Special Article

Defining the Scope of Economic Evaluation Study and Selection of Comparators

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One of the most important steps in conducting economic evaluation studies is to have a clearly defined research question and scope of study. The present study describes key components used in defining the scope of economic evaluation study and selecting comparators. All relevant recommendations from international economic evaluation guidelines were reviewed and compared. The author recommends that an economic evaluation study should include a full description of the intervention or program of interest and target populations. The comparator should be the most commonly used alternative or current practice. In some circumstances, the most effective alternative can be a comparator. The most preferable perspective is societal perspective; however, other perspectives are acceptable if justification is provided. Researchers in the field of economic evaluation need to clearly define the scope of study prior to the conduct.

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The purpose of health care economic evaluation study is to determine the values of an intervention of interest, compared to the existing medical technology used for a medical condition. One of the most important steps in conducting health care economic evaluation studies is to clearly define research questions and the scope of study. The present study aims to describe components necessary to be defined for the scope of economic evaluation study and the selection of comparators. Relevant recommendations from international economic evaluation guidelines are reviewed and compared. Lastly, recommendations on how to define research questions and the scope of the study and to select the comparators are made for Thai health technology assessment (HTA) guideline.

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Rationale for cost-effectiveness analysis

It is important that the rationale of study should be clearly presented. It should contain description about disease and its epidemiology so that the readers can understand its importance and the burden of disease. If considered relevant, the description should cover etiology, pathology, and prognosis of disease. Authors should describe current clinical practice in the country. Statement of current problems is also very crucial. Authors should describe how this research can be used in the country and the options for treatment or controlling the problem in the country. Before stating the research question, the study should have a rationale for specification of problem. It should provide the readers with reasons why the study is needed. Will they be of interest to policy makers? It needs to tell the readers that policy makers are interested in knowing this as part of their decision making process.

This section provides a concise description of the issue(s) being addressed within the report and

sets the scene for readers. It includes the reasons why the analysis is being carried out, a brief description of the disease and patient groups affected and any funding/cost implications involved, including issues with competitive technologies. It should lay out how a conduct of economic evaluation studies would help policy makers understand the situation and be able to be well-informed with current evidence before making a final decision.

Defining a research question framework

A research question should be well-defined as the first step in conducting economic evaluation studies. Researchers should define the intervention or program, the target population, the comparator(s) being compared, and viewpoint(s) undertaken in the analysis. These components were described as the first question in Drummond's checklist for assessing economic evaluation[1]. All economic evaluation studies need to have a well-defined question posed in an answerable form.

Clear description of intervention or program and target population

A program or intervention of interest must be well described. It should be detailed enough that the reader is able to understand the characteristics of the intervention including "what to do", "how often?", and "for how long?". In addition, it should be clearly stated to whom the program is used for. Therefore, describing the target population is not less important than other components in defining research questions. Target populations may be defined using baseline epidemiologic characteristics describing the type of patient (e.g. age, gender, socio-economic status), with a specific disease, of a certain severity, with or without other co-morbidities or risk factors, their geographic distribution, usual compliance rates, typical patterns of treatment, and so on[2]. Having known the characteristics of population enables readers to identify a particular target population and apply the results of the study appropriately. One example is when an intervention is intended to be used for type 2 diabetic patients who are uncontrolled by an oral hypoglycemic agent and have experienced hypoglycemic episodes while using insulin therapy. This example is used to show the level of specification required for defining population as it would help the users to apply the results to the right population. As an intervention or program may be cost-effective for some subgroups of patients, it is important to clearly identify the populations under the study a priority and, when appropriate, to undertake separate analyses for different groups.

Based on 28 pharmacoeconomic guidelines from 23 countries systematically reviewed by Tarn et al[3], none of the existing guidelines mentioned the importance of a detailed description of intervention. This may be due to the fact that this requirement is so crucial that all researchers should be aware of this already. On the other hand, a clear specification of target population was required in most guidelines (23/28, 82%)[3]. Nine guidelines had specific recommendations for target population; four guidelines stated that population must be clearly specified; two guidelines recommended a need for description of age, sex distribution and co-morbidities of population; one guideline requested a justification of trial population and target population; one guideline specified that population should be determined by a precise indication of the medical technology; another guideline specified that all aspects of a therapy intervention should be described. The remaining guidelines (5/28,18%) did not mention target population.

