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ECONOMIC ASPECTS OF MEDICAL CARE PATTERNS: MACRO AND MICRO VIEWS

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A discussion of techniques for understanding and analyzing trends in medical care, including:

- o Utilization and cost components
- o Analysis of cyclical behavior
- o Use of econometric models
- o Aggregate trends versus employer-specific trends

MR. DAVID V. AXENE: We are going to start with Mr. Robert H. Dobson from Tillinghast, Nelson and Warren. Mr. Dobson, whom you might consider an expert in the field because of his economics degree, disavows any connection with practicing economists. Our second speaker will be Mr. John P. Cookson, who works in the Philadelphia office of Milliman & Robertson. John spends considerable time analyzing economic variables and their effect on medical care patterns. These first two speakers are planning to address theoretical aspects with emphasis on the macro view.

The last two speakers plan to address the issues of applying predicted trends to specific situations, which represent the micro view. Mr. Donald E. Sanning from Bankers Life Company is responsible for group life and health products

within Bankers' Actuarial Department. His presentation will be on how Bankers Life monitors trends. Our last speaker is Mr. Raymond F. McCaskey, the Chief Financial Officer of Blue Cross/Blue Shield of Illinois. Mr. McCaskey is responsible for actuarial underwriting and strategic planning. He is going to talk about the potential problems with analytical methods. His presentation will introduce reality to the models, making it easier for you to go out and solve your own problems armed with the theoretical, the practical and the potential problems associated with applying these principles.

MR. ROBERT H. DOBSON: I'm worried. Really worried. I'll tell you why I'm worried. It's not just because the economy has been so good for so long. We're in the 41st month of an expansion. That's eight months longer than the average expansion. That's approaching the 1975-1980 expansion for the longest peacetime expansion in history. But I'm not just worried because I think the end of the good times is near, even though I do, as you'll hear later. I'm worried about the decisions that are being made as if there were not going to be another half to the cycle -- as if the good underwriting cycle that we're in right now were going to continue forever.

I'm sure that no one in this room fails to believe in economic cycles. I'm sure that no one in this room thinks that the good underwriting period we're in right now will continue for a whole lot longer. I wouldn't know that by looking at the kinds of strategies that I see people planning and the program developments that I hear people talking about.

As we all know, there has been a medical care utilization decrease over the past several periods which may have come from some of the cost containment efforts. The utilization decrease may have also been triggered by the government's moving to Diagnosis Related Group (DRG) reimbursement on Medicare. It came at a time when inflation was lower as well, and during a period with new types of competition.

But again, the emphasis has now shifted clearly back on marketing. People are entering new programs; competition is fierce among carriers, administrators and providers. The label of a "new" competition applies because it's the first such competition that has really been evident among the providers. I don't

think it's the last. And just to make one theoretical economic point, the competition among providers is evidence that the market is not yet in equilibrium, so we can be sure of continuing changes.

The point of strolling down memory lane is that in the last 12 or 13 years since price controls ended, we have had two major good underwriting cycles and two major bad underwriting cycles. In pure economic terms there have been many different swings of the business cycle during that period, but I'm eliminating the smaller swings and looking only at the broad picture from the carrier's perspective.

To project to the next half of the cycle, I believe that in the late 1980s we're going to have a downturn characterized by _____. You can fill in the blank any way you wish. Some may say that it's already started, or it may be another year or two. It's possible that it could be longer than two years before the downturn starts. I thought I was fairly safe by saying late 80s. Possible fill-ins for the blank include economic factors. Certainly the downturn could come from a lack of economic growth, renewed inflation, or renewed high interest rates, any of which could result from the deficit or the trade imbalance, the overall weakness of the world economy, or from unemployment. There certainly are already some bad industries: the oil industry has and will continue to have unemployment problems. Some regions will be affected more than others, which could cause sporadic trends varying by regions.

The blank could be filled in from health care industry-related measures. I have begun hearing talk that charge level increases may be accelerating. This could, of course, be resulting from the continuing oversupply of physicians and the practice of income maintenance. Income maintenance means that physicians increase their fees enough to keep their income stable when utilization of their services declines. Charge level increase acceleration could come from nonprice competition. There is apparently competition among hospitals to have the nicest new building and the nicest facilities. The increased costs have to affect charges at some point. The acceleration in charge level increases could be from the more traditional cost increase factors like intensity or technology. Maybe it will result from utilization increasing again. I've been worried about what might happen when utilization reaches the bottom and we have

eliminated all the abuses from the system. This may not have occurred yet, but at some point we've got to reach a plateau, and then perhaps the cycle will turn up again. The reasons it might turn up include the general aging of the population; the potential future unemployment; or the fact that younger, less senior workers are usually laid off first; and the individual groups have an aging tendency.

So fill in the blank with whatever you'd like. I believe at some time there is going to be a downturn, and I hope that people will be preparing for it now.

How can we know when the downturn is going to occur? The *Wall Street Journal* recently had an article suggesting the stock market as an indicator. It said that the market was a fairly good indicator, although this same article quoted Paul Samuelson as saying, "Yes, the stock market is a good indicator, it has predicted nine out of the last five recessions." Personally, I would rather predict nine out of five than five out of nine when it comes to downturns in the medical care underwriting cycle.

How can we be ready for all of this when it happens? The first thing I would suggest is to plan for it now. It's always difficult to plan for bad times when you're in good times, but it makes a lot of sense. I would suggest making management aware that a change will occur, and helping it recognize the change when it does occur. It's important to make appropriate plans now for coping with the downturn when it does occur.

Second, watch. I think some of the other speakers will talk more about specific economic indicators to look at. There are certainly many indicators that can be followed for the economy in general, for the medical care situation more specifically, and even more specifically, indicators you can watch for your own business. It is most appropriate to monitor many items, because not any one indicator will do it. Monitor all these items, and keep it all together in a file somewhere and watch what happens over time.

Finally, react. Obviously, plans and monitoring don't do any good if no action is taken as a result. It is not very easy to be the first to react to what is perceived to be a worsening of the economic conditions, but it is very costly

not to react on a timely basis. It is important to recognize that we are responsible for the financial stability of our employers and our clients. From this standpoint it is not just our responsibility, it's our job.

I'd like to end by quoting my favorite philosopher, Jimmy Buffett, in a song that he wrote called "My Job." In this song he says, "In my contract there's this clause, that says it's my job to be worried half to death. That's the thing people respect in me. It's my job and without it I'd be less than what I expect of me." So that's why I'm worried.

MR. JOHN P. COOKSON: One obvious thing that Bob didn't touch on was why we trend projections. I think the two most important reasons are for our rating process and for our financial forecasting and planning process. If we do a good job or if we do a better job in estimating our future trends, we can improve our profitability. We can stabilize our financial results, reduce risk charges and improve competitiveness.

Historically, I think, as an industry, we have not done a very good job at anticipating the trends. I could classify the approach that's been used somewhat as retrospective (determining what the trends have been and sort of factoring that in to some expectation of what they are likely to be in the future) a little bit of a group approach (what is everybody else doing?) with, certainly in the good times like now, a lot of marketing pressure to reduce trade trends to become more competitive.

Let's look at a sample of what the results have been. Figure 1 is a plot of the trends in the consumer price index (CPI) in 1972-84. The CPI trends are lagged one year to make the peaks and troughs line up a little better against the underwriting results which are published in the Argus chart for both the commercial carriers and the Blue Cross/Blue Shield plans. As you can see, the peaks in the CPI line up with the troughs in the underwriting results and vice versa. That's what we've been all about for the last fifteen years.

