Understanding the Taiwanese Health Care System

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Mentor: Dr. Claudio Lucarelli
# Project Overview

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<td>Pharmaceutical</td>
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Compare & contrast with the US Health Care System
Aims

• From 1997-2010, US Heath Expenditure increased ~122% (2010, 8889 USD/person)
• Taiwan increased ~66% (2010, 1324 USD/person)
• US has the highest Health Expenditure from 1997-2010
• Total Health Expenditure of GDP, US 17.85% (Taiwan 6.61%)
Background

- Population: 23 million
- Area: 35,980 sq km (smaller than New York)
- National Health Care implemented in 1995
  - 99.9% Coverage
  - Approval Rating: 80%
  - Copayment: 3 USD (outpatient service), 30 USD (inpatient service)
belated payment fees, public lottery revenue, tobacco sales, and investment revenue.

4%

government subsidy

6%

Insurance fee collected

90%
GDP (Healthcare)

US: 17.9%
Taiwan: 6.2%
<table>
<thead>
<tr>
<th>(A) TOTAL REVENUE</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) TOTAL REVENUE</td>
<td>5072</td>
<td>5750</td>
<td>5993</td>
<td>6036</td>
<td>5753</td>
<td>5908</td>
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<tr>
<td>Insurance fee revenue</td>
<td>4827</td>
<td>4663</td>
<td>4769</td>
<td>4799</td>
<td>4691</td>
<td>4787</td>
</tr>
<tr>
<td>Additional insurance fee</td>
<td>0</td>
<td>398</td>
<td>466</td>
<td>475</td>
<td>443</td>
<td>460</td>
</tr>
<tr>
<td>Government subsidize</td>
<td>0</td>
<td>430</td>
<td>510</td>
<td>533</td>
<td>430</td>
<td>487</td>
</tr>
<tr>
<td>Bad debts</td>
<td>A31</td>
<td>A37</td>
<td>A38</td>
<td>A40</td>
<td>A39</td>
<td>A39</td>
</tr>
<tr>
<td><strong>OTHER INCOME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>belated payment</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>public lottery revenue</td>
<td>14</td>
<td>18</td>
<td>16</td>
<td>17</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>tobacco sales revenue</td>
<td>239</td>
<td>248</td>
<td>229</td>
<td>209</td>
<td>172</td>
<td>155</td>
</tr>
<tr>
<td>investment revenue</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>14</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>other revenue</td>
<td>16</td>
<td>19</td>
<td>26</td>
<td>25</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td><strong>(B) INSURANCE COST</strong></td>
<td><strong>4806</strong></td>
<td><strong>5021</strong></td>
<td><strong>5181</strong></td>
<td><strong>5381</strong></td>
<td><strong>5684</strong></td>
<td><strong>6018</strong></td>
</tr>
<tr>
<td>AAB</td>
<td>265</td>
<td>728</td>
<td>811</td>
<td>655</td>
<td>70</td>
<td><strong>-110</strong></td>
</tr>
</tbody>
</table>
Delivery

Accessibility, % of doctors, % of clinics/hospitals
<table>
<thead>
<tr>
<th></th>
<th>Taiwan</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Beds per person</td>
<td>0.007</td>
<td>0.002</td>
</tr>
<tr>
<td>Physicians</td>
<td>49019</td>
<td>870,900</td>
</tr>
<tr>
<td># of physicians/100 people</td>
<td>1.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Average Hospitalized days</td>
<td>9.9</td>
<td>6.1</td>
</tr>
<tr>
<td>Hospitals</td>
<td>486</td>
<td>6200</td>
</tr>
<tr>
<td>Private Medical Practices</td>
<td>11452</td>
<td>230,187</td>
</tr>
</tbody>
</table>
Technology
Very Healthy
NHI Medi-Cloud System---Real Time!!

