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**LONG-TERM CARE (LTC) INSURANCE VALUATION  
METHODS TASK FORCE REPORT**

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*Members of the LTC Insurance Valuation Methods Task Force of the Society of Actuaries present the conclusions and rationale found in their final report.*

MR. BARTLEY L. MUNSON: I'm chairperson of the LTC Insurance Valuation Methods Task Force. The panel members are Bill Bigelow of Metropolitan and Peggy Hauser of Milliman & Robertson, also two Task Force members. They will explain some of the highlights of our final report and answer questions about it. Bill and Peggy are two of 13 members of the Task Force. They are two who worked hard and long, and, as Chair, I sure do want to thank them and the other members of the Task Force for a long, professional, and committed effort. Bill and Peggy will go through highlights for us, on behalf of the Task Force.

Bob Darnell is the third panelist. He was one of the people who gave a critique of our exposure report, but that's not the main reason I asked him to be on this panel. Bob gave us a long critique of our exposure report on behalf of the LTC actuaries at Aegon, where he is vice president and actuary in the LTC Division. He has a lot of LTC experience. He is not here to defend his comments or relate them to the Final Report, but I'm sure he's done some of that. He will be sharing his perspectives on the report and implications for a LTC insurance writer.

Diana Wright, our last panelist, is from the NAIC. She had many years of background in the insurance industry before joining the NAIC earlier this year. She's concentrating mostly on health insurance and is the staff person who is following what we've done. She will tell us about the recent interface with the NAIC and perhaps say a few words about what the NAIC plans to do with these recommendations.

You could order the report for a \$30 copying cost, and the companion valuation diskette soon will be for sale for \$200, money well spent if you're interested in LTC. [Note: The report will appear in Volume 47 of the *Transactions*.] Jim Robinson and Frank Knorr from the Task Force will be going through the valuation diskette at another session and will help you to get some understanding of it. We are not going to cover the diskette here.

One final introductory comment. The SOA Board of Governors, at its meeting on May 11, 1995, accepted the Final Report.

MS. PEGGY L. HAUSER: Bill and I have selected six of the most important topics to briefly tell you what the report says. Those six topics are: the institutional care morbidity, the noninstitutional care morbidity, mortality, lapse, interest, and method. We're going to give you background on each topic, some of the rationale for our recommendation, and

some of the comments that we received last summer from our exposure draft and how we factored those comments into our final report.

So the first topic that I'd like to talk about is the institutional care morbidity tables. As everybody is aware, there's very little insured data relative to institutional care and most of the data that is available is from population surveys. The SOA has pursued two activities to address this problem. The first is, since 1986 the SOA LTC Experience Task Force (now Committee) has pursued an intercompany study of LTC experience. That committee faced great difficulties in working with the intercompany data. I think it will be some time before we can use those data to help develop a valuation table.

The second activity that the SOA has pursued is publishing an article in the *TSA 1988-89-90 Reports* on utilization data of the 1985 National Nursing Home Survey which, of course, is based on population data. I believe that source is what most insurance companies are using for their initial starting point in pricing LTC policies. The task force saw two options. We could wait until experience developed or we could put out a starting point, based on population data, and go from there. The latter option is what we ended up going with. So our recommendation is that the valuation actuary start with the 1985 National Nursing Home Survey as published in the *TSA 1988-89-90 Reports*.

Our final report includes admission rates, average lengths of stay, and continuance tables for institutional care, by age and sex. These values are the same as what is published in the *TSA 1988-89-90 Reports*. The actuary has to keep in mind that the original article was not developed as a valuation table. There will be similarities between what is going on in that population data and what will ultimately occur in insured data. If anything, those tables are somewhat conservative, which we believe is appropriate for a valuation table. However, the degree of conservatism built into those tables varies considerably, depending on several factors.

First, the data are population data. Insured experience is likely to be different. Most of the care provided was paid for out of the pocket of the resident, and insurance might cause different behavior. On the other hand, there's a stigma attached to going into a nursing home, which the actuary should factor in. Furthermore, the article did make some adjustments to the data to bring them closer in line to an insured population, but by no means does it recognize everything. Other items the actuary should consider include: what is the impact of underwriting? What is the impact of any benefit triggers, such as a medical necessity requirement, an activity of daily living (ADL) requirement, or a cognitive impairment requirement in the contract? Also, what are the claim adjudication practices that the company is using to enforce those benefit triggers?

