TRANSACTIONS OF SOCIETY OF ACTUARIES
1980 REPORTS VOL. 6 NO. 3

INPACT OF INFLATION IN GROUP INSURANCE

Moderator: PETER L. HUTCHINGS. Panelists: JOHN P. COOKSON, ALASTAIR G. LONGLEY-COOK, GEROLD FREY

1. Dynamic pricing alternatives
2. Trend towards "Administrative Services Only" and "Minimum Premium Plan" and other financing arrangements
3. Changes in reserve techniques
4. How to assure adequate surplus levels?
5. Should plan design be changed?
6. Separating economic from insurance risk

MR. JOHN COOKSON: I'd like to start by taking a poll. Since the topic here deals basically with the impact of inflation, I'd like to see what everyone here thinks is going to happen with inflation over two different time periods. We will make it a multiple choice with just a show of hands, to just get a feel for what everyone here is thinking.

Now we will assume inflation is measured by the change in the CPI just so we all have a clear common definition. Over the next three to five years assuming no changes from current government policies, how many people think that the average inflation rate will be less than 4%? That's a zero.

How many think it will be greater than 4% but less than 7%? Four out of about 70?

How many think it will be greater than 7% but less than 10%? By and large the great majority.

How many think it will be between 10% and less than 13%? Looks like about 15-20% of the group.

How many think it will be in excess of 13? One.

Now if we changed that scenario to the decade of the 80's over the next 10 years, how many people would expect it to be less than 4%? Again, none.

How many greater than 4% and less than 7%? A few more than the last time.

Greater than 7% and less than 10%? A higher majority than before.

Greater than 10% and less than 13%? Smaller than the last time, maybe 10%.

Anyone over 13? One, again.

Now let's introduce a little bit of a historical perspective on the change in the CPI as measured on a 3 month or 12 month moving average basis. I've got a graphical representation of these changes over the last 30 year period. This particular slide covers the period 1948 to 1962 beginning with the release of wage and price controls after World War II. The CPI change during this period comes down from as high as 10% in 1948 to a negative 2% in 1949. Then going into the Korean War period it jumps back up in the 9% range, but then again dropping back down relatively quickly to approximately 2% or less. At that point we see a relatively stable period with a small bump in the mid-1950's but still nothing greater than 3.5% and generally in the 1-2% range for the most part.

The next slide picks up the period 1960 to 1974 and we see that up to 1965 there is very little change, a very stable rate generally between zero and 2%. Going into late 1965 and into 1966 we see a trend towards a fairly significant increase in the change in the CPI when compared to the prior 10 year period. In 1966 it seems to peak at about 3.5% and then bottoms out again at 2.5% the next year. During this period we had substantial government budget deficits and increases in Federal spending for the Vietnam War, and several new social programs. In the late 60's and into the early 70's we see a substantial increase again compared to prior historical periods with a peak of around 6% in 1970 and then dropping down to around 4% in 1971. This was curious because it was in August of 1971 when the wage and price controls were put on and it was very apparent from here that the inflation rate was already on the way down. Then during the period of wage and price controls the increase in the CPI bottoms out at slightly more than 3% in 1972.

With the release of the wage and price controls in the early 70's substantial increases in the trends and in the volatility of the inflation rates occur. By 1973 the rate hit 9%, in 1974 on a three month basis it exceeded 12% and again started to come down and by 1976 bottomed out at 5% which historically had been a high in the previous periods. Since the 1976 election the inflation rate has again started up substantially hitting 6.5% in 1977, 9% in 1978 and 13.5% in 1979 and 14.5% so far in 1980. It is interesting that the bottoming out seems to be coming at a higher level each time and it almost looks like a rocket ship trying to escape gravity. I'd like to go back again and repeat the question to see if we have any changes in our original scenarios. Again, over the next three to five years as measured by the change in the CPI, how many do we have seeing between 4% and 7% now? None. Greater than 4 but less than 7? Only two, now.

How many greater than 7 and less than 10? Still a substantial majority.

Greater than 10 but less than 13? About the same, so not too many have changed.

It is really hard to tell what is happening now but they seem to be playing around with the economy for the election and we could perhaps see a downturn by the end of the year. My guess is that any kind of bottom at

this time would be in the 8-9% range which is really fairly drastic when you think about it. It seems that every cycle that we go through increases the underlying rate of inflation and if we have a minimum of 9% that probably means the underlying rate is somewhere in the 12-13% range.

The interesting thing about this is that if we had a constant rate of inflation I don't think we would have the kinds of problems we have, even at the 10-15% level. But I think that inflation in itself contradicts the possibility of having a constant rate because what it means is that there is a fundamental problem which is trying to seek a solution, trying to reach or achieve some kind of equalibrium. I think therefore you could not have a constant rate of inflation. Sometimes because of government regulations even if you can anticipate the swings, you're prevented from doing so and that adds a tremendous risk to our business. In fact, in looking at these pictures and in looking at our situation it seems that the impact of inflation on group insurance is rather minor in comparison to the effect it is having on our entire economy.

One other comparison I'd like to make is the relationship of the CPI to the trends in our business which are fairly reliable as indicators. Here we have a comparison of the Medical Care CPI trends to the total CPI trend and you can see except for a few periods where you have unusual situations of wage price controls or the advent of Medicare that the two curves seem to track each other fairly well.

In fact, there appears to be a little bit of a lag between the time you see a increase of inflation in the total CPI and the time it emerges in the medical care component. I attribute that to the time lag in the medical care providers' reacting to changes in the inflation rate. Hospitals have to go through the negotiation process on wage contracts and that takes some time. It takes the doctors a while to perceive the changes and react and also at the present time there has been a lot of pressure from the government on hospitals to contain cost. I think I can give an example of just what's happened on this. One of my clients is a relatively small Blue Cross plan which has a handful of hospitals in their area. They do their rating and trending based on hospital budgets that are filed with them and as of July of 1979 the hospitals submitted their fiscal year budgets anticipating increases of approximately 8.5%. Well by early in 1980 it appears that the actual cost will have increased to about 14%. There is a great deal of optimism in the hospital's concept of what they could do.

