



**The Richard and Hinda Rosenthal Lectures 2002:
Fostering Rapid Advances in Health Care**

Institute of Medicine

ISBN: 0-309-57417-X, 42 pages, 6 x 9, (2003)

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THE RICHARD AND HINDA ROSENTHAL LECTURES
2002

*Fostering Rapid Advances in
Health Care*

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

THE NATIONAL ACADEMIES PRESS
Washington, D.C.
www.nap.edu

THE NATIONAL ACADEMIES PRESS • 500 Fifth Street, N.W. • Washington, DC 20001

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Support for this project was provided by the Richard and Hinda Rosenthal Foundation.

Copies of this report are available from the Office of Reports and Communication, Institute of Medicine, 500 5th St. N.W., Washington, DC 20001. For more information about the Institute of Medicine, visit the IOM home page at: www.iom.edu.

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*
—Goethe



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Foreword

In 1988, an exciting and important new program was launched at the Institute of Medicine. Through the generosity of the Richard and Hinda Rosenthal Foundation, a lecture series was established to bring to greater attention some of the critical health policy issues facing our nation today. Each year a subject of particular relevance is addressed through three lectures presented by experts in the field. The lectures are published at a later date for national dissemination.

The Rosenthal lectures have attracted an enthusiastic following among health policy researchers and decision makers, both in Washington, D.C., and across the country. Our speakers are the leading experts on the subjects under discussion and our audience includes many of the major policymakers charged with making the U.S. health care system more effective and humane. The lectures and associated remarks have engendered lively and productive dialogue. The Rosenthal lecture included in this volume captures a panel discussion on the IOM report *Fostering Rapid Advances in Health Care*, which did an excellent job of identifying potential demonstrations that might lead to broader health reform. There is much to learn from the informed and real-world perspectives provided by the contributors to this book.

I would like to give special thanks to Gail Warden for moderating the November 2002 lecture. In addition, I would like to express my appreciation to Bronwyn Schrecker, Shari Erickson, Jennifer Bitticks, Leah Covington, Jennifer Otten, and Hallie Wilfert for ably handling the many details associated with the lecture programs and the publication. No introduction to this volume would be complete, however, without a special

expression of gratitude to the late Richard Rosenthal and to Hinda Rosenthal for making this valuable and important education effort possible and whose keen interest in the themes under discussion further enriches this valuable IOM activity.

Harvey V. Fineberg, M.D., Ph.D.
President
Institute of Medicine

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Introduction



Harvey Fineberg

The topic of tonight's lecture is "Fostering Rapid Advances in Health Care, Learning from System Demonstrations." This is the title of the recently released report by the Institute of Medicine (IOM), which many of you have in your hands and which is depicted here on the slide.

This project started innocently enough over dinner. It was a dinner hosted here at the Academies by my predecessor Ken Shine, by Bruce Alberts, president of the National Academy of Sciences, and by Bill Wulf, president of the National Academy of Engineering. The dinner also included a number of experts and members of the Academies, drawn for the occasion to meet with Secretary Tommy Thompson and discuss his concerns.

That evening, the secretary expressed an interest in identifying and implementing demonstration projects that would deal with critical problems facing our health care system. In response to this conversation, the IOM took up the challenge and initiated what we call a "fast-track project."

Gail Warden of the Henry Ford Health System agreed to serve as the committee chair and we were very pleased that 14 other distinguished individuals also agreed to give of their time and expertise on a short and very intensive assignment. Their names are listed at the outset of the report.

All of us, of course, share awareness and concern about the health care delivery system. It is confronting many serious problems, including rising costs, a rising number of uninsured, racial and ethnic disparities in care, shortages in the work force, and increasing liability costs. The need

for us to take action at many levels to solve these problems grows ever more acute with each passing day.

The committee that prepared this report has done an outstanding job in identifying a set of demonstration possibilities, each of which has potential to lead to broader health system reform.

I am very pleased to welcome tonight's panelists and to welcome this distinguished audience. The panelists, each of whom served on the committee, will offer their perspective on various aspects of the report.

Our moderator this evening, Gail Warden, chaired the committee. Gail is the president and chief executive officer of the Henry Ford Health System in Detroit. He chairs the National Forum on Health Care Quality Measurement and Reporting, the Health Care Research and Development Institute, and also the newly created National Center for Health Care Leadership. He is a member of the board of the Robert Wood Johnson Foundation and is also on the Institute for Health Care Improvement Board and the RAND Health Board of Advisors.

Seated next to him is William L. Roper, who is dean of the School of Public Health at the University of North Carolina, Chapel Hill. Before joining UNC in 1997, Dr. Roper was senior vice president and chief medical officer at Prudential Healthcare. Prior to that position, Dr. Roper was director of the Centers for Disease Control and Prevention, served on the senior White House staff, and also as administrator of the Health Care Financing Administration, now called the Centers for Medicare and Medicaid Services.

Seated next to Dr. Roper is Arthur Garson, Jr. He is currently the vice president and dean of the University of Virginia School of Medicine, and, until June of 2002, served as the senior vice president and academic dean for operations at Baylor College of Medicine in Houston, Texas. Dr. Garson received his M.D. from Duke University and an M.P.H. from the University of Texas, Houston. He is the past president of the American College of Cardiology.

To his right is Edward H. Shortliffe. Dr. Shortliffe is professor and chair of the Department of Medical Informatics at the Columbia College of Physicians and Surgeons in New York City. From 1988 to 1995, he served as the chief of internal medicine at Stanford University. Dr. Shortliffe is a fellow of the American College of Medical Informatics, the American Association for Artificial Intelligence, and the American College of Physicians. He is editor-in-chief of the *Journal of Biomedical Informatics*. Currently, he sits on the National Committee for Vital and Health Statistics and served on the Computer Science and Telecommunications Board of the National Research Council from 1990 to 1996.

To his right is Karen Davis. She is the president of the Commonwealth Fund, a national philanthropy engaged in independent research on health

and social policy issues. She assumed the presidency of this foundation in 1995. Dr. Davis is a nationally recognized economist with a distinguished career in public policy and research. Prior to joining the Fund, she served as chair of the Department of Health Policy and Management at the Johns Hopkins (Bloomberg) School of Public Health, where she also held an appointment as a professor of economics.

On the end of the table, to her right is William M. Sage. He is a professor of law at Columbia University, where he teaches health law and regulatory theory and the professions. Professor Sage's areas of expertise are managed care, health care information, antitrust, medical malpractice, insurance coverage determinations, and the regulation of health care professionals. He currently serves as the principal investigator for the Project on Medical Liability in Pennsylvania, which is a two-year study funded by The Pew Charitable Trusts.

