Can eHealth Transform Healthcare in Hong Kong?

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Consultant(eHealth), FHB

Disruption

TESLA

airbnb

UBER

amazon

淘宝网
Taobao.com

eHealth in the HA
The Ongoing Journey

1990 "Green fields"

1991 Patient administration + Departmental systems

1995 **Clinical Management System (CMS)**

2000 CMS Phase II

- **Electronic Patient Record (ePR)**

2003 eSARS

2004 ePR Image Distribution

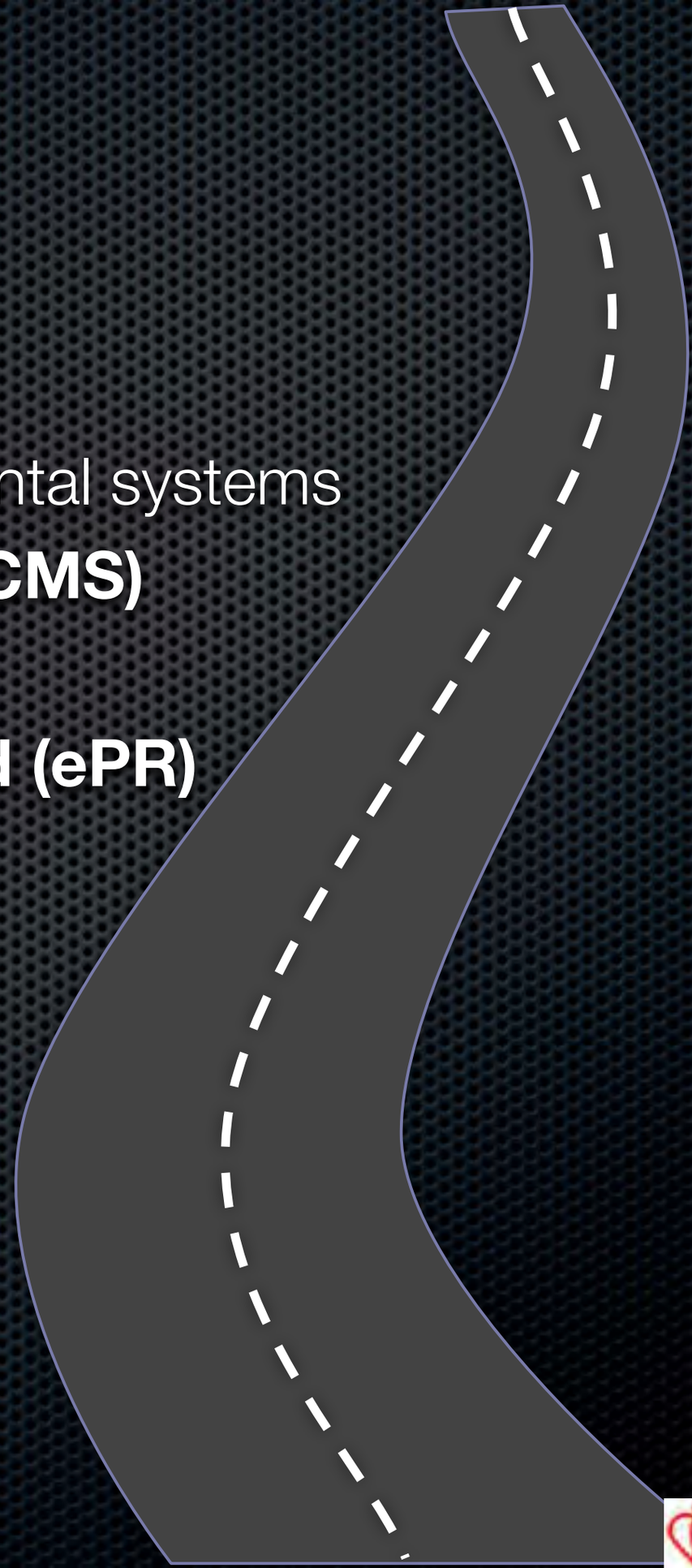
2006 PPI ePR sharing

2008 CMS Phase III

2009 **Filmless HA**

2010 **Inpatient MOE**

2016 **HK-wide eHR Sharing System**



CMS -
An essential clinical tool

- 11M patients
- 380M episodes of care
- 2B laboratory results
- 423M radiology studies
- 723M drug items

- 14M transactions / day
- Sub-second response time
- 7x24 >99.98% uptime since live run

End User Devices

20,000 workstations
2,500 devices

Applications

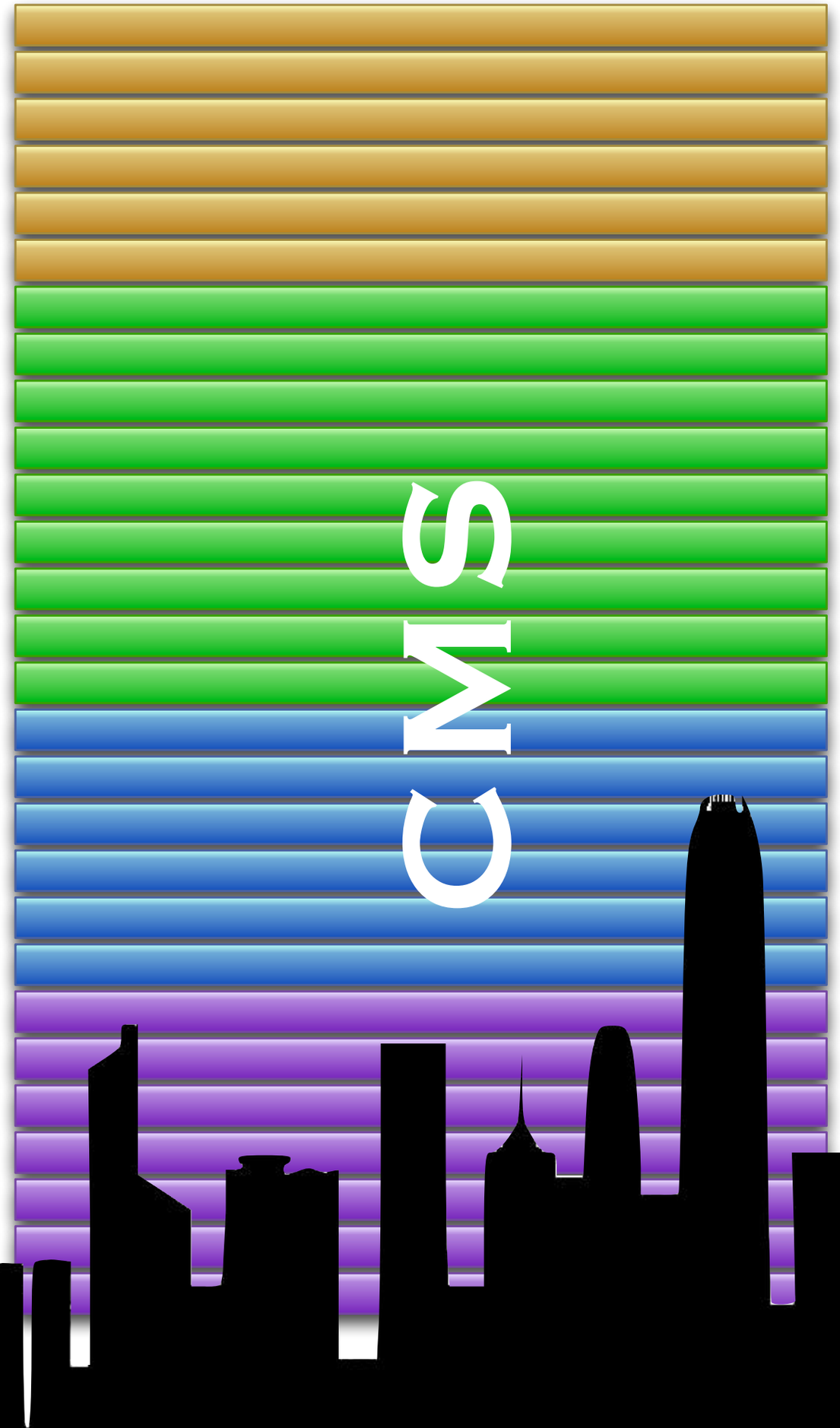
110 applications
850 services
6000 datasets