We received many comments on our exposure draft relative to the morbidity basis. We most frequently heard that people wanted more specifics regarding adjustments that needed to be made to the morbidity basis. Many felt that we left too much discretion to the valuation actuary in using the morbidity tables. The Task Force felt that if we were to come up with adjustments for all of the variations that are going on in the market it would be an overwhelming task. We also felt that it wasn't our intent to come up with a cookbook that actuaries could use. We wanted to make clear that much judgment is necessary in using these tables and that they should be viewed as a starting point. Insured

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data will develop and the gaps can be filled in. We encourage actuaries to use their judgment and have a sound, credible rationale for any adjustments that they make.

If there's much uncertainty to institutional morbidity, there's even more for the noninstitutional care, which Bill is going to touch on next.

**MR. WILLIAM P. BIGELOW:** Yes, that's exactly true. Everything Peggy said about the institutional tables applies even more to the noninstitutional tables. We constructed tables using the best available data source, the 1982–84 National LTC Survey, a survey of Medicare enrollees. This, again, is also general population uninsured data. It was a somewhat longitudinal database, so we were able to track people over time.

What the tables purport to do is project the health status of individuals over time. By that I mean how impaired are they regarding their ADLs? The valuation actuary will have to make some additional judgments and additional assumptions from the health status, which the tables show, to the actual claim payments. Given a person's ADL impairment, what percentage of those people are likely to submit and be paid claims and, also, for how many days a week? The more disabled someone is, the more likely they're going to be paid the claim and the more likely it will be for more days a week.

These decisions can be made by the valuation actuary, but I believe he or she would need to know a little bit about the table construction in order to make those decisions. They also would have to factor in their policy provisions and their claims-paying procedures.

The tables were constructed using a definition of ADL that requires human assistance. Many of you may have policies that require only supervision in order to be considered ADL impaired. So, if the table says that someone is three-ADL impaired, that means they actually need human assistance in three ADLs. However, if you have a three-ADL benefit trigger and you consider supervision as well, a percentage of the people that these tables define as two-ADL impaired will also meet your trigger.

We considered six ADLs, and they may be different than the ADLs that you may be considering in your policies. They are different than the ADLs that the NAIC is looking at as they're trying to mandate certain minimum benefit triggers.

We also layered on a cognitive impairment trigger, and for this we used five incorrect questions on a medical status questionnaire. Again, you might want to compare this to what you've considered your cognitive impairment trigger would produce.

We took those survey results and put them into a model. We came up with certain probabilities representing how people would go from one ADL status to another over time, and we used that model to create some simulated data. The simulations were summarized in a prevalence table, which is on page 32 of the report, and also with some incidence tables and length of stay tables, which are pages 34–42 of the report. The software that we produced uses those tables.

In order to produce incidence data, we had to combine months of disability into a disability episode. To do that, we considered that the first month in which a person was one-ADL impaired or cognitively impaired was the beginning of their disability episode, and that's

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when the actual incidence would have happened; from that point on, the length of stay should be calculated on a service basis. How often they are going to use home health care will impact their length of stay. In other words, if you considered that someone was one-ADL impaired is not going to use any care, or at least is not going to use any formal care which you're going to pay for, then, actually, the months in which they're so impaired are not going to contribute to the length of stay. These points are also very important for setting up claim reserves, if you happen to be using these tables for claim reserves.

The home health care data actually does not affect the reserves quite as much as the institutional data. The reason is that the home health care data has a much less steep slope, and so it does not contribute to the reserves as much.

Once again, these tables were based on uninsured data. We had quite a few conflicting comments on what insured data is going to look like. Some people thought it should be higher because people who buy are going to want to use the care. Other people said that those who are buying LTC insurance are generally going to be healthier; one will have screened out the Medicaid population. So, actually, we leave the ultimate level of the claim experience to the valuation actuary to ponder and to decide.