I know we will all gain a great deal from the discussion this evening with this distinguished audience, and I look forward to the time that we've set aside for open discussion and conversation amongst ourselves.

It is my pleasure to turn the program over to our moderator, Gail Warden.

Overview



Gail L. Warden

Good evening, and thank you all for being here. As Dr. Fineberg said, we are on a fast track and have put in a lot of time and effort in the last three or four months to get to where we are tonight.

The format tonight is fairly straightforward. I am going to give a very brief overview of the project. I'll then call on each of the panelists in turn to speak on a specific aspect of the report, followed by questions and discussion. The first three slides outline the charge to the committee given by Secretary Thompson. He is very concerned about what he calls a crisis on the challenges facing health care and is particularly concerned about the underlying factors that are causing the system failures: namely, the lack of an information technology infrastructure; excessive cost of administration and regulation; and the burden of malpractice liability.

During Secretary Thompson's initial discussion with the committee, the basic feeling was that some radical and bold solutions must be developed, and that they should be implemented at the state level before they are generalized to the entire country. In doing so, we need to articulate what we will learn and how the outcome of each demonstration project or family of demonstration projects will continue to address the crisis. Whereas perhaps 10 years ago we were handed a prescription on how to reform the health care system, this is more of a bottom-up, intricate kind of approach by which we learn and evaluate.

We talked about the time frame and concluded that we really couldn't outline a time frame, because what we were doing had to be useful in the short term as we got the project started. What we would learn from the short term obviously would have to be useful in both the intermediate and the long term. By 2005, we hope to see some change in health care

delivery and by 2010, to see a major revamping of health care delivery in this country.

Secretary Thompson suggested that we needed to experiment with statewide information systems, alternatives to the tort liability system, reorganization to reduce administrative costs and attrition and benefits of service delivery that reward a population level focus, as well as innovations that improve efficiency and quality of care through all their reimbursement mechanisms. All of those issues are addressed in the discussion you will hear tonight.

One of the first things we did when we gathered at Woods Hole was to spend a considerable amount of time developing criteria by which we would evaluate potential candidates for the demonstration projects. The initial criteria were several pages long, as it turned out. We narrowed it down to two families of products: 1) criteria related to intended results, which would improve health status, improve systems, reduce waste, and be a stimulus for continuing innovation and 2) criteria related to successful implementation, because the projects were not going to be of any use if they couldn't be successfully implemented.

If the projects were to be implemented, they had to resonate with the public and with policy makers and needed a broad base of support. They had to address the barriers that exist in the health care system and they had to build on existing competency.

As we began to describe the projects, there were some key characteristics that became a theme throughout the report. It became clear that most of the projects are state or community based. Many involve private and public partnerships. In their own way, they all address critical aspects of the health system, coverage, benefits, payment, liability, and the theme of information technology as a critical component. Each of these topics is woven through each aspect of the report, as well as having a separate section on information technology. The important thing is to not think about each of these different sections—whether it be about chronic care or primary care or state benefits in coverage or tort liability or information technology—as silos, but to think of them as a package. If they fit together and you are able to make the demonstrations work across the country, then the package has the synergy that could result in substantial reform.

We are proposing a large number of projects: 10 to 12 chronic care demonstrations in 10 to 12 communities; primary care demonstrations in 40 different practice settings; information and communications technology demonstrations in 8 or 10 states; health insurance coverage proposals in 3 to 5 states; and liability in 4 to 5 states. This is a very ambitious approach, but if we are going to get the type of spread we think is necessary, each project has to be done at many of different sites and we have to learn from each other in those different sites.

Chronic Care



William L. Roper

Good evening. It is a pleasure to be with you and it has been an honor to serve on the committee. The task that was before us and we are pleased to describe for you tonight is a large-scale one. What is new about the endeavor we have undertaken at the request of Secretary Thompson is the notion of implementing a variety of demonstrations across the spectrum of issues facing America's health care system, all at the same time.

The federal government has long done demonstration projects to learn how to do things better. But they typically have been done only in one area at a time. The Department of Health and Human Services, of course, is probably the most demonstration-prone department within the federal government, but I don't think it has even been done in quite this fashion, across the spectrum of issues, all at the same time.

What I am going to talk about for the next few minutes is the section focused on chronic care, but I want to stress a point that Gail Warden made a moment ago. These sections should not be seen in isolation. For example, one of the components of the chronic care demonstration is information technology and we are anxious to demonstrate integrated approaches to information and communications technology.

So, these demonstrations might well fit together. The objective of the chronic care demonstration is to reduce the toll of chronic conditions on individuals and communities. I would stress the word "communities." This is not just about making individuals better but takes a population perspective. Our report and its approach tracks previous IOM reports and

other work done in the field. So, we are trying to build on the work that has previously been done.

We are taking a two-pronged approach in the demonstration we have proposed. One is to redesign the health care delivery system to improve management of patients with chronic illnesses. Of course, the vast majority of expenditures in health care in America are focused on people with one or more chronic illnesses. But we also want to take a community-wide prevention approach, looking at how to make the whole population better.

We envision a demonstration that would have the Centers for Medicare and Medicaid Services issuing a Request for Proposals that would ultimately take 10 to 12 sites, likely in individual states. It is probably best for these to be done on a state basis, initially focusing on Medicare beneficiaries. The reason for this is severalfold. These are the patients who have the most chronic illnesses. Because the federal government has the most control on things and, therefore, can directly undertake innovations in this area, we envision that this would quickly, if done right, enable other payers to participate in such a demonstration.

A second opportunity would be the patients who are eligible both for Medicare and Medicaid, but ultimately private payers in a given state might well choose to participate in this demonstration. We envision a one-year planning grant and three years for implementation. We think over time this would be budget-neutral but probably would require an initial investment for the information and communications infrastructure.

We envision a four-step process that begins with establishing a coordinating structure to provide leadership within a state or a community. Such a structure might well include a consortium of health care providers, community groups, businesses, or others in a community to enable that leadership and then to build out the community-wide information and communications technology infrastructure, establish chronic care management programs and, again, sponsor community-wide health promotion educational efforts.

Step two focuses especially on the information and communications technology work. What we are planning is to identify in a given community or in a given state the various things that the experts in the field have been saying need to be done. We believe that a demonstration project of this sort is the best way to move forward.

Step three involves implementing new models of care delivery. This requires the involvement of admitting physicians and other health professionals, hospitals, and other health care institutions with a real emphasis on patient education and support, multidisciplinary teams and other caregivers, and outreach effort in the community. This would all be pulled together using the information technology that we have talked about.

