CMS & eHR - An Update

Dr NT Cheung
HA Convention 2010

CMS / ePR is essential in the HA

- **Each Day…**
  - **12,000 users**
  - **90,000 patients**
  - **8M CMS transactions**
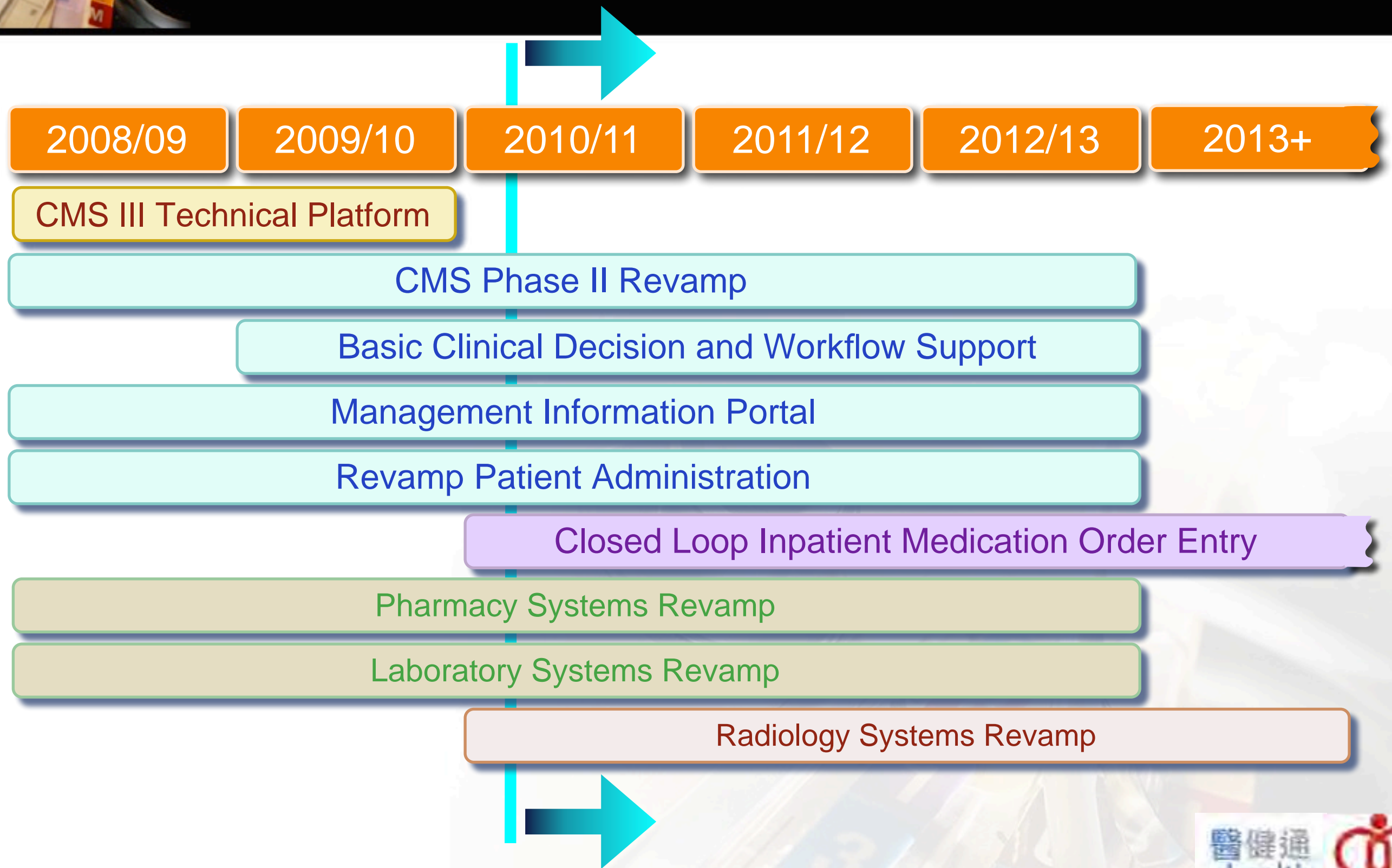 - **700,000 ePR views**

- **In the ePR to date…**
  - **9 M patient records**
  - **223M episodes of care**
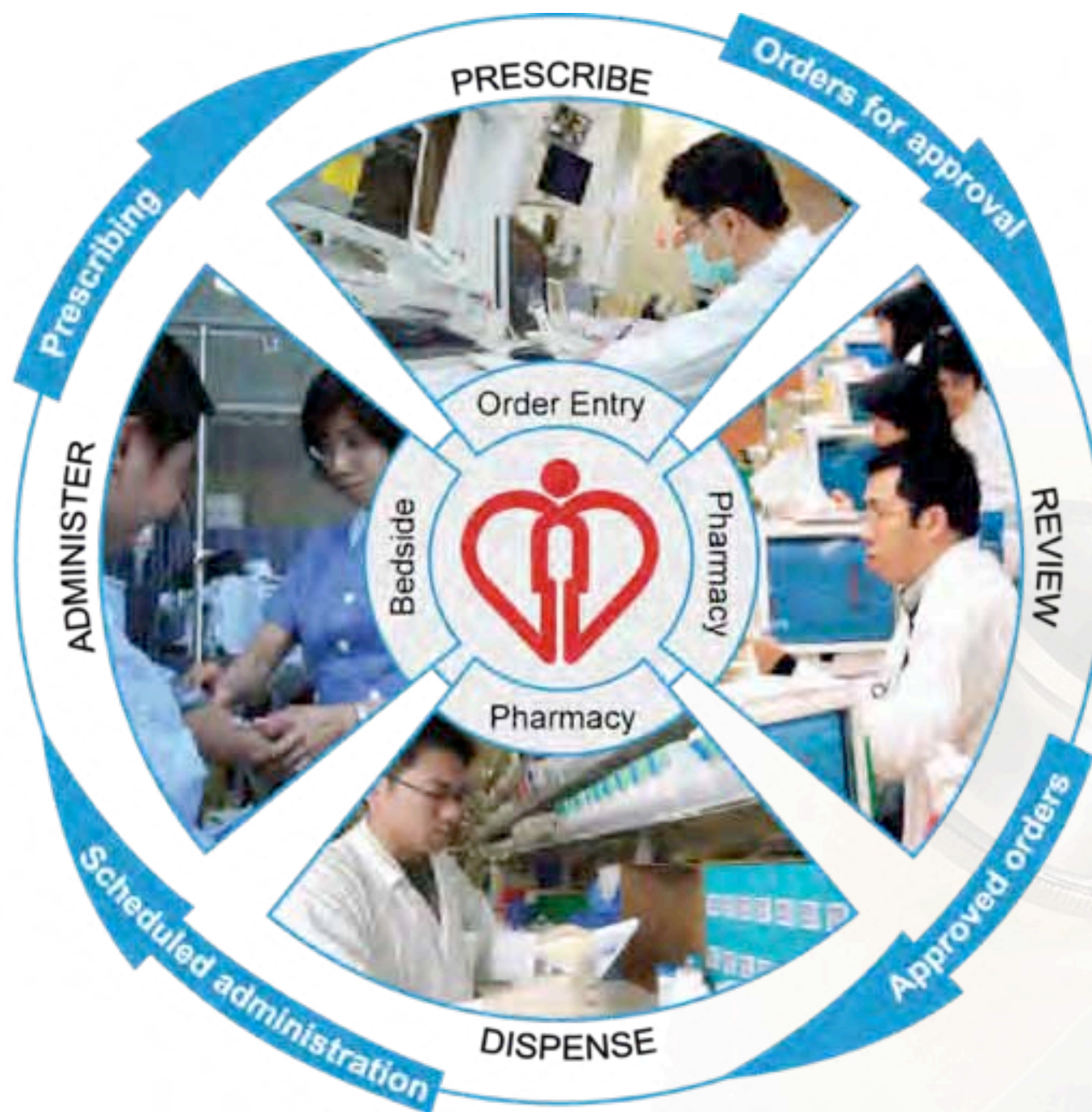 - **70M radiological studies**
  - **890M ePR Lab records**

