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Financial Measurement of Transplants

Track: Health

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Summary: A physician and an actuary present their techniques for the financial measurement of transplants. Topics include:

- *Frequency and trends of transplants*
- *Costs and value of transplants/outcomes*
- *Physician perspectives: health plan or patient*
- *Politicization of transplants*
- *Bone marrow transplants: Armageddon?*
- *Transplant networks.*

Mr. Harry L. Sutton, Jr.: Our discussion will look at data regarding the incidence of various types of transplants and their cost. Our first speaker will be Dick Hauboldt, who's an actuary at Milliman & Robertson in Milwaukee and a graduate of the University of Wisconsin in Milwaukee. Although he works in all areas of health care from individual insurance to managed care or HMOs, probably one of his major jobs is publishing research reports on transplant incidence and current cost levels. These cost levels are average retail prices, and do not reflect in any sense what anybody is paying for them.

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Our second speaker is Del Ohrt, who is a physician. Del is a graduate of the University of Nebraska. He's a pathologist, and believe it or not, even though he's a physician, he went to the MIT School of Management. He was senior vice-president at the Blue Cross HMO called Blue Plus in Minnesota, and now he's semiretired as a senior medical consultant to all Blue Cross programs in Minnesota. He will talk about some data that the Blues have been collecting for a few years about the incidence of different types of transplants and discuss some of the political events in Minnesota. We tend to be a very socialistic state, almost like Colorado.

Last, I am going to present some information primarily on autologous bone marrow transplants, and discuss a study that I did in early 1995. My company operates a large transplant network, and I'll give you some information about the frequency of these transplants in our system. I am not at liberty to release prices of anything in particular, but I will give you price ranges for some of them. If we have time at the end, we can discuss some of the political and cost implications, particularly of the autologous bone marrow transplant for breast cancer, which was a very hot political issue a few years ago. I hope you will find this interesting. We may have a little time for questions at the end.

Mr. Richard H. Hauboldt: I will provide a bit of history, as well as projections. I'll be talking about the number of organ and tissue transplants, which includes bone marrow transplants, and the number of centers or programs out there. We will also be looking at the percentage increase. I think you'll find some interesting relationships between the centers and the number of transplants. Then we'll go further into talking about the national retail charges that we try to estimate, and we'll finally wrap it up by giving you an idea of the per month per member (PMPM) cost, which would be on a population basis that doesn't include administrative costs or any type of load for variation. It's a starting point to get some focus on the dollars involved.

Let's discuss the historical perspective as well as a projection of the current number of transplants in the U.S. Basically, through 1994 it's actual data. Most of it comes from the United Network for Organ Sharing. There is a time lag. We have seen 1995 numbers, and we believe they are fairly consistent with the 1995 numbers that we are projecting, but they are not yet complete. In fact, even 1994 and years prior always have a little bit of an additional completion; there's correction of data and things of that nature. The 1995 numbers for cornea transplants are actual; when we get to bone marrow transplants, all past and future values are estimates. We'll talk a little bit about that.

We're going to cover several types of organs. We expect that in 1996 there will be about 2,500 heart transplants. That's an increase of 400 transplants since 1991.

Liver transplants have increased by 1,200 from 1991 to our projected number of 4,200 for 1996.

There is a much larger number for the kidney transplants. Most of that coverage is provided under the end-stage renal disease program. We're looking at about 11,400; we expect about 90% of those transplants will in some way be paid for in whole or in part through the end-stage renal disease program. Overall, there is about an 1,800 increase in the number of transplants since 1991.

In contrast, pancreas and kidney/pancreas transplants, when done jointly in 1996, were at about the mid-1,200s. They have increased about 700 from 1991. Most of the transplants in that category are the combined kidney/pancreas. In the data we've seen (I think the latest data is from 1994), approximately 90% of all pancreas transplants are done jointly as a kidney/pancreas transplant.

Let's go on to heart/lung. Very few are still being done. There are only about 80 or so expected in 1996. Only up 30 from 1991. One of the reasons that heart/lung transplants have not increased much is because lung transplants have taken over. Lung transplants can be done for people who previously might have been candidates for heart/lung, and it's working out better. Lung transplants have taken off quite a bit. Just under 1,000 is what we expect. It has basically doubled since 1991. Again, when the number of transplants are very few to begin with, you expect more rapid growth going forward.

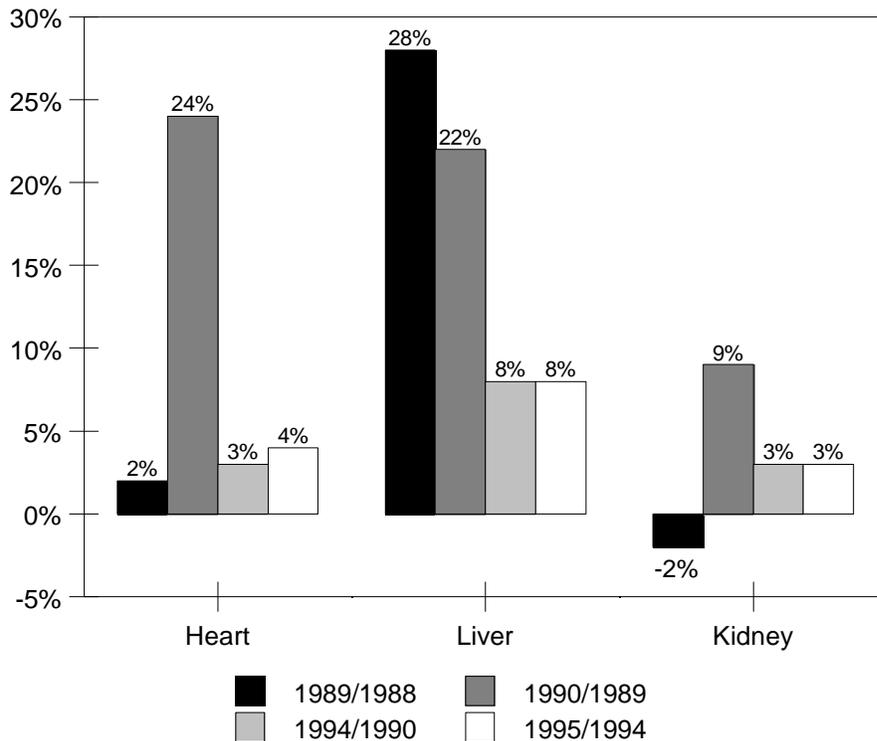
The cornea transplant figures represent all ages. Roughly about two-thirds are done for those over age 65. In the commercial population you wouldn't see nearly as many. But about 45,500 are expected in 1996, up about a little over 4,000 transplants since 1991.

Finally, we come to bone marrow transplants. It seems I get the most calls about that. All of these are estimates. Bone marrow activity is not tracked by the United Network for Organ Sharing, so we have to base our estimates on sample data available from the various registries. The registries have not reviewed our work. We use judgment to try to estimate the numbers.

In May, a press article in Milwaukee came out with the 10,000 figure for 1995, and we've projected that to about 11,000 for 1996. There is a significant increase, going back to 1991, of about 4,000. But even 1991 is still based upon a sample, and so the sample size can certainly drive the number of transplants that were estimated at that point.

Chart 1 converts the increase in the number of transplants to percentages. You'll see that for heart, liver, and kidney transplants, the percentages are still increasing, but they're increasing at a lesser rate. Again, as more and more of these get done you would expect that it is going to be more difficult to sustain a rapid increase. But the key here is that it's still increasing. Often when we encounter health plans pricing transplant riders, they will think about what's happened to the charge level and that type of thing, but forget that the number of transplants is increasing despite the scarcity of organs.

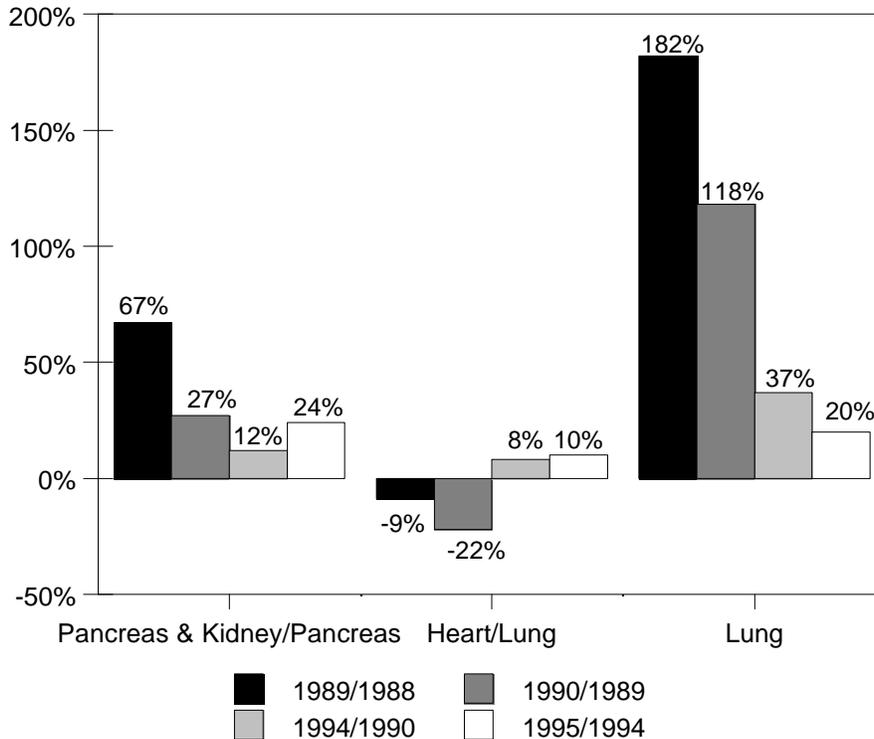
CHART 1
ANNUALIZED PERCENTAGE INCREASE IN NUMBER OF TRANSPLANTS



The expected percentage increase for pancreas and kidney/pancreas transplants combined is much more for heart, liver, or kidney, which range from about 3% to 6% going into 1996. The data shown in Chart 2 for 1995 over 1994 show a 24% increase. We're expecting a 20% increase going into 1996. Heart/lung has been relatively low, but still you're looking at about a 10% increase into 1995. We expect the rate to be slightly less than that, about 8%, going into 1996. It is still significant when you consider you need to also add the charge trends. Finally you'll see the lung trend, and it shows sharply reducing increases. Remember that lung started out five years ago at about 500 transplants and is now up to about 1,000. So as the base gets bigger, it's more difficult to sustain the growth. The

number in 1995 shows it's a 20% growth rate. We're expecting that to slow down as the base gets bigger to probably about a 10% increase into 1996.

CHART 2
ANNUALIZED PERCENTAGE INCREASE IN NUMBER OF TRANSPLANTS



An interesting thing we do is to track the number of centers. It's actually more correct to call them programs. A particular hospital could do heart and liver transplant and that would qualify as two programs, but it's really one center. In Chart 3 you see a similar pattern of the increasing number of centers for heart, liver, and kidney transplants. I'm not going to say too much about the numbers. For pancreas, heart/lung and lung, the same thing is true (Chart 4). The number of centers or programs is increasing.

Chart 5 shows an increasing or decreasing rate in the number of centers. For heart, liver, and kidney transplants, again, the rate of increase is coming down. If it looks amazingly suspicious that these look just like the slides I showed you before, we have graphs coming up that will really point out how closely related they are. We're getting down to smaller numbers here. We're expecting, for 1995, only a 1% or 2% increase in heart and liver centers, and a slight decrease, less than 1%, for the number of kidney centers. If you recall earlier, we were talking about basically single-digit increases on the corresponding number of transplants. Chart 6 is a similar graph for pancreas, heart/lung, and lung transplant centers; the rate of increase is slowing down.

