REGULATION AND GUIDELINE

Guideline for Postmarketing Chinese Medicine Pharmacoeconomic Evaluation*

WANG Xin (王 星)1,2, WANG Zhi-fei (王志飞)1, XIE Yan-ming (谢雁鸣)1, ZHANG Wen (张 文)1, LIAO Xing (廖 星)1, and CHANG Yan-peng (常艳鹏)1, for the Specialty Committee of Evaluation of Postmarketing Chinese Medicines of World Federation of Chinese Medicine Societies

ABSTRACT  Pharmacoeconomics is an important part of the postmarketing Chinese medicine (CM) evaluation, and postmarketing pharmacoeconomic evaluation can reveal the clinical and market value of CM. The purpose of establishing the guideline for pharmacoeconomic evaluation is to make the evaluation process and results regarding Chinese patent medicines both scientific and fair. Every country's guidelines for pharmacoeconomic evaluation act as reference guidelines, we have already drawn up the guideline that takes into account the special characteristics of CM; and these are in preparation for the postmarketing CM pharmacoeconomic evaluation.

KEYWORDS  postmarketing evaluation, Chinese medicine, pharmacoeconomics, guideline

With the rapid development of China's medical and health industry, along the orientation directed by Good Manufacturing Practice, more and more new products and new dosage forms of Chinese patent drugs have been introduced to the market, and the annual consumption of Chinese patent drugs have shown a significant growth. Diversified drugs provide more choices for both doctors and patients; however, the broadened variety of drugs exposed a more evident issue: many drugs are similar in terms of functions and indications. For this reason, it is necessary to make pharmacoeconomic evaluation, then those drugs with good efficacy but low/moderate cost can be identified. These are more in line with national policies of healthcare reforms, allowing patients to enjoy safe, effective and healthy healthcare services, and achieving the best therapy at the lowest cost.

Pharmacoeconomic evaluation is one of the important means of evaluation of postmarketing Chinese medicines (CMs). It is also an extension of the evaluation of new CMs. The development of the guideline is one of the research tasks of "study on key technologies for evaluation of postmarketing CMs", a major national science and technology project for "major new medicine development" of the State Ministry of Science and Technology in 2009. This study accumulated a wealth of experiences in postmarketing CMs pharmacoeconomic evaluation, and eventually led to the development of the relevant guideline. Upon adoption by the experts committee, the guideline is to be studied, verified, supplemented and applied in clinical institutions. Now, the guideline has become relatively sophisticated and a consensus has been achieved among experts and professionals. The guideline will provide technical support for the proper evaluation of postmarketing CMs, thus making the postmarketing CMs pharmacoeconomic evaluation more scientific, rational and operable. (1)

Pharmacoeconomics is an emerging cross science aiming to address the issue of medical and medicinal resources arrangements. Its research and evaluation are conducted mainly from the the perspectives of society, patients, medical institutions and insurers. The range of cost and output to be measured varies with different research perspectives. Evaluation of pharmacoeconomics is of great importance in CMs pre-marketing review and postmarketing evaluation. To date, 33 countries and territories have had their relevant

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1. Institute of Basic Research in Clinical Medicine, China Academy of Chinese Medical Sciences, Beijing (100700), China; 2. Beijing Bionovo Medicine Development Co., Ltd., Beijing (100024), China
Correspondence to: Prof. XIE Yan-ming, Tel: 86-10-64014411, E-mail: dataming5288@163.com
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authorities developing a total of 40 guidelines on pharmacoeconomics evaluation. These are used to direct and regulate pharmacoeconomics evaluation. In China, pharmacoeconomics research is a recently developed field, and in order to standardize the pharmacoeconomics research of the country, in 2011, China introduced "the Guide to Pharmacoeconomics Evaluation of China" (GPEC).\(^{(2)}\)

Compared with general Western medicines, CM has a higher patient tolerance, which is dependent on particular resources; there is unstability between different batches. These features result in unique challenges in the implementation of pharmacoeconomics evaluation of CM. The economic study of CM is still in its infancy, and there are difficulties to overcome in the study and in its implementation. Methods of economic evaluation for CM are still emerging. On the basis of GPEC, this article takes a lead to develop proposed guideline for postmarketing CM pharmacoeconomics evaluation from a technical perspective. It aims to regulate the design and practice of the programs of CM pharmacoeconomics evaluation, thus allowing for the evaluation to be made scientific and rational.

Scope
The guideline applies to the pharmacoeconomics evaluation of CMs that have been already sold in the market, including Chinese patent drugs, Chinese crude drugs that have approval reference numbers, and other CM preparations serving as drugs.

Normative References
The guideline has referred to the following references which are essential for this document: the GPEC (revision 2011),\(^{(2)}\) and guide to pharmacoeconomics evaluation of USA (revision 2009),\(^{(3)}\) Netherland (revision 2006)\(^{(4)}\) and Australia (revision 2007).\(^{(5)}\)

Terms and Definitions
The following terms and definitions are applied to the guideline.

Pragmatic Clinical Trial
Pragmatic clinical trial is specially designed for pharmacoeconomics research. It is able to reflect the treatment effects under realistic conditions, with good external validity. However, due to the absence of external restrictions, poor subject compliance and many confounding factors, the internal validity is poor; moreover, as it is time-consuming and strenuous, it is hard to be widely applied within a short time.\(^{(2)}\)

Piggy-Back
Combining pharmacoeconomics studies with drug clinical trials, and performing economics evaluation during drug clinical trial (phase IV) is a common method that medicine manufacturers use in the pharmacoeconomics study of new drugs. It features good credibility and internal validity, but it is low in external validity.\(^{(2)}\)

Retrospective Cohort Design
Much relevant data can be directly obtained, accordingly the cost is low, the research time is short, and it features good external validity. In a cohort design, it is necessary to control all possible confounding factors such as age, sex, severity of disease, and complications. As it is susceptible to selection bias, which must be identified and controlled.\(^{(2)}\)

Mixed Method Design
Mixed method design is a comprehensive method integrating the above methods in one. In general, to further the adequate data of clinical effect obtained from prospective clinical trials or retrospective cohort designs, it is necessary to collect relevant cost data through retrospective/cross sectional investigations. Mixed method design is a method of pharmacoeconomics evaluation consuming less time and efforts than the other methods.\(^{(2)}\)

Cost
Cost means the resources (labor, capital, materials, and time) consumed in prevention, diagnosis and treatment items. It consists of cost identification, cost measurement, discounting analysis, and uncertainty analysis. In terms of socialization, the cost of pharmacoeconomics evaluation comprises direct and indirect cost, each of which consists of medical costs and non-medical costs.\(^{(2)}\)

Direct medical costs comprise the costs directly related to treatment and interventions, e.g., prevention, diagnosis, treatment cost, etc. Direct non-medical costs related to treatment and interventions should also be input into the analysis, e.g., patients' travel costs, and nutrition costs. Indirect costs generally comprise the loss of productivity arising from the disease or death. These also need to be apportioned in the calculations.