CMS Phase III

2008/09	2009/10	2010/11	2011/12	2012/13	2013+

CMS III Technical Platform

CMS Phase II Revamp

Basic Clinical Decision and Workflow Support

Management Information Portal

Revamp Patient Administration

Closed Loop Inpatient Medication Order Entry

Pharmacy Systems Revamp

Laboratory Systems Revamp

Radiology Systems Revamp

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Inpatient Medication Management

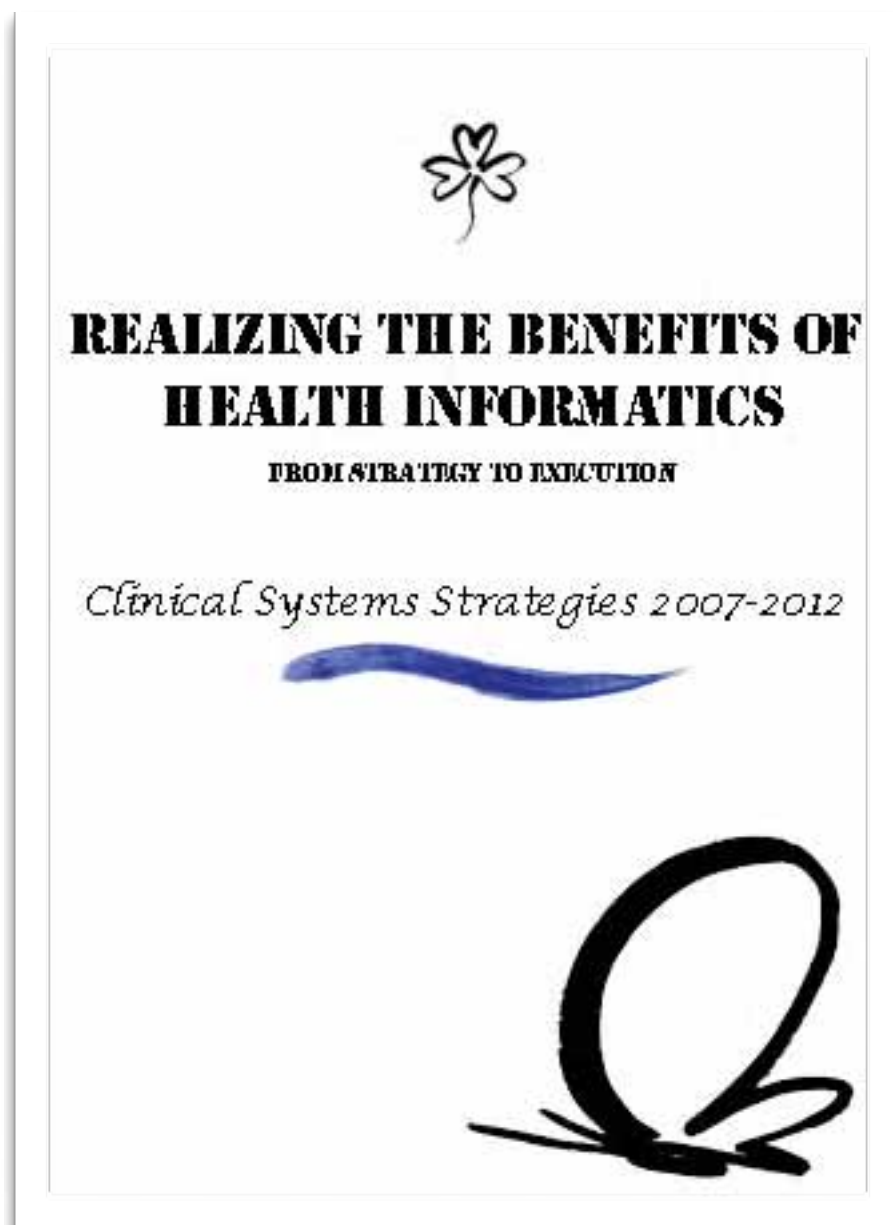# Closed Loop Inpatient Medication Order Entry (IPMOE)