CHART 3
NUMBER OF CENTERS/PROGRAMS
FOR HEART, LIVER, AND KIDNEY TRANSPLANTS

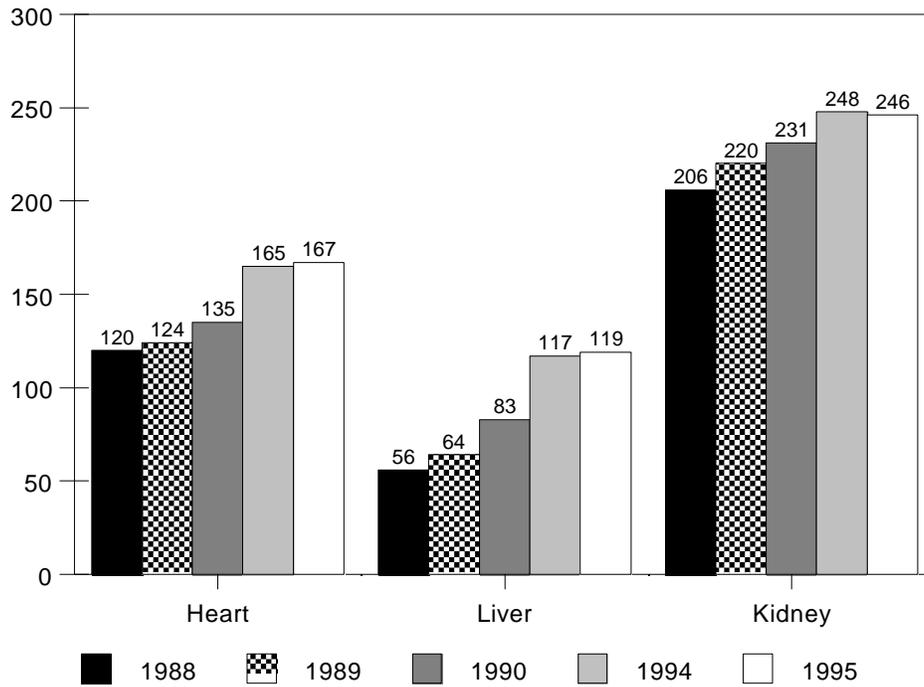


CHART 4
NUMBER OF CENTERS/PROGRAMS
FOR PANCREAS, HEART/LUNG, AND LUNG TRANSPLANTS

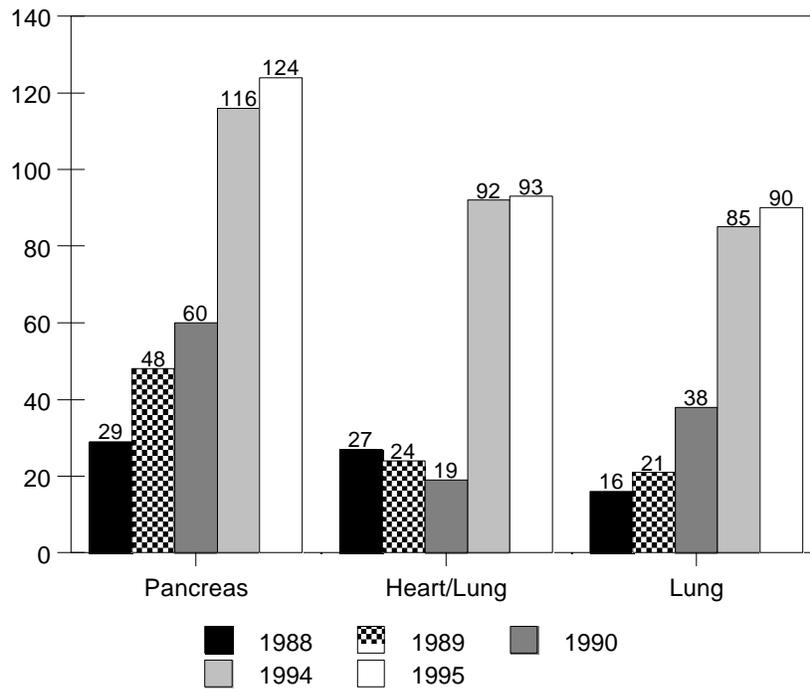


CHART 5
ANNUALIZED PERCENTAGE INCREASE IN NUMBER OF CENTERS FOR HEART, LIVER, AND KIDNEY TRANSPLANTS

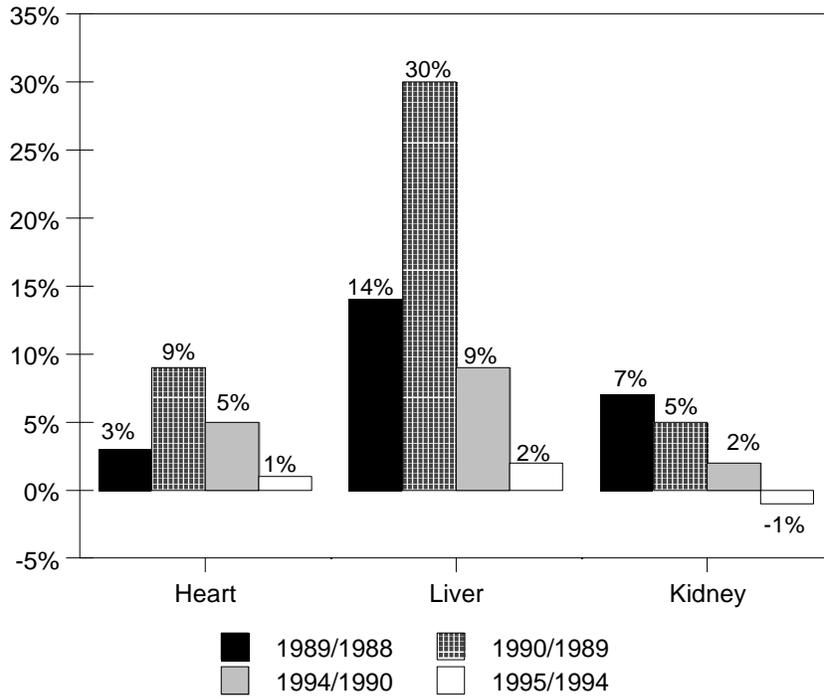
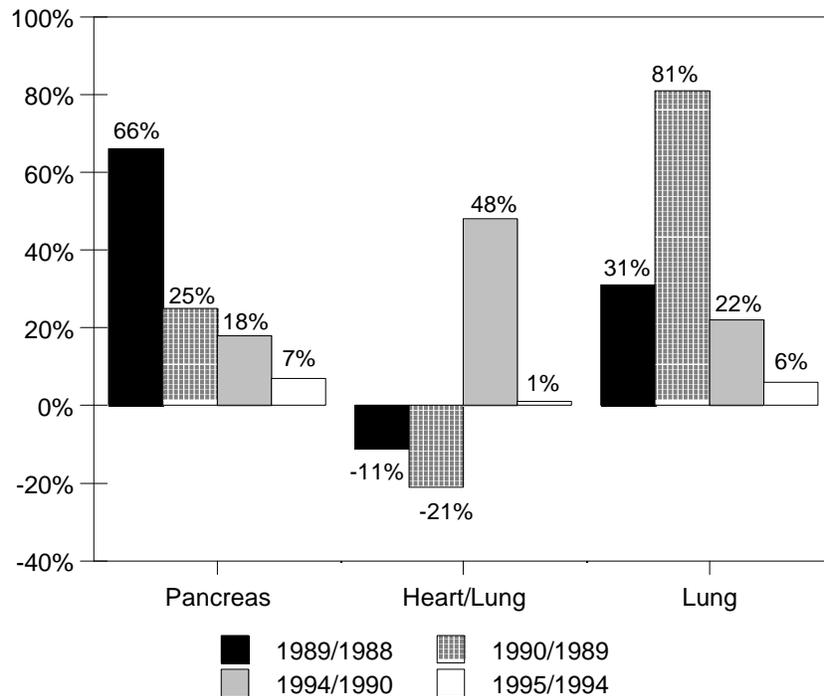


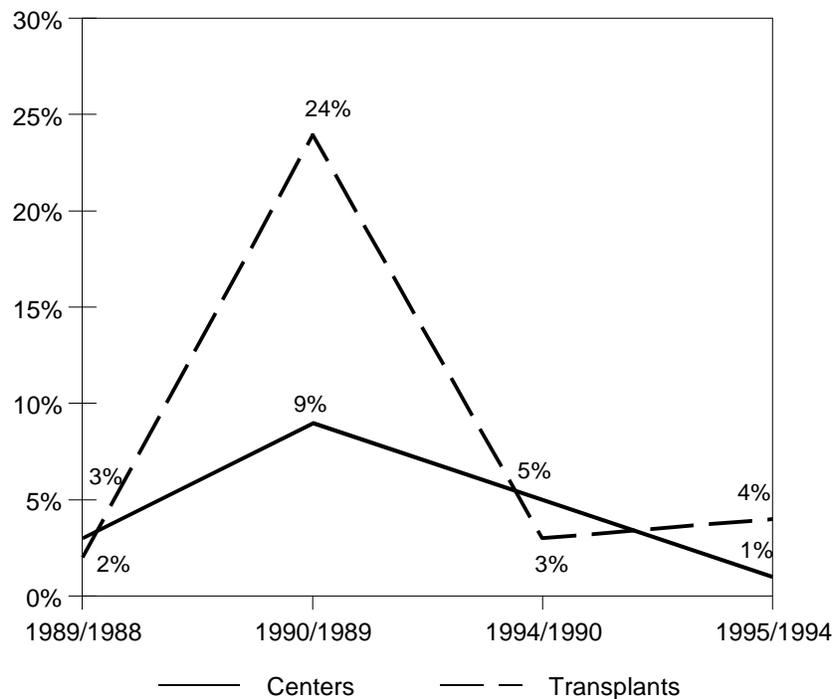
CHART 6
ANNUALIZED PERCENTAGE INCREASE IN NUMBER OF CENTERS FOR PANCREAS, HEART/LUNG, AND LUNG TRANSPLANTS



You can look more at the numbers, but I think Charts 7–12, which graph the percentage change in transplants and number of programs, is what you'll find most interesting.

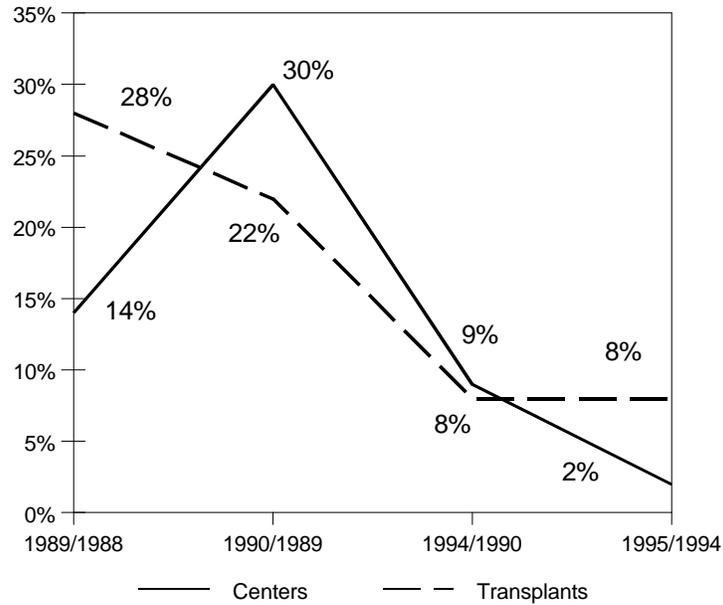
We have two lines in the graphs. One shows the percentage increase that you saw in the bar graphs for the number of transplant centers, and the other is the percentage increase for the number of transplants (Chart 7). Although we haven't done any statistical tests to see whether there's a perfect correlation, it's remarkable how they move in step with each other.

CHART 7
ANNUALIZED PERCENTAGE INCREASE IN NUMBER OF TRANSPLANTS
AND CENTERS FOR HEART TRANSPLANTS



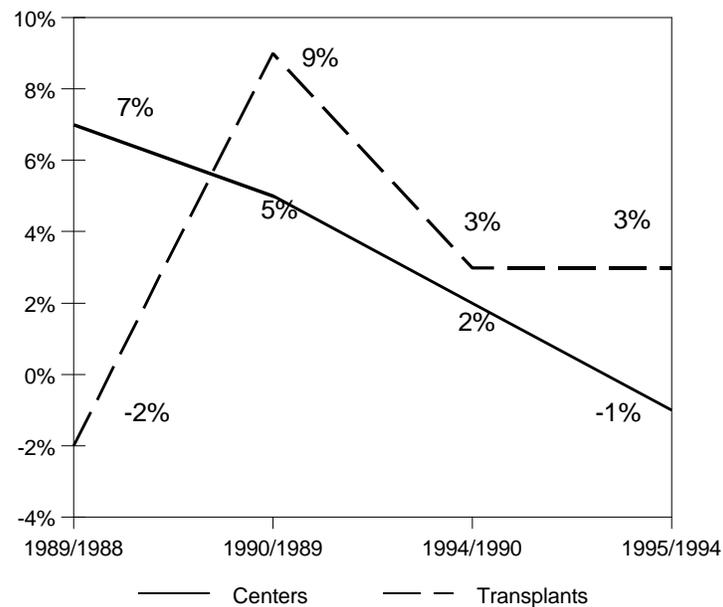
You'll see similar relationships for liver transplants (Chart 8). They started out a little bit different back in 1989. One would ask why, with the scarcity of organs, the number of centers goes up. A phrase I use is, "If you build them, patients will fill them." Are there more resources out there that haven't been tapped? Are people making more effort to get donors? Basically, the number of centers keeps increasing and the number of transplants keeps increasing as we go along.

