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Measuring Morbidity in Long-Term Care

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Summary: Considerations in designing and performing long-term-care morbidity studies are discussed. Also addressed are long-term-care morbidity trends and the impact of morbidity on long-term-care plan design, including risk profiling.

Mr. Robert O. Young: I'm from Tillinghast in New York. I'm going to lead off things by talking about a risk management system for long-term-care (LTC) insurance. I'm going to hand the baton over to Mark Dinsmore. Mark is an actuary with GE Capital Insurance, formerly Amex life, in San Rafael, California. Mark is going to discuss how his company applies risk management techniques and practices. In particular, he will describe some examples as to how plan features affect morbidity.

We also have Gary Corliss. As you all probably know, Gary Corliss heads up the LTC Experience Committee. Gary is going to share with us some very current information on results from the LTC intercompany study. He told me that the results are about eight days old.

LTC has evolved in recent years from rather simple policies offering rather limited benefits to more comprehensive products designed to meet a wide range of LTC needs. These design changes have greatly increased companies' exposure to morbidity risks. An important question is, what can companies do about this exposure? I hope to answer that question by describing how companies can implement a risk management system for LTC insurance.

Note: The charts referred to in the text can be found at the end of the manuscript.

My presentation is broken down into four main topics. First, I will describe the basic characteristics of a risk management system. This will include a discussion of the purpose of risk management as well as the structure of risk management. Obviously, there are a lot of different ways to structure a risk management system, and this is just our way of doing things.

Second, I believe any well-structured risk management system includes some kind of a risk profiling process. Risk profiling is the first step in understanding the key risk variables that affect your business. Another key component of a risk management system is frequency and severity analysis. This involves unbundling the key components that drive LTC claim costs into their component factors. These key components are, first, incidence rates (which is the probability of going on claim); second, continuance (which is the probability of staying on claim); and third, the payment function. The payment function measures the level of payments made during claim and gauges the variability in payments. Finally, I will close by providing some examples of how such a risk management system can be used in practice.

To achieve rewards in line with the risks, LTC insurers should adopt a morbidity risk management system as part of their overall line-of-business plan. An effective risk management system will identify, quantify, and control the key risk variables where the risk variable is defined as the driver of risk. We'll get into that later. The idea is to quantify and control the key risk variables that affect experience and profitability. The risk management system can determine the effectiveness of important insurance company functions such as claim management, underwriting, pricing, and product design.

Such a system can be a critical tool in improving financial results. It can allow the company to achieve results in line with the risk. We all know LTC insurance is aligned with big risks and maybe, even more so, big unknowns. This process will help the company improve profitability. The key steps in a risk management process, risk profiling and frequency and severity analysis, can help companies quantify exposure to these risk variables and provide an early identification system that alerts management to deteriorating situations while there's still time to rectify them. Finally, the risk management system can help companies evaluate the effectiveness of key insurance company functions, which I've already mentioned (claim management, underwriting, etc.).

A morbidity risk management system has three critical components: risk profiling, frequency analysis, and severity analysis. Severity analysis can be further broken down into two subactivities: analysis of continuance and analysis of payment levels. The analysis of payment levels is something that we call the payment

function. All three factors, frequency, continuance, and payment, all roll into your claim cost. The idea behind this risk management system is that you unbundle all these factors that affect claim cost and look at them separately.

First, we'll talk about risk profiling in detail. Risk profiling provides a broad measure of profitability by risk variables. It allows management to formulate a timely response when actual results deviate from expected results. Risk profiling involves three key steps. The first step is to identify the key risk variables. We'll provide an example a little later that illuminates some of these concepts. The second main element is to quantify exposure to the key risk variables. Finally, we need to compare actual levels of financial results to expected levels using the key risk variables.

What are these risk variables? LTC policies differ greatly as to what is covered and what benefit triggers must be met in order for benefits to be paid. Risk variables, therefore, are equally varied and broad. Some examples of risk variables are: type of coverage (for example, nursing-home-only policies versus home-care-only policies versus integrated policies); elimination period (which can vary widely from zero-day policies to policies with 365-day elimination periods); benefit maximums; benefit triggers; and state of issue. California and Florida will have much different risk characteristics than, say, Iowa and Nebraska. Cause of claim can be another risk variable, and marital status can be a very important risk variable. Obviously, the list of risk variables is pretty endless. You can break it down any way you want. Other risk variables include issue age, issue year, amount of coverage, and size of the policy. The selling agency can be a risk variable, as can the underwriter.

The first key statistic contained in the risk profile analysis is a measure of exposure. Typically, what we use as exposure is the amount of premium written. Alternatively, another measure of exposure can be the volume of daily benefit in force. Risk profiling generally uses the developed interest-adjusted loss ratio as the broad indicator of financial performance. This loss ratio, as I'll call it from now on, should be calculated by risk variable. For a given incurral period in measurement date, the loss ratio is defined as incurred claims adjusted for change in policy reserves divided by earned premium for the incurral period. The incurral period is typically, in our experience, the calendar year.