We continue to repeatedly stress the community-wide education efforts. Prevention and health promotion is a major part of this effort, along with primary prevention, early detection of illness, and slowing the progression to chronic illness. That is our idea for a demonstration in the chronic disease area.

Primary Care



Arthur Garson, Jr.

You may wonder why a sub-specialized person is talking about primary care. It raises the important point to all of us that this was a group effort. Not only was it a group effort, but this is something that the specialists will buy into. This is something the primary care doctors will also buy into. This is an absolutely marvelous program, and it is my honor to go over it with you.

To make sure that we are all on the same page of what a community health center is, I remind you that they are 501(c)(3)s. They are places where people go that can be established networks of practices and should not be considered just a single place. They are both urban and rural. Two-thirds of the people who utilize their services are poor, and an interesting piece is that the majority of active clients actually serve as board members. If you look at their boards, you'll find that the majority of the board members are active clients of the community health center.

The administration has focused on community health centers as a way to get services to the uninsured and other vulnerable populations. What we are after is using a series of preexisting, fairly successful initiatives and building on them in primary care. I would point out you can do the same thing in specialty care as well, despite the fact that this is a primary care initiative.

The overall goal was to come up with 40 exemplary primary care practices over the next three years. My own personal subgoal is broader than that. These practices are geared toward primary care, but any practice in the United States can use these very same principles and we probably

should pay attention to that. One way in which community health centers have already done well is by managing chronic conditions.

I thought I would focus on some interesting things that many of us who do health services research understand. But for those of us who don't, just look at the question of asthma. There is a marvelous community health center in New Haven that has come up with a real reduction in symptom-free days, school days missed, and emergency room visits being decreased.

Those are the types of very practical outcomes we are discussing being measured and coming out of these particular situations. Team-based care is something that has already been featured in the community health centers. Team-based care runs the gamut from nursing to social work to primary care physicians and even specialists. This is not a new term but has recently been made very important at learning collaboratives, which are simply a large number of people. There are 500 of these community health centers that have already gotten together and talked about ways of improving health care, which is improving the way that they study health care and ultimately improving delivery.

The second piece of what they have already done is the implementation of electronic patient registries with evidence-based guidelines. I think the important piece here is that not as many of us are worrying about electronic records. It's not simply about getting the record at home and not having to go to the hospital. It is about guidelines with reminders. The way that the electronic medical records really help us are as reminders related back to guidelines and visit notes that ultimately generate statistics so that we can begin to develop large databases and understand even better how to take better and better care of the patients.

Now, the goals for everyone are high quality, patient-centered care and redesigning preventive acute and chronic care. It is very interesting: the community health centers' endless initiative focuses in particular on chronic care. Anywhere from 60 to 100 million people in the United States have chronic disease right now.

This is a very, very appropriate focus. The use of effective teams or participatory care means not only just that patients take care of themselves, which is self-care, but participate in decision making as well. The concept of same-day open access is an interesting point made in the report. Many of us had a real problem with "no-show" patients. If you have access, which is something that I learned in reviewing the report, no-shows—which can account for a tremendous amount of inefficiency and actually lost care—are markedly reduced with same day access, evidence-based, safe care.

The learning collaboratives allow people to share best practices of delivery and process and show how to improve outcomes to provide effi-

cient, effective care. The report talks quite a bit about inpatients. I would point out one very simple thing about outpatient care that many of us don't think about. That is the return visit of "come back in a year." Think about how many times you say "Well, you should come back in a year or you should come back in two years." These are the sort of data that can be generated by these kinds of learning collaboratives.

Finally, the equitable part is so important: meeting diverse needs and reducing disparities. Ultimately, in order for this to work, however, we have to evaluate demand. We have to evaluate the demonstrations, communicate the results, not only among the cells in the learning collaborative, but also to the larger community.

Information Technology



Edward H. Shortliffe

I should acknowledge that you didn't see my name on the list as a member of the committee because I couldn't be at Woods Hole. However, I had the pleasure of being here the night of the initial dinner and subsequently on phone conversations as we put together some of the recommendations you are hearing tonight.

I will be talking about the information technology piece, which although we separated it out as a topic, is also integrated across the other categories because it is an enabler for so many of the activities we wish to pursue in the modern world. It just becomes an obvious and important part of the mechanism by which some of these experimental plans can be effective.

I would point out that if you take the six major goals outlined in the *Crossing the Quality Chasm* report, there are clear relationships through the information technology agenda for all six. For example, in safety, many people have pointed to the importance of information technology and addressing issues related to medication errors during order entry safety checks.

Effectiveness can be enhanced by a reminder of alerts and other mechanisms that can make you more effective. The increasing uses of the Internet and other information resources aimed at patients have allowed us to be more patient-centered in the care that we provide today.

The timeliness issues are associated with rapid access to information through computer interfaces that replace, for example, the paper reports

that we used to wait for. There are other efficiency issues along those lines and even equity issues. For example, we have the ability to use computer-based Internet facilities for maximizing enrollment for indigent individuals in state health plans and the like.

I might add to the six goals from the *Quality Chasm* report the obvious relevance of information technology in supporting national security through the public health infrastructure and responses to bioterrorism and other public health hazards.

We are suggesting a series of demonstrations with the objective of really showing we can establish state-of-the-art infrastructure in an entire geographic region, or at least in a state or a significant large metropolitan area of a state. We would also like to demonstrate the ways in which the technology, when properly implemented, can support communication among providers, patients, the various organizations that are in public health in that region to enhance access to patient data, to manage knowledge more effectively, and then to provide enhancements to decision making.

We proposed 8 to 10 sites spread geographically across the country because the issues that arise really do differ as you go from one part of the United States to another. Also, the degree of experience and sophistication is not uniform across the different regions of the country. This, it seemed to us, should come straight from the department with a Request for Proposals (RFP), requesting responses from investigators and communities that wish to address these discrepancies and to develop these types of demonstration projects.

We thought it would take about five years for them to come to fruition and, again, this would be one time only, up-front federal funding with the goal being to have this infrastructure continue in a self-supported fashion.

The three phases would start with a planning period of about six months, during which the coming together of the public and private participants in a region would be required. We are talking about providers, but also city and state governments, departments of public health, both in cities and statewide, patient groups, payers, all of whom need to be part of these kinds of experiments for them to be maximally effective.

That also means that once you get them together, the next step would involve developing a detailed operational plan. At the end of the second phase, which would continue from about the sixth month through the second year, you need to create the underlying infrastructure. This would be a similar kind of challenge for everyone within the demonstration projects, I believe.

