Barriers to Using Cost-Effectiveness Analysis in Managed Care Decision Making

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Abstract

Managed care organizations would appear to be natural advocates for, and users of, cost-effectiveness analysis (CEA) as a tool for maximizing health outcomes for their covered populations within fixed budgets. There is, however, little evidence that CEA plays a major role in managed care decision making. The purpose of this paper is to identify barriers to both conducting and using CEA in managed care decision making. Lack of understanding about the value and applicability of CEA, and incentives that do not align with a lifetime perspective on either health outcomes or costs may be at least as important as perceived or real methodological limitations of the methodology. Research focused on ways to overcome these barriers, and thereby improve resource allocations, is recommended.

(Am J Manag Care 1999;6:173-179)

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During the past 10 years, the number of people who receive their healthcare in a managed care setting has increased significantly. The proportion of people insured by employers who were covered by managed care plans rose from 49% in 1992 to 85% in 1997.[1] This rise in managed care was initially accompanied by a significant slowdown in the growth rate for healthcare spending.[2] Managed care appears to have had some initial success in meeting its goal of containing healthcare costs (or at least slowing the growth of healthcare costs), but its effect on quality has not yet been demonstrated. Although healthcare costs have risen more quickly than did premiums in 1996 and 1997, this has yet to result in large increases in health insurance premiums.

In contrast to a fee-for-service environment in which there is little incentive to control costs, managed care seeks to maximize the value (quality) of healthcare delivered within a fixed budget (cost). This objective would seem to make managed care organizations (MCOs) natural advocates for and users of cost-effectiveness analysis (CEA), since CEA is a rigorous methodology used to quantify the ratio of cost per unit of health benefit.[3-5] Although CEA does not reflect all issues of importance, such as equity or feasibility, in a healthcare decision, it does provide potentially useful information for healthcare decision makers.[3,4]

Despite these incentives, there is little evidence that MCOs explicitly use CEA as a tool in managed care decision making. Although the number and quality of CEAs conducted has increased considerably, whether these analyses have had an impact on healthcare decision making (either in managed care or in other settings) is not clear. Reinhardt[6] summarized the situation as follows: "Policy-makers worldwide are on a quest to control national spending for health care and to enhance the value received for

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This work was supported in part by an unrestricted grant from the Eli Lilly Company, Inc., Indianapolis, IN.

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whatever is being spent on health care. One should think that the economic evaluation of clinical practice would play a major role in this quest. Alas, so far it has not, in spite of considerable progress in the development of suitable methodology for such evaluations."

Our objective is to describe and discuss the various barriers to using CEA in the managed care setting. Such barriers limit the potentially fruitful linkage between the methodology of CEA and the managed care industry. In previous discussions and surveys regarding the use of CEA in health decision making, issues relating to methodology have often been identified as key barriers to the widespread use of CEA.[7-9] Although methodologic issues exist and certainly deserve further research, a lack of understanding on the part of MCOs regarding the value of CEA in evaluating health interventions is another important barrier. In addition, physician and public perceptions of CEA can be significant barriers to using CEA in managed care.

Current Reduction and Use of Cost-Effectiveness Analysis

The rate of publication of CEAs has never been greater. Leading clinical journals publish CEAs alongside biologic and clinical research, and entire journals, including *Medical Decision Making, PharmacoEconomics, The International Journal on Technology Assessment in Health Care,* and *Value in Health,* are devoted to the methods and applications of CEA and related approaches to decision making. Pharmaceutical companies have invested millions of dollars in "health economics," "pharmacoeconomics," and "outcomes research" departments, most of which are responsible for performing and commissioning cost-effectiveness studies of their products for use in both internal product development decisions and external marketing efforts.[10]

Despite the increased number of published CEAs and concerted efforts by pharmaceutical companies, professional organizations, and academic groups to develop CEA into a practical aid to decision making in healthcare, CEA does not appear to be used routinely and consistently by MCOs. Most surveys of the use of economic evaluation in decision making have focused on the pharmacy and have not found widespread use of CEA.[7-9,11,12] Managed care pharmacies regard clinical effectiveness as the most important consideration, followed by safety and then cost effectiveness.[8] However, at least 2 companies (one pharmacy benefit management company and one MCO) have developed guidelines for including cost-effectiveness information in a formulary submission.[13,14]

