RECORD, Volume 22, No. 2*

Colorado Springs Meeting
June 26–28, 1996

Session 27PD
Demonstrating Value in Health–Care Innovation

Track: Health
Key words: Health Maintenance Organizations

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Panelists: THOMAS C. FOLEY
STEPHEN KARDOS, M.D.†
Recorder: CRAIG B. KEIZUR

Summary: How does one develop an estimated value for a new innovative approach to health-care delivery? How can the value be sold to the public or a buyer?

Ms. Audrey L. Halvorson: Our three panelists represent a cross section of the health-care industry. The topics they will each discuss will include a range of broad to specific types of health-care innovation, and they will describe the process of showing value related to the innovation discussed. Our panel members include Tom Foley, actuary for the North Dakota Insurance Department; Dr. Steve Kardos, president and chief executive officer (CEO) of Health Network America; and myself, Audrey Halvorson, consulting actuary for M&R.

Tom Foley is an actuary with the North Dakota Insurance Department. He has been with the department for eight months. Prior to that he was actuary for the Florida Department of Insurance for four years. He also has 20 years of experience with insurance companies. As an actuary with the insurance departments, Tom has had an opportunity to peer into the operations of a variety of health-care programs in North Dakota and Florida. I want to thank Tom for taking a break from all his rate

†Dr. Kardos, not a member of the sponsoring organizations, is President and CEO of Health Network America in West Long Branch, NJ.

review work to talk with us. Tom will provide his discussion from the patient and regulator point of view.

Dr. Kardos has been a practicing physician for over 20 years. He had both a family practice and a pediatric practice in New Jersey. He is currently president and CEO of Health Network America, a health-care benefits management company in New Jersey. He has been with Health Network America for five years. Prior to that, he was vice president and chief medical officer at Blue Cross/Blue Shield of New Jersey. As a physician and officer of two health-care organizations, Steve brings to us real practical application experience of health-care innovation.

Craig Keizur is our recorder. He is an associate actuary with M&R and has been there for one and a half years. Prior to that he was with Safeco Life Insurance Company for four years.

I am a consulting actuary with M&R. I have been with M&R for 12 years. As a consulting actuary, I have had the opportunity to help organizations put a cost and savings value on a variety of health-care innovations. I will provide my discussion from the technology innovation point of view.

Mr. Thomas C. Foley: This could be a very interesting panel in that the actuaries are going to talk about medicine and the physician is going to talk about health-care reform. The assumption I am making is that there is some reason why we want to have innovation in health-care delivery, and as insurers, as health maintenance organizations (HMOs), as third parties, it is in our vested interest to do that. Some of you may be aware that I wrote an article, which appeared in *Contingencies* magazine a few issues ago, about fixed-loss ratios and the fact that fixed loss ratios have a reverse incentive for companies to keep claim costs down. The response to that article has been an overwhelming yawn. Bill Wiler, who is an actuary with the Health Insurance Association of America, wrote a rebuttal article in the next issue of *Contingencies*. Outside of that there has been no response. So, either the industry or actuaries feel that the article was incorrect. We really are trying to hold down health-care costs. Yet we know over the last 50 years that our industry and, in particular, third parties have been a large part of the problem. It is a cliché now to say this, but we designed systems that said to the medical community, "You do it and we will pay for it." Sure enough, they did it, and our premium payers paid for it and continue to pay for it.

We have had the managed care movement in the last dozen years with gatekeepers, and now we are having other people try to stop the medical community from doing what they are doing. Things are accelerating tremendously rapidly now in all avenues of life throughout the world. It is my sense that in the delivery of health-

care, we are also right in the middle of a huge acceleration in change in how health-care is going to be delivered.

I would like to tell you about a couple of experiences I have had in the last year with lower back problems and with high cholesterol, and how I stumbled into a couple of things. I will then use those two examples to talk about ways we might develop innovative products.

First of all, I am going to be 55 in the fall. I have had lower back problems off and on for the last 30 years. I remember when my second son, who is now 20, was born. This was in Milwaukee in the dead of winter when I drove in to take my wife to the hospital. There was a huge snow bank in the only available place to park. I parked the car, and one wheel was way off the ground, and then, of course the tire went flat. In the process of changing the tire, my back went out. I could hardly get out of bed for three weeks.

Since then, off and on I have had problems with my back. Last summer, my back went out again. Every time my back goes out, I do the classic kinds of things, such as stopping activities, using ice, and resting. If it was really severe, then eventually I would go to a chiropractor once or twice, and it would get better. That is what I did last August. I went through that cycle with about two months of inactivity and going to a chiropractor a few times, and my back got better. Then I started playing tennis again, and my back went out again. I subsequently moved to Bismarck, North Dakota. I ended up going to a chiropractor up there who, I found out later, is on the hit list of all the insurance companies in North Dakota. I went eight or ten times before my insurance stopped paying for some of the procedures. So, I ended up with another chiropractor, got better, and started playing tennis again. Then, my back went out again, I saw a chiropractor, rested, had no exercise, and so on.

About this time I ran into someone who also was having back problems and this person said "read this book." This book, *Back in Shape: A Back Owner's Manual,* is written by Stephen Hochschuler, M.D., who works for a back clinic in Texas. The book is published by Houghton Mifflin with a publishing date of 1991. This particular book goes through what causes back problems, and in about ten pages, I figured out in my particular case that my primary problem was that I had poor posture my whole life and the lumbar region of the back is supposed to be concave. It is supposed to be arched, and over years and years of having poor posture, mine had gotten arched the other way. I am not an M.D., nor am I recommending self-diagnosis, nor is the North Dakota Insurance Department sponsoring this book. So how do you fix this? You fix this by laying on your stomach on the floor and pushing up again and again and attempting to try to put that curvature back in the back. Since I have done that, I have not had any problems.

