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DEALING WITH UNEXPECTED CHANGES IN THE HEALTH CARE ENVIRONMENT

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- An update on topics of concern with insights into possible future concerns and how to deal with them.
  - -- AIDS and AIDS-Related Complex
  - -- Organ transplants/mechanical implants
  - -- Medical breakthroughs/growing concerns

MR. ANDRE CHUFFART: First, I will only speak on organ transplantation which means that I will ignore tissue transplantation, such as bone marrow transplantation. This decision not to talk about bone marrow transplantation was a particularly difficult one inasmuch as I am convinced that bone marrow transplantations will have a tremendous impact on health insurance. Second, I will restrict myself to human organ transplantation. Third, among the human organs currently transplantable I will discuss exclusively the transplantation of the heart and the liver. I will therefore, deal in my presentation with neither heart-lung nor kidney, pancreas, parathyroid or small bowel transplantation.

In the U.S. the number of heart transplantations has almost doubled every year: 103 in 1982; 172 in 1983; 373 in 1984; 731 in 1985; and 1,368 in 1986, with a

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cumulative total of 3,132 thru the end of 1986. Such a skyrocketing increase is due to many factors, including the real need for cardiac replacement; the availability of insurance coverage; the relative simplicity of the surgical procedure itself which usually lasts one hour; and finally, the availability at the beginning of the 1980s of a new and efficacious immunosuppressive drug, Cyclosporine A, which considerably modified the evolution and the aspects of rejection.

As a result of the use of Cyclosporine A, patient's survival rates increased significantly, and heart transplant centers mushroomed not only around the country, from 10 in 1982 to 94 at the end of 1986, but also worldwide.

With regard to liver transplantations, the situation is slightly different mainly because of the lower need for liver transplantation; the extreme complexity of the surgical procedure: a liver transplantation usually lasts 7 to 10 hours and in some cases up to 14 hours; and finally because of the necessity of having immediate access to sophisticated laboratory facilities and large quantities of blood.

A liver transplantation becomes even more difficult when the recipient is a very young child for whom a pediatric donor liver of the same size is rare. To palliate this lack of organs, some surgeons have developed a technique called "Reduced Size Liver Transplantation" which allows them to use the liver of a donor whose weight is up to 6 times that of the recipient.

Professor J. B. Otte and his colleagues at the St. Luc hospital in Brussels, are one of a handful of surgeon teams in the world who have mastered this technique and apply it systematically and successfully in the majority of their pediatric cases!

These constraints explain why the increase in the number of liver transplantations has been slower than that of heart transplantations: in 1982, 62 liver transplantations were performed in the U.S.; in 1983, 164; in 1984, 296; in 1985, 605; and in 1986. 924, with a cumulative total of 2,182 thru the end of 1986. As far as the transplant centers are concerned, they grew from 1 in 1982 to 41 at the end of 1986.

Let us have a look now at the distribution of the liver transplantations performed in the U.S. When the transplant centers are ranked in descending order according to the total number of transplantations performed, then it appears that 3 transplant centers (6.7%) did 50.3% of all liver transplantations ever performed in the U.S. and 10 transplant centers (22.2%) did 72.2% of all liver transplantations.

Conversely, when the transplant centers are ranked in ascending order according to the total number of transplantations performed, 19 centers (42.2%) performed only 5.4% of all liver transplantations, 26 centers (57.8%) did 11% of all transplantations and 29 centers (64.4%), 15.2% of all liver transplantations. The situation obviously raises a lot of questions which I will examine later.

As mentioned previously, Cyclosporine A had a great impact on the survival rates of both heart and liver transplantation. For heart transplantations, the recipients' actuarial survival rates of Stanford University patients who did not receive Cyclosporine A were as follows on March 18, 1987:

1 year:	63%
2 years:	53%
3 years:	51%
4 years:	44%
5 years:	36%

For those treated with Cyclosporine A, the Stanford experience on March 18, 1987 was:

1 year:	82%
2 years:	75%
3 years:	69%
4 years:	64%
5 years:	55%

This constant decrease of the survival rates, even of those patients treated with Cyclosporine A, is probably due, according to Dr. Schroeder of Stanford University, to the development of a rapidly progressive form of coronary artery disease in the cardiac allograft, as frequently observed in recipients whose underlying cardiac disease was cardiomyopathy as in those who had atherosclerotic disease.

With regard to heart retransplantations, the frequency is about 10%.

For liver transplantations, further subdivision must be effected as the outcome of pediatric patients is usually much better than that of adult patients. Considering only the Cyclosporine A treated patients, the recipients' actuarial survival rates at Pittsburgh (by far the largest liver transplant center in the U.S.) are as follows:

	Pediatric	Adult
1 year	77%	64%
2 years	74%	58%
3 years	74%	54%
4 years	74%	54%

There are statistics available that show that patient outcomes vary greatly by indication (i.e., the underlying disease).

As far as the reduced-size liver transplantation is concerned, the St. Luc hospital in Brussels reported about 3 months ago that the survival rates of their 16 patients who had received 18 liver transplants were as follows: 1st year: 83%; 2nd year: 83%; and 3rd year: 83%.

On the other hand, the recipients' survival rates of the 28 fullsize liver transplantations performed in 26 patients at the same institution were: 1st year: 93%; 2nd year: 93%; and 3rd year: 93%. The liver retransplantation frequency at Pittsburgh is about 20%. However, it is not as high everywhere, as the St. Luc Hospital experience shows.

Not surprisingly, recipients' survival rates for heart as well as for liver transplantation vary by transplant center. The exact reasons for such variations are not known although it has been statistically proven that some indications (e.g., liver carcinoma) always lead to poor survival rates. One of the questions at issue in this respect is the presumed relation of the volume of transplants performed to patient outcome, according to which there should be a volume threshold below which the recipients' survival rates would be adversely affected. The basic assumption for this hypothesis is that a certain minimum number of procedures must be performed for a center to gain and maintain the experience and skill necessary to achieve desirable and attainable transplant success rates. The Task Force on Organ Transplantation reviewed a number of studies that

evaluate the center effect, that is the reasons why certain transplant centers had better outcomes. Unfortunately, as few of the studies investigating the center effect examined the relationship between volume and outcome but concentrated instead on patient characteristics and treatment variables, the Task Force was not able to identify any studies on the relationship of volume to outcome for extrarenal transplants.

Although the Task Force found little evidence to demonstrate a positive correlation between volume and patient outcome for extrarenal transplantation, they also found that there was no evidence other than one study on kidney transplants, to conclude that the low volume centers produce results equivalent to those of high volume centers.

The least that one can say about medical expenses incurred as a result of a heart or a liver transplantation is that the figures encountered in the literature do vary a lot, particularly because the length of the observation period during which the expenses were accumulated is not always the same. In addition, some studies have considered the operating costs of the transplant centers whereas others have gathered the bills presented to third party payers.

