

HK ELECTRONIC HEALTH RECORD OVERVIEW

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Medical records: Past & Future

Time of Getting Medical records

20/8/95 P. 24	<p>Surgical Notes</p> <ul style="list-style-type: none"> - Off ventilator & extubated - Tachypnoeic. RR 30/min - eyes protruded - Edema around less degree but still symptomatic - Diuretics x 5-6 times - still on antibiotic & Jackson. Fein & Jagg
	<p>Plan: Low stool x. Continuation of diuretic & Jackson Diuretics persists for 2 days</p>

The Computerized Patient Record

Problem:
Up to 98000 deaths
annually in US

Solution:
Sharing-saves life &
US\$ 77.8b annually

1991

2000

2001

Institute of Medicine

EHR: A Global Trend

UK

- ▶ NHS £12.4 billion programme to computerize the NHS

Canada

- ▶ Health Infoway investment total cost expected CAD 10-12 billion

AUSTRALIA

- ▶ Over A\$1B in state initiatives

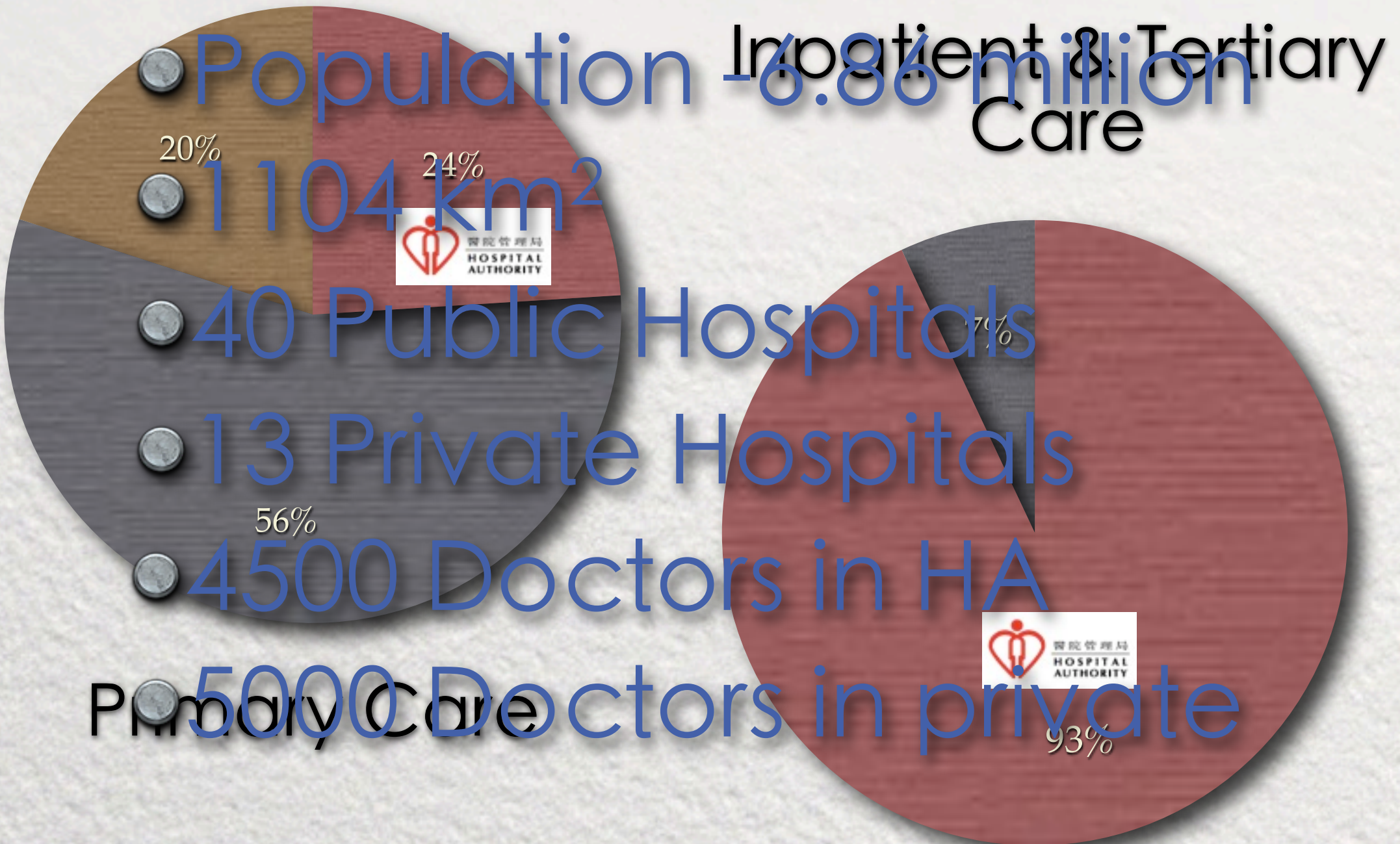
USA

- ▶ Kaiser Permanente invested US\$4 billion in electronic patient record project

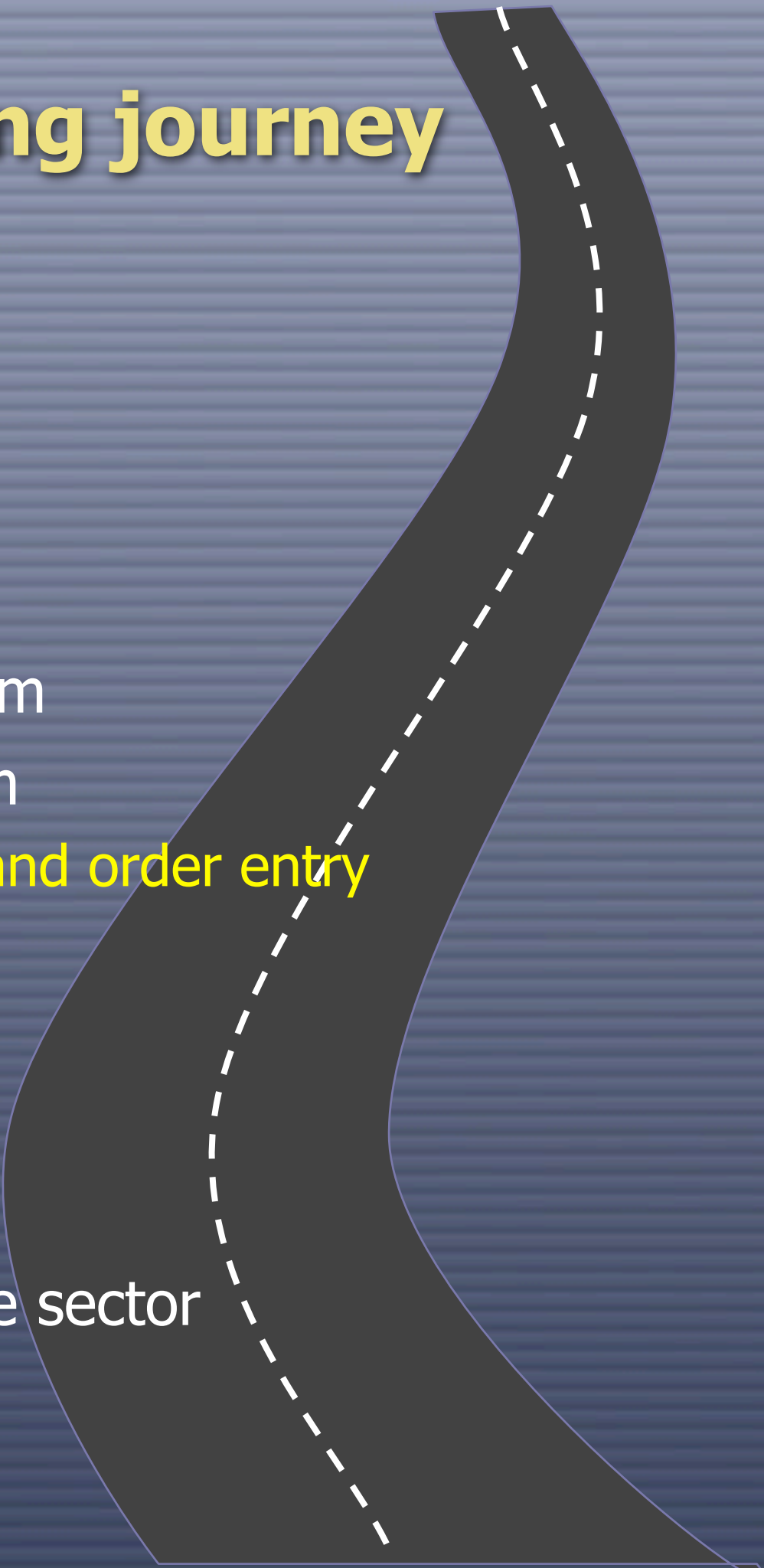


Healthcare Services in Hong Kong

Public Private Chinese Medicine



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 with private sector
 - ◆ **2008** – Filmless HA
 - ◆ **2009** – CMS III and eHR
- 