You need to establish connectivity for the providers and for other users in the community and create a kind of portal mechanism that is se-

cure, maintains confidentiality, and allows the exchange of data that would be necessary for the kind of experiments we envision.

Such demonstrations can then build on top of this infrastructure, but you will notice you already have some tangible results after two years of effort with these types of projects. One of our goals was to have something to show for the activity well before the five years was up.

Then, in the third phase, there is the development of a comprehensive information and communications technology infrastructure. Again, you need to build on computer-based patient records, which occurred in some of the other comments you have already heard. In fact, you could imagine joint demonstrations in this area and chronic care, for example, or in the primary care effort.

Then other kinds of applications—and here we probably see differentiation across the regions, where they would choose to emphasize some applications more than others, but you notice a range of suggested areas in which there is ample opportunity for using this infrastructure to demonstrate the effectiveness of the technology and support of a new view of health care and health care delivery and health promotion.

Uninsured



Karen Davis

When we began our discussions and were considering whether to include demonstrations to expand health insurance coverage, we really felt that it would be impossible to achieve our vision of transforming the health care system to achieve high quality for all if we didn't address the fundamental problem of the uninsured.

There were many reasons for doing that. I think the most basic one is that it is consistent with our fundamental values as a society that is committed to social justice and equality of opportunity. But we also turned to the Institute of Medicine's committee on the consequences of uninsurance and took note of the fact that there are serious health and economic consequences of having 41 million uninsured.

There is also evidence that there is poor-quality care in the health care system and particularly problems that the uninsured present in acute care services without health insurance coverage. There is waste to the system from turnover in insurance coverage whereby people change sources of insurance coverage and receive fragmented care as a result.

There are financial strains on health care providers who are trying to serve the needs of the poor and the uninsured. The basic proposal is to support three to five state demonstrations, presumably run by the Centers for Medicare and Medicaid Services that would issue a Request for Proposals (RFP) to states to come forward with proposals to achieve health insurance coverage for all residents in a state.

That, too, is not a particularly new idea. In looking back I found an op-ed by Howard Hyatt in 1993 in *The New York Times*, where he noted that in clinical medicine, we would never think about making a bold

change without doing it on a trial basis. So, I think we are following his advice perhaps 10 years later.

But it is also consistent with the award of planning grants by the Health Resources and Services Administration over the last few years to 20 states to mount planning efforts on how they might go about expanding health insurance coverage. This particular set of demonstrations is not budget-neutral. We had a lot of discussion about that but concluded that it really would not be possible to do it without additional funding. In fact, some of the limits on demonstrations requiring them to be budget neutral are one of the major barriers to really moving forward in this area. There needs to be at least a 10-year commitment if states would be willing to mount the effort to put these systems in place.

The basic goals of the demonstration would be to provide coverage for all residents of a state. Coverage would be affordable, stable, would provide a choice of plans and would be family centered; it would emphasize providing the right care at the right time; there would be a shared responsibility for health care between patients and their clinicians; it would improve primary preventive care and management of chronic conditions; it would be satisfactory to patients and would promote continuity of care and ease of access of care.

In addition, goals of the demonstration would include reducing waste—particularly by promoting continuity of care for patient and clinician—and improved coordination of care. There would be reduced administrative cost but major emphasis upon electronic administration and there would also be an emphasis on a public-private partnership in this demonstration as well.

The two major components of the demonstration would be, first, an expansion in the public and private insurance coverage and provision of new options of affordable coverage for the population and, secondly, establishment of a statewide electronic enrollment and insurance clearing-house.

The states would be encouraged to come forward with proposals for achieving coverage for all residents in a state. We put forward two basic models: the first would use tax credits, administered through the state's income system. Obviously, not all states have an income tax system. So, those states would probably turn to the second alternative, which would be building on current Medicaid and children's health insurance programs to expand coverage. States would have the option of either a tax credit approach or expansion of what we call family-centered care or a combination of these.

But the basic goal was that there would be one plan per family; that there would be an evidence-based package of services that would include effective, preventive mental health and developmental screening and

treatment services; that everyone insured would designate a personal clinician. It is hoped that such practice would ensure that patients have the information they need, including reminders, for example for preventive services, and that it would be the primary source of primary care and patients, as part of this would be to agree to access care through primary care settings, rather than through emergency rooms.

There would also be fair payment that would reward higher-quality care. The demonstration would also include the establishment of an electronic enrollment clearinghouse, and this is part of the information and communications technology initiative that cuts across all of the demonstrations. This would serve a number of functions, with the first being eligibility verification for insurance coverage.

That is not covered under this demonstration but is under Medicare and under private insurance, including employer plans. So when a patient shows up at a health care setting, that setting can access this database, find out if the person is insured, where they are insured and, in particular, if they are not insured, then begin working with that person to be enrolled in an appropriate type of plan.

It would also be used for enrollment purposes, so there would be modern electronic enrollment mechanisms that would reduce the current barriers that befall many people who are eligible for public programs but fail to enroll. It could be used for other purposes over time, such as facilitating billing and payment, as well as eventually as a mechanism for improving quality of care and providing information to patients and others.

Liability



William M. Sage

I view the liability portion of the proposal as a major breakthrough. The major breakthrough, however, is not the detail of the proposal. The details actually all build on well-established concepts in the academic and policy literature or programs that have been tested in particular organizations or in other countries. The breakthrough is that liability is included here as part of an integrated set of health system improvements. In my view, there is an unfortunate tendency to divorce liability considerations from the rest of the health care system. We tend to treat them as a special case that really does not relate to all the things that, in fact, we know they do, including the other ways people access health care, the providers who must make that health care available, and how it must be paid for.

I think one thing that has contributed to this unfortunate tendency toward what I like to call liability exceptionalism is that in the political world, we continue to debate proposals that are malpractice liabilities first considered and adopted in some jurisdictions back in 1975. Because liability insurance crises happen periodically, we have a tendency to think that a proposal from 1975 would be appropriate for the health care system of 2003. My view is that this is absurd, and I think the great breakthrough here is that we are talking about a liability proposal that is integrated with health system reform and health system improvement.

There are several goals associated with a liability proposal. I believe we are in the midst of a true, liability insurance crisis and that concerns the committee greatly. Therefore, aspects of this proposal are intended to bring much greater certainty and, therefore, financial predictability to either the coverage costs or doctors and for hospitals.

