MALAYSIA’S HEALTH:
TRANSFORMING HEALTHCARE SERVICES THROUGH ICT

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INAUGURAL MEETING OF THE GLOBAL ALLIANCE FOR ICT AND DEVELOPMENT

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Overview

• Strategic Direction
• Current Scenario
• Challenges in Health
• Health Service Goals
• Future Healthcare Delivery System
• ICT Strategic Plan
Overview

• Issues & Challenges
• Lessons Learnt
• 9MP ICT Way Forward
• Building Blocks
• Implementation Strategies
• Proposed Targets in 9MP
• Monitoring & Evaluation
Malaysia's Vision 2020

By the year 2020, Malaysia is to be a

• united nation with a confident Malaysian society
• infused by strong moral and ethical values,
• living in a society that is
  – democratic, liberal and tolerant,
  – caring, economically just and equitable,
  – progressive and prosperous, and
• in full possession of an economy that is competitive
dynamic, robust and resilient.
Malaysia’s Health Vision

one of the critical components to achieve Vision 2020

Malaysia is to be a nation of healthy individuals, families and communities

Through A Health system

- Equitable
- Affordable
- Efficient
- Technologically appropriate
- Environmentally adaptable
- Consumer friendly

With Emphasis

- Quality
- Innovation
- Health promotion
- Respect for human dignity
- Community Participation

Towards

an enhanced quality of life
5 thrust areas:

- To move the economy up the value chain
- To raise the capacity for knowledge and innovation and nurture “first class mentality”
- To address socio economic inequalities constructively and productively
- To improve the standard and sustainability of quality of life
- To strengthen the institutional and implementation capacity
Towards Achieving Greater Health through Consolidation of Services

**Primary Goals**

- Prevent and reduce disease burden
- Enhance Health care delivery

**Supporting goals**

- Optimize Resources
- Enhance Research & Development
- Manage Crisis & Disasters Effectively
- Strengthen Health Information
How the 6 Goals Relate and Cause Change

Organisational Goals & Changes

- Optimize Resources
- Strengthen HMIS
- Enhance Research & Development

Substantive Goals & Changes

- Improve Quality
- Manage Crisis & Disasters
- Other Promotion, Prevention & Case Management
- Reduce Disease Burden
- Promote Lifelong Wellness
- Improve health
- diseases of major public health problem

Inputs

Processes

Outputs
# Goals of the Health System

<table>
<thead>
<tr>
<th>Goals of Health Services</th>
<th>Description of Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wellness Focus</td>
<td>Provide services that promote individual wellness throughout life</td>
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<tr>
<td>2. Person Focus</td>
<td>Focus services on the person and ensure services are available when and where required</td>
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<td>3. Informed Person</td>
<td>Provide accurate and timely information and promote knowledge to enable a person to make informed health decisions</td>
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<tr>
<td>4. Self Help</td>
<td>Empower and enable individuals and families to manage health through knowledge and skills transfer</td>
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## Goals of the Health System

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<td>5. Care Provided at Home or Close to Home</td>
<td>Provide services into rural and metropolitan homes, health settings and community centres</td>
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<tr>
<td>6. Seamless, Continuous Care</td>
<td>Manage and integrate healthcare delivery across care settings, episodes of care and throughout life</td>
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<td>7. Services Tailored as Much as Possible</td>
<td>Customise services to meet individual and group needs and special circumstances</td>
</tr>
<tr>
<td>8. Effective, Efficient and Affordable Services</td>
<td>Provide enhanced access, integration and timely delivery of high-quality services at reasonable cost</td>
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Current Scenario
HEALTHCARE IN MALAYSIA

- Regulated by a government body (MOH)
- Life expectancy: 70(M) & 75(F)
- Healthcare expenditure: 3.73% of GDP
- Doctors/population: 1:1,474
- Primary Care:
  - Rural Clinics
  - Health Centres
  - GPs
- Secondary & Tertiary Care:
  - 127 Public Hospitals (32,000 beds)
  - 224 Private hospitals (9547 beds)
MALAYSIA: Health facility infrastructure (public & private)

Public facilities

- MOH
  - Hosp (121 existing ~10 new)
  - *HC (~700)
  - #RC (~2000)

Private facilities

- University
- MOD
- GPs (~5000)
- Private Labs
- NGOs
- Hosp
- Nat’l Blood Bank
- Nat’l Health Inst.
- Others (DBKL, LPPKN, JHEOA)
- Public Health Lab
- Others

*HC: Health Centre  
#RC: Rural Clinic
The New Generation Hospitals

H Putrajaya

H Selayang

H Ampang Lobby
The Primary Care Clinics and Health Centres
Current situation in healthcare – global perspective in IT and Development

- Fragmentation of health Information
- Duplication of health data / information
- Patient records not easily accessible at point of care
- Focus of IT on administration & finance, reporting
- Restricted access to specialist services in remote areas
Healthcare Challenges