Two things we did point out, though. We think that the underwriting will definitely affect early claims, as you all are aware of, and we provide a mechanism for valuing that. We also think that the ultimate experience is going to be dependent not only on the incidence and the length of stay, but also on who's going to be around during those ages in which claims are most likely to occur; that is dependent on the mortality you assume and the lapses you assume. Those are the next two topics.

MS. HAUSER: Again, there's no insured data available relative to the mortality experience of LTC insureds, so our recommendation relied on the judgment of the Task Force members. And our judgment told us that for statutory purposes, the mortality rate should be conservative. For life insurance, conservatism means you should increase the mortality rates. For LTC, conservatism means we need lower mortality, thereby allowing more insureds to persist to older ages where they're more likely to have LTC claims.

We also believed that we needed to have mortality rates that extended beyond age 100; truncating the mortality at age 100 was too liberal. We considered constructing a mortality table to reflect what our judgment told us should happen. We started off with the Unloaded 1980 Basic Table, and we set out to lower the  $q_x$ s and extend them beyond age 100.

After several attempts at this, we found that the 1983 Group Annuity Mortality Table had many of the characteristics that we were looking for. As a result, we decided to recommend using the 1983 Group Annuity Mortality Table (GAM-83). I want to clarify that we have not chosen that table because we see a strong correlation between LTC insurance mortality and group annuity mortality. We picked that table for two reasons. First, it was a publicly recognized table; and, second, it has the appropriate characteristics relative to the Unloaded 1980 Basic Table.

We received several comments about the mortality assumption related to our exposure draft last summer. Three commentors suggested that the group annuity mortality table was not conservative enough and that we should go to the individual annuity mortality table. In

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our opinion, GAM-83 was conservative enough, and we didn't have to take the next step to go to the individual table.

We received several other comments that recommended that the 1980 basic table was conservative enough and that should be our recommended table. The rationale behind that is that insurers are going to be selected against—the individuals who purchase LTC are more likely to be frail, they will have sought out the benefits, they will be likely to use the benefit, and they will not have favorable mortality. The Task Force believed that the underwriting that is being performed is significant and will produce favorable mortality, and that after underwriting we will not end up with a frail population.

MR. BIGELOW: Many of these assumptions are very tied together; we considered mortality and lapse together. The Task Force recommended that lapses be limited to 8% (and that's exclusive of mortality), and that they be no greater than 80% of the pricing assumption. Here, again, was a point where we deviated a little bit from the current model, which limits voluntary lapse to 8% inclusive of mortality. Given the global view and how conservative some of the other assumptions are, we felt that if we limited it to 8% inclusive of mortality at the higher ages, you would leave very little for voluntary lapse.

As you are all aware, pricing and reserving are very heavily dependent on lapses. The ultimate claim experience that we're going to experience is going to be very dependent on the population that persists to claim status, and not the initial buyers. So, actually, there's quite a bit to be said for the fact that it's not even the number of people who lapse, but the kind of people who lapse. While we leave the ultimate concept of ultimate claim experience to the valuation actuary to ponder when setting the ultimate claim level, we do recommend that variation between the lapsers and the persisters be modeled for as long as the first ten years, and we provide a mechanism for doing that.

My experience has been that could add about 5% to the ultimate claim experience, so that's something you may want to keep in mind. Again, we have a mechanism in the diskette that actually models that exactly.

We received a great deal of feedback on lapse assumptions as well. Some people thought that the lapse assumptions that we're going to see will be much higher; some people thought that they'd be much lower. The LTC Experience Committee seems to be reporting pretty high lapses. We had comments from other people that said they're seeing lower lapses than they expected. And I've seen other surveys that show lapses lower than expected, and lapses lower than were priced for. I think it's going to take some time to see where lapses fall out.

I think, in the future, lapse assumptions aren't going to be quite as significant because of the NAIC's stand on nonforfeiture; we'll see what kind of impact that will have. The diskette also gives you a method for modeling nonforfeiture benefits, and it even allows for a factor to take into consideration that you may want to use higher incidence on nonforfeiture benefits, given that you're unable to readjust premiums for those people who are on nonforfeiture status.