Another interesting thing about these curves and the way they work and the way the trends go up and down is that it suggests a possible strategy depending on your financial strength and your surplus and how fast you can react to the environment. If you can go into the up side of the cycle and manage to protect your surplus either through increasing your rates in anticipation of increasing trends or transfer some of your business from risk to non-risk by selling ASO or other types of lower risk type contracts, you would then be in a position to anticipate the downturn in the inflationary components and in the trends and come into the market at a much lower rate. Most other carriers would be measuring their high trends and won't be in a position to take any risk to cut those trends. Any carrier who has adequate surplus (which they just measured for the last period) and is willing to take the risk of not using a 20% trend factor but instead assume 16% (for example), could increase their market penetration.

Now on to the items on which I am scheduled to speak. The first is dynamic pricing alternatives. I wasn't quite sure what this meant, other than trying to rate more frequently than has been common in the past. Most group contracts have had a one year rate guarantee and some even two or three years. One possibility was to index rates on a quarterly or other frequent basis to some external indicator such as the CPI or the medical care component. I don't know any one who would be willing to stick to that kind of a basis for any length of time. Another suggestion was that dynamic pricing had to do with Prudential's method of filing their CHP rates, their non-group contracts that are rated each year on a group basis by zip code and age and sex. There are some other insurers who review their large group contracts on a monthly basis. During the last period of high trend, as soon as they would see an increase, they would go out and try and get their groups to accept a 20% rate increase now rather than a 30% rate increase in six months or whatever the normal contract renewal period would be.

A number of Trusts and even a number of small group carriers have rewritten their contracts to eliminate the one year rate guarantee and routinely update their rates on a quarterly basis. Most rating manuals also contain trend factors that either index their manual rates on a monthly or quarterly basis at a minimum. What all these things seem to represent is really an attempt by the insurers to avoid what we see here as the economic risk. The claim trends tend to be unpredictable, and there is a lack of complete flexibility in changing them because of government regulations. I think another advantage seen in these more frequent ratings are the likelihood that the more frequent but smaller increases will lead to less termination and less inclination on the groups' parts to shop around. They will accept 5% every quarter but 25% once a year is more difficult to accept.

The second topic is the trend towards ASO and minimum premium. It seems as if every time we go through the economic cycle there is a greater increase in the availability or actual implementation of these types of alternate financial arrangements. One of the things that is apparent is that these groups seem to value money more than the carriers, so if a carrier is making 10% on their portfolio and the group thinks they can make 20% internally, they are going to try to get ahold of that money. Even during the high prime rates just a few months ago there were self-insurance administrators out talking to the small groups telling them that this was a way to avoid a tremendous interest cost that they were incurring by self-insuring, getting back the claim reserve and also having a relatively inexpensive source of capital when they couldn't otherwise get it. This was the big selling point to a group that was in financial hardship and didn't have the resources and couldn't get money elsewhere. This is also the worst possible time to go into self-insurance, but some groups saw this as the only possible way to avoid bankruptcy.

What will happen to those who were not successful if any of these companies did go bankrupt and had gone self-insured? What is going to happen to the people whose claims will not be picked up? What will happen in the bankruptcy proceedings under ERISA? There may be some interesting test cases coming up, over the next couple of years.

Over the last five to seven years, there has been a lot of discussion with regard to the impetus to self-insurence that there really is no risk in

health insurance or in group insurance. I think the industry and the actuarial profession has not done a very good job in explaining to the public and to the groups the risks that are involved. They are not insignificant. This may be the last opportunity if the current period ends up with very few carriers willing or actually able to take the insurance risks.

The only one left to do that in the future appears to be the government. Another side issue in the inflation impact is the effect of trends on stop loss premiums. The magnification is quite significant as I am sure you are all aware. As an example, given a $25,000 Individual Stop Loss for Comprehensive Major Medical a 10% overall medical care trend would translate to about a 25% trend on the stop loss cost. The 15% trend would translate to about a 35-40% trend on your stop loss net claim cost and a 20% trend would translate to something greater than 50% on your stop loss net claim cost. A very similar situation occurs also in aggregate stop loss insurance. A example here is a 125% aggregate stop loss level; for a group of 500 contracts the net expected cost is about 2.3% of expected claims. If you miss the expected claims in total for your whole portfolio by 5% you'll have a loss ratio of about 135% on the stop loss. If you miss your expected claims by 10%, you'll have a loss ratio of about 180% on your portfolio. Now if you increase the size and look at a group size of 1,500 contracts at a 125% stop loss the net cost is about eight-tenths of a percent of premium. A 5% miss on your portfolio net claim cost translates to a 165% loss ratio on your aggregate stop loss and a 10% miss will translate into a 250% loss ratio on your aggregate stop loss net claim cost.

MR. HUTCHINGS: As I mentioned before we will be passing by the reserve topic which is number 3, but Gerry Frey will now examine how to assure adequate surplus levels and the economic insurance risk questions.

MR. GERALD FREY: I will reverse the order of my two topics. Separating the economic from insurance risk is my first topic. My first reaction was — Why would anybody want to do that? I did not find the answer. I will take advantage of John's technique, and take a poll. Who wants to separate economic from insurance risk in connection with group insurance? Nobody. Well, so in any thing I say there is no implication that you should try to separate the economic from the insurance risk in connection with group insurance but I do find the exercise useful in trying to go through the process of identifying the factors. If in the end you want to separate them, that I leave up to you.

I start by assuming that I do want to separate my insurance risk from my economic risk. How would I proceed? Well, the thoughts that came to my mind were that first I would like to define what are my insurance risks and then define what are the economic risks I am concerned with. Next I would find a way to identify these risks and then finally if I wanted to, I would separate them. As I said, I would always go through the first two of these steps.