Servers

1100 middleware servers
450 database servers

Infrastructure

5 data centres
Hong Kong wide network



Health Informatics in HA
3 Basic Steps

Support the processes of care

- Enter once, use many
- Do the right thing
- Targeted clinical effort

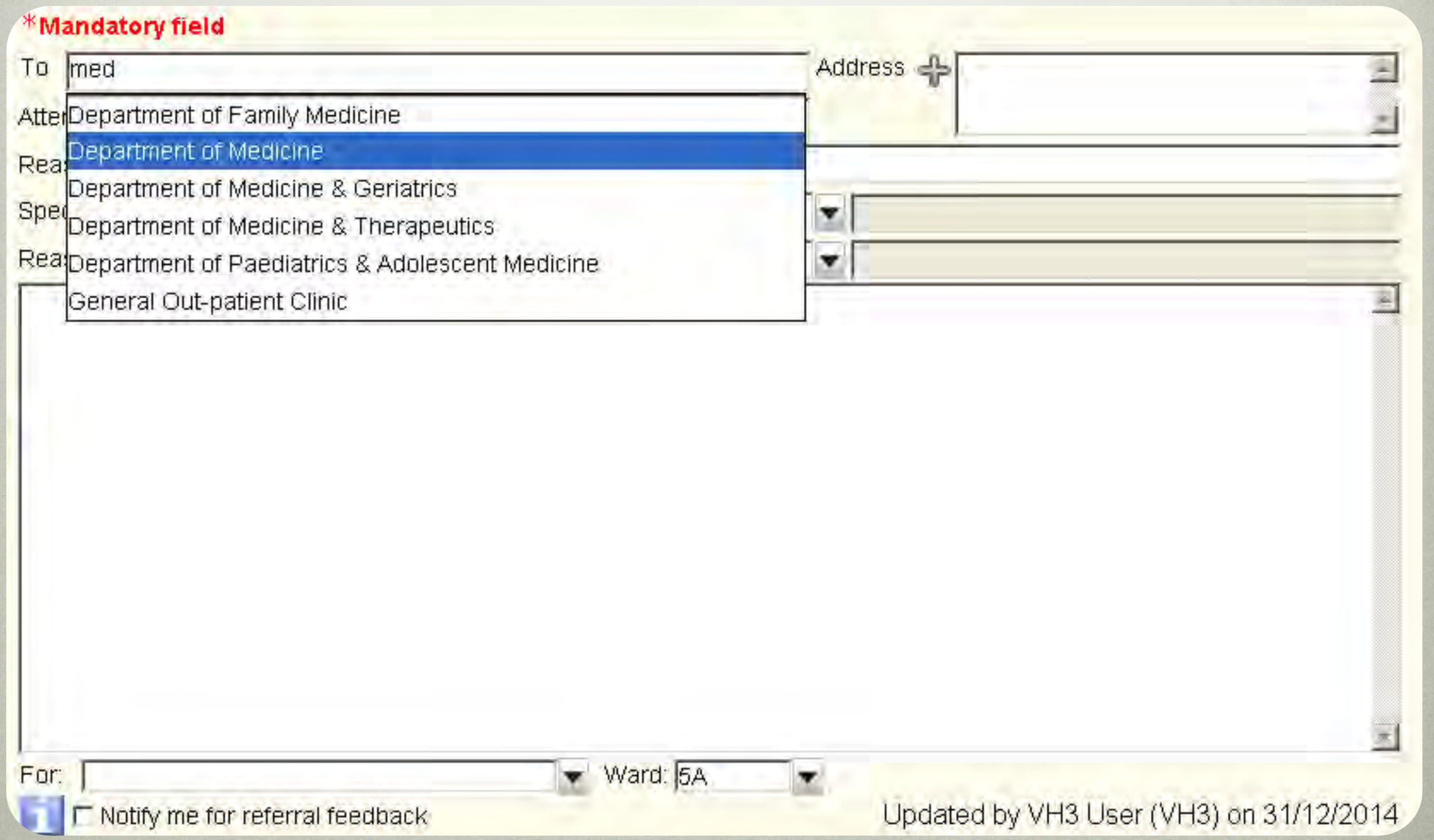
Improve quality & safety

- Specific Q&S programs
- Measure & monitor
- Continuous improvement

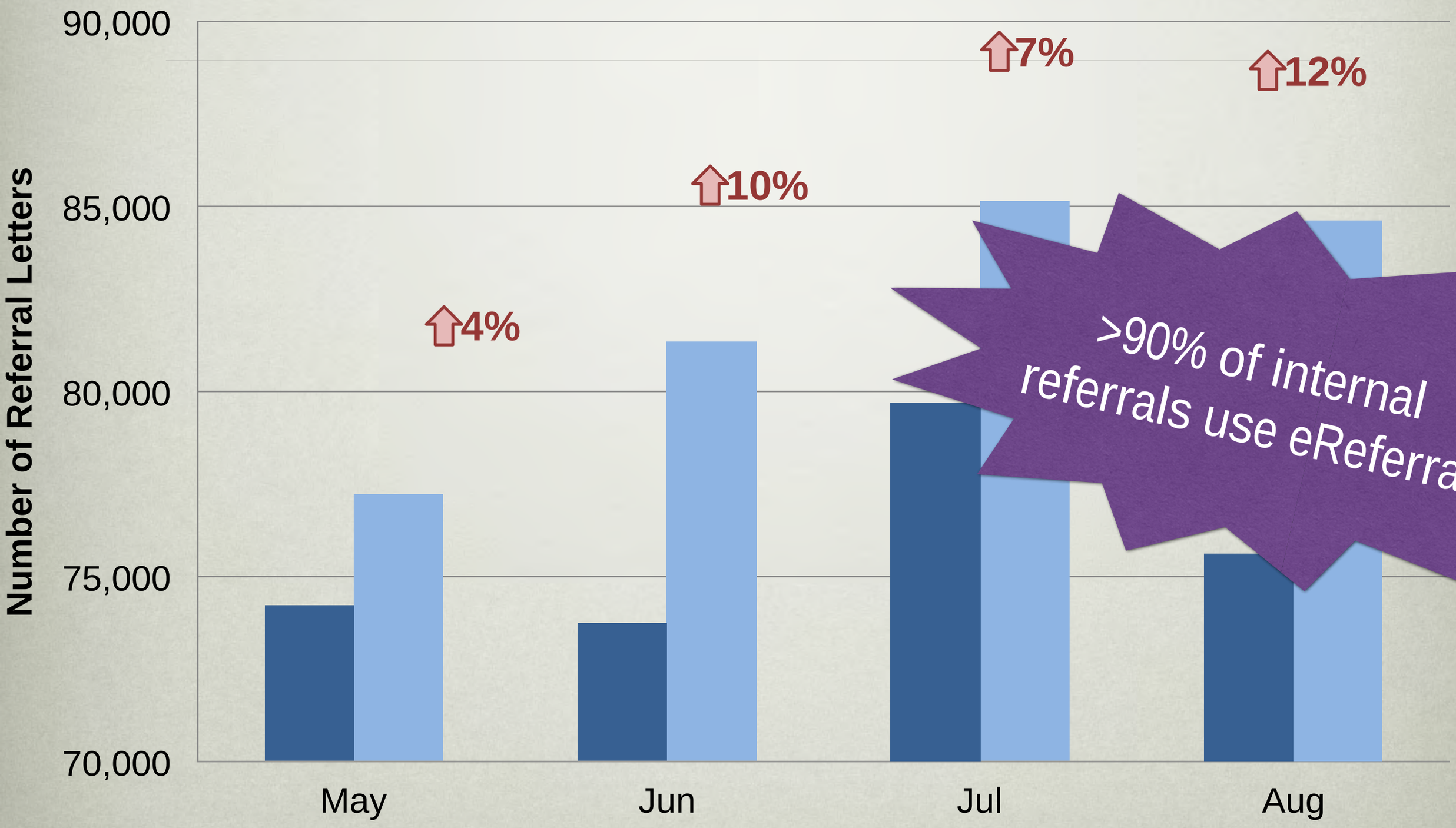
Build the electronic patient record

- Comprehensive
- Standardized & structured
- Accessible

CMS eReferral Letter

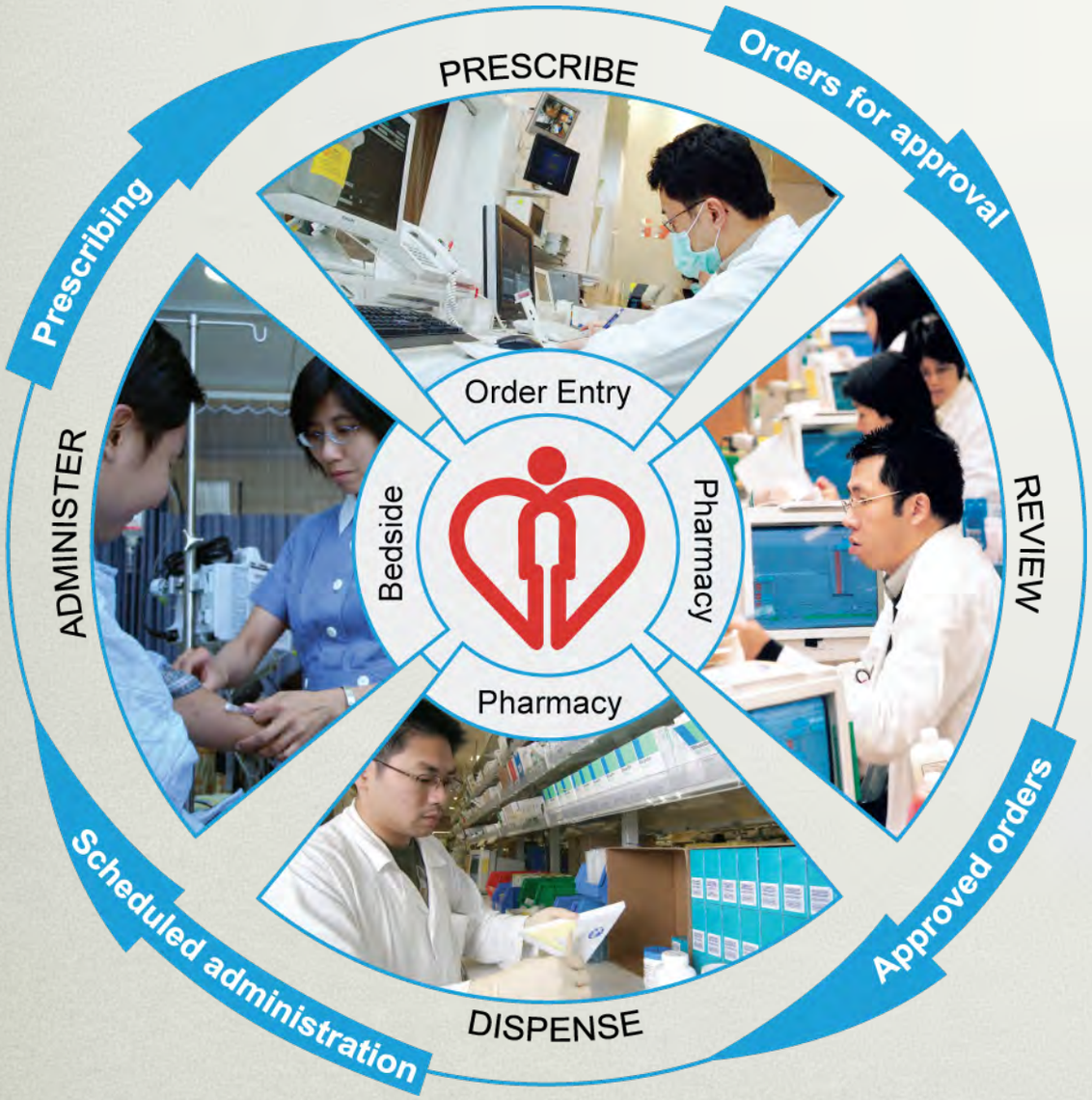


Increasing utilization of CMS eReferral



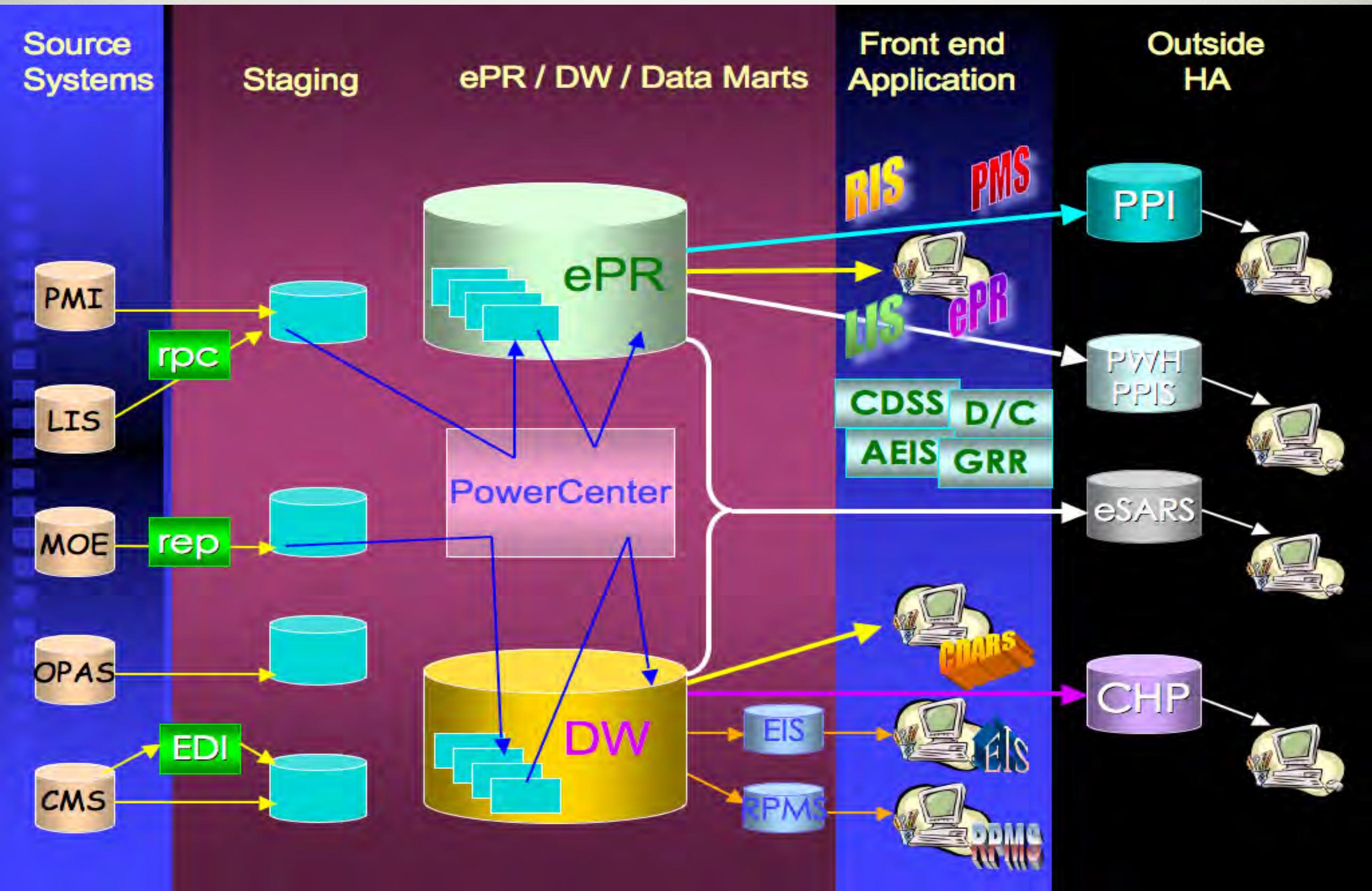
1. Rollout new “To” field and address generator to all hospitals on 10-Nov-2014
2. Rollout enhanced “Reason for referral” to all hospitals on 11-May-2015

Closed Loop Inpatient Medication Management (IP-MOE)



- Electronic Prescribing
- Prescription vetting & dispensing
- Barcoded administration
- Medication Reconciliation

Information Flow



Clinical Data Analysis Reporting System

Clinical Data Analysis and Reporting System

Help | Log O

Report History | Request Submission | User Definition | System Maintenance

In-Patient Episodes Analysis

Step 4 of 4

Please **Define Layout** of your summary report.

Request Details | Query Criteria | Criteria Grouping | Layout

Summary Report: mghjghjgh

Selected Codes | Full Profile

Keep Drill Down Details

*Double click the cells to modify dimension properties.

