

From E-hospital to E-health: Opportunities in China

# **China e-Health present & future**

## **中国电子健康的现状与未来**

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1. **China Health Profiles**
2. **eHealth Status**
3. **The eHealth driver from Health Care Reform**
4. **eHealth Trends**
5. **eHealth strategy analysis**



# 1 China Health Profiles

- Population: 1.33 billion
- Crude birth rate: 12.14 per 1000 (2008)
- Crude mortality rate: 7.08 per 1000 (2008)
- Natural growth rate: 5.08 per 1000(2008)
- Life expectancy at birth: 71.40 years (2000)
- Infant mortality rate: 28.4 per 1000(2000)

# 1.2 Health Care Provider

	All	Urban	(%)
<b>Total</b>	<b>278,337</b>	<b>172,801</b>	<b>62.1%</b>
-- Hospital	19,712	13,844	70.2%
-- Health Center	24,260	20,693	85.3%
-- Township Health Center	39,080	11,950	30.6%
-- Clinic	173,777	112,079	64.5%
...			

## **1.3 Number of Visits and inpatients in medical institutions(2009)**

- Inpatient 81.20 Million ( 92.7% at government hospital ) ;**
- Number of visits 3.6 Billion ( 51.3% at hospital ) ;**
- Total Health Expenditure**
  - THE: 1.6 1 Trillion (4.96% GDP) ;**
  - THE Per Capital : 1192.2 ¥/year**

# 内容

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## 2.1 e-Health Status

- Public health information system
- Health insurance claim and payment system
- Personal health record in community
- Hospital information system
- RHIO
- Health management information platform



Current Situation of HMIS Application						
Subsystem	Have done		construction in process		No plan	
	N	(%)	N	(%)	N	(%)
fees on outpatient	1057	90.81%	44	3.78%	63	5.41%
Pharmacy store management	1020	87.63%	63	5.41%	81	6.96%
Pharmacy management in outpatient	994	85.40%	47	4.04%	123	10.57%
ADT	923	79.30%	57	4.90%	184	15.81%
Pharmacy management in inpatient	919	78.95%	23	1.98%	222	19.07%
Registration system	844	72.51%	119	10.22%	201	17.27%
Medical Records Management System	816	70.10%	149	12.80%	199	17.10%
Medical Material Management System	707	60.74%	156	13.40%	301	25.86%
Financial management system	699	60.05%	94	8.08%	371	31.87%
Capital Assets Management System	588	50.52%	147	12.63%	429	36.86%
Economic Accounting System	558	47.94%	164	14.09%	442	37.97%
Human resources management system	519	44.59%	213	18.30%	432	37.11%

From CHIMA' s Annual Survey Report 2008/2009

### Current Situation of CIS Application

	Have done (%)	construction in process (%)	No plan (%)
Nurses station at inpatient	68.04%	7.39%	24.57%
Doctor workstation at inpatient	43.30%	23.71%	32.99%
Doctor workstation at outpatient	39.26%	25.52%	35.22%
Laboratory Information System (LIS)	38.14%	22.08%	39.78%
Radiology Information System (RIS)	29.47%	25.26%	45.27%
Ultrasound imaging information system	28.87%	22.94%	48.19%
Electronic medical record (EMR) System	24.91%	31.62%	43.47%
PACS System	22.68%	28.61%	48.71%
Anesthesia Information System	22.16%	21.22%	56.62%
Pathology Information System	19.76%	21.13%	59.11%
ECG Information System	13.66%	25.77%	60.57%
Intensive Care Unit System	11.34%	23.88%	64.78%
Clinical decision support systems	7.56%	24.91%	67.53%
Regional Health Information System	5.76%	14.86%	79.38%

From CHIMA's Annual Survey Report 2008/2009

## RHIN Projects around the China

北京 (Beijing)	3	江苏 (Jiangsu)	7
福建 (Fujian)	2	辽宁 (Liaoning)	2
广东 (Guangdong)	15	上海 (Shanghai)	8
海南 (Hainan)	1	四川 (Sichuan)	7
河北 (Hebei)	2	新疆 (Xinjiang)	1
河南 (Henan)	1	云南 (Yunnan)	1
湖北 (Hubei)	1	浙江 (Zhejiang)	3
湖南 (Hunan)	3	重庆 (Chongqing)	2