For the seminars on organ transplantation that Swiss Re organized in 1985 in various European countries, we made some estimates on the total expenses incurred in the U.S. as a result of heart and liver transplantations. We based our calculations on various U.S. studies available at that time, particularly one made by the Blue Cross Blue Shield Association. The results of our estimates were as follows:

	Heart	Liver
Average expenses incurred		
- thru the day of surgery*	$ 53,980	$ 51,650
- thru the day of hospital discharge	$ 170,420	$ 160,155
- thru the first year following surgery**	$ 218,860	$ 290,850
- during each of the three next subsequent years	$ 20,000	N.A.

* Including initial work up at the referral institution, organ procurement recipient's evaluation at the transplant center

** Including transplantation, lodging and living expenses

I understand that these figures might now be considered rather on the high side, and I agree. The reason for our high estimates was that the bills on which these were based date back to the first years of the use of Cyclosporine A, a period during which the immunosuppressive drug's regimen was not yet well established. Nowadays, reasonable cost estimates should range, for heart transplantations, between $170,000 and $220,000, and for liver transplantations, between $200,000 and $250,000.

In this respect, Mr. Carl Ricciardelli, Vice President and Chief Actuary of Blue Cross Blue Shield of Illinois, was kind enough to indicate to me the average medical expenses incurred as a result of all liver and heart transplantations performed on BC/BS's insureds between December 1984 and May 1986. The average BC/BS's figures for 6 heart transplantations were as follows:

Average Total Bill to BC/BS	Coinsurance/ Deductible	Expenses Incurred During the Benefit Period
$ 159,000	$ 2,800	$ 107,000

* The benefit period starts 5 days before transplant surgery and ends 365 days thereafter.

For the 3 liver transplantations performed during the same period, the average figures were as follows:

Average Total Bill to BC/BS	Coinsurance/ Deductible	Expenses Incurred During the Benefit Period
$ 467,000 **	$ 1,800	$ 430,000

** $ 521,000, $ 345,000, $ 536,000, which represent a rather unusual series of claims.

Here also the crucial question is whether there is a minimum number of procedures to be performed by a center to achieve cost-effective care and whether there is a relation between the volume of transplants performed and the cost incurred. In this respect, I would like to advise those who are interested, to read an excellent study made by the Medical Technology and Practice Patterns Institute, Inc., 2233 Wisconsin Avenue, N.W., Suite 302, Washington, D.C. 20007. Contact person: Dennis J. Cotter, Director, tel. (202) 333-8841. It

is entitled *National Health Services and Practice Patterns Survey Report on Heart Transplantation Procedure Operating Costs, Medicare Payments and Utilization Rates.*

In the U.S. the estimates of the need for heart and liver transplantations, based on the incidence of conditions for which such procedures are indicated, have been derived from national morbidity and mortality data. They are 60 people per million per year for heart transplantations, and 40 people per million per year for liver transplantations. When excluding patients with alcoholic cirrhosis or hepatocellular carcinoma, the estimates for the need for liver transplantations in the U.S. is 21 per million per year.

It is interesting to note that in Europe the estimated need for heart and liver transplantations is much lower. According to Professor F. Largiader, of the Zurich University Hospital, it should be in the range of 20-30 per million per year for heart, and 6-10 per million per year for liver.

Although each type of organ transplantation is accompanied by technical requirements unique to that particular procedure and by numerous medical problems associated with failure of that specific organ, the major obstacles to successful transplantations are common to all organs. Problems such as the safe control of the complex immunological rejection process, including better methods of desensitizing patients, the side effects of current immunosuppressive treatment, such as infections and neoplasms, and the procurement and preservation of organs in a suitable state are common to all transplants, so that it is possible to consider transplantation research as a coherent subject.

However, defining precisely what should be labelled as transplantation research is a difficult task because, as in other fields of active enquiry, valuable new information may emerge from unexpected quarters, e.g., from cellular immunology, immunogenetics, molecular biology or basic sciences. Solving the above major problems will demand rich and active communications and coordination among people who are traditionally individualists; this means that the necessity of interdisciplinary and interinstitutional communication and coordination of research represent additional obstacles which, as we know, are not easy to clear.

As transplantation requires a supply of organs -- in this respect it is unique among advanced medical technologies -- it is the supply of donor organs, rather than institutional or professional resources that limits and will limit the number of transplant procedures that can be performed. Consequently, as long as this limitation exists, third party payers can have some confidence that, as a whole, reimbursement due as a result of organ transplantation will remain predictable. In fact, because of the small volume of transplant procedures performed relative to the number of insured beneficiaries, the incremental increases in insurance premiums due to the inclusion of transplant coverage have been and most probably will remain small for a certain period. However, should the supply of organs significantly increase or should totally implantable cardiac devices become broadly available, then the effect on reimbursement costs and coverage by third party payers could be substantial.

Among the numerous cardiac devices used today I will only briefly discuss the following: the mono or biventricular assist device, which supports or replaces the function of one or both ventricles, with the heart in place, and the artificial heart, which actually replaces the patient's heart. Currently, such devices are only used, with one exception, for short-term, up to a few weeks, applications.

Ventricular assist devices are usually implanted into patients who have undergone open heart surgery but cannot be weaned from the heart-lung machine because they fail to sustain sufficient hemodynamic functions, and do not respond either to intra-aortic balloon pumping or inotropic drugs. If, after ventricular assistance, hemodynamics return to acceptable levels, the patient is gradually taken off from the pump support. The ventricular assist devices are also implanted in patients waiting for a heart transplantation who would otherwise not survive while waiting for a suitable donor heart.

As far as artificial hearts are concerned, they are generally implanted into patients waiting for a donor heart. In this area, they are in competition with the ventricular assist devices. Or they are implanted in patients for which the artificial heart is the only chance of survival. Such cases could happen when problems arise in the operating room and a satisfactory repair cannot be made or when the recipient's heart has already been excised and the expected donor heart is either no longer available or cannot be used, or in the case of acute rejection.

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In all the foregoing cases, reimbursement due to the implantation of the ventricular assist device as well as of the artificial heart should remain predictable because the number of implantations should still be limited by the number of donor hearts available, and the costs of such devices are known: for the ventricular assist device: $15,000 to $25,000 for each ventricle, plus at least $40,000 for the console; for the artificial heart (Jarvik-7): about $200,000 for three hearts and two drive systems.

In this respect, Mr. Rollin Olds, Senior Executive Vice President of the Mutual of Omaha, was kind enough to indicate to me that the total expenses incurred by one of the Mutual's insureds who, after unsuccessful intraaortic balloon pumping, received first, a biventricular assist device, then, a Jarvik-7, and finally a donor heart, were slightly below $300,000, and this was without the costs of either the assist devices or the Jarvik-7, probably paid for by research grants!

However, the aforementioned natural limitations, the limited supply of donor organs, will no longer exist once a long-term clinically effective and reliable, totally implantable device has been developed, be it either a left ventricular assist device or an artificial heart. Strict patient selection criteria for heart transplantation will be relaxed as the recent history of hemodialysis in the U.S. demonstrates, and there will be fewer clinical reasons for denying an individual a lifesaving mechanical device if he/she is in need of one, particularly if the device has come into existence mainly because of citizens' tax money. Should a cardiac long-term device become a clinical reality, I would like to stress that particular attention would have to be given to the design of cost containment incentive measures in order to strongly discourage inefficient use.

