Trends in hospital reforms and reflections for China
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Director Health Sector Development

with input from Sarah Barber, and
OECD: Michael Borowitz & Raphaëlle Bisiaux

Importance of hospital

1. Spending high portion of health care budget
   • Many western European countries up to 50%
   • Former Soviet Union 70% or more
   • China 65%
2. Policies in hospitals determine access to specialist services
3. Professional leadership and professional power base
4. Contribution to population health

“War is too important to be left to the generals”
   So are hospitals, they are too important to be left to hospital managers and health professionals

European Observatory on Health Care Systems Series (2002); Hospitals in a changing Europe
Hospitals are complex

Hospitals are complex with multiple dimensions and measures

- Governance (ownership and management) and size;
- Finances (main source of funds, cost structure, payment method);
- Complexity (teaching or non-teaching; 2nd and 3rd; speciality or general)
- Certain distinction getting more blurred ....

Part of an overall system, including referrals between primary, secondary and tertiary levels; treatment at appropriate levels

- Not a closed system, even less relevant now; hospital is increasingly a short episode in a longer patient career rather than an isolated event

1. Hospitals responding to change
2. International trends in hospitals
3. Challenges in China
4. Reflection for China
1. Hospitals responding to change

Hospitals evolve to adapt to different needs and cost control, including reform

Pressures for changes in hospital systems (WHO, 2002)

<table>
<thead>
<tr>
<th>Demand-side</th>
<th>Supply-side</th>
<th>Wider societal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>New technology and clinical knowledge</td>
<td>Financial pressures, incl economic crisis</td>
</tr>
<tr>
<td>• ageing</td>
<td></td>
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<tr>
<td>Disease patterns</td>
<td>Health care workforce</td>
<td>• Autonomy &amp; regionalization</td>
</tr>
<tr>
<td>• chronic diseases and multi-morbidity</td>
<td>• volume and skills</td>
<td>• Internationalization of health care systems</td>
</tr>
<tr>
<td>Public expectations</td>
<td>Information technology</td>
<td>Global market for R&amp;D</td>
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<tr>
<td>• quality and safety</td>
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But also to:

Health care reforms: Equity – Efficiency – Quality
Hospitals evolve to adapt to different needs and cost control, including reform

Pressures for changes in hospital systems (WHO, 2002)

Resulting in:

- Promotion of care coordination to address chronic diseases and multi-morbidity
- Need for increased capacities for long-term care
- Shift from hospital to outpatient care, one day hospital admission and less invasive surgical procedures
- Demand for new medicines and technologies
- Concentration of services and higher specialization – efficiency and quality
- New payment systems – (DRG – P4P) – efficiency and quality

2. International trends in hospitals
Recent trends:
declines in number of acute hospital beds, shorter hospital stays and higher bed occupancy rates

Acute care hospital beds per 1000 population
1995 and 2008 (OECD, 2010)

In China:
The number of hospital beds reached 2.17 per 1,000 population in 2008, which is quite low compared to OECD countries.
Recent trends: declines in number of acute hospital beds, shorter hospital stays and higher bed occupancy rates

Average length of hospital stay for Acute Myocardial Infarction, 2000-2009

Source: OECD Health Data 2011 (June 2011).

In China: Average length of stay was 12.1 days in 2011; much higher than OECD countries other than Japan

Recent trends: declines in number of acute hospital beds, shorter hospital stays and higher bed occupancy rates


In China: bed occupancy rates (81.5%) higher than rates in many OECD countries. However, if average lengths of stay in China would be at OECD level BOR would be lower between 50% - 60%
Rapid changes in patterns of care for elderly, disabled and mentally ill to transfer long-stay patients out of the hospital

The case of the UK (1977-96): long term psychiatric care and the growth of nursing facilities (OECD, 1999)

Figure 2.9: Trends in beds (per 1000 population), United Kingdom 1977-96
- acute care
- psychiatric care
- nursing home

Source: OECD (1999)

Infrastructure investments and planning: Increase in chronic disease patients need to shift to long-term care beds

Reduction in allocation of health spending from inpatient care to outpatient care and long-term care