As to insurance risk in group insurance I include the risks of death, injury, illness and pregnancy which may result in claim liabilities for a group insurer under the Group Insurance coverages.

In line with the topic of our session, we will consider the economic risk to be confined to inflation. I will also assume that in the long run if you have inflation your interest rates somehow will reflect that prices are going up and the cost of money in terms of interest rates will automatically become high on the average. What also becomes clear to me from my observations and discussions with colleagues is that the economic risk at this time completely overwhelms what we consider to be the insurance risk. How many times in the past year have you carefully consulted a morbidity table or really bothered to find out what hospital admission frequencies are or how long the average length of stay is? (A few of us, including myself, think that even some of those phenomena are the result of economic pressures on the health care providers.) How often do you look at the financial section of your daily newspaper? Do you read the Wall Journal more often than in the past? Do you subscribe to Business Week, Fortune or Nation's Business? My second step will be to identify the economic risk factors in group insurance.

Not being very intuitive, I like to have a system before I proceed to identify the economic risk factors which affect the group insurance business. I can proceed by coverage and look for those factors by examining the cost provisions in my premium rate. I could look at the various functions I have to perform to do group insurance. In the end I try to find whether or not there is some unusual area that might be affected by the adverse economic conditions created by inflation which my organized process might have caused me to omit. I start out quickly by coverage and assume that group term life, AD&D, weekly indemnity and long term disability income, do not appear to be significantly affected by inflation. I purposely want to mention here once more that I did not allow myself to assume that the recession somehow will follow inflation. Basically this is so; when salaries go up and wages go up, amounts of life insurance either stay the same or also go up: my income rises automatically approximately in the fashion that my risks go up. The whole problem is of course in the Medical and Dental expense insurance area. That is where most of the money is at stake in our portfolios and where the resulting financial losses from not properly recognizing the effects of inflation are. Usually it means you have to anticipate the effects of inflation on the costs of the business you're doing I do not want to elaborate on special coverages such as stop loss coverage. It is likely evident to all actuaries that inflation can have a multiplier effect on coverages if you are not careful.

Another systematic approach is to look at the various provisions that you build into your premiums. How should you design those provisions to take inflation into account? The most important provision is the provision for claims.

The Medical and Dental expense insurance coverages require that you properly provide in your rates for the guarantees or promises that your policies make in terms of claim costs affected by inflation. If I don't have the ultimate answer, that is what I have to work on. As a result throughout the year I spend at least half of my time on this particular question. But we should not forget the expense provision is also affected by inflation. For instance, as prices rise, the employees of our companies seek salary increases; they would like to catch up with inflation and maybe even a little bit more. In so far as the expense provision generally is in some proportion to the overall premium and

therefore usually in some proportion to the claim provision, you do not have too much of a problem. But if you have some coverages with a lot of fixed dollar benefits that don't move, like $5,000 flat life insurance and your portfolio contains a lot of that kind of coverage you might suddenly find that you are falling short in your expense provision unless you increase that provision in your rate.

I don't know how many companies specifically allow in their premium rates an interest factor to recognize investment income on the money as long as the insurance company holds it. Inflation presumably would favorably affect your investment income if nothing special happens. But, you would probably not want to decrease your premium in group insurance because will get more investment income with high interest rates than when there is no inflation.

Finally there's the margin provision. That's where you must judge whether or not you should have an adjustment in your premium rates to absorb the adverse effects which aren't allowed for in any other areas. In itself of course inflation has no affect on the margin factor that you include in the premium, but the risks which your margin should be able to withstand are clearly greater in an inflationary environment.

The need for employee benefits, increases if there is inflation; employees ask for more and so the salesman might possibly have a good time for a while. While the need for employee benefits may increase and may be satisfied it might no longer be satisfied through traditional group insurance. In that respect the group insurance market is likely to contract. In underwriting, an additional factor that probably all could take a closer look at is the credit risk. This is because inflation means "financial hardship" for many employer prospects.

In claim administration, continuing inflation presents problems determing the standard for reasonable and customary. It changes continuously. You have a degree of uncertainty of what or how to determine the benefit amount. The beneficiary really doesn't know whether or not you are giving him what you promised him and what he thought he purchased from you. That leaves us one more point where you might have to do more work. In our company, we observed over the last year that employees submit their claims more frequently. Many employees who have had only minor claims throughout the year would wait until January or February of next year to submit them all at once and you sent them one check. Now the employee needs money so he sends in his claims to you, and you might have to do twice as much work on the same amout of claim dollars.

I am also concerned about the premium collection function. Many Policyholders use us as a bank. They want to pay the minimum. They borrow and get into a hole. That is bad in two ways: you lose the interest on your premium income for a month and if the case gets into the hole, it may lapse. We pay the claims for another month after the case effectively lapsed and we are stuck with a month's claims and the loss of all that interest. I think it a good idea to watch what you do in the premium collection area.

When you measure your claims experience in medical care, your tools become obsolete in an inflationary environment. If it is true that employees more frequently submit their claims than they did in the past, your

interpretation of what you see in your claims of historical reporting does not mean the same thing in the new environment as it meant in the past. How to cope with this, how to solve it, how to respond to it, I leave up to you. In the whole movement away from the traditionally insured plan to an uninsured ASO or to a minimum premium plan the insured will press for what is called "release of the reserves" and release you from all of your liabilities. I can't believe that any company has individual case which in total equal the annual statement reserve. Annual reserve which the total case reserves would be larger than your total statement claim reserves. But in the statement, let's hope you're in the black and have a surplus. In addition the assets which you carry in the annual statement at book value, often have a market value which is significantly lower.

My next topic concerns how to assure adequate surplus. How do you ever know that you have an adequate surplus? To start with, I have earnings margins that are generally very, very small. (I believe this is true for most of us.) You take about as much as the market permits. To worry how much you should have is completely secondary; you just hope that what you get is enough. I work for a large mutual company which combines surplus from ordinary life with group and with pensions. It is available for the comany to live up to its obligations under all its contracts including group.