The crux of this formula is the piece called developed incurred claims. Developed incurred claims are defined as the present value for claims incurring in the incurral period of claims paid from the incurral date through the measurement date, plus an estimate of the present value of claims paid beyond the measurement date. At successive measurement dates, the loss ratio is revised to incorporate new

knowledge of actual past experience for the calendar year incurrals that you're looking at.

The idea is to prepare the actual loss ratio resulting from the study to your target loss ratio of what you think the loss ratio should be. The absolute level of the loss ratio and the trend in the loss ratio, over time, should ideally be monitored by risk variable. High absolute levels of the loss ratio or increasing trends in the loss ratio warrant further investigation. Your tool for further investigation is a frequency and severity analysis. The first line of the defense, if you want to call it that, is to risk-profile the business and understand where you're at. The second line would be further analysis using frequency and severity.

I have a completely made-up example just to illustrate the context. Consider a risk profile study in which the risk variable is a type of coverage. The obvious choices for types of coverage are nursing-home-only policies, home-care-only policies, and integrated coverage or comprehensive coverage. Comprehensive coverage provides nursing home and home care. Let's discuss some sample results from a risk profile study including results for claims incurred in 1994 for the risk variable type of coverage. The observation period for which loss ratios are calculated is calendar years 1994 through 1996. The loss ratios for nursing-home-only is generally decreasing. The measurement dates—December 31, 1994 through the end of 1996—show the loss ratios for nursing homes have decreased. We'll talk about what this means later. The important thing to remember is the main component of the loss-ratio calculation is the piece called developed incurred claims. The word develop means that the measure reflects all past experience as of the measurement date. In this case, our measurement dates are December 31, 1994; December 31, 1995; and December 31, 1996.

The loss ratio for home care only is generally increasing. Meanwhile, the comprehensive line is level at 85%. High absolute loss ratios above what is expected, as perhaps shown by the comprehensive line, may indicate higher incidence of claims than was anticipated. A level loss ratio, also shown on the comprehensive line, probably suggests that reserves are sufficient and the reserving methodology is probably appropriate. Increasing trends from year to year, as in the home-care line, indicate that reserves may be insufficient because prior estimates of fully developed claims incurred prove to be insufficient in light of more recent experience. Additional investigation may reveal that the severity component of morbidity is deteriorating. Decreasing trends in the loss ratio, such as shown in the nursing home, may point to a reserve redundancy.

Probably a more important question is, what does this picture not say? This picture doesn't really tell us what component of morbidity, continuance, or payment levels

is causing the problem, particularly in the home-care line. To understand this more fully, a frequency and severity study should be undertaken.

Overall, risk profiling gives us a broad indication of concentration of risk and financial performance by key risk variables. It reveals specific areas of concentrated exposure and of success or problems. However, to really determine the factors affecting morbidity, the insured should conduct a frequency and severity analysis. Traditionally, companies have not analyzed the components that drive LTC claim cost separately. In other words, they haven't analyzed frequency, continuance, and payment levels in their raw form.

Analyzing claim costs by themselves is insufficient because frequency and severity present different risk management issues and solutions. Frequency and severity analysis involves unbundling and analyzing claim costs and their primary components. The objective is to produce frequency and severity functions that vary by key risk variables; in turn, these can be used on pricing and in risk management. This would ensure that the company is pricing and managing its business in a manner consistent with emerging morbidity.

This might be too fundamental for many people in the room, but I'd like to review some of the basic definitions. *Frequency* is the probability of going on claim. *Severity* is the value of benefits paid during claim. In traditional actuarial studies, severity has been measured by continuance only. At Tillinghast, we prefer to break it down a little bit further. We break it down into *continuance*, which is the probability of staying on claim, and the *payment function*, which analyzes the level of benefits paid. We recognize that the amount actually paid is different from the initial benefit issue.

Let's continue with our example. High absolute levels of loss ratios probably indicate the problem in the frequency component of morbidity. I call your attention to comprehensive. The comprehensive loss ratio is far in excess of what the target loss ratio would be, as in 60% or 65%. A hard look at the frequency function illuminates what the problem is. Actual-to-expected frequencies are far in excess of unity. Meanwhile, the loss ratios for the home-care-only line indicate an increasing trend. What does this mean? At the very least, it means that reserves may be insufficient. A critical question is, what component of morbidity, continuance, or the payment function is causing this insufficiency?

In traditional actuarial studies, severity was measured by continuance, which is the probability of staying on claim. Traditional severity studies have ignored an analysis of payment levels. The actual benefit amount paid often differs from the benefit amount issued. This gives rise to what we call the payment function. The payment

function captures the variability in payments. Factors that can cause variability in payment include variable benefit reimbursements calculated as a percentage of actual charges up to a maximum daily amount and inflation riders. A number of problems can cause deteriorating claims severity. Any analysis should start by unbundling the two factors that affect severity—continuance and the payment function. The actual results should be compared to expected results to see where the problem lies.