Drug ordering

Drug History

Previous Prescription

Date	Case No.	Ref.No.	Ordered by	Status	Type
02/06/2004	TKG10274071(Z)	0881	TKG1 - TJR6	Vetted	Out-Patient
19/04/2004	SOPD0000771(S)	7597	MED - GEN	Vetted	Out-Patient
09/01/2004	SOPD0000771(S)	6350	MED - RESA	Vetted	Out-Patient
19/12/2003	SOPD0000771(S)	7440	MED - RESA	Vetted	Out-Patient
07/11/2003	SOPD0000771(S)	7487	MED - RESA	Vetted	Out-Patient

Prescription Duration

Start Date
22/06/2005
↓
for
8
Weeks
↓

End Date
16/08/2005
↓
All Future Appt.

Hospital Code
VH
↓

Prescription Details

	<input checked="" type="checkbox"/>	BONJELA oral gel 15g oral : bd prn	for 8 Weeks ↓
✓	<input checked="" type="checkbox"/>	LASIX (FRUSEMIDE) tablet oral : 20 mg daily	for 8 Weeks ↓
✓	<input checked="" type="checkbox"/>	SENOKOT (SENNA) tablet oral : 15 mg nocte prn	for 8 Weeks ↓
✓	<input checked="" type="checkbox"/>	THYMOL GARGLE COMPOUND mouthwash 1 in 4 buccal : bd	for 8 Weeks ↓
✓	<input checked="" type="checkbox"/>	VENTOLIN (SALBUTAMOL SULPHATE) inhaler 100mcg/dose 200dose(s) inhalation : 2 puff(s) qid prn , dispense 2 vial	for 8 Weeks ↓
✓	<input checked="" type="checkbox"/>	ATROVENT (IPRATROPIUM BROMIDE) inhaler 20mcg/dose 200dose(s) inhalation : 2 puff(s) qid , dispense 2 no start from TKOH med	for 8 Weeks ↓
✓	<input checked="" type="checkbox"/>	MV (MULTIVITAMIN) tablet oral : 1 tablet(s) daily	for 8 Weeks ↓

Select All

Add

Deselect All

ePR

CDDH

Show Dispense

Full History

Cancel

ePR (Drugs History)

Electronic Patient Record

病人 PATIENT, 13 M UNK 00/00/0000 A123456(7)

Prescribing History
By Order
By Drug Items
Formulary Management

Dispensing History
By Order
By Drug Items

Current Drugs Zoom Legend

26/10/11	CHLORMETHIAZOLE (O
26/10/11	CITALOPRAM (ORAL)
26/10/11	LORAZEPAM (ORAL)
17/08/11	GEMFIBROZIL (ORAL)
17/08/11	GLIBENCLAMIDE (ORAL)
17/08/11 (x 2)	METFORMIN (ORAL)
17/08/11	VARDENAFIL (ORAL)
08/08/11	HALOPERIDOL (ORAL)
08/08/11	HYPROMELLOSE (OPH
08/08/11 (x 2)	METHYL SALICYLATE C
03/08/11	ALCLOMETASONE (TOF
03/08/11 (x 2)	AQUEOUS (TOPICAL)
03/08/11	SOAP SPIRIT (TOPICAL
13/07/11	BUDESONIDE (INTRAN
13/07/11	SALBUTAMOL (INHALAT
06/07/11	CETRIMIDE (MISCELLA
06/07/11	SYNALAR + VIOFORM (
05/06/11	AMLODIPINE (ORAL)
05/06/11	ASPIRIN (ORAL)
05/06/11	ATORVASTATIN (ORAL)