Only a few examples of cost-effectiveness studies conducted in a managed care setting have been published to date. At Prudential Health Care, a CEA of HMG-CoA reductase inhibitors (statins) was used to support the inclusion of fluvastatin and simvastatin in its formulary.[15] Cost-effectiveness analyses for influenza vaccination, treatment of depression, use of sumatriptan for migraine headache, and treatment of acid peptic disorders in a managed care setting have also been published, but the extent to which these have influenced decision making is not known.[16-19]

Understanding the Value of Cost-Effectiveness Analysis

Managed care companies seem unsure of the relevance of CEA to their organizations. In surveys, they cite effectiveness as their most important decision criterion, potentially unaware of the additional information that can be provided by CEA in helping them to decide whether and, if so, under what circumstances, to allocate resources to particular technologies. Also, even if they are aware of the availability of cost-effectiveness data, MCOs may question the applicability of these studies, including the perspective of the analysis or potential biases related to the supplier of the analysis.

For MCOs to recognize the value of CEA, they must understand both the technique as well as its potential value in decision making.

Knowledge of methodology. Many decision makers feel ill-equipped to evaluate cost-effectiveness information and report that technology assessment groups do not have the skills or the resources to evaluate these data.[12] As an unfortunate consequence, MCOs appear to perceive CEA as an analytic technique that itself is in early development.[11] Yet, standards for conducting CEAs are available; the US Public Health Service has recently published guidelines for conducting CEAs for health interventions.[3-5] In other countries, the use of cost-effectiveness data in healthcare decision making has a longer history. It is formally required as part of the government approval process for drugs in Australia and is used frequently in pricing decisions for drugs in France.[20,21] Cost-effectiveness analysis is considered by many, both in the United States and in other countries, to be a well-defined method for evaluating the relative value of health interventions.[3, 20, 21]

Understanding the value. Medical directors at MCOs seem uncertain about the value of CEA.

Managed care organizations consider many factors when making a coverage decision regarding a new technology but often are unwilling to be explicit about resource rationing. Decision makers claim that cost rarely enters the coverage decision (and often do not make the distinction between cost and cost effectiveness).[7] Effectiveness (or lack of effectiveness) is claimed to be the most important criterion used in coverage decision making.[7,8] For example, medical necessity or increased effectiveness was cited by medical directors as the most common consideration in recommending coverage for three new laser technologies, but increased cost effectiveness and potential for decreased cost were also cited as considerations.[22] Technologies most likely to undergo formal technology assessment are those considered high-cost technologies, emerging technologies, or controversial technologies, indicating that costs are important.[7,8]

Cost-effectiveness analysis provides a formal assessment of the cost of a service or product per unit of effectiveness. When included in budget decision making, information on cost-effectiveness can help optimize resource allocation by identifying services and products that provide relatively more units of effect per dollar expenditure. For products or services that are of clearly superior efficacy, an appropriate role for CEA would be to identify the relative cost-effectiveness ratios for specific subgroups of patients who are candidates for the new treatment or to help identify those subgroups for whom, and under what clinical circumstances, the treatment is most or more cost effective.

Limited Incentives to Use Cost-Effectiveness Analysis

Despite apparent incentives to use CEA, the process by which services are currently rationed actually limits the incentives for MCOs to use this technique. As long as managed care organizations achieve sufficient cost control through more conventional strategies, such as capitated contracts and volume discounts, they have little reason to engage in the much more difficult process of optimizing resource allocation by applying CEA. However, once they have reached the limits of containing costs through current strategies, MCO decision makers may start to consider the value of CEA as a source of information.

