

Transforming Healthcare in Hong Kong thru eHealth

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APEHRC 2016

DISRUPTION



UBER

淘宝网
Taobao.com

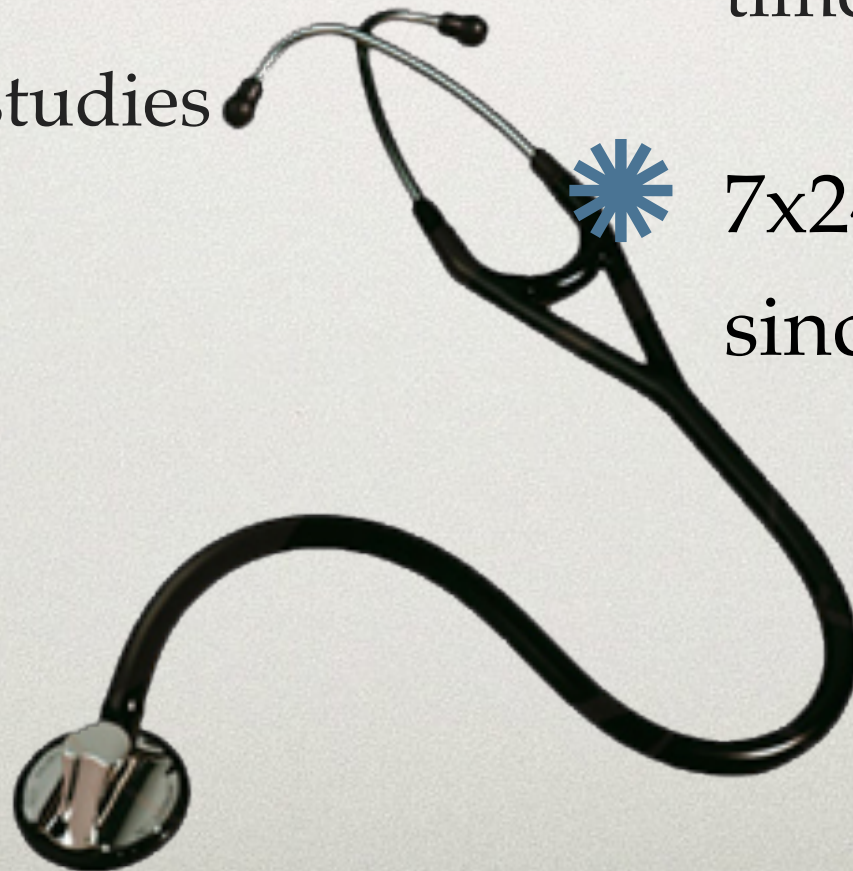
eHealth in the HA

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**
Mobile CMS

CMS - AN ESSENTIAL CLINICAL TOOL

- * **11M** patients
- * **380M** episodes of care
- * **2B** laboratory results
- * **423M** radiology studies
- * **723M** drug items
- * **14M** transactions / day
- * **1 PB data**
- * **Sub-second** response time
- * 7x24 > **99.98%** uptime since live run



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

A Phased Approach to Medication management



1995 Discharge medication

1996 Outpatient prescriptions

2002 Drug checking

2013 Inpatient closed loop medications

Stage 1: Discharge and outpatient prescriptions

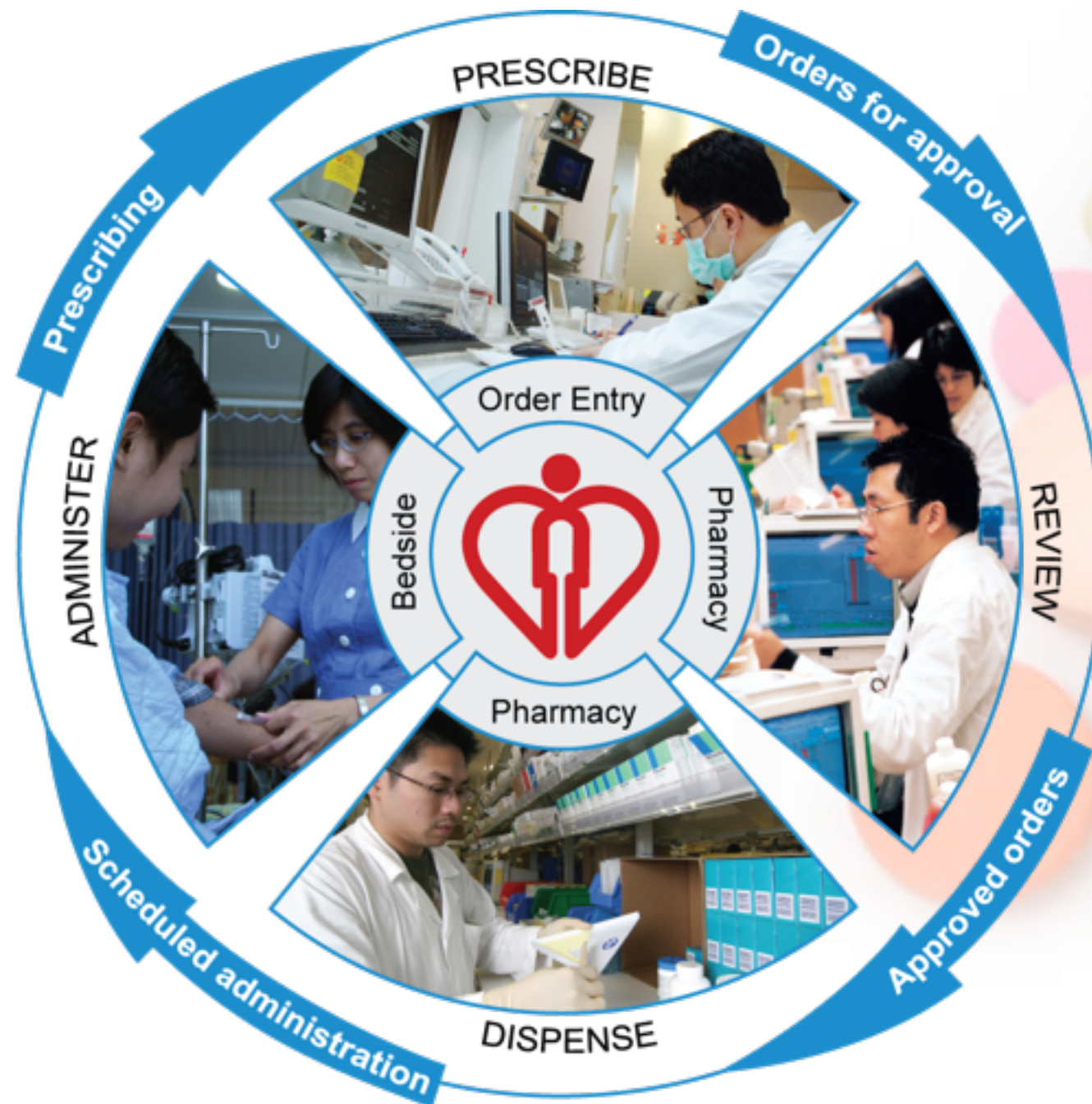
- Legible, standardized orders
 - Standardized formulary
 - Structured data
- Link to pharmacy
- Full medication history
 - Reduced transcription



