Executive Summary

With the introduction of the Positive Listing System of new pharmaceuticals in 2006, economic evaluation emerged as a standard methodology for decision-making in healthcare. Since then, economic evaluation is used as a more popular criterion for setting priorities in the healthcare sector. There is a clear standard in the conventional economic evaluations (cost-benefit analysis: CBA) used in other areas, i.e. it worth when benefit is greater than cost. On the other hand, economic evaluations in healthcare is mostly cost-effectiveness analysis (CEA) or cost-utility analysis (CUA), in which the results are drawn by the Incremental Cost Effectiveness Ratio (ICER), which needs an external threshold to judge its worth. The ICER reports how much additional cost is needed for the increment of one unit of effectiveness (or utility) between a higher-cost but more effective treatment and the conventional treatment. There is no universal standard for cost-effectiveness ratio mainly due to different healthcare systems and economic environments of each country, but a certain threshold has been applied in the decision of health insurance reimbursement of new health technology. In the literature, other countries seem to have a predictable standard: $50,000 in the USA or £20,000-30,000 in the UK. In case of Korea, economic evaluation becomes more popular than ever, but there are uncertainties which seem to evoke conflicts among the interested groups. Even though transparency is much needed to reduce unnecessary conflicts among the concerned parties, many researchers have questioned the existence of unique standard applicable to all diseases and treatments, given the heterogeneous nature of healthcare. In addition to the heterogeneous characteristics of diseases and treatments, the limited source of data is another major obstacle in comparisons of

various economic evaluations in Korea.

In this study, the related literature was extensively examined before calculating a threshold for judging the cost-effectiveness in Korea. In-depth discussions on major issues were included in separate sections: calculation of effectiveness measures, implication of equity, a summary of current utilizations, and the recent issues related to economic evaluations of healthcare technology. After review, Quality Adjusted Life Years (QALYs) was selected as the most suitable effectiveness measure to interpret cost-effectiveness in Korea. QALY combines the quantitative aspect (mortality) and the qualitative aspect of life (morbidity), and it is a widely-used indicator in the economic evaluation of healthcare sector. Many countries recommend a use of QALY for effectiveness measure in the guidelines for economic evaluations.

The results of literature reviews on the economic analyses in the Korean healthcare sector showed that the median Life Years Gained (LYG) reported was 0.195, and the median of effectiveness calculated on the basis of QALY was 0.320.

A survey questionnaire was developed to measure the willingness to pay (WTP) for a QALY in Korea. This questionnaire utilized EQ-5D to measure the QALY improvement in hypothetical scenarios. Specifically, a subset of the 42 hypothetical health states used in the calculation of EQ-5D weights (tariffs) in Euro-Qol was used. Furthermore, the level of QALY improvements were classified into five categories: ranges of less than 0.2, 0.2-0.4, 0.4-0.6, 0.6-0.8, and greater than 0.8. It was based on the previous study results showing WTP is not proportionally increased by QALY improvement. Each respondent answered WTP for five scenarios, each one from the five categories. In addition, each WTP was repeated for the case of self and for that of a family member (total 10 WTP answers), based on a previous study result reported WTP for a QALY of the family is higher than that of the self in the Far Eastern countries. The questionnaire was

modified and completed after two advisory meetings and two focus group interviews.

A pilot survey was performed in 100 citizens in Seoul for 8 days from October 14 to 22, 2009 to confirm feasibility of the questionnaire and to prepare for the large-scale main survey in 2010. An open-ended WTP questions were used in the pilot survey to decide the initial bid values for the main survey double-bounded dichotomous choices. The results of the pilot survey showed that the WTP for an additional QALY was around 12-32 million won.

Based on the pilot survey results, initial bids for main survey were determined and survey questions were fine tuned. Double bounded dichotomous questions along with an open question were used in WTP solicitations. The main survey sample were drawn by quota sampling to represent Korean national population. The main survey was conducted between April 26, 2010 to June 3, 2010 and total 1,017 persons were interviewed face to face.

Of the total 1,017 persons surveyed, 933 persons passed a consistency test. For those who passed consistency, values for a QALY calculated from the final open questions (after double bounded dichotomous questions) showed 11-21 million won. The lower bound is from a result using tariff values by KEJ and the upper bound is by Jo et al.(2008) tariff values. The results by Visual Analog Scale (VAS) and KCDC tariff values (Lee et al. 2009) were similar around 19 million won. For WTP for family member were consistently higher than self: 16-31 million won whereas medical aid group showed 20-30% WTP values of health insurance group.

Using double bounded dichotomous choice questions seems to have additional benefit of refining open ended questions though the values for a QALY tends to be higher especially in parametric estimation models using only double bounded dichotomous questions. This observation cautions us selecting a specific analytic method may drive a result.

This study also included a separate survey on healthcare interest groups in Korea: industry, healthcare providers, decision makers, and related academia. Decision makers, and related academia showed a similar WTPs with WTPs of general population, but WTPs of industry staff were much higher than WTPs of other groups.

There were a couple of studies on cost-effectiveness threshold in Korea: a 2007 HIRA report by Bae et al. and Shiroiwa et al. (2010). Bae et al. reported 29 million won for a threshold (51.5 million won for severe diseases) and Shiroiwa et al. reported 68 million won as a threshold value. Since Bae et al was based on a survey on 67 professionals and Shiroiwa et al. used an extreme survey question (die now or live one more year in perfect health), their results were significantly different from this study results on general public. In addition, this study used more continuous increments of health improvements (<0.2, 0.2-0.4, 0.4-0.6, 0.6-0.8, and death), therefore, less extreme WTPs may have been observed.

A long-term goal of this study is gradually narrowing the gap of uncertainty through the accumulation of this kind of studies in Korea. Finally, we expect this study to contribute in the resolution of controversies over the economic judgment in the healthcare sector.