- Electronic Prescribing

- Prescription vetting & dispensing

- Barcoded administration

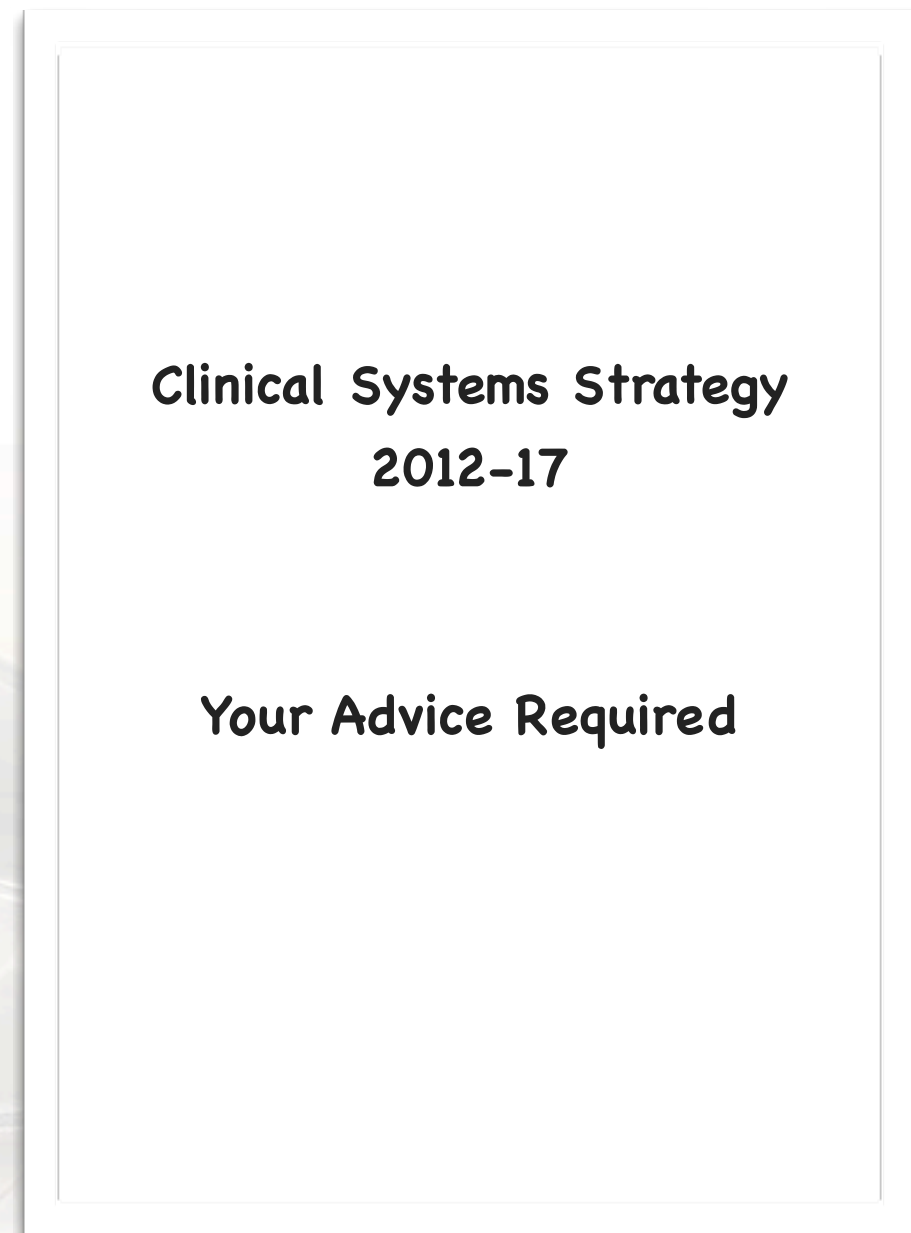 Right Patient

  Right Drug

  Right Time

  Right Dose

  Right Route

REALIZING THE BENEFITS OF HEALTH INFORMATICS

FROM STRATEGY TO EXECUTION

Clinical Systems Strategies 2007-2012

Clinical Systems Strategy
2012-17

Your Advice Required

2007-12 : CMS III

2012-17 : ?

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eHR - An essential health infrastructure

