


Tuesday, 16 June 2009

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醫院管理局
HOSPITAL
AUTHORITY

The Hospital Authority

- **40** Hospitals
- **45** Specialist Clinics
- **74** General Clinics
- **52,000** staff

- **9M** patient records
- **1M** annual admissions
- **13M** ambulatory visits



Distribution of Public Hospitals and Institutions
公立醫院及機構的分布





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HEALTH INFORMATICS IN HA



THE CLINICAL MANAGEMENT SYSTEM

BY THE NUMBERS

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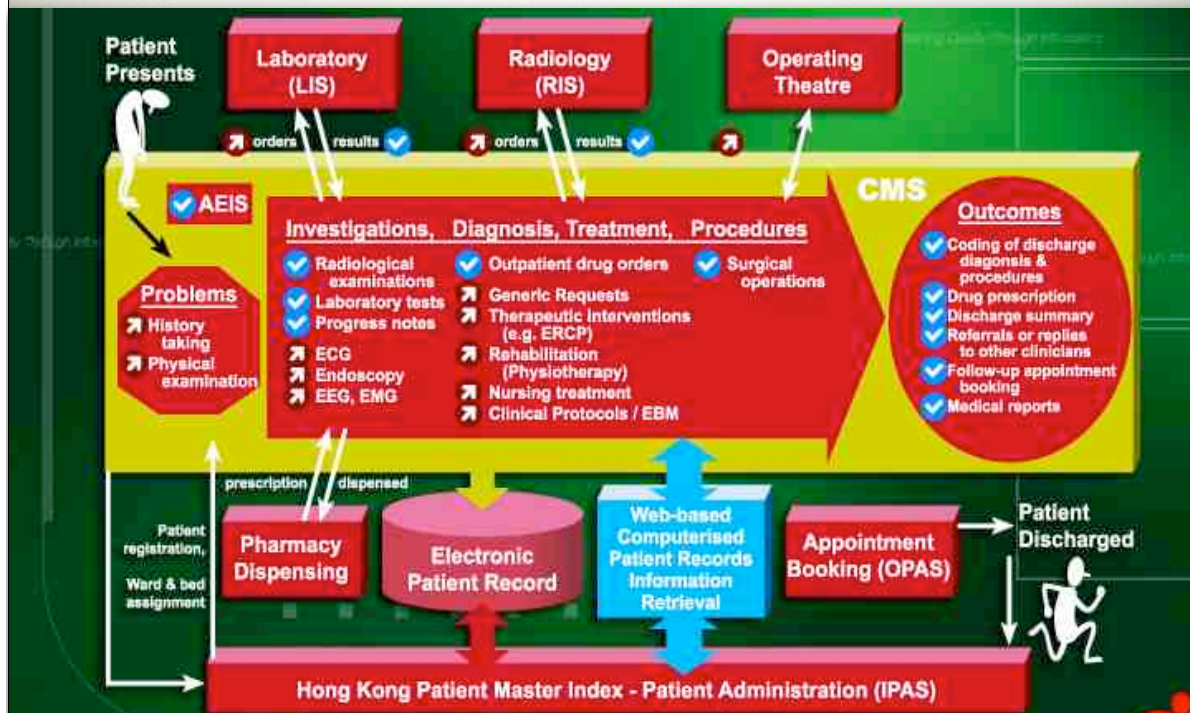
Development in the HA A long journey

- 1990** "Green fields"
- 1991** Patient Administration
- 1992** Pharmacy system
- 1993** Lab results online
- 1994** Radiology Information System
- 1995** Clinical Management System
 - Direct clinician documentation and order entry
- 2000** CMS Phase II
 - Electronic Patient Record (ePR)
- 2003** eSARS
- 2004** ePR Image Distribution
- 2006** PPI ePR sharing
- 2008** CMS Phase III

