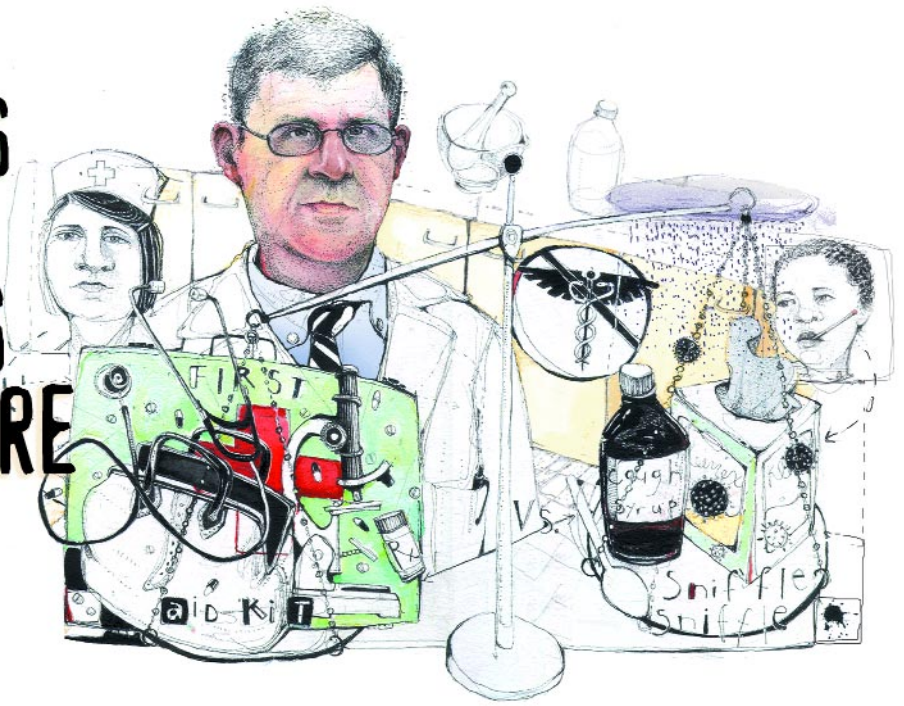
Economists Weigh All the Costs of Health Care



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Should a nursing home adopt a flu immunization program? How effective are wellness center programs that are designed to reduce high blood pressure in adults? How often should a child be screened for lead poisoning? Many people might be surprised to learn that economics helps answer these questions. It may be hard to imagine economists studying health and medicine, but it turns out that they help public-health officials and health-care providers by determining the efficient allocation of scarce health-care resources.

Implementing a new health program or maintaining the current one eventually leads to several questions: Is the program worth it? Do the time and effort of the program provide a benefit to the recipients? Is there a more efficient way to carry out the program? Health economists apply economic evaluations to assist in answering these questions. The basic idea behind any economic evaluation is to compare the costs and benefits related to some decision.

Which Costs to Consider?

In looking for a program's cost to society, some people might examine only the program's budget. Salaries for nurses and doctors, expenses for educational brochures and other financial or accounting costs will appear in the budget. But such an examination of the budget ignores the program's economic costs or opportunity costs to society, which are what economists look for.

Opportunity costs can be thought of in terms of trade-offs. Every time you do something, you forgo doing something else. Choosing between going to a baseball game and a hockey game means you give up one to see the other. So, when economists look for a program's opportunity costs, they consider the trade-off of devoting resources to establishing and carrying out that program instead of using them for something else.

Economic costs paint a better picture of a program's true costs and provide a common yardstick to compare different programs. Consider, for example, the difference between economic and financial costs of a volunteer. Suppose a flu vaccination program relies on volunteer help for some of its daily activities. Although the use of volunteers does not impose a financial cost on the program, it does impose a cost to society because the volunteers' time could be used elsewhere, including helping out in another program.

With this idea in mind, the resources used by a program can be divided into four categories: (1) resources used directly from within the health industry, (2) resources used by the program's participants, (3) resources used to treat side effects and (4) resources from other programs.[1]

Most of a program's direct costs come from resources used within the health industry, mostly wages paid to personnel who provide the service or activity but also the value of volunteer time given to the program. Other direct program costs can include donated goods, materials and supplies, laboratory equipment and any space used by the program, whether an existing or new facility.

The participants' costs vary, depending on what they must give up to participate in the program. Resources used by program participants can be special items purchased for use in that program, as well as transportation to and from the program site. Another cost to a participant is what economists label productivity loss, which simply refers to the foregone wages because of time taken away from work.[2] This time consists of travel time, waiting time and the actual time spent in the program.