OECD (2010)
OECD lessons from health sector reform

Policies based on market principles, such as competition, have been less successful in containing costs than budgetary and regulatory policies


Recent trends: Financing Services

- Moving from passive to active purchasing both by government and/or insurance
  - In Europe, trends moving away from hospital funding based on historical budgets towards funding based on activity levels
  - Driver of hospital change in the Netherlands: introduction of competitive DRGs (with tariffs negotiated between hospital organizations and insurers)
- Prospective pricing systems appear to have encouraged greater cost efficiency in the hospital sector
- Many experiments with mixed methods for provider payment

*Critical to keep such payment systems under constant review to addressing their shortcomings*
### Provider payment mechanism

<table>
<thead>
<tr>
<th>Provider payment mechanism</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| **Budget** (at different levels) | • Simple administration  
• Cost containment / less unnecessary care | • Under-provision (low investment in technologies)  
• Shifting of complex cases to other providers |
| **Case-based / DRG:** classifies patients into groups with similar resource use/costs, with fixed rate per discharge | • Standardized cost-effective treatment  
• Cost containment / less unnecessary care | • Premature discharge  
• Patient selection  
• DRG-creep  
• Increase in admissions  
• Monitoring costs |
| **MIXED METHOD**  
  case based/DRG + budget | • Australia, Czech Republic, Denmark, Germany, Hungary, Italy, New Zealand, Norway | Budget adjusted for case-mix to improve accessibility of services |
**Trends:**

Does quality of care increases with the volume of services?

Does practice make perfect?

- Generally, the quality of procedure in a hospital is sensitive to number of procedures performed.

**Leapfrog group** has published relevant thresholds

- **Note:** individual surgeon volume is main determinant rather than hospital volume

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<table>
<thead>
<tr>
<th>Procedure</th>
<th>Recommended annual volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary artery bypass graft</td>
<td>≥450</td>
</tr>
<tr>
<td>Percutaneous coronary intervention</td>
<td>≥400</td>
</tr>
<tr>
<td>Abdominal aortic aneurysm repair</td>
<td>≥50</td>
</tr>
<tr>
<td>Pancreatic resection</td>
<td>≥11</td>
</tr>
<tr>
<td>Esophagectomy</td>
<td>≥13</td>
</tr>
</tbody>
</table>

Source: [www.leapfroggroup.org/media/files/Leapfrog-Evidence-Based_Hospital_Referral_Fact_Sheet.pdf](www.leapfroggroup.org/media/files/Leapfrog-Evidence-Based_Hospital_Referral_Fact_Sheet.pdf)

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**Concentration of services: Is bigger better?**

- Sometimes a positive relationship is found between volume, efficiency and quality

- Efficiency gains from volume are restricted to a small number of procedures
  - the effect depends on reaching a threshold – and the threshold is often relatively low

**Optimal hospital size for efficiency?**

- **Scale inefficient:**
  - < 200 beds and >620 beds
  - (EURO 2002)

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Source: European Observatory on Health Care Systems Series; Hospitals in a changing Europe (2002)
OECD countries: established mandatory hospital accreditation programs by independent authorized bodies

- Incentives to improve quality by channeling public funding only to accredited facilities

- Accreditation has been used by some countries to
  - Close inefficient small hospitals (Europe)
  - Reduce the overprovision of hospital care
  - Focus private investment, i.e., by stimulating new facilities to deal with high demand
  - Help patients make decisions about technical quality in choosing a health care provider

## 3. Challenges in China
(I.) Universal Coverage of quality services & catastrophic health expenditure

- While equal utilization of inpatient and outpatient care between rural and urban areas has been achieved

Persistently high incidence of catastrophic health events:
- Incidence of poverty caused by health expenditures was 6.8% in 2008, similar to levels in 2003

Quality and safety: overuse of services and inappropriate use of medicines and technologies:
- C-section rates increased from 19% in 2003 to 36% in 2011

Challenge: aligning incentives in the financing and organization of the hospital system with the goals of health care reform

Before a new hospital is built, plan what facilities and staff are needed to respond to patient needs
High share of health expenditure for hospitals

- China relatively high share of THE spent for hospitals
- Past 15 years continued high share of THE in hospital (65%) despite increased public funding

<table>
<thead>
<tr>
<th>Countries</th>
<th>Hospital services as % of total current expenditure on health</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>64.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>46.9</td>
</tr>
<tr>
<td>Estonia</td>
<td>46.5</td>
</tr>
<tr>
<td>Norway</td>
<td>38.2</td>
</tr>
<tr>
<td>Switzerland</td>
<td>35.1</td>
</tr>
<tr>
<td>Germany</td>
<td>29.4</td>
</tr>
</tbody>
</table>

Source: OECD 2010, China NHAs for 2010.

