LOOKING FOR A COST-EFFECTIVENESS THRESHOLD IN KOREA

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Economic evaluation emerged as a tool for setting priority in Korea

- December 2006, Korea introduced positive listing system for new drug reimbursement (i.e. cost-effectiveness analysis)

Cost Effectiveness Threshold in Korea

- There are only a couple of small scale studies on Korean Incremental Cost Effectiveness Ratio
- Generally many other factors than ICER are influencing reimbursement decisions
OBJECTIVE

- To investigate a Cost Effectiveness threshold range in Korea
CONTINGENT VALUATION METHOD (CVM)

CVM estimates value (WTP) of health improvement (or risk reduction) by using hypothetical scenarios.

CVM studies on health improvements:
- Baker et al, 2010
- Pinto-Prades et al. 2009
- Thavorncharoensap et al. 2009
- Shiroiwa et al. 2009

For this study, double bounded dichotomous choice questions with open question was used.
Double bounded dichotomous choice (DBDC)
- A closed range instead of a point estimate of WTP is estimated
- Depending on a first dichotomous question answer of willing to pay the initial value or not
  - (If Yes) a second dichotomous question of willing to pay the doubled amount is asked
  - (If No) a second dichotomous question of willing to pay the half amount is asked
- In this study, an open WTP question was added after DBDC questions (a point estimate in the closed range)
To improve your health status as described above, are you willing to pay **1,500,000** KRW per month for 12 months?

- Yes
  - If yes, are you willing to pay **3,000,000** KRW per month for 12 months?
    - Yes/No
    - Yes
      - Then, how much are you willing to pay for the health status improvement described above?
        - Open-end question
    - No
      - Confirming zero WTP
- No
  - If no, are you willing to pay **750,000** KRW per month for 12 months?
    - No
    - Confirming zero WTP
  - Yes
    - If yes, how much are you willing to pay for the health status improvement described above?
      - Open-end question
SURVEY METHOD

- For general public
  - Face to Face survey
  - Nationally representative sample (pre-quota on age, gender, region)

- For interest groups
  - Web based survey
안녕하십니까?
한국보건의료연구원에서는 현재 “보건의료외상저감대책에서 경제성 평가의 활용방안: 비용-효과 관계기준” 연구를 수행하고 있습니다. 본 설문조사에서는 우리나라 보건의료에서 수행되고 있는 경제성 평가의 비용-효과성 관계기준을 설정하는데 기초 자료를 참고자 건강 개선에 대해 지불할 수 있는 최대 비용(WTP)을 조사하고자 합니다.
조사 결과는 연구 목적외에는 사용되지 않으며, 설문에 참여하시는 분들의 개인정보는 절대로 공개되지 않습니다.
이 조사에 대하여 문의사항이 있으시면 410에 연락해주시십시오.
감사합니다.

2010. 5
한국보건의료연구원

설문에 참여하시다가 더 이상 설문을 원치 않을 경우 응답하실 수 있으나 다음에 시작하실 때는 처음부터 다시 시작하셔야 합니다.

미래 비용을 늘려 주세요.

성문참여하기

<table>
<thead>
<tr>
<th>운동능력</th>
<th>2</th>
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<tbody>
<tr>
<td>빅이란의</td>
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<td>빅이란을</td>
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<td>빅이란에</td>
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<tr>
<td>빅이란에</td>
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해당 문항에 답변을 하여하려면 설문이 완료될 때 다시 확인하셔야 합니다.
Of 42 combinations used in the previous tariff study (Jo et al 2008), a pair of scenarios per each QALY gain groups (<0.2, 0.2-0.4, 0.4-0.6, 0.6-0.8) were chosen after excluding those scenarios found to be difficult to imagine or generated most inconsistencies.

From each scenario health state (< 1 QALY), WTP for a treatment improving the health state to a perfect one for 1 year with 100% chance was asked.

Each EQ-5D scenario has 3 Korean versions of tariff values and also VAS marked by each respondent was recorded.
VALUE FOR A QALY

- Dividing the reported WTP by health improvement ($\triangle$QALY) yields WTP for a QALY
- There are four different ways to calculate health improvement ($\triangle$QALY):
  + VAS (Visual Analog Scale) reported by the respondent
  + KCDC tariff value by Lee et al. (2009)
  + KMW tariff by Jo et al. (2008)
  + KEJ tariff by Kang et al. (2006)
CONSISTENCY CHECK

- WTPs were asked for 4 different EQ-5D scenarios (each from a health gain group <0.2, 0.2-0.4, 0.4-0.6, 0.6-0.8) and a scenario of early death (living one more year in perfect health or die now)

- Consistency was checked by whether the rank of WTPs match with the rank of health improvements (measured either by VAS or KCDC tariffs)
RESULTS FROM THE MAIN SURVEY

+ For general public
  ✗ Nationwide survey on 1,017 people
  ✗ Face to face survey (April 26, 2010 ~ June 3, 2010)

+ For interest groups
  ✗ Providers (MDs, nurses, pharmacists in hospitals), industry, decision makers (NHIC, HIRA), academia (HTA, health economics)
  ✗ Web survey (May 17, 2010~August 15, 2010)
  ✗ A policy question added
  Considering the current Korean economy, what is an appropriate amount for a QALY, which can be used in decision making for healthcare in Korea?
DISTRIBUTION OF WTPS FOR THOSE WHO PASSED CONSISTENCY CHECK

(In 10,000 KRW)