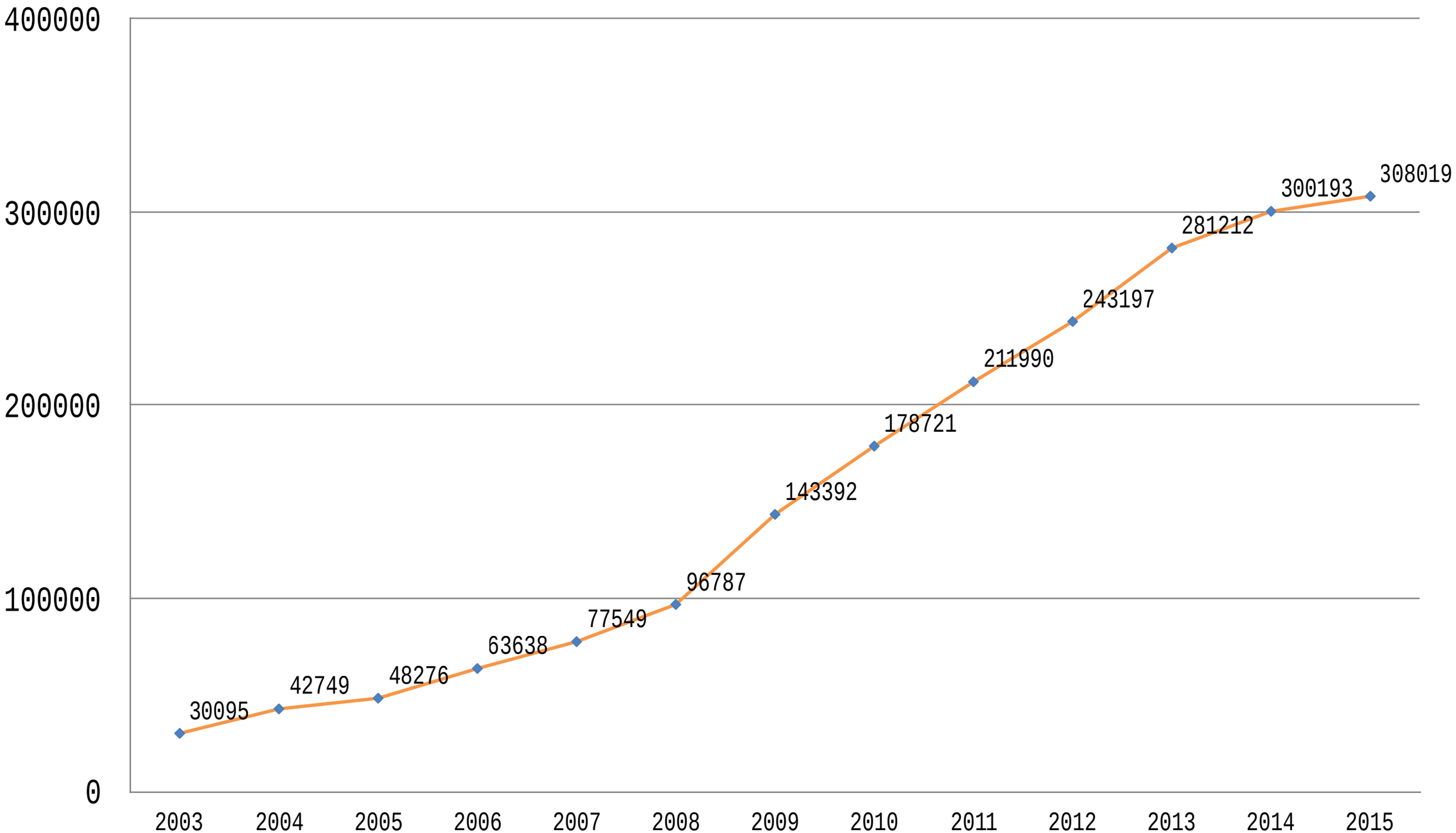
- Dimensions
  - Institution and Services Unit
  - Patient Demographics
  - Treatment Care
  - Patient Outcome
  - Diagnosis
  - Procedure
  - Drug
  - Radiology Information
  - User Defined Dimension (Episode Based)
  - User Defined Dimension (Patient Based)
  - User Defined Date (Episode Based)
  - User Defined Date (Patient Based)
  - User Defined Interval (Episode Based)
  - User Defined Interval (Patient Based)
- Measurements
  - Episode Statistics
    - No. of Episodes
    - No. of Episodes Headcounts
  - Admission Statistics
  - Discharges and Death Statistics
  - Patient Transfer In/Out Statistics
  - Bed Utilization
  - Length of Stay of Discharged Patient
  - Length of Stay of Discharged Patient By Specialty (EIS)

Page 1	Column 1	
	Column 2	Column 2

			Measurement 1	Measurement 2	Measurement 3	Measurement 4
Institution (IPAS)	Row 2	Row 3	No. of Episodes			
		Row 3				
	Row 2	Row 3				
		Row 3				

Back | Delete | Reset | Save Layout | Submit

Number of CDARS Requests 2003-2015



Management Information Portal

Trend of A&E First Attendances, Admissions and Bed Occupancy Rate

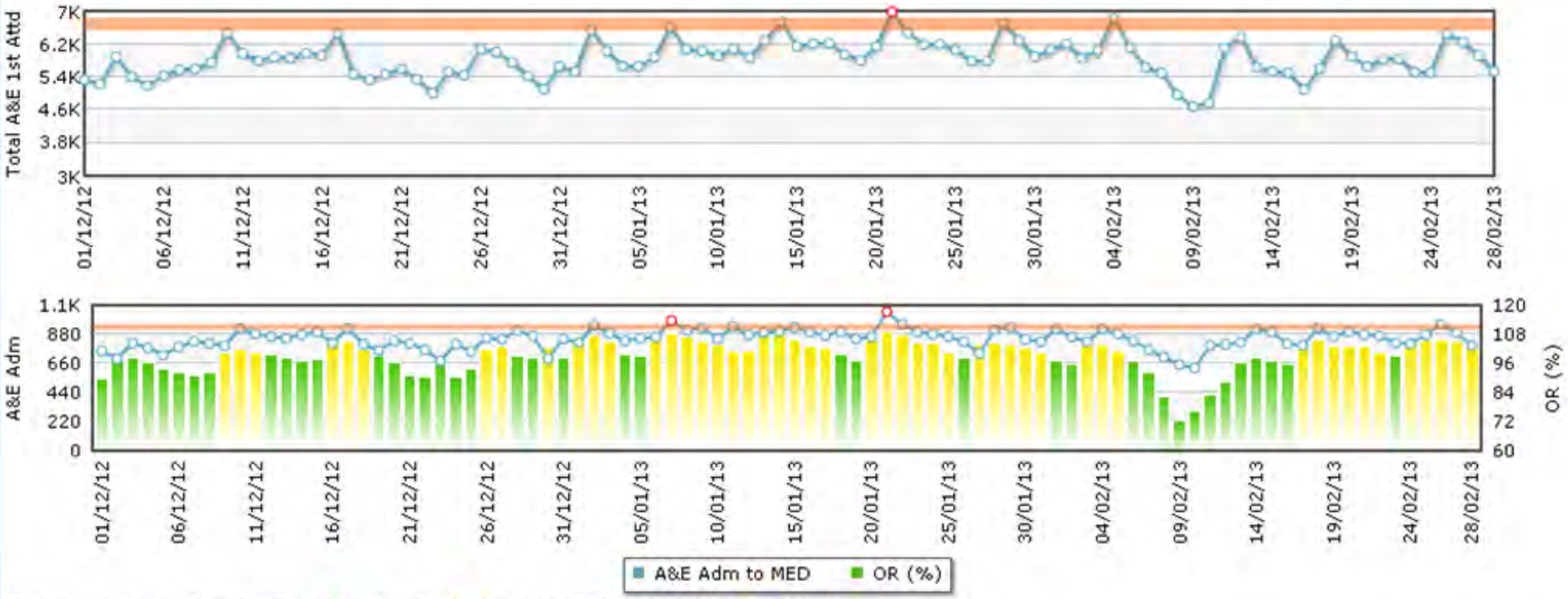
Institution: HA Overall (15 Group 1 Hospitals)

Specialty: MED

A&E Patients: (•) All ( ) From OAH

Reference Zone (Daily Avg.): (•) Same month last year ( ) 2Q & 4Q of last year ( ) Last 12 months **View**

[HA Overall (15 Group 1 Hospitals), MED, All, Reference Zone (Same month last year)]