CHART 8
ANNUALIZED PERCENTAGE INCREASE
IN NUMBER OF TRANSPLANTS AND CENTERS
FOR LIVER TRANSPLANTS



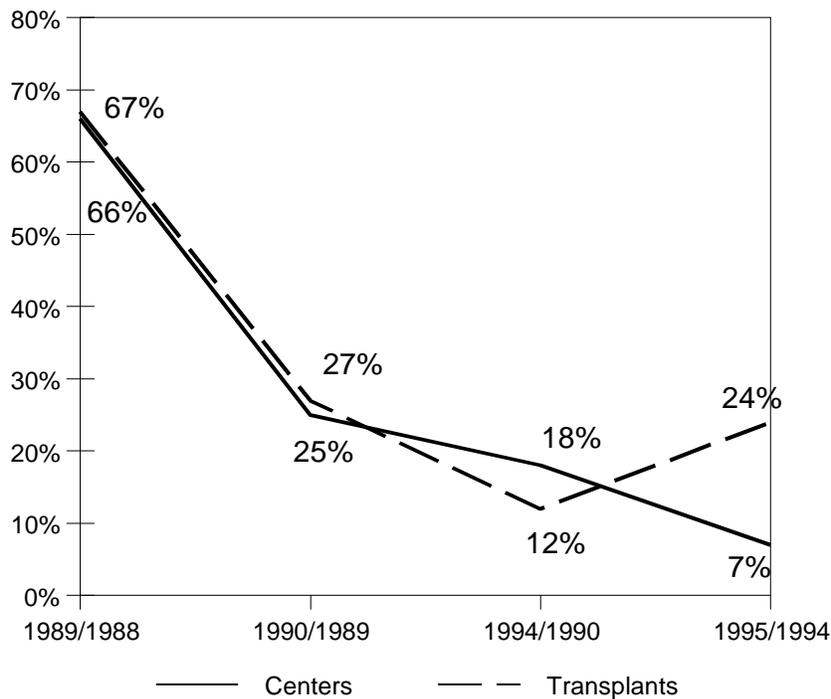
The graph is similar for kidney transplants (Chart 9). Again, it's not a perfect match, but since 1989 there has been almost the same percentage increase for centers and number of transplants.

CHART 9
ANNUALIZED PERCENTAGE INCREASE
IN NUMBER OF TRANSPLANTS AND CENTERS
FOR KIDNEY TRANSPLANTS



Pancreas transplants are one of my favorites because they match well (Chart 10). Things are a little bit different as we are going into 1996. Part of the reason is that it is based on our projection. Again, one has to ask, which came first—the chicken or the egg? Is this something that's driving the utilization rate of transplants in the U.S.? Heart/lung transplants do not show a perfect correlation, but a similar pattern (Chart 11). And, finally, for lung transplants after 1989, the lines are almost parallel to each other (Chart 12).

CHART 10
ANNUALIZED PERCENTAGE INCREASE
IN NUMBER OF TRANSPLANTS AND CENTERS
FOR PANCREAS TRANSPLANTS



I guess now if you've been doing your math, and I guess as good actuaries you should have been, the next couple of charts won't be a surprise. If you take a look at the average number of transplants per center, what's happening is that it's very stable. That does not mean that every transplant center is doing the same number. You will find if you look into the data that the more experienced centers are increasing the numbers that they're doing, but we're having more and more new centers entering, which do lower volume. In aggregate, what we're looking at is that the number of transplants per center has been quite steady.

CHART 11
ANNUALIZED PERCENTAGE INCREASE
IN NUMBER OF TRANSPLANTS
AND CENTERS FOR HEART/LUNG TRANSPLANTS

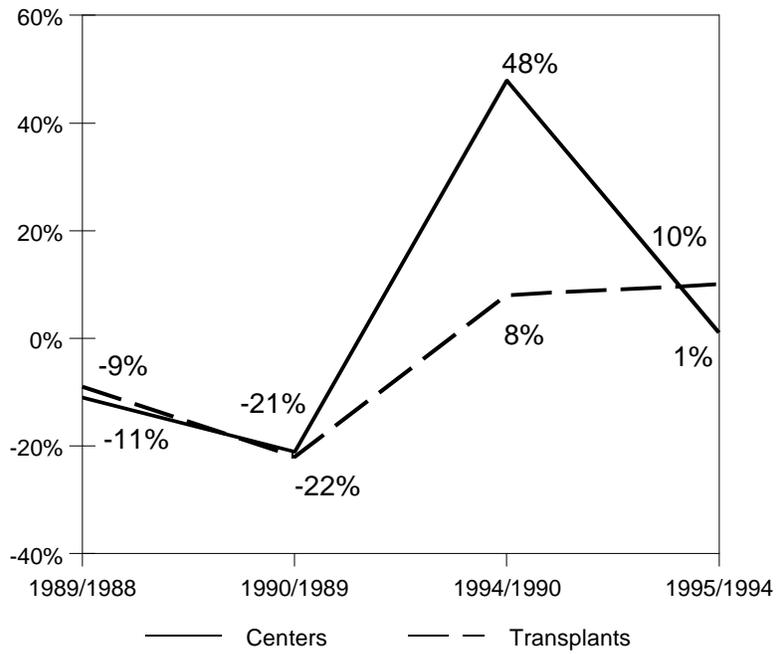
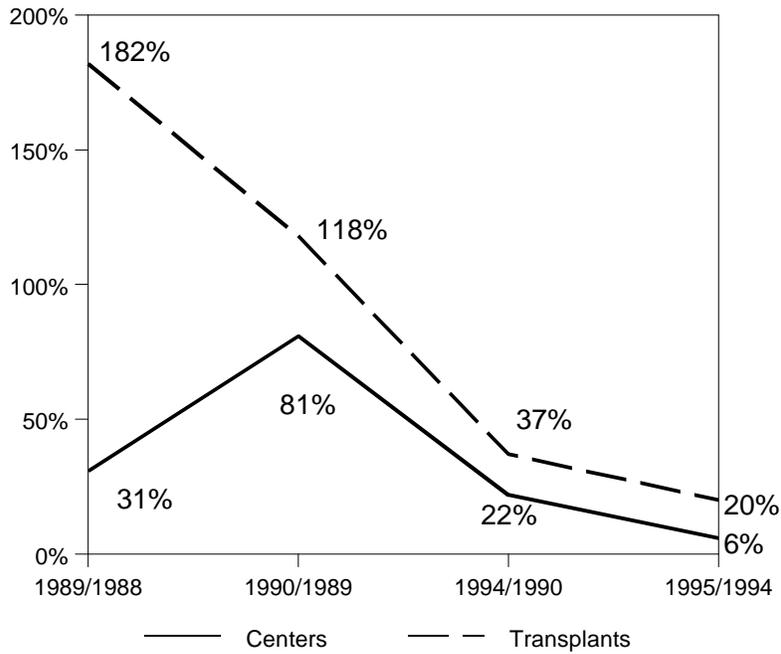
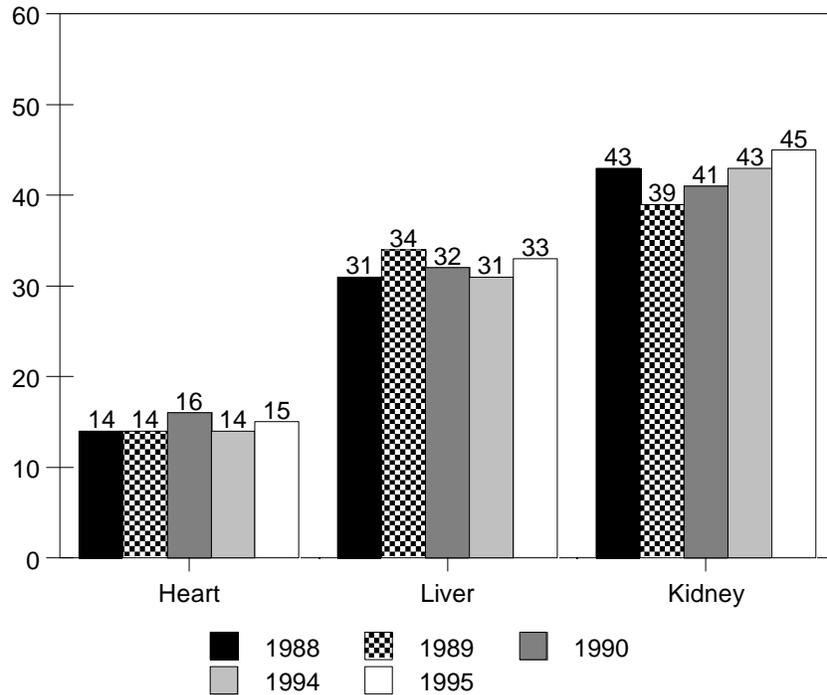


CHART 12
ANNUALIZED PERCENTAGE INCREASE
IN NUMBER OF TRANSPLANTS AND
CENTERS FOR LUNG TRANSPLANTS



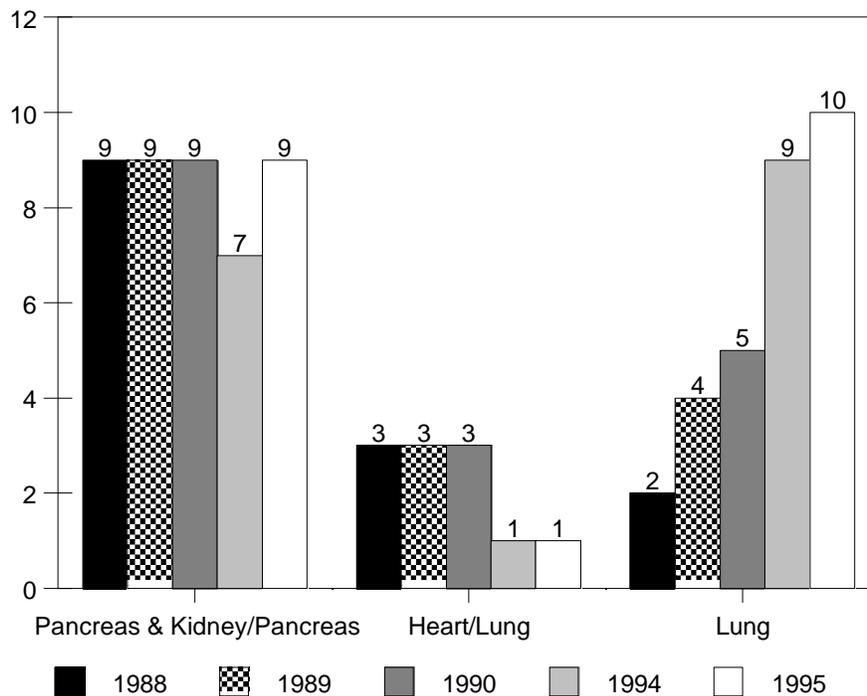
In Chart 13, heart transplants are at about 15 transplants per center in 1995. Liver is at about 33, and it has been very stable in that range. Kidney has ranged from about 45 to 39, which is, again, a very small variation.

CHART 13
AVERAGE NUMBER OF TRANSPLANTS PER CENTER
FOR HEART, LIVER, AND KIDNEY TRANSPLANTS



Looking at pancreas and kidney/pancreas combined, heart/lung, and lung, we see that pancreas and kidney/pancreas combined is quite stable, ranging from 7 to 9 transplants per center (Chart 14). Heart/lung numbers look a little bit deceiving because the numbers are so small. They had been at an average of three, but now it has been dropping to one. And, again, you'll recall that we are only expecting maybe about 80 transplants in 1996 for that type of organ. Lung has been increasing. It started out at only two, and it's up to ten. I don't know if that's where it will stabilize. Again, we think when you increase to about 1,000 transplants a year, the trend rate starts to slow down and that might be about where we are at this time for lung transplants.