- Specific Medication (Controlled drugs)
- No. of Surgeries
- History of Drug Allergy
- Records of Test/Examinations
- Rehabilitation Care
- Dental Services
- Chinese Medicine
- Discharge Summary
- Results of Tests/Examinations
Sets price, decides coverage

[Rare] If companies refuse, but there is a demand for the drug. Further negotiation.

Release preliminary results, discuss with companies

Check documents, ask for advice from experts, ask for opinions from patients

“Suggest drug to NHI”

Approved by FDA

"Suggest drug to NHI"

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Sets price, decides coverage
Follow the Pill

Multiple actors impact what patients pay for prescription drugs. This is a snapshot of how the drug cost ecosystem works. It provides a simplified example of how medicines get to the pharmacy, and it shows how patients’ out-of-pocket costs are determined by health plans and other middlemen within the system.

A drugmaker sets the list price for the drug, which is rarely what the drug company makes or what patients pay.

$250 List Price

-$13 wholesaler discount

$63 PBM rebate

= $174 Net Price

The net price reflects what the drugmaker actually receives after discounts and rebates paid to others in the ecosystem.

Rebates and other discounts by drugmakers totaled $153 billion in 2017.

A wholesaler buys the drug at a discounted price that is negotiated with the manufacturer.

$240

-$237

= $3 wholesaler margin

Three wholesalers control 90% of the market.

$30 CO-PAY

Patient

Pharmacy

Rx Manufacturer

PBM

Pharmacy Benefits Manager

Health Plan

$223

$227

The PBM charges the health plan for the cost of reimbursing the pharmacy plus a fee.

The PBM uses a complex formula to reimburse the pharmacy for each prescription that is filled.

The health plan sets the patient’s out-of-pocket costs — such as co-pays and co-insurance — based on a number of factors, including the amount the health plan expects to pay the PBM.

Health plans are shifting greater drug costs onto patients through higher deductibles and co-insurance.

A health plan hires a PBM to negotiate a rebate from the drugmaker. The PBM may pass the rebate to the health plan, keep some of it, or keep all of it.

Drugmakers received just 56% of the list price of all brand-name drugs sold in 2017.

FOOTNOTES

1. Dollar amounts are illustrative
2. IQVIA Medicine Use & Spending Report, 2018
3. Drug Channels analysis of IQVIA data
4. Kaiser Employer Health Benefits Survey
23,162 Pharmacists
6839 Assistant pharmacists
<table>
<thead>
<tr>
<th>Name</th>
<th>US approval date</th>
<th>Taiwan Approval date</th>
<th>NHI full coverage</th>
<th>Estimated Savings</th>
<th>Patent expiration</th>
<th>NHI approved before patent expiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promataca</td>
<td>2008</td>
<td>2010</td>
<td>2018</td>
<td>2.2 million USD/month</td>
<td>2019</td>
<td>YES</td>
</tr>
<tr>
<td>SigniforLar</td>
<td>2014</td>
<td>2015</td>
<td>2018</td>
<td>4500 USD/month</td>
<td>2016</td>
<td>NO</td>
</tr>
<tr>
<td>Epculsa</td>
<td>2016</td>
<td>2018</td>
<td>2019</td>
<td>-</td>
<td>2028</td>
<td>YES</td>
</tr>
<tr>
<td>Kadcyla</td>
<td>2013</td>
<td>2013</td>
<td>-</td>
<td>-</td>
<td>2032</td>
<td>N/A</td>
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</tbody>
</table>
Significance

**Pros**
- Accessible
- Affordable (Care, Drugs)
- Short wait times
- Powerful database
- Equal right to care, regardless of status
- Uniform and comprehensive care
- Adequate pharmacists

**Cons**
- Wasted resources/System abused
- Overworked and underpaid health professionals
- Lack of resources in innovation
- Slower access to drugs
- Shorter consultation times
- Poor gatekeeping of specialist services
Lessons Learned

- Be "consciously" aware of bias
- Evaluate data sources
- Be careful of numbers (years, currency)
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