One of the great breakthroughs, since 1975, is that we understand patient safety much better. This is a set of proposals designed to induce health care providers to do a better job with patient safety and to do it in ways that are more sheltered from the types of liability risks currently discouraging health care providers from engaging in cooperative patient safety improvement activities.

An important thing that patients deserve, if they are injured, is a prompt payer and certain level of compensation, something the tort system has not typically provided and these proposals are designed to incorporate that.

Another issue is that these proposals are designed to involve patients in their own care, in patient safety improvements generally, and to give patients good communication when and if errors do occur. Those are the conceptual landmarks for the proposal.

We have outlined two options. One we call a provider-based early payment and the other we call statewide administrative resolution. The difference is that option one takes the approach that there is a better mousetrap here. There is a way of organizing health care services that is better in terms of patient safety and patient involvement that can offer compensation to injured patients in a way that is financially predictable for them.

But the committee wanted to recognize the better mousetrap in a voluntary rather than a mandatory fashion. So, the notion of option one is to provide incentives for these organizations to step forward, change the way they compensate injury, connect the things they can do to improve patient safety to public systems of accountability, and in return get tort immunity and significant changes to the current system of resolving patient injury disputes.

Option two is a statewide administrative scheme, which looks to the entire provider community within a state to engage in both the prompt compensation of avoidable injuries and the patient safety improvement activity and to do that on an all-inclusive, mandatory basis.

Both of these proposals have certain features in common. There is a public infrastructure involved in terms of creating definitions of avoidable events, assigning values for compensation in addition to economic harm, and compensation for noneconomic harm and values, prospectively according to some deliberative process.

In my view, one of the really important things here is that this offers an opportunity for the types of social conversations that we have been struggling to have in the United States for decades over what people really expect to get out of the health care system and what monetary amounts they place on those benefits.

In option one, the provider-based early payment system, we are usu-

ally talking about a hospital organization. We have provided incentives for the hospital to bring physicians who are associated with that hospital within the ambit of reliability protection and we would expect them to build on proposals currently available that offer early offers of settlement. We would also expect that the hospitals would identify avoidable injuries, communicate those facts to patients, take steps to keep them from happening again, and to promptly pay the patients the amounts required according to the predetermined schedules. In exchange for that, the organizations would enjoy freedom from a lawsuit.

As a financial inducement, we focused on the federal government contributing to the excess coverage that these institutional health care providers currently face. One of the facts of the current liability crisis is that the excess layer of coverage is extremely expensive for a variety of reasons, many of which are related to the reinsurance markets. But the notion here is that organizations that can do things right and really want to do things right would come forward and take advantage on an organization-by-organization basis of this proposal.

Option two, the statewide administrative resolution system, is an administrative adjudication system similar to a worker's compensation or other no-fault system on a statewide basis. This option uses definitions of avoidable injury and compensation amounts that have been developed through public processes with the federal government contributing to the start-up costs for that system.

Discussion



MR. WARDEN: Thank you all for your presentations. I think this provides the audience with a snapshot of the various aspects that the report addresses. As we do that, I think what you see is that the combination of these projects involves large numbers of communities. They get broad geographic coverage. They are urban and rural. They include communities on the cutting edge, and they include communities just barely starting to address the problems that they face locally in their health care delivery system.

The report also emphasizes the importance of learning collaboratives and building upon what is learned, spreading that information to other communities, and building upon the idea that there will be ongoing evaluation throughout the process in each one of these areas.

You probably are curious about what we didn't select as demonstration projects. There was a lot of advocacy for many different areas. I think the two projects that generated the most advocacy were trying to find out what the hospital of the future might look like and how we could take that and apply the recommendations about how to cross the quality chasm. The conclusion was that the report contained enough information to give a hospital that was determined to do something about it a pretty good road map as to what might be done.

The second area that generated a lot of discussion was related to the area of pharmaceutical and drug benefits. We talked a lot about that and decided not to explore the issue for many reasons, not the least of which was that it probably would not add to the discussion, particularly in an

environment where there are two or three different approaches being proposed.

We think that if we were to implement a combination of these demonstration projects in a combination of sites, we would begin to see some transformation of the health care delivery system by the year 2005. By 2010, we could really look forward to some broader health system change. In trying to respond to the secretary, the committee realized that we really hoped the projects we came up with would be related enough to each other to have an impact on health care reform.

Second, we hoped this would be an approach different from what had been taken previously and that it was building from the ground up. Health is a local matter and we wanted to take advantage of that.

Third, we believe these five areas we selected, if done right, could really make a difference.

I want to thank Janet Corrigan, who is the director of the project and of the Board on Health Care Services; Ann Greiner, who assisted her, who serves as deputy director of the Board on Health Care Services; and Sherri Erickson, a research associate, who worked on this project. They were terrific staff, doing a great job of driving the committee to get its work done and putting important ideas and information before us so we could do our work.

I also have to say that Susanne Stoiber and Harvey Fineberg also played an important role from the very beginning in helping us complete the project. So, we want to thank you as well.

So, with that, we will open the floor to questions and comments and hope we can have a healthy discussion for a half an hour or so.

PARTICIPANT: Did you develop a budget for these projects or come up with plans to fund them?

PANELIST: I think the committee's view from the beginning was that these projects are not budget-neutral and they are going to require public and private partnerships in order to ensure funding. We obviously look forward to the opportunity to talk with Secretary Thompson about his thoughts concerning this.

We also, obviously, look forward to seeing what kind of reaction we get from the states. I think we are all very much aware that the state budgets are in no better shape—and are in fact, perhaps worse—than the federal budgets. But at the same time, we felt we didn't have enough time to develop budgets for the projects. We felt that we needed to get these ideas out there and as they evolved we would try to pursue the budget issues further.

DR. ROPER: The point I would add in further response is that the size of the budget, of course, depends on which states choose to participate. Some are bigger than others. If these are statewide demonstrations, the scale matters as to the cost.

Furthermore, the cost to be incurred in these kinds of demonstrations is much less than what one would assume might be part of a major, whole-system, whole country kind of change. Clearly, we are not going to go there, given the budget situation we are under. We believe that more modest demonstrations in some states makes more sense.

As Gail was saying, time will tell whether this is a sellable notion. Fifteen years or so ago, when I was at the Health Care Financing Administration, I remember the staff coming forward one day with the suggestion that we undertake a series of demonstration projects, comprising ideas that could possibly be done to advance the health policy agenda. For a set of complicated reasons, that idea didn't go anywhere.

But I have often thought that if we had moved on some of those ideas 15 years ago, we would have learned some things. These are the ideas that we are trying to put forward now.

