

Overview of eHR Development

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HEALTH INFORMATION SYSTEMS



Where are we today?

•Hospital Authority

- ▶ 8 million patient records
- ▶ 800 million laboratory results
- ▶ 340 million prescribed drugs
- ▶ 34 million Xray images
- ▶ 3 million transactions per day

•Department of Health

- ▶ essential health data, e.g. vaccination
- ▶ preparing for eHR

•Private hospitals

- ▶ mainly billing and financial systems
- ▶ electronic record lacks sharing capability

•Private clinics

- ▶ mostly paper-based record
- ▶ electronic record lacks sharing capability

•Private laboratories

/ allied health providers

- ▶ not connected



Guiding principles of eHR Development

1. Government-led model for development
2. Compelling but not compulsory record sharing
3. Data privacy and security of paramount importance
4. Open technical standards for private participation
5. Building block approach

eHR Programme

1. Set up dedicated eHR office to co-ordinate development, leveraging HA's expertise and experience
2. Voluntary participation by both providers and patients, promoting and incentivising eHR sharing
3. Develop legal framework and incorporate eHR privacy and security throughout development
4. Engage private healthcare and IT sectors in development of eHR standards and solutions
5. Develop individual eHR components through pilots and partnerships with private sector

Steering Committee



eHR Office (FHB)

HA IT Services
(providing technical support to the eHR Office)

Core Components & Dev. Phases

- 3 Core Components
 - eHR Sharing Infrastructure
 - CMS Adaptation and On-ramp
 - Standards definition and Interface Pilot
- 2 Phases for Development
 - Phase 1 (2009/10 to 2013/14)
 - *Phase 2 (2014/15 to 2019/20)*

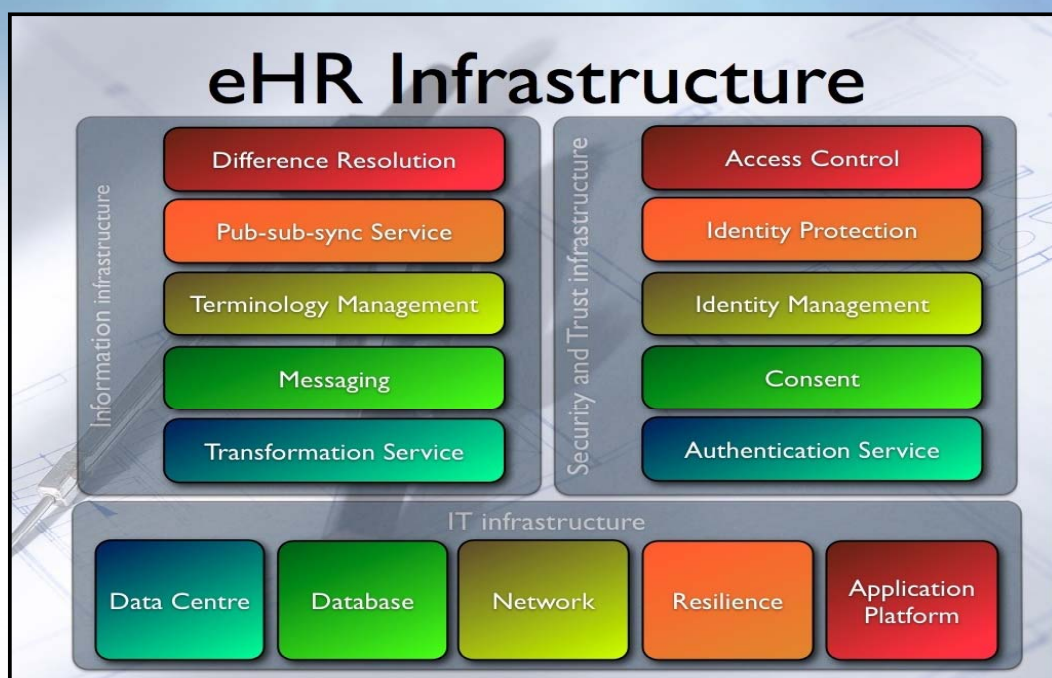
eHR Projects

09/10		10/11		11/12	12/13	13/14
	Blueprint for core infrastructure			eHR Certification Scheme		Dr portal
		Core Repository and Data services				
		Application Framework				
	PPI-ePR and pilots					
	Blueprint for CMS extension	HA CMS adaptation				
		CMS on ramp				
	Interface pilots					
	Standardization					

eHR Sharing Infrastructure

- Sharing platform connecting eMR/ePR systems
 - Application Framework
 - IT Infrastructure
 - Repositories
 - Security and Audit
 - Message standards, data integration and certification
 - Information Architecture Support
 - Information Services
- Public-Private Partnership Pilot Projects

eHR Infrastructure Overview



HA CMS Extensions

- CMS Adaptation
 - Facilitate adoption by private hospitals
 - CMS-Lite adoption
 - CMS individual modules or functions, e.g. patient management, structured address, drug management & checking
- CMS On-ramp
 - Facilitate adoption by private clinics
 - Upgrade existing clinic software
 - Develop and provide a clinic software
- Community Patient Master Index (PMI) Services