Stage 2: Improving medication safety

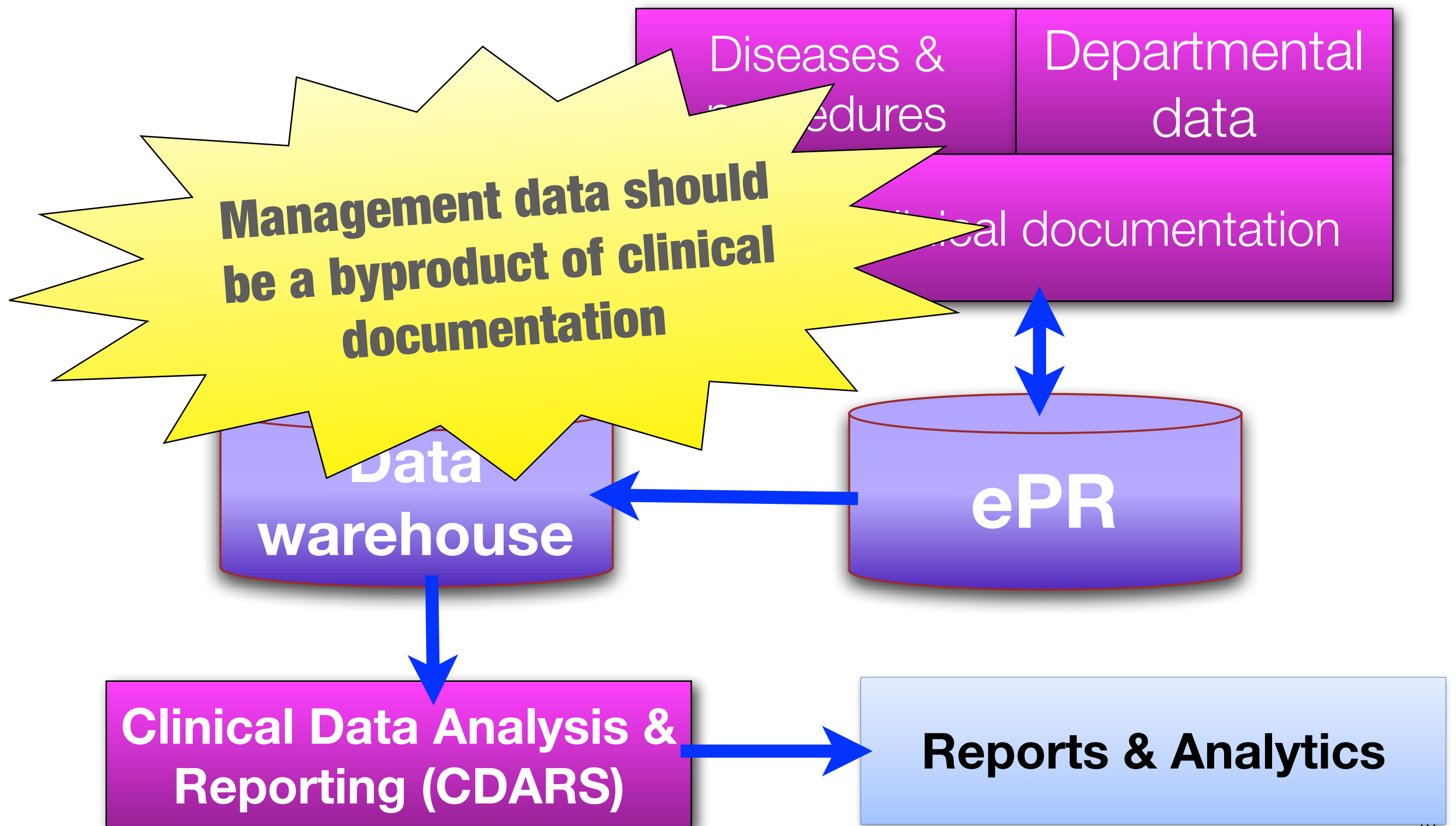
- Purchase of third party drug checking system
- Capture allergies as structured data
- Monitor override reasons
 - Adjust level of alerts
- Add customized checking logic
- Since 2005, a CMS alert has caused the prescribing doctor to change a medication over **350,000** times

Stage 3: Closed loop inpatient medications




- Electronic Prescribing
- Prescription vetting & dispensing
- eMAR & barcoded administration