The key thing I want to point out to you is every time that my back would go out, I would stop exercising—immediately. Using ice and sitting around just prolonged the process, because the discs do not lubricate themselves. There is no mechanism for lubricating them, so the only way you can lubricate the disc is to move, or exercise it. Within reason, the last thing you want to do when you have problems is to completely stop what you are doing. The old M.D. solution of bed rest and putting people to bed for six weeks or some long period of time is exactly the wrong thing to do.

Now, you might ask, what does this has to do with health-care reform? What does it have to do with innovation? Had I known about this simple process, it could have helped me sooner. I assume that it should work for a significant percentage of people who have lower back problems. I cannot tell you how many dollars we spend, how many dollars employers lose, and how many dollars insurance companies spend on health-care for lower back problems. A large percentage of lower back pain and problems are caused by poor posture, and by people not knowing how to take care of themselves when the problem occurs.

Since I read Dr. Hochschuler's book in January, I have felt twinges twice in my back, which I know would have led, based on my old protocol, to bed rest, ice, and no exercise. Both times I just kept doing the exercises, and within 24 hours the pain was gone.

There may very well be things that we can do with regard to consumer education, such as using brochures or other sources, to get information to consumers. There are organizations now, third-party payers, that pay people to go to wellness sessions where they find out how to take care of lower back pain. These sessions have gone beyond just helping people to stop smoking and providing diet and nutrition information. They are becoming much more innovative.

Here is my second personal experience. I tried to give blood in North Dakota in January, and the nurse said that I had palpitations. As I mentioned earlier, I am 55, and there is coronary artery disease history in my dad's family. I had uncles who died, and my dad had bypass surgery. That got my attention, so I went to the doctor. He did not hear any palpitations, and an electrocardiogram test was fine. But when he checked my cholesterol, all three cholesterol readings were bad. About that same time I ran across a book written by a California physician, Dr. Dean Ornish. I have been talking about his program for two or three years with regard to health-care reform. Twenty years ago, while he was a medical student in Texas, he took a year off from medical school. He had this theory that instead of doing invasive heart procedures, there should be a noninvasive way to help stop the development of coronary artery disease. As it turns out, he has been able to reverse

coronary artery disease. Over the next 20 years, he developed his program. He has written all kinds of books.

The American Association of Retired Persons (AARP) has a big spread about him on the back page of the magazine *AARP Bulletin* dated April/May. Dr. Ornish has written at least three books. In February, I stumbled across his book, *Dr. Ornish's Program for Reversing Heart Disease,* published in 1990 by Random House, in a bookstore in Washington, D.C. two days after I found out that my cholesterol was high. Two days later, the third book, *Every Day Cooking with Dr. Dean Ornish,* published by Harper Collins hit the book stores. His program is called a reversal diet. It is a vegetarian diet that recommends no more than 10% fat. His other book is entitled *Eat More, Weigh Less,* published in 1993 by Harper Collins.

There are four components to his program including diet and exercise. Three days a week, yoga and meditation are part of his program along with group support sessions. He thinks each of these components is equally important. What are the results? He has taken people who were candidates for invasive heart procedures, and without the procedures being performed, he has used this program, which not only stops the development of coronary artery blockage, but also has reversed it. He has taken people whose arteries were 100% occluded and gotten them completely open just by using his program.

Two or three years ago, Mutual of Omaha got extensive publicity because it agreed to pay for Dr. Ornish's program in lieu of paying for invasive heart procedures. His program costs $6,000 for one year. Invasive heart procedures cost from $20,000 to $60,000. I have been on his program for five months, and it has cost me the price of three books, approximately $30.

What has happened to me since I have been on this program? I have lost 20 pounds. I start every day with a bowl of oatmeal. Before I was on the program, I would have blood sugar spikes and troughs all day long. I would have mood shifts all day long. You can imagine how pleasant you are to be around when you are having mood shifts. Now I have more energy than I have ever had in my life. I used to try to exercise three times a week, 20 minutes at a time, and if I would do more than that, I would get fatigued. Now I eat five or six times a day. I eat a lot of fruit, a lot of vegetables, a lot of beans, a lot of corn. I use egg whites, skim milk, and low fat yogurt. I am exercising seven days a week, 30 minutes to an hour a day, as vigorously as I want to. The energy level just absolutely amazes me. I never would have believed this.

To me, this may be the way to the promised land—if somehow we can convince people that the way they are eating now is not giving them what their body needs in

order to do what they want, rather than in terms of something like “their coronary arteries are getting filled up.” In fact, Ornish's pitch is, once you reach 62, if you need to have a coronary artery bypass, unless you make the lifestyle changes similar to what he is recommending at that same time, then you are likely to be back in a few years to have another bypass. Bypasses are just temporary. I would rather not have to go through surgery if I had an alternative. I have not yet had my cholesterol checked since I have been on this program. I wish I could tell you what is happening with my cholesterol. I have a sense that all three readings are going to be superb.

I want to talk about alternative medicine. In the last two weeks, I have continued to run across things that are happening in the insurance community. Is anyone here from American Western Life, or does anybody know anything about their operation? This is a company that, I understand, is primarily in the western part of the U.S. It has two HMOs. One is a regular HMO, and the second one is an HMO that is aimed at natural healing. The company encourages people to get involved in natural healing. It covers natural healing aids in this second HMO. The costs, according to an article I read, are 20% less than costs in the regular HMO. Twenty-five percent of the company’s new sales are coming from this alternative HMO.