Obviously the cycles are very apparent and apply to both the gains and losses of the underwriting results, as well as the underlying health insurance trends. So, what is it that drives the cycles that we have seen? Figure 2 shows the

FIGURE 1

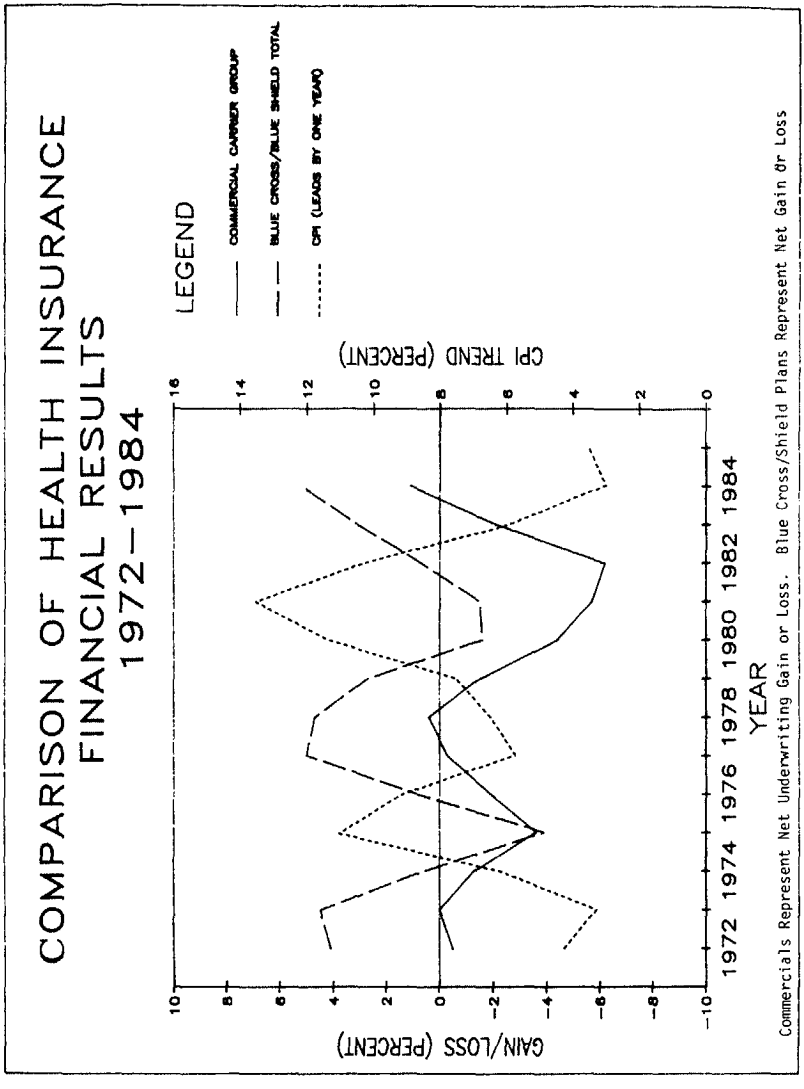
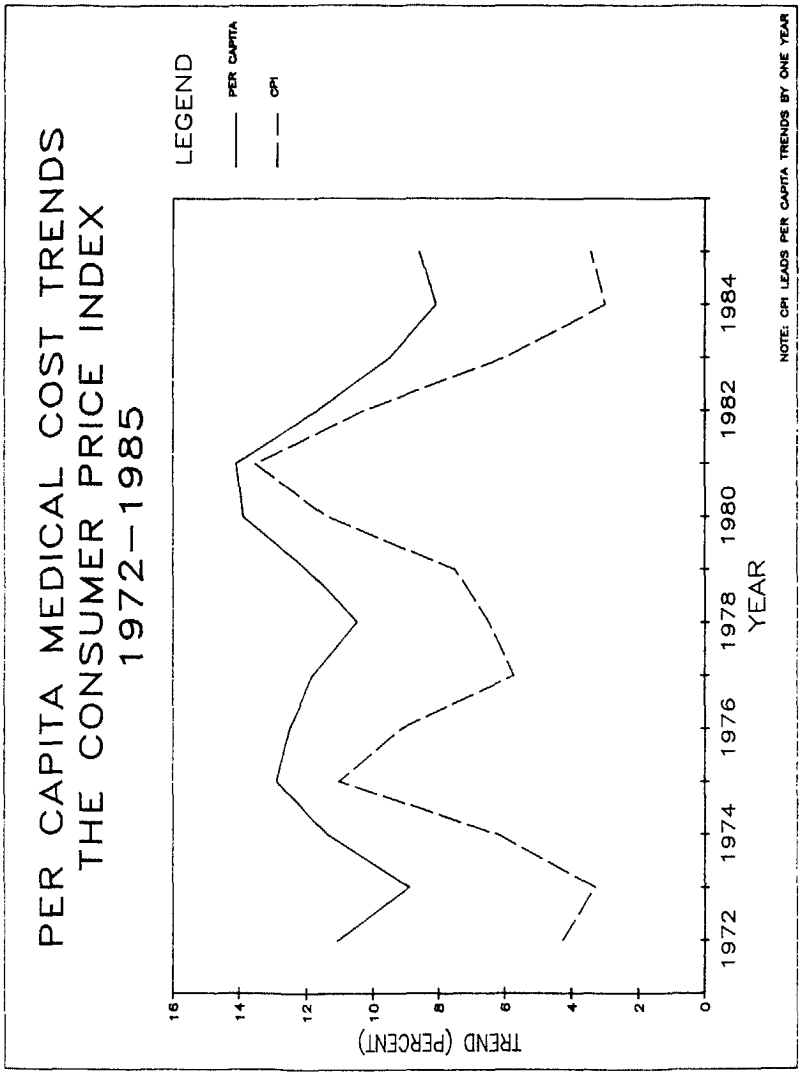

COMPARISON OF HEALTH INSURANCE
FINANCIAL RESULTS
1972–1984
LEGEND
COMMERCIAL CARRIER GROUP
BLUE CROSS/BLUE SHIELD TOTAL
CPI (LEADS BY ONE YEAR)
GAIN/LOSS (PERCENT)
CPI TREND (PERCENT)
YEAR
1972 1974 1976 1978 1980 1982 1984
Commercials Represent Net Underwriting Gain or Loss. Blue Cross/Shield Plans Represent Net Gain or Loss

FIGURE 2


PER CAPITA MEDICAL COST TRENDS
THE CONSUMER PRICE INDEX
1972–1985
LEGEND
PER CAPITA
CPI
TREND (PERCENT)
0
2
4
6
8
10
12
14
16
1972
1974
1976
1978
1980
1982
1984
YEAR
NOTE: CPI LEADS PER CAPITA TRENDS BY ONE YEAR

plot of the same consumer price index trends over the 1972-85 period against the total per capita medical care cost trends for the U.S. Again, here you can see the peaks in the CPI lining up with the peaks in the per capita medical care trends and vice versa. So, obviously inflation is a major driving force in our health care trends, that is, inflation as measured by the CPI.

As Bob mentioned, a number of other factors and other economic variables also affect the trend cycles that we have observed. The ones that I'm most familiar with using (in terms of analyzing the trend cycles) are unemployment and GNP. I think both of these provide a measurement of the stress levels that people are undergoing. Stress is highly correlated with both morbidity and mortality characteristics. These economic factors also reflect what's happening in the groups in terms of the demographics. If the groups are laying off the younger employees, their demographics are deteriorating, and their utilization levels are going to go up. Layoffs will also affect the coordination of benefits (COB) savings between one group and another. The group with the layoffs will be transferring some of its COB savings back to other groups in terms of increased claim costs.

Beyond pure economic variables, trends are also impacted by external circumstances that are very difficult to anticipate. Obviously, the impact of cost containment measures over the last few years, the implementation of the DRGs, the effect of HMO anti-selection within specific groups, all can have a significant impact for a given carrier in a given area over a given time.

Interestingly enough, I've been working with these trends for about ten years, and we've been actually fairly good at trying to anticipate the relative level of trend changes and the inflection points, or the turning points, in the cycles. We've now developed a model that we use to reflect the underlying health insurance trends. This model is based on (is composed of) a number of factors. It's based on the components of covered charges from a Comprehensive Major Medical plan from *Milliman & Robertson's Health Cost Guidelines* matched with the appropriate medical care components of the CPI. It reflects national hospital utilization statistics, Medicare estimates of physician utilization (since that's about the best source we can find), and the *Lilly Digest*

information on drug utilization. There are a number of areas that I would like to see improved, but at this point in time, this is about the best that I can get.

The model has limits. It is related to the fee-for-service sector because it's based on charges. It is also reflective of full coverage. There are no deductibles and no caps. It's just total covered charges. It doesn't reflect the demographic impacts of changes from the economic cycles or anti-selection that may be resulting from HMO penetration in a certain area. I think that despite these limits, it's a good baseline with which to start. We have actually developed separate models, one for inpatient and one for all other covered services. We have limited capability to do inpatient models by region.

I have some examples that I would like to show you that compare this model with some actual trends. The first one, Figure 3, is a historical representation of a large group's trends over time periods similar to the model's. I think you can see that the cycles line up fairly well. The group's trends tend to peak a little bit higher and trough somewhat lower than the model's. But again, there are differences in area, differences in benefit mix, and differences in demographic changes and in reimbursement mechanisms. For example, are hospital costs reimbursed on a cost basis, charge basis, or as negotiated per diems? These all can affect the actual trends that will be observed.

Figure 4 shows one of our clients. This is a local one-state plan that has plotted its most recent trends against the model. Basically, I think the pattern is very similar, but the client seems to be a couple of points above the model, which you would expect just from the effect of leveraging of trends due to deductibles or from some of the other factors that I mentioned.