Hospital funding

<table>
<thead>
<tr>
<th>Source of revenues (%)</th>
<th>No.</th>
<th>Gov't</th>
<th>Service sales</th>
<th>Medicines sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>All hospitals</td>
<td>926</td>
<td>8.8%</td>
<td>47.5%</td>
<td>42.1%</td>
</tr>
<tr>
<td>General hospitals</td>
<td>565</td>
<td>8.0%</td>
<td>48.5%</td>
<td>42.0%</td>
</tr>
<tr>
<td>TCM hospitals</td>
<td>221</td>
<td>10.2%</td>
<td>42.6%</td>
<td>45.5%</td>
</tr>
</tbody>
</table>

- Very limited government funding, less than 10%
- Continued heavy reliance on user fees and sales of medicines, leading to over-prescription & overuse of diagnostics
- Little control of expenditures and procedures
Source of hospital financing

Brazil (WB, 2008)
- Federal: 28.7%
- State: 10.0%
- Municipal: 8.0%
- Other central: 11.4%

China (estimates, 2011)
- Public: 58%
- Insurance: 33%
- OOP: 9%

Efficiency savings and strengthen purchasing function

Reduce overall share of hospitals expenditures through efficiency savings
- Move towards higher use of generics
- Eliminate linkages between revenues and sales of medicine and diagnostics
- Shift resources to and build capacity at primary care

Strengthen the purchasing function – get value for money
- Improve capacity to purchase for both the government and insurance schemes
- Monitor and establish mechanism to award value for money
- Cost Effectiveness Analysis: objective methods of selecting which medicines, technologies, or interventions should be publicly funded. (UK NICE)
Human resources: how Chinese hospitals compare with international hospitals

Comparison of a 500-Bed Chinese Hospital and International Hospital (David Woods, 2011)

<table>
<thead>
<tr>
<th>Chinese Hospital</th>
<th>Factor</th>
<th>International Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 Beds</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>49,500 Square Meters</td>
<td>93,000</td>
<td></td>
</tr>
<tr>
<td>700 Total Employees</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>300 Physicians</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>200 Nurses</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>200 Other Staff</td>
<td>900</td>
<td></td>
</tr>
<tr>
<td>1.4 Employees: Bed</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10.7 days Length of Stay</td>
<td>4.5 days</td>
<td></td>
</tr>
<tr>
<td>26:1 Inpatient Days</td>
<td>17:1</td>
<td></td>
</tr>
<tr>
<td>82% Occupancy Rate</td>
<td>70%</td>
<td></td>
</tr>
</tbody>
</table>

Regardless of public or private ownership, hospitals are complex organizations that require qualified teams of managers

<table>
<thead>
<tr>
<th>Chinese Hospital</th>
<th>Factor</th>
<th>International Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Board of Directors</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No Strategic Plan</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No Annual Budget</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No Business-trained CEO</td>
<td>Usually</td>
<td></td>
</tr>
<tr>
<td>No CFO</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No CNO</td>
<td>Usually</td>
<td></td>
</tr>
</tbody>
</table>

Qualified hospital managers (not necessarily doctors!) are essential to be in-charge of hospitals with appropriate support staff.