Patient-oriented healthcare records

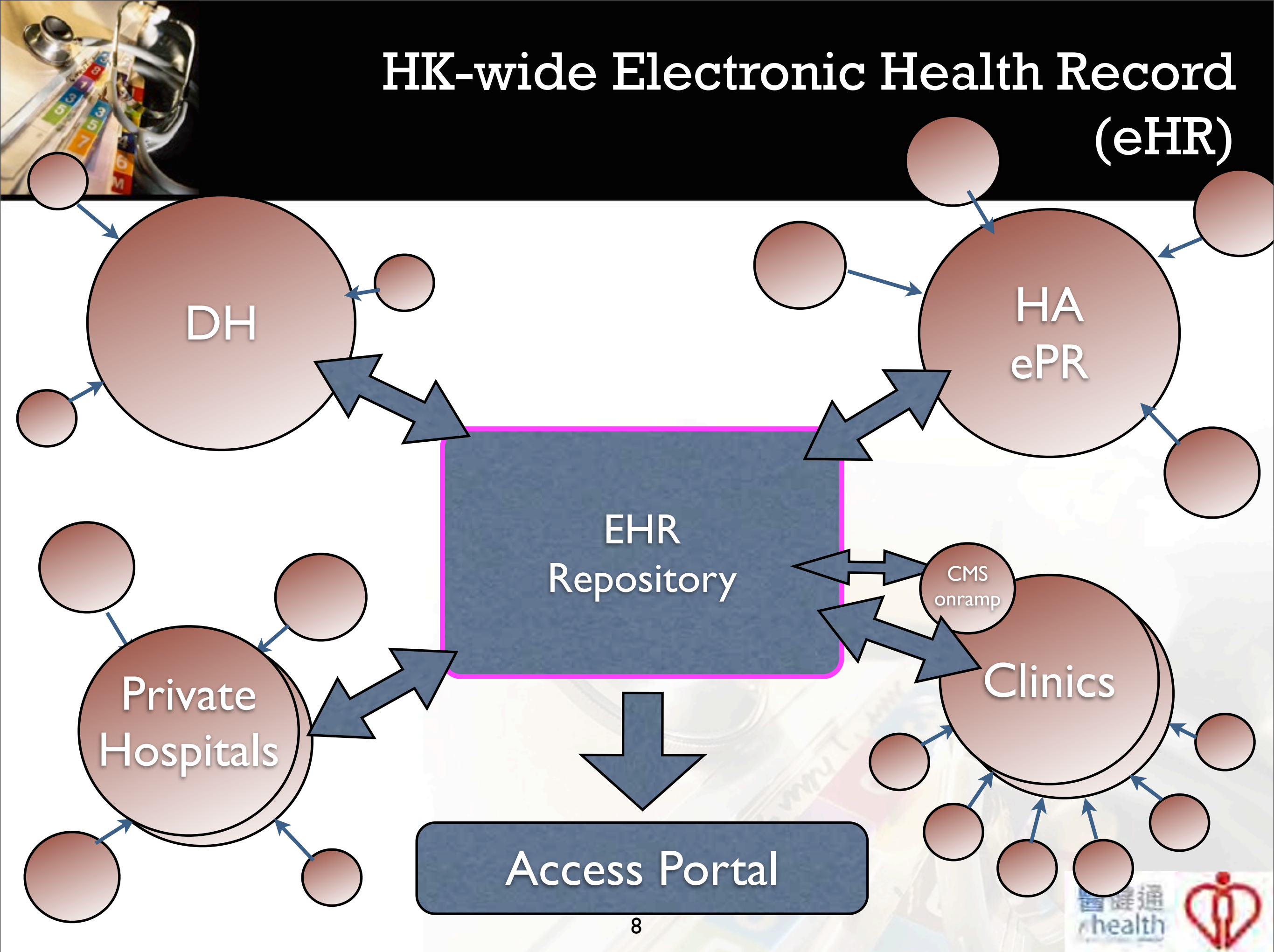**Family doctor concept; integrated primary and hospital care**
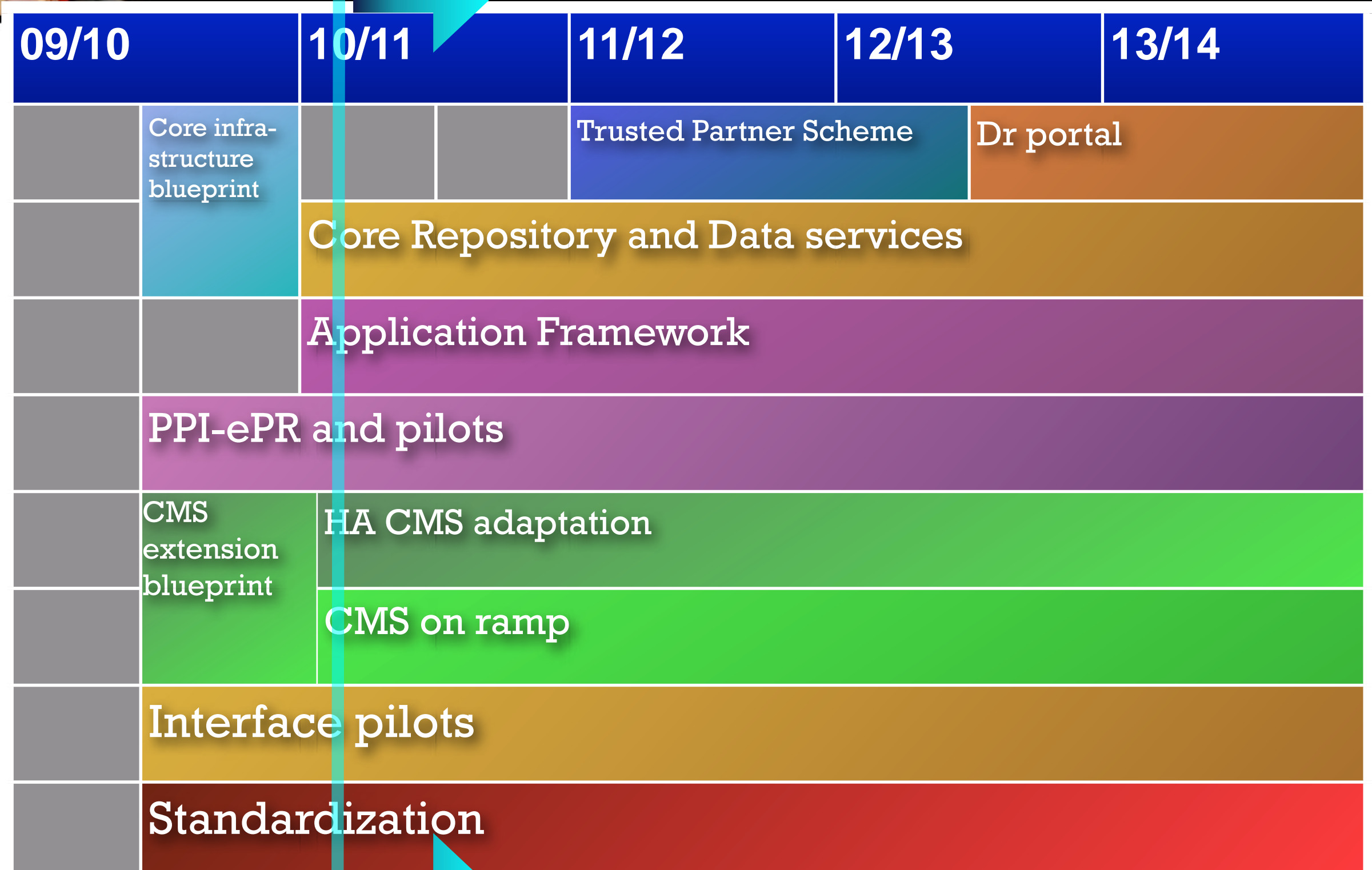

Public-private interface and partnership

DH

HA

Private Hospitals

Electronic Health Records Sharing Infrastructure

DH

HA ePR

EHR Repository

CMS onramp

Private Hospitals

Clinics

Access Portal

8

eHR Time Line

| 09/10	10/11	11/12	12/13	13/14
	Core infra-structure blueprint		Trusted Partner Scheme	Dr portal
		Core Repository and Data services		
		Application Framework		
	PPI-ePR and pilots			
	CMS extension blueprint	HA CMS adaptation		
		CMS on ramp		
	Interface pilots			
	Standardization			

eHR Core Sharing Infrastructure

- To provide a coherent platform to **enable sharing** of patient's electronic Health Record among healthcare providers on a **timely and accurate** manner and **independent** of the electronic Medical Record systems implemented by providers.