Detailed drug dispensing history - By order

Print Period: All Advanced Search

Dispensing Date	Hospital	Patient Type	Specialty
Start Date	End Date	Drug name (Route)	Dosing Instruction
01/11/2010	PWH	OP	SUR
01/11/2010	01/11/2010	NADROPARIN CALCIUM (Injection)	Injection 3800AXA IU : Administer Parenterally 0.4 ML every twelve hours for 1 day(s) QTY - 2 NO.
29/10/2010	AHN	OP	MED
29/10/2010	31/01/2011	INSULIN ISOPHANE (Subcutaneous)	Injection 100U/ML 10ML : QTY - 4 VIAL. With Multiple Dosage Instruction : Inject Subcutaneous 34 UNIT(S) in the morning for 70 day(s) Inject Subcutaneous 14 UNIT(S) in the afternoon for 70 day(s) Remarks updated by pharmacy staff AH4G on 15/07/2000 : AMMEDED, PATIENT STABILISED ON PENFILL
15/08/2008	AHN	OP	MED
15/08/2008	07/11/2008	ALLOPURINOL (Oral)	Tablet 100MG : Take 0.5 TABLET(S) daily for 84 day(s) QTY - 42 TAB.
15/08/2008	07/11/2008	ASPIRIN (Oral)	Tablet 80MG : Take With Or After Food 1 TABLET(S) daily for 84 day(s) QTY - 84 TAB.
15/08/2008	07/11/2008	ATENOLOL (Oral)	Tablet 50MG : Take 0.5 TABLET(S) daily for 84 day(s) QTY - 42 TAB.
15/08/2008	07/11/2008	DOLOGESIC (Oral)	Tablet : Take 1 TABLET(S) four times daily when necessary for 84 day(s) QTY - 168 TAB.
15/08/2008	07/11/2008	FAMOTIDINE (Oral)	Tablet 20MG : Take 1 TABLET(S) twice daily for 84 day(s) QTY - 168 TAB.
15/08/2008	07/11/2008	INSULIN ISOPHANE (Subcutaneous)	Penfill 100U/ML 3ML : QTY - 23 NO. With Multiple Dosage Instruction : Inject Subcutaneously 44 UNIT(S) in the morning for 84 day(s) Inject Subcutaneously 18 UNIT(S) in the afternoon for 84 day(s)
15/08/2008	12/09/2008	METHYL SALICYLATE COMPOUND (Topical)	Ointment 20G : Rub Affected Area twice daily when necessary for 28 day(s) QTY - 1 TUBE.
05/08/2008	QE	OP	MED
05/08/2008	09/09/2008	FALKAMIN (Oral)	Powder 25G/SACHET : Take 1 SACHET(S) twice daily for 35 day(s) QTY - 70 PACK.
05/08/2008	09/09/2008	MULTIVITAMIN (Oral)	Tablet : Take 1 TABLET(S) daily for 35 day(s) QTY - 35 TAB.
04/07/2008	AHN	OP	MED
04/07/2008	15/08/2008	ALLOPURINOL (Oral)	Tablet 100MG : Take 0.5 TABLET(S) daily for 42 day(s) QTY - 21 TAB.
04/07/2008	15/08/2008	ASPIRIN (Oral)	Tablet 80MG : Take With Or After Food 1 TABLET(S) daily for 42 day(s) QTY - 42 TAB.
04/07/2008	15/08/2008	ATENOLOL (Oral)	Tablet 50MG : Take 0.5 TABLET(S) daily for 42 day(s)

Allergen list

- HA allergen list
 - to support decision support (Drug allergy/ interaction)

Allergy Input Screen

Allergen / Allergen Group

Allergen

- ▶ CAPECITABINE
- CAPECITABINE (CLINICAL TRIAL CODE 0501)
- CAPECITABINE (CLINICAL TRIAL CODE SECOX)
- CAPECITABINE (HKACS DONATED DRUG)

Clinical Manifestation

☒ Quick List ☐ Extended List

- ☐ Allergic contact dermatitis
- ☐ Allergic rhinitis
- ☐ Angioedema
- ☐ Asthma
- ☐ Eczema
- ☐ Photosensitivity
- ☐ Rash
- ☐ Urticaria
- ☐ Stevens-Johnson Syndrome
- ☐ Manifestation uncertain

Level of certainty

☐ Certain ☐ Suspected

Additional Information

A close-up photograph of medical supplies on a light-colored surface. In the foreground, several white, round tablets are scattered. To the left, a clear plastic pill bottle lies on its side, with more tablets visible inside. A medical syringe with a green plunger and needle is positioned diagonally across the lower right. In the background, a roll of white gauze or bandage is partially unrolled. The lighting is soft, creating a clinical and professional atmosphere.