From a discussion I had a few days ago with Dr. J. Watson, chief of the Devices and Technology Branch of the National Heart, Lung and Blood Institute, the first clinical evaluation of a long-term, totally implantable, cardiac device should begin for a left ventricular assist device in 1988 and for an artificial heart in 1994. For those interested in the subject, I would like to recommend an excellent paper prepared by the National Institutes of Health (NIH Publication No. 85-2723) entitled "Artificial Heart and Assist Devices: Directions, Needs, Costs, Societal and Ethical Issues."

The annual need for long-term left ventricular assist devices for persons below age 65 can be estimated to be between 100 and 115 per million population under age 65, whereas the exclusive annual need for the totally implantable artificial heart (i.e., when a left ventricular assist device cannot be used) among patients under age 65 should be between 50 and 65 per million population below age 65. Based on these assumptions, it becomes obvious that should a long-term, clinically effective and reliable, totally implantable device be developed, it must be feared that the impact on the private insurance industry, even if part of the costs were absorbed by public funds, could be disastrous.

As seen before, wide variations of the number of heart and liver transplants performed by institutions exist and the low volume of procedures being performed at so many centers has raised serious concern that transplant centers may be proliferating too rapidly, diffusing expertise and experience to the point where patient outcomes may be threatened, scarce organs not efficiently used and costs increased. Consequently, more and more people believe a process should be established whereby institutions wishing to perform organ transplant procedures must satisfy explicit criteria to be approved in order to ensure that only qualified institutions perform these procedures, and to prevent transplantations from being jeopardized by the uncontrolled diffusion of transplantation technology into unqualified institutions.

Designation of transplant centers is not a new concept. For example, the Blue Cross Blue Shield Association has distributed criteria to its plans for evaluating an institution's ability to perform heart and liver transplants and the plans have implemented this concept in a variety of ways. The Health Insurance Association of America (HIAA) also supports the "centers of excellence" concept as a way of controlling the diffusion of organ transplants. However, U.S. private sector payers are concerned that constraining the transplant center's ability to pursue the types of organ transplantations they are interested in will cause disgruntled providers to raise antitrust allegations, and that supporting or implementing the designated center concept will make them vulnerable to charges of restraint of trade. However, if thoughtfully structured and implemented, do such limitations necessarily need to be considered an unreasonable restraint of trade? Nevertheless, there is obviously a serious need for adequate legislative safeguards against such dangers.

Both public and private sector payers need assistance in identifying qualified organ transplant centers for reimbursement purposes. To facilitate the designation of such centers, the Task Force on Organ Transplantation proposed that the Department of Health and Human Services (DHHS) undertake the process of center designation and call upon a peer review group that would review the criteria by which the transplant centers are designated, evaluate the extent to which applicant institutions meet these criteria, and reevaluate designated centers annually for continued compliance with the guidelines, which obviously will evolve over time.

The peer review group, which should include experts in all fields related to organ transplantations, would initially review all existing or proposed transplant programs. Subsequently, it would evaluate not only programs applying for the first time but also those that failed an earlier review and that have reapplied for centers that have maintained designated status for a period of 12 months. The Task Force indicated that the peer review could designate the transplant centers approved not only for Medicare coverage but also for the private insurance industry, as a service.

The Task Force has proposed 14 designation criteria which are intended to maximize the probability that optimum patient survival rates will be achieved. As both these criteria and the rationale for each of the criteria are presented in the Report published in April 1986 by the Task Force (those interested in obtaining a copy of this report should contact Mrs. Linda Sheaffer at the Office of Organ Transplantation, Tel (301) 443-7577). I will only refer here to two of them: the minimum volume criteria, and the minimum survival rates.

With regard to the minimum volume criteria -- 12 procedures per year for heart transplant centers and 15 for liver transplant centers -- the transplant centers will have two years within which to achieve their minimums. Conditional approval may be granted to centers that have an extremely unusual case-mix (e.g., pediatric centers) and those where patient access is severely constrained by geographic location (e.g., in Hawaii). Transplant centers may also choose to become part of a consortium as a way of meeting the minimum requirements as they then will be evaluated as one single institution.

As far as the minimum survival rate requirements are concerned, the following one-year recipients' survival rates must be achieved and maintained: heart transplants - 70%; liver transplants - 50%. Compared with the survival rates observed at Stanford and Pittsburgh, respectively, the least that one can say is that these requirements are rather on the low side. As the immunosuppressive management of transplant recipients becomes more complex and the total volume performed increases, centers will be expected to achieve minimum 2 and 3-year survival rates.

I hope that I have been able to create in you the interest in the subject of organ transplantation I think it deserves.

MR. RICHARD K. KISCHUK: I appreciate the opportunity to share some insights on what we have been learning about AIDS. People do not always see things from the same point-of-view. Or there is usually more going on in a situation than meets the eye. And definitions are always a stumbling block. (How do you define a square, for example?) Or how about this? Intelligent people do not always come to the same conclusion.

These are all things we would do well to keep in mind as we deal with the AIDS situation. And we have got to deal with it. Not only on an industry level, which is happening, but also on an individual company level. In order to respond to AIDS, we really need to open our minds. Because we will not make the right decisions if we are fogged in by our own fears and prejudices.

Something very interesting happened when I was preparing this information. At some point -- around the beginning of March --the spigot opened up on AIDS and since that time I have not picked up an issue of the *New York Times, Wall Street Journal, Business Week,* the trade publications or even the *Fort Wayne News Sentinel* without a front page or cover story on AIDS. I asked a friend of mine in the media about it and he said he learned that the *New York Times* has committed to running at least one story and preferably two stories about AIDS every day. Apparently the editors believe the threat is so severe, and the need for education so great that they adopted this -- if not unprecedented, certainly very unusual policy. And because the *New York Times* is such an influence on mass media in general, I think we can expect to literally see daily updates on the AIDS situation.

The threat AIDS poses to the insurance industry is also gaining a great deal of attention; not only from writers and editors, but also from financial analysts. There is no question that Wall Street is weighting the AIDS factor these days. They are very alert to the financial impact AIDS would have on our industry. Insurance companies -- particularly publicly held ones -- cannot hide from this problem. The word is out that we are at risk!

I will be focusing my remarks on how AIDS is affecting the insurance industry, specifically, group health. And I will concentrate on two issues: The first, which has an internal focus, is what means we have to protect ourselves from the financial threat AIDS poses. The second, which has an external focus, is how people outside the industry view our role in terms of paying the bill for AIDS. This can be a pretty frightening topic because not everyone understands or appreciates the foundation upon which the private insurance industry is based.

But before I begin with either of those issues, I would like to put the impact of AIDS in perspective by reviewing some statistics on the disease and the high risk groups. Given the coverage this subject is receiving, I am sure you have heard them before, but I will run through them quickly anyway because it really helps to get a handle on the scope of the crisis.