Figure 5 is a graph of an inpatient hospital cost trend versus our inpatient model. Again this is a very localized experience base. The carrier hadn't bothered to measure the trends in the last couple of years because it knew they were down close to zero, so it really followed the trend curve down close to zero in 1984. Again I think the cycles are all very similar, commonly throughout the industry.

FIGURE 3

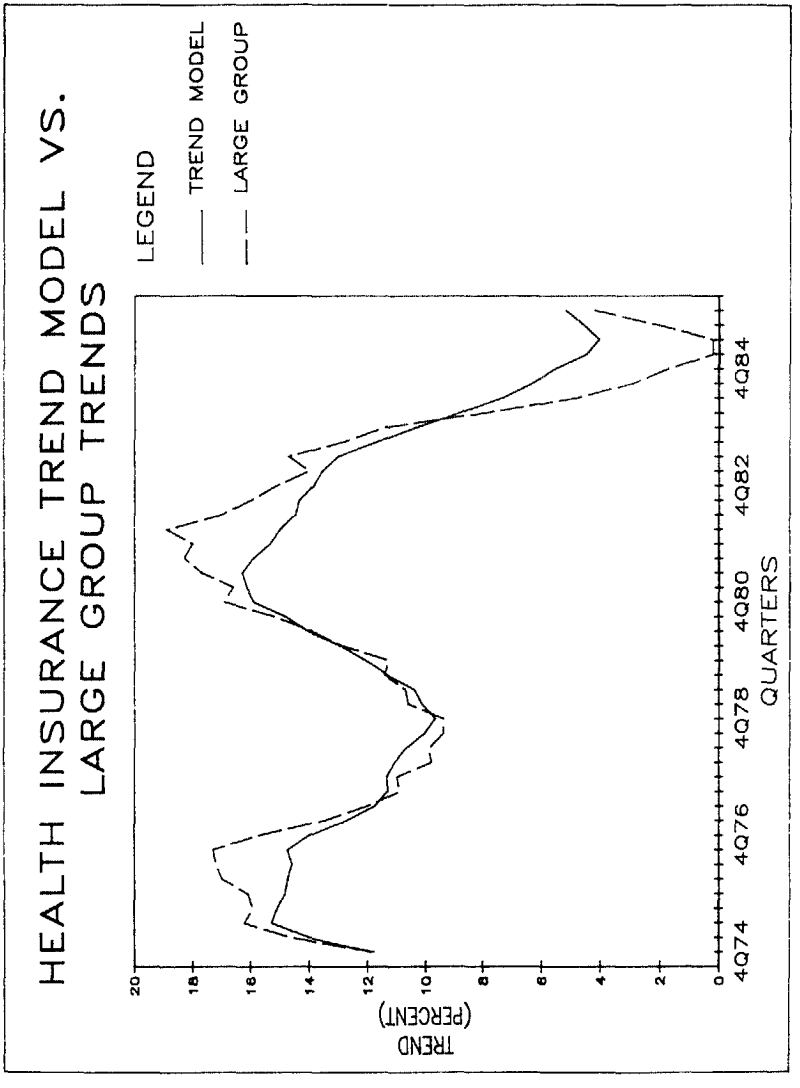

HEALTH INSURANCE TREND MODEL VS.
LARGE GROUP TRENDS
LEGEND
TREND MODEL
LARGE GROUP
TREND (PERCENT)
20
18
16
14
12
10
8
6
4
2
0
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84
QUARTERS

FIGURE 4

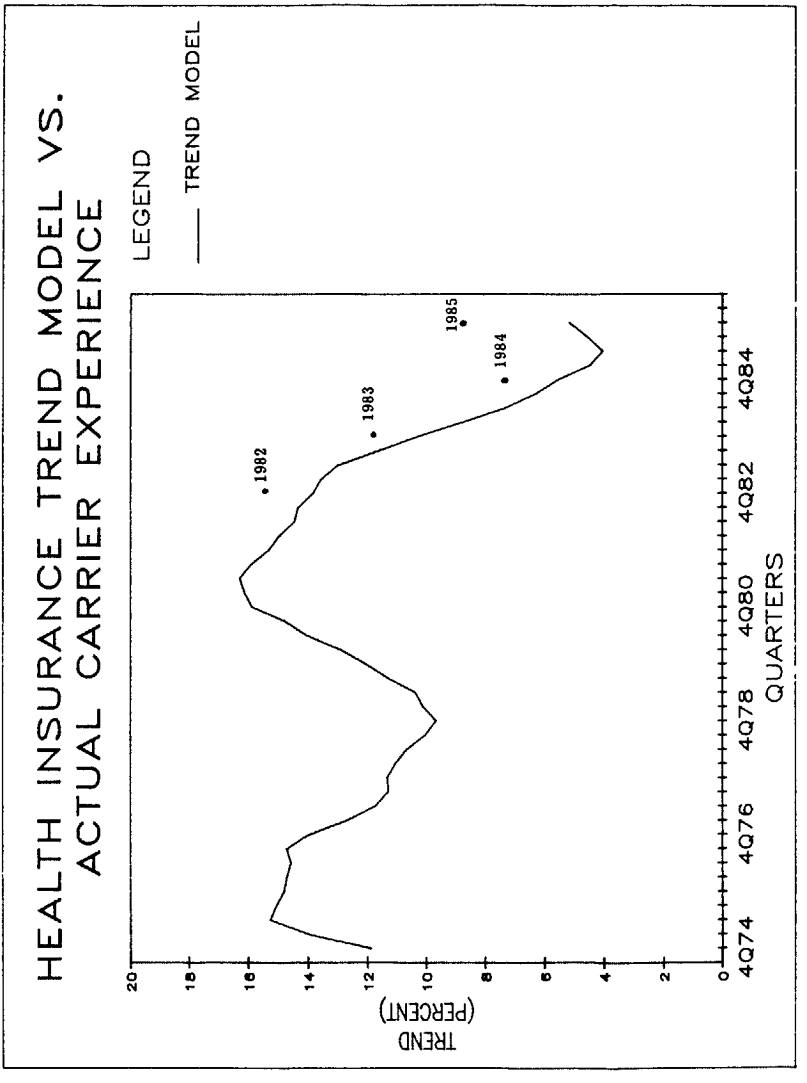

HEALTH INSURANCE TREND MODEL VS.
ACTUAL CARRIER EXPERIENCE
LEGEND
TREND MODEL
1982
1983
1984
1985
TREND (PERCENT)
20
18
16
14
12
10
8
6
4
2
0
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84
QUARTERS

FIGURE 5

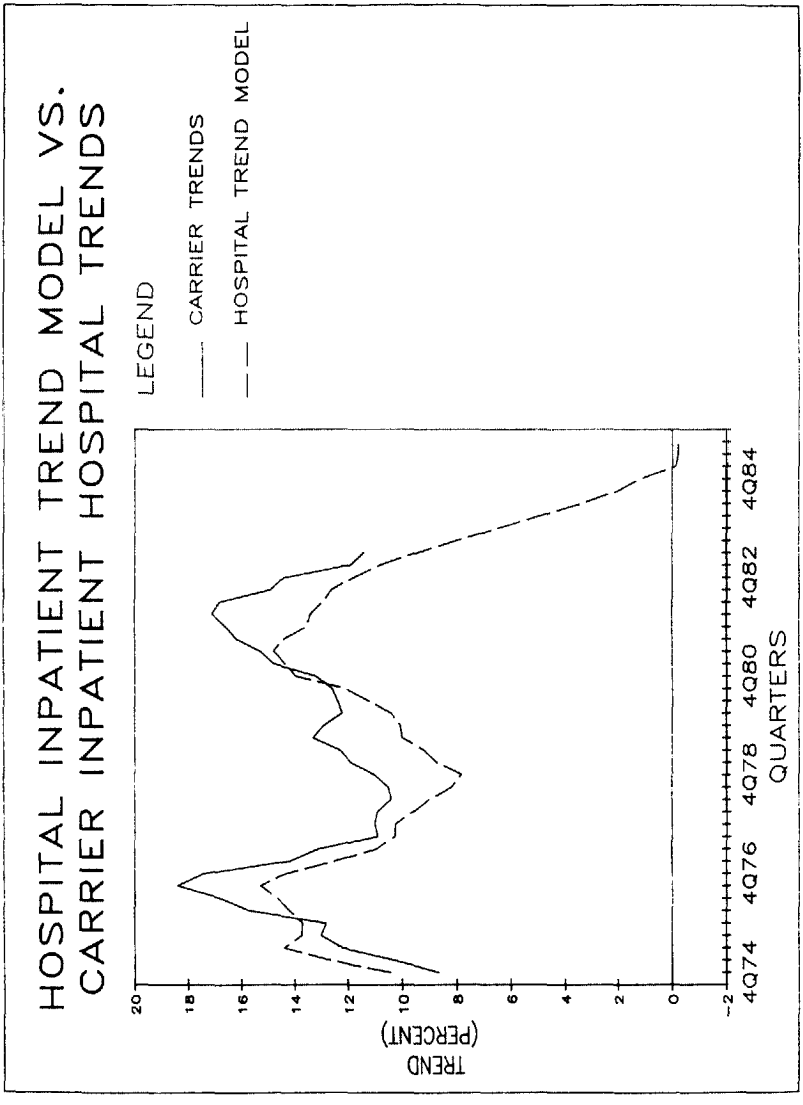

HOSPITAL INPATIENT TREND MODEL VS.
CARRIER INPATIENT HOSPITAL TRENDS
LEGEND
CARRIER TRENDS
HOSPITAL TREND MODEL
TREND (PERCENT)
20
18
16
14
12
10
8
6
4
2
0
-2
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84
QUARTERS

