

Methods and Mindsets in Pharmacoeconomics

Based on a presentation by William F. McGhan, PharmD, PhD

Presentation Summary

The field of pharmacoeconomics began about 20 years ago and is rapidly evolving. Current methods—cost effectiveness, cost minimization, cost benefit, and cost utility—are described and compared. Cost effectiveness and cost utility are expected to become dominant methods. Most pharmacoeconomic trials in the past have used surrogate markers, such as reduction in low-density lipoprotein cholesterol, as outcomes, rather than

definitive clinical events. Lipids trials in which clinical markers were used—The West of Scotland Coronary Prevention Study, the Pravastatin Limitation of Atherosclerosis in the Coronary Arteries, and Pravastatin, Lipids, and Atherosclerosis in the Carotid Arteries—are discussed. The use of clinical outcomes, such as reduction in risk for various coronary events, is advocated to produce more rigorous cost-effectiveness studies.

Methods and applications in pharmacoeconomics are still evolving, according to William F. McGhan, PharmD, PhD, Professor of Pharmacy at the Philadelphia College of Pharmacy and Science, who presented “The Pharmacoeconomics of Cardiovascular Event Reduction in the Managed Care Setting: An Evidence-Based Approach” at the Bristol-Myers Squibb conference, Cardiovascular Event Reduction: Defining the Role of HMG Therapy in Managed Care. Pharmacoeconomics studies have been conducted for about two decades and are having an increasing influence on how healthcare is delivered.

The four basic pharmacoeconomic evaluation techniques are cost effectiveness, cost minimization, cost benefit, and cost utility. Most of the pharmaco-

economic studies discussed at the two symposia used cost-effectiveness analysis, the most common technique in the cardiovascular literature. Dr. McGhan expects pharmacoeconomics to evolve from cost effectiveness to cost-utility analyses.

Cost-effectiveness analysis compares the costs associated with different interventions with the outcomes measured in specific clinical or physical units. Each ratio focuses on a single outcome and is usually measured as cost per life-year saved, calculated as incremental direct medical costs divided by incremental life-years saved.

Cost-minimization analysis is common in managed care. It is criticized, however, because it is concerned only with inputs, and it is assumed that all strategies produce identical outcomes.

Cost-benefit analysis expresses health-care costs and benefits in terms of dollars. Cost-utility analysis incorporates patient preferences and quality of life, evaluating outcomes in quantitative measures such as quality-adjusted life years, pain scales, and index of well-being.

Definitive Clinical Outcomes and HMGs

Dr. McGhan pointed out that pharmacoeconomic studies of lipid-lowering agents often have had surrogate markers as outcomes, rather than more appropriate definitive clinical endpoints. He highlighted studies that have used clinical endpoints: The West of Scotland Coronary Outcomes Prevention Study (WOSCOPS) in primary prevention and The Pravastatin Limitation of Atherosclerosis in the Coronary Arteries (PLAC I) and Pravastatin, Lipids, and Atherosclerosis in the Carotid Arteries (PLAC II) secondary prevention studies. The pharmacoeconomic analyses of most trials define costs as drugs, physician visits, laboratory monitoring, and adverse events. In the WOSCOPS, the investigators used an economic model to evaluate cost per life-year saved over 5 years and evaluate changes in direct medical costs, survival, and employee productivity. The cost per life-year saved

with pravastatin in primary prevention was \$12,997, as shown in Figure 1.¹

The pharmacoeconomic analyses of PLAC I and PLAC II involved a coronary artery disease decision tree, with the following assumptions: 3 years of pravastatin therapy; 5% annual time discount rate for costs and benefits, a managed care perspective; and no indirect costs. The cost per life-year saved with pravastatin in secondary prevention was \$7124, as shown in Figure 1.²

FACULTY QUESTION-AND-ANSWER SESSION

Question: Why did 95% of the studies not include indirect costs?

Answer (Dr. McGhan): Most of us in health economics agree that indirect costs should be covered. Even if you're using a managed care perspective, you should discuss indirect costs. It's more relevant to employers and patients.

Comment: I think indirect costs are very important from a managed care perspective, because indirect costs can be more than the cost of the drug.

Comment: I need indirect costs separated from direct costs, because indirect costs can be a bit of fluff.

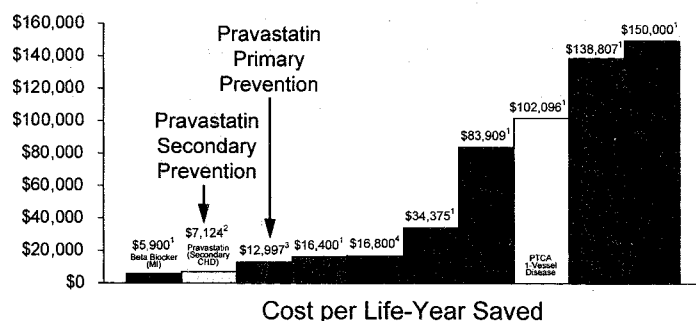
Comment: More employers are self-insuring. They're interested in productivity. They want to know that what they're paying for will get their employees back to work.

Answer (Dr. McGhan): Some studies have been done on worker productivity. Productivity increases result in improved cost effectiveness.

Comment: I think the financial people have to help us understand. It's very confusing.

Answer (Dr. McGhan): The methods are evolving. The different perspectives

Figure 1. Cost Effectiveness of Cardiovascular Interventions



are one of the things that complicate this issue. Look at the methods and apply them to your own populations.

Comment: One of the problems in the United States is the way the budgets are structured. Pharmacy budgets are separate from other medical costs. We're going to have a difficult time doing anything that doesn't have a quick pay-off.

... REFERENCES ...

1. West of Scotland Coronary Prevention Group. West of Scotland Coronary Prevention Study: Identification of high-risk groups and comparison with other cardiovascular intervention trials. *Lancet* 1996;348:1339-1342.
2. Ashraf T. Cost-effectiveness of pravastatin in secondary prevention of coronary artery disease. *Am J Cardiol* 1996;78:409-414.