AIDS can be divided into three major divisions. First, there are those with full-blown AIDS. This is the group we hear the most about. And it is the group we know the most about in terms of the effect of the disease -- it causes death; 100% mortality within 2-5 years. Today 30,000 people have full-blown AIDS. Five years from now, that number is projected to reach 270,000.

The second category includes those with AIDS Related Complex (ARC). This is a significantly larger group. And, arguably, it is the one that will have the greatest impact on the group health industry. The numbers are high, and the afflicted have a great need for health coverage. Today 225,000 people suffer from ARC. Five years from now, that number will reach 1.2 million. These people are sick. Some of them are very sick. Their immune system is impaired, and as a result they suffer from many of the illnesses and infections associated with AIDS -- from night sweats and diarrhea to central nervous system disorders and dementia. Next month the Center for Disease Control (CDC) will revise its

very strict definition of AIDS. And that revision will shift a large number from the ARC to the AIDS category.

The third category includes those who carry the AIDS virus -- known as the human immunodeficiency virus or HIV. This is the largest group and it is also a real wild card. About 2.2 million people are estimated to carry the AIDS virus today. And that number will reach 8 million by 1991. We do not know how many carriers will go on to develop AIDS, but medical experts are revising their estimates upwards. Currently 20% - 30% are projected to have AIDS within five years. And 30% - 50% are projected to have AIDS within 10 years. A recent *Chicago Tribune* article stated that some medical experts now believe everyone with the AIDS virus will eventually contract the disease. It was thought that if you did not get AIDS within 5 years you were home free. That thinking has been completely reversed. Experience is showing that the longer someone has the HIV antibody, the greater the chances of getting AIDS.

Now, let us take a look at the high-risk groups for AIDS, ARC and the AIDS virus. The makeup of the high-risk groups remains essentially the same for all three categories. Today approximately 65% of those afflicted with AIDS, ARC and the AIDS virus are homosexual and bisexual men; 26% are men and women who use IV drugs; and 4% are heterosexual men and women. The Center for Disease Control projects a similar breakdown in 1991. However, a significant change will be the almost doubling of victims within the heterosexual population -- from 4% today to 9% by 1991.

AIDS is certainly not a homosexual disease in that the virus discriminates along those lines. But there is no denying the extent to which this virus has gained entrance into the gay community. From an insurance standpoint, it is crucial that the industry, and individual companies within the industry, come to terms with this segment of the population. I think it is safe to say most of us live pretty traditional lives. It is difficult for us to relate to the size of the homosexual population. Today approximately 10% of the U.S. population is either homosexual or bisexual. As a group, they are well organized, influential, and affluent. They are also well protected by our legal system. We are not dealing with the fringes of society. In many cases, we are talking about our employees, our distribution system and our clients.

The second high-risk group is the IV drug user. This segment is far less likely to have an impact on the insurance industry -- because they do not buy insurance. However, experts are very concerned that this group will be the gateway to the heterosexual population.

The increase of AIDS in the heterosexual population is the big question mark. As I noted, the CDC projects a doubling of heterosexual AIDS cases in the next 5 years. That is a pretty conservative forecast, according to some observers. It is one that assumes a very successful effort to contain the spread of the disease. The potential impact on the heterosexual population becomes quite alarming when one considers that in other countries the disease has spread largely through heterosexual transmission.

AIDS is an epidemic. That we know. What we do not know, is if we are seeing only the tip of the iceberg. A lot of very knowledgeable, rational people who are closely involved in the study of AIDS believe that to be the case.

What do people in the insurance industry think? I suspect we mirror the population at large. Many of us are still misinformed. We think AIDS is confined to homosexuals and IV drug users. We believe medical science will find a solution -- either a vaccine or a drug treatment. We expect people will stop putting themselves at risk now that we know the danger of AIDS. A lot of us do not believe the projections. And some of us just are not thinking about it. But I think most of us are wondering -- wondering how big it really is and what damage it might do in the future.

How well prepared are group health insurers to face AIDS? Can the current methods we employ to select and price risk protect us from the financial threat? To date, most attention has been focused on our friends in the individual life business and their inability to respond to the epidemic. They cannot reprice existing contracts, and political pressures are starting to threaten their ability to underwrite new business to prevent antiselection. Group health, on the other hand, enjoys much more flexibility. We reprice our contracts on an annual basis. If claim versus premium experience is poor, we can raise prices. In fact, we can raise prices for any number of reasons. And if our underwriting analyses indicate a poor risk, we can decline to quote. We do not underwrite on an individual basis so we have avoided charges of discrimination and invasion of

privacy. As a result of this greater flexibility, little concern has been voiced about the financial impact of AIDS on the group health industry.

But the geometric expansion of AIDS, ARC and AIDS carriers, will carry an enormous health bill. While I would not venture to guess the cost, we know that the slope of the AIDS claim curve looks like this. (See Graph 1.)

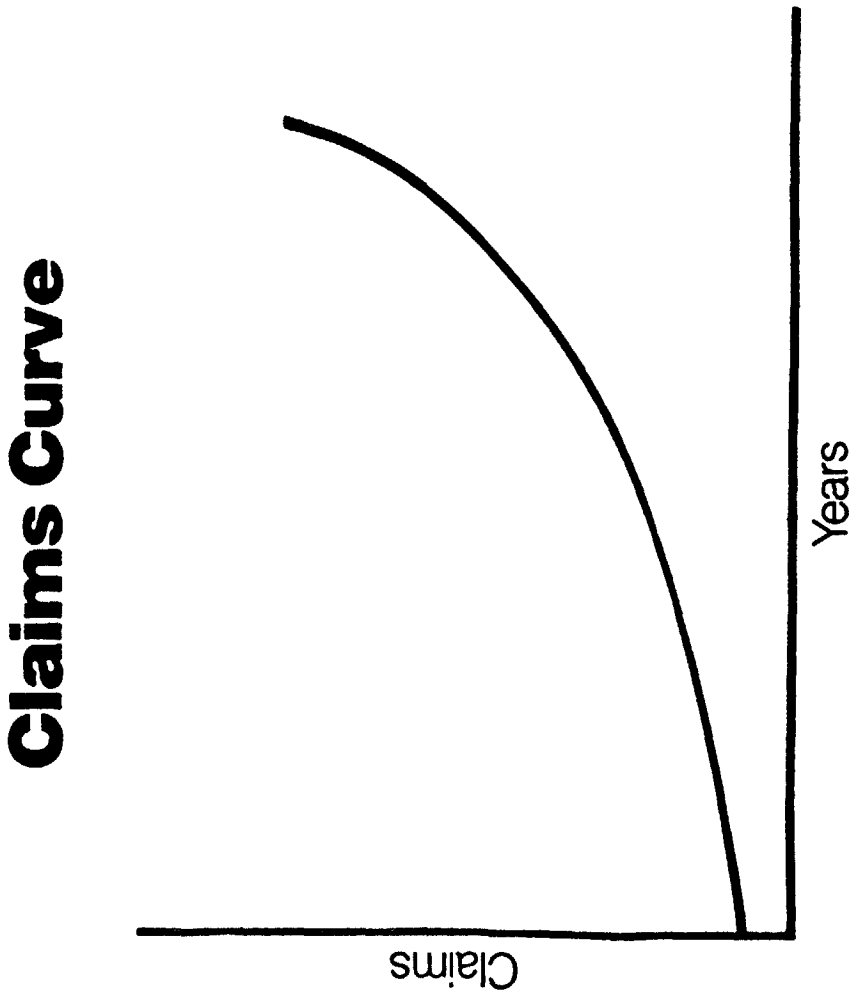
Our ability to reprice a contract is extremely valuable. But a dangerous fallacy within the industry today is that we can price away the AIDS problem. Operationally that is impossible to do because it always leaves you behind the curve. Let us say your company initiates a rate increase to reflect the AIDS factor. It helps. But, because of the claims lag, you underestimated the problem. Now you are really behind the curve. You tough it out for the year and then counter with another rate increase. But it does not take long before you find yourself behind the curve again. (See Graph 2.) This scenario can repeat itself over and over again. Of course, you can reprice to overtake the curve, but that has its own set of problems. For example, you can lose your good business -- they will find better rates -- and end up being selected against.