The risk profile revealed a reserve insufficiency in the home-care-only product line. Based on the risk profile alone, we cannot determine which component of severity has caused the insufficiency. The traditional continuance study alone was looked at on a stand-alone basis or on an isolated basis. If the continuance pattern is lower than expected or right on target, this would point to a reserve sufficiency, meaning reserves are fine. However, this contradicts the overall findings of the risk profile. An examination of the payment function sort of resolves the question. A payment pattern for home care only that is far higher than anticipated points to the cause of the problem. That's a rather simple example of how a risk management system can work.

I will now talk about some ways that this system can be used in practice. Risk management systems can help identify both good and bad drivers of experience. An analysis of variance can be employed in which actual results are compared to expected, which allows management to recognize trends and the success or failure of any risk management initiatives. It can also be used to help formulate a reinsurance strategy for the in-force business.

The risk management process indicates which segments of business may be more attractive for a reinsurance solution. The results of the analysis, along with the financial projection facility, can also assist in evaluating the financial merits of particular reinsurance offers. As I said before, such a system can help evaluate the functional processes of the insurance company such as pricing and product design, claim management, underwriting, etc. It can also be used in helping to evaluate claim reserves. Those are just a number of uses for such a system.

In closing, I think the way to sum up such a risk management system is that it's an early-warning system. Given the broad range of risks LTC insurers face, a risk management system that includes a risk profile and a frequency and severity analysis can help identify and quantify exposure to these variables and help analyze the factors that drive morbidity. This early-warning system could alert management when financial experience begins to deteriorate and allow it to take corrective action before things become unresolvable.

I will now turn the discussion to Mark Dinsmore. As I said earlier, Mark is an actuary with GE Capital in San Rafael, California. He's going to discuss how his company applies morbidity risk management techniques in practice. In particular, he's going to provide examples as to how plan features impact morbidity.

Mr. Mark S. Dinsmore: I'm going to discuss some older features of indemnity products that have a very wide effect on the experience and products that we're seeing. I'm going to discuss a little bit about some current features and their focus on marital status. Then I'm going to discuss a little bit about the future.
Most older blocks of business are indemnity-type products. We found that the experience varies significantly in the claims cost by the amount that the daily benefit is above regional cost. This has a fairly large impact on blocks of business under inflation. It also shows a fairly large impact on the way you do asset/liability management (ALM).

For lifetime benefit periods, how does experience vary with daily benefits over regional costs? For example, if you had a $100 daily benefit in an area where there's $100 of claims cost in the region, you'd see about half the claims that we're seeing in cases where there would be a $50 regional cost. For nonlifetime daily benefits, there is less of a slope, but there's still some slope. This has a fairly large effect when you are in different inflation environments.

In high inflation environments, you get a tendency to suppress claim cost over time relative to what it would have been. Chart 1 shows all five years and later projected out. On the left, there's a graph showing the drop under different inflation environments or the constant daily benefit. On the right, we have a fairly typical 5% inflation push in the daily benefit every year. Under low-inflation environments, you tend to have a push up in the claims cost.

As you can see, in all cases, higher inflation will help you. This, in turn, has an effect on the way you do ALM. Interest rates generally correlate to inflation. So if you have inflation drops corresponding to investment drops, then that's going to increase the market value of your liability. At the same time, you're having this effect that's causing your cash flows to rise. For the block of business that I looked at, the made-up block of business, it increased the duration about 50%.

Let's discuss current products. The one thing that we see in product development is how marital status experience is driving product development. Marital status is a very good risk indicator. We see differences in experience out at least ten years. We're seeing products designed that exploit this. Discounts, in particular, have been there for a long time. We view the future as being more of the same.

We view marital status as a paradigm for the future. We view companies searching for new profitable segments, directing their marketing toward those segments, and developing more risk profit and niche products for niches. What we're doing is using mining techniques to develop risk classes.

Chart 2 is a made-up diagram of the output of a data-mining technique. In each one of the bubbles and squares is a representation of claims cost, and below that is a representation of how many policies fit in those claims costs. The labels on the side are the variables that are used to split up the top bubble into lower bubbles.

Just to show that actuaries aren't completely unnecessary once you have these tools, I built this specifically so that I could show something that we notice about the blocks on the far side. As you notice, for cases that are below age 60, we get significantly higher claims costs. Also notice that the married was significantly worse than the single in this group, which went against our intuition.

We further examined this and found out that the group that's running at over three times the average happens to have households that are much greater than two people in the household. The average age of our policyholder in that group is much older than 60. Further investigation led us to understand that these are singles living with their married children for the most part, and that's the group for which we saw bad experience in.

The other thing that you'll notice about this, which is fairly representative, is that even though this is a made-up example, the claims costs are very much different from each other. That would indicate that you have much better profits in one group and actually fairly bad losses in another segment. This basically leads us to understand that LTC is still a very inefficient market.