The organizational structure of many MCOs also provides little incentive to use CEA. Managed care companies are a heterogeneous group of plans, and most MCOs are still largely decentralized by administrative departments (pharmacy, hospital, or outpatient care) and do not evaluate systemwide costs. Because a systemwide approach is necessary to conduct CEA, decentralized organizations are likely to be ill-equipped to engage in CEA. At least in the pharmacy, some MCOs are moving beyond acquisition costs when evaluating costs. All of the published CEAs from a managed care setting considered costs from more than 1 department.[15-19]

Managed care organizations also tend to have shorter time horizons than are usually reflected in CEAs. Because members switch health plans frequently, future cost savings or health benefits to members may be valued less from the MCO's point of view. Ironically, disenrollment tends to reduce the incentives for MCOs to give priority to preventive services, although marketing considerations provide the opposite incentive.

Managed care organizations have strong market-driven incentives to provide highly visible, lifesaving, and glamorous services, whereas many low-visibility but extremely cost-effective services may not be provided. This is not to say that MCOs do not allocate resources according to the long-term best interests of their members, but the economic incentives are often at odds with cost-effective resource allocation.

Negative Perceptions

Public perceptions. The current public policy and media environment portray MCOs as being primarily or solely obsessed with cost. As such, revealing that coverage decisions are based on methods that include "cost" or "economic" in the title is seen as a public relations mistake. In addition, Americans have a cultural tendency to resist decision making by any central authority and to resist the denial of almost any potential services.[23] As a result, patients view CEA only as a means for denying them services.

When the state of Oregon attempted to use cost-effectiveness data as part of its method for limiting the number of services covered by its Medicaid program and extending coverage to additional people, there was significant resistance.[24] Because of objections by the federal government, cost effectiveness was not included as a criterion for evaluation in the final ranking of services and costs played a minor role in the rankings.[25] Negative public perception of using costs or cost effectiveness as a criterion in healthcare decision making is a significant barrier to the active consideration of cost effectiveness in decisions for allocating healthcare resources.

The public's resistance to denial of healthcare services is clearly in conflict with its desire to limit healthcare spending. Although the public criticizes managed care practices, individuals frequently choose the least expensive plan available to them. What is less clear is how to increase the public's understanding of this conflict and potentially increase their understanding of the role CEA can appropriately play in this type of resource allocation problem.

Physician perceptions. Physicians in the United States have a traditional aversion to considering resource constraints in decision making. Most physicians do not know how to evaluate cost-effectiveness information and may consider it unethical to use.[26] Physicians consider CEA to be an accounting or cost-management tool rather than a decision-analytic tool. They may perceive guidelines based on cost effectiveness to be an intrusion into the physician-patient relationship. Part of this barrier could be overcome by education, but the question of ethics remains.

The appropriateness of using cost-effectiveness information at the individual level is an important point of discussion. Many CEAs are based on the characteristics of the "average" patient and may not be appropriate for decision making for individual patients when the patient population is heterogeneous (ie, for patients whose characteristics may be quite different from those of the average patient). Physicians who recognize this limitation may unfortunately limit their acceptance of the use of CEA in more appropriate situations, such as for policy decisions or for individual patient decision making in homogeneous patient populations. Managed care organizations may perceive physician reluctance toward CEA as potentially limiting its use.

Methodologic Issues

Timeliness of cost-effectiveness data. Decision makers emphasize the need for more timely information.[22] By the time cost-effectiveness data are available or published, it is often too late to include this information in the coverage decision because the new technology has already become established. This is an important barrier, because once a technology or intervention has become standard practice, restricting its use becomes much more difficult. However, if completed CEAs are not available prior to the introduction of a new intervention, then CEA can be used to assess the relative cost effectiveness for different patient subgroups or for comparing incremental cost effectiveness of different clinical strategies that incorporate the new product or technology.

Perspective of the analysis. The US Public Health Service guidelines recommend conducting CEAs from the viewpoint of society for the reference case analysis.[3] Decision makers at MCOs, however, want information targeted to their decisions, which implies they want CEAs performed from their own organizational perspective.[7] The difference between societal and corporate time horizons is but one aspect of this conflict. For CEAs conducted from the societal perspective, but reported according to the guidelines of the US Public Health Service, the information provided should be sufficient to adapt them to the perspective of managed care.[27] For example, if resource costs are detailed as units of utilization multiplied by unit costs, an MCO could substitute its own acquisition prices and cost structures.

