

Health Improvement in China: Roles of Health Information System

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China's Health System Challenges

- **Access** 难 (e.g. overcrowding of hospitals)
- **Affordability** 贵 (e.g. wasteful resource use)
- **Appropriateness** 差 (e.g. safety issues)

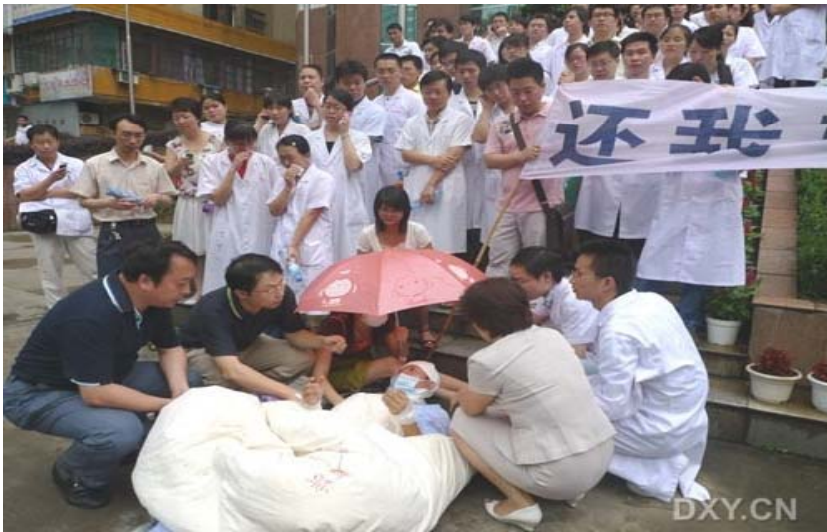
Overcrowding of Hospitals



Over Prescription of Medicines



Worsening Doctor-Patient Relationship



Critical Roles of HIS

- A stronger HIS can facilitate healthcare improvement within a given system
- A stronger HIS can facilitate more effective implementation of health system reforms
- A stronger HIS can stimulate new reforms

Major Benefits of Health IT

- Improved access to patient data ➔ better care
- Better monitoring of public health patterns and trends
- An enhanced ability to conduct clinical trials
- The creation of new high-technology markets and jobs
- Support healthcare-related economic reforms

Source: President's Council of Advisors on Science and Technology, December 2010

International Development

	Ambulatory Care		Hospital Care	
	EHR	CPOE	EHR	CPOE
USA	34%	40%	27%	35%
Canada	12%	11%	<5%	10%
England	95%	85-95%	8%	2-5%
Netherlands	98%	85-90%	10-20%	10-20%
Australia	79%	65-98%	<5%	<5%
New Zealand	92%	78-97%	<5%	<5%

U.S. National Strategy

- The Health Information Technology for Economic and Clinical Health Act (HITECH) authorized incentive payments through Medicare and Medicaid to clinicians and hospitals when they use EHRs privately and securely to achieve specified improvements in care delivery
- Incentive payments up to \$27 billion over 10 years
- \$44,000 through Medicare and \$63,750 through Medicaid per EP

HIS in China: Progress in Clinical Sector

- 85% of hospitals established hospital management information system
- 50% of the hospitals set up clinical information system
- 30% of the hospitals adopted EMR