总数 (Total) 60

From CHIMA's Annual Survey Report 2008/2009

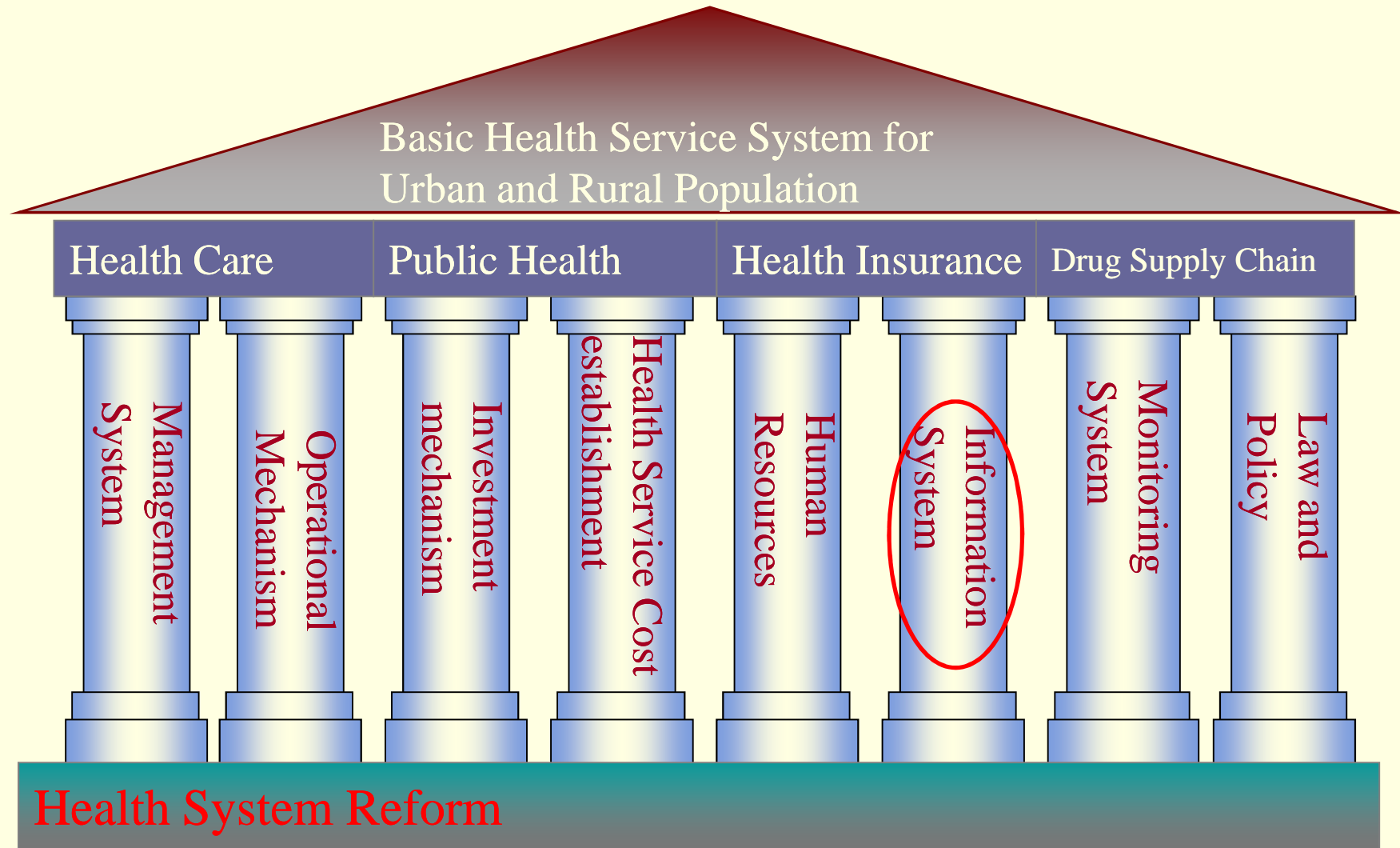
# **e-Health Status**

- **HMIS were accepted by most of hospital, that can improve efficient, control expense.**
- **Clinical information systems begin to been accepted by most of the hospital, the EMR begin to be accepted.**
- **The information sharing between more then one hospital with RHIN will kicking off.**

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# Health System Reform: Enhance Basic Health Insurance System



4 Beams and 8 Columns Structure

# 3. eHealth driving from reform

- **Opinion on Deepening the Reform of Health care System**

eHealth vision: setting up functional and recourse sharing health information system

- **Guidelines for the Healthcare System Reform of 2009-2011 (2009—2011) 》**

- **Guidelines for the Pilots Public Hospital Reform**

EMR-RHIO

## **3.1 Improving medical insurance system**

- **Accelerating the coverage of basic healthcare delivery system both in urban and rural area.**
- **Improve the standard of insurance, participation in rural medical cooperative system.**
- **Properly resolve the issue of the floating population's access to services,**
- **improve the urban and rural medical assistance system.**