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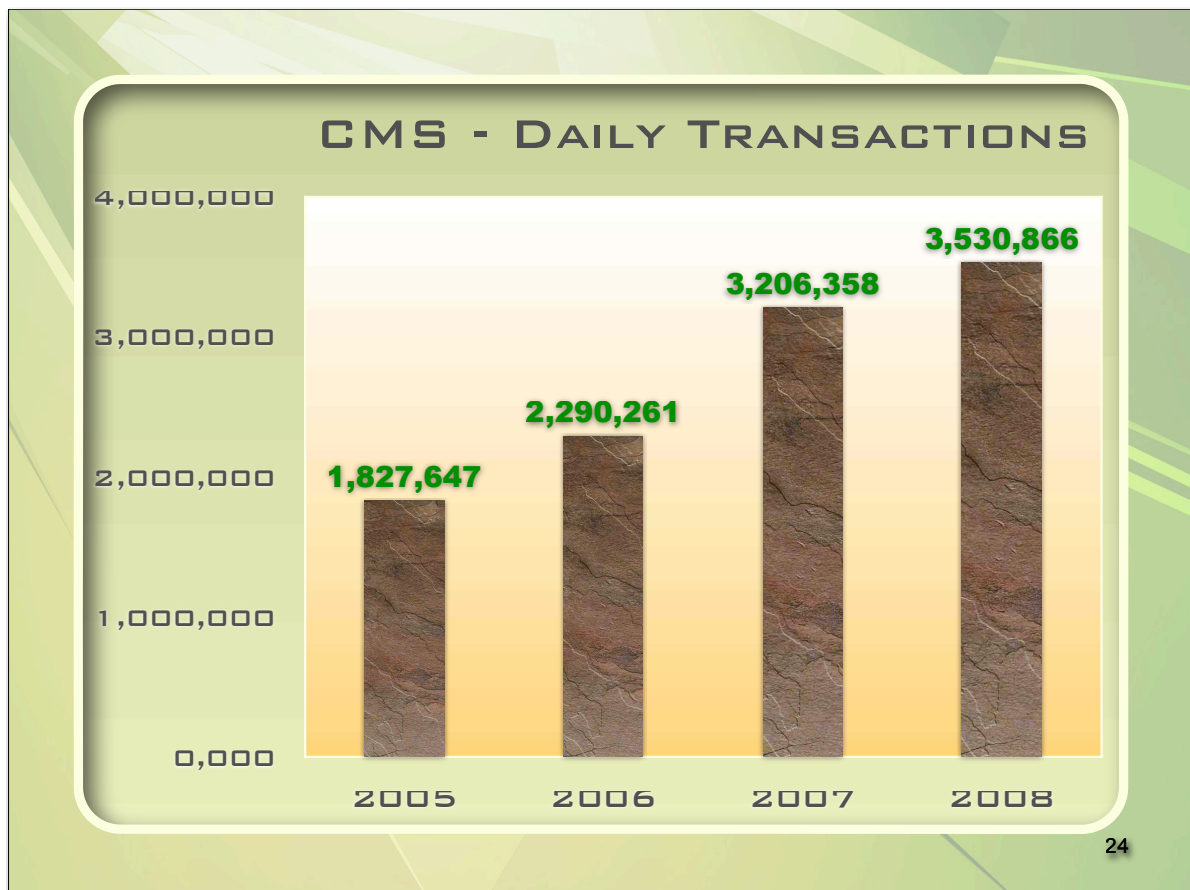
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CLINICAL MANAGEMENT SYSTEM (CMS)



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EPR SUMMARY SCREEN

HA - Tree View Prototype (build 041008) - Microsoft Internet Explorer

File Edit View Favorites Tools Help

檔案(E) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)

中上頁 前一頁 後一頁 搜尋 我的最愛 媒體 列印 刷新 關閉

網址(D) http://cs4-test/wh_epr/Content/login_validator.asp 移至 連結

HKID: 00000000 Name: PATIENT, 591068(病人) DOB: 00/00/0000 (Exact? Y) Age: 51 Sex: F Death: N

Summary Schedule

Patient, 590168

- Diagnosis
- Procedure
- Clinical Note
- Discharge Note
- OP Note
- AE Note
- Radiology Record
- Radiology Result
- Radiology Appointment
- Medication
- Dispensed - By Episode
- Dispensed - Summary
- Procedure Record
- ERS
- OTRS
- Laboratory Result
- Blood Group Result
- Cumulative Common
- Specialty Profile
- Medical
- DM
- Immunology
- Liver
- Renal
- Thyroid
- Anaesthetic
- SARS
- Common Profile

Diagnosis

Last Entry	Description
03/12/2004 (x14)	End Stage Renal Failure
31/12/2003 (x4)	Chronic renal failure
13/08/2003	Vomiting alone
21/07/2003	Peritonitis related to continuous ambulatory peritoneal dialysis
23/06/2003	Kidney dialysis as the cause of abnormal reaction of patient, or of later complication
14/03/2002	Hypotension
31/10/2001	Other specified surgical operations and procedures causing abnormal patient reaction, or later complication
31/10/2001	Wound bleeding, postoperative

Procedure

Last Entry	Description
03/12/2004 (x12)	Haemodialysis
16/12/2003 (x2)	Tenckhoff catheter removal
14/11/2003	Creation of arteriovenous fistula
16/09/2003 (x2)	Insertion of Tenckhoff catheter
13/07/2003	Bone marrow examination
13/07/2003	Echocardiography
13/07/2003	Ultrasonogram of abdomen
13/07/2003	Whole body scan, gallium
13/07/2003	CT abdomen with contrast
13/07/2003	Removal of haemodialysis catheter

Drug Allergy

Description

Nil

Current Medication Legend

Last Dispensed ▾ Drug name (Route)

11/10/2004	AMITRIPTYLINE HCL (Oral)
11/10/2004 (x 2)	ERYTHROPOIETIN BETA (Injection)
11/10/2004 (x 2)	SUSTANON 250 (Injection)
11/10/2004	SODIUM BICARBONATE (Oral)
11/10/2004	FAMOTIDINE (Oral)
11/10/2004	ALUMINIUM HYDROXIDE (Oral)