Besides operating behind the claims curve, there is the problem of client backlash associated with price increases. Our recent experience in the area of rising health care costs demonstrates the business community's refusal to assume higher benefit costs. How long do you think employers will tolerate increasing premiums?

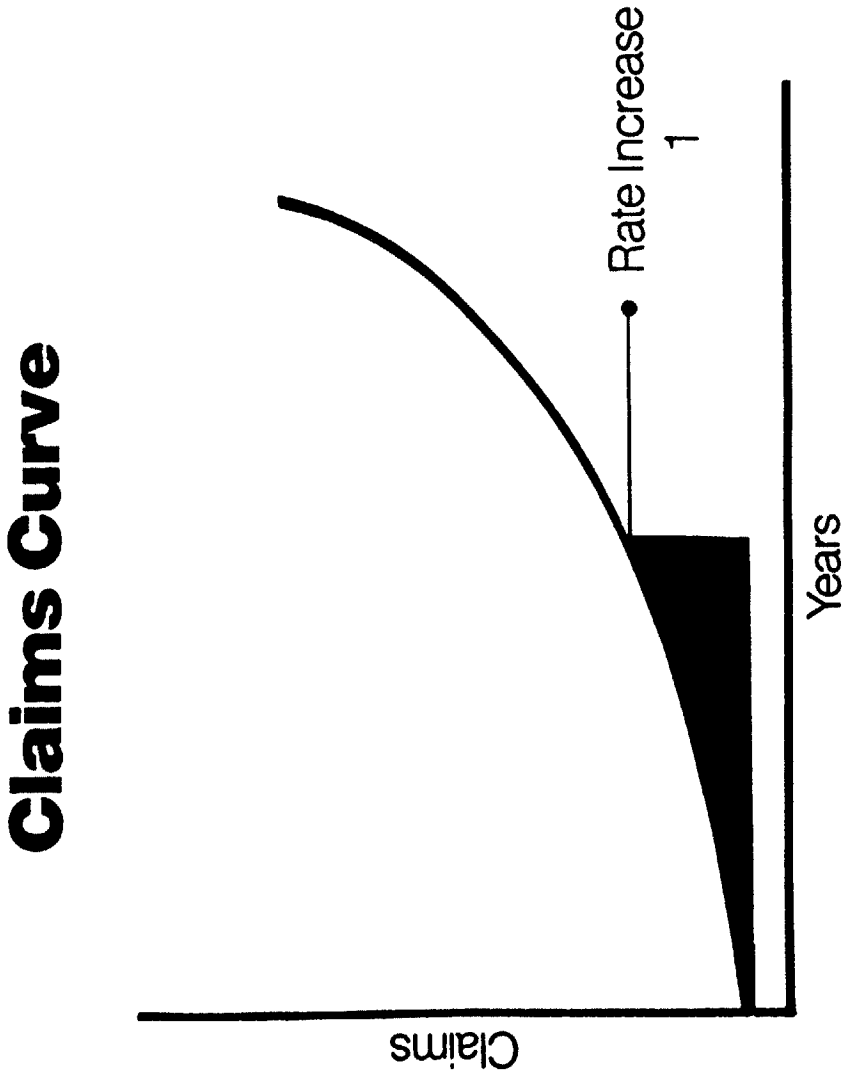
What options do they have? One option is to self-insure (as group carriers know only too well)! By self-insuring, employers bypass the mandates of state regulators. I heard of an employer in California who asked its group carrier to add a rider to the contract limiting benefits on sexually transmitted diseases. The group carrier could not do it because of insurance regulations. Instead of renewing the contract, the employer decided to self-insure. And now he has a cap on payments for sexually transmitted diseases.

So there are some chinks in our pricing armor. What about underwriting? What will happen when small plan sponsors can no longer find group health coverage? This is actually happening in some parts of the country. In fact, a discrimination suit, brought by a plan sponsor who cannot get group coverage because of

GRAPH 1



GRAPH 2



AIDS claims, is being heard in the California courts. This case demonstrates how quickly our industry's business decisions become politicized. And it also suggests we are not immune to charges of discrimination. The outcome of the suit could be very consequential to the way we underwrite our business. The point is, group pricing and underwriting are valuable ways to cut our losses but, by themselves, they will not solve the financial problem associated with AIDS.

What else should we be doing? If your company has not already done so, it is wise to make an assessment of your AIDS exposure. One way to do this is to analyze the geographic distribution of your premium dollars and compare that to the geographic distribution of AIDS. This is a quick way to obtain a rough idea of the financial stake at risk.

Another good management tool to employ is a claims tracking mechanism. Of course, any claims system is as good as the information it is fed, and at this point it is highly unlikely that anyone has a system that accurately reports AIDS claims. But it is a way to spot trends and make some forecasts. At Lincoln National, our employee benefits division maintains a claims system that lets us track claims by medical diagnosis. This lets us generate reports on the number and dollar amount of AIDS-related claims.

We recently conducted an exercise to see how well the system was performing. We compared our claims experience with CDC statistics from a limited geographic region -- a single zip code area. And we factored in estimates -- such as how much of that population was not covered by group health insurance. We suspected that only a fraction of our AIDS claims are accounted for, and we were right. According to the exercise, our tracking system identifies 40% of our total AIDS experience. The division was actually quite pleased with those findings -- which were more accurate than Lincoln National's individual life division. The reason it is easier for us to pick out health claims is because as claims dollars begin to grow, our claims management personnel get involved. At that point, it is very easy to identify an AIDS situation. Because of the reluctance of medical doctors to identify AIDS as a cause of death, it is very difficult to track AIDS mortality experience. Of course it is virtually impossible to identify health care claims associated with ARC or HIV antibody carriers. At this point they are buried. But there are clues you can be looking for: things like increased

utilization; increased claims for blood tests and lab procedures; increased referral to specialists; more high-risk employees meeting deductibles; higher conversion rates by employees who leave; and changes in where the claims are coming from -- are there more single employees, more young males, etc.?