CHART 14
AVERAGE NUMBER OF TRANSPLANTS PER CENTER
FOR PANCREAS, HEART/LUNG, AND LUNG TRANSPLANTS

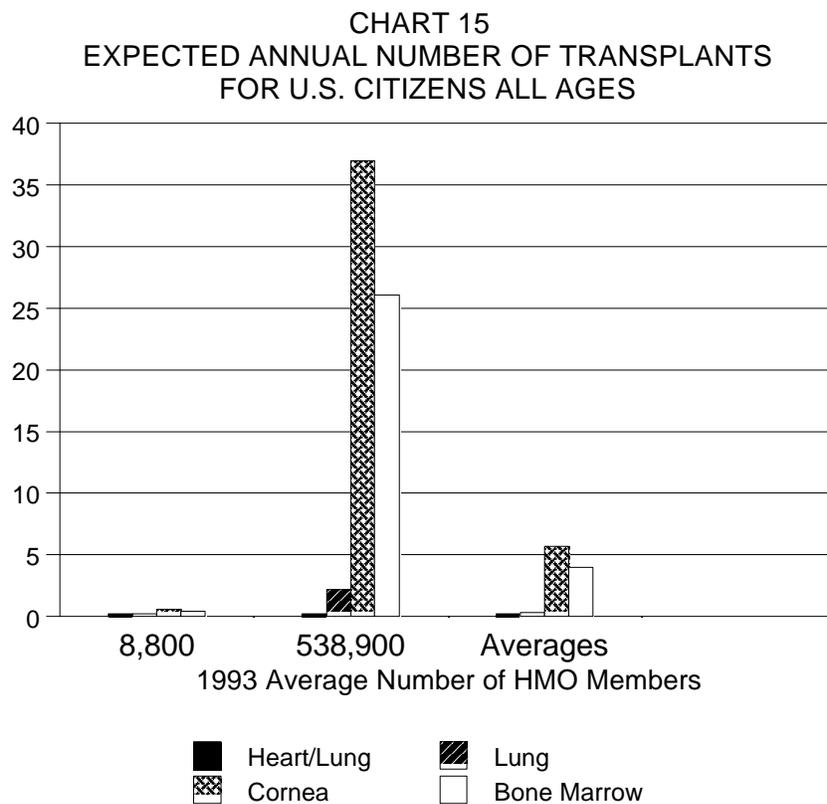


One of the things that has also been increasing is the transplant waiting list. This is not necessarily an indicator of the need for transplants. In fact, a study by Battelle Research talked about the need measured by the clinical necessity to treat the underlying disease in a 1990 study. Generally, the need was probably three to four times the waiting list at that time. It depends upon what age range you would include. In fact, some of those patients would have contrary indications for any type of surgery, much less a transplant. The heart, liver, and kidney transplant waiting list is increasing fairly rapidly. Some of that comes about from the types of diseases that we will treat, as well as changing the requirements for the waiting list. The kidney waiting list is probably a reasonable indicator of the need, according to the articles that I've read in the clinical journals, etc. Often the other waiting lists are significantly below the need.

So in total about 33,000 people in the U.S. need a kidney transplant. What's interesting is that just several years ago, when we were looking at that need, supposedly it was 19,000. I'm not so sure if this is really the measure of the true need. It is significantly more than the annual number of transplants being reported right now. In the U.S., we are only talking about 12,000 or so kidney transplants.

The transplant waiting list for pancreas and kidney/pancreas has increased rapidly. Heart/lung transplants, despite the fact that only 80 are done a year, has a 200-person waiting list. And for lung, which now we're pushing almost to 1,000 transplants, the waiting list is up to 2,000 transplants required. After you've looked at the rates of increase, one of the things you need is to project the absolute level. Let's compare the expected number of transplants for heart, liver, kidney, and pancreas for various plan sizes.

For lack of anything else, we used HMO plan sizes from a 1993 survey by the Group Health Association of America (GHAA) that had HMO plan size by several groups. Refer to Chart 15.



I think the smallest plan size was under 19,000 members; the average of that plan size was 8,800 members. The largest HMO category of over 500,000 members had 538,900 members. Averages refers to the average HMO which had 82,900 members at that time. We took the transplant frequency rates for those under age 65 and applied them to these population bases. There is the expected or average number of transplants of that type by size of a plan. As you can see, for a very small plan the numbers are rather ridiculous; they don't even register for these types of transplants. Naturally, in the real world you are going to get zero, one, two, or three, etc., and there is significant risk as far as the variation of the number of

transplants that you're going to get. Once you get a large plan size it becomes more measurable. Even for the average size HMO, for these types of transplants there will be about six transplants for heart, liver, kidney, and pancreas. Remember that probably 90% of kidney transplants will be covered under the end-stage renal disease system. So any commercial plan would probably have minimal exposure as far as the cost.

The situation is similar for the other type of transplants that we track: heart/lung, lung, cornea, and bone marrow. Again, heart/lung, as you'd expect, hardly even registers. It takes several decimal places before you see it. Again, you're going to get discreet numbers. You are not going to get the average. One could average the results over a number of years, because the frequency is so small. For cornea, for example, with the 538,000-member HMO, 37 transplants are expected. Although we have all ages in the population, which would include any HMO, Medicaid, and Medicare members, we have applied the under-65 rate to that. Cornea is the only one that has any significant transplants for over 65. You'd have many more if you were looking at a significant over-age-65 population, but we couldn't quite remove the population data over 65. I think there are about three million HMO members of the 35 million age-65-and-over population who might be in managed care plans, mostly through Medicare risk programs.

Next, we've put together a charge estimate for 1996, and (if you are familiar with the research reports that we put out), it shows the estimate of the billed charges that we had in our 1990–93 research papers. The difference between these does not necessarily indicate a charge trend, because as we go forward we get a better data source, and it also reflects a correction of past information, if you will. Again, it is a significant increase. We're looking at a heart transplant costing about \$255,000 in the first year, which includes all hospital/physician costs, organ procurement, some follow-up costs, outpatient immunosuppressants, as well as any pre-evaluation.

In fact, if you're familiar with our research report, we throw in a month's worth of medical cost for candidacy. That piece could arguably be excluded from the calculation because any kind of major medical plan would probably cover that anyway. For a liver we are talking about \$316,000, for a kidney about \$117,000, and for a pancreas about \$126,000. These are retail charges based upon hospital surveys by Health Care Institute of America (HCIA) done for the hospital side. Organ procurement data come from state databases that we've looked at. The physician data come from looking at a survey such as Health Insurance Association of America (HIAA) or MDR. We also match that against McGraw Hill unit factors. It is interesting that there are now relative value factors for the physician portion of the services related to transplants, and some people are actually using them. It will make tracking a little easier if we look at things on a retail basis.

For heart/lung, we are seeing the first-year cost of about \$273,000; lung is about \$268,000; cornea is only \$8,000. We don't get too many questions on cornea because of the cost, and it has been done for many years. The \$8,000 cost is a combination of inpatient and outpatient costs based on about 80% being done on an outpatient basis.

The bone marrow charges are a combination of autologous (patient's own tissue) and allogeneic transplants, which is where you have the related and unrelated donors. The autologous transplant is where the bone marrow or bloodstem cells would be collected from the donor, who also is the patient. Autologous transplants tend to be cheaper. The \$227,000 cost is an average of the two. These are close to the numbers that will appear in our research paper. I think for most of the types of transplants they are quite close. I believe the bone marrow is going to come down about \$9,000 when we finally publish the report as we're refining a couple of the pieces on organ procurement costs.

So what does this all mean when you add it together? Table 1 is a five-year survival adjusted cost. We have a \$2.95 PMPM cost, so that picks up the number of cases that we talked about—the first-year charge and four more years of follow-up charges. The comparable first-year cost for the \$2.95 effectively is \$2.25 on a PMPM basis. And, again, for tracking purposes, data after the first year, or even after the discharge, get very difficult to obtain. So follow-up costs are mostly based on judgment. Also included in the follow-up costs, as well as in the first-year costs, are outpatient immunosuppressants, which are based upon the cost and the protocol for cyclosporin.

TABLE 1
1996 PROJECTED TRANSPLANT FIVE-YEAR COSTS
UNDER-AGE-65 U.S. CITIZENS

Transplant	PMPM
Heart	\$.27
Liver	.55
Kidney	.67
Kidney/Pancreas	.08
Pancreas	.01
Heart/Lung	.01
Lung	.11
Cornea	.05
Bone Marrow	1.20
	\$2.95

As you can see, some PMPM costs are very expensive, and some are very inexpensive. The main driver is the frequency. All transplants are very expensive on a per case basis. A key to note is the kidney transplant, which is \$0.67 PMPM over five

years, but in the first year it would only be \$0.45. You are probably not going to see 90% of that as a commercial payer because of the end-stage renal disease program. You might be exposed to only the Part A deductible and 20% co-insurance portion under Medicare. The heart transplant cost is \$0.27 PMPM, and the first-year portion is about \$0.22. For liver, the five-year survival adjusted costs are \$0.55 PMPM; first year is \$0.44, and on down the line the kidney/pancreas combined first year is \$0.06 PMPM compared to the \$0.08 that appears for five years. The next two, because the numbers are so small the first year and five years, will both come out to be a penny, with some liberal rounding because the frequencies are so small. For lung, \$0.11 PMPM over the five years; about \$0.09 is for the first year. Cornea is \$0.05 PMPM either way because we assume there is no follow-up cost at all for a cornea transplant. And finally, bone marrow is \$1.20 PMPM, about \$0.92 of which is first-year cost.

So overall when you are looking at the PMPM costs, you have just an average. Obviously you will have some large variation in the frequencies because they are so small. You have a very large variation on the charge side. The averages we talk about do not give any indication of the range. It could be as low as \$50,000 for someone who didn't survive long, to over \$1 million. There is a huge variation and some of that can be related to the type of disease the patient has. Most of the cost variance directly corresponds to how long the patient is in the hospital, and the length of stay shows a significant variation as well. So with that I've given you a historical background and a little perspective of where 1996 would be.

Dr. Del Ohrt: Harry said I went to a management school. Some of you are probably out there thinking, physician/manager—that's an oxymoron if I've ever heard one. Some days when I was playing senior manager I thought that, and I'm sure that my staff did, too. Now I'm a physician. Blue Cross is my main client at the present time. I work for them half the time. I also work with other companies. I work on my reading and improve my knowledge base.

Dick Hauboldt has given us a good perspective of what is going on in the broad picture, particularly the rate of increase in solid organ transplants across the country, and, to an extent, certainly in bone marrow transplants, which gives people like me a fair amount of gray hair. My objective is to share with you some of the high points of the whole transplantation issue as far as history, the current environment, and some problems faced in the last few years. We'll make some useful suggestions that you can carry back to your own organizations that consider the standpoints of the physician consultant, the patient, and the provider. With me representing my plan right in the middle, perhaps we can look at some things that will help you avoid the difficulties we have gotten into. I will hit only the high spots.

My perspective is that of a medical director of an insurance plan. I want to clarify that right off the bat. The biggest and best part of my job for ten years was trying to develop rational medical policies with the help of a physician panel, some internal to the plan, and then trying to implement that policy in an even-handed, fair manner across all the different stakeholders. Most of the time that worked. But in some of these life and death issues, it got to be really fairly sticky. Now, there are special interest groups back home in Minnesota that would consider some of the recommendations and comments to be less than fact and possibly downright heresy. That's an important political issue as we try to bring sense to an ever more difficult arena. In my opinion, the conflict that exists between health plan policymakers and special interest groups makes it very difficult as far as good, common sense decision making is concerned. If you disagree with that, then tell me, because then I'll learn something.

First, a little bit of history. The whole issue of transplants was irrelevant to me as a practicing pathologist in southern Minnesota until 1984. At that time I was one of the officers of the Minnesota Medical Association, and one of our constituent societies brought an issue to us. Blue Cross was proposing to put out an amendment offering coverage in its self-insured and larger insured groups to provide transplants. Only hearts were common at that time. This physician group, representing a large county medical society, felt that organ transplant technology was unproved and could not easily be managed, either by the patient's physician or by the health insurance industry. And that certainly has been and continues to be true. The marketplace clearly wanted such an amendment and with Blue Cross enrollment dropping, it had to do something. The marketplace certainly won out.

Now, when I returned to the state as medical director of Blue Cross in 1986, heart transplants were clearly established technology. They weren't doing many, but they were doing some. Liver transplants were coming. The Jamie Fisk case and Dr. Najarian were on the news every night. Our debates with the transplant centers, which started back in 1986, were over bone marrow transplants. First there were allogeneic transplants from related and unrelated donors, and then came the autologous transplants. These were used for a growing variety of disorders. Part of the increase of bone marrow transplants is simply that the list of indications with indicated efficacy is increasing. How do we think about and deal with this as a society? We have no answers as a society. Therefore, it is very hard to make decisions at the plan level.