MS. HAUSER: When determining our recommendation regarding interest, we tried to look at the characteristics of LTC insurance versus the characteristics of other types of

products and we tried to make some analogies or comparisons. First, the build-up of the assets in LTC can be very similar to that of pension funds, which would argue for a higher interest rate. On the other hand, many of the characteristics of LTC are similar to disability insurance; the build-up of assets are similar and the nature of the benefits is similar. Under both of those policies, the benefits are not certain to be paid, as they are in life insurance. And both disability income and LTC rarely contain significant cash nonforfeiture benefits. Looking at the regulations that are in place, there is not any flexibility to use a higher interest rate for disability income than the life rates. In the end, we decided to be consistent with disability income.

The Task Force did have considerable discussion regarding varying the interest rate by issue age, because the interest rate plays a very big role for younger issue ages. However, we chose not to vary from the standard practice. We are also aware that the role of interest is currently being looked at relative to valuation on several other products and to valuation in general, so we saw no reason to depart from the current practice. Therefore, our recommendation is to use the maximum allowable interest rate for life insurance products issued in the same year. For claim reserves, we're recommending using the interest rate for policies that are issued in the year that the claim was incurred.

That last point generated the most comments to our exposure draft. We received several comments that said it is theoretically more appropriate to use the interest rate from the year of issue, because the assets supporting the claim reserve are not newly funded dollars at the time a claim is incurred. However, we thought, for practical purposes, it would be easier for companies to use the interest rate from the year of incurral.

**MR. BIGELOW:** Method was a very difficult decision for us. I'm sure you are all aware that the current model states that the one-year preliminary term is an appropriate method, even though accident and health is traditionally valued on two-year preliminary term.

Insurers are using net level, one-year, and two-year preliminary term methods, so there's quite a lot of variation out there. The tax policy is currently interpreted by most insurers to require two-year preliminary term for their tax deductible reserves. Many insurers are lobbying the tax policymakers to change that to one-year preliminary term, so, of course, this was a very important issue for us to address. We are cognizant of all those facts, as well as of the AAA task force that looked at this back in 1990. Regardless of all that, we did look at this from a research point of view and we wanted to decide exactly what we felt was right, so there were a couple of things that we looked at.

We looked at the strain of surplus from acquisition costs. Of course, this varies a lot from insurer to insurer, it varies by the level of underwriting and by the level of on-site assessments used in underwriting. It's going to vary a great deal according to the kind of marketing materials you use. It will vary a lot now that we have suitability regulations coming, and there may be regulations leveling commissions. This is an area that is in a bit of a flux. In any case, we did look at that.

We looked at the pattern of statutory earnings as well. We wanted to avoid choosing a method that would result in early gains, but in later years show a lot of statutory losses or a big strain. That didn't seem to us to be a reasonable method at all. We also looked at the

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gross premium valuation. Any method that would be projected to fail a gross premium valuation in the future certainly would be suspect. So those were things we looked at.

Our research was not terribly conclusive in that it did not yield the desired unanimous vote. The majority of the Task Force did feel that the two-year preliminary term was not an unreasonable minimum method to use. Of course, this decision is heavily dependent on the other assumptions that went into the modeling and the level of conservatism that are in those other assumptions, namely, the morbidity, the mortality, the interest, and the lapse.

We received some feedback on the method. There were many who said two-year preliminary term is the way it should go. There were many who said one-year preliminary term is the way it should go. In one letter, a company stated that it would not go to two-year preliminary term because it projects that would be inadequate in the early years; it would still hold one-year preliminary term regardless of what the NAIC would decide or regardless of what we decided.

Another comment was that because some people believe this is a riskier business than other coverages, it should require stronger reserves. Here is a situation where it was hard to look at one thing in isolation; here's a situation where risk-based capital (RBC) requirements have to be examined at the same time. Many things are moving at the same time, including RBC and our Task Force.

There are many companies that do want to hold one-year preliminary term and feel that it's prudent, and they are trying to lobby the tax policymakers to change to one-year preliminary term. I suggest that insurers should be able to deduct on their taxes whatever they're using for statutory purposes.