Clinical documentation becomes knowledge



Clinical Data Analysis Reporting System

**Clinical Data Analysis
and Reporting System**

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

+

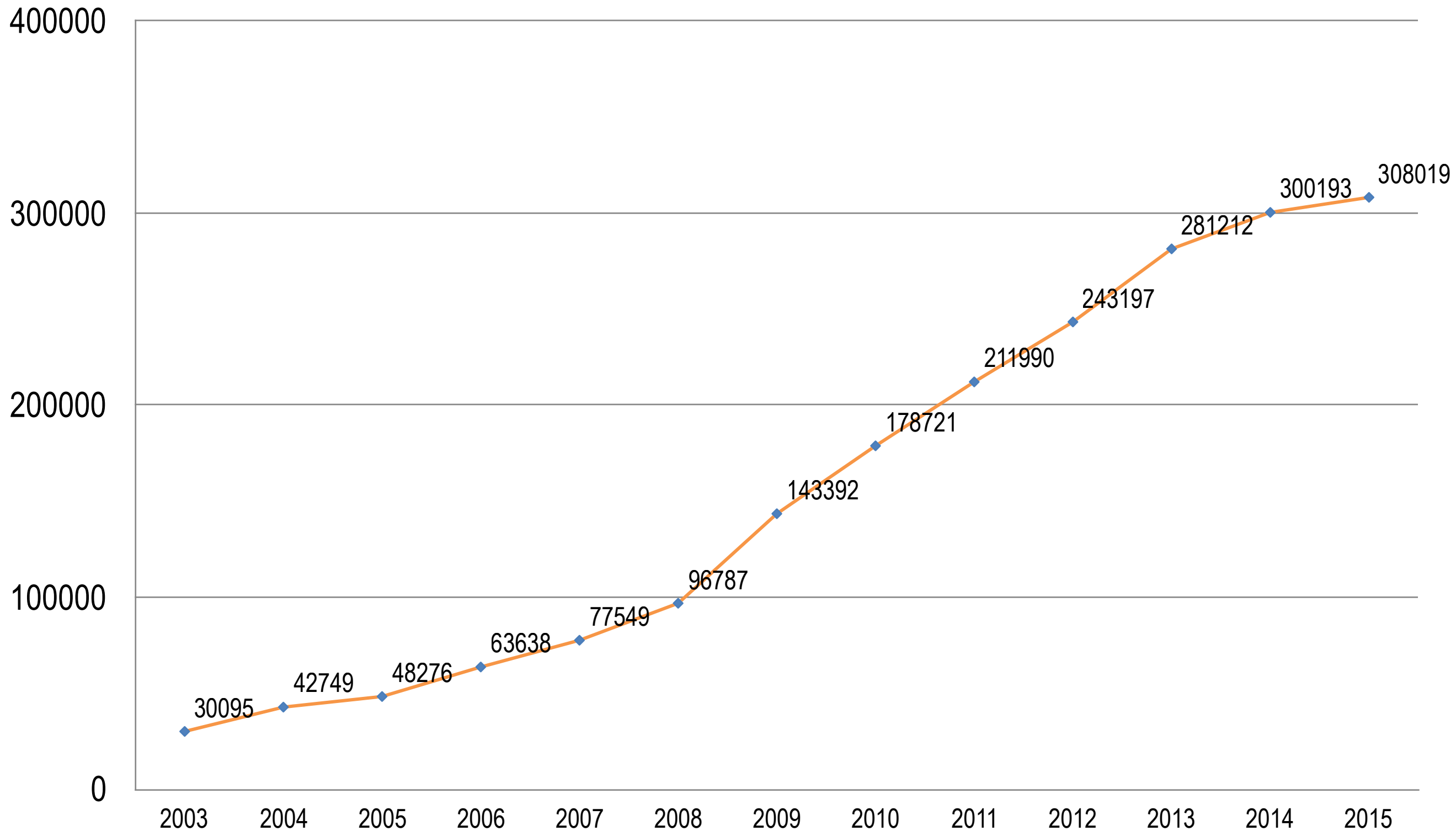
 Length of Stay of Discharged Patient

+

 Length of Stay of Discharged Patient By Specialty (EIS)