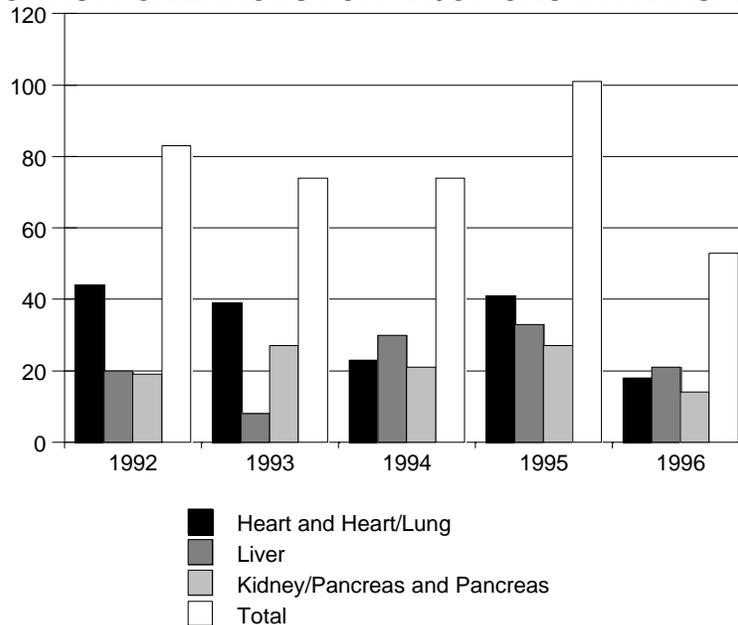
It was clear back in 1986–87 that a very key notion was planted in the mind of the patient. It is often repeated; I see it in the newspapers, and legislators even say it: "If it is right for me, then my health plan should pay for it." That's the dilemma! Nowadays, in too many cases it has nothing to do with medical necessity or

appropriateness or contract. Let's take a quick look at some of the statistics for Minnesota. First, however, I want to just share with you a little comment from Peter Drucker. As we deal with issues we find in managed care, we are trying to make operations more cost efficient. Transplant centers might start asking, why are we covering the transplants? Why are we getting ourselves into this difficult issue in the first place? Blue Cross plans are certainly looking at this in many parts of the country at the present time.

The enrollment growth of our plan, looking back over the last 16 years, was good in 1980 but dropped off to a very low level in 1983–84. The HMOs were clearly eating Blue Cross for lunch. I was with the Minnesota Medical Association at that time, and we considered that Physicians Health Plan, one of our major competitors at that time, was going to own the whole pond before it was done. Physicians clearly did not want that to happen, even though it didn't like Blue Cross that much. So Blue Cross did some smarter things, and got on a good financial footing. There has been about a 7–8% increase in enrollment during the last several years. That's important to remember because we see some increase in transplants, but some of that is due simply to enrollment.

Chart 16 shows the totals as far as major solid organ transplants are concerned. Actual heart transplants have increased. To show how one trend may change, a radio reporter recently described a patient who was a man my age, or perhaps older, who had just had a heart transplant.

CHART 16
PRIOR AUTHORIZATIONS FOR MAJOR ORGAN TRANSPLANTS



This wasn't a really top notch heart transplant. His old ticker was dying. He didn't receive a healthy heart. They found a heart that had had a couple of bypasses and they put that in him. So he had another "used car," but it was a better "used car." That type of procedure could raise a trend line into the future.

I thought pancreas transplants were going higher than what is shown in Chart 17. The big issue here is the living related donor transplant. Instead of using a cadaver donor, a living donor will, at the same time as donating a kidney, donate a pancreas. Twenty-three have been done in the last four or five years. Every request that comes in now is for a living donor, and virtually every request gets turned down. It's an ethical issue, so be aware of it. As I said, 23 have been done in the country; 21 of those have been done at the University of Minnesota. So that's the bunch that I have to deal with on virtually all of these things. That's a new thing that's coming, and it may be important as far as you are concerned.

Note the trend line over the years. It's steadily upward. Much of this upward trend is related to what we see as far as just the growth of enrollment at Blue Cross, but I'm not going to dwell on that.

Look at prior authorizations for bone marrow transplants in Chart 18. If you take a look at that 7–8%, our prior authorizations have gone up much faster than the number of members enrolled in the plan at Blue Cross. Most of it is driven by autologous transplants. Allogeneic have stayed level, even though the donor banks have been increasing substantially.

CHART 17
MAJOR ORGAN TRANSPLANTS SINCE 1986

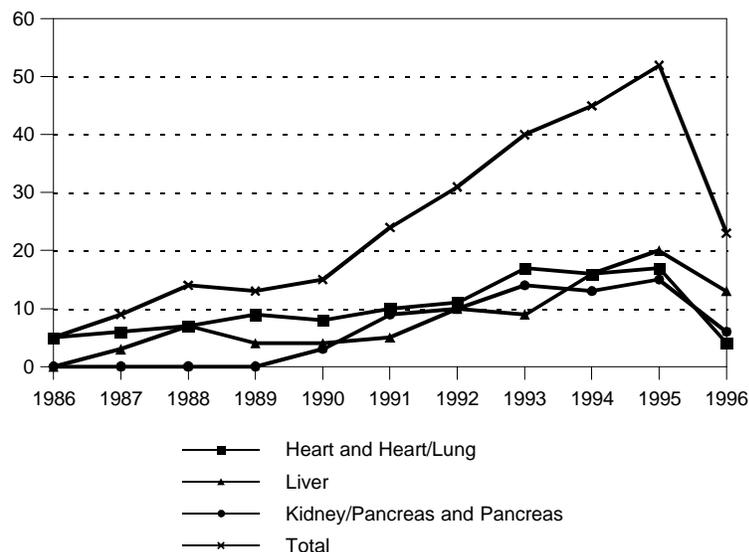
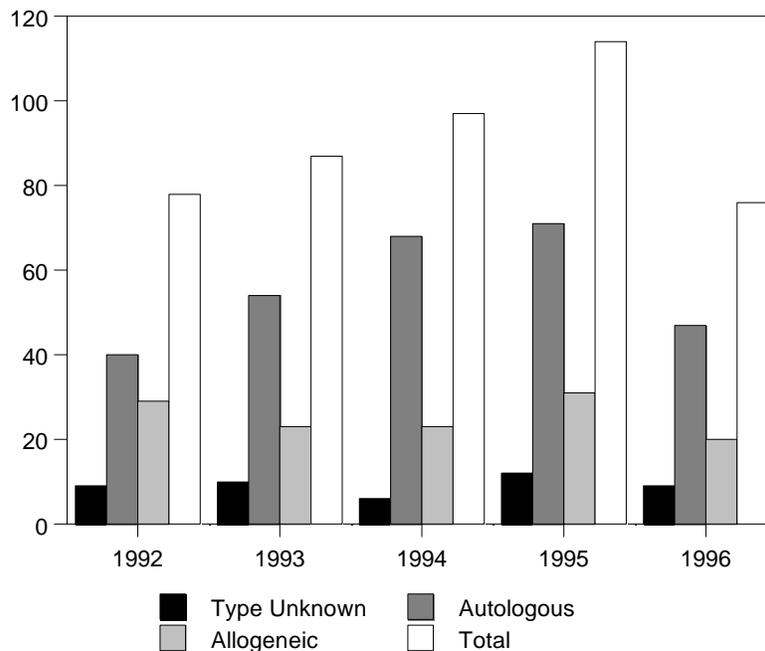


CHART 18
PRIOR AUTHORIZATIONS FOR BONE MARROW TRANSPLANTS

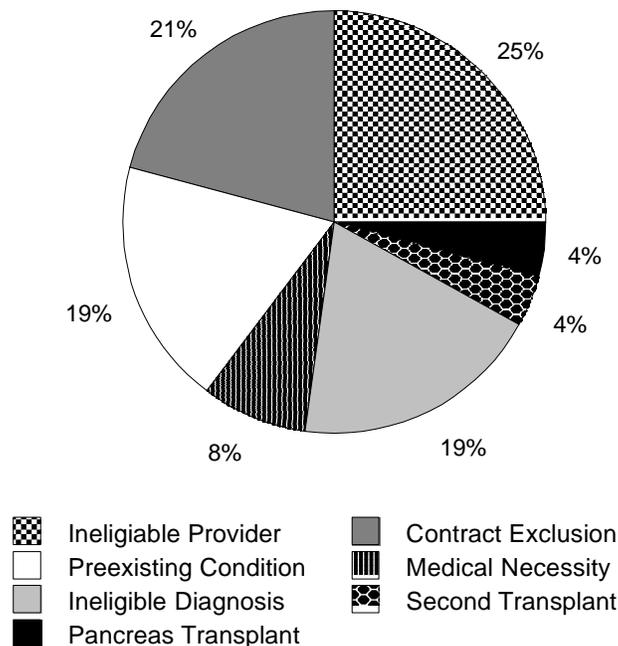


For all transplants, the number done is actually quite a bit less than the number with prior authorization. Let's see what some of the reasons are. Well, first off, the patient may not ever find an organ that's appropriately matched and the patient will die. This happens with some frequency. The patient chose an alternative therapy. And I don't mean going out and getting herbs or a massage. What we're talking about here is the best of conventional therapy.

The patient simply was not a candidate. I do argue that out with them, and most of the time I lose. Perhaps the patient got better; it does happen. Maybe they received really good care, and got better. Perhaps the patient changed health plans. That's great. I gave one to United Health Care once about eight or nine years ago; doggone if I didn't get one back the next week! I figured out what goes around comes around. So do we ever turn any down? Sure. Not very many of them, though.

Let me explain how denials really work (Chart 19). First, there are ineligible providers. Three or four years ago many providers weren't in the transplant network and didn't do the transplants, but recipients went and found somebody who was an eligible provider.

CHART 19
ORGAN AND BONE MARROW TRANSPLANT
PRIOR AUTHORIZATIONS THAT HAVE BEEN DENIED



So you'd scratch 25% off. Second, there are the contract exclusions. Three years ago, in 1992–93, there were many contract exclusions. Contracts just didn't have transplant coverage. They all do now for practical purposes. You can take that segment out; that doesn't happen anymore. Third, there are pre-existing conditions. Pre-existing condition denials happen, but with less frequency due to some legislation. Fourth is medical necessity. We still win the argument on medical necessity because some patients are clearly not appropriate for transplant. We do our best on that. It's a very tough argument, however. Fifth is ineligible diagnosis. That one, again, is coming down to virtually nothing. Sixth is a second transplant.

I'm able to say, "Look the first one didn't work because of this reason, this reason and this reason. This one is not likely to either, so let's forget it." At least we can talk with the Mayo Clinic and the University of Minnesota. We've always gone to great trouble to maintain a cordial relationship with them. If they turn a patient down, however, because the patient is just not eligible, the patient could end up at some other center where physicians have a lower threshold, and that's a big problem. Finally, there are pancreas transplants. The patient shows up saying, "I want a pancreas transplant." It beats the heck out of insulin regulation day in and day out, but the patient has never been given really good quality conservative medical therapy. We send them back and say OK, try it. We've turned a number of authorizations down recently, and I have a consultant that will back me up on it.

Now let's take a quick look at some billed charges (Chart 20). I want to make one point here. These are billed charges. You know how valuable billed charges are for making decisions. Here's one thing you can make money with when you go home. Some silly doctor is saying there's a trend line here. Believe me, there is a trend line! Back when many of our contracts were written, days in the hospital were very high.

Today, days in the hospital are sometimes down to five, six, or seven (Chart 21). It doesn't mean the patient got very sick and died on days five, six, and seven. They picked themselves up and they walked out of the hospital. The old contracts were not reviewed on an annual basis and need to be renegotiated. Today the resources consumed are much different than before.

Now, the same thing is true for ABMTs. The patients aren't in the hospital that long. The technology has improved.

Remember my Peter Drucker statement—they're making something that maybe ought not be done in the first place much more efficient! The transplant dollars for an autologous bone marrow transplant, for whatever cause, need to be looked at on an ongoing basis because of the improvements in the technology, like the bio-engineered drugs that stimulate the bone marrow to hook in and function sooner.