- Changing Demography And Disease Patterns
- Optimisation of scarce Resources
- Increased Consumer Demand And Expectations
- Changing Demography And Disease Patterns
- New Medical Technologies
- Quality Health Care
- Patient Safety
- Continuity of Care
- Knowledge worker
- Evidence Based Practice
- Shortage of Funding
- Inadequate Service Integration

Current and future healthcare challenges
ISP – framework for the Opportunities

1. Towards a knowledge-based people involved in healthcare
2. Enhancing system performance, integration & consolidation
3. Balanced environment of “hard” & “soft” infrastructure
4. Building a culture of R&D and Innovation

MOH ICT Vision & Mission

Medical & Allied Health Practitioners
Administrator
Patient/Public

Community Applications
Specific Applications
MOH Wide Applications
Knowledge Bank

Enabling Environment
- Leadership & Coordination
- Policy / Legislation
- People & Culture
- Infrastructure & Standards

Gateway
- SMS
- Web
- Phone
- Counter
- Fax
Transforming the Healthcare System

Transforming Industrial Age Healthcare System to Information and Communication Age Healthcare System

Industrial Age Medicine

- Person
- Community
- Primary
- Secondary
- Tertiary

Transformation

Information Age Healthcare

- Individual self-care
- Friends and Family
- Community Networks
- Professional as facilitators
- Professional as partners
- Professional as authorities

Service Delivery

- Physical
- Centralised
- Fragmented

- Virtual
- Distributed
- Integrated

Adapted from Tom Ferguson, Healthcare Forum Journal Jan-Feb 1995
Transforming the Healthcare System

• The focus of the future healthcare system will be on *people and services*,

• Use technology as the *key enabler* to provide
  – an accessible, integrated, high-quality and affordable healthcare system that is

• Recognised as one of the world’s best.

Malaysia’s Telemedicine Blueprint, 1997
Transforming the Healthcare System

• Change-management challenges
• Comprehensive change-management programme that addresses
  – healthcare organisation,
  – health model design / process reengineering,
  – people issues
  – healthcare financing.

Malaysia’s Telemedicine Blueprint, 1997
Talking about Change.....

.....Breaking through the BRAIN BARRIER

The future never just happens: it is created, with change...

Will and Ariel
The Lessons of History
Transforming the Healthcare System

Transforming from

• Illness to Wellness

• Facilities to Personalised Services

• Providers to People
Telehealth Services...

.....as an enabler in transforming healthcare in Malaysia and to achieve the vision for health “... a nation of healthy individuals, families and communities....”

In essence.....

Telehealth initiatives must be able to support an existing or new healthcare service to achieve the vision
Overview: Telehealth Project Components

- **Health Online**
  - Provides up-to-date Knowledge
  - Empowers individual.

- **LHP**
  - Provide a personalized proactive and prospective lifetime health plan to achieve a continuum of care to keep the individual in the highest possible state of health

- **CPD**
  - Provides continuing up-to-date knowledge and skills to healthcare providers

**Teleconsultation**

Enhance capabilities of primary care centres, extend the reach of specialized healthcare, optimize the utilization of specialists and reduce patient transfers.
Teleprimarycare (TPC™)
- Healthcare management IT solution
- Links primary to secondary health care (health clinics to hospitals)
- Fully owned by Ministry of Health

Special Feature
- Epidemiology module to facilitate public health functions
TPC™ Sites

MINISTRY of HEALTH
• DATA CENTRE - PTM
• FAMILY HEALTH

DIVISION of:
• SIBU
• SARIKEI
• MUKAH
• KAPIT

DISTRICT of:
• JOHOR BAHRU
• MERSING
• KOTA TINGGI

HR MOH – HQ Data Centre - PTM (1), Family Health (1)
JOHOR – Hospital (1), Health Clinics (29), Health Office (3)
SARAWAK – Hospital (1), Health Clinics (17), Health Office (3)

No of Sites: 56
The Future..

Focus on wellness & empowerment

Health system to support access to right information for right choices

Access to individual’s health record to support continuity of care

**ICT as an enabler ........**

- Health Sector ICT : Information Intensive Service
- Health Informatics : Managing an integrated health information through electronic means
The Challenge.....