[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) ▼

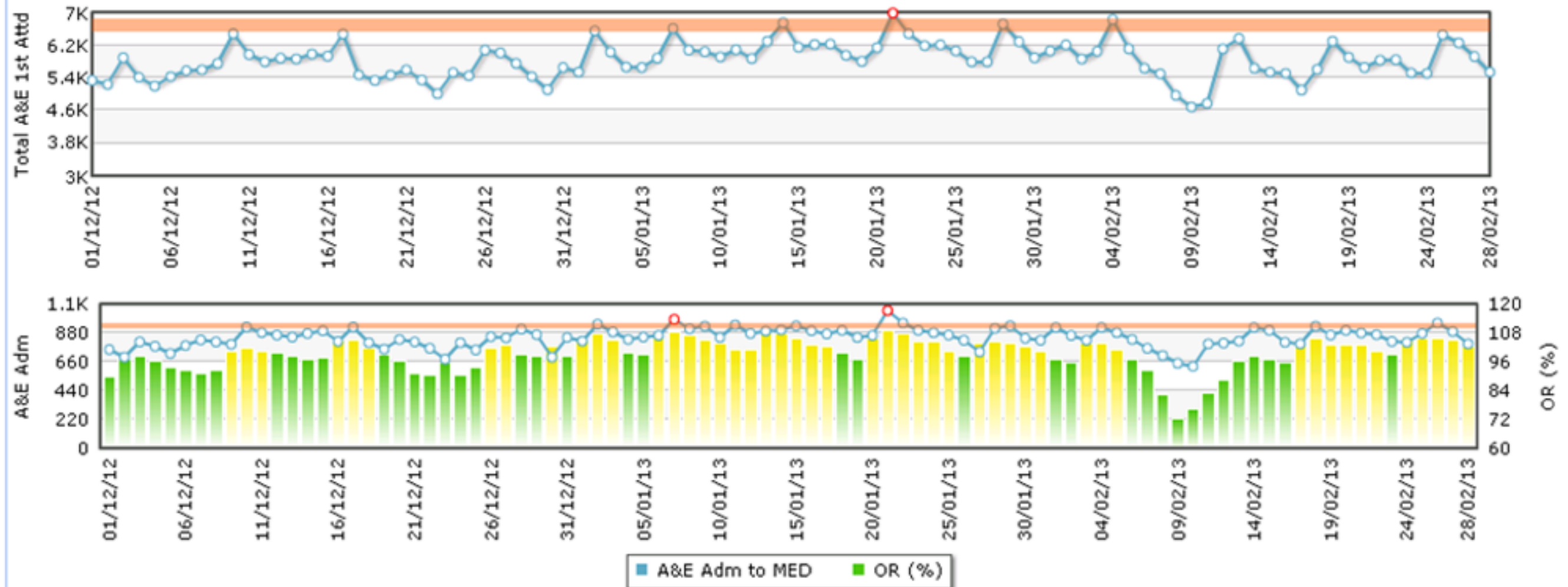
Specialty: MED ▼

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

SURGICAL OUTCOMES MONITORING IMPROVEMENT PROGRAM (SOMIP)

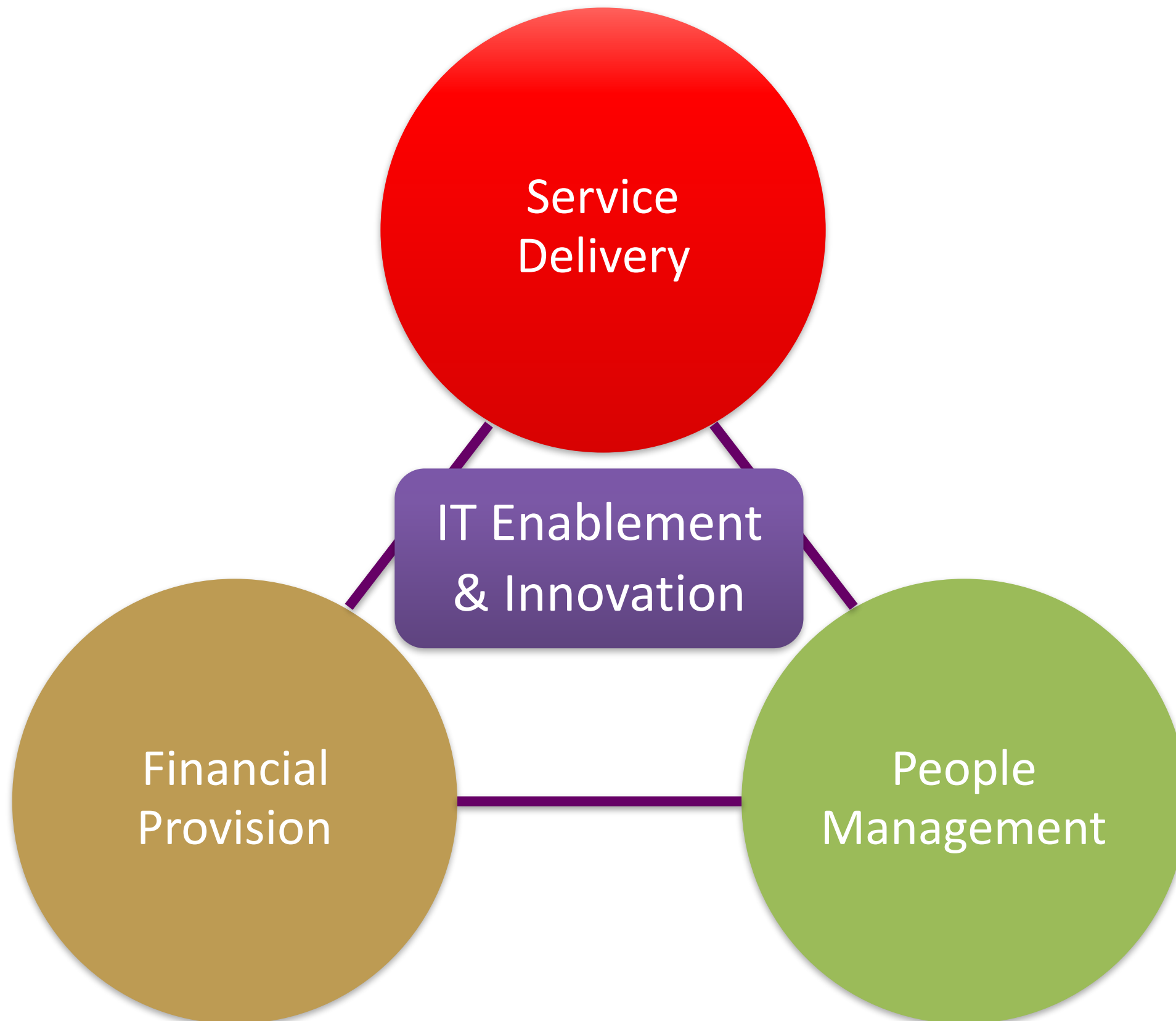


SURGICAL OUTCOMES MONITORING IMPROVEMENT PROGRAM (SOMIP)

	ELECTIVE												EMERGENCY											
Hosp	30 day Mortality				Major Surgical Morbidities				Major Medical Morbidities				30 day Mortality				Major Surgical Morbidities				Major Medical Morbidities			
	09/10	10/11	11/12	12/13	09/10	10/11	11/12	12/13	09/10	10/11	11/12	12/13	09/10	10/11	11/12	12/13	09/10	10/11	11/12	12/13	09/10	10/11	11/12	12/13
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CMS IV - THE 4 P's