Selection of comparators

Determining a comparator, to which an intervention is compared, is a very crucial and challenging step in conducting an economic evaluation study. It is so important that Drummond's checklist for assessing economic evaluation has included a question specifically inquiring about the comparator[1]. The question was whether a comprehensive description of the competing alternatives was given. A full description of the comparator is necessary because it enhances the readers' capability in determining applicability of the program, evaluating whether any costs or outcomes have been omitted, and replicating the program as described[4].

In economic evaluation, an intervention should be compared to the comparator (s) which is most likely to be replaced by the intervention in real practice[5]. Such comparator (s) could be current practice, most effective clinical practice, or minimum clinical practice. Typically, current practice or the most prevalent medical treatment is recommended as the comparator because it is consistent with the idea of comparing the intervention with the one to be replaced. Current practice can mean only the most used practice or a combination of all practices, taking into account their share in overall treatment practice. Another potential comparator is the most effective clinical practice. The "current practice" comparator may not

always reflect the appropriate care that is recommended according to evidence-based medicine. The "most effective clinical practice" comparator is therefore considered to be a feasible and relevant option. This comparator can be determined based on recommendations from evidenced-based clinical practice guidelines or current evidence demonstrating its efficacy and safety. The other option is the "minimum clinical practice" which means a practice which has the lowest cost and is more effective than a placebo. In some circumstances, "no treatment" can be an acceptable comparator if it is the only relevant alternative available to patients. This "no treatment" means any treatment without direct medical treatment. It could be symptomatic treatment as well as other types of care. It must be noted that the costs of this "no treatment" must also be calculated. Most guidelines (15/28, 53.6%) stated that the comparator should be the most widely used alternative. Eleven guidelines recommended standard therapy or the most effective option as a comparator. A total of five guidelines (Germany, Poland, Russia, NICE[6] (National Institute of Clinical Excellency) UK and PBAC Australia[7]) suggested that the comparator could be either the commonly used alternative or the most effective alternative. Only four guidelines specified that the comparator should be either "less expensive" or "the least expensive" alternatives.

Several guidelines vaguely described the characteristics of comparators. For example, the comparator should be the closest existing comparator or the most efficient option. American Managed Care Pharmacy (AMCP)[8] has specified that the comparator should be a relevant one but provided little information on the extent of relevance. Three guidelines (Finland, Scotland and Hungary) required the comparator to be the "to be replaced" one. The BMJ guideline[9] recommended that the most cost-effective option should be the comparator. Some guidelines (Norway, Poland, Russia, Spain, Switzerland, Belgium submission and Gold for the US[10]) indicated that a do-nothing alternative could be a viable comparator.

The most important component for the selection of comparators is a justification of the comparator. A full description of rationale for selection of the comparator(s) is crucial for the readers to understand the context of the question and be able to evaluate the appropriateness of the choice of comparator.

Perspective

The perspective of the study should be clearly identified. The most commonly used perspective or viewpoint should be the most comprehensive societal perspective. This perspective incorporates both direct and indirect costs. The societal perspective is the broadest viewpoint since it encompasses all costs and benefits regardless of who incurs the costs or gains the benefits.

Other relevant perspectives include the health care system, major third party payers such as Ministry of Public Health, health care purchasers, hospital and patient perspective. It should be noted that these perspectives are used when the target audience differs. For example, the government might be interested in all costs and benefits incurred only in the governmental sector. For hospital perspective, the hospital directors will be interested in costs and benefits incurred only in patients seeking care at their hospitals. Regardless of the perspective undertaken, it should obviously be consistent regarding both cost and outcome components.

It is recommended that if the societal perspective is undertaken, the data should be transparently disaggregated. This effort should be made to make it possible for the readers to determine the direct medical costs attributed to certain sectors. For example, a separate analysis from the government perspective can be presented apart from the primary societal perspective. A clearly defined perspective helps researchers determine the types of costs that should be included in the analysis. The perspectives taken in the study should be specified to suit decision makers or users of the research findings.

Based on a review of pharmacoeconomic guidelines, the majority of guidelines (9 guidelines) recommended using only societal perspective while most of the remaining guidelines suggested that more than one perspective should be used[3]. For the group of guidelines that recommended the use of only societal perspective, six guidelines (Finland, Germany, the Netherlands, Sweden, and Gold et al guideline[10] for the US, BMJ guideline[9]) merely stated that societal perspective should be chosen. The other three guidelines (Canada, Poland, and Portugal) provided more specifications in addition to using a societal perspective, where the results should be transparently broken down into other relevant viewpoints.