A couple of weeks ago, *Time* magazine had a number of articles on faith and healing. There were testimonies and evidence that believers have much smaller health-care costs than nonbelievers. Also *The New England Journal of Medicine* published an article about alternative medicine. The article stated that “in 1990, one in every three Americans made an estimated 425 million visits to providers of alternative medicine." This was six years ago. The article continued by stating that “388 million visits to primary care physicians were made.” There seems to be more people going to visit these alternative providers than the traditional providers, and people are paying for it predominantly out of their own pocket.

I want to read one more thing. The article's caption is, “When a Hospital Goes Holistic.” This is about a hospital in Derby, Connecticut named Griffin Hospital:

> Among the many innovations at Griffin, the physical plant was totally redesigned in sync with this new philosophy: A grand piano tinkling in the vestibule, carpeted halls with no hospital smells, resource libraries on each unit, fully equipped kitchens to accommodate family members, all of whom have 24-hour visiting privileges, nurses posted just outside the visitor's elevators rather than at nursing stations, balconies on each floor, daily arts and entertainment programs, critical care room with private. . . .

One of the reasons given for people going to this hospital rather than a traditional medicine hospital is the bedside manner is so much better.

That brings us full circle. We, for the last 50 or 60 years, have designed products that reimbursed the medical community for fixing people. They got very good at fixing people. Now, more people are saying they do not want to just be fixed; they want to heal their body, and they want to have a healthy lifestyle.

Ms. Halvorson: I am from Washington state, and in Washington, the insurance department has now required insurers to cover alternative health-care providers. This shows a move toward coverage of alternative care providers.

I will describe a process we use for putting a financial value on a health-care innovation. Since I am a consulting actuary, I will describe a case study of one of the projects a client asked us to do. There is a new technology with a new medical instrument to provide a different kind of procedure for back pain.

The client came to us and asked us to value a typical case for this new procedure, as well as a couple of old procedures. From this information, we can put a value on the savings of the new procedure. The procedure was already approved by the American Medical Association and had a current procedural terminology (CPT) code. This procedure is called automated percutaneous lumbar discectomy (APLD). The question asked by the client is how much does an APLD case cost, and how does the cost of that compare to the cost of a laminectomy and a microdiscectomy. Those are two other procedures that are done to treat the same type of problem. The goal of the client was to help convince the insurance companies that the APLD procedure has an added value and that they should cover this new procedure as an insured procedure. The purpose of our project was to put a price tag on the different procedures.

The health problem related to these three services is a herniated lumbar disc. The three different procedures that we were asked to compare were the following:

- laminectomy, which is an open back surgery to remove a disc or a part of a disc in the back.

- microdiscectomy, which is the same procedure code, but the procedure is done with a surgical microscope. The length of stay of an inpatient setting for that type of procedure is much shorter than the open back surgery on the laminectomy.

- APLD, a back surgery to remove part of the disc. There is a specific type of instrument that is placed inside a very small incision in the back that has a scope in it, a scalpel, and a little vacuum in it to remove the disc. It is minimally invasive, and it can be done on an outpatient basis.

In M&R in Seattle, we work with doctors and nurses quite often, so we used a team approach on this project. There are a lot of issues in valuing a "case" that need to be considered. The client originally wanted us to consider only the cost of the surgery and the inpatient stay. For a laminectomy, this is typically a two to four day length-of-stay, a little less for a microdiscectomy. An APLD is typically done in an outpatient setting, so the surgery and "stay" costs much less. However, you cannot look only at this level of savings.

In our analysis, we assumed that the patient needs the procedure, so there are no incidence rates you have to calculate. We calculated case rate costs for a single area for the client, but many times the client might want to know what the cost is in a number of areas, since average billed charge levels or reimbursement rates will vary by area.

We then considered what services to include in our study. Just the facility costs? Should we look at physician charges? Lab and X-ray? Our approach includes valuing services for the initial care, follow-up care, and subsequent treatment. If you look at the snapshot of the surgery costs only, you are not going to be getting all the costs of the case, such as complications and re-operations. You need to look at the total case.

We estimated the services that should be included in initial care, follow-up care, and subsequent treatment for all three of these procedures. However, should we include all the patients for all these types of procedures? No. You are going to have a variety of cases—some more severe than others. Not all cases will be able to be treated using the ALPD procedure. You need to choose the right patients to include in a comparison.

We performed a clinical review of the APLD procedure, we determined the subset of patients to include, we determined the indications for considering the APLD procedure we developed protocols (services included in the treatment path for each of the procedures and the percentage of time that each one of those procedures is going to be used). We also determined the estimated average charge levels. We then calculated a case rate. We had our physician perform the clinical review of the APLD procedures. He reviewed a number of published articles about APLD, as well as the other two surgeries, and we also performed a physician survey with a number of physicians that our M&R network of doctors knows. The purpose of this survey was to get physicians' understanding of how the procedures were actually done and what are the success rates and the re-operation rates.

Then, we determined the subset of patients we were going to look at. Patients had to have the herniated disc problem, but they also had to have the same indications.

The patients should all be able to have any of the three operations to treat their problem. We were not going to include somebody who can only have a laminectomy. We included all the patients who could have an APLD, but for some reason may have chosen, or their physician has chosen, to do one of the other two surgeries. Next, we determined the indications for considering APLD. This is a clinical question. Research and surveys were used by our physician to determine which patients would be included in the study. An actuary cannot do this without clinical support.