If you determined how much you need as adequate for group you probably need more than you have. But you can't get more; the market just doesn't allow it. If you try to get more, you end up with less. It is absolutely an insane game. So clearly with an inflationary environment any standard of adequacy that you would establish I believe would be considerably larger in current dollar terms than in the absence of inflation and so to me adequacy means "as much as you can get" and hope you don't have any losses.

MR. HUTCHINGS: Our next speaker will be talking about should plan design be changed. Before moving on I would like to comment briefly on some of Gerry's remarks. It seems to me that his inventory indicates a very significant number of inflation impacts on the group line of business other than the one we were all most familiar with in the terms of the pricing consequences. I'd just like to stress for those of you who do not normally keep track of such things as the extent to which your customers are getting behind in their premiums and the extent to which your having a build up in those matters that that is something which you should keep a much closer eye on than usual in these times. It is not the sort of thing you'd want to only look at once a year because it is a very dangerous area.

MR. ALASTAIR LONGLEY-COOK: Some one once remarked that inflation is being able to live in a higher priced neighborhood without having to move. If there is a common theme to my ramblings this afternoon, it is the bitter truth that underlies that witticism. Inflation hits group insurance with a staggering, and stagnating, force. Like the happy homeowner we do not have to move - but in not moving, we atrophy.

Lest we forget that this is an actuarial gathering, I brought along some statistics. Consider these:

(1) In 1950 the average price of a pound of hamburger was 57 cents. Now it is $1.60 - an increase of 181%. In the same period of

time, the average residential electric bill has gone up 141%, milk 166%, private transportation expenditures 193%. That is an average annual rate of increase for each of these commodities of roughly 3%. The average cost per patient day of hospital care, on the other hand, has increased from $15.62 in 1950 to $221.90 now - an increase of 1,321%, or just over 10% per year. Recently, we have seen spot increases at twice that rate.

(2) In 1978 business funded over $40 billion of the nation's health care expenses through employee health insurance programs and spent a comparable sum on Worker's Compensation, disability programs, sick leave and tax-supported state and Federal health programs.

(3) Between 1967 and 1977, health-related fringe benefits as a percentage of salaries rose from 9% to almost 15%. Total fringe benefits as a percentage of payroll in 1978 reached a whopping 36.9%. General Motors pays more to its health care carriers for employee benefits than it does to U.S. Steel for the steel it uses.

If General Motors is going to be fussy over the kind of steel it buys, it is going to be very fussy over the kind of group insurance it buys.

This interest has given rise to some major changes in the way group insurance is designed, financed, and administered. Employee benefit managers who once had their office next to the stock room, now command the attention of the chief executive officer and the board of directors. And they should. Some corporations could make more money redesigning their employee benefits package than they could redesigning their product.

How has group insurance plan design changed in the past decade and in what direction is it headed?

In the area of medical and dental benefits, the name of the game is "cost containment."

Most existing plans are locked into the reasonable and customary concept - reimbursement of 80 to 100 percent of reasonable and customary charges. As the level of these charges goes, so goes the cost of insurance. This is particularly true in the area of medical insurance, where early scheduled Basic plans have long since given way to Major or Comprehensive Medical plans. This has been a tremendous boon to employees and their families, but an increasingly burdensome cost of doing business for employers.

In the past decade, the new kid on the block in the employee benefits field has been dental insurance. Spurred on by negotiated agreements to provide comprehensive, R&C-type dental benefits to the United Auto Workers, employers in other industries have been gradually expanding their benefits package to include dental. Many, however, have refused to grab onto another tiger's tail and lock themselves into the same increases in the dental area as they have had to accept in the medical.

Instead many employers particularly where there is not a heavy concentration of unionized personnel have opted to go back to the old

schedule approach. Proclaimed as dental assistance plans, many new dental plans are designed to do just that, assist the employee in paying for the cost of dental care through schedules of benefits set to approximate 50% of R&C charges. Some plans recognize a potential cost savings in encouraging diagnostic such as preventive care have been designed to have the best of both worlds, 100% reimbursement of R&C charges for diagnostic and preventive, 50% schedule for all other.

The "Back to Basic" movement which was pioneered, I believe, by IBM has spread through the communications industry, the chemical industry and found home in many diversified Fortune 500 companies. Aetna is presently marketing scheduled Dental plans backed by a computerized claim payment system to groups of all sizes and types. I would expect this trend to continue for the near future.

The question is, will entrenched R&C type medical plans be willing and able to switch over to the scheduled approach or some other kind of frozen R&C concept?

Personally I think the inertia is too great and the potential negative reaction from employees, too frightening for employers.

Inflation and group insurance interact in cyclical fashion. This concurrent session could just as easily have been entitled the impact of group insurance on inflation and most of my comments would have been the same.

When I joined the insurance field as a starry eyed idealistic actuarial student eight years ago I did partly because the insurance industry seemed to be one of the few that didn't pollute the environment, manufacture an ungodly so called device or otherwise make the world a worse place to live in. My interviewer at the time pointed out with levelling pragmetism that some have argued that the spread of comprehensive health insurance has had some impact on the cost of health care in this country. That argument is even more persuasive today.

If 100% reimbursement for medical cost has encouraged inflation in the health care segment of this country's economy, will a switch to the schedule approach rein it in?

If not, then future price increases, instead of being invisible to employees or at most passed along at the 20% coinsurance level, will now be felt in full. Perhaps it will bring some pressure to bear on health care providers and return some of the free market constraints to this area of our economy.

Other cost containment concepts have been tried, some with more success than others.

In the 1960's Aetna pioneered the concept of physician's fee profiles (statistical data allowing an insurer to deny benefits for clearly excessive charges). Not only does this program pick up on the rare provider trying to take advantage of this system, it also has a dampening affect on inflation due to the lag between the time the profile data is collected and the time it is used.