PARTICIPANT: You have commented on the ways in which these various proposals reinforce one another as a comprehensive way of assessing innovation for health across the country. I am wondering whether the committee thought about whether there is an advantage to a single state considering adoption of a whole array of proposals, to what the optimal distribution of adoptions would be from the point of view of learning most effectively, and what will work for the country?

MR. WARDEN: Before the other panelists join in, I am going to ask Karen to start on this question because she has probably thought about some of these issues more than any of the rest of us.

DR. DAVIS: I certainly thought there was an advantage in encouraging a state to do more than one kind of demonstration, but not an array. On the other hand, we want a lot of diversity across the country in demonstrations. So, we recommended that these demonstrations be run as learning collaboratives. For example, in the chronic care area, we thought that everyone doing a demonstration could come together regularly to share experiences and learn from each other. States that are funded to do demonstration projects around insurance issues would be brought together with experts and information. They would systematically share experiences and learn from each other.

But beyond the array of demonstrations, all of them would come together to benefit from their experience. So, whether the demonstrations

are all in a single state across these different issues or whether one state feels like the most they could take on, for example, would be the liability issue, everybody is up to date on what has been learned on all of the demonstrations and each demonstration feeds into the other.

DR. GARSON: The three demonstrations that obviously fit together are the acute care, the chronic care, and the ITC—the information technology. You can go even broader than that, but it seems to me that acute care or the primary care or specialty care information certainly would mesh. You could certainly add liability from the other side, as well.

DR. SAGE: Just talking brass tacks, a lot of it comes down to treating liability as something that is integral to health systems reform. I think that changes the politics a bit. I think once you bring those issues to the front and center and you don't allow the traditional political debate to happen, at least you have a glimmer of hope for some significant events.

Now, I want to be very clear that this set of proposals is not aligned with any of the existing stakeholders. It is compatible with various proposals that are out there. But it is neither the AMA's wish list nor the American Trial Lawyers Association's wish list. Both sides would find something to object to in it and the political debate would again have to be more inclusive.

With respect to the states that would undertake this, it would be done at the state legislative level. We were quite clear after extended discussion within the committee that this should not be something that requires congressional action. Of course, states that undertake this would probably not be the states that have state constitutional prohibitions on drastic changes to the rights to sue and to the right to the court. But that still leaves a number of states for whom this would be an option, domestic politics aside.

In terms of domestic politics, there are aspects of these proposals that certainly could be seen as threatening, but there are a lot of aspects that are not particularly threatening. I would expect that in most states, the vast majority of medical malpractice cases on the plaintiff side are undertaken by a fairly small number of lawyers who are repeat players and experts. They tend to be quite good at what they do and I trust that they wouldn't find themselves without a livelihood as a result of any of this.

So, call me an optimist, but I think they would come to the table.

DR. DAVIS: In fact, the thought is that it might propagate to other states over that period and that the goal would be to have some results available in 18 months. This would give us time to test the feasibility of

this and begin to get some sense of take-up rates under different types of design.

Obviously, we would hope to look longer term at the difference these demonstrations make in care, continuity of care, perhaps even finding offsetting savings, which is something you never get credit for in any proposal. So, there are certainly many things to be learned over time.

The thinking behind the 10-year commitment is that no state is going to want to do this if they feel that the federal government is giving them a financial incentive to start but may leave them holding the bag and having to roll back the program. So, in fact, that presumption is that there would be federal financial support indefinitely. As you learn from these different models being tried, you would roll them out in other states and move to a system of permanent support from the federal government, but using state flexibility to design different models that work in different states for covering people.

So, these demonstration projects are not viewed as something that begin and end and are not viewed as something you have to wait 10 years before more states are brought in or the projects are extended more broadly.

I don't think we saw it as a competition between tax credits and public program expansions but more as way to find out which one works best, leaves people more satisfied, is most cost-effective, and improves care the best.

You know, I hope there wasn't too much in the fine print. It said tax credits, Medicaid, CHIP expansions, or a combination. I wouldn't be surprised if a lot of the proposals that would come in from the states would see a combination. Certainly, that has been our experience with states like Minnesota that have designed different kinds of programs for different kinds of populations.

So, with very-low-income families, the children are on CHIP. They may want to expand CHIP to bring parents in if they haven't done that already, but some states may also want to look to tax credits to buy people into employer coverage for people who have access to it but can't afford their share of the premium.

We talked about tax credits that could buy people into state employee plans or state purchasing pools, which may work for small businesses. So, some states may want to try those strategies, but it wasn't really viewed as a competition. It was really designed to give states flexibility in coming forward with ideas that would be a pragmatic way of leaning more toward private coverage and use of the tax system. My guess is a fair number would have a combination of approaches.

PANELIST: Rick Curtis was an advisor to the committee and is more like a member of the committee. Do you want to make any observations, Rick, about this issue?

MR. CURTIS: Well, consistent with what Karen said, my sense is that one possible outcome of this is a system of intergovernmental finance that allows, facilitates, and encourages states to cover all residents. So that while what comes out of the experience may not be the federal government deciding, “We are going to have Medicaid up to a hundred percent on a noncategorical basis and not shift beyond that and tax credits for this subpopulation,” but rather an arrangement where federal funds are made available if and only if the state gets its residents covered in a combination of ways.

I don’t think the committee ever expressly had this discussion, but I think that is how a number of us viewed it.

PANELIST: There was some discussion as to whether or not standards alone shouldn’t be the major emphasis, because everything else rests upon interoperability and the sort of seamless integration requirements that allow you do anything on a state or regional level. As long as those standards fail to exist, you are dealing with whatever you manage to do within your organization or institution, often by handcrafting the interfaces between systems, which does not help when it comes to trying to pull data across a city or a region.

There has been ongoing discussion about what role the government might play in helping to facilitate the agreement on such standards. There are many activities already going on in the private sector in this regard, but the convening, the credibility, and the kind of blessing of the activity may well be enhanced by increased government involvement. There are words in here implying that if we are going to do as much with the infrastructure as is suggested here, there must simultaneously be an effort to address some of these key issues regarding standard setting.

Now, it turns out that things aren’t quite as bad as you sometimes hear. People have been talking about standards all the time, but there are emerging standards being adopted in many areas having to do with interoperability by the various vendors that are out there in the health care information systems world. So, the biggest issues often are being addressed at the level of vocabulary—in terminology, which is an area where we do not yet have good comprehensive solutions and where I think there is clearly an opportunity for a federal role in convening and providing credibility to that process.