We then developed the protocols—the services that should be provided in each of the different treatment paths. We included initial care, the surgery itself, the follow-up care, and subsequent treatment. The initial care was the same for all three types of procedures, since we had chosen patients with the same indications. We put a price to each service included in the initial care.

The protocols developed for the other treatment paths, for the surgery, follow-up care, and subsequent treatment, vary for the services that are going to be provided under each of the three procedures. Each surgery case has different procedures performed, different time periods being in the hospital, or whether it can be done outpatient, and so on. Our doctors, with the help of other practicing physicians we utilize in our network of resources, put together these protocols or treatment paths.

Based on the research and surveys, we developed the percentages of time each one of those services was going to be provided in each of the treatment paths. The percentages vary by surgery. Just because a service is included in the treatment path does not mean it is going to be provided to everybody. For example, for the emergency room care, we estimated only 30% of the patients were going to enter the delivery system through the emergency room, versus going to their physician's office. The percentages we created were based on well-managed systems. You can have different percentages depending on the level of health-care management assumed in the delivery system. We did not do sensitivity testing with variances in the level of health-care management since we did not want to create estimates of savings that might be overstated due to waste in the system. We assumed a best practice type of delivery system.

We then determined the average charge levels that we were going to apply to each one of these services in the protocols. There are a number of choices that can be used for assumed reimbursement or charge levels. A given fee schedule could be used. A nationwide database could be used to get total average costs. Our analysis included values using average bill charge levels, and values using typical discounts seen in a managed care environment. Thus, the final case rates are different

depending on the type of organization involved. We used nationwide average values for our analysis.

Case rates were then calculated using the protocols. We have all our percentages, or incidences, for each of the services. We have average bill charge levels, and we have an estimate of the number of each service that is needed, such as five X-rays or one X-ray. The case rate is calculated by multiplying each piece of information across for each service in the protocol and summing for all services. That is how we calculated the case rates.

We found that the APLD procedure costs anywhere from 25% to 60% lower than the price for the other two procedures. The cost savings calculated varied quite a bit because of the fact that there was not much solid evidence in the research that showed what the success rates and re-operational rates were. We did some sensitivity testing and found, as expected, that the less successful the ALPD procedure is, the less savings you will have, and the more successful the APLD is, the more savings you will have.

Some of the issues that you need to consider when you are reviewing a new procedure are, for instance, is there a specific type of combination of services that is best used under one of the comparative procedures but with less frequency than for another one? For example, we found through the study and discussion with the doctors, that a discography with a CAT scan prior to the ALPD surgery was very important to determine if that was the appropriate procedure. If extruded fragments were found, a microdiscectomy or laminectomy would be needed rather than an ALPD. That was important to include in the cost. The success rates for re-operation are important as well, since that will affect your percentages of re-operation that you include in your protocols.

The re-operation rates we came up with were rather interesting. For example, for laminectomies, if a re-operation was needed, we assumed another laminectomy would be performed. A microdiscectomy re-operation was assumed to be a laminectomy, not another microdiscectomy, and the APLD had either a laminectomy or a microdiscectomy, but most of the time a microdiscectomy was assumed to be performed rather than laminectomy. Understand that these are all patients who had the same indications, so they could have started off with an APLD.

The complication rates also depend on the subset of patients you are working with. Since these are all patients who could have had an APLD performed, the complication rates were lower. For the subset of laminectomy patients that we included, their complication rate and re-operation rates were lower than the total

subset of all laminectomy patients. You have to consider that, too, when you are researching your percentages.

One thing we did not include in our cost estimate, but that should be considered when you are talking about an entire delivery system, is return-to-work times. Return-to-work times are drastically lower for the APLD than either the laminectomy or microdiscectomy. Thus, further savings could be considered due to savings in lost work time.

In the work that we did, we did not endorse any of the three surgeries. It is very important that each patient and each situation be considered separately with informed medical judgment. The law of averages is what actuaries work with, but in reality, as we are going to talk about soon, the patient comes first, and you have to look at each situation separately.

Dr. Stephen Kardos: I want you to come away with a different perspective as to where health-care is going, where your profession is going, and what are the things that we have to look at in the future.

First of all, if you look at the U.S. health-care system, I think it is an administrative mess. Whether you are in a doctor's office or an insurance company, trying to get information and moving information around is just about impossible. The strategy has been to limit access to physicians and hospitals in order to control health-care costs. I am not sure that it has done that. Many of the medical care decisions, as we have seen, are being made by nondoctors, and these people are influencing what is going on in the practicing medical community in a very powerful way.

There has certainly been a lack of compassion in the health-care system. People are seeking alternative methods for financing health-care. Why? Have the incentives been so drastically changed in the system that conflicts arise among providers, patients, and the payers for health services or plan sponsors? Certainly medical risks are not being managed well, and we have very inconsistent cost containment strategies.

I want to suggest a way to fix it. I left Blue Cross/Blue Shield in 1991 and formed my own company to compete with Aetna, Prudential, Blue Cross, and the others. My organization developed its own claim systems and its own methodologies for managing care that were built on different paradigms than the ones that we just talked about. The organization is built on accessing doctors and hospitals. It builds in compassion. Most important, it is based on empowering patients to be active decision makers in health-care. In fact, the whole paternalistic approach that has been taken over the past several years has adversely impacted our ability to manage

health risks. I hope to prove to you our program is better by showing you positive data outcomes.