We're planning to continue to look for inefficiencies, and find the ways to best exploit them, and then obtain and manipulate data so that we can deliver data to decision makers. To do this, we're building a data warehouse. We're combining demographic data from the outside on a household and a block-group basis. We're combining that with our policy and claims data and expected tables to come up with actual-to-expected ratios by demographic segments. We need to build a data warehouse because we're going to have to do this a lot, and we need to do it very efficiently.

Different segments are appropriate for different uses. For generating leads for captive agents, we're going to have to use only outside data to define what our segments are. Once we get to pricing and underwriting, we can use application and medical data on top of that to develop segments. Then we have to deliver

these data to decision makers. We got a profit measure and an expected premium measure. The expected premium would obviously only be used when we're searching our prospects.

The net present value that we're using for profit would be appropriate for mailing leads and underwriting so we can set up an automated system to be able to decide what profits are based on; then we must mail appropriately, follow up a lead appropriately, and underwrite appropriately. Of course, what we find out will also affect the way we set up a pricing structure and set product features.

The basic point of this is to focus our resources on our best customers. We were planning to get the information as widely distributed in our whole enterprise as possible from brokerage agent selection to underwriting or, in our captive side, from mailing to regeneration and underwriting.

Let's summarize all of this. For old product morbidity, we generally used morbidity to cost product features and priced them more as the morbidity developed. For new products, we're going to use morbidity to find our best customers, to drive the product development in choosing what features we put out, and, more generally, to support decision making across the enterprise.

Mr. Gary L. Corliss: You've heard from a consultant and you've heard from a very large Fortune 500 company, but now we're down to information that comes from the Society, so you'll see the difference in the expenditures put into the program.

The material that I'm going to be using comes from the SOA LTC experience study. One of the things that I can't talk about that Robert addressed is the fact that one of the ways that you would look at your experience would be related to risk on a premium basis. The Society's intercompany study cannot look at information on a premium basis. It was decided that that might infer some antitrust situations. None of the data that we look at for the Society in the company study is based on premiums. The Society study does not have expected data from any of the companies; that also could be interpreted to have some antitrust considerations. Therefore, I won't be talking about those things that Robert talked about. However, I will talk about the risk variables, types of coverage factors such as benefit period, elimination period, benefit amount, and age.

Let's go back to Mark's comments. One thing that we obviously aren't able to do yet on the intercompany basis is to look at things with the same sophistication that Mark is able to use to with his own company data. I'm referring to relatively modern things such as data mining and the follow-up studies that they were actually able to do based on their own policyholders. That's because we don't have that

kind of detailed information in the records. The thing that I also can't talk about is experience after ten years, which Mark mentioned, because the Society data do not go that far yet in terms of policy duration.

What we can look at is actual experience on a number of variables, and what we'll be looking at is information that will be in the 1986–93 study, which we hope to have out during the first quarter of 1998. This is a preliminary peek at that information. The previous 1984–91 study was published in January 1995, and it was based on ten companies. This particular study will be based on15 companies. We had just short of 1 million insured in the first study. We'll have 2.6 million insured covered in the second study. The exposure is somewhat larger, with 2.4 million years of exposure. The claims move from more than 15,000 to almost 19,000 claims.

The one thing to always keep in mind whenever looking at the information that we're putting together is that the Society data are very heavily based on nursing-home-only policies, or policies that had gatekeepers who made it difficult to get the home-care benefits. You'll see that, based on the claims, 94% of them are nursing-home-only experience.

You may wonder which companies are in there and which companies are new. Listed below are a number of companies that you're familiar with that have been in the marketplace. Country Life is new to this study. We have John Hancock's group business included in this study, which gives us some younger business. Mutual of Omaha's individual contribution is in there, and Physicians Mutual has individual business in there. Time Insurance was also included in this study.

LTC INTERCOMPANY STUDY CONTRIBUTORS 1984–93

AEGON	HANCOCK (GROUP)
AETNA	LUTHERAN BROTHERHOOD
ALLSTATE	MUTUAL OF OMAHA (INDIVIDUAL)
AMERICAN FAMILY LIFE	PHYSICIANS MUTUAL
G.E. CAPITAL	PRUDENTIAL
BANKERS LIFE & CASUALTY	TIME INSURANCE
COUNTRY LIFE	TRANSPORT
HANCOCK (INDIVIDUAL)	

What is the experience or the exposure? Robert referred to exposure as one way that you want to start looking at your business. What does it look like? If we're just comparing the two studies, you will notice that, not surprisingly, we're starting to get people who are purchasing the policies at younger ages. Part of that is because we have some additional group business in this study, but it is also because we all know that the average issue age of those who are purchasing policies is decreasing.