MDS Statistics (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%)

A close-up photograph of Sir Donald Tsang, a middle-aged man with dark hair, wearing glasses, a dark suit, a light blue shirt, and a yellow patterned bow tie. He is looking slightly to the right and appears to be speaking. A large, light gray speech bubble with a white outline is positioned to his right, containing text about the health care system.

**We take pride in our
current health care system.
We will develop a territory-wide,
patient-oriented electronic health
record, through public-private-
partnership.**

**Sir Donald Tsang, CE, HKSAR
Policy Address 2007**

eHR - An essential health infrastructure

**Patient-oriented
healthcare
records**



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



**Public-private
interface and
partnership**



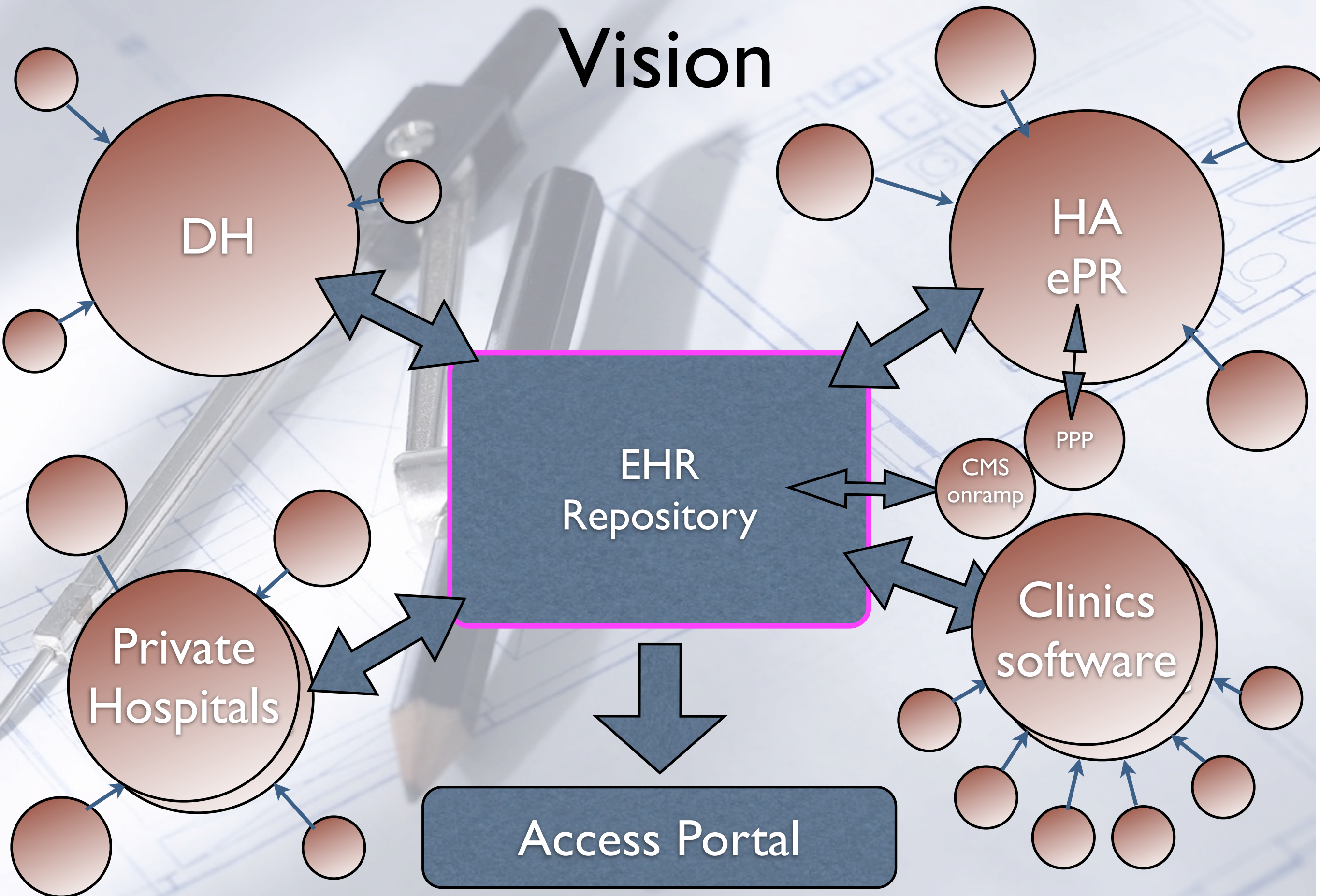
Electronic Health Records Sharing Infrastructure