First of all, we developed new rules for physician networks. I truly believe physician networks need to be open to all willing providers, and we need to have focused assisted care management. We need to have medically sound plan designs, focused education for patients, and focused education for doctors. Patients are helped to make medical decisions, and care is never denied. Patients, doctors, and health plan sponsors must be aligned for effective care management. They cannot be in conflict. All of you have been actuarially sound thinkers in looking at hospital- and other doctor-run networks of HMOs that, unfortunately, have failed miserably to contain costs.

Why open access? First of all, I hope some of you are familiar with the work of Winberg and Kapers at the Dartmouth Medical School. Their studies about small area variation are important for everyone to read who is making a determination about anticipated health-care costs and strategies for containment. It takes a whole epidemiological approach to managing risk.

All physicians have strong and weak abilities. Some are very good at gastrointestinal disease, some are very good at cardiology, some are good at neurology. If you force somebody to go to a doctor in a limited panel with limited access, this person may see somebody with the right credentials who has never been sued, and who is a well-respected physician, but you may get prolonged or inadequate care even from that physician. The same thing happens in hospitals. Some are very good at cardiology but terrible at neonatology. There is not a hospital that is good in all things. All geographic regions have strong and weak abilities, and plan effectiveness depends on accessing as many strengths as possible while reducing access to as many weak caregivers as possible.

When you have networks, it is really an anti-risk management strategy. A very simple case in point is the 50 year-old leukemia patient whom we recently were working with who went to Mt. Sinai Hospital. Janice Cuttner, who is a world authority in this field, said, "Yes, we can do the bone marrow transplant here, but I think Fred Hutchinson in Seattle is a better place to have it done." The reality is that, if Fred Hutchinson was not in the network, the patient would have not have been allowed to go to Fred Hutchinson because of the excess perceived cost. In fact, this person did go to Fred Hutchinson, had an extremely good outcome, and is doing very well.

My point is that to determine the anticipated plan costs by looking at unit costs is an impossibility, and you have to measure costs over time in terms of looking at a

planned cost. That is a sum of events. It is not a unit cost that matters, and discounting has a very small impact on a total plan's cost, as you are going to see from our data. You must have a continuous feedback loop of information to smooth out small area variation among providers of health-care, and it must be part of all care management.

The program must be compassionate. Customer service in our organization initiates utilization management before a patient sees a physician. If somebody calls up and asks if mammography is covered and the answer is yes, we then ask the patient, "Would you like to speak to one of the nurses? Are you having a problem with your breasts?" The answer is invariably yes in care management.

How one enters and moves through the health-care system in the U.S. is an impossibility even for me. I have two artificial hips. It was a dreadful decision on how to do it, where to go, what to do for it, and how to get the right care. That investigation was tough for me, and I am part of the system. I am on the faculty of a medical school, and I see it all happening. Can you imagine how it is for you? If something hits you catastrophically or is perceived to be so, how do you enter and move through the health-care system, and how do you garner resources to be able to do that? That information and education needs to be part of the system.

Serious illness and outcomes are followed up. Medical information and advice on care must be given freely to patients by knowledgeable people. Information about individual enrollee benefit status must be readily available in real time about all care people have received. Decisions to use medical resources should be made independently of cost considerations. The current construct where somebody benefits financially if care is not rendered and decision making is owned by the sponsor, whether it be an insurer, a self-funded individual, or the government, is an incompatible situation for all of us. You need to separate out care management decisions from financial considerations in order to be successful in managing the risk in health-care. In our organization, nobody is making a financial decision, because we do not enter any risk contracts, whatsoever. We become an engine for another plan sponsor, but our payment is fee-for-service and is totally independent of financial success of the plan.

Employees become patients when they access their health plan in the environment we are talking about. You have to empower patients. The need for medical care is independent of plan design. If you are in an HMO or PPO and you have problems with your gall bladder and it has nothing to do with what your benefit plan is. Expert computer systems can enhance patient and doctor decisions before care is given. We have integrated an expert system that was developed at Harvard that can

take information from a patient and from a doctor on 23 procedures that account for about 35% of health plan costs.

This system takes patient information and determines whether or not "you are going in the right direction" or "no, here are your breaks in logic, now go get these questions answered, and you and your original physician make the decision as to what you want to do." Nobody shoots themselves in the foot, and you do not need more than a third-grade education to know that you do not want your gall bladder taken out even if you have stones, if you still will have the same pain afterwards, because the stones may not be the ultimate problem.

Medical history information is made available to doctors and patients to enhance not only the quality of care, but also their decision making before it occurs. Reasonable people make reasonable decisions when they have reasonable information. Precertification in our world is purely an educational process.

The need to use health-care services does not depend on health-care plan designs or the available number or skills of doctors or hospitals. That is an independent event. The cost of health-care is determined, however, by the skills of the doctors and hospitals available to provide medical services. The benefit to subscribers are determined by health plan design, and discounts have little to do with the cost and outcome of health-care. I can stand up and say that for a fact.

Five percent of people, as we all know, use about 50% of health-care resources. Thirty-three percent of surgical procedures are thought to be inappropriate, and that has been the consistent number in the past 10 or 15 years as reported in many articles in *The New England Journal of Medicine*. Our simple strategy is to use computers to assist patients and physicians to determine appropriate care and eliminate as much inappropriate care as possible. The result is, and our goal is, to smooth out small area variation among medical providers and populations of patients.

