase the usage of telehealth facilities and thus improve access.
Enpowering the Consumer

- **Increase Role of Home Care.** There is a need to empower the individuals to care for themselves particularly in the management of wellness and monitoring of chronic diseases.

- With the introduction of telehealth, a greater proportion of patient care can be delivered via health centres or directly to homes.

- The initial strategy will include identifying relevant scope and developing guidelines for conditions that merits home-based care and monitoring. Subsequent strategy will include developing supporting services that enable a shift in infrastructure that will enable greater home care in chronic/debilitating disease e.g. home monitoring, nursing, physiotherapy, call centre and access to patient customised information.
Establishing Standards

- **General Standards.** All aspects of Telehealth including use of equipment, telecommunication technology, qualifications and training of personnel, work processes and management of data must meet the accepted standards of regulatory or professional bodies.

- The provision of healthcare must be orientated towards quality to ensure optimal outcome.

- The use of new technologies such as telehealth by different providers in both public and private healthcare systems may lead to differences in emphasis and standards and impact on quality of care.
Establishing Standards

- **Professional Standards.** All healthcare professionals involved in providing telehealth services must have the proper qualifications, registered with the appropriate authorities and are credentialed by their respective professional bodies.

- The level of care should be as provided by the appropriate practice guidelines, which should where possible be based on evidence. Practice guidelines must be incorporated in the telehealth systems to provide ready availability to practitioners.
Ownership, Custody and Control. Ownership, custody and control of all the aggregated data of the Lifetime Health Records (LHR) will rest with the Government of Malaysia.

LHR data is also of commercial value. Hence to ensure that the data in the LHR is available for use by both the public and private sector, ownership of the data should rest with the Government.

For the LHR to be functional, the various care providers must be able to both read from as well as write to the LHR. To achieve this state of integration and interoperability, the LHR dataset must be published so that the various care providers can share data with the LHR repository.
Data Protection & Utilisation

- The LHR dataset format will be formulated and published. This will ensure that the public will understand which data is being collected and made available in the LHR.
- The formulation of the LHR dataset should include input from all health sectors and should form a common minimum core dataset. The LHR dataset comprising of a common minimum core dataset should be made mandatory.
- All care providers who collect data should implement or collect this minimal data at the very least.
Data Protection & Utilisation

- **Confidentiality and Privacy.** The confidentiality and privacy of the individual’s client’s record shall be ensured at all time.

- A system shall be developed to ensure the security of data against data loss, tampering and unauthorised access. Access to this information should strictly be on a need-to-know basis and the rules and procedures regarding access to this information should be strictly adhered.

- The rules and procedures regarding usage of this information must also take into consideration the safeguarding of the individual’s right on confidentiality and privacy.
Data Protection & Utilisation

- Rules and procedures will be developed, implemented and enforced to ensure data security in the organisation. These should address the issue of authorisation and access: authorisation to access data, in particular to obtain consent for access and determination of who can have access to which data which must be set into distinct classes depending on their sensitivity to public disclosure and medical usefulness.
- Care providers must also be set into categories according to what level of data they can access.
- Rules and procedures concerning the overriding of the above mentioned rules in the instant of emergency access to data will be developed.
The technology used to collect, store, and read and transmit data will ensure the security of the data. Data should be stored in a physically safe manner. Rules will be established to govern the use of data of individuals. Principally, if an individual’s data is to be used, published or sold the confidentiality and privacy of the individual has to be ensured by stripping the individual’s data of personal identification.
Data Protection & Utilisation

- **Accuracy and Reliability.** All data and information collected, stored, and transmitted must be accurate, complete, reliable, and valid. For data to be useful, the user must be assured that the data is accurate, complete, reliable, and valid.

- A common dataset will be established that complies with national and international standards. A common data input structure will be used to assist in achieving accuracy in data input.

- A common protocol (technical specification) for the collection, storage, and transmission of data will be established, and action taken to ensure that implementation of any information systems complies with such standards.
In order to control the quality of care as well as to ensure that only qualified health professional undertake/deliver telehealth assisted healthcare, appropriate existing and future acts and regulations (including licensing) need to be constructed.

Threats and security issues related to outcome of data mining from group data services need to be addressed. Data, content and patient’s confidentiality must be protected at all times. This is to ensure public confidence of the system with the adequate measures in place.

Existing laws and regulations regarding ownership, confidentiality, privacy and usage of data will govern all policies and procedures of telehealth programmes.
Ethical Considerations

- The code of ethics in the doctor–patient relationship shall apply in telehealth as it does to conventional practice.
- The use of telecommunication technology enables the practice of medicine at a distance. Practitioners may unwittingly forget the need to maintain confidentiality of their communications with patients or to preserve the patient’s dignity during tele-examination, as the patient may not be physically present.
- Hence the conventional practice in respecting patient’s confidentiality must always be maintained.
Ethical Considerations

- All data and information of a patient should be kept in the strictest confidence and data security should be maintained at all times. Access to a patient’s data shall be restricted only to healthcare personnel directly involved in his/her care.

- The norms observed during conventional consultation shall similarly apply during teleconsultation e.g. obtaining consent prior to examination; ensuring third parties are not present when patient wishes to divulge confidential information.

