A Comparison of Health Care Technology: Why is the Treatment so different across countries?

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Overview:
Do we get the best treatment from physicians? Are skills of Japanese physicians as good as those of physicians in the U.S.? From a technical perspective, it is clear that the best technology spreads all over the world to become a global standard in a short time; however, there are big differences in procedures with respect to nations. Through a comparison of procedures for treating the major health problems, we will illustrate what reasons prompt doctors to choose different technologies under various regulations.

Background:
Although the Japanese health expenditure is modest when compared to OECD countries, it is increasing rapidly, mainly due to the introduction of new technologies and also due to the aging of the population. The Japanese government has tried hard to contain the amount of health expenditures. But the main objective of system reforms should emphasize the improvement of health care services without increasing the tax burden on the people. We have to learn a lot from the experiences of other countries concerning health systems that stimulate both patients and physicians to choose efficient health care technologies.

Analysis method:
We will examine two health problems, heart attacks and strokes, to compare the adoption of procedures and the outcomes in three countries: the U.S., Canada and Japan. Their health care systems
have such different characteristics that we could identify the incentive mechanism of each system on the choice of technologies.

*Results:*
We found wide gaps in the adoption of health care technologies with three main diseases between the nations. The first comparison is procedures for myocardial infarctions, the most common disease contributing to heart attacks. Although Japanese physicians use advanced technologies, such as PTCA (insertion of balloon) and CABG (creation of new bypassed arteries), much more frequently than the other two countries, the results are not satisfactory. The Japanese fee-for-service reimbursement system creates strong incentives for physicians to adopt the expensive hi-tech surgeries. In contrast, Canada, whose adoption rate is very low, seems successful in making good outcomes by concentrating patients in a few specialized hospitals, while Japan has so many small hospitals that physicians cannot develop their skills with so few patients.

<table>
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<tr>
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<th>PTCA+CABG (%)</th>
<th>1 Year Fatality rates (%)</th>
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<tbody>
<tr>
<td>Japan (1995)</td>
<td>54.8</td>
<td>28.9</td>
</tr>
<tr>
<td>US (1991)</td>
<td>22.3</td>
<td>34.3</td>
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<tr>
<td>Canada (1991)</td>
<td>2.9</td>
<td>34.4</td>
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1. The percentage of patients who received Percutaneous Transluminal Coronary Angioplasty (PTCA) or Coronary Artery Bypass Surgery.
2. Japanese data is from Noguch et al. (2003).
3. US and Canada data is from Tu et al. (1997).

Secondly, we look at strokes. Cerebral infarction (ischaemic stroke) is dominant in all strokes. Surgery is seldom applied, only when the location of the stoppages allows it. Hospitalization and medication are the common patterns of treatment, with the length of
stay in hospitals as long as 43 days in Japan. Its outcome, however, is the same as the US where patients only stay for six days on the average. One reason for this is because there is an abundant supply of beds in Japan, and also because the fee-for-service system allows hospitals and patients to use health services as much as they like.

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<th>Average Length of Stay in Hospitals (days)</th>
<th>30 Days Fatality rates (%)</th>
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<tr>
<td>Japan (1998)</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>US (1998)</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Canada (1998)</td>
<td>7</td>
<td>19</td>
</tr>
</tbody>
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1. Japanese data comes from a subset of tertiary teaching hospitals only.
2. Data is from OECD (2003).

**Discussion:**
In Japan, the following systems seem to be very influential in hospitals’ choices of procedures. 1) Fee-for-service payment system: The more services hospitals give to patients, the more they get reimbursed. This can easily induce doctors to choose expensive procedures. 2) Openness of information: Doctors’ skills are usually widely diversified in every country. When patients are well informed, effective procedures and good doctors become popular through better choices by patients. 3) Abundant supply of health resources: Machines for diagnostic tests (CT scans or MRIs) are helpful to advance technologies. But the overuse of machines and of hospital beds is the main cause of inefficiency. 4) Lack of public-private linkage: It is prohibited in Japan to employ supplementary procedures which are not covered by the public insurance with covered procedures. If the government permitted the combined use of public and private
services, hospitals should be highly motivated to provide various technologies and service of high quality.

**Conclusion:**
We have to understand the incentive mechanisms of health care systems as part of the effort to reform the health care system, for they influence doctors in adoption of technologies through different channels. A better combination of systems will lead to a better quality of health services without a loss of resources.