HIS in China: Progress in Public Health

Disease
control

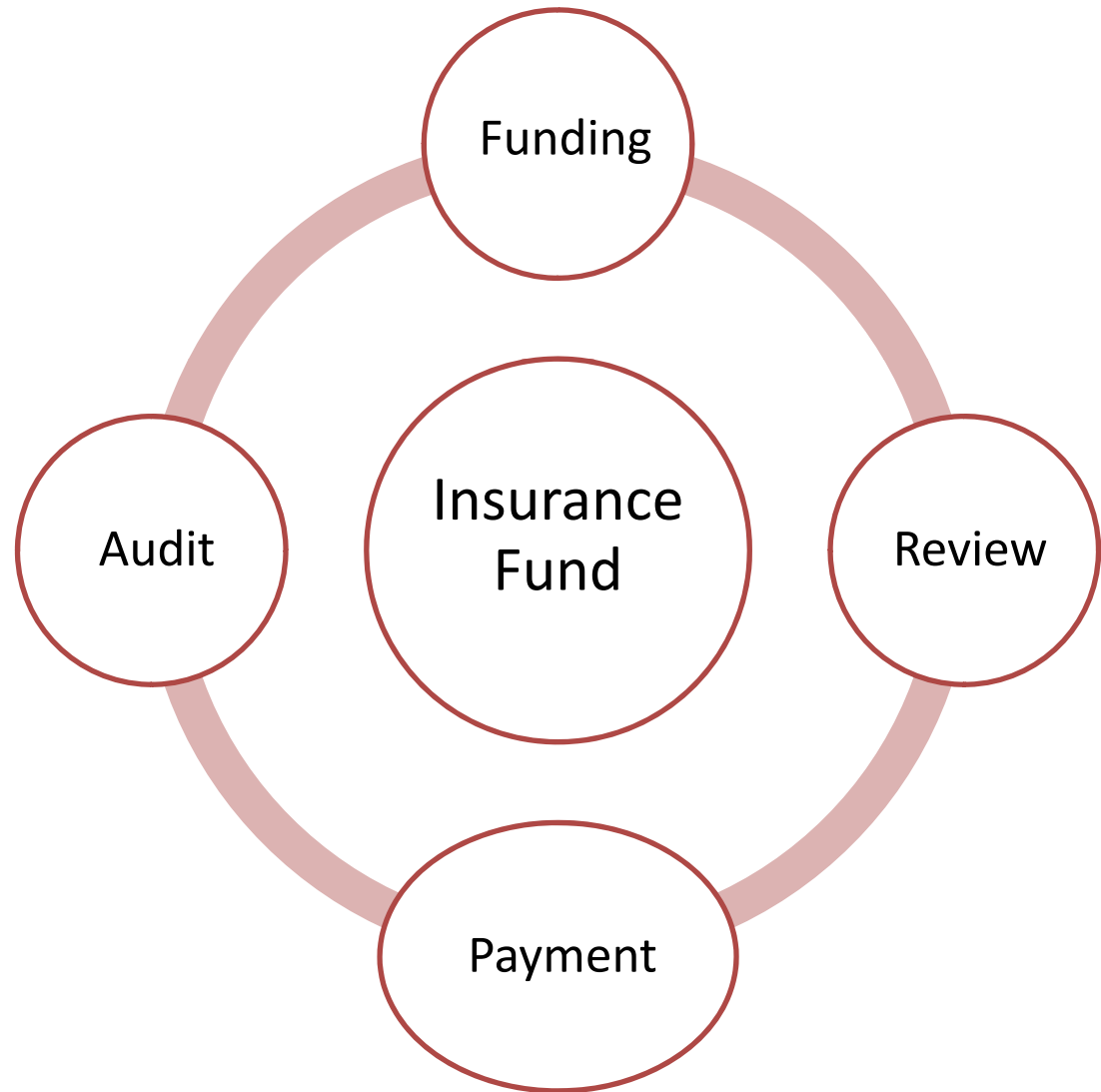
Public
health
regulation

Emergency
response

Maternal
and child
health

HIS in China: Progress in Social Insurance

- 234 Million Urban Employees
- 187 Million Urban Residents
- 835 Million NCMI enrollees
- Medical assistance



Major Challenges

- No Legislation
- Lack of National Coordinating Mechanism
- Lack of Standards
- Lack of Professionals & Education
- Meaningful use issues

The good news is...

Informed by successful pilot projects,
China is capable of rapidly scaling up
“Best Practice Models” across the
country.