- Paperless
- Protocol driven
- Personalised
- Closed loop communications



HEALTH INFORMATICS IN HA

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HEALTH INFORMATICS IN HA

THE 4TH STEP

Enable new models of service delivery

Make data actionable

Engage patients in their care

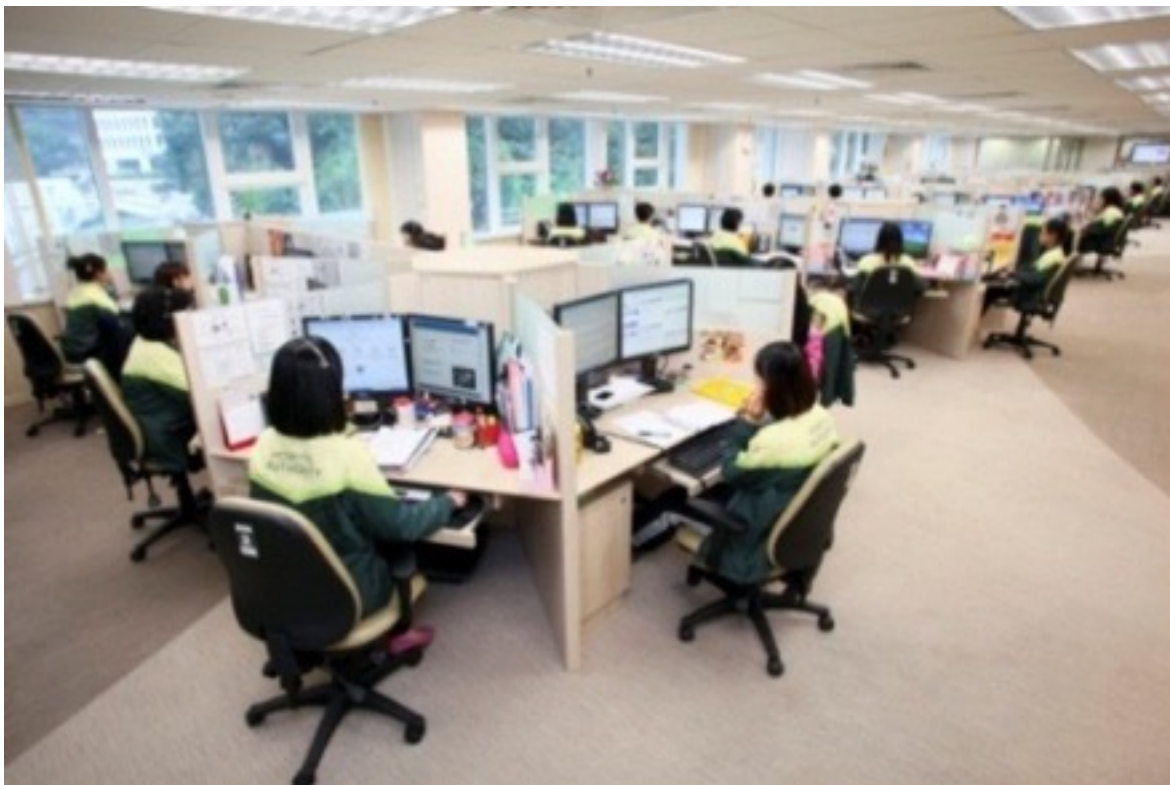
Support the processes of care

Improve quality & safety

Build the electronic patient record



Community Health Call Centre Services



Service development journey

Patient Support Call Centre (PSCC)

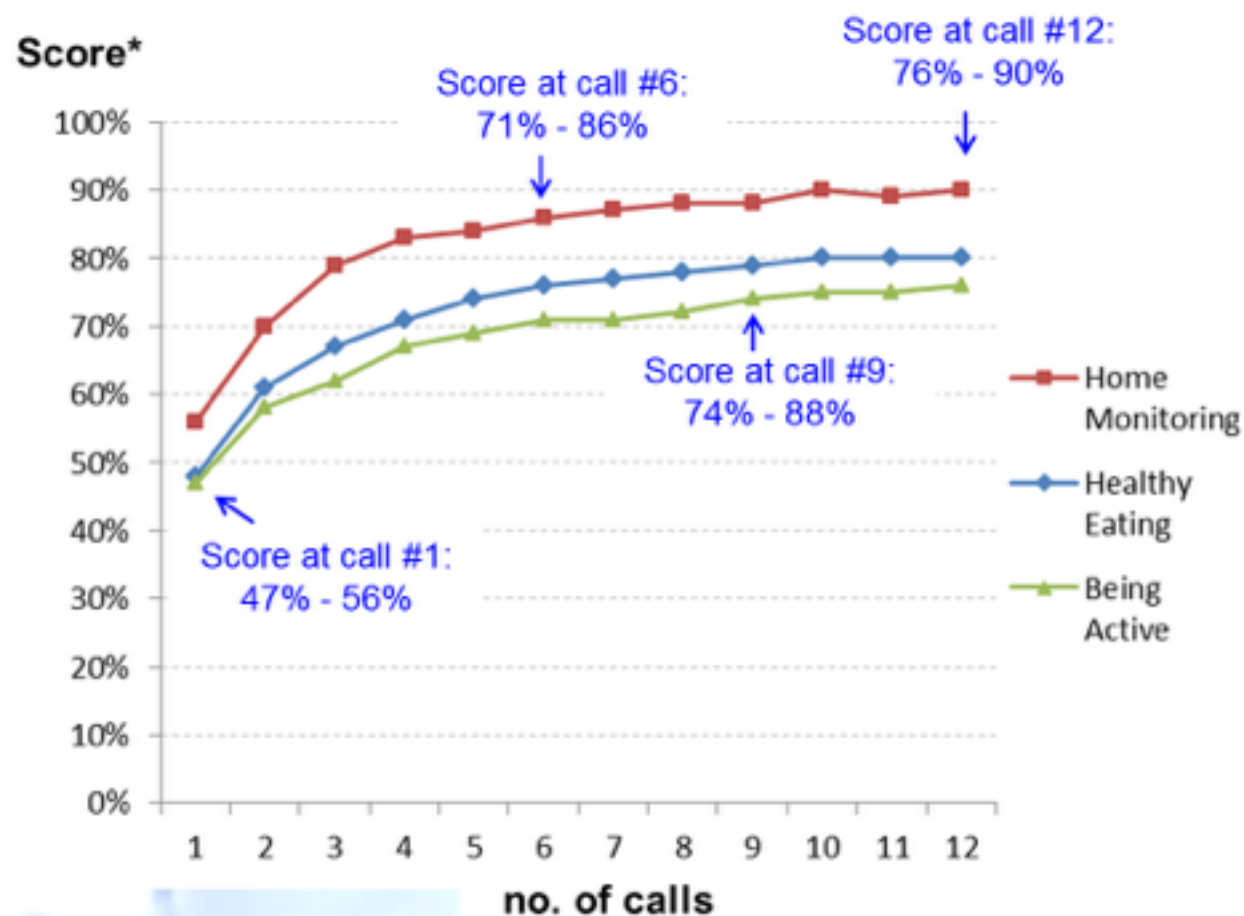
- 2009 High Risk Elderly (HARRPE) proactive calls
- 2011 Chronic Disease Management - DM patients with suboptimal disease control