** Bed Occupancy Rate (OR%) - < 100%, between 100% and 115%, > 115%

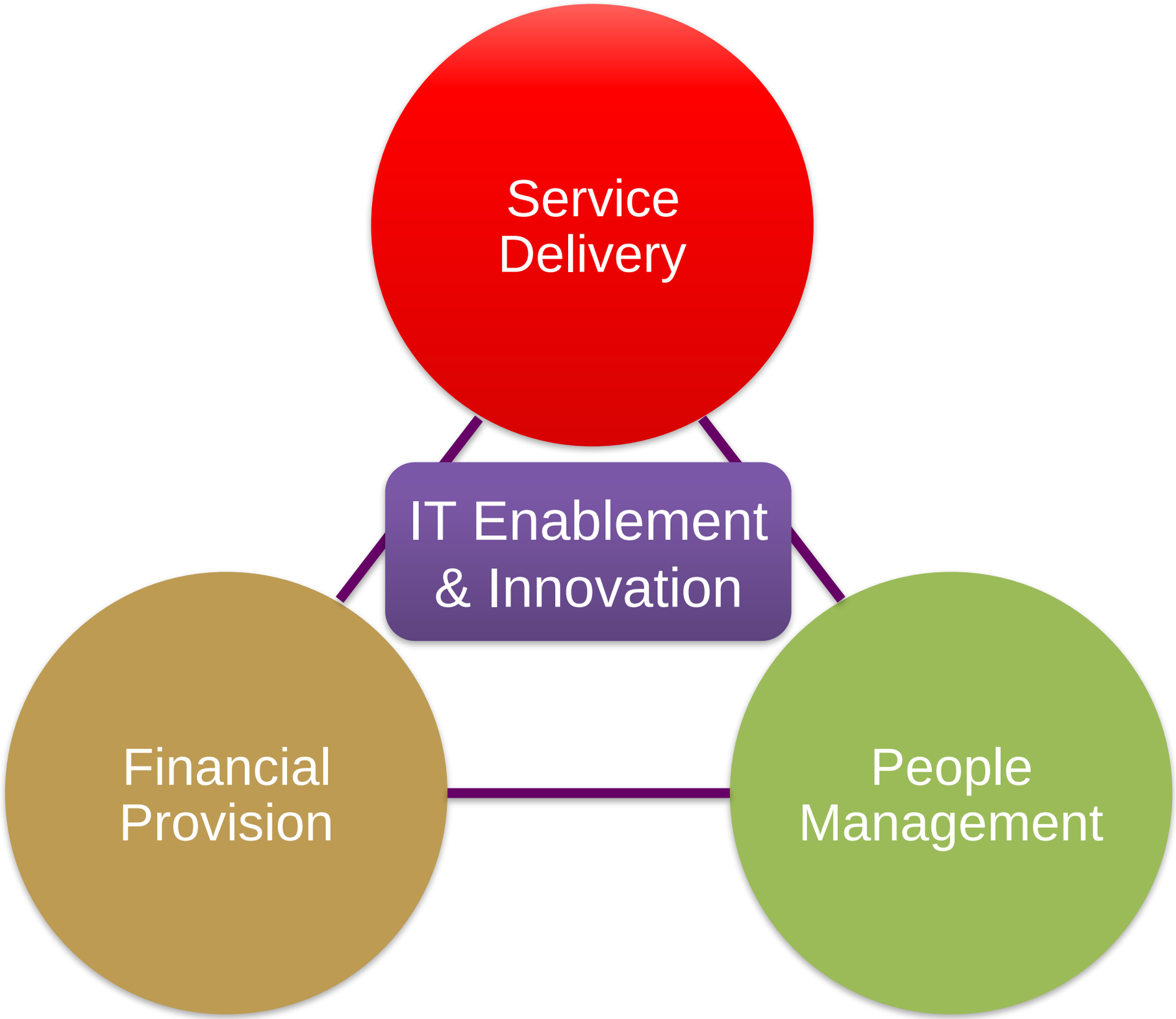
*Coordinated by Lisa LAU Dr, HOCS M(MG/CP) - **Data refreshment policy***

** Data last updated on 1 Mar 2013*

CMS IV - the 4 P's

- Paperless
- Protocol driven
- Personalised
- Closed loop communications

IT a Key Enabler for HA Strategy 2017-22



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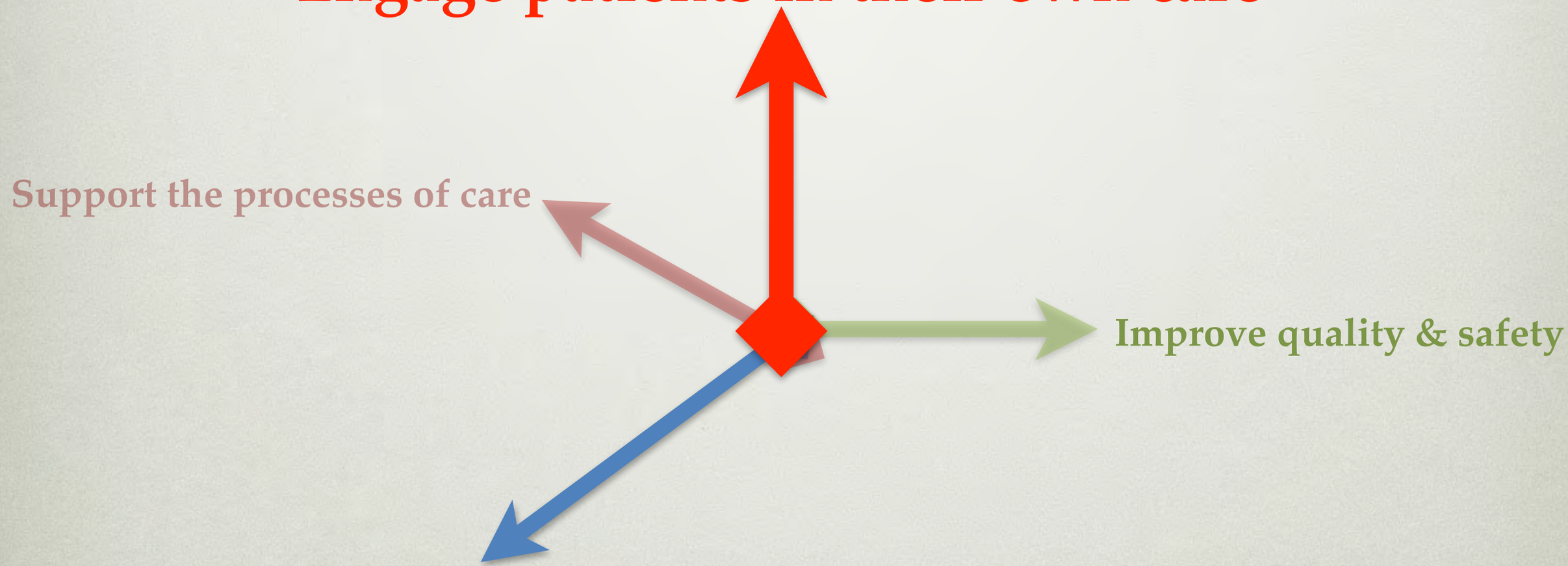
Health Informatics in HA
The 4th Step

Enable new models of service delivery

Make data actionable

Engage patients in their own care



Community Health Call Centre Services

Service development journey

Patient Support Call Centre (PSCC)

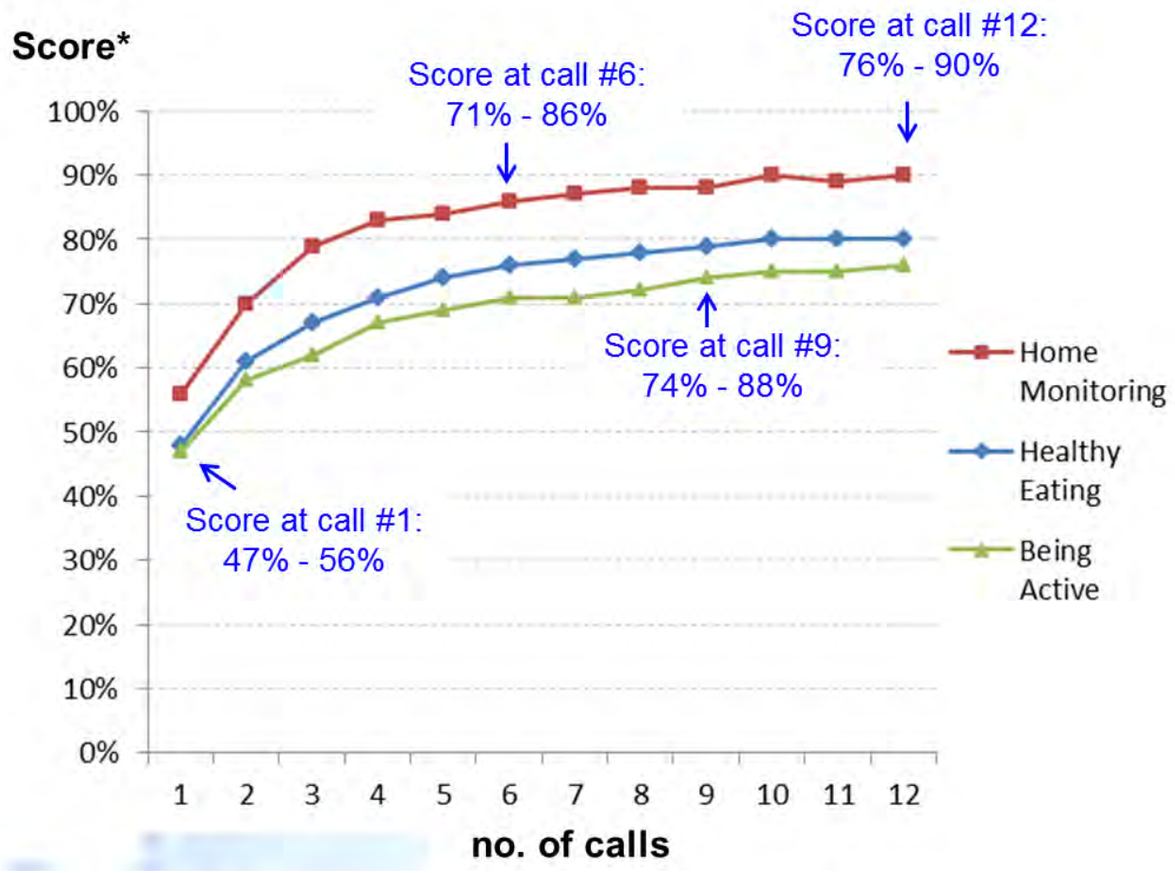
- 2009 High Risk Elderly (HARPPE) proactive calls
- 2011 Chronic Disease Management - DM patients with suboptimal disease control