We Have Been Studying in Minhang



HIS in Minhang District, Shanghai

- Health card for residents



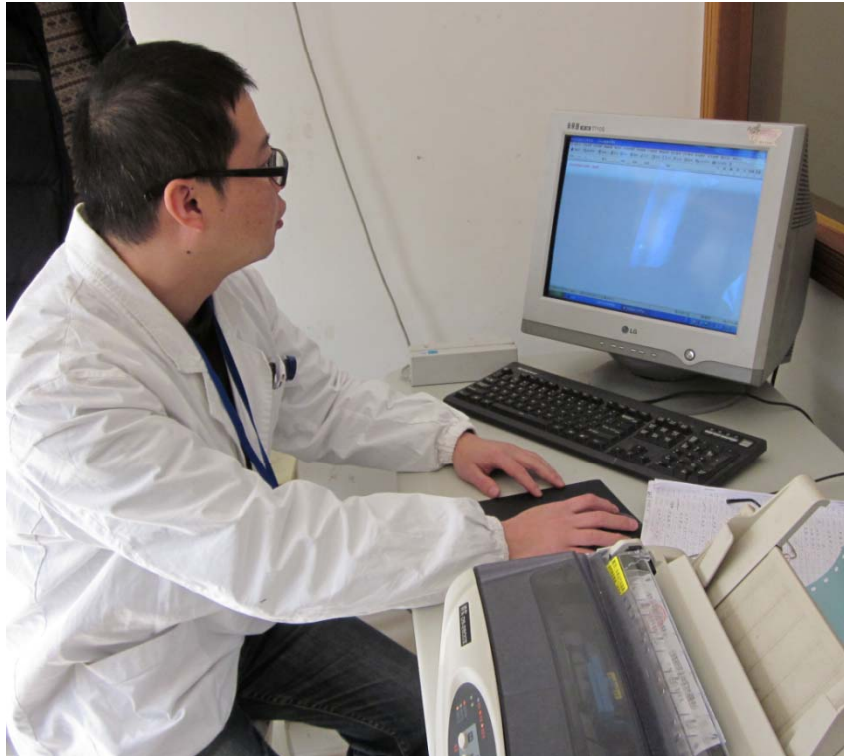
- Performance card for health workers



- 1,496,000 EHRs

* 12 community health centers

E-Health in Minhang: EHR Documentation of Providers' Notes



- Physicians and nurses are able to record patient notes and data directly into the EHR during clinical encounters
- Each patient is linked to his/her providers in the system

E-Health in Minhang: Provider Order Entry

- Allows providers to input nursing orders, diagnostic testing orders, and medication prescriptions and refills online.
- Automatic medication dispensing
- Simultaneous updating of pharmacy inventories
- Potential reduction of medical errors