Of course, we do make other comments regarding reserve adequacy. In any method that you use, you still have to look at a gross premium valuation. I encourage you to do frequent gross premium valuations on your block of business because many assumptions are involved.

MR. MUNSON: I think it's safe to say that anybody on the Task Force has valued LTC or can value LTC for his or her own product or a client's product. It's an entirely different situation to come out with a report that tells the world how they should do it for every product in the marketplace, and even those products that aren't on the streets yet; I couldn't help but think of that as Peggy and Bill talked. That's why, in so many places, we have said the valuation actuary must use judgment. We have a diskette that will help you; it's not part of the report, but it's a companion that will help you evaluate some of those adjustments that they talked about considering.

MS. PATRICIA J. FAY: Did you consider valuing differently for group versus individual?

MR. BIGELOW: We definitely considered group separately, at times. That was an important consideration in a number of areas, as in acquisition costs, when we looked at the method. We had a number of people on the Task Force who were familiar with group valuation, so that was considered.

MS. FAY: I was wondering about the method.

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MR. BIGELOW: When we actually modeled the method, we looked at issue-age 45, as well as issue-age 70, and we came to the same conclusion.

MS. FAY: Did you look at group versus individual acquisition expense differences?

MR. BIGELOW: They might be smaller for group because they typically don't have commissions. But I know that group acquisition costs can be very dependent on the participation level that you're going to ultimately get, and so I guess there is some question there.

MR. MUNSON: We did talk about that. That's a good question. I'd underline what Bill just said. We did discuss the different acquisitions cost. But, when enrollment is 5% or, if you're wonderful, 10%, it's a matter of spreading those allegedly lower costs over a fairly small group of buyers. We didn't think we should come up with recommendations that drew a line at certain issue ages, even though there were some on the Task Force who would probably urge us to think harder about making some age distinctions. But that just made a terribly complex subject even worse.

By the way, as they allude to the gross premium valuation work we did, it should be noted that we did it carefully, because that's not the SOA pricing work in a collegial fashion; we had our lawyers take a look to make sure we weren't violating antitrust.

MR. LARRY H. RUBIN: First of all, I'd like to compliment the Task Force; it was an excellent piece of work. My first comment deals with the mortality assumption. As you know, Teachers Insurance Annuity Association (TIAA)/College Retirement Equities Fund (CREF) has significant statistics on the experience of mortality among retirees. Our experience shows that where there's a cash surrender benefit and the individual has an option of electing a lifetime annuity versus taking a cash surrender benefit, there is significantly better mortality than in annuities where the only option available is a lifetime income. I would expect that underwritten LTC business would probably be similar to annuities, where the individual has a choice of electing a cash surrender benefit, both should be healthy lives. So I am questioning the mortality assumption from that viewpoint.

The second comment I had was on the sex-distinct versus unisex issue. It seems, from the numbers we're seeing on the intercompany study, there is very little difference by sex, which, I guess, has surprised a great many people. I want you to rethink that issue.

The third comment was on the lapse assumption. From our experience, and talking to other actuaries, lapses have been lower than many actuaries have expected in this business. The intercompany study did not take into account policyholders migrating from one policy to another to get to better coverages, as generations of policies improved; this may have significantly overstated that lapse rate. It may be worthwhile, before we go with the 8%, to see if we can survey companies to see what kind of lapse experience they're currently experiencing.

MS. HAUSER: I think your comments on the mortality of retirees is a point well taken. As a Task Force, we believe that the GAM was conservative enough. And I think that, at this point, we are going to have to wait until we see some insured experience. Related to the sex-distinct question, I'm very surprised at what the intercompany study has produced



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and would like to see more analysis on that variable, because there is a very big difference in the morbidity, or in the 1985 National Nursing Home Survey. Before we dismiss those differences, I'd like more analysis of that data. I'm especially concerned because the females have the higher morbidity and females are much more likely to purchase LTC, so I feel more comfortable using sex-distinct tables until those features can be explained.