Mental Health Direct (MHD)

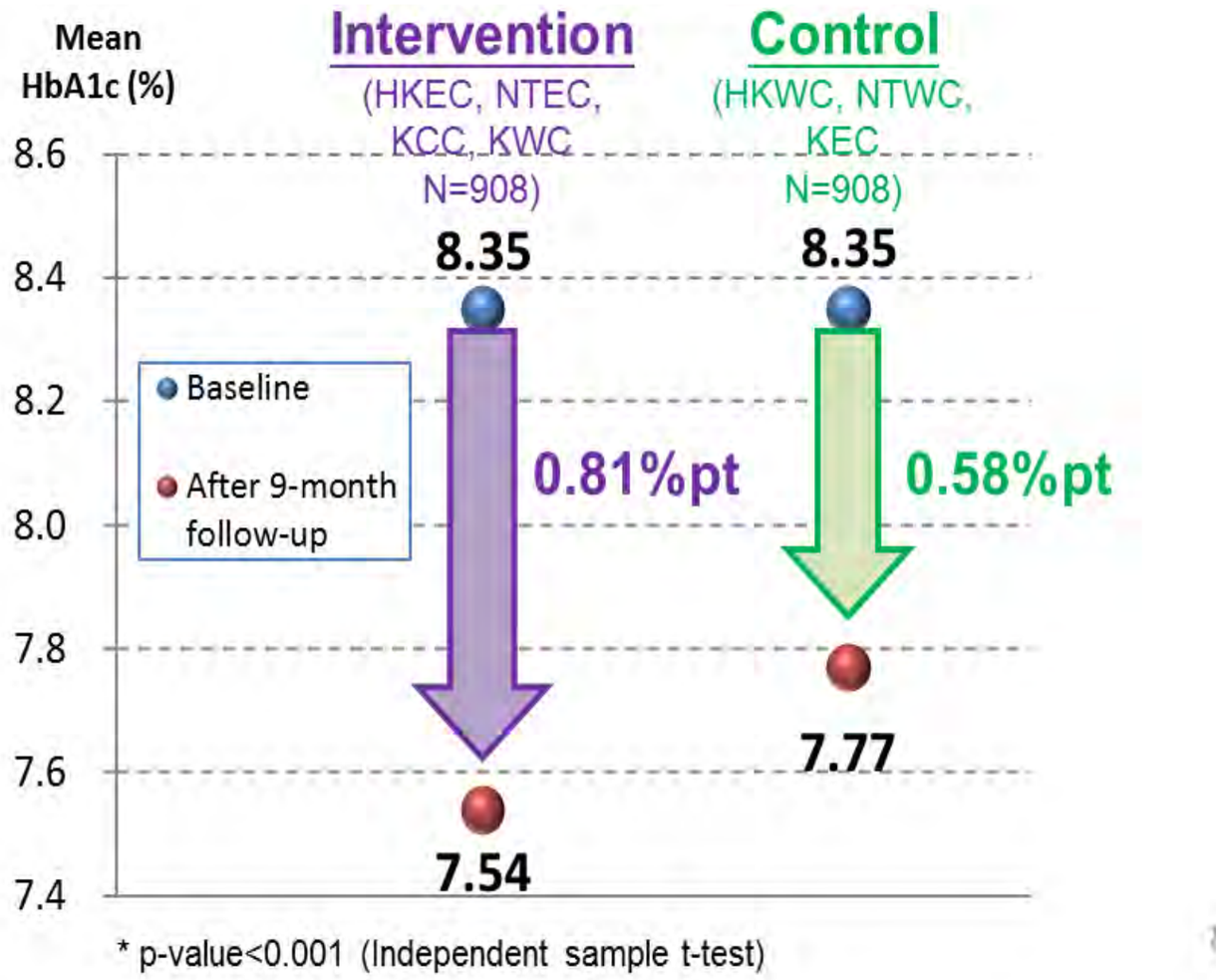
- 2012
  - 24-hour advisory hotline service by psychiatric nurses
  - “Telecare” service targeting patients with severe mental illness
- 2014 Defaulter tracing service

Chronic Disease Management- DM Program

Improvement in Behaviours

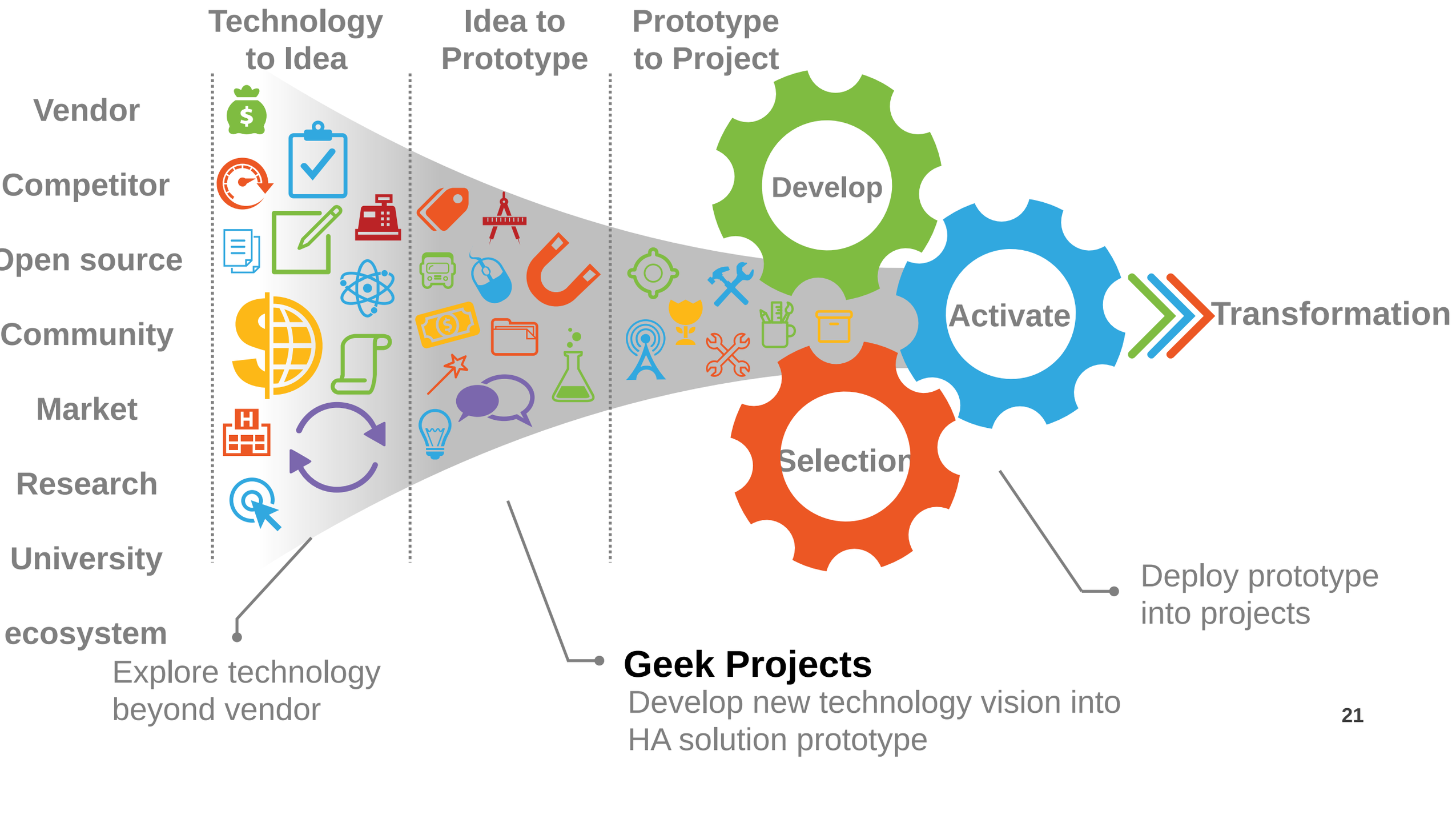


Improvement in HbA1c



Additional 0.23% point* reduction in HbA1c

The Innovation Funnel



Geek Project

iBeacon Indoor Navigation

- **Low-cost**
  - HK$ 60 / iBeacon
- **Support iPhone/ Android Phones**
  - via Bluetooth connect
- **Indoor navigation**
  - Auto-detection of user’s location
  - Visual and voice guidance
  - Shortest route to the destination

HA mobile apps for patients and staff

HA Touch
(General Info)

TouchMed
(Prescription Queuing)