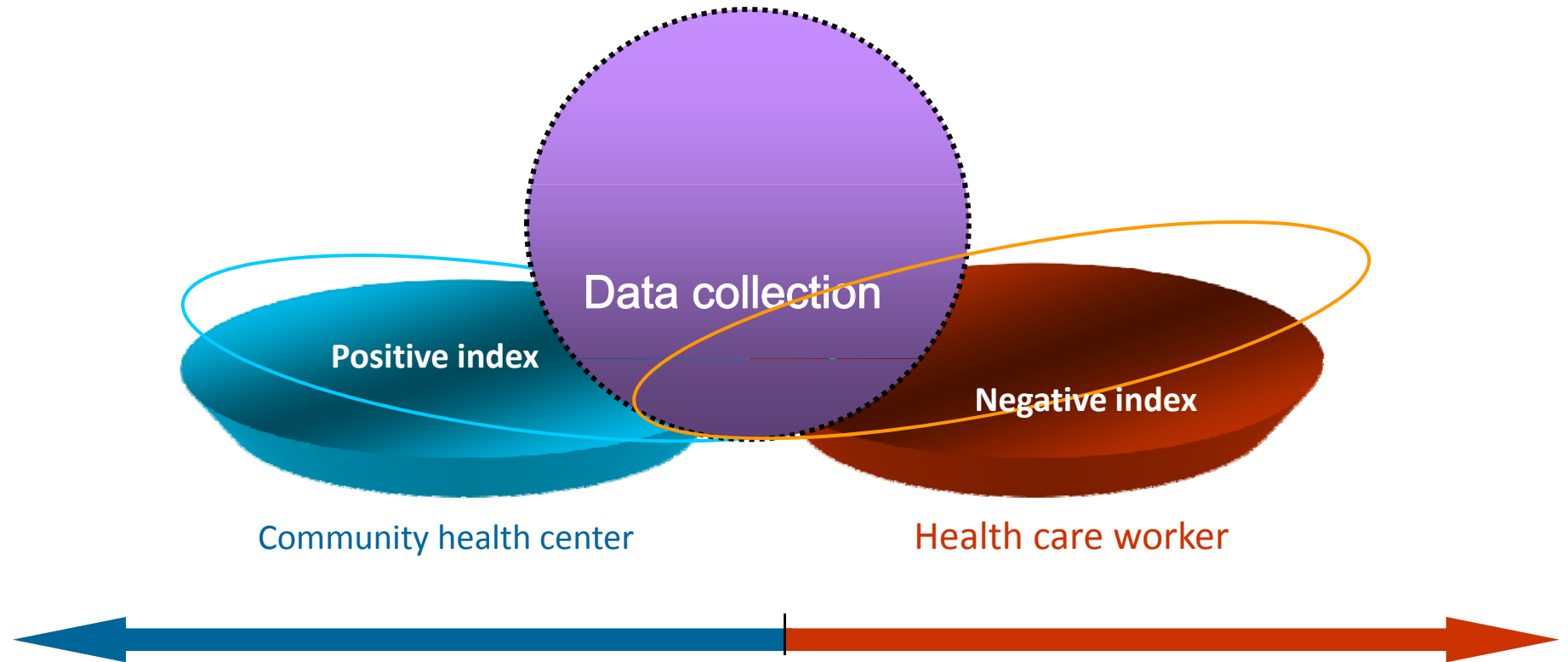
E-Health in Minhang: Patient Access



- Electronic health card
- Self check-in and payment with E-health card
- Self-service stations for: weight, height, blood pressure, serum glucose, serum cholesterol, pulmonary function, EKG, and bone density



2-Part Model of P4P



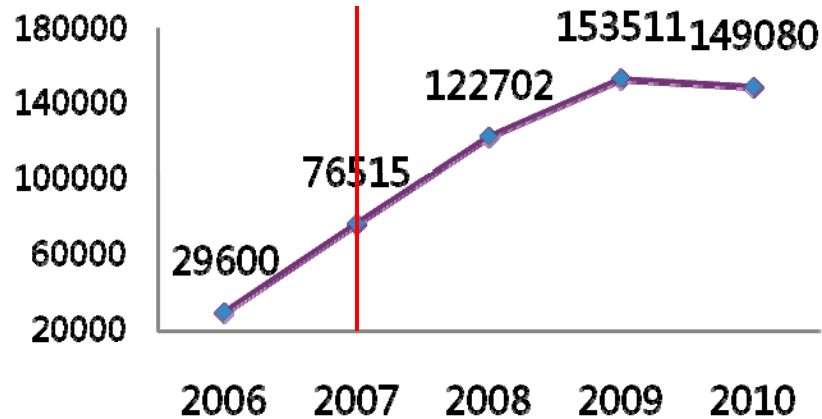
$$\text{Project Funding} = \text{Fundamental cost} \times \frac{\text{general workload}}{\sum \text{workload of each project}} \times \text{quality index} \times \text{satisfactory index}$$

$$\text{Bonus} = \frac{\text{Project quota} \times \text{personal workload}}{\text{project workload} \times \text{negative index}}$$