Mental Health Direct (MHD)

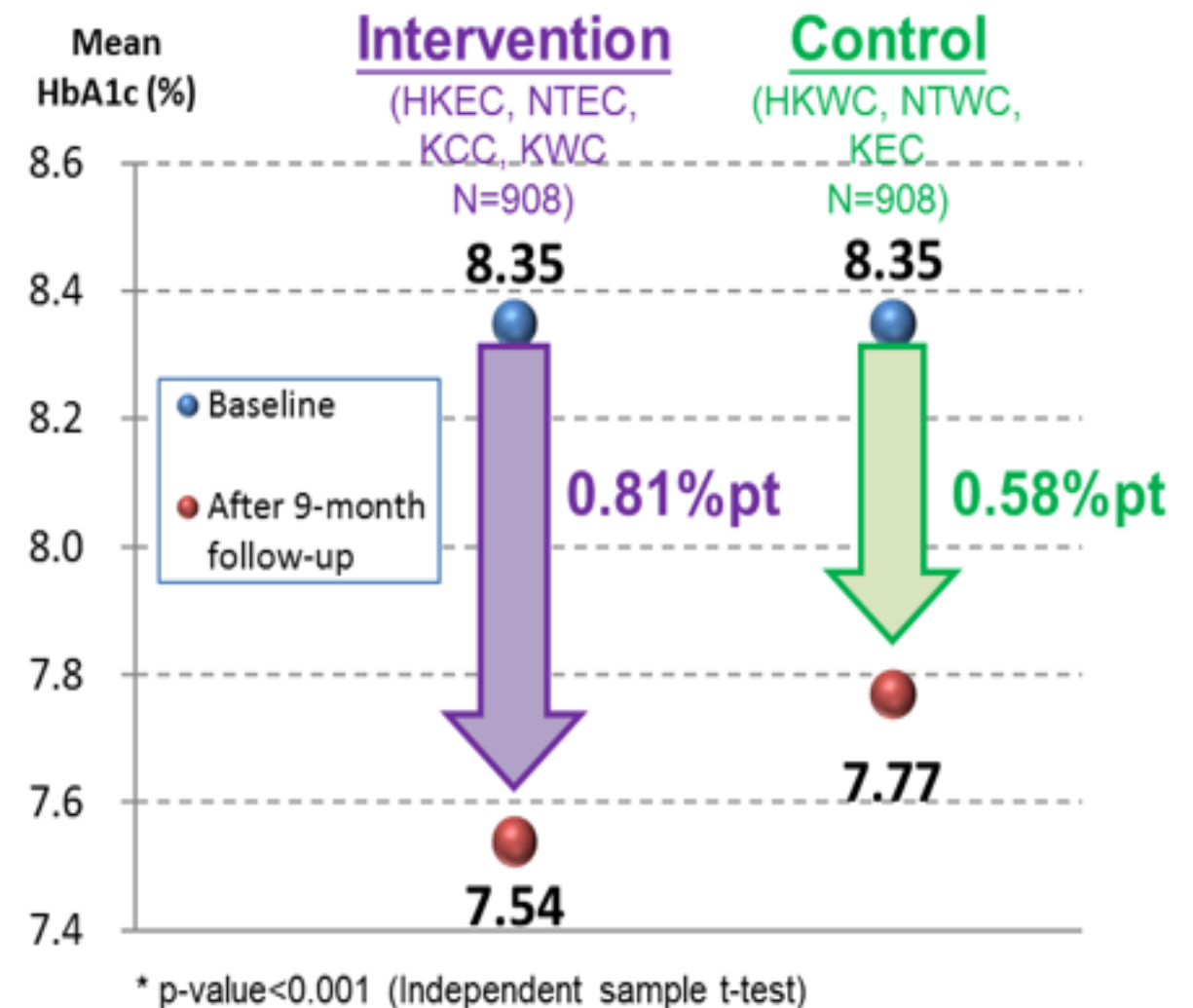
- 2012
 - 24-hour advisory hotline service by psychiatric nurses
 - “Telecare” service targeting patients with severe mental illness
- 2014 Defaulter tracing service