Guiding principles of eHR development

1. Government-led model
2. Compelling But Not Compulsory Record Sharing
3. Privacy and Security of Paramount Importance
4. Open Technical Standards
5. Building Block Approach



Vision



3 eHR workstreams

- eHR Infrastructure

- Building the core infrastructure for records sharing

- CMS extensions

- Making HA's eMR technology available to the private sector

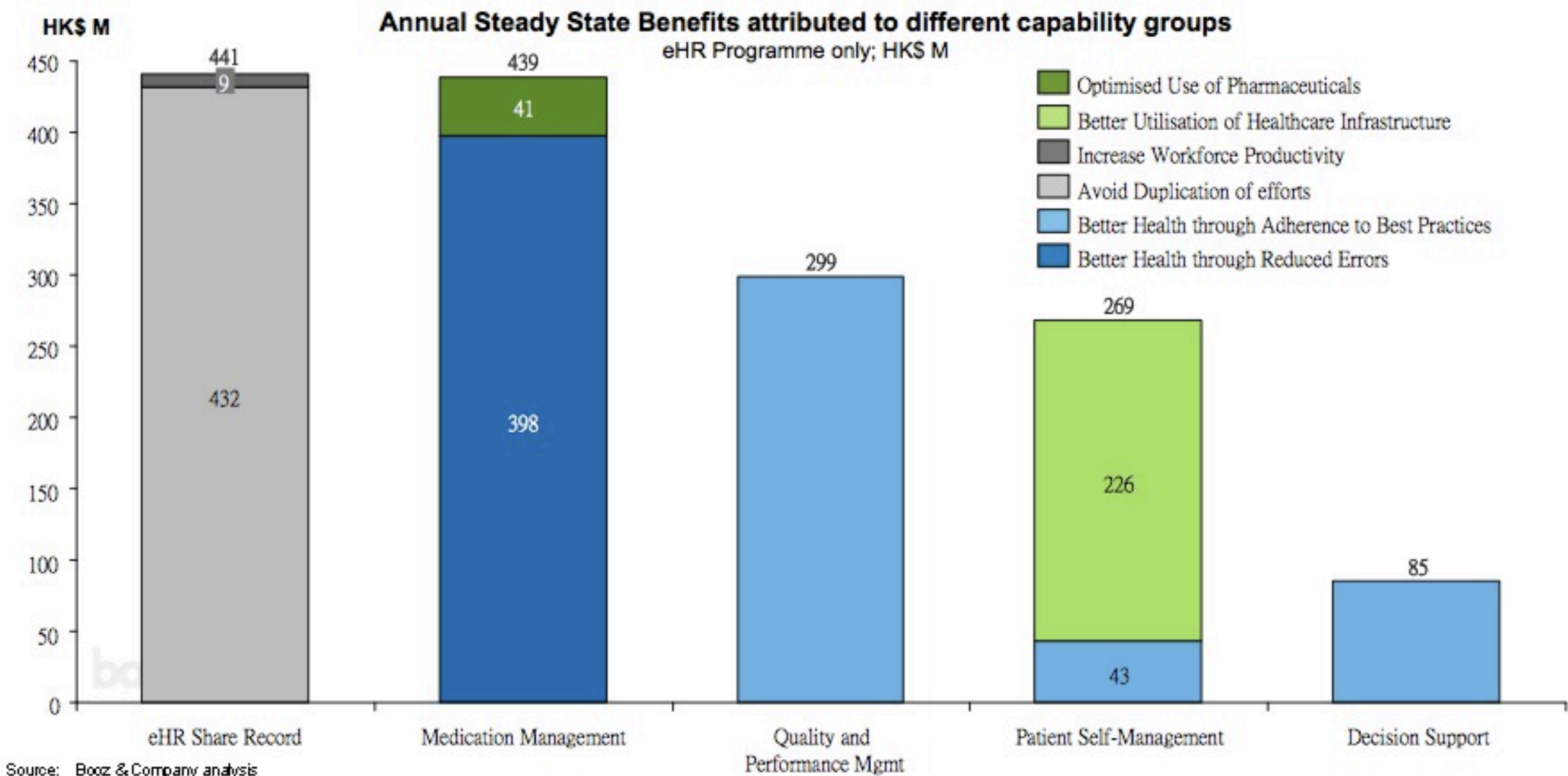
- Standards

- Enable interoperable medical records sharing and decision support

Major Milestones

Year	Hospitals	Clinics	Ancillary
2009	Radiological image sharing with private hospitals; Integration of Healthcare Voucher scheme with eHR		
2010	Pilot use of SmartID for patient authentication		Laboratory sharing
2011	CMS adaptation basic modules	Public consultation	
2012	Begin patient enrollment	CMS on ramp	HK Drug table
2013	Shared records in Doctor Portal		

According to the Benefits Model, eHR Shared Record and Medication Management capabilities should be prioritised



Source: Booz & Company analysis

Building Blocks for Patient safety



Structured Allergy

http://.../?state=2 - Evangel Hospital Information System - Windows Internet Explorer

File Tools Windows LogOff Help

Leads Patients Vendors Items Inventory Orders Drug Transfer from PHA Purchases Reports

Healthcare

- Patient Record
 - Maintain Patients
 - Registration/Admission
 - Booking
 - Cashier
 - Patient Chart Logging
 - Resource
 - Label
 - Healthcare Reports
 - Allergy
 - Discharge Summary

Healthcare Pharmacy Laboratory Purchasing Accounts Human Resources Marketing Office Admin System Admin

11/10/2010 11:47

ADM/

Press (F11) To Toggle Kiosk / Normal Mode

Allergy / Adverse Drug Reaction / Alert - Windows Internet Explorer

http://172.29.40.103:8080/patientpanel/webconnect.html?app=Allergy / Adverse Drug Reaction / Alert&url=http://172.29.40.103:8080/EhrAlertModule/...