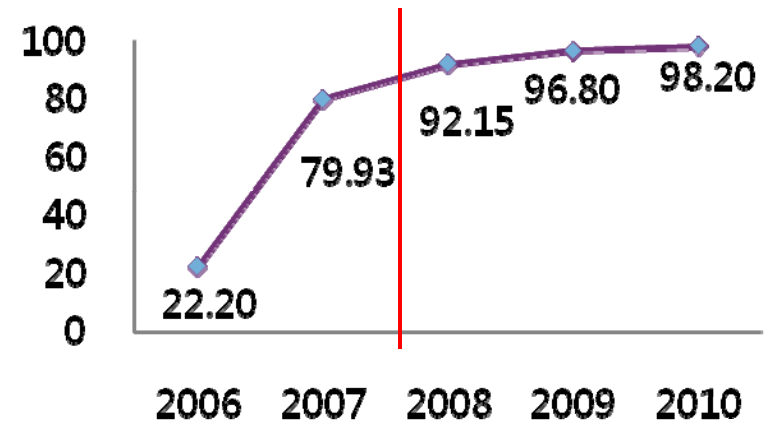
Performance Indicator

Hypertension Management (2006 - 2010)

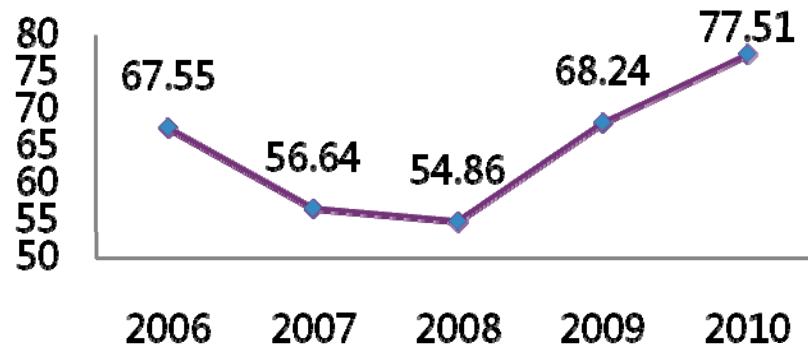
Number of people with hypertension



Managed Hypertensive (%)

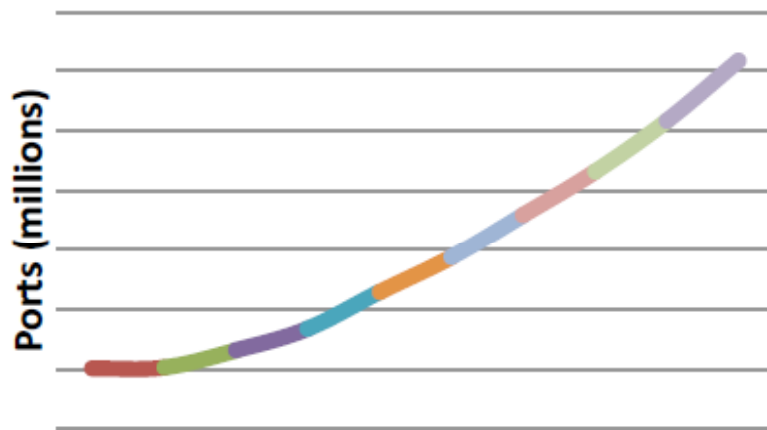


Effective Control Rate (%)