The occasional benefit reduction, and more importantly the knowledge among the provider community that some reductions can and will occur, the so called cop on the corner effect, has probably done more to keep doctors and dentisit's charges from escalating at the same pace as hospital charges over the past few decades than any other anti-inflation program taken by employers or the government.

I am tooting at this horn a little bit in part because my firm has been active in the cost containment field more than some other carriers. At times this reaps some negative feedback but I think that this is just a natural reaction to inflation forcing everyone to hold onto the same piece of an ever shrinking pie.

Other cost containment through plan design efforts such as second opinion surgery, encouragement of outpatient treatment, pre-admission testing, surgery centers and home health care have each helped in their way to soften the impact of inflation. None has proved to be a panacea.

If we are going to see a major shift in recent trends it will be through a major change in the way health care costs are covered. Recent innovative concepts that are now in the experimental stage include:

(1) Participating Provider Arrangements - whereby identified providers agree to accept less than their usual fee as payment in full. Providers are supposed to agree to sign up under this participating arrangement in return for getting more business and thereby allowing them to make it up in the volume. Of course if you follow that argument to its logical conclusion and everybody signs up, then the whole argument begins to collapse like a pyramid letter.

(2) HMO's, Closed Panels, Foundations, etc. - whereby coverage of most health care costs (including preventive care) is guaranteed for a pre-paid per capita amount. The number of hospital days have been cut in half at some of the more well-run HMO's. There are various reasons given for this; some say it is the emphasis on preventive care, others would say it probably has more to do with the vested interest that the providers have in the success and profitability of their plan.

(3) Per illness charges - such as the D.R.G. (for "diagnosis related groups") concept presently being experimented with by 18 hospitals in New Jersey whereby they charge on a per illness or per disease basis described as being piecework instead of time work. (I think the rate if you had hemorrhoids would be $627.96; if you wanted a pacemaker that would run you $6,350.56.) One hope in this approach is to cut down on the tail-end of hospitalization. (Many hospitals, after the patient has recuperated might keep him one or two days longer than perhaps necessary. These are referred to by the hospital administrators as "gravy days" for obvious reasons.)

I think we have only begun to explore the possibilities and should continue to see more innovation in this area of cost containment.

Elsewhere in the Medical/Dental field inflation obviously has a major impact on the significance of deductibles, maxima and pooling points.

The most common major medical maximum in 1971 was $20,000-less than .05% of insured employees had a maximum of over $100,000. Five years later over 80% had maxima of over $100,000.

Deductibles and pooling points have been less quick to react; in fact some deductibles have been lowered or eliminated. Since the $50 deductible in the 60's is worth about a $25.00 deductible in impact on the consumer today, one does not have to look very far to find out why some of the costs of some health care and insurance plan can rise faster than the cost of health care.

As to the leverage effect of inflation, there is a greater incentive to submit a claim once the deductible is effectively lower. Increase the utilization and you'll have leverage on top of leverage. Pooling points (I think everyone would agree) are too low but there is perhaps reluctance on the part of employers to increase them. I think the whole industry is charging far too little for our pooling in this area, and the employers probably are getting a good deal.

So far I have been limiting my remarks to the Medical/Dental side of the coin. Obviously that is where you have the most impact, but other areas are also affected-sometimes in unappreciated ways.

In the life insurance area amounts have to be increased to keep up. If life insurance schedules are based on earnings this is automatic. The hidden problems are on the administrative end. Often you have to move people through a salary schedule only because of inflation. Somebody has to keep track of where people are on that schedule and that is wasted effort if in effect it is only due to an inflationary increase. Maxima and pooling points have to be adjusted as well as the additional taxable income (due to Section 79 of the Internal Revenue Code) as more and more people cross over that shrinking $50,000 exemption.

Retiree life insurance while not as major an item as the pension area, is affected in the same way. How do you maintain the adequacy of the benefits? Unfortunately the very force that saps their adequacy also discourages the implementation or continuation of any life insurance program with a permanent feature. Inflation aided by recent revisions to the regulations governing Section 79 of the Internal Revenue Code have fostered a "buy now and blow the difference" mentality.

The only light in the darkness is the increasing popularity of the Retired Lives Reserves concept, one that allows employers to prefund future retiree liability through a tax exempt fund. I think this idea is only beginning to receive the attention it deserves.

In the disability area benefit levels and maxima obviously have to be realigned. The same problem with maintenance of benefit adequacy crops up in the LTD area. As in the case of pensions, few employers have bitten the bullet and included a cost of living adjustor in their LTD plan. Here however adequacy is maintained to some extent through the so called "Social Security Freeze." This provision, required in many states, prevents reduction in net LTD benefits due to an increase in Social

Security. In such cases average total LTD benefits (insurer-paid plus government-paid), increase at approximately half the rate of inflation.

What about newer experimental coverages, what about vision care, Routine Physical Examinations, Group Legal, Group Auto?

There has been some activity in the vision care area. The UAW negotiated these benefits in 1976, and Steel recently followed suit. It is interesting to note that in both cases these benefits are being provided through a participating provider arrangement. Elsewhere there has not been an overwhelming rush to buy these or any other experimental coverages.

The reason is very simple — inflation.

When an employer has to pay 20% or greater increases just to keep his present employee benefits machinery running, there is simply no money leftover to put on some bells and whistles. As I said, we stagnate. As the Red Queen said to Alice through the looking glass, "Now, here, you see, it takes all the running you can do, to keep in the same place." (By the way, I read the other day in the New York Times that that was the most commonly used quotation in scientific papers. As you can see I'm trying to make this into a scientific paper.)

It is interesting to note that a lot of the experimenting going on now in major American corporations is not in the area of new benefits but in the area of readjusting or rearranging the old. The concept of flexible benefits is being talked about a great deal and a handful of adventuresome companies have implemented such plans. In these the individual employee gets to chose what combination and level of benefits is most suitable for him and his family. The choices include Medical and Dental benefits at various levels of richness, life and Disability insurance, pension benefits, vacation time and sometimes even cash.