Figure 6 shows the Argus chart commercial carrier gains and losses that were shown over this time period against the trend model. Again, I think you'll see the pattern is very, very similar. This leads me to believe that even if you don't have good exposure and really don't have good trend information, by analyzing your loss ratios or your gain and loss experience, you can get some kind of an idea of what kind of experience you've really seen.

Some of the factors that I mentioned above can be adjusted specifically. For others I think you will have to take a good amount of judgment into account. For example, the first one is the effect of the trend leveraging. Obviously, the higher the trends, the higher the leveraging. What I've done in Figure 7 is representative of the effect of a $100 deductible, $500 out-of-pocket Comprehensive Major Medical policy; I've looked at what impact that would likely have on the effective trends.

The second area is the effect of the layoffs -- the layoff phenomenon and the unemployment rate. I have a little model that is based on change in the unemployment rate. This model estimates a change or an impact on the underlying trend curve. As you can see in Figure 8, this adjustment increases the trends in the high trend periods and reduces the trends slightly in the low trend periods, which is sort of reflective of the average impact of layoffs based on a number of reasonable assumptions. Of course this impact will vary substantially from carrier to carrier and from group to group, depending on the particular industries they write and the impact on the groups that they sell.

The third phenomenon is what I refer to as the "churning," and I don't have a model. But when we go through a period like we have had in the last year or so, with the rate increases very low, groups are more unlikely to shop for lower rates, especially when they are used to getting 20 and 25% rate increases. This may be less and less the case, but at least historically it has been true. I've noticed from some rate comparison surveys that we've done (small group rates for about a dozen carriers) that for a given specific set of demographics, identical benefits, and identical areas, the ratio of rates for the highest to the lowest typically varies as much as 2 to 1. That is generally what you'll see, a 2 to 1 ratio or higher. This means that when the groups go out to shop, there's a broad spectrum of rates they're likely to find. And

FIGURE 6

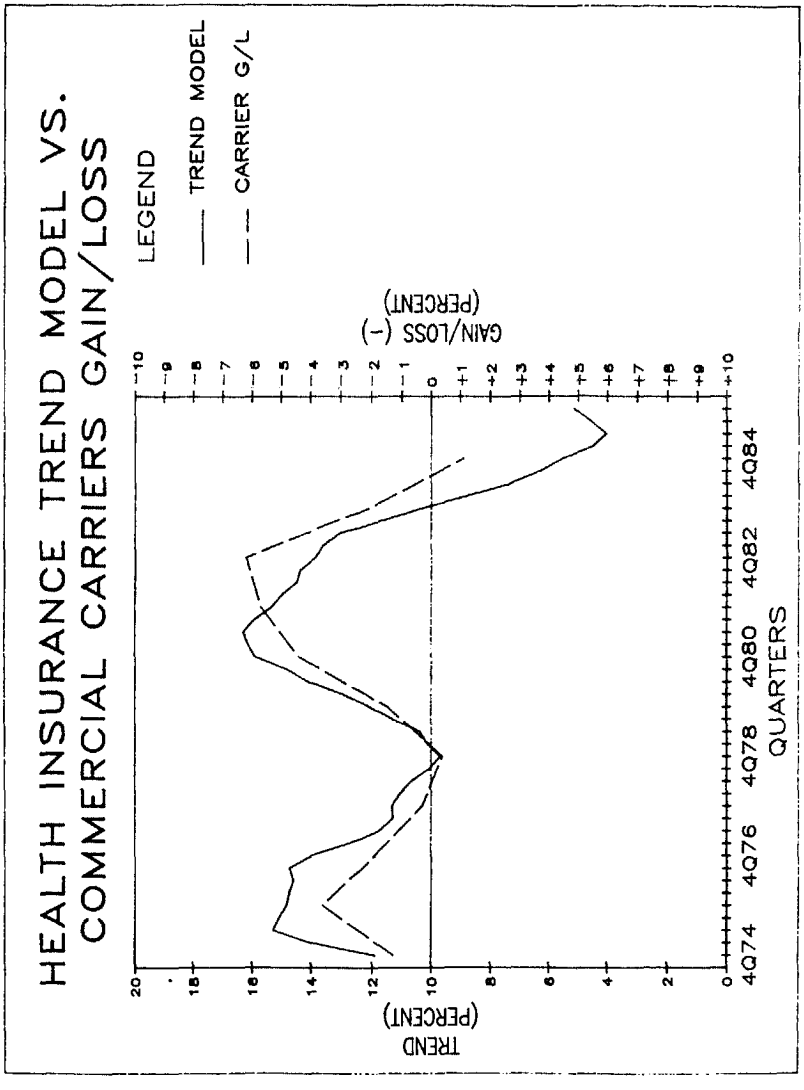

HEALTH INSURANCE TREND MODEL VS.
COMMERCIAL CARRIERS GAIN/LOSS
LEGEND
TREND MODEL
CARRIER G/L
TREND (PERCENT)
GAIN/LOSS (-) (PERCENT)
QUARTERS
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84

