

Cost-Effectiveness Analysis Under Managed Care: Not Yet Ready for Prime Time?

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The authors of the paper “Barriers to Using Cost-Effectiveness Analysis in Managed Care Decision Making” in this issue¹ have correctly identified and discussed many important obstacles to large-scale implementation of cost effectiveness analysis (CEA) in managed care organizations (MCOs). Valid, reliable CEA has an important contribution to the optimization of efficient medical care. There are diminishing returns for most medical interventions, yet intervention unit costs remain generally constant across patient risk strata. Thus, the cost effectiveness of an effective intervention declines as it is applied to lower risk (and lower benefit) patients.

This is a substantial problem, as data from clinical trials from higher-risk patients are extrapolated (often subjectively) to lower-risk populations. In addition, cost-effectiveness studies often are subject to a variety of technical limitations and are not well understood by most clinicians and managed care policy makers. The result often is clinical controversy. Faced with this scenario, managed care plans commonly avoid the explicit use of cost-effectiveness analyses.

Even if the data and technical limitations of CEA are understood and accounted for, MCOs would still not widely employ it. Why not? The first reason is that CEA often simply is not needed (yet) to improve the efficiency of medical care.

The need to employ CEA in healthcare delivery is based on the underlying assumption that there is a direct relationship between cost of medical care and quality of outcomes. That is, if we reduce cost, quality must also decrease. CEA then becomes the tool to determine the biggest “bang for the buck.”

Is this assumption true today or can we still “kill two birds with one stone”—simultaneously increasing quality while decreasing costs? In most healthcare delivery systems the answer is clearly yes, we can do both. Using improved management of healthcare delivery and more optimal medical practice, there remain many opportunities to reduce costs while maintaining or even improving quality. We can afford not to use CEA as long as we can still save money and maintain or even increase quality by eliminating waste in delivery or improving poor clinical care. We are not yet on the frontier where we must address the difficult tradeoffs between cost and quality.

Another reason for not using CEA is its current one-dimensional focus on the clinical component of the care or intervention while usually ignoring issues of healthcare delivery. Consider the following common dilemma.

You wish to order take-out pizza. You have the choice of 2 pizzerias, both with generally equal quality. Pizzeria A charges \$7 for the pizza and \$1 for delivery. Pizzeria B charges \$6 for the pizza and \$3 for delivery. Which would you buy? Clearly, your choice would be A in spite of the greater cost of the pizza itself, since the overall cost (pizza plus delivery) is less than the overall cost from pizzeria B. Thus, the overall cost is the determining factor.

The same should be true for decision making in healthcare, where the overall cost is the cost of the clinical intervention plus the cost of delivery. What determines the cost of healthcare delivery? The answer is the same as for the pizzeria—management. If we ignore the cost of management decisions

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affecting the delivery of either healthcare or pizza, we will make an incorrect choice. To increase its practical value, CEA must use either overall costs by incorporating the cost of optimal delivery without waste, or delivery adjusted costs (analogous to quality adjusted life-years saved) for the clinical intervention.

In addition, ignoring the management component of cost in CEA also artificially limits consideration of all appropriate available options. For example, what is more cost effective, to use drug A or B, or open an additional room in the Emergency Department? While such a decision is not generally relevant to a clinician caring for an individual patient, it is a fundamental concern to those with a population or system perspective.

The need to include delivery costs and benefits in the cost/quality ratio presents a serious practical challenge to the use of CEA. It is technically much more difficult to measure the cost of management decisions affecting delivery of a drug or other intervention, than it is to measure the cost of the drug. Most hospital cost-based accounting systems (when they exist at all) simply apportion management and delivery costs as overhead across many departments and clinical interventions. The issue becomes even less clear when we consider benefit. The concept of optimal management and the quality derived from it (ie, low waiting time for service), is just now entering medical consciousness. Medicine has always fought to achieve maximal clinical quality, but little attention was paid to management efficiency until purchasers and payers began to constrain reimbursement.

The final, apparently contradictory challenge for CEA is to become simultaneously both more specific and more global. In order to make CEA more practical and useful to real-life MCOs, the methodology must take into account specific sources of variability in local health plan delivery. These include clinical variability in patient mix, severity of illness and response to therapy; flow variability in patient arrival for care; and professional variability in provider clinical care delivery.² These variabilities determine the basic costs of healthcare delivery within an MCO. They are unique to each MCO and cannot be changed, only managed. In addition, each MCO has a particular set of inherent practical constraints (ie, political, geographic, etc) that limit the range of management options. Any CEA performed at a local MCO level based on an average patient, an average delivery system, and overall societal goals may be of limited use for MCO decision making.

At the same time, an MCO's focus on population requires a broader global CEA perspective. Any analysis must account for both cost and benefit consequences of an intervention throughout the MCO and its provider network. For example, suppose an MCO decides to use a new surgical procedure to treat an illness previously controlled by medical therapy. Cost effectiveness analysis shows that the cost of the surgical procedure is more than offset by the reduced need for drugs. Such analysis, however, does not take into account that immediate demand for the surgical procedure produces a substantial increase in demand for operating services. This increase, being unplanned for, not only increases overtime and expenditures in the OR, but also fills the hospital. The lack of hospital beds causes the Emergency Department to refuse patients. Thus, not analyzing the global effects may overestimate health and at least short-term cost benefits.

The challenge of applying a global perspective is also evident when we consider the practical issue of who, within the MCO, will actually use the methodology. Clinically driven CEAs adopt a physician-patient level perspective that is inherently narrower than the broader system perspective adopted by an MCO. A CEA performed by an individual physician or department may be locally beneficial, but will not take into account the entire range of options available at the global level. For example, an ER physician using CEA to decide whether to adopt a more effective but more expensive drug will assess the incremental cost effectiveness of alternative therapeutic options, but will not evaluate whether it is better to use the new drug or open an additional trauma room. For an MCO, CEA will be useful to the extent it incorporates all significant alternative management options of relevance to clinical and administrative decision makers.

Considering its limitations, should we give up on CEA as a practical tool and relegate it to the ivory tower? The answer is emphatically "No!" Physicians must care for individual patients, weighing the relative and incremental benefits, risks, and costs of alternative clinical management strategies. Managed care organizations must make formulary and coverage decisions. Even with its current limitations, CEA can inform and improve these decisions. To increase the utility of this tool, however, we need to develop and use more sophisticated and rigorous methods to understand and improve management efficiency of healthcare² to correspond with current evidence-based clinical care³ to reduce clinical "waste." We already have unplanned rationing in healthcare sim-

ply because we are unwilling as a society to continue to increase spending sufficient to meet increased demand. It will not be long before we do reach the frontier where cost and quality are directly related—when cost can only be constrained by reducing quality and outcomes. At that point, CEA that is both practically relevant and methodologically complete will become the true “gold standard” to guide both future management and clinical healthcare decision-making.

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