Right now, AIDS claims are still a small percentage of our total claim dollars. The amount might sound high to people who are unfamiliar with the dollars involved in this country's overall health care bill, but for most companies, the claims experience for AIDS barely registers. For Lincoln National's employee benefits division it was one half of one percent in 1986. But at this stage of the epidemic, there is not much comfort in low claims experience. And it is irresponsible to wait until the numbers become reality to take steps to minimize the problem. We know what the curve looks like and that is what we should be responding to.

Now, let us step outside our industry and look at the role other people see us playing in the AIDS drama. Perhaps the most threatening aspect of AIDS to our industry is a sense of losing control over the way we conduct business. The methods we have used for decades to select and price risk are being challenged. And there is this uncomfortable feeling that people not only do not understand the way we conduct our business, they think it is unfair. Somewhere along the way the terms *equality* and *equity* blurred. Insurance is not equal. But it is equitable.

The industry's position is that we will readily accept our fair share of the AIDS cost. What we find objectionable is the notion that commercial insurers have a duty to provide sick people with affordable coverage. The actuarial system upon which our industry is built does not work when the dice are loaded. One of the truisms of insurance is "select or be selected against." It is one thing to honor existing contracts. It is another thing to be selected against. Yet that is what some highly motivated and influential groups are suggesting. And they are gaining audiences within the government and within the public sector.

An alternative often discussed involves a risk-pooling arrangement for high-risk individuals. Under such an arrangement, if premiums paid by the insured are insufficient to cover losses and administrative expenses, participating insurance companies are assessed for the deficit. Ten states already have a health

insurance risk pool that is subsidized by the insurers writing health coverage in the state. Presently, the insurance industry is supporting the concept as long as they are established on a sound basis. One requisite of a sound basis is inclusion of uninsured health care plans in the assessment base.

So, where do we go from here? There are so many unknowns today, it would be naive to think we can resolve the problem alone -- either as a company or as an industry. The problem is much more than an insurance problem. We are just one of many players. Resolution will only come through cooperation: cooperation with the government -- both state and national, the business community, the medical community and political action groups.

But that does not mean we can sit back and wait for a solution. Every insurance company should have an AIDS strategy and an AIDS action plan. We should be planning how our companies will deal with the financial impact. And we should be working within industry channels to make sure we do not lose our traditional ability to rate and underwrite risk.

DR. WILLIAM SCHAFFNER: I am chairman of the Department of Preventive Medicine at Vanderbilt. I am also an infectious disease clinician. Currently I am on my regular rotation as the Infectious Disease Consultant at the Vanderbilt University Hospital. I am helping take care of a woman who has had a heart-lung transplant. This is an extraordinary advance in technology that awes all of us who are taking care of her. She is doing rather well. She is getting her immunosuppression from Cyclosporine. It does make her somewhat more susceptible to infection and this is how we get involved. She has a viral infection which we are treating with a drug called DHPG, which has not yet been licensed for use. It is in the research pipeline. She would be dead today if it were not for this advance in technology.

I also have on my service a young man who has just been diagnosed as having AIDS. He has had the first of what I am afraid will be a whole series of very, very serious infections. Both of these patients are clearly representatives of the kinds of patients we are going to be seeing more of in the future. One is a product of technology, the second patient is awaiting the benefits of technology that is now in the research stage.

You have certainly been hearing a lot about technology and its impact on your industry, but that is not what I am going to talk to you about. Let me give you some quick background. You, of all people, are aware of the increase in life expectancy, longevity, that has occurred in this country during this century. In 1900, life expectancy was about 47 years; in the early 1980s, it was greater than 70 years. This 50% increase is the most spectacular expansion in life expectancy in the history of humankind. This extraordinary health improvement during the 20th century is usually attributed to the control of communicable diseases. It makes the infectious disease doctors proud. Tuberculosis, diarrhea disease which used to kill infants, pneumonia and influenza, among others, are diseases which affected the very young and as they survived, life expectancy increased dramatically.

During the second half of this century, we have seen an additional phenomenon and that is the increase in life expectancy of those greater than 65 years of age. When I was a medical student, there was someone admitted to a ward of a New York Hospital who was over 80 years of age. That was a remarkable event in those days. And, a bunch of us went to the ward just to peek in the room and see someone who was over 80 years of age. But now every morning, Willard Scott, that irrepressible weather man on the "Today Show" offers congratulations to numerous people who have reached their 100th birthday. This is an anecdote and it's not actuarial, but it certainly is, I think, representative of increasing life expectancy of those over age 65. This improvement is almost always attributed to advances in medical science and technology. Actually, the evidence for this is rather scanty. Clearly, technology has had a favorable impact, and it has made a major contribution to the quality of life but it has not resulted in prolonged life.

Estimates are that the contribution of a coronary artery bypass surgery to prolonging life have ranged from 4% on the low side to 30% on the high side. Most folks who have looked at this issue believe that coronary artery bypass surgery has had an influence on the margins of about 4%.

Actually, lots of other people have suggested that the major influence that has caused this increase in life expectancy has been preventive medicine. For the major impact in mortality that is likely to take place in the next 10 to 15 years, I would direct your attention away from the technology which will have a big

impact on how much money you folks spend in your industry, to looking at changes in health behaviors and lifestyles and the role of both private organizations and the government in trying to persuade citizens to adapt healthier behaviors. Let me just talk about a few of them.

The Center for Disease Control in Atlanta has been conducting a series of behavioral risk factors surveys by telephone, calling a stratified sample of the United States population and asking the adults who answer the phone about a series of health behaviors. They focus on the major issues in trying to change lifestyles in the United States; some of those called indicated change, others did not. They asked about seat belt use (this is a pregnant issue in Tennessee). For the time period from 1981 to 1983 three-fourths of adults said that they never used seat belts. Usage was increased among those who were young. Interestingly, if in the subsequent parts of the telephone interview they acknowledged that they had other kinds of risky behaviors, such as they were occasionally a binge drinker and they had a sedentary lifestyle and they smoked, any one of these other risks was associated with no use of seat belts.

Injuries from motor vehicle accidents are the fourth cause of death in the United States. In 1984, it is estimated that there were some 36,000 people who died from motor vehicle accidents. It is, of course, the leading cause of death in people 5 to 24 years of age. It accounts for one-third of the mortality in that age group. Because it affects youth so disproportionately, motor vehicle accident fatalities are the third leading cause of preventable years of life lost.

We have had a great deal of impact and we have seen a great deal of interest recently in mandatory seat belt legislation in a variety of states for a variety of reasons. Observational studies show that shortly after such laws are passed, seat belt use goes up 16% to 57% in the first three months of wearing seat belts. In the first nine months after the seat belt laws were passed in New York State, motor vehicle accident mortality dropped by 17%. The estimate is that if all states were to have mandatory laws, if the rate of increase of seat belt use were comparable in all states, and if that use maintained itself, we would have 4,000 deaths fewer annually in the United States, and that is a lot of deaths. It is very large in comparison to the number of deaths postponed by cardiopulmonary bypass procedures of all kinds.