The government has been doing things, with DHHS, the National Library of Medicine, and AHRQ all involved. So, there is reason to be hope-

ful that there will be momentum in that reaction. Making this report focus solely on that did not seem necessary or appropriate.

I think it was important for us to reemphasize how important it is, for example, that NCVHS continue its activities in this area. With the new National Health Information Infrastructure activities that are being coordinated out of DHHS, we also see this as a key element in a National Health Information Infrastructure and, therefore, accentuating the federal role in trying to get the right parties to the table with the right kind of consensus development effort.

But there is much that can be done with what we have currently in the way of standards for many kinds of activities. Anybody who writes a proposal is going to have to propose which interoperability standards, at least for their project, they are going to use. This will help us to see some promulgation of the standards within cities and states if they are going to respond to these kinds of infrastructure requirements.

The vocabulary issue is the toughest nut to crack. It will be interesting to see what kind of solutions are proposed, because these demonstrations will be required to figure out how they are going to deal with data standards issues that are a natural part of trying to bridge disparate systems in different hospitals and private practices and county health departments, all of which have different vendors with different standards currently in their systems.

PARTICIPANT: I have a question for Professor Sage. I am interpreting your comment about those older forms that are outdated. If I am right in that assumption, could you explain to me why they are outdated and why they aren't appropriate now? This is the same old story. Why are they not a good idea?

DR. SAGE: Well, actually it's not the same old story, and let me give you some evidence for why it is not the same old story. My favorite example actually comes from long-term care.

The DHHS report on malpractice shows that over roughly a six-year period ending last year, average nursing home liability cost per bed rose approximately one hundredfold. That is shocking. Liability cost rose even higher in some states like Florida. So, then the question becomes, "why"? The answer to that question depends much more on health system change than it does on endogenous aspects of the liability system, which tend to be the targets of reforms, such as MICRA.

What has happened in nursing homes is that if you go back about eight years, you will find that when they went to carriers, they paid a "hospitality rate," which said nothing about their welcoming nature. It simply reflected the fact that they were being paid the same rate that ho-

tels paid. In other words, they were not being treated as health care providers. How do you explain this?

If you go back to the early 1980s and the adoption of Medicare PPS for hospitals, you find that the population of nursing homes (note the vocabulary change from nursing home to skilled nursing facility over these same two decades) has gone from a really residential population of very old people staying for a very long period of time, receiving almost nothing in the way of technologically sophisticated care, having nice long-term relationships with their care providers, and, frankly, being almost no liability risk.

The transformations in health care system in terms of what hospitals do, what nursing facilities are expected to provide, and the people who undergo these services have changed really dramatically in the intervening decades. Give these 10 years for the washout of the health care system changes to be reflected in the actual dominant population in nursing homes and combine that with the seven or more years on average it takes for tort claims to get processed so that they are actuarially reflected in the liability insurer's charge. I think you will conclude, as I do, that what you really see in the nursing home industry is the result of the transformation of the health care system and not something that is simply a legal system problem.

That is my best illustration. I mention it mainly because I don't think people have heard it before. We could get into the usual discussion about the inadequacies of the tort system, which come, of course, from many directions, including the fact that the tort system does not properly provide incentives for physicians to do better but, in addition, provides occasionally excessive compensation to injured patients while failing to compensate huge numbers of injured patients. That mismatch, I think, is something that even the proponents of MICRA type reforms will cite. I just draw somewhat different conclusions from theirs. And these are all personal opinions.

PARTICIPANT: What about dental health?

DR. DAVIS: We supported an evidence-based package of services and explicitly included mental health, preventive services, and developmental screening and treatment. I don't recall that we had a discussion of oral health services.

MR. WARDEN: I want to thank all of you for being here this evening. This report was just released this afternoon. We are going to have an opportunity to discuss it with Secretary Thompson and a number of his staff

on Sunday and Monday. I am sure that we will begin to see some reaction to the report. We are pleased that you had the first shot of some discussion.

DR. FINEBERG: I will conclude by saying I think we all know that the problems are immense and bit by bit, inch by inch, we may get to the solution.

I would like to thank everyone for being here tonight.

Biosketches



Gail L. Warden, M.H.A., FACHE, *Committee Chair* is president and chief executive officer of Henry Ford Health System in Detroit, Michigan. Before joining Henry Ford Health System in April 1988, Mr. Warden served as president and chief executive officer of Group Health Cooperative of Puget Sound in Seattle from 1981 to 1988. Prior to that he was executive vice president of the American Hospital Association from 1976 to 1981, and from 1965 to 1976 he served as executive vice president and chief operations officer of Rush-Presbyterian-St. Luke's Medical Center in Chicago.

Mr. Warden is an elected member of the Institute of Medicine of the National Academy of Sciences. He has served on its Board of Health Care Services and the Committee on the Quality of Health Care in America. He served two terms on the IOM's Governing Council. He is chairman of the National Forum on Health Care Quality Measurement and Reporting, chairman of the Healthcare Research and Development Institute, and chairman of the newly created National Center for Healthcare Leadership. Mr. Warden cochairs the National Advisory Committee on Pursuing Perfection: Raising the Bar for Health Care Performance. He is a member of the Robert Wood Johnson Foundation Board of Trustees, the Institute for Healthcare Improvement Board, and the RAND Health Board of Advisors. He is director emeritus and past chairman of the Board of the National Committee on Quality Assurance. In 1997 President Clinton appointed him to the Federal Advisory Commission on Consumer Protection and Quality in the Health Care Industry. In 1995 Mr. Warden served

as chairman of the American Hospital Association Board of Trustees. He served as a member of the Pew Health Professions Commission, the National Commission on Civic Renewal, and past chairman of the Health Research and Education Trust Board of Directors.

Throughout his career, Mr. Warden has received several significant awards from Yale University, *Modern Health Care Magazine*, the National Committee for Quality Assurance, the American Hospital Association, the Health Research and Educational Trust, and the American College of Health Care Executives among others.

Mr. Warden is a graduate of Dartmouth College and holds a master's degree in health care management from the University of Michigan. He has an honorary doctorate in public administration from Central Michigan University.

Karen Davis, Ph.D. is president of the Commonwealth Fund, a national philanthropy engaged in independent research on health and social policy issues. She assumed the presidency of this foundation in 1995. Dr. Davis is a nationally recognized economist, with a distinguished career in public policy and research. Before joining the Fund, she served as chairman of the Department of Health Policy and Management at the Johns Hopkins School of Hygiene and Public Health, where she also held an appointment as professor of economics. She served as deputy assistant secretary for health policy in the Department of Health and Human Services from 1977 to 1980 and was the first woman to head a U.S. Public Health Service agency.

