

## Health Care: Coping with Consolidation – *Kenneth Shine*

The fall of the Soviet Union called for a new paradigm for science policy in the United States. We still don't have that paradigm, but I believe that there is a critical need for a coherent concept, shared broadly by the scientific community in the health and non-health sciences, in order to make the argument for federal funding. The economic prosperity argument is useful but incomplete, and it will make us vulnerable when it comes time for cost accounting in particular areas. Moreover, it leads to the potential risk of deciding which areas of fundamental science are most likely to produce that economic prosperity, something we don't know how to do and which we must clearly avoid. Poverty, poor jobs, pollution, and disease are every bit as dangerous as the evil empire. Creating a healthy population and prospering in a sustainable environment is every bit as good a goal as dealing with military preparedness.

Whatever the new paradigm for science policy may be, we as a scientific group have to come to some closure as to what the message is. Economics can be a piece of it, but to stake the whole argument on economic prosperity means that there will be many, many members of society – the environmentalists, those who don't share in the results of the stock market, and a whole variety of other people – who are not going to buy in.

The health science enterprise is, relatively speaking, very successful. At the federal level, of the \$70 or \$75 billion invested in R&D, perhaps half of that is truly basic research, and over a third of that is in health. That portion is going to grow. The pharmaceutical and medical device industries are increasing their investment. Discussions with pharmaceutical houses clearly demonstrate that well over 90 percent of their investment is in drug development, with ten percent or less is in what anyone would call basic science. Even now, they're using new nomenclature, which I've heard from Pfizer, Bristol Myers, Squibb, and others: they say "directed basic research," or "targeted basic science."

The notion that these industries are going to provide support for basic science on an industry level is naive. Moreover, in the health care industry, it has been possible to say that good basic science policy is good industrial policy. There are many reasons why the

National Institutes of Health receives large increases in its budget. One is that many in Congress identify with health. In terms of public understanding of science, health and health sciences are areas in which they haven't the foggiest idea about what goes in terms of molecular biology, but they do think they know something about cancer.

I am always amused by the discussion about the disease orientation of the health sciences community in raising money. Note that 78 percent of the electrical engineers in the United States were trained under a budget designed to deal with war, which is as good a disease as any. And in fact, the conquering of that disease created a problem for the Department of Defense.

Coming back to the NIH budget, Congress has some understanding about health. There is a broad constituency in science that works hard with letter writing, testimony, meetings, and contacts. But, interestingly enough, one of the key determinants of the budgetary increases for NIH is that representatives of the bio-technology industry have gone to Congress and said, "Our development as an industry occurs in basic science laboratories, funded by the NIH. Fund the NIH." That kind coalition is critical in all areas of science, and the challenge is to develop a means to put together those kinds of coalitions in other areas.

I'm going to make a couple of general observations about health science. Then I will outline some of the major developments in the health care environment, and what I believe their implications are for universities and academic health centers.

I think the 20<sup>th</sup> century, which began with things like x-rays and Einstein, and went through the atomic bomb and space program, was a century of physics, physical sciences, and engineering. The 21<sup>st</sup> century is the century of the life sciences. Not just health, but also agriculture, fisheries, and chemistry, where the chemical industry will be producing through biological organisms many of the compounds formerly made by chemists. The work to clean up the Exxon Valdez is but one example of the usefulness of biological strategies to solve problems once left to the chemists.

That momentum, both in terms of funding and of intellectual direction, is imperative for finding ways in science to bring physicists as well as behavioral scientists together with health scientists and biological scientists to solve new problems. By physicists, I mean people who have a concept about the way physics can interface with biological systems. There is plenty that will happen in the life sciences that will do that. Moreover, the social and behavioral sciences will emerge as the health care system matures, because there will be money in it. I will return to this point later.

The message that I want to convey is that the role of the health science enterprise will increasingly become the role of the university. And the separations between faculties in physical, chemical, and behavioral sciences and those in the academic health center will have to be overcome. In some cases, these changes will come by force, by changes in the health care system.

In broad sweeping terms, the health care system is going from a cottage industry in which individual practitioners did for patients what they remembered in the last successful case they treated, with limited numbers of records and no capacity to analyze in the aggregate the impact of their work (with the exception of certain surgical procedures), to a system of organized health care delivery plans. In fact, health is becoming, and has become, an industry. The impact of this has been to create remarkable consolidation among providers, insurers, and others. In the early 1990s, I predicted that most major metropolitan areas in the United States would, by the end of the decade, have between two and six principal networks of providers for about 80 or 85 percent of the population. I had the direction right but not the number: six is too many. Even in New York, it may be closer to four.

In any case, there will be a limited number of systems of care. Those systems of care will continue to consolidate, in terms of trying to deal with excess capacity, and take advantage with regard to issues of scale and information systems. Those systems will, for the first time, offer some real opportunities to practice health scientifically, because it will be possible to collect data about what happens to both individuals and to groups of patients.

For the first time, it will be possible to think about the health of populations, and come to grips with the most difficult scientific question in health, how to adjust for risk. In an environment in which you want to pay for health, and you'd like to pay for as many people as possible, how do you figure out ways to pay the right amount for people who are at very low risk for illness, versus those at very high risk for illness?

These systems also will provide opportunities to do serious research on the outcomes of care and to develop improved quality of care. Our own research suggests that quality of care is not improved by individual providers, it's improved by enhancing systems of care. That requires organization.