Hospital Authority - electronic Health Record

Monday, 10 May 2010
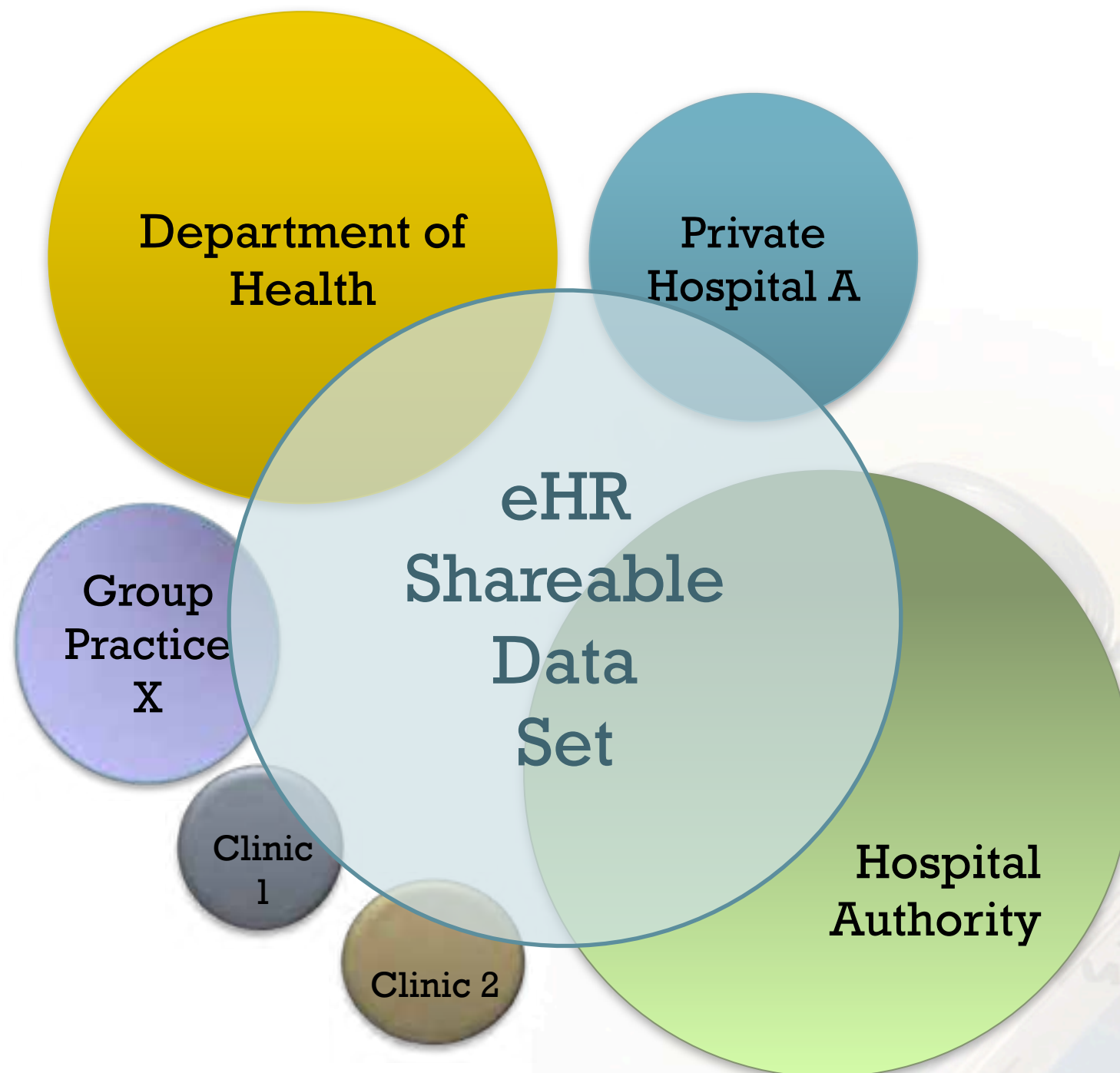
- Each institution maintains own complete electronic record
- Contributes shareable data to eHR
- eHR Shareable Data Store keeps & shares for all