FIGURE 7

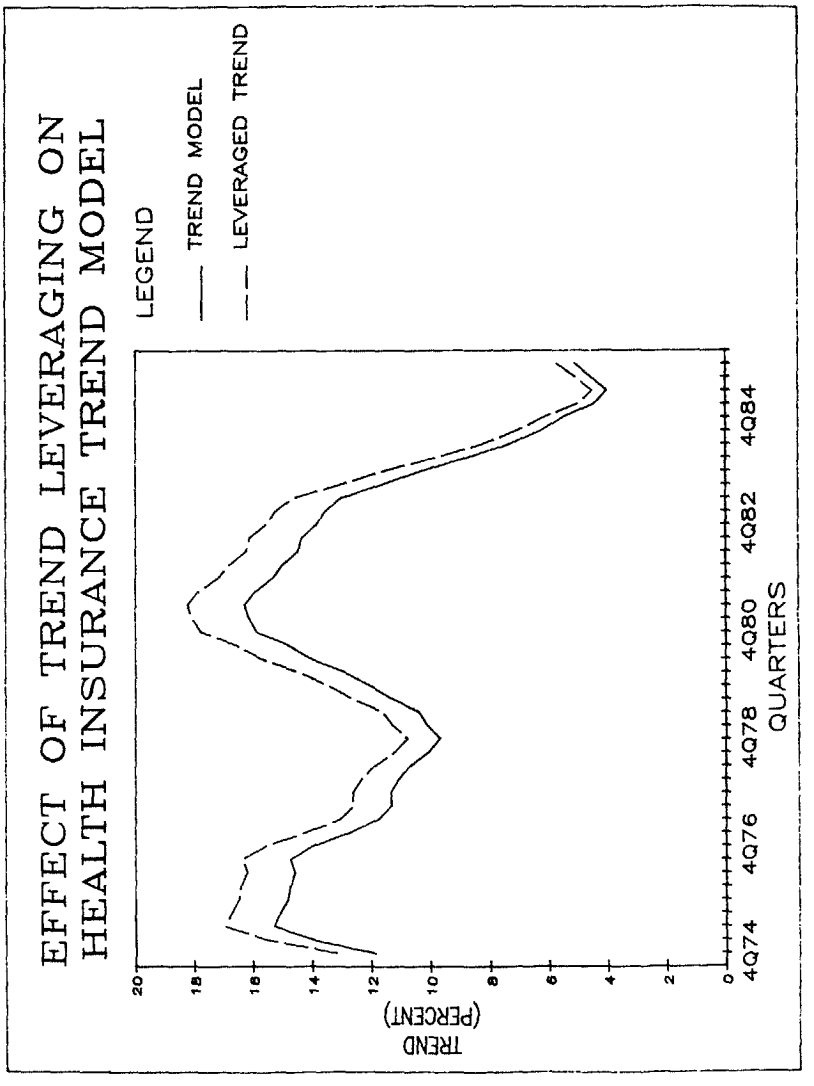
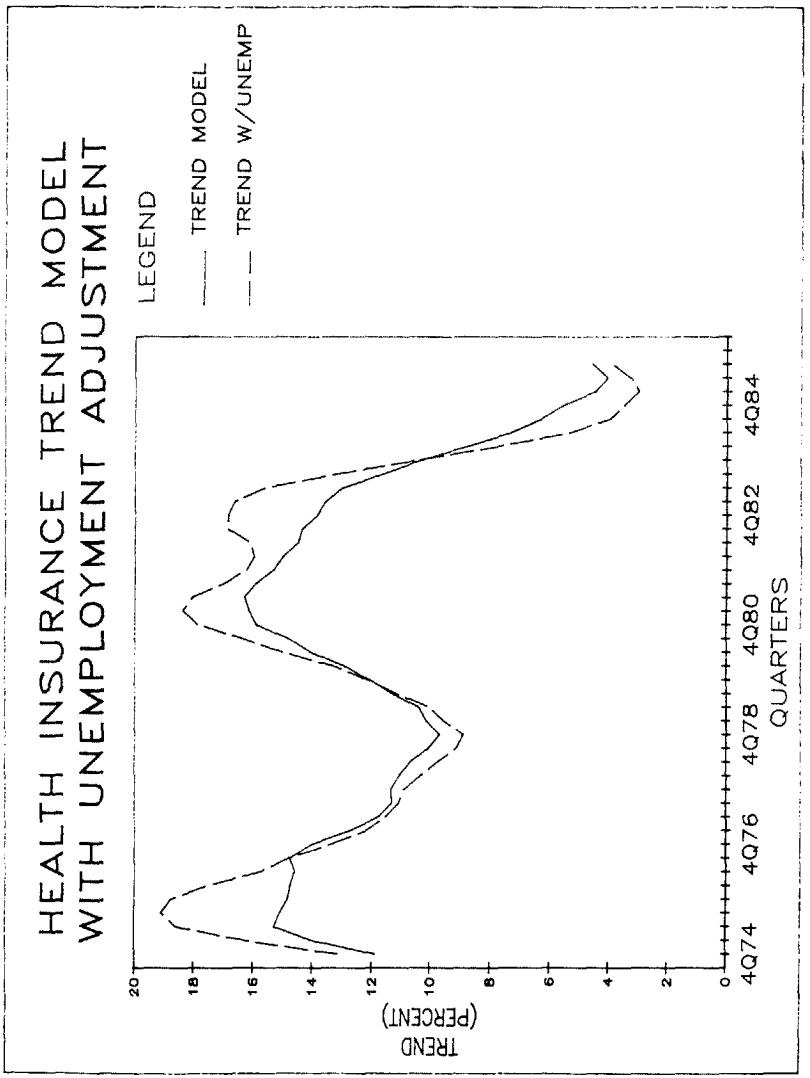

EFFECT OF TREND LEVERAGING ON
HEALTH INSURANCE TREND MODEL
LEGEND
TREND MODEL
LEVERAGED TREND
TREND (PERCENT)
20
18
16
14
12
10
8
6
4
2
0
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84
QUARTERS

FIGURE 8


HEALTH INSURANCE TREND MODEL
WITH UNEMPLOYMENT ADJUSTMENT
LEGEND
TREND MODEL
TREND W/UNEMP
TREND (PERCENT)
20
18
16
14
12
10
8
6
4
2
0
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84
QUARTERS

as we begin to increase our rates and begin to increase the groups' propensity to look for a better deal, what we're doing is stimulating them to select against us. Since our rating structures are not perfect, each time we go through this cycle, we end up losing our better business or our more profitable business, and maintaining our less profitable business (it happens to most other carriers), so our loss ratios go up, and it is perceived as an additional increase in trend.

Some of the other factors could possibly be dealt with on a more specific basis, for example, experience by area or the impact of reimbursement levels (especially with negotiated per diems). But most of the other factors are going to have to be measured in terms of your own judgment. How you interpret what's going to happen with cost containment, with things like the implementation of DRGs, and with anti-selection from new alternative delivery arrangements in your area will determine the effect of these other factors.

Now that we have a model, where do we go from here? Basically, what we'd like to be able to do is to project into the future using that model. Ideally, if we think the cycles are economically related, if we know what's going to happen to the economy or we can project scenarios about the economy, we'd like to be able to produce the impact on the medical care trends. So what we've done is to develop from our model a Box-Jenkins transfer function which uses CPI trends and the unemployment rate with various time lags. The results are shown in Figure 9. What we've done is to use three scenarios projecting from our model. They are, just for convenience, labeled "1962," "1965," and "1955." The significance of those dates is that we've taken the *changes* in the CPI and the *changes* in the unemployment rate during those time periods and extrapolated them onto current experience as examples to illustrate the projection of the model. Figure 10 shows what those scenarios were in a summary form. It's the combined effect of various levels of increasing or decreasing inflation as measured by the CPI and various levels of changes in the unemployment rate that creates the projections that go forward in time.

Just to summarize, don't forget we've got to add the effect of leveraging, of unemployment and of any of the other variables that are affecting your block of business. In this way, actual trends are more than likely to be several points

FIGURE 9

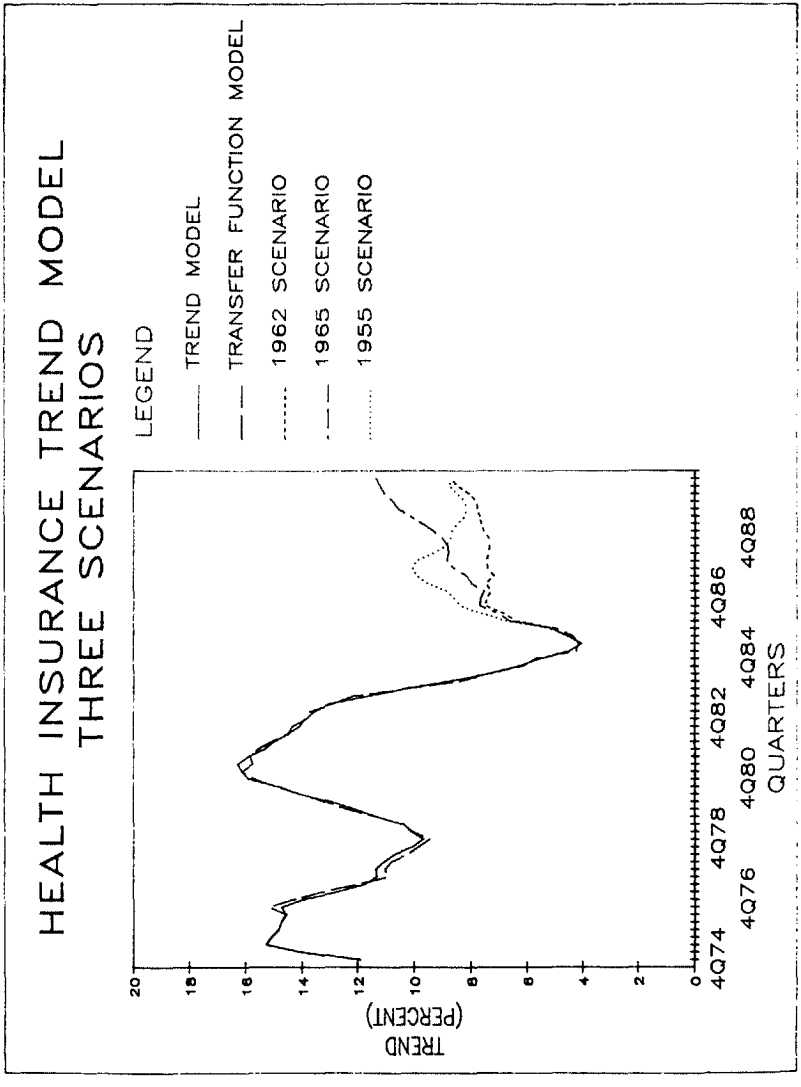
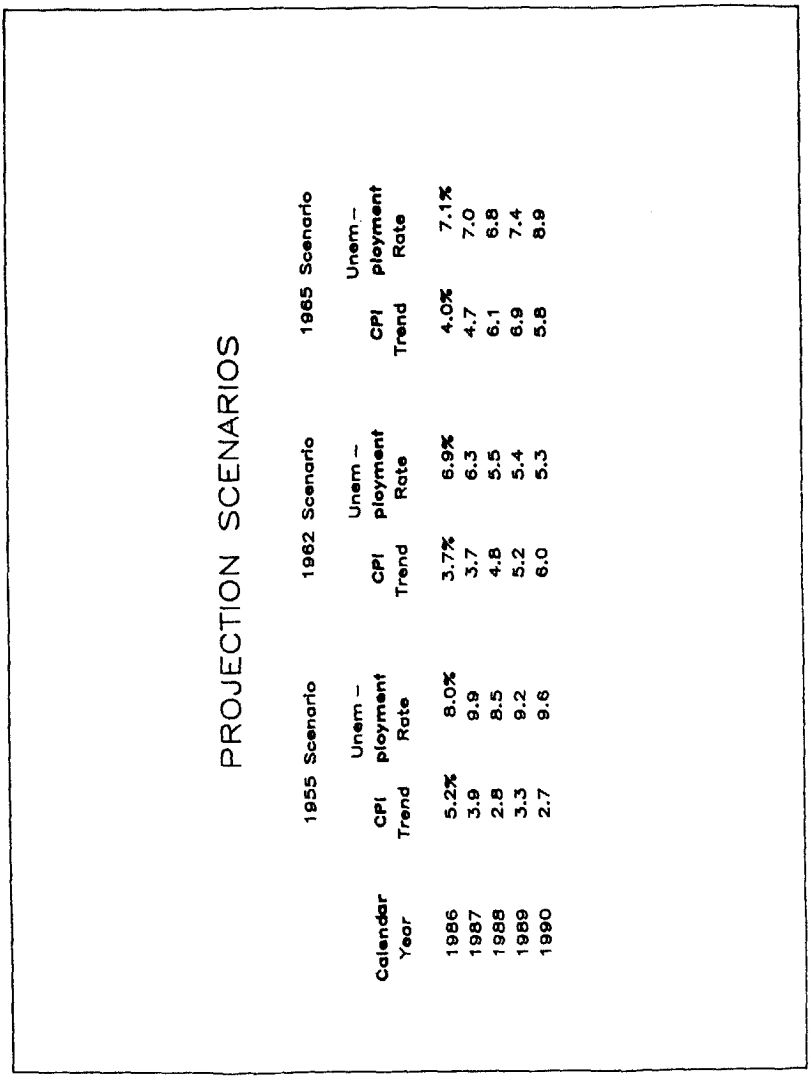