HRApp
(App for HA staff)

easyGO
(Wayfinding pilot)

BookHA
(SOPD Booking)

mSHR
(Staff medical record)

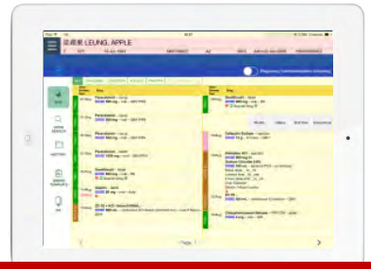
Mobile CMS

Mobile Radiology

Mobile Lab Result

Mobile Radiology

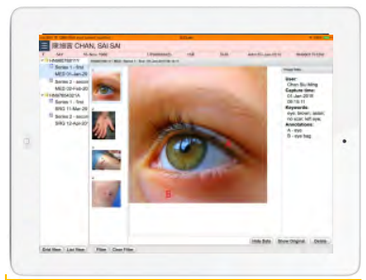
Mobile Allergy



Mobile Prescription

Mobile Notes

Mobile Clinical Camera



Mobile Album

Review Results

Order Medications

Diagnosis and Treatment

Mobile Memo

Order Investigations

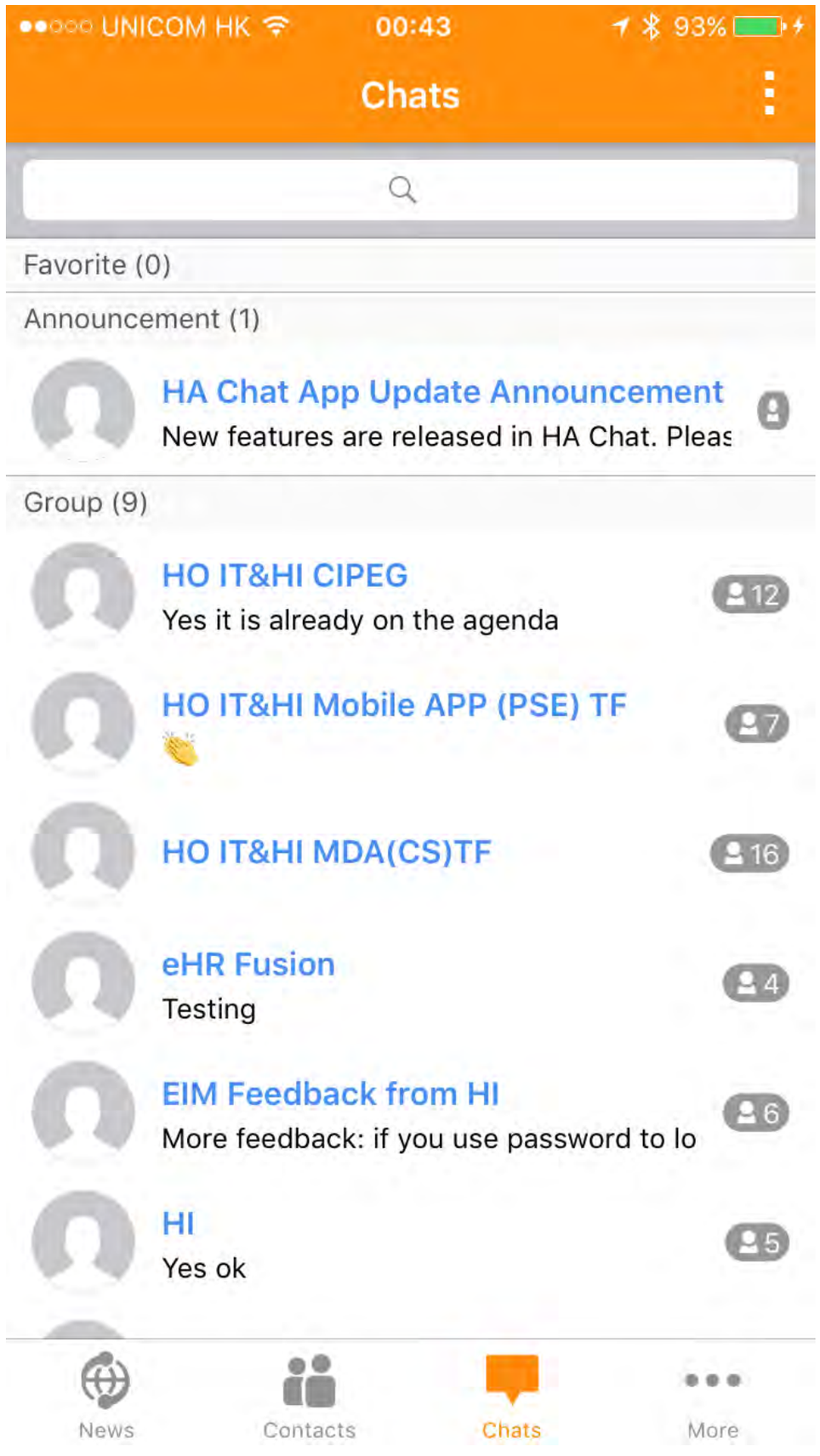
Mobile Clinical Requests

Mobile Care Plan

Mobile Clinical Forms

Mobile DxPx

HA Chat


UNICOM HK
00:43
93%
Chats
Favorite (0)
Announcement (1)
HA Chat App Update Announcement
New features are released in HA Chat. Pleas
Group (9)
HO IT&HI CIPEG
Yes it is already on the agenda
12
HO IT&HI Mobile APP (PSE) TF
7
HO IT&HI MDA(CS)TF
16
eHR Fusion
Testing
4
EIM Feedback from HI
More feedback: if you use password to lo
6
HI
Yes ok
5
News
Contacts
Chats
More

A&E Dashboard

A&E QUEUING (BETA)

7 Apr, 17:29

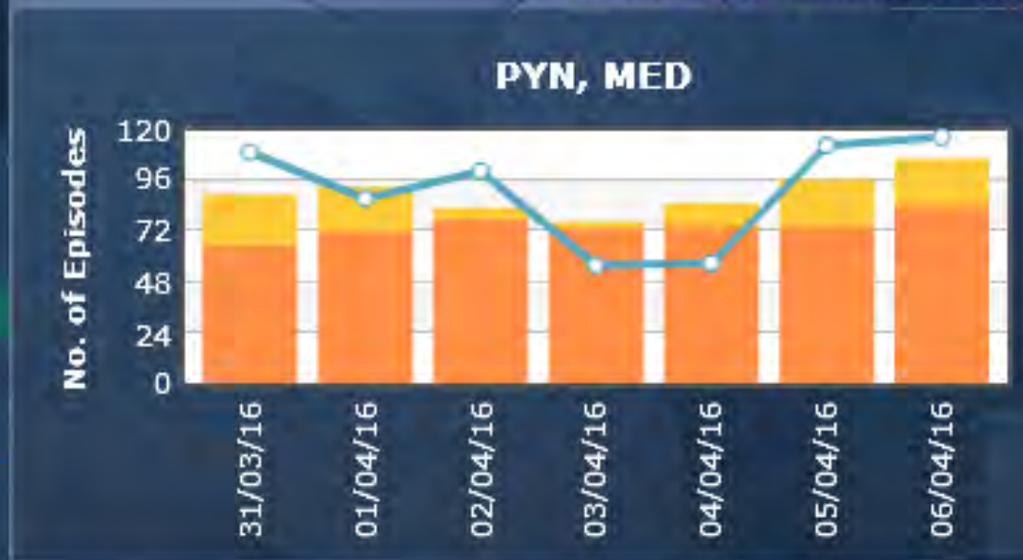
Awaiting Consultation	Max WT (last 3hrs) (in min.)	Awaiting Adm. (> 8hrs / > 4hrs / > 2hrs / Total)
25	176	0 / 0 / 0 / 6
22	204	0 / 0 / 0 / 0
4	25	0 / 0 / 0 / 0
51	204	0 / 0 / 0 / 6

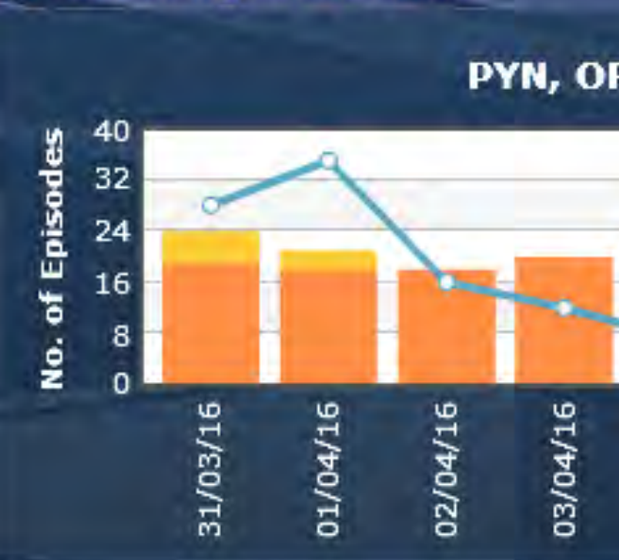
(06/04/2016)