The big money, if you want to save deaths, is in prevention. In Great Britain, mandatory seat belt laws resulted in 15% fewer patients admitted to the hospital after motor vehicle accidents (of course, compliance there is distinctly superior) and 25% fewer admissions to the hospital. Better enforcement of speed limits, better enforcement of drunk driving laws, vehicle design changes, improved engineering and highways, improved education so that people become accepting of seat belt laws, and other things will all contribute, I think, to a substantial drift downward over the next 15 years in motor vehicle related accidents and fatalities. And, I might note parenthetically, none of those interventions are traditional medical interventions. Physicians are standing at the sidelines.

Since 1968, there has been a persistent 2% annual decline in deaths from cardiovascular disease. That is a complex phenomenon, certainly the detection of hypertension and its treatment is a major component thereof. It is prevention but medically-induced prevention. Four percent of the folks who answered the telephone in this behavioral risk factors survey, said that they had hypertension, had been told by a physician that they had it and still have it. The solution here is largely medical, it is in part educational and certainly the development of new and improved drugs for the control of hypertension will make a major contribution to the continued drop in cardiovascular disease risk factors.

Smoking is another major risk factor for cardiovascular disease as well as a variety of cancers. It is said that currently 32% of U.S. adult citizens smoke, males more than females. It is dropping slightly among men, that is the good news, but it is picking up in women. The lung cancer rates in some states in women now equal the breast cancer rates. And, that is all driven by smoking. There has recently, however, been an increase in societal pressure against smoking. We now see discussions in the papers of smoke-free work signs, restaurants and airplanes have smoke-free zones and there is an increase in the awareness of the health consequences of smoking. There are more formal smoking cessation programs and, I think, slowly but surely we are going to paint smokers into a corner until increasingly they decide to quit or it becomes less fashionable to start. I think that we will see a continuation in the downward trend of cardiovascular deaths.

Sedentary lifestyle is another matter. Twelve percent of the respondents to the behavioral risk factors survey said they had a sedentary lifestyle.

I think we in medicine are actually behind the wave, trying to keep up with that. I was in a supermarket just a few months ago, (I enjoy an anecdote) and an issue of *Esquire* caught my eye. The theme of the issue was fitness and it contained a more careful analysis of the benefits of various kinds of exercise, all listed and described very completely: aerobic benefits and muscle tone benefits and a greater variety of exercises and recreations than was presented to us in medical school. So I think the interest in the population is there. It is widespread and slowly but surely physicians are getting the word that we too have to know something about this so we can join in this thrust toward prevention.

Let me mention the use of alcohol. This is a behavior that was self-admitted over the telephone. It is anonymous but you do have to fess up. Eight percent of adults said that they averaged two or more drinks a day. It was higher in males than in females. Twenty-three percent admitted that they were what the CDC describes as binge drinkers, that is on one or more occasions during the past month, they had five or more drinks. Fifty-two percent of young men, 18 to 24, acknowledged that. I am sure some of those drove after they drank too much. You have to be polite when you ask the question, did you drive when you possibly had to much? Otherwise, they hang up the phone. And, did this happen within the past month? Six percent of the population acknowledged that they did. Alcohol is a major contributor to motor vehicle related carnage that is currently going on. Technology is wonderful and as a physician who carries a stethoscope and takes care of patients, I depend upon it. I am thrilled I am able to bring the benefits of technology to my patients. But also as a preventive medicine physician, I urge people to adapt a healthier lifestyle. The insurance industry, I might say parenthetically, has made a major contribution to the Insurance Institute for Highway Safety and has stimulated a lot of work, the benefits of which we are currently seeing. I encourage you in that direction.

MR. EDWARD W. O'NEIL: I would be interested in Dr. Schaffner's and Mr. Chuffart's estimates of what is going to happen now that we are changing our highway speeds to 65. My recollection of the highway fatalities, before we changed to 55, is that we were in the high-40s as opposed to the mid-30s. I was wondering if whether or not that will produce an explosion in organ transplants because of the availability.

MR. CHUFFART: When we visited some transplant surgeons two years ago, we were very surprised to hear one of the transplant surgeons mentioning that some of his transplant patients, those that were expecting to receive a heart and were on the recipient list, were hoping for the weekend because they might get a new heart the next Monday. So, it is true, the majority of these donor hearts are coming from patients either killed or who have had a car accident.

DR. SCHAFFNER: Obviously when we increase the speed limits, we will have more deaths. We will minimize that increase if the increased speed limits are limited to areas that are truly out in the country and not in the urban areas, where the road characteristics minimize the occurrence of accidents. That has been very much a part of the congressional debate. We shall see.

MR. RICHARD B. SIEBEN: Mr. Kischuk, do you have any feelings on cost per AIDS case, with appropriate treatment?

MR. KISCHUK: That can vary by area. I think the average is around $140,000. Obviously, it does not get very high right now because the type of treatment is pretty limited. You could obviously run up some very high bills treating AIDS patients. We do see a lot lower bills, for example, in San Francisco, because of the various hospices and so on that have been put together by the gay community. But we are not really seeing that anywhere else. In a lot of the other areas in the country, the AIDS cases are more predominately IV drug users and just by the nature of that community, they are not going to ban together to create anything like the interest structure that we are seeing in San Francisco. So, the San Francisco situation may be unique and may not be duplicated anywhere else. Now, if we start to see some more expensive and effective treatment methods for AIDS, that bill could obviously run up much higher.

MR. SIEBEN: I have the impression that in areas of the country where there hasn't been much experience, there is an awful lot of money thrown at cases and stumbling around.

MR. KISCHUK: That is my impression. Some of the other panelists might be able to comment on that also. But, obviously if you have an area of the country that has not seen a lot of AIDS cases, for one thing, there may be a problem

diagnosing them in the first place. And second, they are not going to be up to speed on how much treatment is effective and how much is just money going out of the window.

MR. CHUFFART: Just one thing about the cost -- this new AIDS AZT drug costs about $10,000 a year. So just make the modification. If you have more than 1.2 million which are being infected right now and if everybody were receiving this drug, you could imagine how much it would cost per day or per year. In Switzerland, when I was talking to an eminent virologist, he said that because of the cost of that drug, it will be impossible to treat everybody, and a choice will have to be made. Who will you deny treatment to, the drug addict or to someone who has a high social status? That would have a tremendous impact because not only will you have to make choices such as these, but you also have to be able technically not to give the AZT for the whole period of the life. It is so expensive that you will be forced to try to evaluate when your body will be producing virene, AZT. They have new tests they use when looking for the production of certain antibodies. When they see that the production or the presence of antibodies, I think it is the P24 that goes down, it means that the production of virene is increasing. They will probably try to start the injection of AZT during that period.