HEALTH INSURANCE TREND MODEL
THREE SCENARIOS
LEGEND
TREND MODEL
TRANSFER FUNCTION MODEL
1962 SCENARIO
1965 SCENARIO
1955 SCENARIO
TREND (PERCENT)
20
18
16
14
12
10
8
6
4
2
0
4Q74
4Q76
4Q78
4Q80
4Q82
4Q84
4Q86
4Q88
QUARTERS

FIGURE 10


PROJECTION SCENARIOS
1955 Scenario
1962 Scenario
1965 Scenario
Calendar Year
CPI Trend
Unem-ployment Rate
1986 5.2% 8.0% 3.7% 6.9% 4.0% 7.1%
1987 3.9 9.9 3.7 6.3 4.7 7.0
1988 2.8 8.5 4.8 5.5 6.1 6.8
1989 3.3 9.2 5.2 5.4 6.9 7.4
1990 2.7 9.6 6.0 5.3 5.8 8.9

higher than the model shows. I would predict that with the trends going up, the leveraging gets somewhat higher.

The last item I will mention is monitoring the trends. You saw a couple of examples in some of the earlier figures where you can either overlay your trends on a model like the one shown or track your loss ratios. It's important that you do something to begin to determine or track a history so that when going forward in time, you can at least see how your own experience is related to the economy, and try to anticipate that in the future.

MR. DONALD E. SANNING: At Bankers Life Company we approach trend by studying our own experience. We have developed methods to study trend on a rolling twelve month basis. As part of our case records we maintain a rate history file. From this information we can convert the current or past billed premium to a consistent basis for all cases in a particular block of business. Using these base premiums we develop loss ratios over a 24-month period. We use the relationship of two consecutive 12-month loss ratios as an indication of trend level for the most recent 12-month period. In addition to this rolling 12-month calculation, we also break the most recent 12-month study period down into two six-month periods. The trend study is done only for comprehensive coverages, since they are the vast majority of our medical business. We also track dental trend in the same manner.

Both the medical and dental business studies are on a block-by-block basis. Our business blocks have three main variants:

1. size, and to some extent type of group insured,

2. whether it is pooled or experience rated, and

3. type of marketing arrangement--whether it is sold by individual agents, group field force, or independent marketing organizations.

These blocks range in size from premium of $60 million to $220 million. While we do these calculations monthly, they are monitored on a quarterly basis.

What do these studies show? For any particular block we get an indication of the trend level, the direction of trend movement and the rate of change. For instance, one of our blocks showed the following pattern of trend:

	12 Months Ending	*1984*	*1985*
Quarter	I	21.50%	8.25%
	II	18.50	7.75
	III	17.25	8.00
	IV	12.00	10.25

Starting with a trend in the low 20% range, this block experienced decreasing trend throughout 1984. The rate of decrease accelerated in the latter part of 1984 and continued into early 1985. Trend change then slowed down, leveled off, and started to increase in the latter part of 1985.

The six-month trend breakdowns are primarily used to give us more detail on whether changes might be a continuation of, a reversal of, or just a fluctuation from, prior patterns. Recent experience for two blocks illustrate this use:

12 Months Ending	*Block A*	*Block B*
11-85	4.25%	7.00%
12-85	4.50	6.75
1-86	4.25	5.75
2-86	6.25	6.50
[1st 6 mos.	4.75%	6.25%]
[2nd 6 mos.	7.75%	6.75%]

Block A has been fairly flat, with the last rolling twelve month period showing an increase to 6.25%. Breaking this last twelve month period into six-month periods shows an accentuation of that upward movement. Due to the pattern and size of change in the six month trend factors, Block A probably has reached the bottom of its current trend cycle and is heading up. Block B has bounced around in the high 5% to low 7% range. While the most recent twelve and six

month patterns show an increase, the recent up and down experience makes drawing any conclusions difficult. This may be a reversal, and trend is now headed up, or it may be a fluctuation. The six-month trend factors do not help us as much for Block B as for Block A. Knowing where you are on a cycle gives you more knowledge as to how aggressive or conservative you may want to be in setting future pricing.

The more interesting analysis, though, is a comparison of trend between blocks of business. Since 1984 we have had the following trend patterns on a large employer block and a small employer block:

12 Months Ending		*Large*	*Small*
1984 -	I	21.50%	21.00%
	III	17.25	16.25
1985 -	I	8.25	12.50
	III	8.00	11.00
1986 -	I	13.25	6.25

Both of these blocks cover employers nationwide, yet starting from the same level of trend, in the low 20% range, they have had entirely different trend patterns. Trend for the large employer block decreased more rapidly, leveled off, and has started to increase, while trend for the small employer block continues to decrease. This would fit the pattern of quicker incorporation of cost control techniques by larger, more sophisticated employers. But that assumption can be questioned by the experience of yet another block, composed essentially of individuals and families sold on a trust basis. This latter block followed the same general pattern as the large employer group. It actually experienced an even more precipitous drop, starting higher and going lower, and has now increased to about the same level as the large employer block. For some blocks, we think we know why trend is behaving like it is, but for other blocks the changes seem more puzzling.

While we might expect different trend on blocks with different characteristics, even blocks of similar composition sometimes have different patterns. The

following two blocks are similar in employer size, plan types and cost containment features, area of marketing and type of marketing:

12 Months Ending		*Block C*	*Block D*
1985 -	I	4.25%	10.00%
	II	6.50	11.50
	III	6.75	10.75
	IV	8.50	7.50
1986 -	I	12.00	7.50

These trend patterns are obviously different. Starting from early 1985, Block C has increased from a low level to about 12%. On the other hand, Block D has had a generally decreasing pattern. It started higher, at about 10%, was essentially level for several quarters, decreased, and now may be level again. We have no good explanation for the divergence of such patterns on similar blocks, except to know that it does happen at times.

What do we do with this presumed wealth of information? We do use it as our principal tool to set our trend level. We believe that experience does vary from block to block. We do not, however, generally set trend on a block-by-block basis. We use a premium weighted average of the various blocks' experience as the basis for our trend assumption. In spite of the variation by block in trend level, direction, and rate of increase or decrease, our overall trend level experience has been very consistent. It has exhibited a fairly smooth pattern, decreasing into late 1985 and then leveling off. We are now seeing some preliminary indications that it might be starting to increase, but nothing definite yet.