The following is an example of a liver transplant patient from Georgia who wound up in Pittsburgh. One of our clients had an employee in Georgia who had a baby born without bile ducts. The child needed a liver transplant after seven months of life. Our medical doctors got on the phone with the pediatrician down there and were discussing the case with him, and our nurses were talking about this to the patient's parents. We keep medical progress note records on all interactions with all patients. If you look at our model, it is almost like a general practitioner's office, except we do not do hands on. What happened in this instance was when we started feeding information to the pediatrician and to the patient's parents about their anticipated transplant in Georgia, and we showed them the experience

statistics that were available in Pittsburgh, they wound up being transported to Pittsburgh. The plan sponsor was willing to take that on. The outcome was great. The experience in Pittsburgh is superb. It is probably the best place for a liver transplant for children. Although the hospitals in Georgia can do a fine job, their results are not as good, their experience is not as good, and the way they do it is not the way I would want it for my child, so it worked out great.

The point is, for the plan sponsor, there was $125,000 figure attached to that, including the transportation, procurement, and follow-up drugs. It was a bundled number. That may be compared to $70,000, $80,000, or $160,000. The most important thing was that the complications were eliminated, and the patient did very well.

Today's health benefit management looks like this—we have limited providers, capitation, and care denied, and I believe as a result of that, there is higher risk for everybody and higher cost. What it should be is that we should have access to as many providers as we can possibly get our hands on, fixed fee schedules, and the care should be decided by patients and their doctors. I believe this lowers risks and lowers cost. It sounds good, but can it really work?

The following is an example of our managed indemnity program. I am talking about our entire book, which is not large, but it is acceptable.

Our population started with 344 families that grew to 1,322 families over a four-year period. In 1992, plan costs under the prior carrier were $91.23 per member per month. We took over this case. This is in West Virginia, Georgia, Alabama, and Tennessee. The first year the plan costs dropped about $12. They dropped another $7 in the second year, and probably about 1%, almost 2%, in 1995. The employer was happy, and he was talking to us about expanding our management to the rest of his employees.

I did an analysis of 24,841 eligible patients who were in our managed indemnity programs a few months ago. I took the CPT 4 codes and classified patients into the protocol groups we use that is targeting that 35% or 40% of a plan cost. There were 23 protocols that we used; however, we limited the studies to protocols in which more than five patients per protocol were seen based upon the incidents of disease and their population. We studied ten protocols. We created a variable, and we did a T test. What we found was that for the patients for whom we did medical appropriateness management, the health-care costs were much greater for the nonmanaged programs as compared to our managed programs. Those patients who did not get involved had higher costs. This is the result not only for managed indemnity programs, but also for HMOs that we run. This is also the result for the

service products that we run, and this is the way that I believe it should be done. The programs here include computed tomographic scans, magnetic resonance imaging, knee transplant surgeries, and hysterectomies. Those are the items that are very costly in health-care programs.

Health-care value really is perception, outcome, and costs over time. I would leave it to you to come up with whatever variation of that equation that you want to come up with in consulting for your clients. To meaningfully compare the value of one health plan with another, plan-specific industries of value must be uniformly determined. There needs to be at least some general acceptance of principles on how all plan sponsors manage care or support care management in their communities. Without that, you cannot have the ability to compare one plan against another.

Therefore, health benefit programs must align patients, doctors, and plan sponsors. Health benefit programs must work to get patients the right level of care the first time as many times as possible. The care manager cannot be the plan sponsor.

Ms. Halvorson: I have a few questions for Dr. Kardos. From an actuary's point of view, such as mine, in the health plan cost reduction you discussed, was the risk mix of people the same, and were the benefits covered the same over the three-year period?

Dr. Kardos: That is a critical question. The case mix adjustment is being done now, and we really did not have those data.

Ms. Halvorson: Were the benefits covered the same for all years?

Dr. Kardos: Yes. The plan designs did not change throughout the course of the period of the years that we were managing them. I really believe that we are going to find very little difference in the case mix adjustment. We started looking at things that would not be affected by a plan design, such as chest pain, and we found that the incidents and diagnoses of chest pain were the same in all of the plans. We think there are going to be many similarities between the plans and the case mixes.

We also would find people going for a knee surgery who did not have a good cardiovascular status, and we are going to be sure to wind up with amputation as a result of complications. Those are easy to head off if you have a dialogue with the doctor and the patient beforehand. It is the information that does not flow between the doctor and the patient that is really messed up.

Mr. Foley: I have an incident to support something that you said earlier about those 23 services that make up 35–40% of a plan's cost. I noticed MRIs were one of them. When I lived in Jacksonville, I had a rotator cuff problem. I went to a renowned clinic and went to the primary care doctor. The primary care doctor moved it around and said, "You need to have an MRI." I had the MRI, and I had to go twice, because they had to knock me out in order to get me to be able to stay in the MRI. Claustrophobia is another problem. Then I finally came back and he said you have a tear in your rotator cuff, and you need to go see an orthopedic surgeon. However, I did not do anything for about a year except exercise. Then I finally went to the orthopedic surgeon, and the first question he asked me is, "Why did you have an MRI?" I said the primary care doctor told me to have an MRI. He said, "You did not need to have an MRI; I could have diagnosed this in 30 seconds." This clinic was one of the good places, supposedly. One wonders how often that kind of waste goes on.

Mr. Martin E. Staehlin: Could you comment, or all of you comment, on the issue of all willing providers: how do you suggest the issue of inefficient providers be handled? The second issue is, when it comes to a choice of spending money, how do you suggest that be handled? Suppose an employer came and said, "I only have $1,500 to spend on everybody, and that is all I can do." How would you answer those two questions?