**CHART 20
BILLED CHARGES FOR THE INITIAL STAY FOR LIVER TRANSPLANTS**

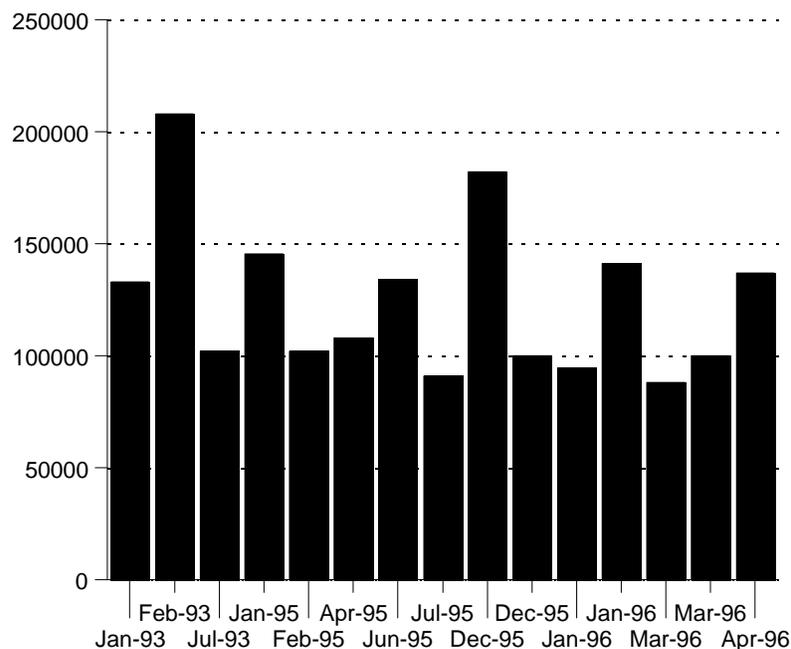
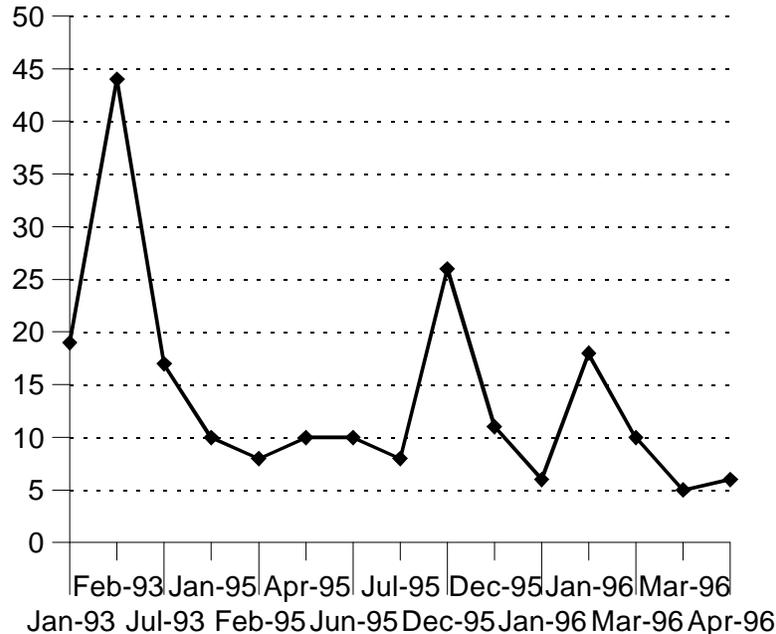


CHART 21
NUMBER OF DAYS FOR THE INITIAL STAY FOR LIVER TRANSPLANTS



Can you draw any conclusions that are useful from any of this at all? I hope this is helpful. These are the things that stimulate our provider contracting people a lot.

Within the last year I also became aware that many of the transplant decisions that use to be in my hands, or I thought were in my hands, were mostly taken out of my hands, even from the physicians that were involved. Now, appropriateness of individual transplants just isn't really discussed very often. It is discussed with the pancreas, and occasionally the liver. Where the patient has a bad liver from being a long-term practicing alcoholic and still is, we can win the appropriateness argument.

For several years prior to 1995 our legal department tried to put into place a clearly defined set of benefits for various types of transplants, and defined those services which would not be covered—not only which ones were, but which ones would not be covered. This was primarily due to the fact that every time we said no, medically, it was taken to Court and the plan did not like the publicity it was getting when it went to Court. Not covered, were a variety of transplants, still in most of the contract language. Breast cancer was one of them, malignant melanoma, epithelial cell cancers of the ovary, and so on.

As the literature changes, however, there are certain situations where we have to ease up on the contract language. Even this is not very effective anymore. The

legal profession simply looks on such contract language as a challenge in how to get what they want for their client, and have been extremely effective in doing that. Especially with the help of judges who don't know anything about the argument in the courtroom. They want no blood on their hands. They use the Pontius Pilate approach to this whole thing and walk away from it.

We've often gone to Court on the breast cancer issue, we've always left Court with a temporary restraining order. Even when the contract language was very clear, a temporary restraining order would be put into place. And what would happen is, the judge would say, fine, this patient, following the lawyer's argument, really needs this or she is going to die, or her life will be shortened because of the delay. So the patient got approval, not necessarily for us to pay, but went ahead and got the transplant. The judge would say, "By the way, the insurance company lawyer and the patient's lawyer can argue all this out later after she's had the transplant." The media involvement creates a really unfortunate situation, and the insurer usually does not come back and try to fight that sort of thing.

Two women, late in 1994 and early 1995, requested transplants. One was a member of the same church I go to. The preacher talked to me and wondered what was wrong with Blue Cross and so on. Now, one of these women was at stage four, which means that her cancer had spread to distant sites in her body. The other, however, was at stage two, but a relatively high-risk stage two. Now, very few people would take a stage two patient off the street and do a bone marrow transplant on her, considering it to be extremely unethical.

Now a lawyer who had been the insurance commissioner a number of years before knew Blue Cross contracts very well, took on both of these cases. There was a lot of media coverage, and that was unfortunate. These patients got their transplants, and we never went back to fight it. That same lawyer, being very prominent in Minnesota politics then, also brought this issue to the legislature and said, what we need here is really a mandated benefit so these poor folks don't have to go through this issue all the time. This came to a head early in 1995 and rapidly became established as a women's issue. When something becomes established as a women's issue, or potentially as a man's issue, what you have here is something very, very difficult to fight. Female legislators, some of whom are very much aware of managed care and in favor of it, felt this had something to do with the woman's right to choose what happened to her. Remember that early statement, "if it's right for me, then my health plan should pay for it." In fact, I had a debate on TV with one of the older female legislators, and what she said is, "I don't care what all this information shows. I don't care how useless it is, if that's right for her, she should have it." Well, that shows what you're up against in many environments. If you're

working for a health plan that is trying to make sense of all this, you can only lose in many respects.

Most of the male legislators who wanted to avoid conflict with half of their constituency and be reelected, did not want to take this on. Blue Cross and Blue Shield, and other payers, really joined together behind the whole matter feeling strongly about it. The University of Minnesota and the Mayo Clinic, brought this whole matter forward, also, from their standpoint.

Blue Cross felt particularly misunderstood. In 1989 or 1990, a first friendly warning was passed along by the head of oncology at the Mayo Clinic. There was a list of medical, social, and financial questions that needed to be answered. There is really only one way to answer such complex questions in medicine. Now, it was partly because of that conversation that the Minnesota Plan became a really strong supporter of a Blue Cross/Blue Shield Association initiative, to come forth here and put in place randomized clinical trials. That's the only thing that brings out anything that resembles truth on complex medical issues. And this is something that works for almost any heroic treatment, whether it's policyholder surplus accounts (PSA) testing, or whatever, and if we could just do it as a society, we would all be better off.

Now, we supported the trials, and we wrote into contracts that if the patient wants a bone marrow rescue for breast cancer, she has to enroll in a randomized trial. Absolutely brilliant, we felt so good about that for a couple of years. Enrollment, however, was exceedingly slow. Physicians don't really read medical literature, and it takes a lot of time at 9:00 pm to take out *The New England Journal* and check the research. Society accepts the new as proven, and it feels it has a right to it in America. And, that's different from other societies in this world.

We had been seeing a fair growth, at least, in this whole breast cancer issue. What we were finding is that the prior authorizations were growing (Chart 22). This is not in the randomized trial, this is just in the requests that were coming through. In 1992 we ended up approving, one way or another, five of them, usually with a lawyer and a legislator coming in tow with the patient. We saw a steady rise over time. There probably were about 35 or 40 cases in any given year. In 1992, we had six come and take a look at it and for one reason or another, usually the stage of their cancer or what treatment they'd had before, they simply didn't qualify. In 1993 eight came through the turnstile, and actually one was transplanted, which means there was another one randomized to the control arm, which is standardized treatment. A little higher in 1994. It died off in 1995. But this is billed as something that saves lives. People are cured. Women are cured.

CHART 22
BREAST CANCER PATIENTS

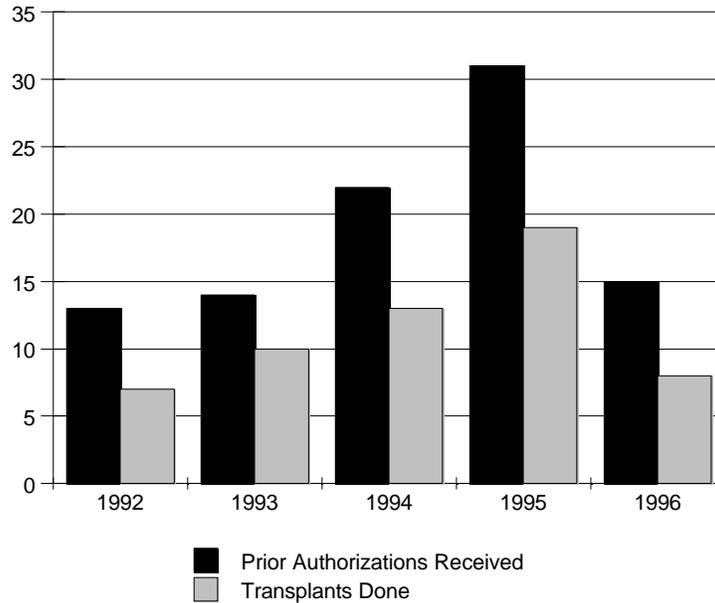
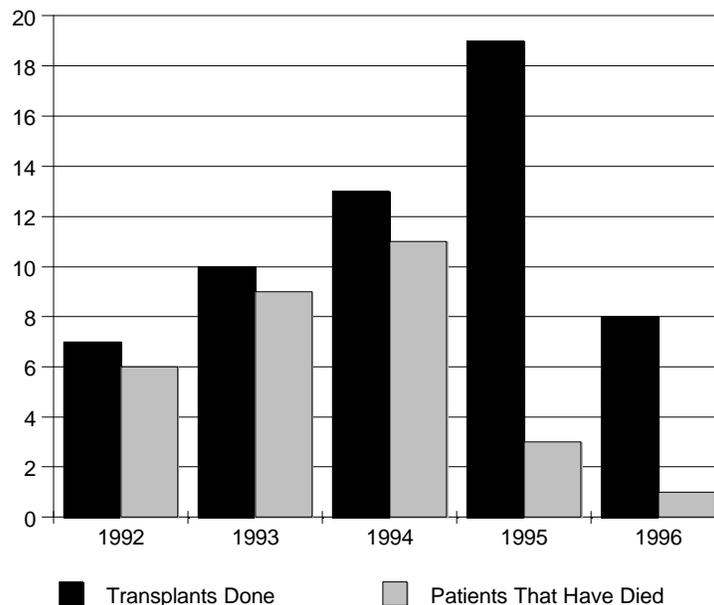


Chart 23 does not reflect a scientific study, but it is a set of statistics. Here's what we saw. In 1992, of those that were transplanted, only one is alive. And fairly amazingly it was a person with stage four cancer. Even an occasional stage four patient in a large number of randomized patients will do well. That's why we needed the randomized trial to see how these really would work over large numbers of patients.

CHART 23
SURVIVAL OF BREAST CANCER
BONE MARROW TRANSPLANT (BMT) PATIENTS



In 1993 nine of the ten have died. In 1994 11 of 13 died, and so on. The procedure is not a miracle; it's not the magic bullet. I just talked with the Mayo Clinic recently, and it basically said the same thing. It won't transplant anybody, considering it to be unethical unless that person is part of a clinical trial. With this environment the Minnesota legislature really held its first hearings. The Blue Cross plans brought the Mayo Clinic with us to testify. Most of the testimony was taken from the commercial transplant centers, women who had breast cancer, lawyers, interested supporters, and so on. Our experts were given very little opportunity to speak their piece. Now, ECRI also weighed in and mailed to all the legislatures. How many of you know what ECRI is? A top-notch, grade A technology evaluation firm. They're able to look at the scientific literature, talk to the experts, and come up with a mostly solid status of when a technology is adding value to any patient classification. They weighed in and the legislators really discounted them, saying that they were too close to the payer end of the industry in the U.S., and, therefore, that they should not pay any attention to that. This legislation certainly passed without any real dissent: 60-0 in our Senate, 117-9 in our House in Minnesota.