You heard Mark talk about data mining and the fact that married experience has shown a certain amount of favorable characteristics. It brings to mind what kind of experiences there are out there in terms of males versus females. Basically, study after study that we've looked at, including the Society data, says that close to two-thirds of the purchasers of LTC insurance continue to be females. One-third are single females, one-third are married females, and the other one-third are males married to those one-third married females. It is very consistent. The thing that continues to amaze me though is that even as the age of the purchaser does get younger, that high predominance of female purchasers still is there, and it pretty much runs throughout the age ranges.

Robert talked about looking at features. One that he mentioned was the elimination period (Table 1). As the market has developed, one thing that we've seen is as younger people purchase coverages, they tend to purchase longer benefit periods and longer elimination periods. There is less zero-day elimination periods as a percentage of our exposure and somewhat of a creep going on towards the longer elimination periods.

TABLE 1
LTC INTERCOMPANY STUDY
EXPOSURE—ELIMINATION PERIOD

Elimination Period	1984–91	1986–93
0 Day	24%	18%
15/20	31	29
30	2	3
60	1	4
90/100	41	42
>100	1	4
Total	100%	100%

Let's look at the benefit period side (Table 2). We see the same thing with that lengthening of benefit periods, and a slight decrease. The interesting thing is if you look at benefit periods three, four, and five, still continue to be a significant category. A lot of that has to with the marketing associated with it. If you're selling to individuals and you tell them that the average length of the claim is two years or three years, that's what people are still likely to buy unless they're doing some estate planning.

TABLE 2
LTC INTERCOMPANY STUDY
EXPOSURE—BENEFIT PERIOD

Benefit Period	1984–91	1986–93
<1	11%	10%
2	10	8
3	25	20
4	16	15
5	13	12
6-10	5	7
Life	20	28
Total	100%	100%

In both presentations, you heard about the daily benefit amounts. You'll notice from Table 3 that we're starting to see much larger amounts. There has really been an explosion in the last few years as to the amount that companies will issue. Look at the bottom category: The exposure has gone from 3% to 15% in the more than $200-plus daily maximum category. Mark made a good point about what happens when those benefits have a certain relationship to actual costs. When we get to claims, I want you to notice what happens to that $200-plus category in terms of frequency of claims.

TABLE 3
LTC INTERCOMPANY STUDY
EXPOSURE—DAILY BENEFIT

Daily Benefits $	1984–91	1986–93
<40	4%	3%
40-49	7	6
50-59	32	23
60-69	17	13
70-79	12	9
80-89	10	9
90-99	1	1
100-109	12	16
110-149	2	3
150-199	0	2
200+	3	15
Total	100%	100%

Let's switch from exposure and look at numbers of claims; then we'll move into the incidence of claims. When we look at the number of claims by age of claim or attained age (Table 4), the one thing to notice is there is not a whole lot of change, which I think says something about the underwriting that's associated with the business. It's probably even more just the natural nature of claims. Let's look at elimination periods relative to the exposure (Table 5). You'll notice the exposure went down and the number of claims decreased from the zero-day elimination period. There's also a minor adjustment in the other particular categories.

Table 6 shows claims by benefit period. You'll notice that the life experience has gone up. I guess it is not surprising that you'd have more claims if you had more business being sold at the longer benefit period such as lifetime. If you look at the number of claims broken out by daily indemnity amount, you will see one of the most striking things we've seen so far (Table 7). In our last study, we seem to be praising the underwriter tremendously for the work that seemed to have been developing. We were not noticing any difference by daily benefit amount.

We just received these numbers from the Medical Information Bureau, a medical actuarial group. We haven't gone through all of the information in detail; however, we see that suddenly 28% of the claims are in the $200-plus-a-day category when the number of policies is 15%. This is something worth thinking about. It is not only for us doing the study, but for those of you who might be involved in setting underwriting limits and thinking about what those appropriate levels should be.

TABLE 4
LTC INTERCOMPANY STUDY
NUMBER OF CLAIMS—AGE AT CLAIM

Daily Benefit $	1984–91	1986–93
<40	-	-
40-49	-	-
50-54	-	-
55-59	1%	1%
60-64	2	2
65-69	9	9
70-74	21	21
75-79	32	31
80-84	29	29
85+	6	7
Total	100%	100%

TABLE 5
LTC INTERCOMPANY STUDY
NUMBER OF CLAIMS—ELIMINATION PERIOD

Elimination Period	1984–91	1986–93
0 Day	49%	43%
15/20	28	30
30	1	2
60	-	1
90/100	21	21
>100	1	3
Total	100%	100%

TABLE 6
LTC INTERCOMPANY STUDY
NUMBER OF CLAIMS—BENEFIT PERIOD

Benefit Period	1984–91	1986–93
<1	29%	25%
2	11	10
3	27	26
4	14	14
5	14	16
6-10	2	2
Life	3	7
Total	100%	100%

TABLE 7
LTC INTERCOMPANY STUDY
NUMBER OF CLAIMS—DAILY BENEFIT

Daily Benefit $	1984–91	1986–93
40	8%	5%
40-49	12	8
50-59	47	32
60-69	14	10
70-79	9	7
80-89	4	4
90-99	0	1
100-109	4	14
110-149	1	1
150-199	0	0
200+	1	28
Total	100%	100%

As the study has developed, we have seen more and more experience getting into later durations. When it gets into later durations, we normally expect the claim incidence rate to go up, and it has. It has gone up about 10%. Table 8 shows the rates for 1986–93. The average claim is little over 7 claims for every 1,000 people insured. There appears to be some effect of selection, which we expected, and we are noticing that it is still there.