Recent Schedule Legend HKPMI View

Date ▾	Hospital / Clinic	Service Type	Description
24/01/2005 08:45	YMT/YMTSCE	SOPD	Medicine / Ne
✓ 05/12/2004 13:30	QEH	IP	Medicine / Infr

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LABORATORY RESULTS

Electronic Patient Record (ePR)

Patient Information

Case: HKID: Name: PATIENT, 000226 171w1d0G0G0 Sex: M Age: 72y

Details +Alert

Summary Event

PATIENT, 000226

- Consultation Note
- Diagnosis
- Procedure
- Radiology Result
- Medication
- Dispensed - By Episode
- Dispensed - Summary
- Laboratory Result
- Cumulative Common
- Cumulative Specific
- Medical
- DM
- Immunology
- Liver
- Renal
- Thyroid
- Common Profiles
- Biochemistry Result
- Haematology Result
- Immunology Result
- Microbiology Result
- Anatomical Path Result
- Abnormal Result
- Numerical Result
- Non-numerical Result

Search by Request Date

	15/12/2002	15/12/2002	14/12/2002	13/11/2002	12/11/2002
Period	Not Stated	Not Stated	Not Stated	Not Stated	Not Stated
Hospital	TMH	NDH	PWH	AHN	PYN
Most recent	--	9.1 ↓	--	11.4 ↓	12.8
Reference	--	3.82	--	4.15	4.34
Hospital	--	0.275 ↓	--	0.343	0.375
Haemoglobin	--	23.9 ↓	--	27.4	29.5
MCV	--	33.1	--	33.1	34.1
MCHC	--	516 ↑	--	368 ↑	514 ↑
Platelet	--	7.5	--	10.7 ↑	7.1
WBC	--	29.5	--	--	--
APTT	--	11.9	--	--	--
Prothrombin Time	--	137	--	--	--
Sodium	--	4.0	--	--	--
Potassium	--	5.2	--	--	--
Urea	--	94	--	--	--
Creatinine	--	71	--	--	--
Protein, Total	--	41	--	--	--
Albumin	--	2	--	--	--
Bilirubin, Total	--	90	--	--	--
Alkaline Phosphatase, Total	--	--	--	--	--

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EPR - SCALE

- ▶ **8.9M** PATIENTS
- ▶ **223M** EPISODES OF CARE
- ▶ **890M** LABORATORY RESULTS
- ▶ **70M** RADIOLOGY STUDIES
- ▶ **388M** DRUG ITEMS
- ▶ **3.5M** UPDATES / DAY
- ▶ **700K** HITS / DAY
- ▶ **Sub-second** RESPONSE TIME
- ▶ 7x24 > **99.98%** UPTIME SINCE LIVE RUN

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Medication Decision Support (2008)



Drug Allergy Checking

Drug Allergy Alerts Raised	68,790
Alert Accepted	32,102 (47%)
Alert Overridden	36,688 (53%)

Drug Drug Interaction Checking

DDI Alerts Raised	10,975
Alert Accepted	3881 (35%)
Alert Overridden	7094 (65%)

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The Risk Prediction Model

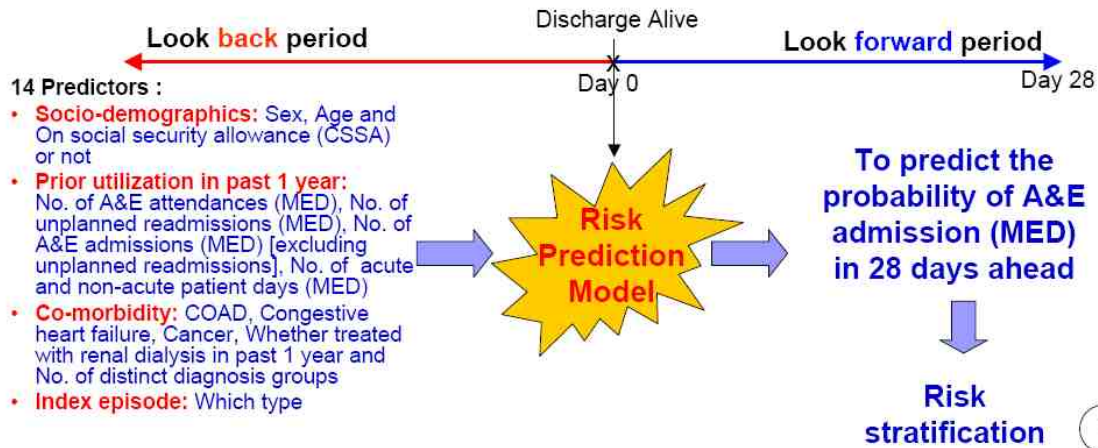


Index episode

An encounter with elderly (aged 65+) during:

- ~~Attendance at A&E for medical conditions~~
- Emergency admission to acute medical ward
- ~~Elective admission to acute medical ward~~
- ~~Attendance at medicine specialist outpatient clinic~~

