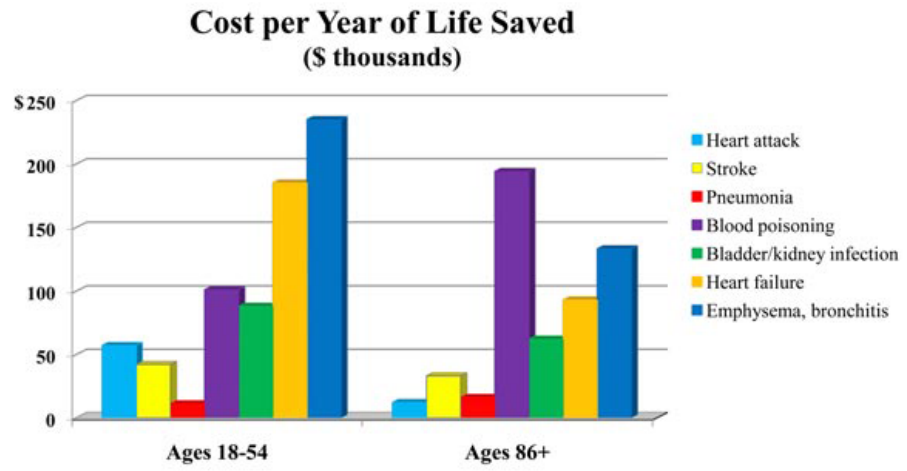
The Health Care Blog

Everything you always wanted to know about the Health Care system. But were afraid to ask.

The conventional wisdom is that extra spending on U.S. health care is producing very little marginal improvement in health outcomes. Another conventional idea is that we are wasting a lot of money on the elderly. Both notions are completely debunked by the graph below, which compares the reduction in mortality to the increased spending that produced it for common conditions in U.S. hospitals from 2000 to 2004.



Source: Michael B. Rothberg et al., *Health Affairs*, 2010.

_Given all this good news (explained below), can you think anything bad to say about this chart? The authors did. As I conjectured at my own blog the other day, it has apparently become politically incorrect to say anything positive about the U.S. health care system. What other reason would the authors of a Health Affairs study have for burying the important good news deep in the article, while leading with a relatively trivial (and maybe not even correct) complaint?

The researchers estimated the increase in life expectancy over the five year period and the additional cost associated with that increase. They then calculated the cost per year of life saved for each of the diseases and broke out the results by the patients' ages.

As the graph shows, the numbers range from as little as $10,600 for each year of extra life for 18- to 54-year-old patients with pneumonia to a high of $235,000 for each year of life for pulmonary disease (bronchitis and emphysema) for patients in the same age group. The good news is that most of the numbers suggest we are getting good value for the money spent. These results, by the way, are consistent with other research, including studies by David Cutler and Allison Rosen.

But let's back up. How much should we spend to save a year of life? Most of us feel very uncomfortable with the idea of assigning an economic value to someone else's life, much less our own. But there is a closely related activity in which we all engage as a matter of course: we make trade-offs between economic benefits and very small increases in risks to life and limb. Every time we drive an automobile or even walk down the street we are exposing ourselves to tiny risks. Presumably, we value the goal of the drive or the walk more than the small loss of personal safety.

There is a vast literature on the tradeoffs people are willing to make, mainly focused on the additional wages that must be paid to induce workers to labor in riskier occupations. Based on these observations, economists calculate the implicit "value of a statistical life" that underlies the tradeoffs. Kip Viscusi and Joseph Aldy provide a thorough review of this literature and report that most studies estimate the value of a statistical life between $5 million and $12 million, with a median value of $7 million.
Note: This is not saying that the average person would give up his life in return for a $7 million check. Instead, it is saying that people take on small risks in return for economic rewards and they are also willing to pay to reduce small risks. The $7 million figure is implicit in the tradeoffs people actually make.
The notion of the value of a statistical life is widely accepted by U.S. regulatory agencies and often used to justify policies. For example, the Environmental Protection Agency, the U.S. Department of Agriculture, the Department of Transportation, and the U.S. Food and Drug Administration have all used value of statistical life estimates in policymaking.

In terms of a year of life (the relevant benchmark in the chart), Viscusi reported in a 1993 study that the price people are willing to pay to avoid various risks is in the range of $75,000 to $150,000 for each year of life saved. At today's prices, the range would be from $110,000 to about $220,000. After also updating the cost figures in the chart, I found that 8 of the 14 estimates fall below the lower limit of Viscusi's range, meaning that for most people these are definitely worthwhile purchases. Although three estimates are above the upper limit, they are still within a reasonable range. Bottom line: For the most part, we're getting our money's worth on health care dollars at the margin. The cost-per-year-of-life-saved figures in the chart are mainly within the amounts people are willing to pay for life-saving measures in other walks of life.
Another interesting feature of the graph is that the numbers for the "old" elderly (above age 85) are not out of line with younger patients or with the "young" elderly (not pictured). In fact, for five of seven conditions, the cost effectiveness results for older patients are better than for younger patients.

So what's not to like? The authors of this study complain that the bars are of varying heights. The title of this paper is "Little Evidence of Correlation between Growth in Health Care Spending and Reduced Mortality." They intend the study to be read as a criticism of the health care system, rather than praise of it. Now if medical care worked like investments, the authors would have a point. Since the "return" in health dollars spent on pulmonary disease, heart failure and sepsis (blood poisoning) is considerably lower than the return on dollars spent on, say, heart attacks, strokes and pneumonia, it is tempting to consider reallocating the "investment" from the former group to the latter.

That reallocation may be possible. And it may pay off in terms of more life years saved. But the authors produce not a shred of evidence that it is possible, given the current state of medical science. Medical care,

after all, is not like producing widgets. If there are opportunities for improvement through reallocation, that is something to be established through research, not something to be assumed as a self-evident truth. Not only do the authors not investigate whether a reallocation of disease-specific spending can increase overall years of life saved, they don't even investigate whether the spending totals are substitutes or complements. (If they are complements, then more spending, say, to increase the life expectancy of heart attack victims will also increase the life expectancy, say, of stroke victims.)

Meanwhile, readers should know that the variation in cost effectiveness shown in the graph is miniscule compared to the variation among rules promulgated by U.S. regulatory agencies. (See the survey article here.) For example, radionuclide emission controls at elemental phosphorus plants (which refine mined phosphorus before it goes to other uses) cost $5.4 million per year of life saved. Examination of 139 government regulations by researchers at the Harvard Center for Risk Analysis revealed no relationship between the cost-effectiveness of government regulations and their implementation:

- Regulations that were implemented cost $4.11 billion per year and save 94,000 years of life.
- Investing the same $4.11 billion in the most cost-effective regulations would save 211,000 years of life annually — more than double the current number.

Whatever the faults of the health care system, they are unlikely to be improved by the study authors' principal policy recommendation: more federal oversight.