TABLE 8
LTC INTERCOMPANY STUDY
INCIDENCE RATES

Policy Duration	Per 1,000
1	4.9
2	6.7
3	8.2
4-5	10.9
6-10	21.5
Average	7.2

Let's compare the incidence rates to the results from the last study. We were right around 6.5 claims per 1,000 at that time. The creep has been a little bit higher through many of the younger ages, but it is not as substantial at the older ages. We all know that underwriting rules have changed dramatically. At least on an incidence basis we appear to be seeing a fairly significant change by just moving the whole study two years.

One of the most dramatic things that we noticed last time was that the male and female experience seemed to be amazingly similar. We weren't sure if that was due to just the newness of the data that we were looking at, or if underwriting had something significant to say. What we're seeing here now is that it probably was the newness of the data and the recency to underwriting. We're starting to see the spread for the female incidence rates getting larger. That could very well be just another aspect of Mark's reference to the married experience being better. Most of these males are probably married and are therefore not generating claims quite as rapidly because of the family situation.

The incidence rate for the zero-day is at the high end (Table 9). If you're running a claim department and you're issuing zero-day elimination periods, you can really build an empire taking care of all of those zero-day elimination period policies. You also don't need as large a staff if you have longer elimination periods.

TABLE 9
LTC INTERCOMPANY STUDY
RATES PER 1,000—ELIMINATION PERIOD

Elimination Period	1984–91	1986–93
0 Day	14.6	17.7
15/30	5.8	7.1
60+	2.9	3.5
Average	6.5	100

You've heard comments about frequency and severity of claims. The next few tables will start to look at the average length of stay, which is the way that we've been looking at these particular claims. What's not surprising is the earlier someone goes on claim, the higher the claim will be. By earlier, I mean a younger attained age when the person goes on claim. The severity is probably going to be greater. In Table 10 we see the average claim is showing up at 367. That's based on a combination of open and closed claims. Almost 25% of these claims are still in open status; therefore, we get the 367 but it is not the end point.

TABLE 10
LTC INTERCOMPANY STUDY
NURSING HOME—AVERAGE LENGTH OF STAY PER CLAIM

Attained Age	Average Days Length of Stay	Attained Age	Average Days Length of Stay
40-44	917	70-74	366
45-49	594	75-79	391
50-54	521	80-84	359
55-59	455	85+	268
60-64	409	Total Average	367
65-69	375		

If we compare that to where we were, we see that by moving our experience 2 years, the average length of stay has gone up almost around 20% (Table 11). The last study was showing it at about 307. We tried to caution people at that time that 307 was definitely not where things were going to end up. You can see that they are progressing.

TABLE 11
LTC INTERCOMPANY STUDY
NURSING HOME AVERAGE
LENGTH OF STAY PER CLAIM

Attained Age	1984–91	1986–93
40-44	-	917
45-49	-	594
50-54	-	521
55-59	-	455
60-64	-	409
65-69	307	375
70-74	312	385
75-79	334	391
80-84	286	359
85+	215	268
Total	307	367

We can look at this on a cause basis or by looking at the claim code (Table 12). I need to make a quick mention that there really has not been a dramatic change in the nervous system and the Alzheimer's diagnoses. It appears as though there is if you just look at the raw numbers here, but that's because we had some coding difficulties in the first round which got pointed out to us as we were getting the second round of information together. The information is really pretty similar. We did have 20% in the nervous system and Alzheimer's in the first round. It's about 19% now. There was just a little bit of recoding. Most of the other categories are fairly similar in terms of their frequencies.

TABLE 12
LTC INTERCOMPANY STUDY
NURSING HOME CLAIMS BY DIAGNOSES

	1984–91		1986–93	
Primary Diagnoses	Average LOS	Frequency	Average LOS	Frequency
Nervous System	656	10%	776	5%
Alzheimer's	548	10	669	14
Mental	531	6	715	4
Hypertension	522	1	537	1
Circulatory	448	15	524	12
Diabetes	400	2	521	2
Stroke	342	12	455	11
Other	334	8	360	19
Arthritis	290	5	371	5
Respiratory	260	5	360	4
Injury	225	15	293	13
Cancer	202	9	218	9

As I mentioned, 94% of the experience was on nursing homes, but we do have some information on home health care only (Table 13). You'll notice that the average claim is shorter, which is not a surprise. The younger one goes on claim, and the longer one will be on claim. Because of that 1994–96 duration shift, we should add the home health care and the nursing home; together we get 365 (Table 14). It was just a little bit below the 367 that we had for nursing-home-only.