A relevant question, however, is whether the use of CEA from the managed care perspective will improve decision making in a way consistent with societal objectives, because MCOs tend to have shorter time horizons and are not responsible for many healthcare costs, such as long-term care and unpaid caregivers. Furthermore, other viewpoints may need to be considered, such as those of employers and individual patients.

Bias. Managed care organizations are very much aware of the source of cost-effectiveness studies and wary of data supplied by the manufacturer of the product or technology under consideration.[12] Thus there is a perceived need for independent objective evaluation and generation of cost-effectiveness information. Guidelines for ensuring independence have been proposed, although much cost-effectiveness data that has not been produced according to these guidelines is apparently reaching MCOs.[28]

Productivity costs. Although the US Public Health Service guidelines do not recommend that productivity costs be incorporated alongside healthcare resource costs and personal time costs, productivity costs can be relevant for some perspectives, such as those of employers who are either self-insured or purchasing managed care for their employees. Although the measurement and valuation of productivity costs can be a problem from an ethical perspective in societal CEAs, because health gains to employees with higher productivity and income would tend to receive more weight, gains in productivity due to health improvements are real economic benefits to the employer. The potential inclusion of productivity costs, however, is not a

critical barrier, because standards could be developed for measuring these costs. Managed care organizations appear interested in analyses from the employer perspective to demonstrate value for their customers, which would entail including costs of absenteeism and reduced productivity on the job.

Relative interpretation of ratios. Cost-effectiveness ratios are meaningful only in comparison with comparably obtained ratios for competing uses of resources. Their usefulness to MCOs would be enhanced by the availability of a sufficient number of CEAs conducted from a managed care perspective. In the short term, relative interpretation of ratios will continue to be a barrier until a larger number of managed care CEAs becomes available. One potential way to overcome this barrier would be to reanalyze existing cost-effectiveness studies from a managed care perspective.

Quality-adjusted life-years and other endpoints. Managed care organizations characterize quality-adjusted life-years as an abstract and controversial endpoint. Of the few CEAs that have been conducted in the managed care setting, none used quality-adjusted life-years or life-years as an endpoint. Instead, intermediate endpoints, such as percent reduction in low-density lipoprotein cholesterol level or number of disability-free days, were used.[15,18] Although such intermediate endpoints can be used, they reduce the ease of making comparisons across interventions.

Discussion and Recommendations

Managed care organizations are quick to deny they ration care but admit to being constrained by budgets. Although MCOs do not appear to ration explicitly based on CEAs, both the costs and effects of products and services are considered in coverage decisions. There is evidence of ad-hoc cost-consequence analysis for expensive technologies and procedures, but formal CEA is not used. Consider the following example of the use of ad-hoc CEA in managed care decision making that appeared in the *Wall Street Journal*[29]:

> United Health Care Corp. of Minneapolis considered two new technologies for detection of cervical cancer. One marginally improves the detection rate by having Pap smear slides computer-screened after a technician eyeballs them. United rejected it even though it might have found a few more cancer cases. The other increases the number of cells collected in a Pap smear, greatly boosting chances of finding any cancer. United accepted that. "If you had no constraints, you could do both. But the marginal gain [of the first] is so small, it isn't worth it," medical director Lee Newcomer says.

Using ad-hoc CEA has at least 2 important implications. First, MCOs should be avid consumers and users of formal CEA because they do consider both costs and effects in allocation decisions. Second, if MCOs are making decisions based on informal cost-consequence analysis, resources are likely to be misallocated if ad-hoc CEA results in incorrect estimates of the tradeoffs between costs and effects. Illustrating how CEA can contribute to the resource allocation process is an important area in which MCOs (and the public) can be educated.

Conducting cost-effectiveness studies can be expensive, and MCOs are not willing to invest in this analysis until there is some clearer incentive, either internally or externally, for them to be using it. The issues and barriers we have discussed suggest that CEAs need to be inexpensive and easy to understand. Managed care organizations have little incentive to conduct CEAs themselves, but they do not trust results from those who have the most incentive to produce CEAs (industry) or do not agree with the perspective of other producers of CEAs (government, academia).