Eight guidelines suggested using either the health care system or health care payer perspective in combination with the societal perspective. Three guidelines (Baltic, Ireland and Australia) specified "health care system", while the other four guidelines (Belgium, Italy, Norway and NICE[6] for the UK) used

various terms. All, however, represented the same meaning of "national health care payer". The remaining guideline (American Managed Care Pharmacy: AMCP[8] for the US) specified "payer" perspective because the guideline was developed as a guideline for private insurance systems. It is important to note that two guidelines (NICE[6] from the UK and AMCP[8] from the US) ranked the importance of perspectives taken. Both guidelines specified the "health care payer perspective" as a reference case and "societal perspective" as a secondary one.

A few guidelines (Russia, Scotland and Switzerland) recommended the use of various perspectives including societal, health care system, patient and employer. The remaining three guidelines (France, Hungary and Spain) suggested that the perspective taken depended on research question, aims of the study, and the audience to whom the analysis is addressed.

Recommendations for Thai HTA guideline

Based on a review of international pharmacoeconomic guidelines, the recommendations for the scope of the study varied because of several potential reasons. First, some guidelines are developed to guide submissions of pharmacoeconomic studies for a national institute, while others are developed for private insurance companies. Second, the guidelines were developed with different time lines ranging from 1995 to 2004. Advances in the field of health care economic evaluation were made during this period. This may explain some of the disagreements in the recommendations.

Several recommendations can be made for Thai HTA guideline. Below is the summary of the recommendations:

1. It is recommended that the target population and the intervention or program of interest should be clearly described. The description should be detailed enough that the readers fully understand how the intervention or program is used and are capable of imitating the same intervention or program.

2. The recommended primary perspective is societal perspective because it takes into account all relevant consequences at a broader scope which provides insight information for the decision makers when the overall effects, outside the health system context, are taken into consideration. If other perspectives are undertaken, justification is needed.

3. The comparator should be the one to be replaced. The characteristics of the alternative should be that of the most commonly used therapy or current practice. Selection of the comparator depends on the research question. If the aim of the study is to replace the most commonly used intervention with the intervention of interest, the comparator should be the most widely used one. On the other hand, if the aim of the study is to replace the standard therapy, the comparator should be the most effective alternative. In some circumstances where do-nothing is the current practice or standard of care, no treatment can be a viable alternative.

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การกำหนดขอบเขตการประเมินทางความคุ้มค่าทางการแพทย์

ณธร ชัยญาคุณาพฤกษ์

ขั้นตอนที่สำคัญที่สุดขั้นตอนหนึ่งในการประเมินความคุ้มค่าทางการแพทย์คือการกำหนดคำถามงานวิจัยและขอบเขตการศึกษาให้ชัดเจน บทความนี้เขียนขึ้นมาเพื่อบรรยายส่วนประกอบสำคัญต่าง ๆ ที่ใช้ในการกำหนดขอบเขตการศึกษา ผู้เขียนได้ทบทวนและเปรียบเทียบข้อเสนอแนะต่าง ๆ ที่ได้จากแนวทางการประเมินความคุ้มค่าทางการแพทย์จากต่างประเทศ และสรุปเป็นข้อเสนอแนะในการกำหนดคำถาม ขอบเขต และการคัดเลือกตัวเปรียบเทียบในการประเมินความคุ้มค่าทางการแพทย์สำหรับประเทศไทย ผู้เขียนเสนอแนะให้มีการอธิบายเกี่ยวกับมาตรการหรือโปรแกรม และประชากรเป้าหมายโดยสมบูรณ์ ตัวเปรียบเทียบควรจะเป็นการรักษา ที่ปฏิบัติกันในปัจจุบัน แต่ในบางกรณีอาจใช้ตัวเปรียบเทียบที่ได้รับการยอมรับว่ามีประสิทธิผลสูงสุดในขณะนี้ มุมมองของการศึกษาควรจะเป็นมุมมองทางสังคม แต่หากจะใช้มุมมองอื่น ควรมีคำอธิบายระบุเหตุผลการเลือกใช้มุมมองนั้น นักวิจัยในสาขาการประเมินความคุ้มค่าทางการแพทย์มีความจำเป็นต้องกำหนดขอบเขตการศึกษาให้ชัดเจนก่อนเริ่มทำการศึกษา