TABLE 13
LTC INTERCOMPANY STUDY
HOME HEALTH CARE
AVERAGE LENGTH OF STAY PER CLAIM

Attained Age	Average Days Length of Stay
<40	709
40-44	963
45-49	557
50-54	544
55-59	371
60-64	240
65-69	282
70-74	323
75-79	348
80-84	315
85+	422
Total Average	332

TABLE 14
LTC INTERCOMPANY STUDY
HOME HEALTH AND
NURSING HOME CARE COMBINED
AVERAGE LENGTH OF STAY PER CLAIM

Attained Age	Average Days Length of Stay
<40	709
40-44	942
45-49	566
50-54	538
55-59	411
60-64	357
65-69	365
70-74	363
75-79	389
80-84	358
85+	269
Total Average	365

That's a review of where we are in the Society study. We had hoped to be done this year, but we're not going to be done after all. The main difference in that report will be a whole new section on trends. We had nothing to look at based on the significant amount of trends last time.

Mr. E. Paul Barnhardt: Is that usually an amount paid regardless of the charges in the nursing home or is that a maximum benefit amount? It wasn't clear to me whether you meant maximum or an indemnity payment that doesn't have reliable charges.

Mr. Young: Jim, you can correct me if I'm wrong. The way the policy wording states it, home care reimburses a certain percentage of actual charges up to the maximum daily benefit. That's when a daily benefit might be $100. Many times you hit that maximum daily benefit. It's kind of a combination of both.

Mr. Corliss: In the charts that I showed, I was specifically talking about old products that are indemnity products, which is a fixed payment no matter what the charge is. Products are currently on a percentage reimbursement basis. The charts I showed were for old products and specifically apply to older blocks that have the indemnity.

Mr. James M. Glickman: I found one of the factors to be the most important; it was touched on only peripherally, so I'd like to hear more comments on it. I'm referring to the underwriting selection process. How much positive selection comes from underwriting and how long does the underwriting selection last? In other words, how long does it take to wear off?

Gary, on the study that was done by the Society, was any information gathered on the basis of whether medical records were taken? In other words, does the data have the information on whether it was with or without medical records? How does the experience differ with and without medical records; is it somewhat akin to life's medical versus nonmedical?

Mr. Corliss: We haven't looked at it this time around. All we could comment on last time about the positive effect of underwriting was that we could say fairly definitively that there was a five-year select period. There were some indications that maybe it went longer, but our data were more sketchy as we got past five years. That's one of the things that we'll be looking at to see if we can say that it goes longer than five years. I know from actuarial memos that we reviewed that a number of companies tend to think that there's a ten-year select period, and we've been seeing that in the actuarial memos. We haven't confirmed that yet in the study.

Your other question related to the information that's gathered relative to underwriting or the pieces of the part of the process. You mentioned, in particular, the medical records. That is information that we do gather in face-to-face interviews as well. I do not remember all of the categories, but there are four primary areas that we did gather information on. Last time we did not comment on that, but that's a good point for us to think about this time.

Mr. Kin Om Tam: I noticed from your data that the incidence rate for the highest attained age group, over 85, went down quite significantly from the pilot study to the update. I take it that this update actually includes the pilot study as a subset the way it's shown. If that's true, then the change is even more drastic. Any comment as to what brought this about?

Mr. Corliss: The question is about the dramatic change in the incidence rates as the attained age increased. We don't have an explanation yet. That's certainly one thing that we will be looking at. If the trends that we noticed last time are still in place (that is, improved underwriting), that may be part of an explanation. We will need to look at that by the age-at-issue of the policies. It is one area where we noticed a very favorable trend last time around.

Does it give us any clue as to whether it's there or not? Your statement is correct that it is a subset. We've taken 1984–91 and cut out 1984–85 from the old study. We kept what we had from 1986 to 1991 in the old data, and we added the new companies and the extended data up to 1993 for the new companies. That's going to be one of the interesting features. That was a very dramatic change.

Mr. Tam: One of the problems with studying experience of this nature is the fact that you have different kinds of variables and they interact with each other. When you try to isolate one variable at a time, you have to ask if you are controlling the other variables. Is it possible that the distribution in that highest attained group with respect to the elimination period has changed from the pilot study to the update?

Mr. Young: You mentioned several variables and the difficulty of controlling anything to look at a single item. That's true. It's compounded when you're doing an intercompany study because you have data coming from a variety of sources, all of which have the likelihood of being coded somewhat differently. You also have different rules within the company. That's why in the prior study we did do some quartile work to try to point out that these are the averages, but there's wide disparity amongst companies. We tried to look at some of those features and get at them as singular items, but it is difficult to do that.