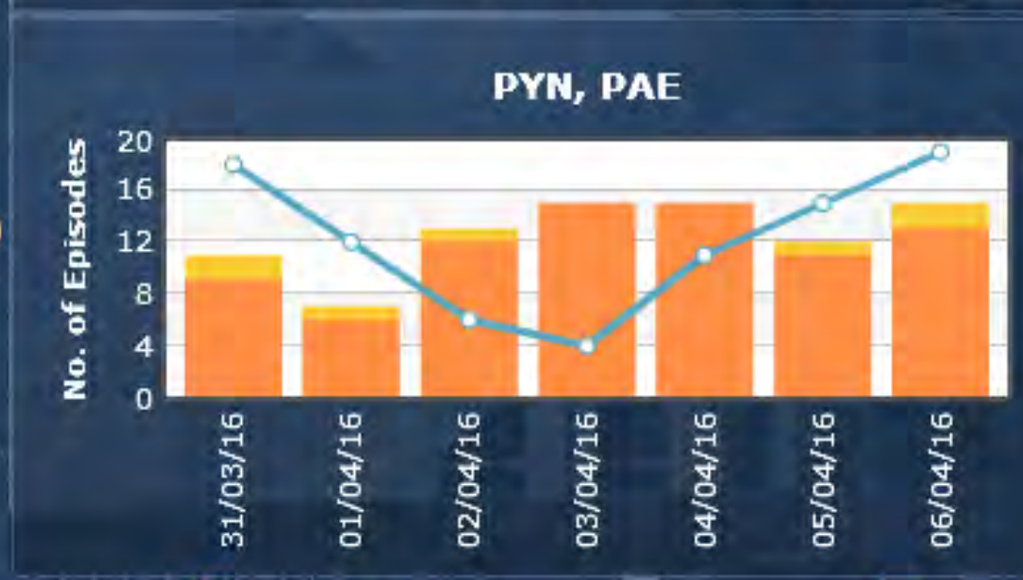
Total A&E 1st Attendance: 370

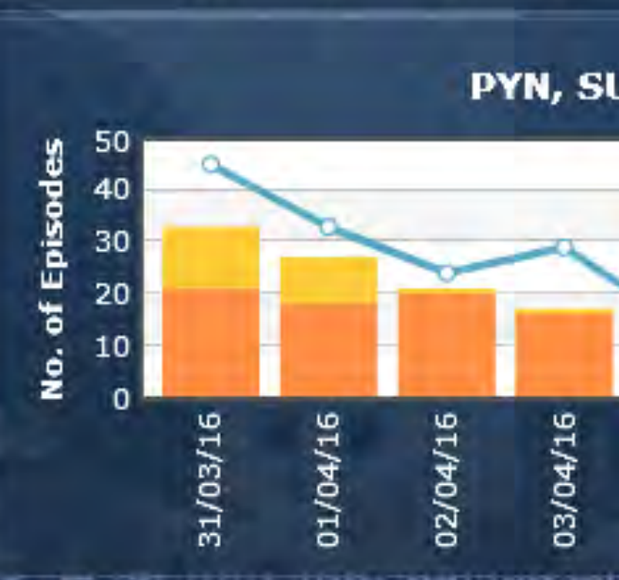
Emerg. Adm.	Elective Adm.	D & D
84	22	116
21	6	27
13	2	19
22	13	38

Trend of IP Admissions and Discharges & Deaths









Emerg. Adm. Elective Adm.

04/04/16, PYN

Specialty: ORT

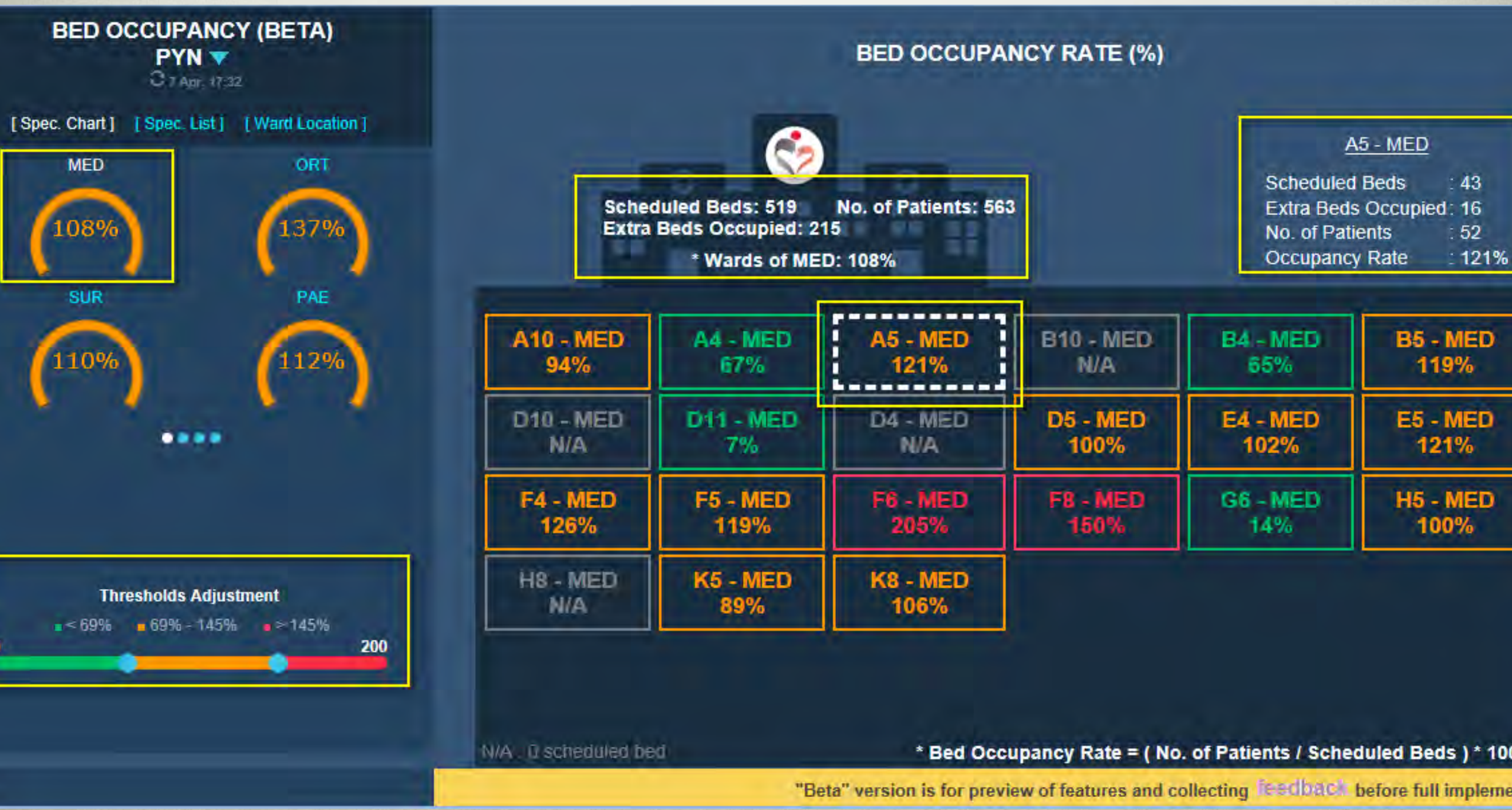
IP Emergency Adm. to ORT: 22

IP Acute Elec. Adm

IP D&D: 7

"Beta" version is for preview of features and collecting feedback be

Bed Occupancy Dashboard



MIPO Admission Block Alert

HO IT&HI MIPo 2 April 2016 at 8:05

To: Kenneth Fung, HOCS M(OCS), Magdalene CHAN, HOCS SM(OCS), and 15 more...

HI

MIPo Early Alert (02 Apr 08:05): A&E Patients waiting for admission for over 12/24/36/48 hours (Trial version)

Dear Sir/Madam,

Please note there are A&E patients in as of 02 Apr 08:05 having waited for admission for over 12 hours or longer as follows:

Waiting Adm.	> 12 hours	> 24 hours	> 36 hours	> 48 hours
[redacted]	2	0	0	0

Hospital	Blocking Case No.	Waiting Adm. (hours)	Adm. Spec. (if data available)	IP Case No. (if data available)
[redacted]		16	-	-
		22	-	-

Calculation formula of waiting time is attached for your reference.

Transforming Healthcare Delivery

- CMS will continue to enhance the quality, safety and efficiency of HA care
- More use of data to drive timely clinical and management action
- IT innovations will improve the patient and staff experience
- IT will enable new models of service delivery