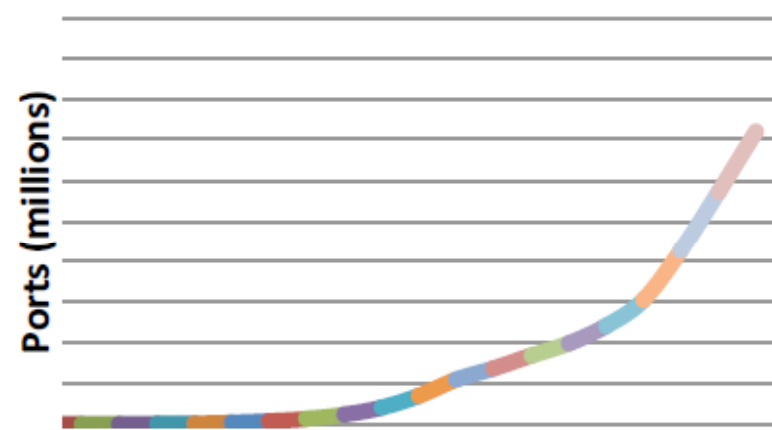


HIS in China: Progress Made, But Potential Big

Broadband Subscribers in China



Capacity of Mobile Phone Exchange Line

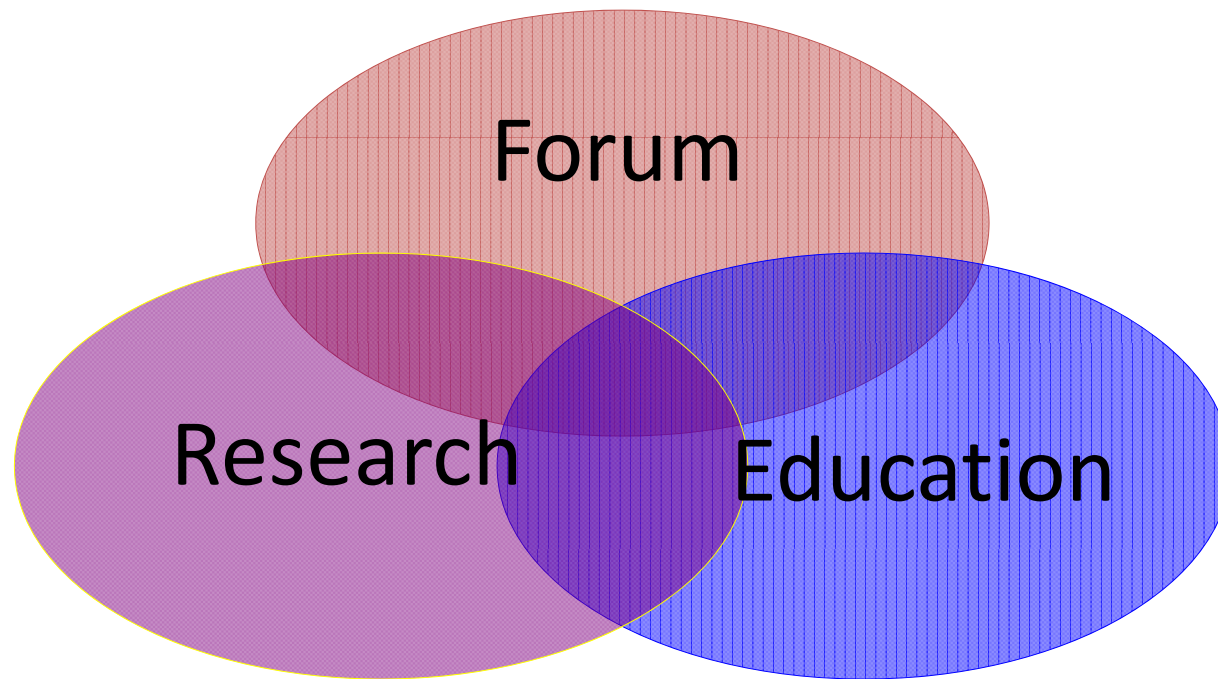


Source: China — Broadband Market — Overview and Statistics, June 2010, <http://www.docin.com/p-72386902.html>; CEIC database

HSPH China Initiative Plans To

- Monitor, evaluate and improve upon existing pilot projects on HIS in urban (e.g. Shanghai) and rural (e.g. Sichuan) China
- Demonstrate meaningful use of HIS by conducting multi-purpose longitudinal studies
- Work with the national policy makers to strengthen China's HIS and health system
- Our collaborators: national - MOH (e.g. HIS Center, HMI), local – Shanghai & Sichuan, academic – Tsinghua, Fudan etc

HSPH China Initiative



Thank You!