HARRPE focus on A&E admission (MED) in view of cost-effectiveness



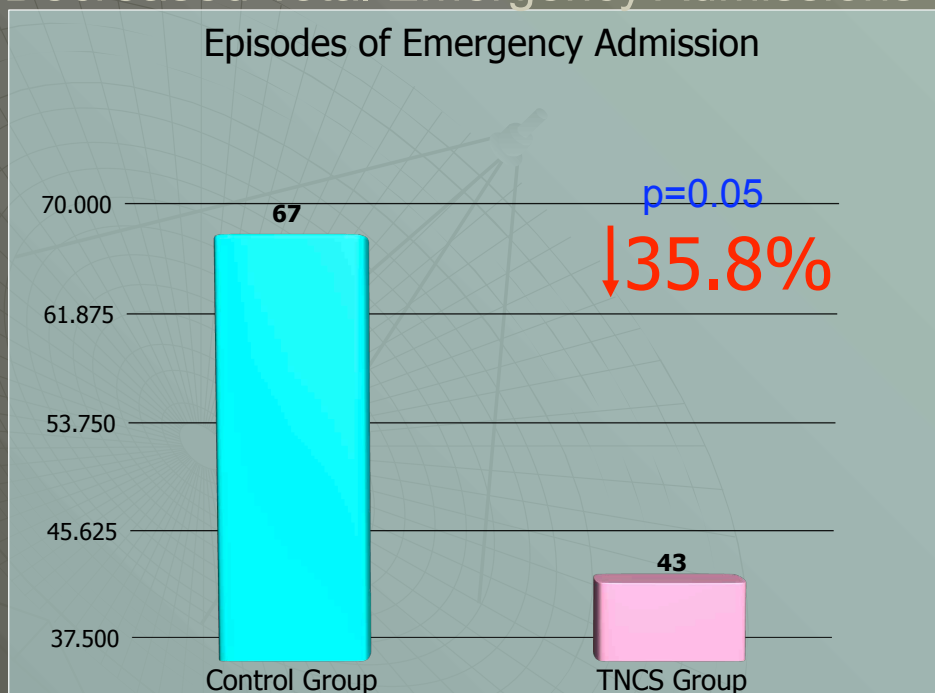
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Outcomes

Decreased Total Emergency Admissions

Episodes of Emergency Admission



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Unique Patient Identification Program

- **Phase 1: Cross-matching for Blood and blood administration**
- implemented across all HA's hospital* (* except some clinical areas such as A&E)
No further cross-match error* or blood administration error
- **Phase 2: Issue of dead body at mortuary**
- implemented across all HA hospitals
No further error in issuing the wrong dead body to relatives
- **Phase 3: Bedside printing of label for all specimens**
- implemented at PWH, CMC, UCH, TMH (AHNH, NDH)
At one of the pilot hospital:
No further error of misidentification of patient or using wrong label

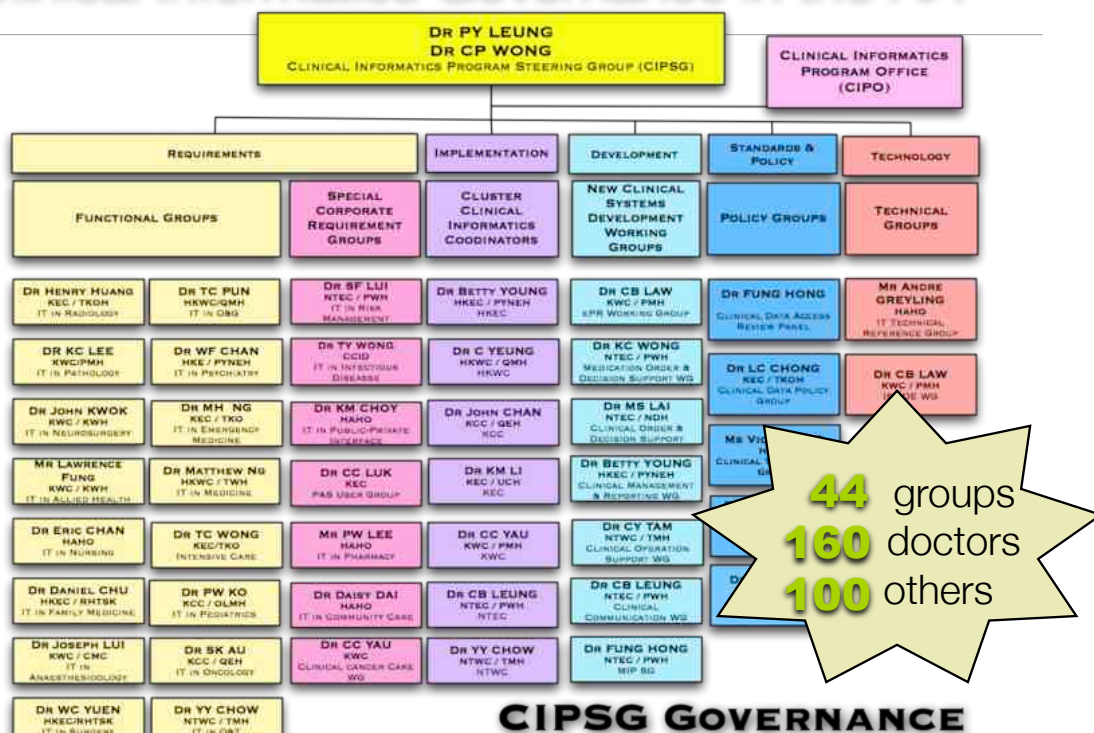
JAN 08	FEB 08	MAR 08	APR 08	MAY 08	JUN 08	JUL 08	AUG 08	Sep 08	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09
8	4	8	10	7	4	1*	0	1**	0	0	0	0	0	0

