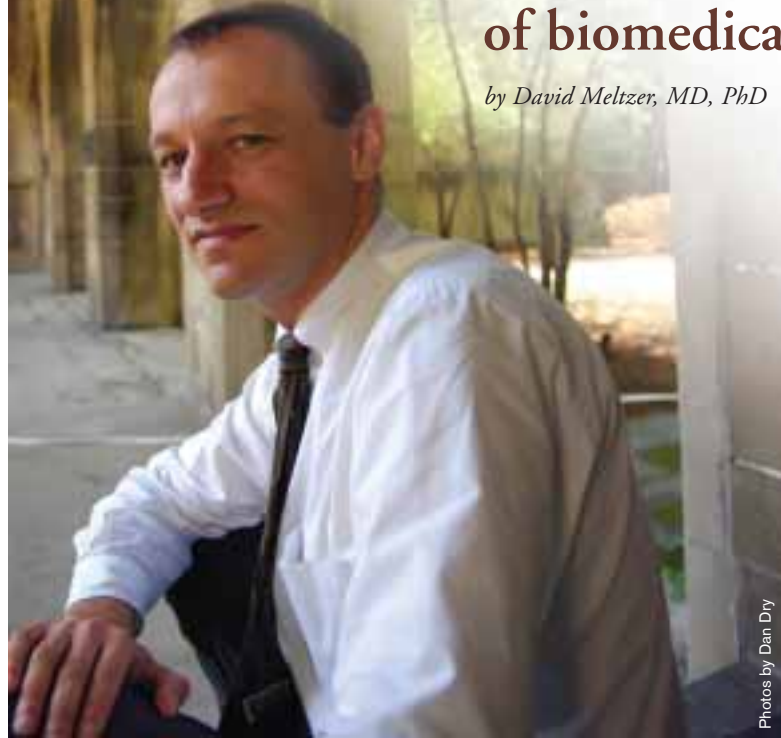


# Can we stop the golden egg from killing the goose?

## Health care costs and the future of biomedical research

by David Meltzer, MD, PhD



Photos by Dan Dry

In 1960, Americans spent about \$73 billion on health care, or \$350 per person. Today, it's about \$1.8 trillion — roughly \$6,000 per person. As a percentage of gross domestic product, health care spending has risen from 7 percent to almost 16 percent, and this will only increase as the baby boomers reach old age.

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At the same time, the financial outlook for Medicare is poor, and U.S. firms find health care costs undermining their international competitiveness, while ever more Americans lack health insurance. Other countries seem to achieve comparable health outcomes with lower levels of spending.

It's clear we have a major problem with health care costs. This problem presents profound challenges to the future of medical research and, with it, the health of people today and in the future. Research has produced unprecedented improvement in human welfare and has the potential to continue to do so. Technology is a modern golden egg and biomedical research, the goose that has laid it. However, unless we learn to control the costs of the technology, we run the risk of destroying our capacity to produce further health care innovation. Can we find a way to prevent the costs of health care technology from destroying biomedical research? Can we stop the golden egg from killing the goose?

### Spending more because we're doing more

Although the popular press often talks of prices as a major cause of growing health care spending, most economists have now concluded that the quality-adjusted price of health care in the United States actually is falling. Much of what appears to be higher prices is actually higher quality. Simply put, we are spending more because we are doing more. Increases in quantity of care can't be attributed to the population getting older or sicker; the aging of the baby-boom generation has yet to affect health care costs substantially, and Americans at every age are healthier than ever before.

The evidence suggests that the cost of new technology is driving our health care costs. Heart attacks are an excellent example. The cost of every heart-attack treatment — medical management, angioplasty and bypass — is either rising less than the overall inflation rate or even falling. Despite this, the cost of treating heart attacks is rising rapidly because we are shifting toward more expensive treatments, such as angioplasty and bypass.

The immediate implication is that if we want to control health care costs, we have to control how we use technology. This is dangerous work because much of this technology produces health benefits worth at least as much or more than it costs. Indeed, using estimates of how much people will pay to increase their life expectancy, University of Chicago economists Kevin Murphy, PhD, and Robert Topel, PhD, and others have found that new medical technology produces value far in excess of its cost. Even using conservative estimates of the dollar value of longer life spans, the increase in life expectancy since 1970 has contributed as much to increasing welfare as has the increase in per capita income over the same period. Thus, simply slowing the rate of technological advance is not a good solution to rising costs.

That said, while advances in health care are worthwhile on average, much medical innovation does not produce benefits in excess of the costs. One example is the pap smear, a low-cost screening that increases life expectancy if used appropriately at three-year intervals, but which adds only hours more to life expectancy — at a cost of more than \$1 million per year of life saved — if administered annually. More broadly, we know that those regions of the country where Medicare beneficiaries receive the highest intensity of treatment do not show the hoped-for increases in life expectancy.

Such findings cause many to argue that in the future we will need to look harder at new technologies before we pay for them. Indeed, most other countries already do this through formal programs of technology assessment tightly linked to government-controlled health care

systems. It seems likely the United States is headed in the same direction sooner or later; the Medicare prescription-drug benefit could be the first major battleground on this issue.

### Implications for research

As payers look more carefully at medical technology, it may become harder than ever to recover the costs of developing the next generation of technologies. Both private and public funding will be affected. Rising Medicare costs will force fee reductions that cut margins at academic medical centers. Federal deficits inflated by rising health care costs in Medicare and Medicaid will make National Institutes of Health funding increases harder to obtain. It is not difficult to see these trends in the budgets of the past few years. These forces suggest that the future of American biomedical research is threatened by our rising health care costs.

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Working against this is that rising incomes both at home and abroad may boost demand for treatments that can extend life and improve health. At the same time, incredible expansion of knowledge in areas such as genomics will fuel the minds of scientists and the zeal of entrepreneurs for decades to come. But, all this said, the economics of biomedical research, and academic medicine in particular, are unlikely to be as favorable 10 or 50 years from now as they are today unless we learn to control the costs of medical care.

### What can we do?

To start, academic medical centers and others who care about health research can

help educate people — especially our leaders — about the value of biomedical research. We need to promote public understanding of the value of biomedical research so people understand that the benefits far exceed the costs. Arguments such as this were highly influential in the doubling of the NIH budget over the past several years, and I believe they can continue to be effective.

Second, academic medical centers must embrace our nation's need to control health care costs with the zeal and focus they have poured into creating the technology that has brought about this crisis. In medical education, we need to produce physicians who will advance our knowledge about efficient health care and become leaders in applying that knowledge. Medical students need to be taught not just about ATP, but also CMS and FMEA. (For the layman: adenosine triphosphate, Centers for Medicare and Medicaid Services, and failure mode effects analysis.) In research, we need to bring the tools of business and the social sciences together with those of clinical medicine and the basic sciences to produce technological and organizational innovations both to advance health and to control costs, with appropriate value placed on both.

Finally, in clinical care, academic medical centers need to value more highly the contributions of leaders who help them run more efficiently. The days are gone when educational subsidies by Medicare were sufficient. The clear winners today and tomorrow will be those medical centers that can produce the revenue needed to support their mission in a highly competitive health care marketplace that rewards efficiency and quality.

Economics has perhaps aptly been called the dismal science. But its essence is understanding how to accomplish complex goals with constrained resources. This is exactly the problem of health care today — and the threat posed to the goose of biomedical research by the golden egg it has laid. To protect the future of biomedical research, we must confront head-on the challenge of health care costs.