- Physical facilities for teleconsultation should provide privacy for the patients and the doctor.
The Lifetime Health Record
&
The Personalised Lifetime Health Record
All healthcare providers in Malaysia shall use a standard Lifetime Health Plan and Health Record for every individual.

A legal framework to facilitate the sharing of data and information will be established. The care providers shall obtain informed consent from the clients prior to accessing an individual’s LHR.

Healthcare providers are subject to the proposed Data Protection Act to maintain confidentiality of their clients’ LHR. In this case, the health care providers will not be allowed to disclose any part of LHR to a third party without the consent of the client.
Ownership and Custodianship of Data

- The government of Malaysia shall regulate the operation of LHR and LHP programme and retain ownership and custody of data in LHR and LHP. The LHR will be a subset of the electronic medical record (EMR) which is maintained by each care provider.

- It will be mandatory for all care providers to transmit the LHR to the National LHR data center. To access any part of EMR not available in LHR, the requester must obtain prior consent from both the client and the care provider concerned.

- Group data i.e. LHR data that is stripped off the identity of the individual and grouped together will be used to produce value added services such as statistical analysis for various uses.
Backup and Monitoring

- The electronic LHR must be complemented with a fallback back-up manual system to be used during system failure. Recovery procedures must be designed and implemented such as to enable the critical systems to resume operations in a timely manner after a serious disruption of these systems. This procedure must be documented and tested on a regular basis to ensure the procedures remain current and operational.

- A monitoring system will be an integral part of the LHR system. Appropriate measures must be taken to log, track, and monitor a user's actions or network connection. A program to assess overall compliance with the security practices and methods must be implemented.
Security, Confidentiality and Privacy

- Every individual shall be given access to his Lifetime Health Records.
- Access to an individual’s Electronic Medical Record (EMR) at another care facility/provider can only be obtained with the permission of the individual as well as the facility/provider where the data is located.
Security, Confidentiality and Privacy

- Provision for disciplinary action for breaches of confidentiality for medical health practitioner shall be addressed in the existing regulation/legislation. The care provider/user will be subject to disciplinary action up to and including termination of the registration to practice.

- Authority and privilege to access records shall be defined by level of access, which is based on client-provider relationships, and in some instances the consent of the client.
Organisational, technical and physical security will be defined and managed. The Government Multi Purpose Smart Card (GMPC) will be introduced as a Key System and Digital Signature incorporated for authentication.

Physical security must address the issue of a unauthorised access to installation, backup system for data, determining who is responsible in handling data backup and storage and periodic testing of recovery procedures and production of reports to management on successful recovery testing.
Cyberlaws

- The Communications and Multimedia Act 1998 provides the policy and regulatory framework for convergence of the telecommunications, broadcasting and computer industries. Among the general policy objectives are: to promote a civil society where information based services would enhance the quality of life; to regulate for the long-term benefit of the end user; to promote consumer confidence in service delivery; to ensure equitable provision of affordable services; and to ensure information security and network reliability and integrity.

- The Digital Signature Act 1997 regulates the legal recognition and authentication of the originator of an electronic document.

- The Computer Crimes Act 1997 imposes criminal penalties on fraudulent or dishonest acts.
Cyberlaws

- The Copyright (Amendment) Act 1997 provides copyright protection on-line.
- The Telemedicine Act 1997 regulates the practice of telemedicine in Malaysia and provides safeguards for privacy and confidentiality during consultation with distant health care providers.
- The Personal Data Protection Act 2003 has just been passed. The aim is to regulate the collection, possession, processing and use of personal data by any person or organisation so as to provide protection to an individual's personal data and safeguard the privacy of an individual and to establish a set of common rules and guidelines on handling and treatment of personal data by any person / organization. It addresses the rights of the data subject, including the rights of access and correction and right to prevent use or disclosure of personal data without consent.
Conclusions

Security is a journey.

Using information to improve health status while protecting the individual requires creating an organizational culture that is fully committed to safeguarding personal health information.

It requires all healthcare professionals, individually and collectively, to engage in an ongoing process to determine how to achieve the most appropriate balance between access to electronic health information and the individual’s right to privacy.
Conclusions

- Having a policy is insufficient; standard operating procedures are needed to translate their intent and goals into everyday practices which may vary across departments and facilities.
- Structures for granting, varying and withdrawing access privileges need to be set up.
- Education and training programmes are critical to create safe employees.
- User confidentiality agreements need to be signed on a periodic basis and sanctions for breaches of confidentiality need to be imposed to act as deterrents.
RESULT IS ONLY A TIP OF AN ICEBERG

- **Services**
  - Clinical Support
  - Health Education
  - Health Information Mgmt
  - Self Care

- **Systems**
  - Clinical Support Systems
  - Health Information Mgmt System
  - Educational Portal
  - Health Support Systems

- **Content**
  - Health Informatics Content – Clinical & Administrative Codesets
  - Supporting Content
  - Educational Content

- **Infrastructure**
  - 3rd Party Software
  - Network
  - Data Centre & Server Farm
  - PC & Peripherals
  - Organisational Setup

- **Standards & Policies**
  - Operational Policies
  - Clinical Standards
  - Technical Standards
  - Legal Frameworks
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