Partial Full implementation

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Clinical Informatics Governance in the HA



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PROTECTING PRIVACY

- ▶ POLICIES & PROCEDURES
- ▶ PEOPLE & PROMULGATION
- ▶ TECHNOLOGY
- ▶ PLANNING

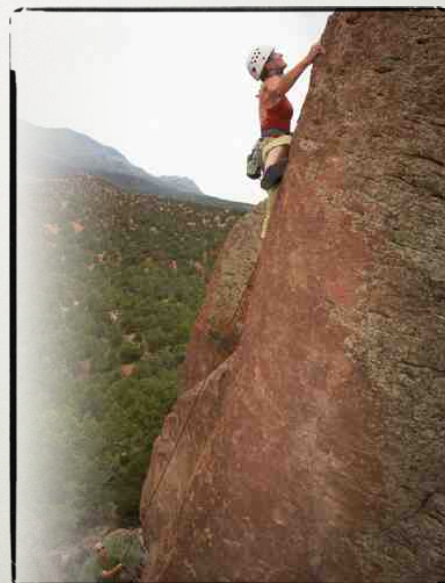


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ISSUES AND CHALLENGES

- Ever increasing demand
- Reducing risk and increasing quality
- Ageing technology
- Changing environment and business needs
- Healthcare Reform

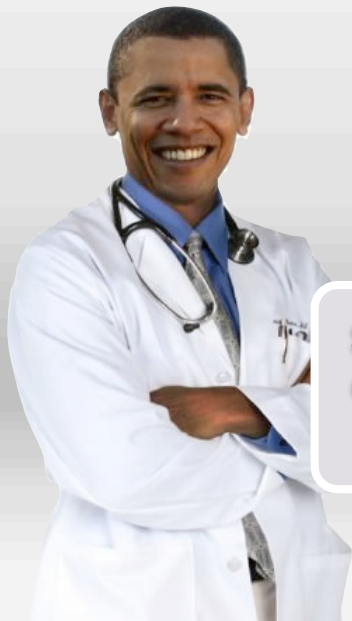


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**“Dr Obama” Aims
to Treat the US Economy ...**

**...and the US
healthcare system!**



**\$19 Billion
dollars for
Health IT**



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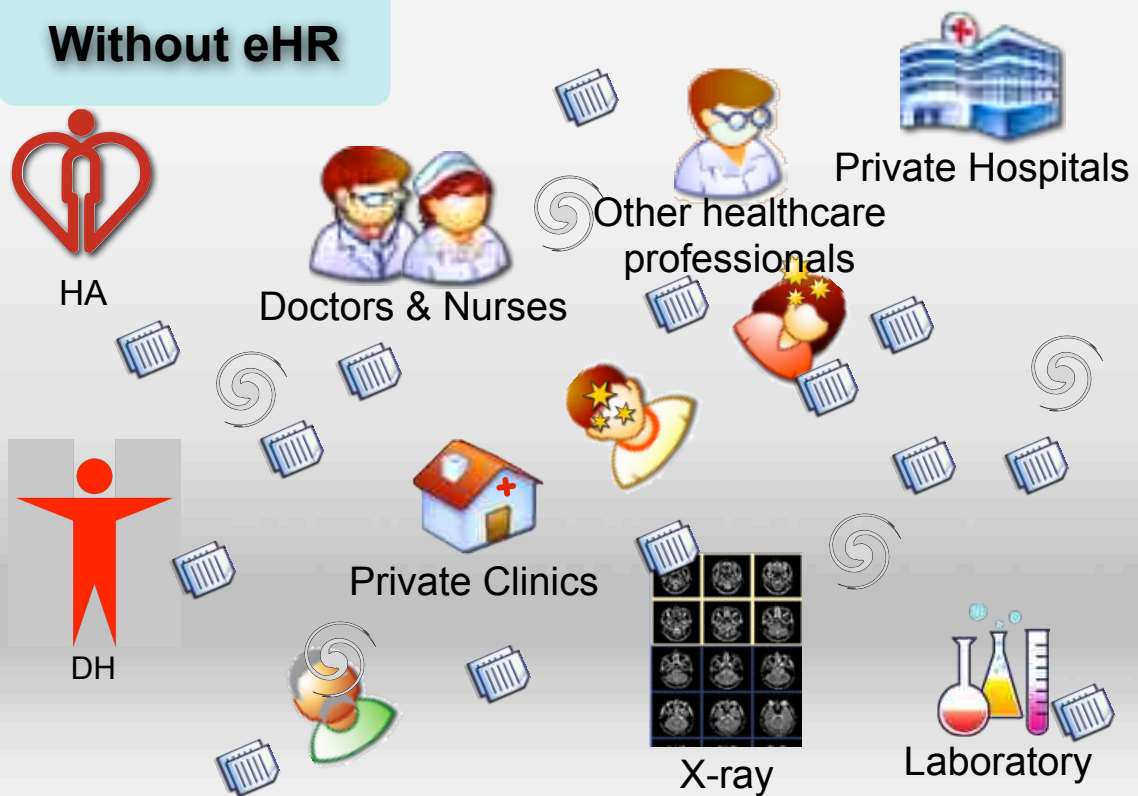
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**THE WAY FORWARD
HK-WIDE
ELECTRONIC
HEALTH RECORD
(EHR)**