Flexible benefits plans are touted as being the next generation in employee benefit design, a logical and foresighted reaction to changing lifestyles, double-wage-earner families, single parents, etc. I wonder to what extent they are meant to look like a new benefit while not costing the employer any more money.

There is another reason for our stagnation: complacency which comes as a direct result of our ubiquitous archvillain this afternoon — inflation. In September 1979 the Financial Accounting Standards Board issued a new reporting standard on the financial reporting and changing of prices. This requires a presentation and discussion of financial data adjusted for the effects of inflation. This is an important step forward in making financial reporting in a period of high inflation more meaningful. It is just as important as a management tool in making financial data such as premium income and insurance in force more meaningful within a line of business such as group insurance.

It is a fool's paradise to sit back and watch premium income and volume figures grow and grow and say to oneself "what a great job we're doing, let's give middle management another bonus." Adjusted for inflation (particularly health care inflation) those same figures might tell a totally different story. In real terms that company may be going nowhere or actually losing business to other insurance carriers, third party

administrators, self-insurance, etc. Actuaries can provide a vital service: first, properly identifying and interpreting financial data in light of inflation; second, shaking loose the complacency which may be present; and third, playing a large part in shaping the plan design that is necessary to capture this changing market.

I would like to turn now to the subject of pricing - a subject dear to the hearts of all actuaries. We all remember with fondness our Part 4 formulas: those a's with the two little dots that allowed us to calculate the cost of the joint life reversionary annuity within agnat's eye. The interest rate was always given, 3% as I recall.

I don't have to belabor the fact that such training, while important, does not adequately prepare us for the effect of 18% inflation on our price structure. In the group health insurance area, the trend factor (or how much prior years' experience levels should be increased to get to this year's rate level) is of paramount importance. Statistics as to the rate of change in the various components of health care are readily available through the Consumer Price Index, American Hospital Association and internal studies. Such data only brings us up to the most recent month or quarter, however. It is up to the actuary with his crystal ball to determine what will happen to those rates of change in the future. The present levels of inflation only increase the chance of grave error in such forecasting.

If that were not enough we now have to contend with new monsters from the depths of the Potomac, COWPS I and COWPS II.

The first set of voluntary price guidelines were promulgated by the Counsel of Wage and Price Stability (COWPS I) February 13, 1979. Specific anti-inflation price standards for "financial institutions and providers of insurance" were issued, addressing specifically, in the area of group insurance, the trend factor.

COWPS II was promulgated January 8, 1980. It loosened somewhat the restictions imposed by COWPS I and, importantly, allowed retroactive application to January 1979 thereby eliminating the effect of COWPS I. Therefore, I will address COWPS II only.

COWPS II stipulates that "the revenue-weighted average of the inflation trend factors or each of the trend factors should be no more than -

(1) 100% of the base period inflation trend factor, if the base period factor is less than 8%; or

(2) 8% plus 80% of the amount by which the base period inflation factor exceeds 8%, if the base period factor is 8% or more."

The base period is, for all intents and purposes, 1978. Therefore, if an insurer were using a trend factor of 10%, for instance, in 1978, besides being in trouble, its experience in 1979 and 1980 can be trended forward at a maximum rate of 9.6%, 8% plus 80% of 2%. It is noteworthy that the guidelines defintion of "inflation trend factor" includes increases due to utilization.

There is an alternative, albeit a pejorative one, open to an insurer. It involves proving to the Council that the foregoing guidelines would produce negative profits for the program year. This of course involves filing supporting documentation on profit and claims cost levels with the Council, Many insurers may find the expense involved in capturing this data in the appropriate form required by the Council excessive. The release of privileged information (if the profit level is too high) may also be an unacceptable price to pay for compliance. I am indebted to some of my colleagues in Aetna's Group Actuarial area for a good term for what happens when you cannot meet that guideline; it is called a Windfall Loss. The difference between a Windfall Loss and a Windfall Profit is you get to keep the Windfall Losses.

I don't think I would be releasing any privileged information myself if I were to say that for many insurers, the guidelines, even with the more liberal standard of COWPS II, have become increasingly hard to meet. If that were not the case, the guidelines would not be fulfilling their intended purpose which is to act to control price increases. Unfortunately, the reasonableness of this approach was predicated upon the imposition of hospital price controls or some other means of controlling the rate of change of health care prices at its source. Since that has not happened insurers are left caught between an irresistable force and an immoveable object.

This is a new position for the group insurance industry to find itself in. The casualty field had to fight the years with some recalcitrant Insurance Departments to try and get their rates approved on a self-supporting basis. The life insurance field is now entering the fray (and their adversary is a lot bigger).

Inflation brings with it a plethora of evils, not the least of which is increased government regulation. Unfortunately this process is a vicious cycle, as the cost of compliance must be added to our expense charges.

Let us all hope that the nation's general inflation rate continues to abate before someone in Washington decides to show us once again how much better they are at running a business then are the unenlightened lowly citizenry.

In the meantime like Sisyphus we are condemned to keep pushing the boulder up the hill. Being an eternal optimist I happen to believe there are opportunities for us to be innovative during this period of uncertainty and bring into being some exciting new concepts in the group insurance field. If on the otherhand we become complacent and relaxed that boulder may give new meaning to the term "level-headed actuary."

MR. ROBERT TOOKEY: When I first became involved in stop loss activities about 25 years ago it was strictly in its pioneering stages and we only had two choices in calculating premiums. One was to simulate the distribution function, the loss distribution function using Monte Carlo techniques the other was to use a more subtle approach such as the Esscher transform to develop stop loss premiums without even knowing the underlying distribution function itself. My question, John, is I'd like to get updated and you gave us some rather interesting figures showing the sensitivity of stop loss loss ratios to the stop loss reinsurance company for very small differences or deviations between expected losses and actual losses. What kind of techniques were you using?