In setting the actual future trend, we may modify the calculated factor due to trend patterns in the most recent two six-month periods, general medical cost and utilization trends in the economy, anticipated further implementation of cost containment measures, or some of the other factors already discussed by the other speakers. This recognition and modification are on more of an implicit than an explicit basis for us. We have considered varying trend by block, but due to our pricing and marketing methods, we feel this would cause

too many problems and be too confusing. It has just not been a necessity to implement such variances.

Due to the significant variation of trend by block, we have made no regular study of trend by geographical regions. Instead, we let these variations affect our area factors.

Besides providing an indication of the trend level and direction of trend movement, understanding these patterns can help in financial analysis. It is unlikely that trend used for pricing equalled trend actually experienced. The difference between pricing trend and actual trend can be used to help explain and forecast improving or declining financial results for a particular block over a particular period of time. It is important to know how experienced trend relates to pricing trend by block. Assume you have two blocks of business with the same total premium -- one experience rated, the other pooled. Further assume one block's actual trend is 5%, the other is 15% and pricing trend is the average, 10%. Because of the experience rating on one block, your financial result will be entirely different depending upon whether it is the block experiencing actual trend of 5% or 15%.

Like many of you, we like to know what others are doing for trend, and we participate in various trend comparisons. Here is a word of caution, as illustrated by two recent studies. In late 1985 we participated in two studies, each compiled by reputable firms, each composed of fifteen large group carriers. The results had to include some of the same companies, yet the results were not at all similar. I could match only one of the fifteen companies between the two studies, and it wasn't my company. I could get a match on some of the factors, but not all companies for other factors. Sometimes we suspect that data are submitted incorrectly, and sometimes we suspect data may be "managed" to give a certain impression. I am sure this is not earthshaking news to you, but be careful with survey results.

Another thing you have to be aware of in comparing trend between companies is the relationship of trend and what I will call margin. Both of these factors are applied to the base rate. As they say in the study notes, it can be shown that these two factors can vary and still arrive at the same charged premium.

So, unless you know what the margin levels are, it is difficult to exactly compare the level of trend. Unless you know if margin has been changed, it is difficult to draw firm conclusions about trend movement. There is nothing wrong with comparing--just be careful about your conclusions.

MR. RAYMOND F. MCCASKEY: At this point in the program, almost everything has been said about trends that can possibly be said. My talk will concern the Blue Cross and Blue Shield perspective. I have come to realize that Blue's mystique among actuaries is almost more powerful than the actuarial mystique among non-actuarial groups.

A very integral part of the actuarial approach is looking at the past and relating it to the future -- anticipating that there is going to be a large degree of similarity between the past and the future. In the group health insurance business this future and past scenario is based on the short term. The typical scenario is that we look at the past year and try to figure out what will happen in the coming year. In our spare time we perhaps give some thought to the general economic cycles over five- and 10-year periods, but when we sit down to take specific actions as a result of our analysis, we are dealing with only the coming year.

John Cookson illustrated the correlation of economic cycles between insurer results and Blues results. The Blues match the insurer results closely when compared with macroeconomic indicators. We've done a lot of work ourselves in this area, and I believe that if John had not set back the general economic trends so far, there could have been a very close match between insurer and Blues results. What is distressing is that there is such a perfect match between financial results and gross economic trends. This means that there is an extremely predictable way to determine trends, but yet the financial results follow the same cycle. The conclusion is that nobody is doing anything about these predictions. If we are understanding what trends are, modeling and projecting them, we ought to be able to make the bottomline financial results somewhat flat when the rest of the trends fall off the bottom of the chart. The problem from the perspective of any individual actuary is that nobody else is taking the proper action.

What I would like to add to the previous discussion, which is a solid foundation from which to proceed, is an additional set of analyses. These additional analyses must be done if we are going to be successful in applying the predicted trends to a specific block of business over a short time period.

We have to concentrate not so much on what is similar, but what is different. These days there is more and more falling into what I would call a different category.

A simple example of what I'm talking about is the Blue Cross national hospital inpatient utilization experience. In 1984 the national Blue Cross system averaged about 600 inpatient days per thousand insureds. Ten years earlier, in 1974, the inpatient days were about 826 days per thousand. Over this 10-year period we saw a 27% drop in hospital utilization, which is about 3% a year, compounded. That is a significant long-term trend. However, when you take that ten year trend apart and look at what happened in just the one year from 1983 to 1984, there was over a 10% drop in inpatient hospital utilization. One-third of the 10-year trend had occurred in the last 12-month period. This means that in the other nine years, we actually didn't average a 3% annual decrease; we averaged a 2% annual decrease.

Our problem, then, is predicting what might happen next year. Do we use the 3%-decrease-per-year average for the 10 years and assume that there is going to be an additional 3% drop in utilization? Or do we discard the last year, assume it was an anomaly, and use the 2% decrease in utilization to forecast? Or maybe we could assume that something significant has changed, and trends are going to drop 10% again next year. Another scenario could be: no way was the 10% decrease real, and there will be an increase in utilization in the next year.

Applying trends to a particular group or block of business is further complicated by the fact that a particular geographic region does not necessarily follow national trend averages. We looked at the national Blue Cross data from 1983-84 for regional or statewide differences, and instead of a 10% decline on an individual area basis, we saw some areas which actually had increases -- an increase of a little over 2% in one case. At the other end of the spectrum we

had major areas of the country that had decreases in the 15-20% range. This is rather a wide range of results, and all dealing with geographic areas with major volumes of data.

Looking even a little deeper at these same numbers and trying to analyze why these geographic variations were so pronounced, we saw that in 1984, after all of these changes had taken place, there were some entire states where the inpatient days per thousand were less than half the national average -- less than 300 days. There were other major multi-state regions that as regions had inpatient utilization 20% or more higher than the national average. Not surprisingly, those areas with the highest current utilization were the ones that were experiencing the sharpest declines. In predicting next year's results it is important to know where current relative utilization patterns are, as well as the trends.

In making forecasts for the coming year one must consider a myriad of factors. What are these factors? What are the things to be concerned about and look ahead to? What are the factors and forces that are making the future different from the past? Besides what I have already talked about, there are a number of other things that are happening that can impact next year's results.

We see a lot happening in terms of competition, not just among insurers, but in the whole health-care marketplace. The introduction of HMOs, and PPOs and the role of government in the health-care sector are examples of changes in the health-care marketplace that are bringing new payment mechanisms, such as DRGs and hospital per diems. All of these factors interact to produce some very strange results. One that caught me somewhat by surprise a year ago was what happened with the Medicare introduction of DRGs. The impact, as hoped for, was that the overall cost of hospital care for the Medicare population stabilized, and as predicted, the average length of stay decreased dramatically.

I was monitoring the overall cost factors and was very comfortable with our Medicare Supplement portfolio concluding that the 1985-86 transition was bound to be an easy one. I was taken by surprise when my staff brought to my attention their early projections of a monumental increase in that Medicare Part A deductible. Their projections were correct: the deductible went from $400

to $492. The reason for the increase is that we are working with a numerator and a denominator. Both decreased, but the denominator decreased faster in terms of hospital days (denominator) that were dividing into the total cost (numerator). I just heard within the last couple of weeks that the Office of Budget Management is predicting another 16% increase, at least as an early prediction. One person's cost containment is another person's problem. The economic forces and changes do not hit all of us evenly.

Some specific factors that we at Blue Cross of Illinois have started to monitor more closely and try to add to our decision-making process are, first of all, hospital occupancy. Last year hospital occupancy rates in the Chicago area fell at times below 60%. By combining hospital occupancy studies with hospital profitability studies, you may be able to determine hospital income from large endowments. It doesn't take a very sophisticated economist to predict that these forces will cause other changes in hospital pricing and financing.

Another specific factor is medical practice patterns by region. We have found pronounced differences in medical care practice patterns around the country. Our emerging theory is that this is related to medical education. Apparently, how medicine is practiced has a lot to do with where it is learned. We're drawing concentric circles around major medical institutions of learning and observing these differing patterns. The first time that I noticed this was when we were conducting a detailed analysis for one major customer. Among the details we found anomalies that seemed to pop out. This particular group had a high number of simple hernias that were being treated, and the average inpatient stay in these cases was five days. We looked at data of our other groups and saw that the average stay was about two days. We were having trouble explaining this difference, so we looked at some data from other Blue Cross plans and were amazed to find out that on the West Coast, 80% of these same procedures were being done on an outpatient basis. Here we were worried about the difference between a two-day inpatient stay and a five-day stay, and we discovered that practice patterns in another area of the country say that this is really an outpatient problem.