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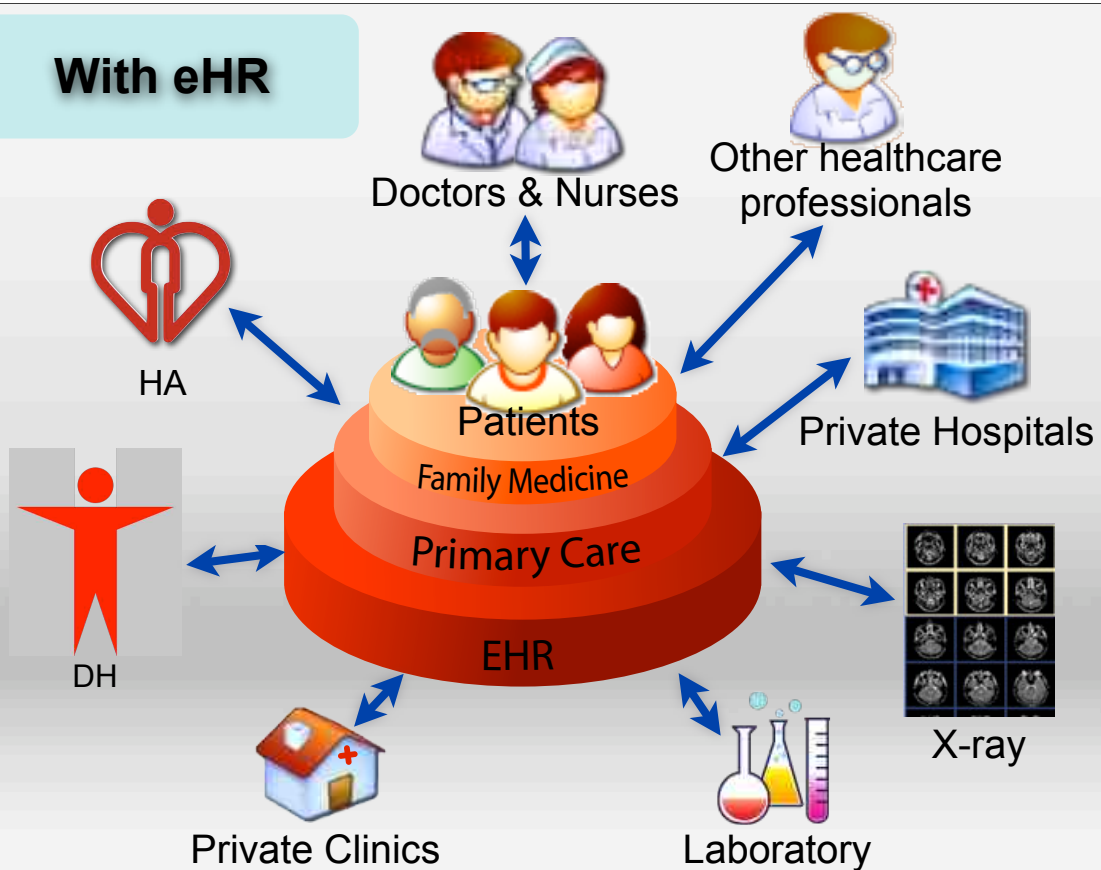
Without eHR



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With eHR



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Why eHR?

Patient-oriented healthcare records



Family doctor concept; integrated primary and hospital care



Public-private interface and partnership



HA



Private Hospital

**eHR ---
Essential Infrastructure for Healthcare Reform**

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Steering Committee on eHealth Record Sharing

WG on Institutional Arrangements

WG on Legal, Privacy and Security Issues

WG on eHealth Record and Information Standards

WG on eHR Partnership

Participation of all stakeholders

Department of Health; Hong Kong Academy of Medicine; Hong Kong College of Family Physicians; Hong Kong College of Radiologist; Hong Kong College of Pathologist; Hong Kong Hospital Authority; Hong Kong Medical Association; Hong Kong Doctors Union; Hong Kong Private Hospitals Association; Other healthcare partitioners and allied health professionals; Health informatics and healthcare IT professionals; Consumer Council; Office of the Government Chief Information Officer; Office of the Privacy Commissioner for Personal Data