Chronic Disease Management- DM Program

Improvement in Behaviours

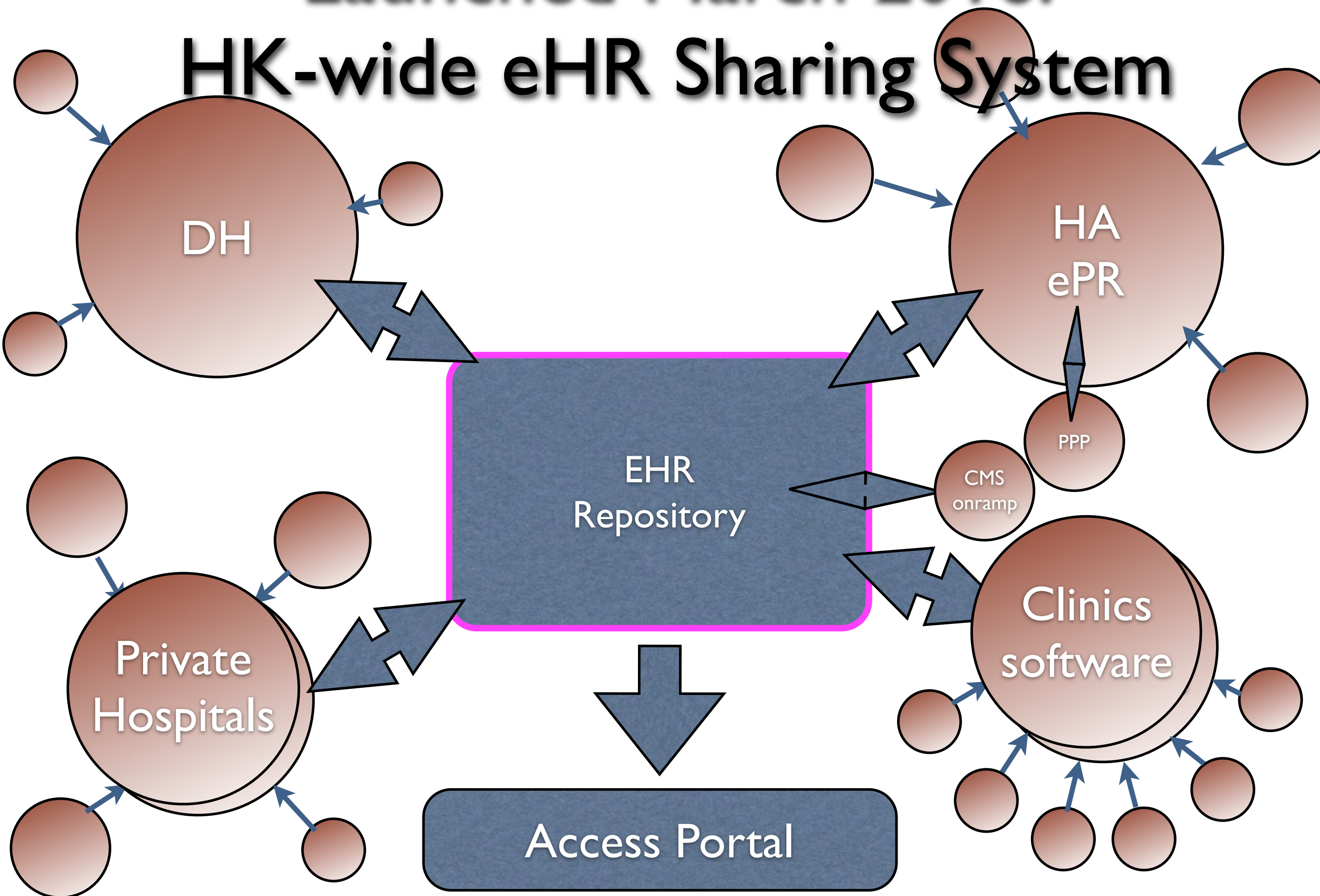


Improvement in HbA1c



Additional 0.23% point* reduction in HbA1c

Launched March 2016: HK-wide eHR Sharing System



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

“PPP Web”