CMS Adaptation



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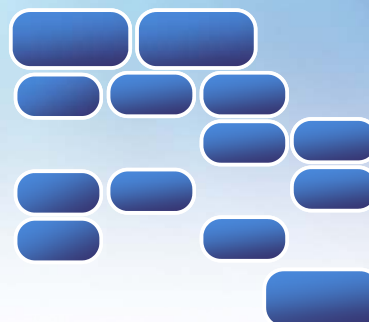


CMS Adaptation

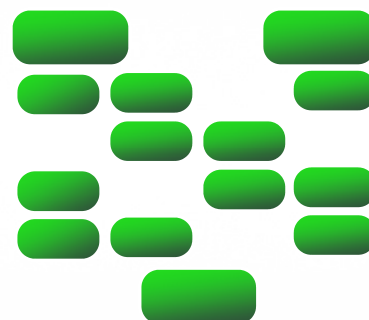
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Private Hospital 1



Private Hospital 2



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CMS Adaptation - 09/10 Work Plan

- User requirement of CMS adaptation
- Architectural paper on functions and interfaces among CMS adaptation modules, eHR, hospital ePR and local Clinical applications adopted by private hospitals
- Inventory of CMS and ePR modules suitable for CMS adaptation by private hospitals
- Proposal on long-term strategy, deployment platforms and hosting strategy



CMS On-Ramp - 09/10 Work Plan

- Functional requirement specification for CMS on-ramp system
- Evaluation of existing clinical application solutions in industry for private practitioners
- Prototype development
 - To engage some private health-care providers to commence the development
- Proposal on long-term strategy, deployment platforms and hosting strategy



PMI Services - 09/10 Work Plan

- Requirement specification and functional specification of eHR Patient Registration modules
- Development of eHR Patient Registration modules



Standardisation & Interface

- Develop technical standards for different IT systems to interoperate & interconnect through eHR Sharing Infrastructure
- Clinical Related Standards
 - Data content, Coding, Terminology etc.
- IT Related Standards
 - Interface, Messaging etc.
- Validation Platform
 - Validation & Certification of IT systems against standards



Areas

- Registries
 - Patient
 - Practitioner / Institute
 - Location (address)
 - System
- eHR content
- Terminology
- Messaging
- Management process



Standards Documents

eHealth Record Office
The Government of the Hong Kong Special Administrative Region

Introduction

1. Standardization forms the foundation for accurate and efficient communication of electronic health records.
2. Benefits of standardization
 - a. Reduce cost of technical integration by:
 - allowing systems to interface in a uniform way
 - relieving system developers from building separate interfaces
 - b. Ensure information is interpreted by all users with the same understanding
 - c. Support reuse of data
 - d. Improve efficiency of healthcare services by reducing duplicate tests
 - e. Avoid errors by reducing miscommunication and reducing data transcription and entry errors

Organization Structure for eHR Information Standards

The eHR Information Standards Office is the central body for the development and maintenance of eHR information standards. It is supported by the eHR Content & Information Standards Working Group (eHR IS WG) and the eHR Data Interoperability Standards Working Group (eHR DIS WG).

eHR Information Standards Document

The eHR Content Standards and the eHR Data Interoperability Standards are the two main documents that define the information standards for Hong Kong eHR.

1. **eHR Content Standards**
This document defines the information standards for eHR content. It includes:
 - Appendix i - eHR Contents
 - Appendix ii - eHR Codex
2. **eHR Data Interoperability Standards**
This document aims to provide the standards of data format and communication mechanism for health care providers in Hong Kong to exchange between the health records with eHR.

Links to related Standards Developing Organizations

- HL7
- ISO/IEC JTC1 SC31
- LOINC
- DICOM

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[eHR @fhb.gov.hk](http://eHR@fhb.gov.hk)

1. **eHR Content Standards Guidebook**
This document defines the content and the information standards for Hong Kong eHR.
 - Appendix i - eHR Contents
 - Appendix ii - eHR Codex
2. **eHR Data Interoperability Standards**
This document aims to provide the standards of data format and communication mechanism for health care providers in Hong Kong to exchange between the health records with eHR.

Phased Approach

eHR Content	Level 1	Level 2	Level 3
Person			
Healthcare practitioner			
Encounters			
Referral			
Episode summary			
Adverse reactions / allergies			
Problems			
Procedures			
Assessment / physical exam			
Social history			
Past medical history			
Family history			
Medication			
Immunization			
Clinical requests			
Diagnostic test results			
Care & treatment plan			

Key :

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

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Preparation at Healthcare Sectors

- Participate
 - eHR Engagement Initiative
 - Domain Groups
 - Training programs
 - Feedback on released standards
- Watch out for release/update of standard documents
- Identify a champion
- Upgrade system
 - Consider adding infrastructure for the eHR standards
 - eHR Data Field / Content value (identifier, description, data type...)

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Potential Business Opportunities

- Hardware
- System software & development tools
 - RDBMS, Application servers, ETL tools, ESB
- Data centre hosting and/or operations
- Development services
 - On-Ramp product development or enhancement
 - Radiology Image browser development
- Consultancy services
 - Project management
 - Review on architecture blue prints
 - Security design and privacy impact assessment (PIA/ SRA) and reviews



End