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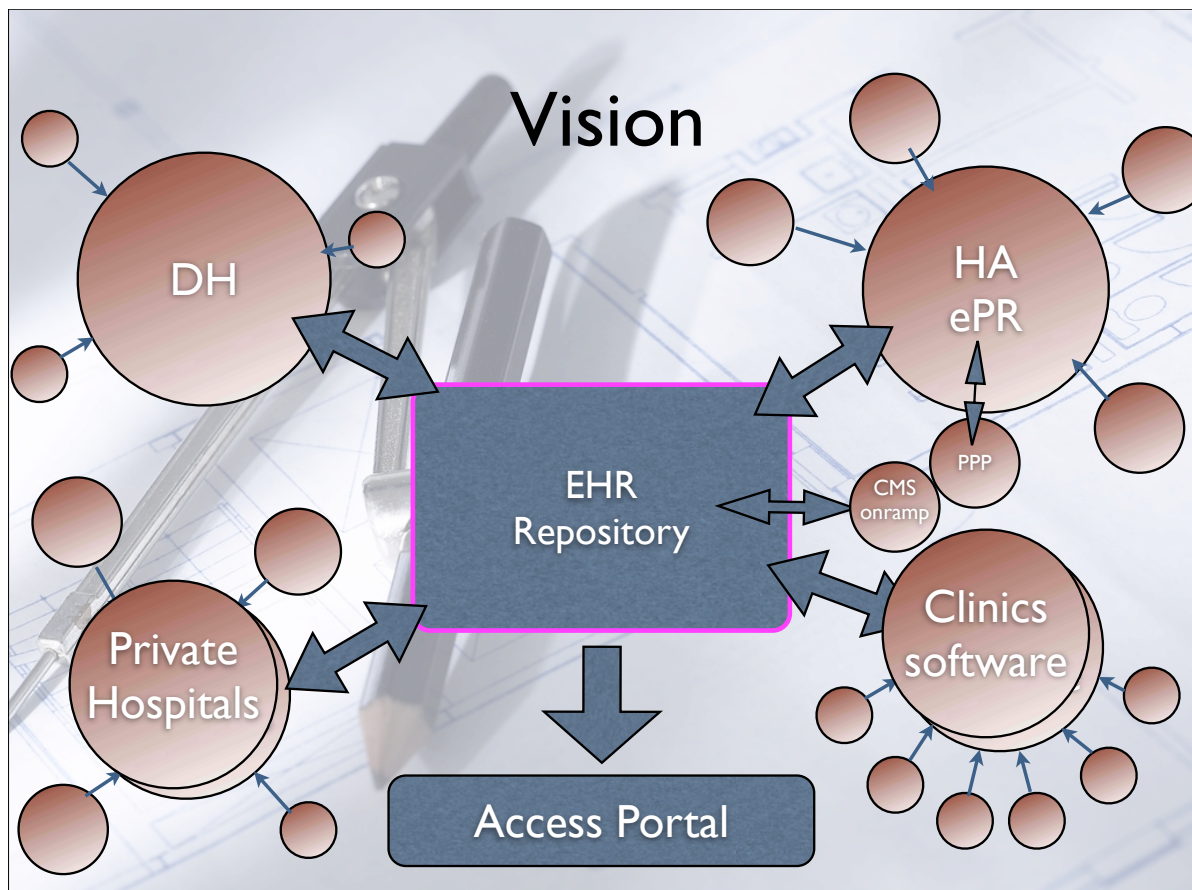
GUIDING PRINCIPLES FOR EHR DEVELOPMENT

- **Government led model**
- Compelling but **not compulsory** record sharing
- **Privacy and security** of paramount importance
- Open technical **standards**
- **Building block** approach



