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Public Health Measures Always Involve Trade-Offs

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In extraordinary circumstances like this," President Bush said of the Terri Schiavo predicament, "it is wisest to always err on the side of life."

Uwe E. Reinhardt, a Princeton University health economist, said that from his perspective President Bush was not quite right: the president should have said "err on the side of life years."

There are two reasons for this distinction. First, no action can save a life indefinitely; life can only be extended. Saving the life of an infant leads to more expected life years than saving the life of a centenarian.

Second, health economists are typically concerned with finding policies that maximize the total number of life years, or, equivalently, the average life expectancy of the population, leaving aside quality-of-life issues for now. A focus on life years recognizes that there are inevitable trade-offs involved in health and safety policies.

One can believe that life is sacred and still recognize that trade-offs exist. If government policy always erred on the side of life, the speed limit would be reduced to 5 miles per hour to eliminate all fatal accidents. Of course, voters would not stand for a 5 m.p.h. speed limit, so at least implicitly policy makers recognize that there is a trade-off between risk and the time required to transport goods and people on the highways.

This principle was clearly stated by the Office of Management and Budget in the 2003 budget: "Since the nation does not possess enough resources to eliminate all risks, an important performance goal for government is to deploy risk-management resources in a way that achieves the greatest public health improvement for the resources available."

Yet research indicates that the government generally does a poor job in choosing policies that maximize life years. Many programs are intended to reduce the risk of premature death. If the government used its limited budget to maximize the number of life years, the cost of saving an additional life year would be the same across different programs.

In actuality, the cost per year of life saved varies widely across regulations and programs. Some cost-effective initiatives that would reduce risks are passed over, while others that are more costly and less effective are put in place.

For example, a program of prenatal care for pregnant women is estimated to cost $2,800 per year of life saved, while the cost per year of life saved from regulating airborne benzene is around $5 million.

A 1995 study by public health specialists of 587 possible lifesaving interventions found that a quarter of them cost less than $6,900 per year of life saved and a quarter cost more than $372,000 per year of life saved (updated to 2005 dollars) - a ratio of more than 50 to 1. In general, safety standards and preventive medical treatments were more cost-effective than environmental regulations.

Why does the cost per life year saved differ so much across policies?

There are two main explanations. First, the government may get things wrong. There is no mechanism to make the government pursue the most cost-effective strategies because agency budgets are monitored by different Congressional committees and because the costs of complying with regulations are not counted in the federal budget. As a result, regulations may appear to be less expensive than programs that are more cost-effective but require direct government spending.

Lobbying by vested interests may also lead policy makers to stray from the most efficient risk reduction programs.

Second, the public may value some programs more than others for reasons other than the programs' ability to save lives, and policy makers may be carrying out the voters' wishes. For example, people may prefer that the government reduce lung cancer by regulating pollution instead of by providing antismoking education, even if the number of life years saved and costs are identical. Such preferences may arise because people let their emotions get in the way of reason. Or the public may view reducing risks differently if the exposure to the risk is voluntary (smoking) as opposed to involuntary (pollution).

To learn how the public evaluates programs intended to reduce premature deaths, Uma Subramanian of the World Bank and Maureen Cropper of the University of Maryland presented 1,013 people with hypothetical choices between pairs of lifesaving programs, like controlling radon in homes versus banning pesticides on fruit. Participants were told to suppose that each program had the same cost and would save the same number of lives each year. After participants selected a program that they thought was best for society, they were asked whether they would switch if the other program saved more lives, with the specific number of extra lives saved randomly assigned in each case.

The researchers found that both the number of lives saved and the characteristics of the programs mattered. When the costs and number of lives saved were the same, a majority of respondents favored cutting pollution over cutting smoking, screening for colon cancer, requiring dual air bags in cars or providing pneumonia vaccinations. Seventy-two percent of the participants favored banning pesticides over controlling radon in homes.

At a given cost and number of lives saved, the participants were more likely to support programs that were geared toward risks that could not easily be controlled, that were more serious, that affected them personally and that were more immediate. Other research by psychologists finds that people prefer to reduce risks that are dreaded and unfamiliar.

Still, participants put tremendous weight on the number of lives saved by a particular program. Of the six pairs of programs considered, a majority never favored a less effective program if the number of lives saved was 2.15 times that in the more effective program.

Bearing in mind that costs were assumed to be equal in the hypothetical comparisons, this range is much smaller than the range in cost per lives saved in actual government programs, suggesting that the public would like policy makers to put more weight on finding the most cost-effective ways to extend lives. Of course, actual decisions are more complicated than hypothetical ones because of issues like quality of life. But a focus on maximizing life years makes the trade-offs clear.

Instead of focusing on one tragic case that most Americans considered a private matter, Congress and the president would have better served the public interest if they had sought to align public policy with voters' interests in maximizing the number of life years saved. Infant mortality, for example, is lower in Cuba than in the United States, according to the 2005 C.I.A. World Factbook. It is hard to believe that a government focused on maximizing life years could not do better.

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