Economists also consider indirect costs, such as adverse side effects resulting from the program. For example, every individual has a small chance of developing a reaction to a flu shot. A reaction to the flu shot given through a flu vaccination program requires additional care; so, the extra costs for this treatment should also be included in the cost of the program.

Another indirect cost comes in the form of resources taken away from other programs. For example, if a nursing home is deciding whether to begin a flu vaccination program, the home should consider the resources that will be diverted from other activities to make the vaccination program possible.

Measuring a Program's Outcomes

Once economists identify the costs associated with implementing a health program, they consider the outcomes of the program. Two methods for measuring health outcomes are cost-benefit analysis and cost-effectiveness analysis.[3] A cost-benefit analysis puts dollar values on all costs and benefits related to a program. If the net cost, that is, total benefits minus total costs, is greater than zero, then a program has a net beneficial effect and should be carried out. This type of analysis can be used to decide whether to pursue a particular program or choose among programs with different health outcomes.

Health outcomes may be valued using the willingness-to-pay method.[4] This measurement technique tries to gauge how much society is willing to pay to lower the risk of death due to a specific illness or disease. For example, consider a group of 100,000 people who participate in a flu shot program. Let's assume five will die of the flu. If all are willing to pay $10 each to reduce the number of flu-related deaths to three, then the "value" per life saved is $500,000 (100,000 people × $10 per person = $1,000,000 ÷ 2 lives saved = $500,000 per life saved).

This example illustrates two disadvantages to cost-benefit analysis:

• First, it might not include every program outcome because the analysis can ignore externalities associated with the program. Externalities are costs and benefits that have an impact on individuals who are not directly affected by a program. All participants in the program receive the direct benefit of lowering their risk of getting the flu. The benefits go beyond just the program's participants because individuals not vaccinated through the program are also less prone to getting the flu because of fewer potential flu carriers. The willingness-to-pay method may not account for this added benefit.

• Second, this method relies on the difficult and controversial task of measuring the value of human life, which is one reason why economics earns its reputation as the dismal science. Because placing a value on life is so difficult and considered by some to be amoral, cost-effectiveness analysis is a more common and acceptable way to evaluate health programs.

Unlike a cost-benefit analysis, a cost-effectiveness analysis does not assign a dollar value to each outcome. Instead, it measures outcomes using an effectiveness measure that is specific to the program being evaluated; for a flu shot program, it would likely be the reduction in the percentage of people who get the flu.[5]

Cost-effectiveness analysis is beneficial when comparing programs with common outcomes, such as a flu program in a hospital with a flu program in a nursing home. Rather than measuring what society is willing to pay to avoid a disease or illness, health outcomes are thought of in terms of the costs that are saved as a result of the program. Ill people incur medical costs for treatment and lost income due to time taken away from work. Because the program saves the costs by preventing illness, the costs are subtracted from the cost of implementing the program to arrive at the program's net cost. For a flu program, this net cost is then divided by the number of flu cases prevented to obtain a cost for each flu case prevented.

So, how have economic evaluations been used? The accompanying table shows the results of a few cost-benefit studies that estimate the benefit of flu vaccinations in healthy, working adults. The costs were not estimated using the willingness-to-pay method. A minus before a cost (as in –$6.65) means society does not receive a benefit in that cost category. The net cost savings range from $13.66 to $83.84.

The results from these studies vary because of different study settings, different prices used to estimate costs and different assumptions about the amount of medical care needed to treat the flu. Despite these differences, the studies suggest that, overall, society benefits from flu vaccinations.

Conclusion

How does figuring the costs and benefits of a health program help us out? Economic evaluations go beyond pure efficacy of health programs and determine the efficient allocation of scarce health resources. They provide a very useful framework that helps policymakers in Washington make better decisions when thinking about which health programs to endorse and fund. Simply put, economic evaluations allow our country's leaders to choose the health programs that provide the greatest benefit to our society.

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Cost Savings Associated with Flu Vaccinations in Healthy, Working Adults

Study	Direct Cost Savings Per Person	Indirect Cost Savings Per Person	Net Cost Savings Per Person
Nichol et al. (1995)	$5.99	$40.86	$46.85
Dille (1999)	$45.72	$38.12	$83.84
Nichol (2001)	–$6.65	$20.31	$13.66

Direct costs used in these studies include the cost of vaccination, the cost of medical care for side effects and the cost of flu averted. Indirect costs consist of time taken away from work for vaccination, work loss due to side effects and potential work loss avoided by not being sick. Net cost savings equals direct cost savings plus indirect cost savings.

ENDNOTES

[1] Drummond et al. (1997).

[2] Haddix et al. (1996).

[3] Haddix et al. (1996).

[4] Haddix et al. (1996).

[5] Haddix et al. (1996).

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