<table>
<thead>
<tr>
<th></th>
<th>N = 933</th>
<th>Average (SD)</th>
<th>Median (Interquartile Range)</th>
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<tbody>
<tr>
<td><strong>Self</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS</td>
<td>1,937 (4,869)</td>
<td>765 (258 - 1,860)</td>
<td></td>
</tr>
<tr>
<td>KCDC</td>
<td>1,946 (4,970)</td>
<td>777 (300 -1,714)</td>
<td></td>
</tr>
<tr>
<td>JMW</td>
<td>2,142 (5,053)</td>
<td>898 (299 - 1,962)</td>
<td></td>
</tr>
<tr>
<td>KEJ</td>
<td>1,122 (2,433)</td>
<td>481 (148 - 1,154)</td>
<td></td>
</tr>
<tr>
<td>Early Death</td>
<td>2,034 (3,523)</td>
<td>1,200 (12 - 2,400)</td>
<td></td>
</tr>
<tr>
<td><strong>Family</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS</td>
<td>2,825 (6,809)</td>
<td>1,200 (480 - 2,400)</td>
<td></td>
</tr>
<tr>
<td>KCDC</td>
<td>2,844 (7,395)</td>
<td>1,202 (459 - 2,759)</td>
<td></td>
</tr>
<tr>
<td>JMW</td>
<td>3,098 (7,471)</td>
<td>1,280 (515 - 2,900)</td>
<td></td>
</tr>
<tr>
<td>KEJ</td>
<td>1,594 (3,508)</td>
<td>662 (282 - 1,476)</td>
<td></td>
</tr>
<tr>
<td>Early Death</td>
<td>3,207 (4,576)</td>
<td>1,800 (960 - 3,600)</td>
<td></td>
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</table>
DISTRIBUTION OF MEDIAN WTPS BY HEALTH GAINS

- △QALY≤0.2
- 0.2<△QALY≤0.4
- 0.4<△QALY≤0.6
- 0.6<△QALY≤0.8
- death(△QALY=1)
Of 73 answered, 67 passed consistency check and included in the analysis.

Mean WTP for self health improvements:
- Industry > clinicians > decision makers > academia

A similar pattern was observed for 3rd party and patient (industry respondents were extremely altruistic).
## DISTRIBUTION OF WTP BY INTEREST GROUP

<table>
<thead>
<tr>
<th></th>
<th>Industry (n=27x4 scenarios)</th>
<th>Providers (n=21x4 scenarios)</th>
<th>Decision Makers (n=13x4 scenarios)</th>
<th>Academia (n=6x4 scenarios)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td><strong>Self</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS</td>
<td>12,006</td>
<td>5,000</td>
<td>7,444</td>
<td>6,000</td>
</tr>
<tr>
<td>KCDC</td>
<td>13,870</td>
<td>5,146</td>
<td>8,356</td>
<td>6,051</td>
</tr>
<tr>
<td>JMW</td>
<td>17,747</td>
<td>5,932</td>
<td>10,151</td>
<td>6,812</td>
</tr>
<tr>
<td>KEJ</td>
<td>9,445</td>
<td>3,344</td>
<td>5,703</td>
<td>4,061</td>
</tr>
<tr>
<td>**3rd party / Patient¹)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAS</td>
<td>18,000</td>
<td>5,554</td>
<td>8,142</td>
<td>5,980</td>
</tr>
<tr>
<td>KCDC</td>
<td>14,481</td>
<td>5,479</td>
<td>7,656</td>
<td>6,350</td>
</tr>
<tr>
<td>JMW</td>
<td>22,213</td>
<td>6,054</td>
<td>9,960</td>
<td>6,812</td>
</tr>
<tr>
<td>KEJ</td>
<td>11,534</td>
<td>3,550</td>
<td>5,627</td>
<td>3,993</td>
</tr>
</tbody>
</table>
Industry WTPs were very high (blue x)

Decision makers’ WTP and Healthcare experts’ WTP were similar (green triangles and brown squares)
DIRECT WTP DEPENDING ON KNOWLEDGE OF ICER

Knows

Does not know
CONCLUDING REMARKS
COMPARISON WITH PREVIOUS STUDIES

- For Korean CE Threshold, Bae et al. (2007) estimated 29,000,000 KRW for non serious illness and 51,500,000 KRW for serious illness, Shiroiwa et al. (2009) estimated 68,000,000 KRW

- Bae et al. (2007) was based on a survey of 77 professionals

- Shiroiwa et al. (2009) surveyed 1,000 general public by a web survey of 1 QALY gain (die or live in perfect health)

- This study employed a similar question of Shiroiwa et al. (2009) but the results were much lower, probably two things influenced to the difference
  - The preceding <1 QALY gain scenarios WTP elicitations may change WTP on early death as a continuation of 0.6-0.8 QALY gain
  - Ours is face to face and higher chance to include lower income and old age population than a web survey population
## CE Threshold Comparison

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<tbody>
<tr>
<td>United States</td>
<td>50,000–100,000 USD</td>
<td>50,000 – 100,000</td>
<td>47,186</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>20,000 - 30,000 GBP</td>
<td>30,457 – 45,686</td>
<td>35,631</td>
</tr>
<tr>
<td>Canada</td>
<td>20,000-100,000 CAD</td>
<td>16,420 - 82,099</td>
<td>38,975</td>
</tr>
<tr>
<td>Australia</td>
<td>42,000-76,000 AUD</td>
<td>27,587 - 49,920</td>
<td>38,637</td>
</tr>
<tr>
<td>Japan</td>
<td>5,000,000 JPY</td>
<td>44,864</td>
<td>34,132</td>
</tr>
<tr>
<td>Korea</td>
<td>20,000,000 KRW</td>
<td>24,324</td>
<td>27,658</td>
</tr>
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