The Minnesota mandate is just about as sweeping as it can possibly get. What it says is that the payers will provide coverage for the treatment of breast cancer, by high dose chemotherapy, with autologous bone marrow transplantation and for expenses arising from such treatment. Control is clearly out of our hands. We know that the same thing will happen if we try to bring real reason to some of the other issues that are out there. It also happened with the PSA test last year.

There was also a serious oversight. Our legislature left out the Medicaid population. It would have to ante up the bucks to pay for this, but it left them out. It left out Minnesota Care, which is also state subsidized, and includes state employees. Many people in our state, thinking that the whole argument was nonsense, went ahead and looked at this with a jaundiced eye, if I may say so. And, they have been arguing and trying to point out to our legislature that this doesn't make any sense. This isn't really the end of our larger debate in the state. One of the senators from the Rochester area (Mayo Clinic) had last year put in place a bill suggesting that whenever these types of health care issues come before the legislature, it requires an expert panel to review the subject, an ECRI type of review. Then it should come back to the legislature to discuss without the emotional turmoil playing out during the legislative session.

The environment wasn't good for that. Let me give you a reason why. The Minnesota Citizens Concerned for Life (MCCL) weighed in on this issue heavy duty. Another group was the Minnesota Citizens Concerned for Choice in Health Care. Both of these organizations are riding the anti-managed-care wave, and when I say I'm not going to talk about cost effectiveness in public, I'm not. I was quoted by an

MCCL representative about making a one sentence statement that “it’s important when we make decisions about healthcare benefits that we know the marginal benefit of that particular technology.” They are saying that this is terrible, it’s wrong, it’s sinful, whatever else. We are not supposed to use the term cost effectiveness. What can plans do?

First, I think we need to understand our customers. People like me have been trying to make decisions in an information vacuum with the customers somewhere on the other side of the marketing department. I think we really need to understand what their expectations are. And if unreasonable expectations are being driven by physicians, primary care, and oncologists, with the degree of managed care that we have in our state, I think we need to put together a better managed care network of oncologists. Most of them are very sensible. Most of them are appalled by what’s happening with the legislative mandate.

If the problem stems from deeply ingrained beliefs and expectations of society, we are banging our heads against the wall. Society has to change its mind about how it looks at the new and exotic types of technology. We also have to be seen as reliable sources of information. The public often doesn’t believe us. That doesn’t mean we have to develop all the information and dispense it ourselves, but we have to be seen as a source of nonbiased information of the value of health care services.

As carriers, we have to limit our financial exposure. We must work closely with providers and tie those contracts up tightly so that we share risk and produce the outcome expectations. Our members really look to this as their only hope for life, a longer life, or at least a cure at a reasonable cost. Until we face that fact we can’t, ourselves, play the role of doctor. You want the pilot flying your airplane. You don’t want somebody back at Northwest or Delta really making the decisions as they fly through the next set of thunderstorms. I think, to a certain extent, that’s true here too. We need to eliminate the hassle.

We have to think differently than the way we’ve done it for the last ten years. We need to pay attention. We are simply the managers of the transaction between our member and the doctor. I sound like a doctor now, but I think it’s finally sunk in that this is very important. You know, we are supposed to be health care plans, and most of the time we really don’t come off looking very caring, at least in the real view that I’ve been mostly exposed to for the last several years. We can fix that. I think there’s a mood across the country, given the anti-managed-care attitude, dictating we have to do that.

Mr. Sutton: I will talk about some of the same subjects. Bone marrow transplants are something I’ve watched for the last six or eight years. I’ve been on programs

with Del way back when they were just starting to be done for breast cancer. I've a little different viewpoint and my data are more suspect than Del's and maybe more suspect than Dick's. We have contracts with 30 centers, and we provide free access to negotiated rates for organ transplants at these centers for somewhere between 10 million and 15 million HMO patients across the U.S. Reviewing the trends, I tend to be more negative than either Del or Dick.

First, I'd like to go through an exercise that I did in 1995 when I attended the first annual meeting of the autologous bone marrow transplant physicians in Colorado. I got data from the transplant registry and three other sources, including our own transplant system. I tried to make an independent estimate to compare with the registry's estimate for 1993. I've just compared it with Dick's estimates. My estimate of the total bone marrow transplants for 1993 are very similar to his. I'm convinced they're increasing more rapidly; the problem is that we don't have good data. As for the cost per transplant, I will not show any exact rates that we use, but I'll show a range of rates for different types of transplants. I'm looking at breast cancer, specifically, and estimating what the cost of providing bone marrow transplants would be on a per capita basis.

Let's discuss the data that we received from the transplant registry. I'm just oversimplifying what I did. These are autologous only, roughly one-third of them were for breast cancer in 1993. In 1991 the registry, which happens to be in Milwaukee where Dick is, estimated that over half of the bone marrow transplants were actually done. Currently, my estimate is that there are 300 centers that do bone marrow transplants. The Registry gets reports from the bigger ones. It's still getting maybe only one half, too.

Listed below is a rough summary of the network patterns (Table 2). One of the HMO networks that we reinsure had over one million members, and the data ran from early 1991–1993. I tried to follow the trend in heart and liver transplants and then match it with the trend for bone marrow transplants. This was all data for 1993. The data fluctuate wildly and I can't vouch for any of it. I need to warn you about the third set, which is our own in-house data. These are approvals, rather than actual transplants done.

Our data will be even worse in that respect than Del's were. People die or they decide some other method of treatment or they can't get a suitable organ or whatever. In our case, we also have our HMOs and more patients who want transplants to be done by the local University Medical Center. So when we say we won't cover it as well, they'll go to the local university and ask them to bid the same price that we would allow at a contract center. So we're stalking a horse in a sense.

TABLE 2
RATIO OF BMTs TO HEART AND LIVER TRANSPLANTS

	Network A	Network B	Network C
Members	1,000,000	Unknown	10,000,000 (est.)
Year	1991-3	1991-3	1994
BMTs	33	109	189
H & L	19	42	122
R*	1.7	2.6	1.5
ABMTs			119

* As representative use R: 1.5

To estimate autologous bone marrow transplant (ABMT) frequency, we reviewed the recent ratio of bone marrow transplants (BMTs) to heart and liver transplants (H&L) for 3 networks used by HMOs.

We try to limit the number of centers we do business with. It's about 30, but they have a good geographic variation around the U.S. We do many of the other transplants that Dick did. Many of them don't reach the average deductible for catastrophic coverage that we sell to HMOs. Our average deductible is about \$100,000, so a kidney transplant doesn't get in there. Nevertheless, they might save 25% or 30% by using a contracted rate for a kidney transplant. So what I did from the data was take as representative that the number of bone marrow transplants is 1.5 times the combined number of liver and heart transplants (at least for 1993). Then I projected it forward. All of which is subject to much guesswork. Let's discuss our pricing back in 1993. I just took samples by quartile. The low side was \$78,000; the high was \$125,000. These are autologous transplants which are much cheaper than the allogeneic, generally speaking. The retail prices were all over the place, from \$200,000 or \$300,000 at that time at the University of Minnesota and the University of Washington, which were two of the biggest centers. They were also probably like that at Duke, which is another big center. The average of the prices of the centers had dropped slightly from 1991 primarily because of shortened length of stay, as Del talked about. Centers are starting to compete in a price in a very small way. We had some sources of retail prices besides Dick's data.

Right in the middle when I was doing this, in 1994, OPM, which is the federal government employees system, mandated that all its health plans add bone marrow transplants for breast cancer. ABMTs for breast cancer became a benefit in September or so of 1994, with no change in premium rate. OPM figured the cost would be so low it could absorb it in the 4% margin it has in the rates. It received some

estimates from HMOs or insurance carriers that were writing health plans for federal employees, including the Blues, of what the costs were. Some of them subtracted out the cost of conventional treatment from the cost of the bone marrow transplant with the high dose chemotherapy. Some of them didn't. Working backwards with the various percentages, I estimated 2,000 ABMTs for breast cancer were done in 1993, and that's about double the number that was published by the registry in Milwaukee. I assume I must be doing something right if its previous survey had shown that it only has one half of them.

The total bone marrow transplants of all types agreed very much with Dick's number for 1993, which was about 8,000. That's certainly within a range of error with the very wild guesses and ratios I was using. Pricing that out for the under-65 population (males account for 1% or 2% of breast cancer cases) but just relating it to the total population is about \$300 million at retail, \$200 million at wholesale, if you want to call it that.

I'll just run through some comments quickly, but there's no complete reporting of these cases. Most medical centers will give you published data, if you do business with them, on the number of cases they have, the death rates within the first 30 days, three months, and maybe go out five years or longer if the patients live that long. But it's no good as to effectiveness. They aren't trials. As Del pointed out, the Blue Cross trials that were going to carry several thousand cases were defeated because the doctors refused to put the patient into a blind test where they wouldn't get the transplant. They said if you don't get the bone marrow transplant, you're going to die, so they could never get the other side of the blind. So we are living with learning by classifying the cases in finer and finer fashion, and measuring the mortality rates and seeing that certain types just don't work. I'll show you the worst one a little later.

So the cost per person in my data was \$1.33. This is for breast cancer only. My estimate of frequency is probably 30% higher than Del's. I'm doing it for breast cancer only, because one of the things that really upset me was the political aspect of having it forced in. Patricia Schroeder of Colorado was the big pusher of the OPM change and the representative from Washington, D.C., who essentially pole-axed it right through OPM. This made many of us upset. Incidentally, in Minnesota when they passed the law, I couldn't resist Del telling them that they didn't do it for the state's own employees. They didn't do it for Medicaid, they couldn't do it for Medicare, and they didn't do it for Minnesota Care, which is the low-income subsidized health plan. Medicare doesn't cover bone marrow transplants for breast cancer, either. With the exception of federal employees who are retired and over 65, no Medicare eligibles are covered. The federal employee plan will provide a

subsidy to pay for bone marrow transplants for breast cancer if retirees are over 65, because Medicare won't pay for it.

For survival with a Stage four, which is metasized general cancer from the breast, the current figures show that less than 10% survive the transplant for five years. The survival rates do not tell you whether patients had a relapse. They tell you whether patients are alive, but they may not have had a recurrence of cancer and haven't done anything yet.

As Del points out, we are now starting to see second transplants. The doctors tell me that in no case in their memory have they ever seen one where a transplant failed and it worked the second time; but they are still doing them.

It's very easy to set up an autologous transplant center; it's not as complicated as an allogeneic center. The drugs are complicated. You need to avoid infection. You're taking material from the patient, so you don't need to do an organ search. I, and some others, think many medical centers are doing this because they are hard pressed to make money, and they want to charge high prices and do very expensive procedures. It's part of the medical industrial establishment, in my opinion. I think some centers do transplants where they are not warranted. As Del was saying, we have had cases passed through Minnesota that were rejected by Mayo or the University of Minnesota and sent to another center when the patient had not chance of a good outcome. To me, it just shows that they want to make money.

I will bring you up-to-date on our own volume of transplants for 1994–95. I think our enrollment is growing; we're contracting with more and more HMOs and other organizations. We don't know whether they use only our network, so we can't relate it to a population. I'm guessing it's about 15 million. Actually, compared to Dick's figures, the heart and liver cases have been rising sharply. I don't know if we have some old, sick people, or if we just have a huge growth in enrollment. Lung transplants have increased sharply from zero, five, or ten years ago. That's because no one lived more than six months when they had a lung transplant five or ten years ago. In Toronto, they figured out how to do it after most transplant centers shut down. Because of this new method, the transplant centers are reopening again.

We authorized 407 transplant referrals in 1994, and in 1995 we authorized 675; that's more than a 50% increase in everything, including large increases in heart and liver (Tables 3 and 4). There was still a fairly big increase in bone marrow transplants. I want you to notice that in 1995 we had 129 bone marrow transplants and 34 peripheral stem cell, which is a sorting out of the cells in the blood. In 1994 it was 118 to 13, so there was almost a tripling of the stem cell. In 1996, and this is for five months, the number of peripheral stem cell cases now exceeds the number

of autologous bone marrow (Table 5). It's simpler to take the blood than it is to tap and stick a big needle into the hip bone and get the bone marrow cells out. The stem cells help the blood system revive much faster than injecting the bone marrow into the blood stream, which is what they did before. So there is a very major change in how these are done.