The trend toward disease management programs may help overcome this barrier, as long as such programs are defined and implemented at the system level. Similarly, managed care plans that are truly organized as integrated provider systems have more of an incentive to be active consumers of CEAs.

Purchasers of healthcare services, such as employers and government agencies, may play an important role in requiring the use of cost-effectiveness data to promote more rational allocation of their healthcare dollars. Although MCOs appear to currently have little incentive to produce their own CEAs, purchasers' demands could convince them otherwise. If this were to happen, one would expect more CEAs to be conducted from the employers' perspective.

This raises questions regarding the effectiveness of the agency relationships between MCOs and employers and between MCOs and subscribers. Managed care incentives are not likely to be fully aligned with those of employers. Requiring CEAs may be one potential option enabling an employer to better align managed care's objectives with an employer's goals. Given that most health insurance is provided through employers, MCOs have clearer incentives to be better agents for employers than for individual subscribers. Therefore, it would not be

surprising if MCOs were not particularly good agents for their subscribers. Yet the question of how to better align managed care's objectives with those of subscribers, whose goals are likely to be different from those of their employer, remains unaddressed. Depending on the perspective used, incorporating CEA into managed care decision making may not improve the managed care-subscriber agency relationship. An important health policy question is then how to improve this agency relationship.

In this article, we have described a number of barriers to both conducting and using CEA in a health system characterized by managed care. We believe that barriers concerning the relevance and application of CEA are at least as important as those related to the methods of conducting CEA. Therefore, research focused on ways to overcome these barriers, or to understand better the role of CEA within the context of our cultural and political environment, is recommended.

Although standards for conducting CEAs are available, the extent to which these standards have been incorporated into the practice of CEA in the United States is not yet known. In addition, the existence of competing guidelines published by individual pharmacy benefit management companies and MCOs may slow the standardization of practice and, in turn, the acceptance of cost-effectiveness methodology. For example, one pharmacy benefit management company favors "cost impact analyses" to formal CEAs,[13] while another recommends that cost-effectiveness information be tailored to reflect the provider's specific characteristics.[14] Methodologic issues, such as developing standards for conducting CEAs from a managed care perspective, deserve attention, but are only one of several areas that present barriers to CEA use in managed care.

To foster the increased and appropriate use of CEA in a managed care environment, we recommend that those conducting CEAs: (1) present CEA as a tool for improving health within a budget, rather than as a cost-cutting technique; (2) demonstrate how CEA offers information not available from clinical effectiveness data; (3) present results from perspectives other than societal; (4) identify key decision makers for appropriate training in interpreting CEA; and (5) promote public discussion of the concept, role, and value of CEA as a method for improving health rather than cutting costs

Managed care, academic, research, governmental, consumer, and voluntary organizations need to work together to make relevant CEAs more available and to demonstrate their value in allocating health resources. The end result will be improved patient care and better value for our healthcare dollars.

Acknowledgments

We are indebted to the following participants in the Conference on Cost-Effectiveness Analysis in Managed Care Decisions held April 7, 1997, in Cambridge, MA: Howard Bailit, DMD, PhD; John Bartlett, MD; Gary Coulter, MD; Charles Cutler, MD, MS; Norman Daniels, PhD; Lisa Egbuonu-Davis, MD; John Eisenberg, MD; Jean-Paul Gagnon, PhD; Evi Hatziandreu, MD, DrPH; Mark S. Kamlet, PhD; Bryan R. Luce, PhD; Robert Martin, RPH, MS; William McGivney, PhD; Catherine A. Melfi, PhD; Lee Newcomer, MD; Simeon Rubenstein, MD; Ben Safirstein, MD; Stephen C. Schoenbaum, MD; J. Sanford Schwartz, MD; and Terry Sutherland, RPH. Unless otherwise stated, attributions of opinions to MCOs are based on the discussion at this conference. The conclusions and opinions expressed in this paper, however, are those of the authors alone.

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