Dr. Davis has published a number of significant books, monographs, and articles on health and social policy issues. She is a member of the National Advisory Council of the Agency for Healthcare Research and Quality (AHRQ), a member of the President's Steering Committee for the Initiative to Eliminate Racial and Ethnic Disparities in Health, serves on the ad-hoc Advisory Committee of the National Library of Medicine, is a past president of the Academy for Health Services Research and Health Policy (formerly AHSR) and an AHSRHP distinguished fellow, and is a member of the Kaiser Commission on Medicaid and the Uninsured. She is a member of the Columbia Presbyterian Medical Center Advisory Committee for the Center for Women's Health, a member of the Overseer's Committee to Visit the School of Public Health, Harvard College, a member of the American Hospital Association's Commission on Workforce, and a member of the Board of Visitors of Columbia University, School of Nursing. Dr. Davis is the recipient of the 2000 Baxter-Allegiance Foundation Prize for Health Services Research.

Prior to her government career, Dr. Davis was a senior fellow at the Brookings Institution in Washington, D.C., a visiting lecturer at Harvard

University, and an assistant professor of economics at Rice University. She received her doctoral degree in economics from Rice University, which recognized her achievements with a Distinguished Alumna award in 1991.

Arthur Garson, Jr., M.D., M.P.H. is currently vice president and dean of the University of Virginia's School of Medicine, and until June 2002 he served as the senior vice president and academic dean for operations at Baylor College of Medicine in Houston, Texas. Dr. Garson graduated from Princeton University in 1970 and received his M.D. from Duke University in 1974, remaining there for his pediatric residency. In 1979, he completed a pediatric cardiology fellowship at Baylor College of Medicine and joined its faculty in 1985. He was named chief of pediatric cardiology in 1988. In 1992, he received a master's degree in public health, specializing in health policy and health care finance, from the University of Texas in Houston and was recruited to Duke University to be associate vice chancellor of health affairs. While there, he spent most of his time in health policy. Three years later he returned to Houston and became senior vice president and dean for academic operations at Baylor and vice president of Texas Children's Hospital. In 2000, he was the president of the American College of Cardiology.

William L. Roper, M.D., Ph.D. is dean of the School of Public Health, University of North Carolina at Chapel Hill (UNC). Before joining UNC in July 1997, Dr. Roper was senior vice president and chief medical officer at Prudential Healthcare. In that capacity, he was responsible for medical management services for all Prudential health plans, including functions of quality improvement and health care information management. Before going to Prudential, Dr. Roper was director of the Centers for Disease Control and Prevention (CDC), served on the senior White House staff, and was administrator of the Health Care Financing Administration (HCFA, now the Centers for Medicare and Medicaid Services). Dr. Roper is a past president of the Academy for Health Services Research and Health Policy (formerly the Association for Health Services Research) and chairman of Partnership for Prevention. He is a member of the Institute of Medicine and serves on its Council and was also chair of the Committee on the National Quality Report on Health Care Delivery.

Dr. Roper received his M.D. from the University of Alabama School of Medicine and his M.P.H. from the University of Alabama at Birmingham School of Public Health.

William M. Sage, M.D., J.D. is professor of law at Columbia University, where he teaches courses in health law and regulatory theory and the

professions. Professor Sage's areas of expertise are managed care, health care information, antitrust, medical malpractice, insurance coverage determinations, and the regulation of health care professionals. He currently serves as principal investigator for the Project on Medical Liability in Pennsylvania, a two-year study funded by the Pew Charitable Trusts. Professor Sage's other major research project, supported by an Investigator Award in Health Policy Research from the Robert Wood Johnson Foundation, involves antitrust and regulatory oversight of quality in health care. Professor Sage writes frequently for leading legal, health policy, and clinical journals, including the *Columbia Law Review*, *JAMA*, *Health Affairs*, and the *Journal of Health Politics, Policy and Law*, for which he recently co-edited a special issue entitled "Kenneth Arrow and the Changing Economics of Health Care." He is a member of the editorial board of *Health Affairs*.

Professor Sage received his A.B. from Harvard College in 1982 and his medical and law degrees from Stanford University in 1988. He completed an internship at Mercy Hospital and Medical Center in San Diego and served as a resident in anesthesiology and critical care medicine at the Johns Hopkins Hospital. Prior to joining the Columbia faculty in 1995, Professor Sage practiced corporate and securities law at O'Melveny & Myers in Los Angeles and, in 1993, headed four working groups of the White House Task Force on Health Care Reform.

Edward H. Shortliffe, M.D., Ph.D. is professor and chair of the Department of Biomedical Informatics at Columbia College of Physicians and Surgeons in New York City. He was formerly professor of medicine and of computer science at Stanford University. He received an A.B. in applied mathematics from Harvard College in 1970, a Stanford Ph.D. in medical information sciences in 1975, and an M.D. at Stanford in 1976. During the early-1970s, he was principal developer of the medical expert system known as MYCIN. After a pause for internal medicine house-staff training at Harvard and Stanford between 1976 and 1979, he joined the Stanford internal medicine faculty where he served as chief of general internal medicine from 1988-1995 and directed an active research program in clinical information systems development. He spearheaded the formation of a Stanford graduate degree program in biomedical informatics and divided his time between clinical medicine and biomedical informatics research. In January 2000, he assumed his new post at Columbia University, where he is also deputy vice president for Strategic Information Resources for the Health Sciences, professor of medicine, professor of computer science, and director of medical informatics services for the New York-Presbyterian Health Care System.

Dr. Shortliffe is a member of the Institute of Medicine of the National Academy of Sciences (where he serves on the IOM executive council), the American Society for Clinical Investigation, the Association of American Physicians, and the American Clinical and Climatological Association. He has also been elected to fellowship in the American College of Medical Informatics, the American Association for Artificial Intelligence, and the American College of Physicians (ACP). He was a member of the Board of Regents of the ACP from 1996-2002, is editor-in-chief of the *Journal of Biomedical Informatics*, and serves on the editorial boards for several other medical informatics publications. He is a member of the National Committee for Vital and Health Statistics (NCVHS), and has served on the President's Information Technology Advisory Committee (PITAC) and the Advisory Board for the Internet II Project. He has also served on the Computer Science and Telecommunications Board (National Research Council), the Biomedical Library Review Committee (National Library of Medicine), and was recipient of a research career development award from the latter agency. In addition, he received the Grace Murray Hopper Award of the Association for Computing Machinery in 1976 and has been a Henry J. Kaiser Family Foundation Faculty Scholar in general internal medicine.