Department of Health

Private Hospital A

eHR Shareable Data Set

Group Practice X

Clinic 1

Clinic 2

Hospital Authority

Person master index

Encounters & appointments

Referral

Episode/discharge summaries

Adverse reactions / allergies

Problems / Diagnoses

Procedures

Medication

Immunization

Laboratory results

Radiology results

Hospital Authority - electronic Health Record

Architectural Components

Web Layer | **Application Layer** | **Data Layer**

- eHR Access Layer
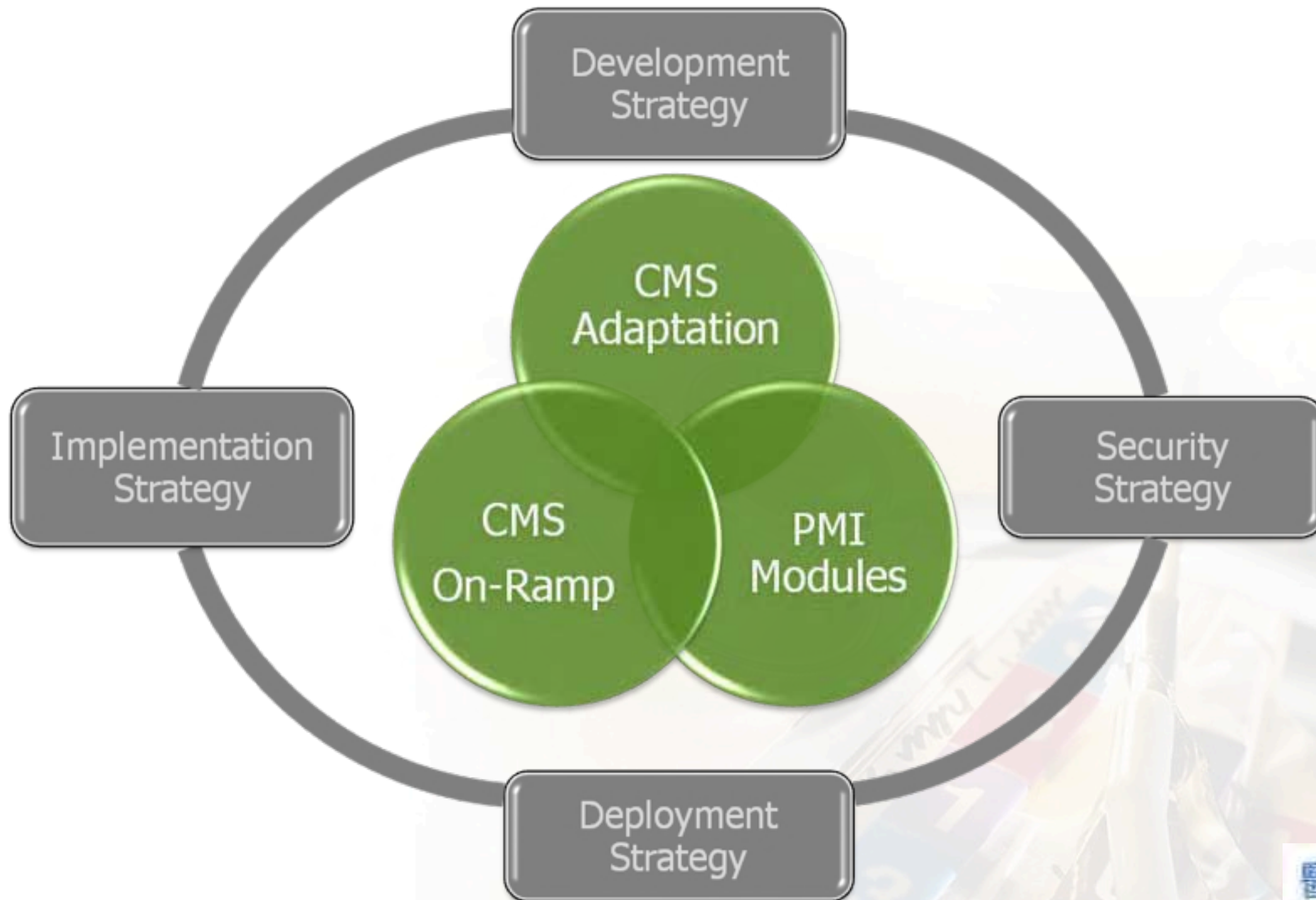 - eHR Service Request
  - Messages/Interfaces
  - Certification Framework

- Web Layer
  - Portal Service
  - Core Application Presentation Services
  - Shared Services Requests
  - Clinical Terminology Portal
  - Verification Framework
  - Messaging Backbone

- Application Framework
  - Service Pool
  - SOA Governance
  - Information Architecture Management
  - Standards and Terminology
  - Messaging Backbone
  - Message Standards
  - Integration Infrastructure
  - Security Policy & Standards
  - Security Risk Management
  - Defense in depth
  - Assurance
  - Security & Audit Infrastructure
  - IT Infrastructure

- eHR Shareable Data Store
  - PMI
  - eHR CDR
  - DW
  - Transformation
  - Data Definition
  - Provider / System Registries
  - Consent Registry
  - Identity Management

Hospital Authority - electronic Health Record

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CMS Adaptation Modules

Modules	2Q10	3Q10	4Q10	1Q11	2Q11	3Q11	4Q11	1Q12	2Q12	3Q12
Structured Allergy/Alert										
Drug inventory										
Drug dispensing										
Order Management and Vetting										
Basic Medication ordering										
Basic Diagnosis and Procedure coding										
Generic Clinical Documentation										

Integrating with existing systems

Drug Table Module (CMS Adaption Module)
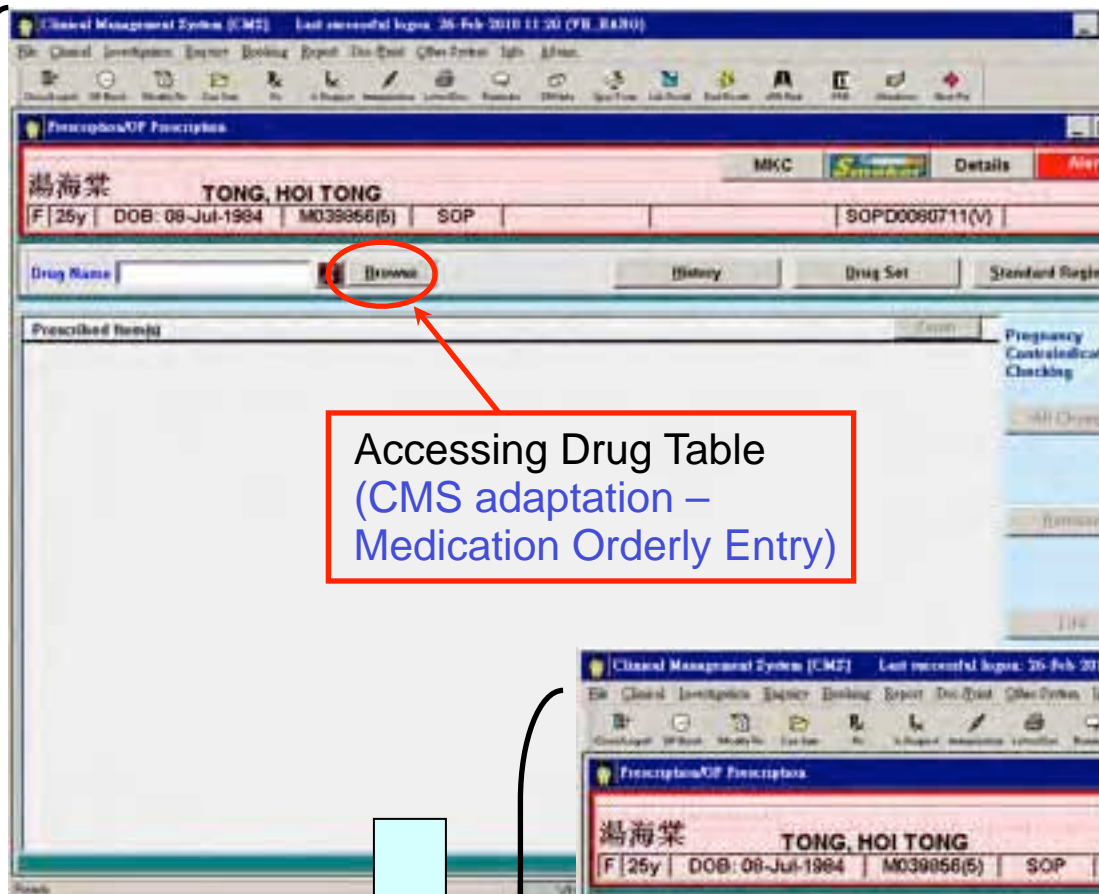
Accessing Drug Table
(CMS adaptation –
Medication Orderly Entry)