Dr. Kardos: I think the first question about any willing provider really gets down to this. I think "any willing" is an exaggeration to make a point. I do not know how one determines the value of a provider other than by procedure or by limited numbers of diagnoses, so that the effectiveness or the value of a provider really is not well defined anywhere. I think that it is an impossibility knowing what I know about medicine. It is more complex than one can quantify in terms of education, human interaction, and all the rest that you imagine goes with it.

I know just from being out in practice for over 20 years that there are many good doctors out there, and you cannot access them on the basis of credentials only. Are there really bad guys? Yes! If you have good data systems, which we do have, you can write little models such as the following: let me know if the patient is seeing the same doctor for the same diagnosis four times in a particular time period. Take that information, put it in front of any highly qualified doctor, and he will tell you what is going on instantaneously.

Ms. Halvorson: Also, Steve talked about using the best providers, ones that know what they are doing. Incentive arrangements should encourage the providers to refer care to the best doctors. Once you get some profiling systems, "willing" begins to mean "I am not getting any business, I have to get my act together and

educate myself" from the provider's point of view. If providers are more open to that, the doctors can buy into the whole program from the start. This is a team effort. They will be able to provide the best care, as long as they get the education they need. Also, those providers needing help can be identified using profiling systems, as well.

Dr. Kardos: You are professionals. You have a profession, and you get a tremendous amount of satisfaction not only in earning a living, but also in doing research and coming up with anticipated expectations for plans and seeing if they actually work. What a doctor gets a thrill out of is, when a patient is sick, solving the problem and getting the patient better. We are not thinking all the time about dollars. I do not think the medical profession was meant to be where you have a cardiologist making $2 million a year salary. Many excesses go on in orthopedic surgery, certainly in cataract surgery. The point is that much of that was driven by the reimbursement strategies that were in place. Somebody else talked about that earlier, how insurance companies were paid on the basis of retention, not on the basis of claims paid.

The more that was paid out, the more, basically, that they made, and they were satisfied with that. Then, when health-care cost controls were attempted through managed care, it went too far the other way around. There needs to be a middle-of-the-road way out.

Mr. Robert G. Plumb: You stated that one-third of medical procedures were medically unnecessary. This is a comment I have heard in Europe, as well as in the U.S. To me, that one-third is one of the biggest single factors that we have to solve if we are all to solve health-care cost problems.

Dr. Kardos: I agree with you wholeheartedly. The one-third of procedures that are being done inappropriately are not being done inappropriately with intention. That is the problem, and it is a multifaceted problem. It is not the procedure that is the problem, it is the thought process that leads up to the procedure being done. If we are going to effectively eliminate that one-third, we have to set in place a system, a whole health-care system, that has decision making as shared with the doctor and the patient through time, and some feedback as to the appropriateness of their thought. That is what we are trying to do.

Ms. Halvorson: I would like to add commentary on that as well. One of our nurses in our San Francisco office used this as an example. A person goes into the hospital to have surgery, and the day he walks in they test of his potassium levels. His potassium is too low, so they put him in bed for two days and give him a potassium drip. If you do this test a week ahead of time and the patient's potassium is low,

send the person home to eat bananas. That way you do not have to waste two days in bed. There is where your cost is: the waste in the two days.

Dr. Kardos: The second part in answer to your question has to do with the cost of care. Singularly, I believe the biggest cost of excess dollars, or the reason we are spending so much money in our country in health-care, is that we have so much excess hospital capacity. The strategies that have been put into place have been to keep open resources that we do not need. There has not been a restructuring of the medical delivery infrastructure that is not doctor related. That is what is propping up the cost of care dramatically. I think half the hospital beds are not necessary, and you can pay off the bonds and close the hospitals and still be way ahead.

Mr. Richard E. Ullman: I am with Group Health, Inc., New York State, a not-for-profit health-care service plan in New York State, very much like the Blue Cross/Blue Shield plans. I identified very much with Tom Foley having suffered from sciatica and artery disease. About nine months ago, I was caught in the streets screaming with pain from sciatica. I went to a chiropractor and then to an orthopedist and then to an anesthesiologist and then to a physical therapist. I was shunted around based on gossip that I heard from various people.

I finally had a very good result, but I feel that the whole health-care system is just like any other business, that doctors learn what they learn, nutritionists learn what they learn, and chiropractors learn what they learn, and that is what they use to practice with. I had another incident with my cardiologist because 22 years ago he said forget about vitamin C and vitamin E. Now he tells me to take 400 units of vitamin E and to take a multivitamin health-care pill, and he says to take niacin. So he seems to be moving in the direction of what I read in *Prevention* magazine 20 years ago. My observation is that the caregiver is governed by his training and education and experience to do what he or she knows how to do, and whoever the caregiver is, he or she is probably blinded to other alternatives and methods because of his or her education, training, and experience. I agree with Dr. Kardos about empowering patients to make decisions and to understand everything there is to know so that a patient can make an informed intelligent decision. I do not have a specific question, but I have an observation, and I wonder if you can comment on it.

Mr. Foley: Let me just make an observation back to you. It is my sense that if you stand back and look at the three presentations, and they all appear to be different and going different directions, but Steve's comments in a sense tie all this together. Maybe what we are talking about is, administratively, that we need some kind of mechanism that melds all these things together, and that maybe it should be in the direction that his organization is going in, so that we can get the right arm knowing

what the left arm is doing, all aimed at taking care of that particular patient and getting the patient actively involved in that patient's care. I often wonder if the social worker in our country should not be put up on a pedestal, because it may very well be that a large part of our problems are social interaction, and if we could solve some of those, then a lot of our health-care needs and other needs go away.