The stem cell approach to breast cancer is only \$50,000–\$80,000 whereas they used to run \$100,000–\$130,000. The autologous bone marrow itself is \$80,000–\$120,000. We use roughly a one-year cost. We do not pay any of the expenses except after the point when they make a decision to do the bone marrow transplant. In other words, they could do chemotherapy and they could wait a few months and do all the testing and everything else, but we don't count that.

The HMO pays for that or the insurance carrier pays for that or the employer pays for that part of it. Then we go for one year, from the date the decision was made to apply to get authorization for the transplant. The unrelated allogeneic is still the most expensive type because you have to search through the organ bank to get as closely matched bone marrow tissue as you can. Sometimes you can't ever find one.

TABLE 3
LIFETRAC TRANSPLANT REFERRALS IN 1994

Transplant	Number of Referrals
Heart	55
Liver	66
Kidney	70
Kidney/Pancreas	4
Heart Lung	3
Heart Kidney	2
Lung	18
Autologous BMT	118
Peripheral Stem Cell	13
Related Allo. BMT	31
Unrelated Allo. BMT	<u>27</u>
	407

Let's discuss breast cancer survival rates by duration and stage of treatment. In stage two, at three years, there is roughly a 70% survival rate. That was what the Blue Cross Association experimental program was looking at primarily. However, if you get 3.5 years out, there was a big drop in the survival rate for stage two. They haven't run data out long enough to really know what the survival rate is really going to be yet. However, on the stage four, the probability of survival has dropped below 10% before you get to five years. Now, in my simple, nonactuarial arithmetic, to get a survivor from a stage four or a metastasized case, you have to spend a

million dollars. It's \$100,000, give or take, for each of ten people you treat, but only one is going to survive for five years. That's my way of looking at it.

TABLE 4
LIFETRAC TRANSPLANT REFERRALS IN 1995

Transplant	Number of Referrals
Heart	81
Liver	112
Kidney	153
Kidney/Pancreas	27
Heart Lung	4
Liver Kidney	1
Lung	35
Pancreas	5
Autologous BMT	129
Peripheral Stem Cell	34
Related Allo. BMT	72
Unrelated Allo. BMT	<u>22</u>
	675

TABLE 5
LIFETRAC TRANSPLANT REFERRALS IN 1996 (5 MONTHS)

Transplant	Number of Referrals
Autologous BMT	50
Peripheral Stem Cell	64

I have a few other items. This is something the doctors have used in Minnesota. They told me that any kind of an intervention that cost \$40,000 or less per life year extended on the average was considered to be worth doing. At the meeting of the bone marrow transplant physicians, they said \$20,000 a year is more appropriate. But none of these cost less than \$20,000 for one year of life extended. You can see, as an example here, that physicians will do bone marrow transplants frequently for Hodgkins disease because patients may go into remission and then three or four years later have recurrence of the process. The fact is that if the patient relapses more than twice, it never goes away. It's just a question of how much money do you want to spend to extend the person's life one more year. Or less. It must be quite horrible for the patient.

I have been frustrated by legislative interference. This is a prediction I made in late 1994 and, of course, there is no change. No one will provide for Medicare; they agree it's not indicated. Also, the federal budget for Medicare is broke anyway. The same thing will be true with Medicaid. There's no reason why states shouldn't provide bone marrow transplants for Medicaid, which is mostly women and kids and a few older people. Because of OPM's mandates, it became clear in the states

to pass laws mandating coverage for bone marrow transplants for breast cancer without necessarily looking at the type of case or the reason for doing it. They just did it.

You might be interested in a few other events. The NAIC had bills drafted that would require insurance companies and HMOs to cover any experimental procedure approved by the National Institutes of Health. Fortunately, the commissioner from Wisconsin kiboshed the whole bill, so it's at least not pending.

Two years ago in the state of Colorado, such a bill was introduced for cancer treatment only with the lobbying of Dr. Jones, who does the bone marrow transplants at the University of Colorado in Denver. He has stated, and I have it in his text, that even if the probability of survival is only 6%, it's the only chance the person has to live, they should do it anyway. These are just a couple of clippings that reinforce what Del was saying—the managed care industry is being attacked for something that really is not its problem. It's society's problem, which insists on spending billions of dollars for things we know will not work. We are in a very difficult situation and we do need a national policy. Some of you may not like HMOs, or are not interested in them, but most of us who work at trying to control health care costs feel that we have to do some rational things and not spend a great deal of money on things that are not really going to work much of the time. This is the study of OPM changing, and the fact that we now know familial gene traits account for less than 5% of the cases does not enable us to do cures earlier. In fact, breast cancer incidence has been increasing for the last ten years and nobody knows why. The medical profession has no idea why the cancer rate is going up.

All I can say is medical care is getting more frustrating and complicated to deal with than it ever was in the past. Nobody seems to trust anyone to use medical judgment, and the demands are for unlimited expensive care, regardless of the outcome.

From the Floor: If most physicians or if a large majority of physicians believe that doing certain procedures is unethical, why are the physicians who are performing them not being censured by the societies?

There's enough money on the table and it isn't illegal.

Mr. Sutton: My own personal view is many of the medical centers are really hurting. University of Minnesota Hospital is less than 50% occupied; they are selling their hospital. The HMOs are so strong and teaching hospitals have never done business—some may go out of business! So many of medical centers would like any expensive procedure that they can justify medically.

Dr. Ohrt: I want to come back to that, though, Harry and go to the defense of the University of Minnesota. We're running into trouble at the commercialized centers, where they are strictly out there advertising and taking anybody that comes. What the client wants, the patient gets. The University of Minnesota and the Mayo Clinic are marvelous to work with most of the time.

Mr. Sutton: We have a proprietary transplant center in St. Paul. We suspect, but don't know, that it takes people who have had a breast cancer surgery and chemo, or whatever, with apparently everything removed. It does the transplant to be safe, and then charges \$40,000 for it on an outpatient basis. It doesn't even put them in the hospital. But it won't report the nature of the disease entity that it's dealing with. It just wants to get many patients through the door. It doesn't report. It has eight centers in the U.S., and they're for profit. Nevertheless, look at the names of some home care companies where doctors made millions by referring patients to them. There are occasionally bad actors out there who will take advantage of fear and anything else to do procedures that may not necessarily harm patients, but may not do them any good either.

Mr. Robert G. Lynch: Regarding your data on the correlation of the number of transplants and transplant centers, I was wondering if you have data, or have access to data, that would correlate the number of transplants with the number of donors who are registered in the tissue-type registries. Is that data available, or have you looked at that?

Mr. Hauboldt: They do have a waiting list we reviewed as we went through. I don't know if you're referring to the waiting list. Or are you actually talking about the donors?

Mr. Lynch: Donors.

Mr. Hauboldt: The United Network for Organ Sharing also tracks the number of donors. It has some demographics. I have not tried to relate that in any way to the data that we have. But if the number of transplants are going up, the number of donors has to be going up as well. Now, there are some transplants that can be done with living donors. You can take a piece of liver and transplant it from an adult to a child. You can give up a kidney, obviously. The person who receives a multiple transplant can give up a functioning organ. If they had a heart/lung that they were going to receive, they could give up a lung or a heart that is still functioning to someone else. But generally the donors have to be increasing because most donated organs are still provided by nonliving donors.

Panelist: Many doctors think it is unethical to take a kidney from a living sibling and use it. There's also the question of paying for it, or paying the person money to do it.

From the Floor: My question of donors is more about those people who have driver's licenses with a little sticker that says registered organ donor.

Mr. Hauboldt: A number of years ago that is the thing that we thought was driving increased numbers of transplants. There seems to be more effort to make sure people are informed to get donor registration and that type of thing. A few years back, the AIDS epidemic scared everybody, so donations seemed to be down a little bit. I think that's one of the things that you look for with a new center opening. I think there's much more effort out there to obtain that donor. So the number of donors is tracking along with the number of transplantations then in order to maintain or raise the average cases per center.

Panelist: You can also say with the centers, that many of them are doing fewer than the number of procedures that would be recommended for them to be good at it or not.

Mr. Geoffrey C. Sandler: This question is for any of you who would care to comment on it. I'm wondering whether any of you looked at organ transplants by center. In other words, there are centers of quality. Do these institutions excel in doing certain types of transplants, as opposed to looking at something like the University of Minnesota where they possibly do a number of different kinds of transplants?

Mr. Sutton: I'll go first and then Dick can talk. First of all, with the bone marrow transplant registry, they are begging, borrowing, and stealing because they have very little money to do the analysis that they do, and they can't pressure anyone. They guarantee to keep confidential the data submitted from any one of the centers so that they will not compare outcomes at any one center versus another for a particular type of transplant. Most of the big centers, like Cleveland Clinic or Wisconsin at Madison or Minnesota, give out the data each year to their clients who send many patients there, showing what the outcomes are and exactly how many they've done of each type. We review these data in our transplant network because we want the outcomes to be good. It's probably more important than pricing. A few thousand dollars will not make any difference if the patients dies right away. I don't think the data are very good. Nobody publishes comparative data, from what I have seen.

Mr. Hauboldt: Right, but if you look, Harry, at what's happening in the industry many health care organizations are trying to contract not with particular transplant centers, but more specifically with particular transplant centers to do particular kinds of transplants.

Mr. Sutton: Yes. We don't buy transplants for all types from our centers. We use the ones that we think are the best at a certain transplant. Sometimes it might be cheaper.

Mr. Sandler: How do you evaluate that?

Mr. Sutton: We get reports from each one about what its mortality rates are. Now, it's hard to evaluate those, and the statistics are hard to follow if the center only did four in one year and ten another year. They are not very meaningful.

Mr. Hauboldt: The United Network for Organ Sharing has a center-specific survival study. It has done two of them now, one in 1991 and one in 1994. One thing you can do is go through it to determine who's doing a lot of transplants and who isn't. If I remember correctly, we went through maybe 30–50 transplant centers and we already had 50% of the transplants done in the U.S. You are right that some centers, while they do more than one type of transplant, may specialize in a particular organ. The survival rates, I believe, are based on 1988–89 data. It has one-, two-, or three-year survival rates that it is tracking. So that kind of information is available and might be useful. As we went through the data, we wanted to see what the overall survival rates were, as well as who the major players were. It was interesting that the survival rates listed by the center weren't too much different. You started wondering, if it did 50 patients, what were the disease states and what else entered into it? It does put together an expected survival rate for each center, based on a case mix index. That is information that is evolving.

Mr. Sutton: I don't think the data are really very good. You would think with as much money as we spend on all these things, the government would require somebody to keep track of it. The bone marrow transplant is probably the worst. But I will say that cases are becoming extremely complex to classify by stage and types. Young people have a very different type of cancer spread than older people. The only way that we can really get results is to break down all these cases into so many fine cells that we can see which ones have lousy recovery rates. We still have to look at both mortality rates and recurrence rates of the cancer. If you get a lot of recurrence of the cancer, you know the patient may be living another couple years, so some of them only show the mortality. But others show the mortality separate from the recurrence and nonrecurrence. If you haven't solved the patient's prob-

lem, you spent a lot of money and you didn't do much, and you're going to face the same problem again.

Mr. Thomas M. Ahmann: I have a question for any of you who would like to answer. It's about the study of autologous bone marrow transplants and getting the control group that does not receive the transplants. It seems like you might be able to go to other countries for information. Is that a bad idea for some reason?

Panelist: I think maybe Dick is familiar with that. Some of these reports that we get are international summaries of volume and others are U.S. summaries.

Mr. Hauboldt: When I spoke at the Third National Transplant Forum, I heard about the Blue Cross Association sponsoring clinical trials for a number of years, and it hasn't found one group to be favored over the other. There was one gentleman there who spoke up and said there was a study in Australia that was showing that there was a difference. I haven't seen that, but I have heard about it. It certainly may be a possibility. I know from the registries, not only did they try to collect the sample data in the U.S., but they do also deal with overseas data.

Dr. Ohrt: The Blue Cross Association recently issued a letter stating that for stage four it's at least as good as conventional therapy. It's not exactly a great breakthrough. It based that statement on an article that was written on a study that was done in South Africa. It is not using the same treatment regimens that are used in the U.S. I'm chairman of a health technology advisory committee that reports to the State of Minnesota Health Care Commission. We've recently reviewed everything on breast cancer, and it's exactly where it was five years ago. Why can't we, as a country and as a society, insist that expenses be limited to proven therapies?