Also managing health insurance schemes require specific skills; qualified staff essential to ensure better performance of insurances.
Revamp health & management information system and link with insurance requirements

<table>
<thead>
<tr>
<th>Chinese Hospital</th>
<th>Factor</th>
<th>International Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Budget Only</td>
<td>Annual Operating Budget</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Cost Centers</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Cost Center Budgets</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Capital Budget</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Record Depreciation</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>Full Financial Statements</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Finance, planning, and budgeting systems: hospitals need to be able to handle more complex insurance arrangements, including pre-payment and contracting

Health management information systems: essential for introducing changes to financing systems, and for monitoring quality, and performance

Introduction monitoring of quality indicators for hospitals

- Introduction to monitor quality indicators for hospitals has become a crucial issue in order to improve quality and efficiency within the hospital and reduce variation across hospitals

Examples: common indicators to monitor quality in hospitals OECD:

- Asthma hospital admission rates
- COPD hospital admission rates
- Uncontrolled diabetes hospital admission rates
- Admission-based and patient-based in-hospital case-fatality rates within 30 days after admission for AMI
- Reduction in in-hospital case-fatality rates within 30 days after admission for AMI
- In-hospital case-fatality rates within 30 days after admission for ischemic stroke
- Obstetric trauma
Variations are striking, and can be used to identify need for system change

Diabetes Lower Extremity Amputation Rates per 100,000 Population Age 15 and Older, 2007

* 2006.
** 2005.
*** Among countries shown.
Source: OECD Health Care Quality Indicators Data 2009.

Strengthen overall regulations to promote China HCR policy objectives

<table>
<thead>
<tr>
<th>Policy objective</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equality</td>
<td>Ensure access and treatment according to need (i.e., mandated service hours)</td>
</tr>
<tr>
<td>Social cohesion</td>
<td>Ensuring payment based on income rather than health status (i.e., mandated delivery of services to all patients)</td>
</tr>
<tr>
<td>Informed citizens</td>
<td>Make available patient health information and education (or regulation of medicines advertising to consumers)</td>
</tr>
<tr>
<td>Safety and quality</td>
<td>Ensure safety of health personnel, and quality of care to patients (i.e., work safety regulations for health workers; mandatory accreditation for facilities)</td>
</tr>
</tbody>
</table>
4. Reflections for China

Reflections for China

1. Hospitals are part of overall system of care
   - Important to provide treatment and care at appropriate level
   - Planning and strengthening roles and functions of various levels and institutions
     - Infrastructure could be matched to patient needs, take into account future BOD, and average length of stay reduced
     - Continue to build capacity for service delivery at primary level
     - Systematically strengthen management capacity of hospitals and insurance agencies, and linkages between them
     - Align incentives (gov’t subsidies, insurance) to strengthen these roles
   - Study appropriate size of hospital to achieve efficiencies of scale
2. Reduce overall share of hospital expenditure of total health expenditure (THE)

- Implement major efficiency savings
  - Move towards higher use of generics
  - Eliminate links between revenues, and use of medicines and technologies to reduce over-prescription and over-diagnostics
  - Shift resources, technology, and people to ensure quality care at primary or appropriate facility

2. Reduce overall share of hospital expenditure of THE, continued

- Strengthen cost control and quality in hospitals by improving purchasing function of both government and insurance schemes:
  - Identify specific areas to increase government funding: salaries, public services, management, training, safety and quality
  - Expand prospective payments
  - Increase purchasing capacities of insurance schemes to ensure quality care for health spending
  - Improve health & management information systems and link to insurance systems
3. Achieve better quality for lower costs

- Quality and safety can be integrated into all systems
  - Strengthen hospital management for better quality safe patient care
  - Consider appropriate skill mix to achieve quality and safety
  - Strengthen the purchasing function to ensure that all patients get quality care
  - Select and pay for medicines and technology based on both value the best patient outcomes (NICE)
  - Utilize accreditation to link financing with hospital performance and quality standards

4. Hospitals form important part of achieving health equity objectives in China Health reform

- Strengthen regulation to achieve health reform goals
- Benefit package expansion, i.e., OPD and NCD prevention etc.
- Reimbursement rates to be increased
- Ensure effective safety net
  - catastrophic insurance programme
  - cap expenditures for patients
Reflections

5. Routine systems for monitoring policies, prices, volumes, and quality in hospitals

- Appropriate indicators could be identified under the systems for monitoring health care reform
- Greater standardization of information could be achieved to compare progress across hospitals
- Regular adjustments can be made on policies and pricing
- Increase public information and accountability
  - Release information to the public about hospital quality
  - Recognize hospitals where quality and safety are high

Thank you!