- Identifying areas that would benefit most from E Health initiatives
- Integration & Interoperability
- Knowledge & Standards Development
- Empowerment of the Care Provider & Consumer
IT and Development: Managing the Shift to Virtual Health Services

• Appropriate to achieve national healthcare vision and goals
• High quality in terms of content and delivery mechanism
• Cost effective in achieving healthcare outcomes compared to existing health services
• Integrated with and complementary to existing healthcare services and programme
Integration and interoperability: Levels of integration

- **Policy:**
  - LHR shall provide seamless care
- **Processes, protocols and clinical pathways:**
  - BPR, SOP, CPG, care pathways
- **Functionalities:**
  - operational and system
Integration and interoperability:
Levels of integration

- **Data:**
  - health data dictionary, data set, code set

- **Technical:**
  - HL7, IEEC, DICOM for connectivity

- **Services:**
  - provision of enterprise wide person management (at individual level) for lifelong wellness
# Health Informatics Standards

...vital element for integration

## Domain Standards
- Business Functional Model & BPR
- Standard Operating Procedure
- Clinical Care Pathways
- Naming Convention /Vocabulary
- Data Sets and Code Sets
- Health Data Dictionary
- Facility Code Standards
- National Drug Database

## Technical Standards
- Messaging Standards
- Security Standards
- Database Schema Standards
- Network Design Standards
- System Architecture Standards
- Others
Lessons learnt ..... 

The essence is..... 

....be practical
Lessons learnt ..... 

- **Scope:**  
  - based on needs & capabilities

- **Timeline:**  
  - phased implementation / realistic

- **Outcome measurement:**  
  - performance indicators

- **Business model:**  
  - public/private sector driven

- **Project Management**  
  - Effective

- **Ensure relevant legislation, infra / infostructure and capacity building**
Current Implementation: Issues & Challenges

- Information Strategic Plan
- Defining Functional Scope / Business Case
- ICT Investment
- Operation & Maintenance
- Process Improvement
- Interoperability Standards
- Benefits Realisation Organisational Readiness & Change management
- Human Resource Planning
- Infrastructure & Technology
- Knowledge Creation & Management
- Project Management
Lessons Learnt..

- Strong ICT governance at federal & state levels
- Prudent ISP to provide policy setting & direction
- Commitment to building Information Infrastructure
- Sound Foundations: Security, Standards, Process Change
- Critical Success Factor
- Acceptability, Affordability, Capability & Capacity
- Procurement to ensure benefits realisation
- Evaluation in terms of value creation
The WAY FORWARD for Malaysia

Objectives:

• Define Functional Scope & Business Case
• Identify the Building Blocks
• Infrastructure Requirements
• Resource Implications
• Implementation Plan
Expected Health Services Outcome

• Empowerment to individual community in the management of his/her health
• Rapid & reliable access to health information
• Access to JIT information to care providers
• Provision of online services
• Efficient & effective organisational management
• Establishment of Group Data Services
Building Blocks……

- National Health Informatics Standards
  - Function
  - Nomenclature
  - Data Dictionary
  - Data Sets & Data Elements
  - Code Sets
- Infostructure
- Infrastructure
- Resources
Implementation Strategies.....

• Improve capability in network & technology
• Creation of ICT enabled facilities
• Provision of on-line services for healthcare providers & customers –
  – Health on line portal : MyHEALTH
• Development of standards :
  – NHDD
• Strengthen human resource capacity & capability
• Foster research development & best practice in use of IT
• Support population health monitoring & surveillance
• Support MOH Management Programme
Proposed 9MP Targets.....

- Infrastructure
- Telehealth Services
- Establishment of IT Enabled Facilities
- Enhancement & Establishment of Monitoring & Surveillance Systems for various Programmes
- Human Capacity & Capability Building
- Legislation & Regulation
Establish IT Enabled Facilities.....

- **Hospital & Clinic Information Systems**
- **Consistent with “Care Concept Network”**
- **Integration to other systems:**
  - MyKad/MyKid
  - LHR
  - SPPD/SPPL
  - HRMIS
  - HIMS
  - CDCIS
  - Teleconsultation
  - CPD, Virtual library, and Modular Distance Learning
- **Access to JIT knowledge**
- **Decision Support Capability**
Reporting & Surveillance Systems: Enhancement & Establishment

- Communicable & Non-communicable Disease:
  - Early Warning System
- Disease Registry
- Water Quality & Safe Drinking Water
- BAKAS
- Environmental Health Engineering
- Hospital Support System
- Food Safety & Quality:
  - FOSIM
  - Certification Programme
- Health Information Management:
  - Integrated HIMS
  - Data Warehouse
  - Health Informatics Centre
Monitoring & Evaluation…..

- Organisation Committee
- Organisation Structure
- Technical; Safe, Secure, Accurate & Reliable
- Benefit Realisation
  - Accessibility: efficiency, cost effective
  - Acceptability: end users, patients, managers
  - Patient Safety: Medication errors, accurate capture of data
  - Decision Support: JIT CME, CPD, Care pathways
  - Data Mining: Access to structured reporting, accuracy & integrity
  - Improve Management: Work process, Accuracy of procedures & documentation
  - Impact: Use of Health Services, Perception of healthcare delivery services, Health Status
Conclusion...

- The global concept has changed the paradigm of health care delivery.
- Telehealth concept is the approach to realise Malaysian Health Vision.
- Enterprise-wide health info structure is necessary.
- ICT enabled healthcare facilities shall be developed.
However ….

…. The biggest challenge however lies in providing leadership & direction and ensuring the necessary building blocks are in place.