MR. COOKSON: Over the last few years we have spent a considerable amount of time and effort studying both aggregate group experience as well as individual claim experience. We have received from many different sources thousands of group years of experience and also from various sources and different locations many thousands of individual claim years of experience and we're able to take this data and sort it out and fit a "log-normal curve". The results showed correlation co-efficients in excess of .99 which, along with a few other tests of fit, indicate extreme adherence to the curve. All we have to do, at this point, is basically get a mean and a of variance for any particular distribution by coverage and by size and we have the entire risk curve of expected claims. We can then calculate any type of stop loss coverage or other coverage. You can apply your rating formulas to it and find out your risk charges, etc.

MR. TOOKEY: Is this for group coverages only or any type of insurance?

MR. COOKSON: Well, we have only attempted to apply it to group coverages. There are some economic theories as to why this curve applies, and it probably would work as well for other types of coverages, although I haven't studied that in any detail.

MR. HUTCHINGS: One fellow I trained under in my individual life days explained that when he had worked overseas they sold very complex contingent life insurances such as those that would pay on the second of three deaths during a short period of time. He explained the underlying mathematics of this to me and then said after you are done with the formulas you multiply the answer by no less than four, and I would like to supplement John's remarks with that.

MR. GORDON TRAPNELL: I have a technical comment on using the CPI as an independent variable for projecting health care costs inspired by these charts showing the long history of CPI measured inflation. We have found that the CPI as a measure of inflation has a number of flaws perhaps the greatest of which is having a component for the cost of housing that's based on the cost of purchasing housing which is again divided into a portion which represents downpayments and a portion that represents mortgage payments. They beautifully crank in a factor for the cost of housing and mortgage interest rates weighted up into a housing component, which is merged with a smaller proportion for renters based on the proportion of people who own and rent. This then becomes the housing component. That is weighted with all the other elements of the CPI in proportion to how much personal consumption expenditures are devoted to each. The first difficulty, when mortgage rates go up, is that housing prices level off instead of zooming up in proportion to mortgage interest rates. It is not only not positively correlated with inflation, it is negatively correlated with inflation. Secondly, a rise in housing prices increases the house owner's income (reducing the cost of holding houses as an asset) and is again inversely related to inflation. However, by removing the housing component of the CPI and substituting an index compiled by the Department of Commerce which is an index of renter's costs you get an adjusted CPI which will not show the same extremes as the published CPI's. The CPI is bound to go up at a lower rate than it did last year because of the mechanics of rising and falling mortgage interest rates. If you substitute rents both through the cycle in 1974 and through the present cycle you will get a much lower peak and much higher trough. This is a much more stable basis to use as a component in explaining medical care inflation.

MR. HUTCHINGS: I might also mention that there has been some recent work on biases in the CPI measurement. There is a growing body of thought that says the CPI as a measurement tool is upward biased by at least 2 per centage points. An alternative measure of that which may be relevant (if slightly more obsecure) is called the GNP deflater which may avoid some of the problems which Mr. Trapnell's comments identified.

MR. LAURENCE WEISSBROT: Toward the end of your comments, Mr. Frey, you brought in something on the transfer of reserves to the policyholder. Under minimum premium (and now more so under some standard group insurance risks) we're doing just that: exchanging for a retro-agreement or promise to pay not always backed up by any letter of credit the right for the policyholder to hold the reserve. This introduces another risk which I was under the impression in looking over the program was the economic risk that was being spoken about of inflation. In this you run the risk not only of all the other things you mentioned but of not being paid back when the policyholder goes under. At the Hartford we write a great deal of LTD. Inflation affects the cost of paying claims for many years in the future. Of course, you can also say that you've got your investment income which goes up with inflation to balance that out, but we also find that in poor economic conditions you get the lower terminations and you have or hope that your investment income will make up for your poor termination experience. This leaves you very little to pay for payment of the claims out in the future.

I was looking at the types of expenses that you run into in writing group insurance. You basically have sales expense, administration expense and claims expense. Sales of course comes right up front, so there isn't much of an inflation impact; it's over with after you've written the business. The administration expense and most of the claims expense continues on with your premium and you cannot make adjustments. The claims expense after termination is something that you can't adjust for later by raising premium to cover costs especially on a coverage with a long tail such as the LTD and a Major Medical which has a two year benefit period. And finally, to make my comments brief - one of the responses to inflation is to go to the automated claim system so that as your cost of paying claims goes up, your unit payment cost can go down. Normally you would expect that, with inflation, we're paying that much more in claim dollars, but the administrative cost goes down. However your salary increases keep your cost going up, and a lot of companies are going to automated payment which should bring the cost down (since all your expenses are up front), and your cost should actually decrease in the future.

MR. FREY: I feel you have to be alert in each of these areas. I didn't want to confine anybody's thinking on the particular areas that I mentioned. I an not certain that the returns are in yet on the automated claim payment system. You might find out you have more expenses with that system; you might find that you save money because you make fewer errors in determining your benefit amount.

MR. JOSHUA JACOBS: I'd like to ask about the relationship between medical inflation and total inflation apart from the technical difficulties that have been discussed about measuring the total inflation. Mr. Cookson, you showed a parallel relationship between the two. We've had great difficulty finding this relationship. Until about two years ago it was

said that the medical inflation lead to total inflation and in fact was one of the causes of total inflation. We don't hear that in the last year or two because by all the measurements, as bad as it is, the medical inflation has been less than the total inflation. We have heard that medical care was becoming a larger and larger proportion of the total GNP which was dangerous because of its higher inflation rate. Could it be that if instead of using the CPI total medical care index to compare with their total index you used the hospital index (which is the one which reflects most of the claims that we pay) that you might have gotten a different result? Could it also be that if we added utilization to inflation we would get a greater total increase rate? In particular I am concerned with such items as intensity of hospital care as distinguished from the change in the cost of a specific item of hospital care. How much can we rely on total inflation, assuming that we can measure it even a little better, in that all items index as an indicator of what the medical inflation is currently?