- **Payment reform, fee control, Pilot of DRG;**
- **Patient with unique IC card, to support the clearing fee directly of payer with certified provider (Pay 2 Hospital);**
- **Reimbursement of cross-region medical Insurance (Patient 2 Hospital 2 Insurance);**
- **Continue insurance for resident moving between different insurance system**

## **3.2 Setting up Essential Drugs System**

- Essential Drugs Registration**
- Public bidding**
- Price control and supervision**
- Distribution**
- Utilization**
- Adverse reaction monitoring**

### **3.3 Primary care health service system**

- **Improve grass-roots level health service systems.**
- **Improve rural township hospitals and village clinics and urban community health services.**
- **Increase grass-roots health organizations ability to access and build capital and improve service delivery.**

# Transforming of Healthcare Service through HIT

- Primary health service quality and efficiency –adopt HIT;
- Training and ability –eLearning;
- “P2P support county hospital” – tele-consult for pathology, ECG, Digital Image.
- Bidirectional **Transferring** –EHR;

### **3.4 Basic public health services equalization**

- **Patient participation in health management, immunization, maternal and child health — RHR**
- **Performance evaluation of public health services—M&E;**
- **public health emergency medical treatment**

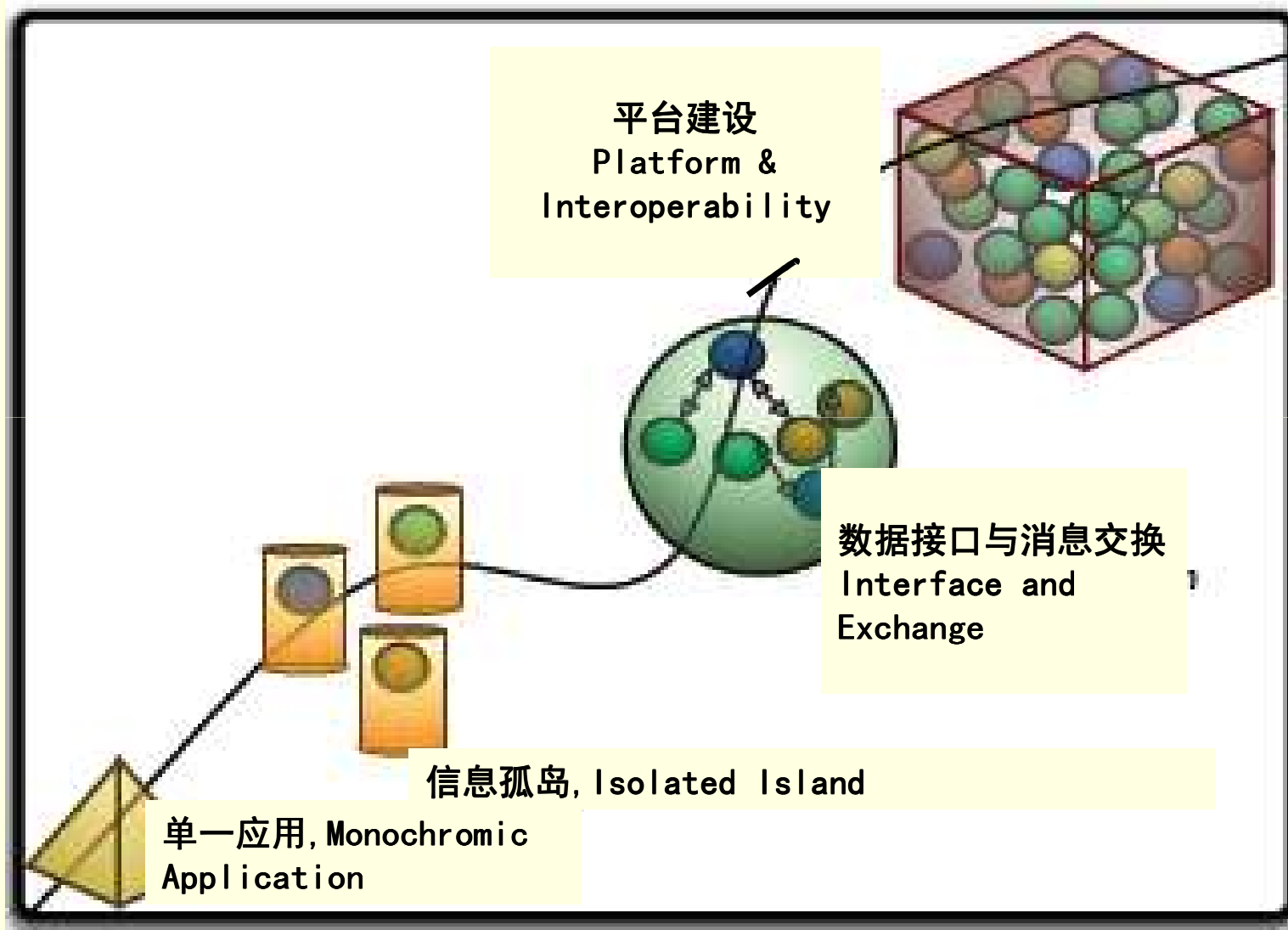
## **3.5 Pilot of public health reform**