The last specific factor is one that I see as the biggest and toughest emerging factor in terms of measuring and forecasting trends. The factor is the

hospital list price and what percentage of the users of hospital services are paying list price. I'm not sure hospital list prices are much more significant than the prime interest rate. We looked at Illinois; I would say that well under half of the users of hospital services are paying a price that is set solely by the hospital. For the rest of the users, including government, PPOs, HMOs and other emerging parties, the price is negotiated, set by formula, or determined by some other mechanism. The hospitals are setting their own prices only for the remaining piece. This will make it much more difficult to measure trends in hospital list prices. It will soon become necessary to have a good understanding of the total hospital-financing equation. Also, this underlines the point that changes in general trends in the future are not going to impact all parties, all groups and all insurers the same way. Some parties will have prices negotiated; others will not.

These new emerging factors, together with the old factors which are more familiar but no less important, such as demographic trends, employment trends, the changing nature of the family and employee choice programs, etc. -- all of these things combined will most likely have a greater impact on the short term than on the nationwide long-term trend.

In summary, I'm advocating an understanding of the traditional techniques as the essential underlying foundation in trend analysis. This must be followed up with a sharper and more precise definition of what it is you're trying to measure and how your results are going to be used and implemented to arrive at the proper outcome.

MR. AXENE: Most of my work is with managed health-care systems, HMOs and PPOs. While we've heard mention of changes in the health-care system and how they might affect trends, I would like to stress how serious some of these new competitors are.

I recently worked with a hospital client that was willing to accept $.30 on the dollar through a capitation arrangement as full payment for its services. Another group of providers was willing to accept $.50 on the dollar and assume all of the risk of providing these services. That will affect hospital trends. Ray talked about the impact of DRGs. Medicare has significantly affected all

hospital patients. The intensity, the shortened length of stay in the hospitals, has spilled over into the entire hospital practice. It's too hard to manage one patient one way and another patient another way, so hospitals have shortened the length of stay on all stays.

Ray referred to some of the Blue Cross experience for hospital bed days per thousand members. We have many HMO clients that consistently operate at 260 bed days per thousand members, slightly less than the national average of 600 days per thousand that Ray referred to.

What we have is a lot of new things happening in the industry. John talked about a lot of the correlations to economic variables; Bob talked about the overall cyclical nature of medical trends. The new responses of our providers that are delivering health care are demands for new and expanded techniques. Although there isn't a follow-up workshop here in San Diego, Monday morning I imagine a follow-up workshop will begin wherever you work, and we'll probably hear about it at next year's meeting when we talk about this again. I really don't think that trend will ever become an unpopular topic.

MR. HOBSON D. CARROLL: I'm wondering if we don't have really two issues here. One is the technical issue of coming up with a predictor of what's going to happen and the second is what you do with it once it's determined. I think that the easier issue is the first. We've seen some excellent information on being able to predict what's going to happen, at least based on history, to carrier results by lagging the CPI a year, and seeing how that shadows the trend. There are a lot of good things we can do. It seems to me the real issue is being able to persuade management to act on our prophecy when market and the marketing people are deriving what's happening in the type of cycle we're in. In lieu of having to raise all prices, which is obviously going to be rejected, you say, "It's not going to happen to us, like it did the last cycle." If your price increase proposals are rejected, then all that you have left to do is selectively retain business that will hurt you the least. Then you're up against the old bugaboo of market share. Anybody got any suggestions on how we can combat the second problem?

MR. DOBSON: I agree completely with what you said; that's why I'm so worried. I don't have any good answers about how you do it.

MR. SANNING: I would just add that I think by and large there's a big segment of corporate America out there that won't find higher medical insurance premiums acceptable, and that basically we have to find some alternative solutions to higher trends. One solution is keeping management informed as we go along. Part of our rate setting every month is a financial meeting where management is part of the meeting. They know what's happening, they are involved in the process and they see things changing. They aren't surprised when we start talking about trend turning around and going up.

MR. AXENE: The company that Don works at is definitely one where actuaries are part of senior management. His answer shows a practical application of how to persuade management, but it is also a company that appreciates actuaries. I know of other companies where perhaps the actuary might not have quite as noticeable a role.

MR. MCCASKEY: No one company is going to immediately turn this whole thing around. There are times when I find that you're at a great disadvantage by having the best information. It causes a real dilemma, but we're in a game of inches in terms of margins. When it's all over, tenths of a percent can make a significant difference. Strategies should start by trying to smooth the peaks and valleys. As Don said, there is an education process.

MR. AXENE: One thing that you did hear from many of the speakers is that there was an upturn in trend during the fourth quarter of 1985. We have observed this with many, if not all, of our clients with perhaps a worsening in the first quarter of 1986. What are people doing about the rising trend?

MR. JOHN H. BUCHANAN: I have an observation on the first question. There is a direct correlation in my thinking between our ability as actuaries to communicate effectively to management and the ability to get them to agree between our trend projections. If our track record as communicators is not very good, when we come to crucial times like these, we probably won't be successful. When we need to get management's attention, our communication

skills, our personalities, our presentation and even the way we dress and look can have a big impact on getting senior management to agree with what we have to say. Perhaps we ought to pay more attention to some of these things rather than just going into these meetings heavily armed with facts.

MR. SCHUYLER W. TOMPSON: Our hospital inpatient utilization experience for regular business is around 500 days per thousand. I'm not expecting to be able to reduce this much further. We're anticipating that our HMO business will be experiencing 400 days per thousand. In the latter part of 1985, there has been a definite increase in our per capita hospital claim cost: an increase of 10 to 12% of fourth quarter 1985 versus 1984. On the medical/surgical side it's even higher, around 17%. I think that Medicare is constraining the physicians' fees. When fees are constrained, utilization tends to rise. The doctors know that if they increase their number of services they're going to increase the number of dollars they collect during the year. Has anybody seen or had any evidence about increases in utilization?

MR. MCCASKEY: Our HMO experience is narrow geographically, but our number of HMOs is increasing. In the Chicago area, two years ago we had only nine HMOs, a year ago we had 16, and now we have 34. Under our managed health care systems our hospital utilization is holding fairly constant, but the physician utilization is increasing. Physicians are responding differently than the hospitals. We think that overall utilization bottomed out 3 to 6 months ago for both hospitals and physicians.

MR. COOKSON: The nationwide hospital days per thousand is still declining but has started back up in the last 6 months of 1985 towards the zero line. This trend varies substantially from region to region. In some areas it is still going down in excess of 10%; in other areas it already has reached zero. In recent months, the physician component of the CPI has started to increase, where previously it had been declining. We've seen some patterns of overall experience similar to what you've observed in the second half of 1985, both on the hospital side and on the non-hospital side. I don't know whether this trend in utilization is related to a learning curve or not.

MR. AXENE: When establishing an HMO, one of the things utilization control incentives try to accomplish is to reduce the hospital utilization. To the extent that prior procedures are not unnecessary, they have to be performed somewhere. This causes an automatic increase in outpatient utilization. This means that you should expect a reasonable increase in outpatient utilization simultaneous with a decrease in inpatient utilization. However, if inpatient utilization has already stabilized, this will not explain further outpatient utilization increases.

MR. DOBSON: I would like to add that there may be, as some of the studies on second opinion surgery suggest, a delayed reaction on some of the utilization changes. When procedures are postponed but eventually done, this causes a time delay.

MR. JOSEPH W. MORAN: I would like to direct a question to Mr. Sanning about his use of his own experience data as the basis for estimating trends. One of the big problems in dealing with comparative claim experience on any block of business which involves more than one group case is that there is turnover within the block from one year to the next. New cases are added and old cases are dropped out. Please discuss how you deal with distortions that are caused by turnover in your trend projection.

MR. SANNING: We've done some studies which delete all groups that have lapsed. This leaves you with a block that has no changes from the beginning to the end of the year. We've concluded that for the size of blocks we're working with, it really doesn't make all that much difference. We did find some distortion, but distortions are also caused by plan changes and demographic changes within a group. If you attempt to adjust for all these things, it becomes too cumbersome. In producing our studies we try to keep in mind these possible distortions, but we do not make direct adjustments to our studies.

MR. MORAN: In analyzing trends on the blocks of business for which there is medical evidence underwriting, such as on the smallest group cases, how do you deal with the differential in claim levels by case duration?

MR. SANNING: We do not apply trend by duration, nor do we alter rates by duration. So that while a selection curve does exist, unless you're going to reflect it in the pricing, it is not necessary to adjust trend for it. It will, depending upon the age of your block, affect the financial results.