PPP Doctors Directory

PPP Programmes

Support
Hotline
& Training

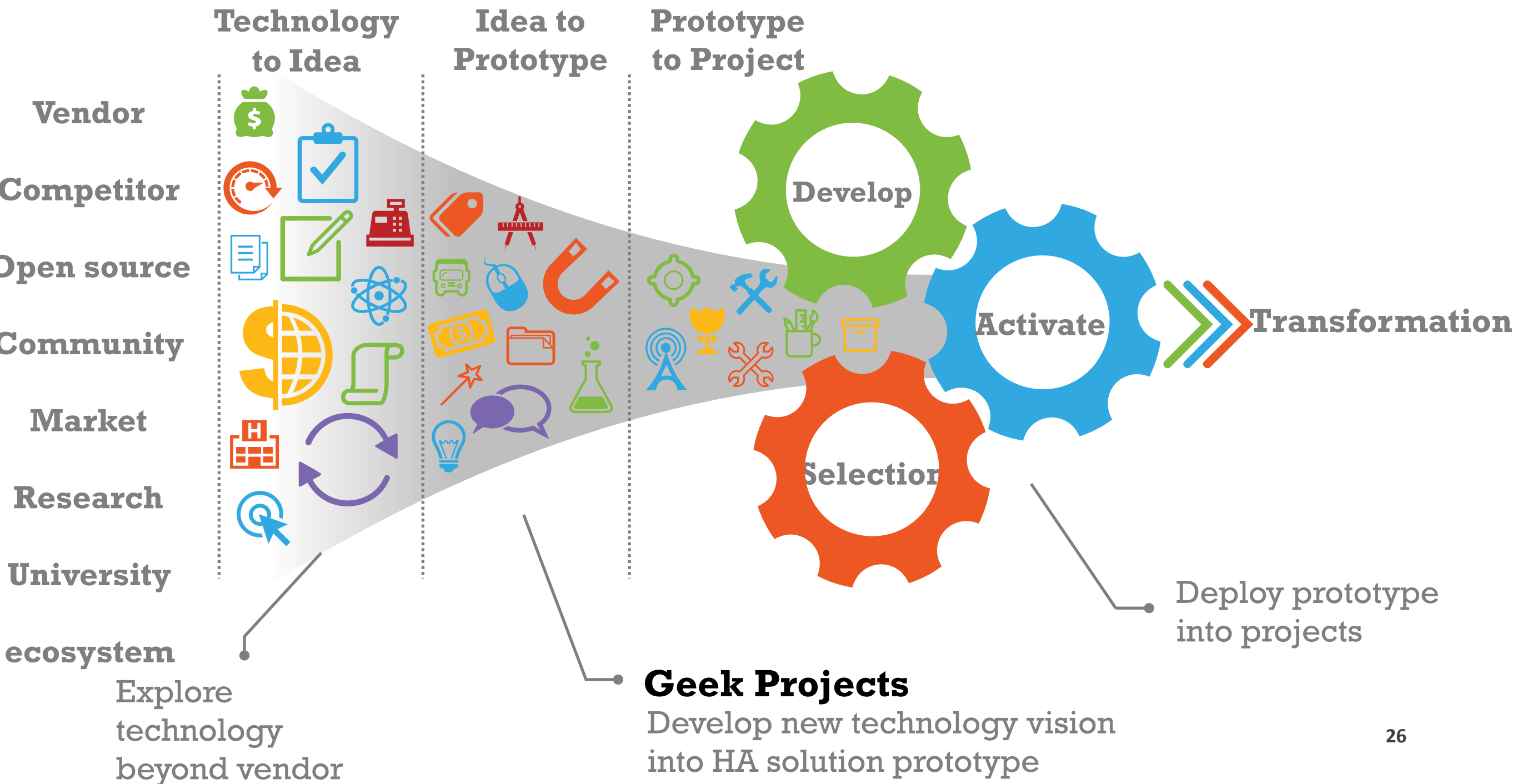
Enhanced CMS On-ramp

eHR Inbox

One-step Log In



The Innovation Funnel



Mobile CIMS



HA mobile apps for patients and staff



HA Touch
(General Info)



TouchMed
(Prescription Queuing)



HRApp
(App for HA staff)



BookHA
(SOPD Booking)



easyGO
(Wayfinding pilot)



mSHR
(Staff medical record)

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

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

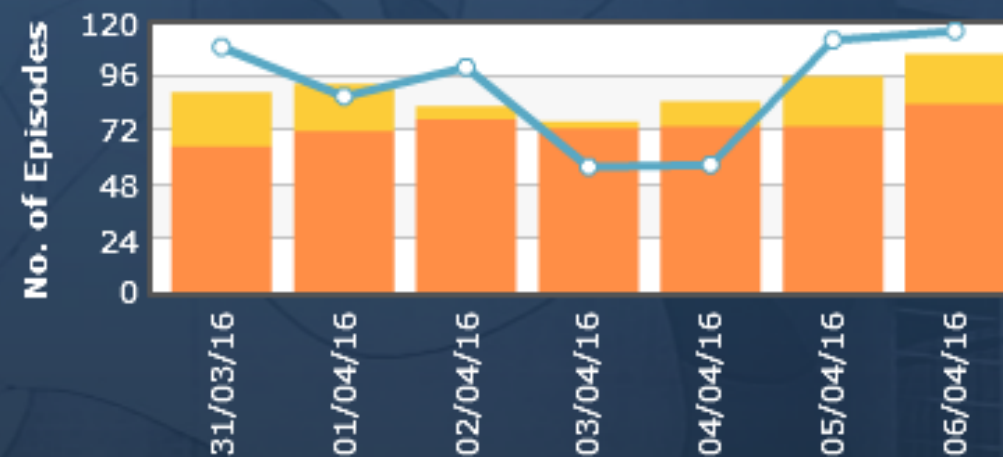
(06/04/2016)

Total A&E 1st Attendance: 370

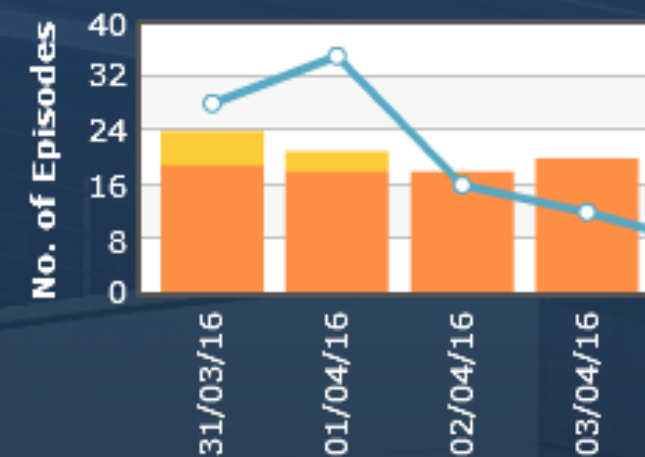
Emerg. Adm.	Elective Adm.	D & D
84	22	116
21	6	27
13	2	19
22	13	38

Trend of IP Admissions and Discharges & Deaths

PYN, MED



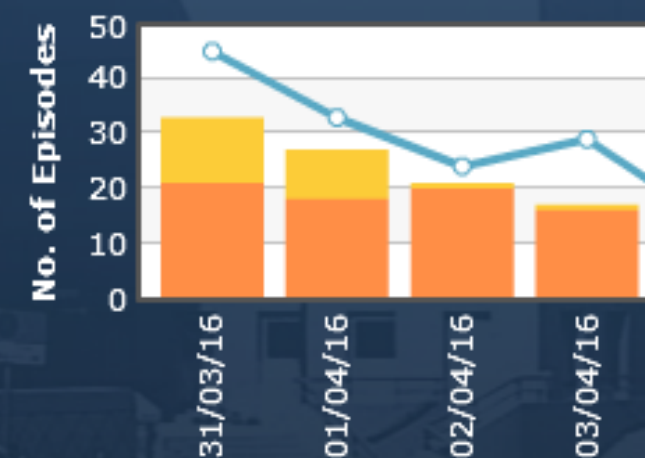
PYN, OR



PYN, PAE



PYN, SU



Emerg. Adm.

Elective Adm.

04/04/16, PYN

Specialty: ORT

IP Emergency Adm. to ORT: 22

IP Acute Elec. Adm.

IP D&D: 7

MIPO Admission Block Alert

HO IT&HI MIPO



2 April 2016 at 8:05

To: [redacted] 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]	[redacted]	16	-	-
[redacted]	[redacted]	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