Comparative Effectiveness and Comparative Costs

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Kilbridge correctly points out that comparative effectiveness research (CER) does not require cost data. It should also be pointed out, however, that the composition of the quality-adjusted life-year (QALY) gain of one intervention over another—whether the QALY gain is achieved mainly in the dimension of longevity or in the dimension of quality of life—has real consequences in terms of comparative costs of the interventions. Basically, a longevity increase entails additional consumption costs and additional labor earnings, essentially negative costs, during the extended life that should be included in the “cost” of an intervention.[1-3] Because labor earnings tend to be negligible relative to consumption costs toward the end of one’s life, due to sickness or retirement, failure to incorporate consumption costs and labor earnings into the comparative costs of two interventions generates a bias in favor of the intervention with the larger longevity effect.

An example in Kilbridge’s paper can be used to illustrate this point. Suppose two palliative treatment regiments for an advanced-stage cancer are compared in terms of effectiveness. The more aggressive Treatment A involves a 6-month course of multiagent chemotherapy that results in a 9-month period of relative health followed by death. The less aggressive Treatment B involves a 6-month course of single-agent chemotherapy that results in a 6-month period of relative health followed by death. The tradeoff here is between the 3 months of longer life under Treatment A and the higher quality of life during the 6 months of chemotherapy under Treatment B.

Assigning QOL weights according to Kilbridge’s Figure 1, suppose they are, respectively, 0.8 (during the period of relative health between chemotherapy and death), 0.7 (during the chemotherapy under Treatment B) and 0.5 (during the chemotherapy under Treatment A). The comparative effectiveness of Treatment A relative to Treatment B is (QALY). Now suppose the costs of chemotherapy are $9,000 and $4,000 under Treatments A and B, respectively. What is the additional cost for that 0.1 QALY gain? It is not simply $9,000 minus $4,000 = $5,000. Assume the additional 3 months of living under Treatment A incurs a consumption cost of $5,000 but generates no labor earnings. The real comparative cost of Treatment A relative to Treatment B is $5,000 + $5,000 = $10,000. Ignoring the $5,000 consumption cost would greatly understate the true comparative cost of Treatment A. By extending this logic in a formal analysis,[2] we showed that the widely accepted goal of cost-effectiveness analysis in medicine—maximizing health gains under a given budget for healthcare expenditures—has a longevity bias. As a result the division of the healthcare budget between extending longevity and enhancing quality of life gives the former a larger share than is called for by welfare maximization.

In addition, longevity has negative externalities because of the existence of various longevity-contingent public subsidies such as benefits from Social Security and Medicare. In a time when demographic changes have strained the finances of public old-age programs worldwide, recognizing the implications of CER for comparative costs, therefore avoiding a longevity bias in healthcare decision-making, would generate benefits beyond healthcare resource allocation.

Financial Disclosure: The author has no significant financial interest or other relationship with the manufacturers of any products or providers of any service mentioned in this article.
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