Accept Selection

Existing eMR
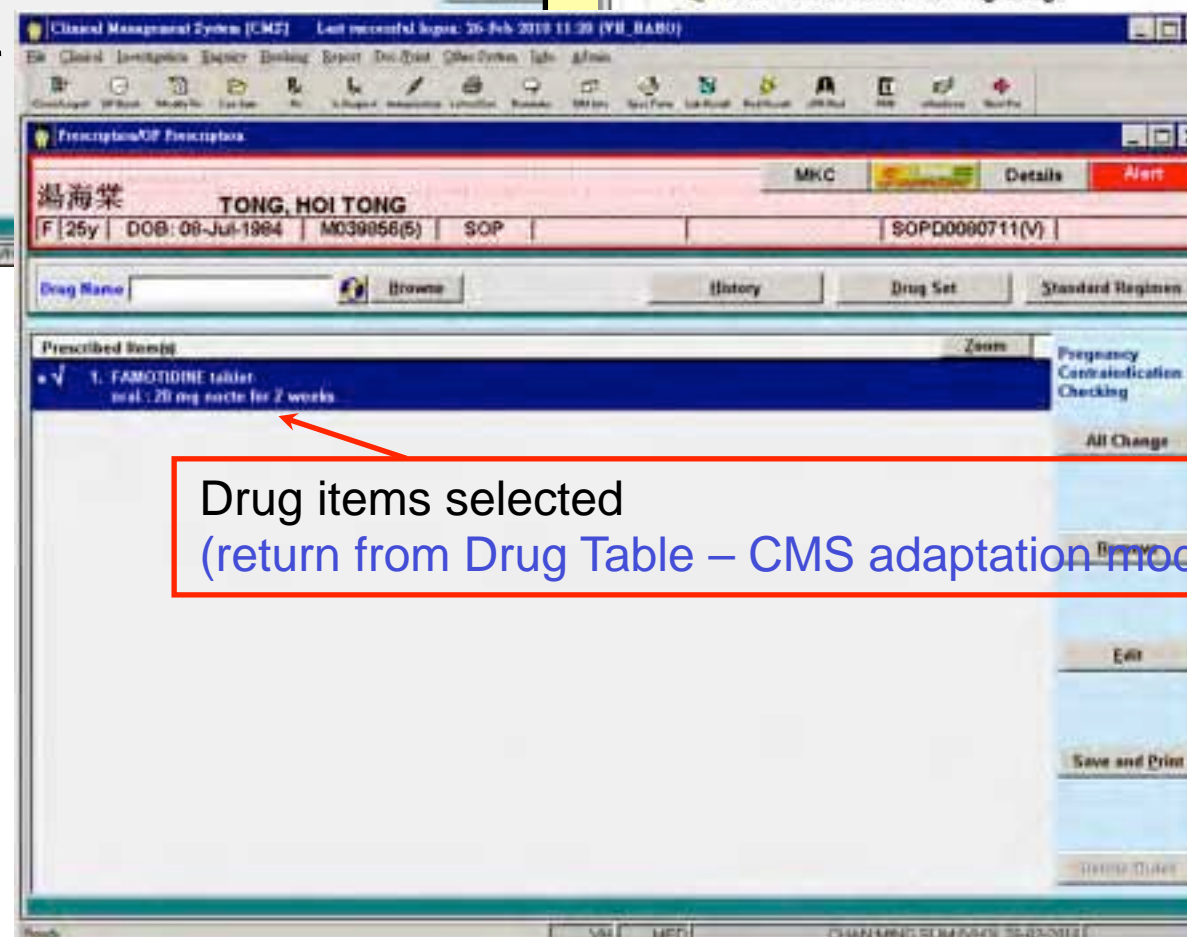
Drug items selected
(return from Drug Table – CMS adaptation module)

Existing eMR
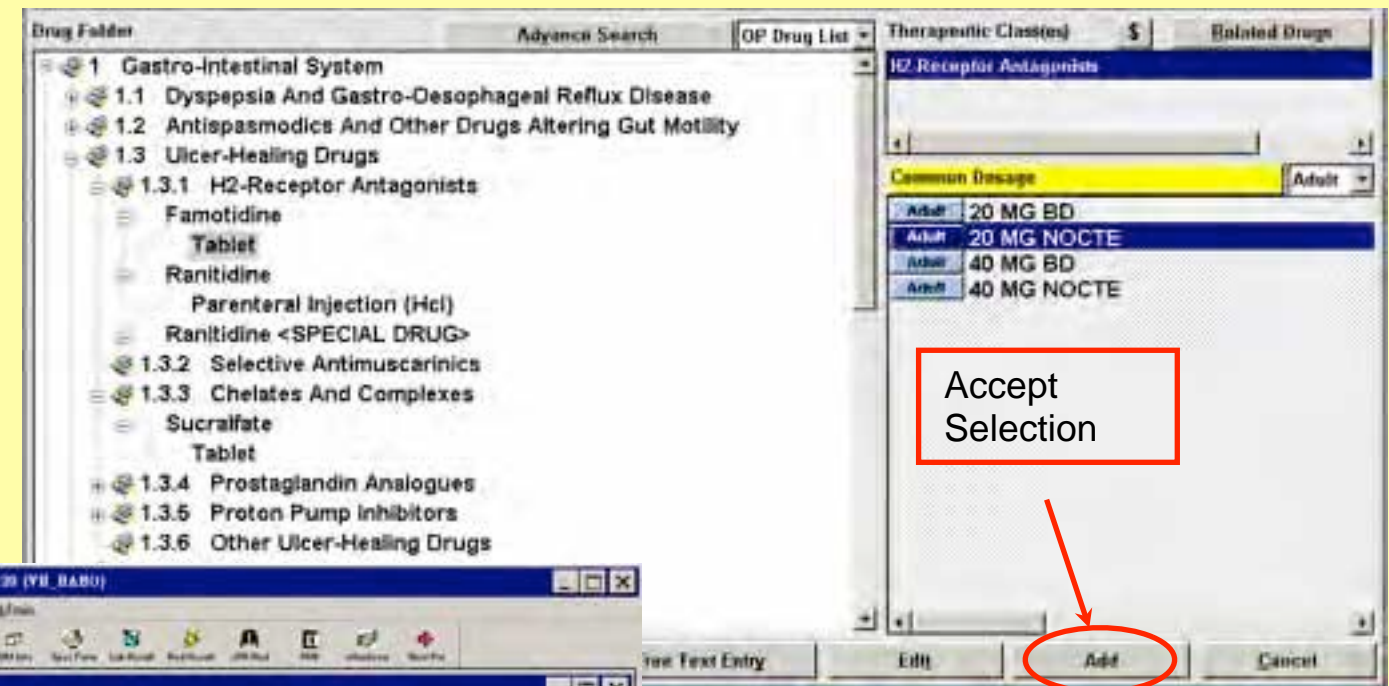
Helping private clinics join the eHR highway