MR. COOKSON: My observation is that you can really only rely on any of these curves as some basic input that you consider in making your determination and trying to take a best guess as to what you think will happen. I did not intend to imply that there was a 100% correlation between the medical care component and the total CPI. The basic observation is that as the CPI starts to increase or decrease at a different rate, a similar change occurs in the Medical CPI, but a few months later. I suspect you are correct that if you do add intensity or utilization or look at the hospital component, I think it has also been lagging the CPI itself, but that's not always the case. At different times they are going in different directions or they have different slopes in their rate of change. Basically these things as published indices are just something that you can use in your bag of tricks which is reported relatively quickly and relatively accurately given the various drawbacks in the statistics themselves which Gordon alluded to. I don't think anyone should rely totally on any of these specific items as their estimator for rating.

MR. HUTCHINGS: A very interesting analysis of the intensity component in hospital cost increases is included in the appendix to the hospital insurance trust fund report to the Trustees. This little commented upon report is done annually. The one on OASI gets a lot of press, but there's one on DI & HI, and I am referring to the one on HI now. There is an appendix in the back which lays out a multi-year history which is the best attempt of some very hard working people to try to factor out inflation, one component of which is of course intensity. That analysis as I recall identifies intensity as being a number in the range of 4+ percentage points. This is really a specialized example of the general problem, and that is the extent to which cost movements incompletely measure quality change. The quality change from the day of hospital care 1950 to 1980 is probably as severe as the quality change from a 1950 television set to a 1980 set in terms of the product delivered, and these are very difficult technical problems. I recently had occasion to read an incredibly long article by the electrical industry explaining how all of these figures mismeasure their business. Apparently the more you know about these numbers, the less you like them.

MR. FREY: I may be thinking more broadly than my co-panelists. Aside from my skepticism of the validity of a particular measurement, I would

never use it alone unless it makes sense to do so in my image of the world. I start with providers as people. Hospitals have employees and budgets; a physician has a family, wants to make money, and has to make more money next year than he made this year and is going to get that money. I am a little bit disappointed if somehow we may have given the impression that the price index is the primary or the only cause of medical care cost inflation. A hospital has many ways of charging; they don't necessarily have to increase prices. When you look at a statistical abstract you see that the number of graduating physicians goes up at a rate much larger than the population. The number of hospital beds is not going down when Alastair says New Jersey and Blue Cross have agreed to compensation by diagnosis. All I expect is a diagnosis inflation. All of those hemorrhoids you mentioned will be the more complicated hemorrhoids which cost more; that's the way this game works. All those people have their goals, the surgeon comes out of school and ten years from now he expects to make $200,000 a year in purchasing power in present terms. We always work with people who have goals; our agents and salemen have goals, too, and many of them reach their goals, others come close and others fail. Those costs are just going to go up. Another thing is of course the inflation due to specialization by physicians. If you compare the proportion of physicians who are specialists now to 10 years ago, you see a tremendous increase of the comparative income of the average specialist versus the average general practitioner. When you have a reasonable and customary charge standard you are going to get more heart specialists and you should allow for a larger amount. To analyze all these things is much too difficult, so in the end you have to measure the total increase in cost and look at the overall economic pressures including how much the price of purchasing a new home goes up and not just staying in the home as Alastair said.

MR. WEISBROD: My question is on the Council Wage and Price Stability Guidelines. Alastair mentioned that it is difficult to meet the profits test. At the Hartford in the Group Insurance Department we wanted to go to the profits test since we're not making any profits and the other method did not give us a large enough increase. In that profits test you have to show what your loss ratio would have been in the absence of benefit changes during the year. There is no way of determining what loss experience you would have had if you had not had benefits changes during the year, therefore it's nearly impossible to go any route other than the price test.

MR. HUTCHINGS: I believe that you could consider a sampling approach looking to identify groups that have had stable benefits over the interval and measure the sample.

MR. LONGLEY-COOK: One would think that insurance companies have all sorts of data in just about every form possible. Unfortunately they do not. This makes compliance with such regulations very difficult indeed.

MR. TRAPNELL: A lot of us have been very puzzled over what has been happening with hospital cost. We have always split the hospital cost into a component that should be sensitive to wages and a component that should be sensitive to what the hospitals purchase. The CPI has always been a very good measure of the cost of what they purchase. They lately developed at H.C.F.A. an index of hospital purchases that actually doesn't seem to track as well as the CPI. What has happened in the last year and

a half is really very puzzling: it hasn't been working the way we thought it ought to. What is going on with hospital costs which have been much more resistent to the general level of inflation than anybody would have thought possible and how much longer can they hold out?

MR. HUTCHINGS: The hospitals' voluntary effort program that was developed a few years ago was built around the idea that hospitals could gradually moderate their rate of inflation down so it would bear some reasonable relationship to the general trend lines as measured rather crudely by some of these cost of living measurements. For reasons that can only be speculated at, the voluntary effort guidelines came amazingly close to being met. The gap between those two inflation numbers did narrow: the hospital cost increase came down a little, the inflation rate went up a little and hence the spread contracted a lot. I feel that there is a little bit more emphasis given to changes and spread in short time frames than our measurement skills warrant. There certainly are components in the hospital economy that are generating significantly off target changes whether that be hospital malpractice, a recent flashy example, or the cost of X-ray film due to silver content. A long term question exists as to whether or not hospital wages in fact map wages in general or whether we are still playing catch up. I believe that short term changes in the spread should be not taken too terribly seriously on essentially statistical grounds. But the fundamental fact is that a day of hospital care is a different package of goods and services than a day of hospital care was five years ago. It is not obvious to expect the cost of that package to move in tandem with the cost of any given thing; it is a different product as you watch it.