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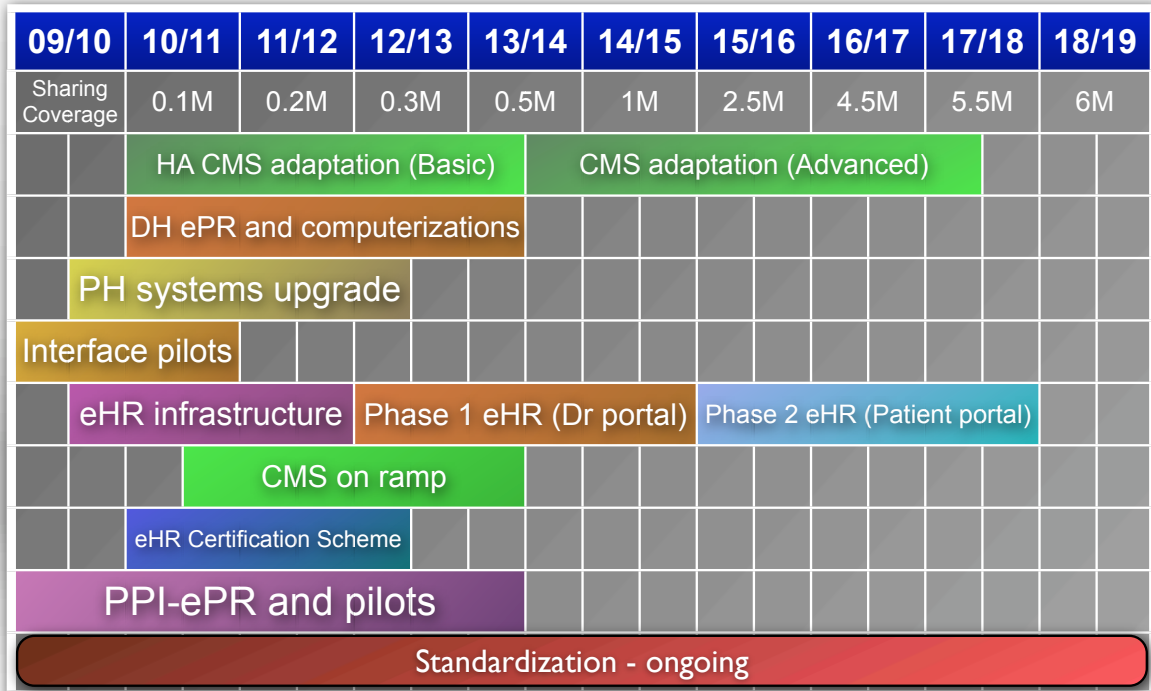
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eHR Time Line



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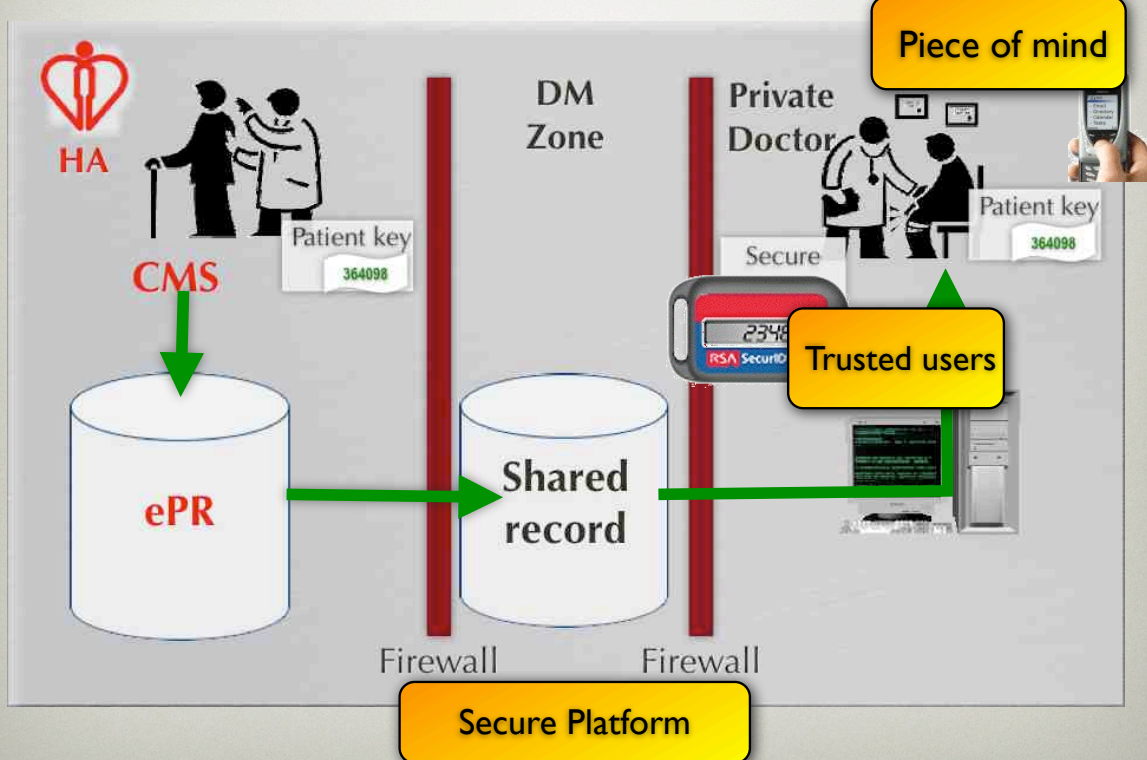
PRIVACY & SECURITY

- Explicit consent, Patient control
- Strong authentication
- Security by design
- Segregation of duties
- Privacy & security reviews
- Review legislative framework

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PUBLIC-PRIVATE EPR SHARING



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EXPENSIVE GLOBALLY

- UK
 - £12.4 billion NPfIT programme to computerize the NHS (HK\$2300 per capita)
- Canada
 - Health Infoway investment total cost expected CAD 10-12B (HK\$2250 per capita)
- USA
 - Kaiser Permanente investing U\$4B in H (HK\$2800 per capita)

**Total HK estimate
HK\$900 per capita**

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THE GOAL



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