- **Promote the reform of public hospitals; reform the public hospital management system and their operational mechanisms.**
- **The government will increase investment and standardize hospitals' financial management.**
- **Hospitals will improve internal management and the flow of services.**
- **EMR、 Clinical Path Way、 M & E**

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# 4.1 Platform





## **4.2 Data mining and utilization**

- **Service provider: Quality Control, M&E**
- **Owner of provider: Quality, Benefit, Safety, Essential drug policy.**
- **Payer: DRGs: fee control, infection.**
  
- **Precondition: Information standard, data resources service and utilization mechanism, data sharing platform.**

## **4.3 Clinical Decision Support: KM & Evidence-Based Medicine**

- **E-prescribing :Reduce the rate of ADEs and Provide better Service to Patients**
- **KM: Lack of Knowledge Database Developments and Services**
- **Clinical path way :**
  - It is very important progress to publish the Clinical Pathway Document of more than 100 diseases
  - The challenge if how to follow them
  - We have to combine the CIS and Knowledge Base and Roles

## 4.4 eHealth future market

- **By the rate of HIT investment:**
  - 8 Billion to 16 Billion / (6-12/year/capita)**
- **Shanghai EHR plan (54/year/capita)**
- **Beijing, Shunyi District ( 25/year/capita )**
- **Rate is low, sum is high, and increasing faster**

# **New Challenges from New Announced Policies (2010)**

- **Healthcare System depends on the different level of care services**
- **Resident Health Record Adopting, EHR?**
- **Clinical Pathway for Healthcare Quality and Cost Control**
- **Pre-Registry (Scheduling) System with Patient true name for Ambulant (Out-Patient) Healthcare Service**
- **Healthcare Insurance Claim and Payment System across the Country**
- **Essential Drug System Regulation**

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# 5.1 eHealth strategy analysis

The Central Mission: Health System Reforming  
Task 11: Accelerating the Development of Health Information Application

1. Strategic Plan and Design
2. IT Standard Establishment
3. Interoperable Platform Constructing
4. Interconnection and Exchange
5. Data Second Use
6. Supporting Health Service and Management

2010-1-5 National Health Leader's Meeting

## **Current progress on HIT Promoting**

- **Research and Initiative of RHI Recourse Planning**
- **Health Information Standard and Data Dictionary**  
*HI Standard Fundamental Structure, Metadata*
- **EHR/EMR Data Structure and Data Element Set**  
*44 Data Sets, 4,000 Data Element, 500 elements shared by different domains*
- **EMR Policy and Management Regulation**
- **Digital Hospital Models (20 Hospitals)**
- **RHIN Platform Constructing Guide**
- **RHIN System Development Technical Framework**
- **Development Technical Framework of HIS based on EMR**

## 5.2 Strategy

### ■ Infrastructure

- Regulation & Program(**BPR**) : EMR, Information sharing, privacy protect & security
- standards, specifications, criteria: PHR Information Standard ,coding,...
- Network & platform; RHIO, HMIP

### ■ Policy

Government strength eHealth strategic investment , a good application developed leading infrastructure setting up.



## **5.3 Recent task for eHealth**

- **Blueprint of eHealth: National eHealth strategy plan in the next 5 years, object, milestone, task;**
- **Information standard infrastructure, information privilege and safety infrastructure;**
- **Pilot of RHIO based on Resident Health Record and EMR**
- **Information system related with health care reform, program monitor and evaluation, & need from reform.**

# The Barriers to adopt the EMR/EHR Applications

1. Leadership Problems
  - Harmonization of various stockholders
  - Establish the RHIO on National/Province Levels
  - Constitute Laws/Regulations/Policies
2. Investment
  - Current: 6-8 Billions
  - 850 Billions Additional Stimulus for Health Reform in 3 years
  - 1%-2% for HIT Adopting
3. HI Technologies
  - Lack of Health Information Standard
  - Lack of Correct Methodologies
  - What is the new generation interoperable infrastructure?
4. Desperately Lacking of High Quality Human Resource
  - Education
  - Quality
  - Team Organization

# Thank you

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