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How Physicians React to Cost-Effectiveness Information

Editor's note: Since 1998, the growth of health care spending has accelerated to levels not seen since the 1980s. This growth has renewed pressures on physicians to practice "cost-effective" care, since physicians' decisions account for the vast majority of all health care spending. But little is known about what physicians think about cost containment, and how they incorporate cost-effectiveness information into their practice patterns. This Issue Brief summarizes three related studies that describe primary care physicians' attitudes toward considering costs in their clinical decisions, and the effects of providing cost-effectiveness information on physicians' recommendations.

Cost-effectiveness analysis can help physicians and policy makers choose among clinical alternatives

Physicians are often faced with choices in which one health care intervention is both more effective and more expensive than another, and clinical guidelines are ambiguous. For example, screening for cervical, colon, and breast cancer saves lives, but the optimal screening strategy is not clear. Should Pap smears be performed every year, or every three years? Should screening mammography begin at age 40, or age 50? Should colon cancer screening be performed with fecal occult blood tests, sigmoidoscopy, or colonoscopy? One way to choose among these alternative clinical strategies is to examine their cost-effectiveness.

- Cost-effectiveness analysis provides a systematic way to measure how much clinical benefit a medical choice provides, and how much it costs to provide that benefit. Cost-effectiveness is often expressed as the dollar cost per year of life saved.
- Unfortunately, cost-effectiveness analyses are easily misinterpreted. For example, a program to provide annual Pap smears to 1,000 women might be estimated to cost \$1,093,000 and save 27.6 years of life. Therefore, this program appears to have a cost-effectiveness ratio of $(\$1,093,000/27.6 =)$ \$39,601 per year of life saved. This ratio compares favorably to many other clinical interventions and appears attractive.
- However, most economists do not consider this analysis correct, because it compares annual screening to a program of no screening at all. Instead, a program's cost-effectiveness should be calculated relative to the next best alternative. For example, a program to provide Pap smears every three years instead of every year is estimated to cost \$467,000 and save 26.8 years of life. When compared with triennial screening, annual screening saves only $(27.6 - 26.8 =)$ 0.8 additional years of life, but costs an additional $(\$1,039,000 - \$467,000 =)$ \$626,000.

In other words, annual screening really costs ($\$467,000/0.8 =$) \$782,500 for each year of life saved that would not have been saved with triennial screening.

- Comparisons of cancer screening programs to no screening at all provide their *average* cost-effectiveness. The appropriate analysis compares programs to the next best alternative, for example, screening at less frequent intervals. These analyses provide the *incremental* cost-effectiveness—a more accurate measure of a program's clinical and economic impact. Physicians and policy makers presented with the results of average cost-effectiveness analyses may reach the wrong conclusions about what programs really cost and how much benefit they really get from them.

Studies of primary care physicians test their responses to cost-effectiveness information

The investigators conducted a series of studies to understand how cost-effectiveness information might influence physicians' recommendations about cancer screening. The studies were based on a mailed survey of 1,500 primary care physicians randomly identified through the American Medical Association's master file, the most comprehensive mailing list available of U.S. physicians. Response rates were 63%-65%, depending on the specific analysis conducted.

- The survey presented physicians with one of several clinical vignettes describing a hypothetical patient and asking them to recommend a cancer screening strategy for that patient. Physicians were randomly assigned to receive one of the vignettes, some of which included information about the cost-effectiveness of each test.
- In all vignettes, the patient was described as healthy and without a family history of the cancer in question. The patient's insurance was described as covering the cost of all cancer screening.
- The vignettes differed in whether they presented a familiar or unfamiliar scenario to the physician. Familiar scenarios included screening for cervical, breast, and colon cancer; unfamiliar scenarios included screening for an unspecified cancer, gastric cancer, or cervical cancer with a greatly improved technology for performing a Pap smear. The unfamiliar scenarios were included to see what recommendations physicians make in contexts where they have relatively little knowledge.
- Cost-effectiveness information for the familiar scenarios was drawn from the medical literature. For the unfamiliar scenarios, the investigators fabricated cost-effectiveness information to match that of the corresponding familiar scenarios.

Providing cost-effectiveness information has only a small effect on physicians' decisions

In the first analysis, the investigators assessed the influence of cost-effectiveness information on physicians' cancer screening recommendations. They compared the recommendations of physicians responding to scenarios including cost-effectiveness information with physicians who were not presented with such information.