Ms. Halvorson: This is an example, also, going back to the education of providers. M&R has developed *Healthcare Management Guideline*s, which provide some clinical protocols—what should be done, when should referrals happen, things like that. We have seven of them now. Some of these were being used at the University of Georgia Medical School. Anyway, the times are changing, and I hope it is filtering down to the education system as well.

Dr. Kardos: We employ many different techniques in managing utilization, and our nurses use the M&R guidelines. We find them very useful at least in terms of what is an expected range. If you have a mother who is a single mother and has a baby for the first time, a 24-hour hospital stay may be inappropriate, especially if she has not had adequate prenatal advice or some sort of a program to give her enough education as to what to do. On the other hand, you may have a mother who has five children at home and wants to have a baby and go home, and she is physically and mentally able to do that. She could do that. I think that guidelines are guidelines, they are not rules. The problem is that many people use guidelines as rules. In medicine you just cannot do that.

Mr. Gregory G. Fann: I think you hit the nail on the head, and I appreciate the personal perspective. I think if many of us took the initiative that you did, we could do more to control our health-care costs. I think it is clear that you are smarter than most of us.

For most Americans, their first instinct at the onslaught of a problem is not to go to the nearest bookstore, check out a book, read it, and solve most of their health-care problems. I think we are so far entrenched in the mentality that the medical profession, the insurance companies, and the government are to take care of this, that we do so little as individuals to take care of ourselves. I wanted your opinion on the recent proposals and regulations we have seen, particularly in the small group and individual market, that have been saying it is the insurance company's responsibility to provide information. I want to know what you think as insurance companies and HMOs and from the point of view of a regulator what needs to be done to instill that personal incentive. I think what Dr. Kardos said about empowering patients was a good choice of words. What is it that we need to do to effect that?

Mr. Foley: Again, if you look at the presentations, it could be what Steve is talking about is the very motivation that is going to drive HMOs and insurers either to adopt different strategies, adopt different positions, or they are no longer going to be viable. I am overwhelmed every time I hear speeches like the one we heard. It is astounding, the speed with which things are changing. What little bit I know about Steve's program, it sounds to me like it has many very positive benefits. My mother and father cannot think of a thing related to their own care that they would not put that in the hands of someone else. They do not take responsibility at all for their care. You call and ask, "How do you feel?" They respond, "I don't know how I feel. I have to ask the doctor." It is almost to that extreme. We have brought that on ourselves. The insurance industry brought that on itself because of the way we designed products, which led providers to do things the way they have done them. I think it is going to change. The one question that I have is, Are insurers going to be viable tomorrow? Tomorrow is coming very soon.

Mr. Robert M. Duncan, Jr.: You can go back 20 years to a book called the *Vickers Book, Take Care of Yourself*. We used it in California in the Blues and passed it out to all of the large accounts. It went to hundreds and thousands of subscribers, and we offered them a 15% discount in their premiums if they would just read the book. Their claim costs went down 20% after the first year without any change in the benefit plan whatsoever. The question for you, Tom, is all of these things that are called allopathic, I believe, fuel costs, and the more governments impose mandated benefits on people, I think these will begin to build up into costs that may not be necessary, particularly if people are going to take better care of themselves.

My question to Audrey is, When you evaluate a new procedure, do you evaluate in terms of what may happen as a result of that, that the mix and selection of people who will take that procedure, will actually increase the cost of the system? For example, when doctors were discouraged from doing bypasses, they were then encouraged to do angioplasties. The total cost of heart surgery work that was nonemergency proceeded to go up, not down, because the procedure costs less and could be done faster, but more people had it done. Do you take those things into account? When we talk about mandating benefits, if we are going to compound benefits over and over again because they are going to produce unit savings as opposed to system savings, they end up costing the system more.

Mr. Foley: I had the great experience of testifying in front of a legislative committee, and part of what we were talking about was mandated benefits. Part of the reason we were talking about that is they were talking about the advisability of parity for mental health. The argument that the Republicans were making is that, if these things were cost effective, then insurers would do them voluntarily. I was trying to get them to understand that, if an insurer could be assured that it would be

started with 1,000 people today and implemented cost-effective techniques, if it could still have those 1,000 with their program ten years from now, then the insurer would voluntarily do many things. In fact, in North Dakota, Blue Cross/Blue Shield has 70% or 80% of the market. It voluntarily does a lot of things up there, because it has such a huge market share and it knows it is going to be cost effective. Our great opportunity and the reason we have had mandated benefits is because the industry will not voluntarily do things, and the reason the industry will not is because it cannot see that it is going to reap the benefits due to the large amount of movement of insureds throughout the industry.

I do not disagree with backing off of mandated benefits. I am not a big advocate of mandated benefits. I am a big advocate of trying to make a regulation work in such a way that companies can offer whatever it is they want to offer and just disclose the heck out of it, so that consumers have some reasonable opportunity to know the pluses and minuses of what they are buying. It has always been my observation that the reason we have to mandate is because we have historically had so much fluid movement and that all these cost effective measures take place in large employer-sponsored groups where they have a much better opportunity of reaping the downstream benefits of doing innovative things.

Ms. Halvorson: In answer to your question to me, we develop the projected costs and savings under a well-managed system, so we start off with the assumption that there is no waste, that essentially only the procedures that need to be done are going to be provided under all options.