TAM, HO (譚好)
HPOC no: A123456(8) DOB: 01-Feb-1961 Age: 49 years Sex: F Ward: 5A-X12 Adm: Medical Record no: A123456(8)

Allergy / Adverse Drug Reaction / Alert

Allergy
(1) **PENICILLIN** Last Update By / Date Time: user01 / 14-Oct-2010 11:42
Certain: Allergic contact dermatitis

ADR
(1) **ACERTIL (PERINDOPRIL TERTBUTYLAMINE)** Last Update By / Date Time: user01 / 14-Oct-2010 11:42
Severe: Angioedema

Alert
(1) **G6PD Deficiency** Last Update By / Date Time: user01 / 14-Oct-2010 11:42

Update Close

Drug ordering

health

醫健通

Queue Patient Appointment Consultation Dispensary Inventory User Profile Logout

Name: SEK, ON HONG (石安康) HKIC no: A000887(A) DOB: 03-Mar-1933 Age: 77 years Sex: M Details

Consultation

Alert: Allergy: PENICILLIN
Alert: G6PD Deficiency
ADR: AUGMENTIN

Smoking: Ex-Smoker
Drinking: Social Drinker

Consultation History

Consultation Details 19-Nov-2010

Visit Date	Created By	Clinic
16-Nov-2010		Kowloon Bay Clinic
29-Oct-2010		Kowloon Bay Clinic
27-Oct-2010		Kowloon Bay Clinic
21-Oct-2010		Kowloon Bay Clinic

16-Nov-2010

Clinical Notes

Plan of Management

History

Diagnosis / Notes / Prescription Billing Letter

Note

Clinical Notes Choose a Note Template

Plan of Management

Prescription

Save as New Drug Set Choose a Drug Set

Drug	Dose	Route	Frequency	PRN	Duration	Total Qty.
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Sick Leave From: 19-11-2010 To: Period: days AM PM Not Specify

Consultation Fee: \$

Save Complete Print Close

Summary

- Medication management is one of the key benefits of the eHR
- The HK Drug Table is being built to improve patient safety and enhance improve drug related functions
- The HK-wide eHR is a major health initiative requiring the partnership of the healthcare and IT sectors