- Cost-effectiveness information had a small influence on physicians' cancer screening recommendations in familiar scenarios; when incremental cost-effectiveness was presented, it reduced the proportion of physicians recommending annual Pap smears (from 67% to 41%) but did not significantly change recommendations for colon or breast cancer screening.
 - In unfamiliar scenarios, physicians were less likely to recommend expensive screening strategies than in corresponding familiar scenarios, even when the cost-effectiveness of the strategies was the same.
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- The findings suggest that physicians are relatively reluctant to abandon common screening strategies, even when they learn that they are expensive, and are hesitant to adopt unfamiliar screening strategies, even when they learn that they are inexpensive.

Incremental cost-effectiveness may reveal true costs of cancer screening alternatives

Another analysis compared the effects of providing physicians with different types of cost-effectiveness information. Half of the scenarios in this analysis used average cost-effectiveness ratios, calculating costs and benefits relative to not screening at all. The other half used incremental cost-effectiveness ratios, with each option's benefits and costs calculated relative to the next best alternative. Incremental cost-effectiveness ratios are the preferred method, since they represent true marginal cost.

- In the familiar scenarios, the type of cost-effectiveness information provided had no influence on screening recommendations.
- In two of the three unfamiliar scenarios, however, physicians responded differently to incremental and average cost-effectiveness. Physicians were less likely to choose the most expensive test when incremental cost-effectiveness information was presented for screening tests for gastric cancer or an unspecified cancer. This finding is consistent with the fact that incremental cost-effectiveness analysis makes programs appear more costly than average cost-effectiveness analysis.
- These findings suggest that the form in which cost-effectiveness is presented can influence physicians' recommendations, but only in unfamiliar settings where they have not yet established firm practice patterns.

Physicians think that money-saving choices just mean more money for insurance companies

The investigators tested the possibility that primary care physicians' willingness to choose less expensive cancer screening options may depend on who they think will get the money that is saved. Do the savings translate into increased services for existing patients, or reduced insurance premiums? Do they reduce employers' costs of covering their employees? Or do the savings turn into increased insurance company earnings or insurance executives' salaries?

- Over all scenarios, 53% of primary care physicians chose the most expensive alternative as a cancer screening strategy and 47% chose the less expensive alternative. This result suggests that physicians are willing to adopt cost-saving strategies, even if some patient benefit is lost.
- In aggregate, physicians responded that more of any money saved would go to insurance company owners and executives than to increased clinical services or reduced premiums. Physicians in solo or small-group private practice were more likely than others to believe that savings would accrue to insurance companies; the reverse was true for physicians practicing in managed care.
- Physicians choosing the more expensive screening tests were more likely to believe that money saved would go to insurance company profits and salaries rather than to increased clinical services or reduced premiums. For example, 77% of physicians choosing the most expensive screening strategy believed that most of the money would accrue to insurance companies, versus 52% of physicians choosing a less expensive strategy. This result suggests that a physician's willingness to adopt a cost-saving strategy depends on where the cost-savings accrue.

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POLICY IMPLICATIONS

These studies contribute to our understanding of how and when physicians are willing to consider the cost-effectiveness of the health care they provide to their patients.

- The findings indicate that factors other than cost-effectiveness information influence physicians' screening decisions, and that these factors cause them to pursue relatively expensive familiar screening tests and avoid relatively inexpensive unfamiliar tests. Cost-effectiveness information alone is probably not persuasive enough to change established practice patterns.
- The influence of cost-effectiveness information is moderated by where the physician thinks the money goes if health care costs are reduced. Many physicians appear willing to compromise on costs and quality for their patients, but they are much less likely to do so when they think the savings go to insurance company profits and executive salaries.
- Expressing cost-effectiveness in average terms (as opposed to incremental terms) hides the often high price for achieving small gains in health outcomes. The concern this raises is that average cost information will lead physicians to recommend procedures that are much more costly, but not much more effective, than available alternatives.
- Although cost-effectiveness information is only one part of any clinical decision, further efforts are needed to help physicians incorporate such information into their day-to-day decisions.

This Issue Brief is based on the following articles: P.A. Ubel, C. Jepson, J. Baron, J.C. Hershey, D.A. Asch. The influence of cost-effectiveness information on physicians' cancer screening recommendations. Social Science & Medicine, May 2003, vol. 56, pp. 1727-1736; J.C. Hershey, D.A. Asch, C. Jepson, J. Baron, P.A. Ubel. Incremental and average cost-effectiveness ratios: will physicians make a distinction? Risk Analysis, June 2003, Vol. 23, pp. 81-89; D.A. Asch, C. Jepson, J.C. Hershey, J. Baron, P.A. Ubel. When money is saved by reducing healthcare costs, where do US primary care physicians think the money goes? American Journal of Managed Care, June 2003, vol. 9, pp. 438-442.

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