DR. SCHAFFNER: AIDS is the most important disease that I will encounter in my professional lifetime. As a disease, it has more and various impacts on virtually all aspects of our society than almost any other, certainly more than any new disease. As regards to the previous question, I think that in most parts of the country, most specialist physicians, such as infectious disease physicians, have had enough experience with AIDS, that we are all past the early steep part of the learning curve. Even in the central part of the country away from the AIDS epicenters, we are all getting much more experienced taking care of these patients. And, I think that we are getting more astute in our management of the patients along with the medical resources that are required. We are all trying to learn from the San Francisco experience and we are trying to encourage our local hospices and nursing homes to accept AIDS patients more rapidly so that we can more quickly discharge them from the hospital. Not just for financial reasons, but everything works out much better for the patient and patient's family and friends.

MR. KENNETH S. AVNER: Dr. Schaffner you just said that AIDS is the most extraordinary thing you will see in your lifetime. I am wondering just how unprecedented something like this outbreak really is. I can think of some, at least superficially, similar occurrences in the past. First there was the tremendous plague of Black Death in Europe during the 1300s which wiped out a quarter of the population. More recently there was the influenza pandemic of 1917 which I believe was caused by a new strain of the virus. There are probably other examples.

My question concerns our advances in the area of infectious diseases. Is it likely that we will pretty much conquer them as a class? Or will we always have new infections that potentially can cause major outbreaks resulting in "unexpected" morbidity and mortality?

DR. SCHAFFNER: AIDS is the latest chapter in the series of huge outbreaks of disease. Information on the Black Death of the middle ages is sketchy. We know its mortal impact on the population but we know very little more about it. Even the great influenza pandemic of 1917 and 1918 still has the influenza experts debating intensely as to why that period was associated with such a high fatality rate. But certainly in the modern era, where we have had the resources of contemporary science to come to grips and quickly identify a new infectious agent, AIDS has ramifications that go far beyond toxic shock, Legionnaires disease and a whole host of newly identified infectious diseases whose impact is much more modest. For the foreseeable future, I am afraid there will be plenty of work for physicians and researchers in the area of infectious diseases.

MR. STARR E. BABBITT: I'm from the Tennessee Insurance Department. We are on the other side of the fence from most people. When it comes to the experimental procedures, we have never been able to determine who decides when something that is experimental today becomes routine tomorrow. I had a letter from a doctor the other day, at Vanderbilt, in fact, who said that all the literature said that Magnetic Resonance Imaging is no longer experimental. I called Blue Cross/Blue Shield in Chicago and they said that below the third cervical vertebra, it is experimental or investigative. Nobody seems to know. I cannot put my finger on any government organization that says that a heart transplant is now an acceptable procedure and is no longer considered experimental. We do not like to have people put an exclusion on a contract that says

we will not pay for this transplant, that transplant, this drug, that drug, etc. Because we know that tomorrow those things will be routine. And that contract will still be sitting out there. And they will still be enforcing that exclusion.

MR. CHUFFART: That is a very important point. Related to the heart-liver and heart-lung transplantation there is a need for medical technology assessment and there is a need for a unique institution performing all of these health technology assessments. Because, for instance, heart transplantation is certainly considered therapeutic at Stanford, it should not be considered as therapeutic in a transplant center we just started.

So it is not that easy. You will see that contrary to what happened in the past, you can have one technology which will still be considered as experimental when performed at one institution but can no longer be considered as experimental when performed at another institution. Medicare has now adopted these concepts of centers of excellence for heart transplantation. That is why I perhaps insisted too long on these new concepts of centers of excellence. It is the beginning of selecting a provider who will be able to perform some technology provided certain criteria has been fulfilled.

MR. KISCHUK: I think you are looking at kind of an in between situation there. Currently AIDS has a greater impact on life insurance than on health insurance; typically the claim amounts are larger and, of course, AIDS is 100% fatal. However, in group life, you do have advantages that I alluded to earlier in underwriting pricing. You can reprice it annually and you do have the opportunity to underwrite and to not quote on certain groups where you suspect there is a very high AIDS risk. So, it would be somewhere in between. I think in terms of companies, the impact, and this is true in health as well, is going to vary based on where the book of business is located and that is what I alluded to earlier. A national carrier might have a lot of AIDS exposure, say in California, but might have a national book of business and a lot of premium to spread those AIDS cases over. On the other hand, you may have other carriers whose business is primarily focused in the Midwest and almost no AIDS exposure. Obviously, the regional carrier, for example, whose business is mostly in California or in the New York area is going to have a quite large exposure and is really going to be hit with a lot of these pricing and underwriting problems

right now. So, I guess my main impression would be somewhere in between the group health and the individual life situation.

MR. CHUFFART: We have made some computations at Swiss RE. As you can imagine we are concerned because we are working in about 130 countries and also in Africa. We have made the following estimation based on the prognosis made by the Swiss Federal Office of Health. They have also made suggestions of how many people will have AIDS in 1991. Based on this assumption, I have tried to determine the number of AIDS cases that will die in 1991. The impact on the male mortality on the whole Swiss population between 20 and 50 would be 25% based on the assumptions. Other studies in Switzerland show that in one state, 1% at least of the male population between 15 and 65 is positive. You have statistics in your country which show that the extra mortality attached to zero positive is at least 2,700%; I have seen much higher figures. If you have 1% of zero positive in your portfolio, the mortality of the whole portfolio goes up by 25 or 26% over a certain period, because you have one person with 2,600% extra mortality. And, that is assuming that you have only 1%. But, you have very strong antiselection. It has been shown in your country by the Home Laboratory reference in Kansas City that the rate of zero positivity of the blood donor as compared with the rate of zero positivity of the applicants for the first quarter of 1986 was in relation 1 to 12. It also shows that you have drastic antiselection and if 1% of zero positive in the portfolio causes an increase of mortality in the whole portfolio of 25 or 26%, then you could imagine what would happen if you had the entire antiselection. You would certainly not have 1 or 2%; you will have perhaps 2, 3, or 4%. Don't forget also that it will not only concern life but it will concern short-term disability and long-term disability. Before dying, these people will be disabled and you will pay benefits for medical expense too. So I think it will be considered as a very, very, very serious problem and the most serious problem we ever had. The only advantage we have is that we are aware of that problem much in advance and we can take certain measures which the casualty companies did not take 10 or 15 years ago. But we are in a similar situation and I think we have a great responsibility towards our shareholders and our insureds.

MR. KISCHUK: Obviously the biggest problem is for individual life insurance because you are locked into a long-term contract and once you have issued that contract, short of misrepresentation within the first two years, you're locked

into that plan. Obviously, with group life, you can get totally out of the group life business within a year if you need to because of that threat. In view of the 1% increase in the mortality that Mr. Chuffart has talked about, there are projections that if you have that kind of antiselection in individual life insurance, most individual life companies, as you know them, will become insolvent down the road. The AIDS exposure and the impact on individual life riders is extremely serious. You just do not need a very high percentage of AIDS claims at all.