Mr. Thomas S. Bell: If I understood the length-of-stay statistics correctly, I think I heard you say they included people who are still on claim as well as closed claims. Did you look at just the closed claims? How different would the 337 be if you took out the continuing claims?

Mr. Corliss: There is a fairly sizable difference. If you just looked at open claims, the number would have been larger than that. All the work that we have done before has shown that the closed claims are shorter. We just looked at retirement community data and noticed the exact same feature, so we know that claims are just getting longer.

Mr. Bell: I guess part B of the question is it seems like more people are buying the lifetime benefit than they did in years past, yet the statistics are showing something less than a year of benefit. I don't know how much of part A of my question was directed at how that would be different if you knew how long those were going to last. Are people buying the right product? Or is it just a matter of the way they've been pushed to buy that?

Mr. Corliss: I don't know whether people are buying the right product or not. There are a lot of things that go into determining whether a person buys the right product or not. Much depends on what somebody's trying to sell them. I think the jury is still out on that aspect. I think that we may have learned quite a bit about assessing the morbidity aspects of the risk. It might come out when we really dig into all of the details; that longer benefit periods and higher daily indemnity amounts are having larger claims. I don't think we have gotten to motivation as much as people think we should in terms of underwriting.

From the Floor: I have a question about setting up experience monitoring systems, especially with respect to more current policies that have comprehensive benefits. A claim that is generated may start out being a home health care claim and evolve into a nursing home claim as the person changes his or her care-setting location. Have you thought at all about how to capture the characteristics of these kinds of claims as they evolve over time, and have you determined whether or not they're tracking according to your original placing assumptions?

Mr. Young: That's a very good question. It hasn't come up yet. We would probably consider that as two separate claims. Consider the continuance on the home care and the payment level on the home care separately from continuance on the nursing home piece. We could classify it as a comprehensive. Put it in the comprehensive bucket and look at payments and continuance all together.

Mr. Dinsmore: The point that you bring up, Jim, is that there's the related issue of transference going on. I keep hoping we can get to that point in this particular study. What is the typical claimant? What are the characteristics of a typical claimant? The way products were initially developed, you assumed that somebody had a massive event and then they got better. The products were all developed that way since about 1987–88. In that time period, the thought has been that something happens to people that slowly debilitates them, and then it triggers a massive event or death.

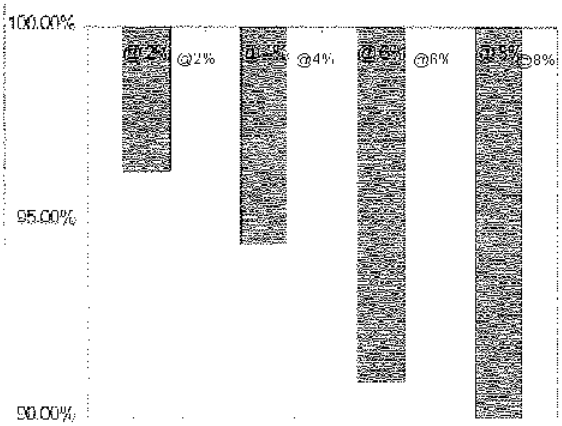
I think you can see from the data the length of those claims of people who have senility and nervous disorders such as Parkinson's, MLS, ALS, and MS. We're probably going to end up with different pictures, but it would be nice if we could somehow get to at least a starting point to say, "Here's what a typical claimant looks like. Does the person go for 125 days of home care, and then to a nursing home for a period of time?" We have a ways to go on that.

From the Floor: As we see the large changes between the first study and the second, we must ask how different have the last few years been. It seems that they have been very different based on the amount of change in the studies. I was going to ask if the Society was considering publishing at least the incidence rates on the last few years. It might be difficult to do length-of-stay with just a few years of experience.

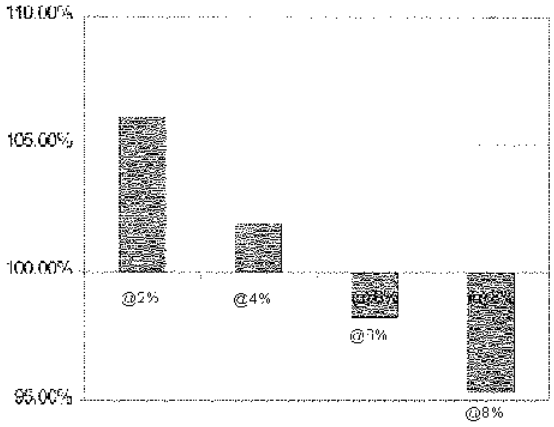
Mr. Corliss: That's one thing we will take into consideration.

CHART 1
INFLATION & COST

Cost Reduction After 5 Years
Daily Benefit is Constant



Cost Reduction After 5 Years
Daily Benefit Increases % 5/Year



MORBIDITY DROPS WITH INFLATION

CHART 2
FUTURE TRENDS