CMS On-Ramp Possible Modules

Features
Registration
Appointment and Patient Calling Queue
Structured allergy/alert
Immunization
Consultation and Prescription
Medical Certificates
Dispensing
Drug Inventory Management
Basic Billing and Payment
Laboratory / Radiology results
Statistic Reports

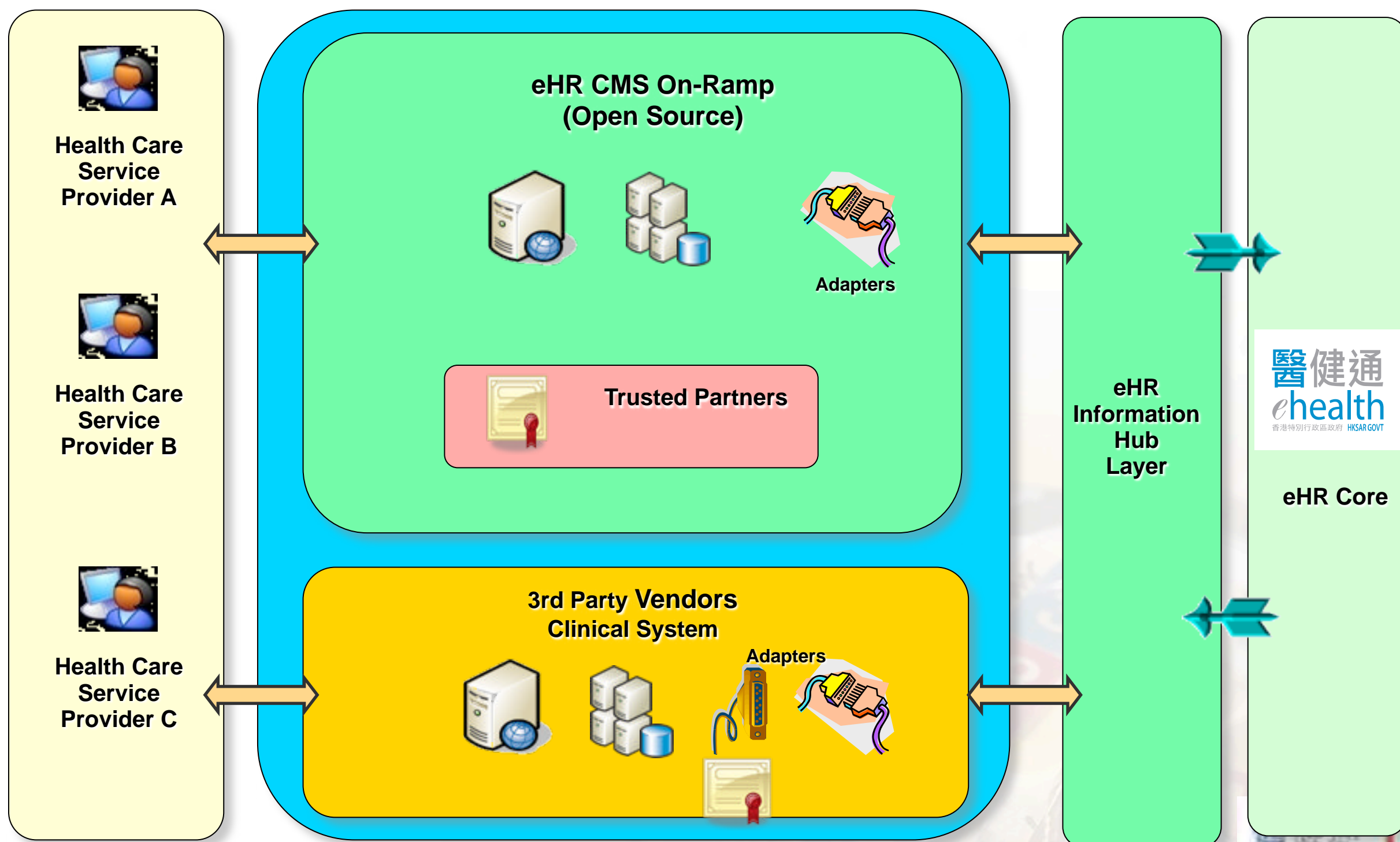Aim to support basic clinic operation

✖ Use a scaled down CMS III

✖ Build a CMS On-Ramp application from scratch

3. Build a CMS On-Ramp system based on available open source in the market

CMS On-Ramp Deployment Strategy

Health Care Service Provider A

Health Care Service Provider B

Health Care Service Provider C

eHR CMS On-Ramp (Open Source)

Adapters

Trusted Partners

3rd Party Vendors Clinical System

Adapters

eHR Information Hub Layer

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eHR Core

*e*health

Summary

- CMS III development is in progress
  - New technical platform to enable future capabilities
  - IPMOE will bring in a new degree of workflow support
  - The next Clinical Systems Strategy needs your input

- eHR development has started
  - Core sharing infrastructure will allow records to follow the patient
  - CMS III modules will be adapted for private hospital use
  - CMS On-Ramp will be built as an open source system for private clinics to use