That sounds good, but there are a few problems with this scenario. First, the driving force in all of this activity is cost. None of these organizations wants to pay any more than it has to, particularly those that are providing a return on investment to shareholders. The biggest single challenge in this system is how to prevent these organizations from doing too little, too late, by not making information available and not providing the kind of services that ought to be provided.

I predict that states will pass extensive health care regulations, and that the federal government will have to get involved in order to rationalize the different regulations begin imposed by the states. In an environment in which cost is the driving factor, there is very little opportunity to support research and education. That is where the biggest challenges exist for our research enterprise.

There are other challenges as well. For example, consolidation in both medical schools and hospitals. Administrators, understandably, want to achieve economies of scale. There may also be changes in what the federal government will fund. Where once it funded a particular unit, one per institution, what happens to the two federally funded activities when two units are merged?

There is a whole series of questions that arise, but none is more important than the culture of the institutions. Moreover, for many of these institutions, there is a fundamental need to

identify their true core competencies. Many of these institutions are spinning off, consolidating, and changing the health care delivery side of the operation. Don't think they aren't going to change the science side, as well. In some cases, it will involve consolidations of basic science departments with basic science departments in the general campus.

Consolidation models are beginning to percolate around the health care system. That's what I was referring to when I said there was going to be juxtaposition of science and the health sciences on the university campus to a far greater extent than anyone would have imagined a few years ago. As funding sources shrink and reorganizations take place, those kinds of reassessments will occur.

Health care dollars have contributed between \$800 million and \$2.5 billion a year to research in the United States. This funding supports between 15 and 30 percent of biomedical research. It supports clinical studies and basic science.

What are the policy implications? I strongly support instituting an assessment on health care premiums to support research – something on the order of one to 1.5 percent, and an all-payers plan in support of research and education. I also want to emphasize my belief, which is not shared by all scientists by any means, that those funds ought to go to clinical research. That is, research involving disease states.

My reasons are as follows: First, I think insurers, patients, and health care providers understand that putting money from the health care dollar into experimentation and trials can improve care directly. Second, public policy in this country has been such that Congress has supported the basic science budget of the National Institutes of Health. If a stream of money from the health care system is used to support basic science, I believe Congress will stop providing direct appropriations and turn to the health care system for the money. Third, what I hear from the managed care organizations, both for-profit and not-for-profit is, "Why should we support research? We pay our taxes, and the taxes go to the National Institutes of Health." My answer is, "You're absolutely right. Your taxes go to the National Institutes of Health for fundamental laboratory research. But we're talking about clinical research, which you need to improve the quality of services in your organizations. And

finally, if you're all paying one percent, nobody gets a price advantage.” Under those circumstances, I believe one can encourage such a policy.

Let me then conclude by indicating some of the likely changes affecting academic health centers and the research enterprise. First, there will be an increasing emphasis on core competencies in research. I predict that in the next eight to ten years, the number of truly comprehensive academic health centers doing research in all areas will shrink dramatically. Increasingly, they will have to decide what areas they want to be preeminent in, what are the critical masses required, and how to make investments in them.

Second, there will be increasing differentiation of faculty in these institutions. Some of them may even spin off research institutes with faculty who get full compensation from funding agencies for their salaries and cannot expect to get clinical dollars for this purpose. At the same time, there will be other individuals in the health care delivery business who will be primarily involved in the care of patients.

A relatively small number of individuals will be needed as bridges, clinical investigators who will have to submit protocols for research. These proposals can be within the National Institutes of Health, but if the investigators are using money from the health care system, the proposals should be peer-reviewed by the institutions themselves. Today, if you have human subjects approval, you can do research in most institutions. That cannot continue. Institutions must look at the quality of the research being conducted with health care dollars, decide what is the most important research, peer review it, and make sure the resources are used in a significant and important way.

Outcomes and research and technology assessment will be key in this cost-oriented environment. Here academic centers have a great deal to contribute. However, in the area of drug trials, for example, there is a budding industry in the private sector to evaluate drugs. For those pharmaceutically-oriented activities to continue in academic health centers, the centers will have to develop a methodology as competitive as the private sector's. Some are trying to do that. Others will decide that is not central to their scientific mission.

The ultimate effect of such change will be to take the health care delivery portion of the enterprise farther from the university, and the research and academic health center portion closer to the university, with the exception that health services research, outcomes research, and technology assessment must be a part of both.

In sum, we need a coherent message. I believe that the message must relate to a public understanding of what we do in terms of its outcome and not necessarily a public understanding of the details by which we do it. We need a funding stream that will allow expansion of the life sciences.

I believe this is feasible. It will take a number of years, but it is possible. Making the case for the need can produce support. We must maintain the alliance with industry. In the health area, this alliance is clear. In other areas, it needs to be developed and nurtured. In areas outside of health, such alliances have been developed already.

We must make sure that the effects of consolidation of the health care system on research are very carefully monitored. This needs to be studied, and we need to develop policies to respond to what are almost certainly going to be negative impacts. That doesn't mean there won't be positive impacts, but undoubtedly there are clearly going to be negative impacts as well. We need to monitor the changes closely.

Academic health centers must be more responsive to those who use them. This relates to how technology and care are evaluated, as well as the kind of clinical research they do. If we do that appropriately, and if we deal in a realistic way with these changes, I think the health care enterprise can emerge stronger than ever.