MR. BIGELOW: I would echo those comments. But I would point out that, in the home health care data that we put together, there was not as much difference; we decided to use the same incidence rates for males and females. Regarding the lapse question, I think that's still an open question. But I think that having tied it to pricing, if you believe that your lapse assumptions are going to be lower, then you can do the same for your valuation.

MS. HAUSER: And by no means are we saying that, because the threshold is 8%, that we're condoning that the ultimate lapse rate is going to be 10%. Clearly, we don't think that will occur. Pricing actuaries have to be very careful about the lapse assumption that they choose. I think that your points are very well taken; we have to take the intercompany data with a grain of salt and recognize that there were many upgrades, conversions, and liberalizations going on in plan designs.

MR. MUNSON: Not to be defensive of our report, but I certainly agree with what Peggy said. We were in touch with the intercompany study, and some of us were on that committee during the last few years, and we've seen nothing that deters us from what we've said; and, in fact, we think much work needs to be done on the intercompany analysis in future studies. It's a nice start, but it's barely that.

MS. LORETTA J. JACOBS: You talked about the underwriting and how you felt that would have some positive impact on mortality. Did you consider the group business where we have a lot of guaranteed issue, at the younger ages in particular. I think some of those people would be more like antiselect mortality experience. Did you consider that at all?

MR. BIGELOW: Well, we believe that underwriting should be considered when you do your valuation. If you don't believe that there's much selection because of the guaranteed issue, then I think that you should take that into account.

MS. HAUSER: I think you should also take into account that an actively at-work requirement represents a form of underwriting.

FROM THE FLOOR: Can you tell us any more about why you thought that the group annuity mortality table was conservative enough?

MS. HAUSER: We were comfortable using the 1980 Basic as the mortality that might be expected under the policy. In doing so, we're assuming that some of the characteristics of life insurance are going to be similar to LTC. That 1983 table had characteristics that were slightly more conservative, which we felt was good on a statutory basis.

MR. MUNSON: We didn't do mortality studies on LTC risk. I think Peggy summarized it fairly well. We had a debate about how many possible mortality tables we should put in for the valuation actuary in the diskette. One view was that we should have only one—a default. We ended up deciding that there are options; you can hear about them in the next

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session. We didn't say that is the one and only table people should use. In fact, people on the Task Force use different mortality tables. That was the best one that we thought we ought to try to settle on, for reasons Peggy cited.

MR. ROBERT W. DARNELL: First, I want to say thanks to the entire Task Force; it's obvious that they all did a great deal of work to put this whole report together.

I'm in marketing, so when I read this final report, the first question I want to know is how is it going to affect sales? That, of course, is a hard question to answer. We broke that down into two more exact questions. If we don't change our premium, how is that going to affect our internal rate of return (IRR)? If we do change our premiums to get the originally intended internal rate of return, how much do we have to change our premiums to do that?

So to answer these two questions, I looked at a sample plan and picked some assumptions that nobody would use exactly, but they would be close enough to relate to, and to usefully illustrate (see Table 1).

TABLE 1a  
SAMPLE PLAN

Change		IRR (in %)					
		35	45	55	65	75	Avg.
No Inflation Protection:							
1	Mort. = 1983 GAM 40M/60F	9.1	8.9	8.3	6.6	0.7	4.6
2	Statutory Reserve Claim Cost = SOA	8.7	8.8	9.0	9.2	9.1	9.1
3	Statutory Reserve Method = 1year PT	10.6	10.5	10.2	9.3	7.4	8.7
4	Increase Target Surplus	12.5	12.5	12.4	12.2	11.5	12.0
5	Mort. = 1983 GAM & Stat. Res. CC = SOA	7.2	7.1	7.0	6.1	3.1	5.1
6	(5) & Reserve Methodology = 1year PT	6.8	6.8	6.6	5.8	3.7	5.2
7	(6) & Increase T/S	6.8	6.7	6.5	5.8	3.8	5.1
Compound Inflation Protection:							
8	Mort. = 1983 GAM 40M/60F	9.4	9.4	9.2	8.2	4.0	6.7
9	Statutory Reserve Claim Cost = SOA	9.6	9.7	9.8	9.9	9.2	9.6
10	Statutory Reserve Method = 1year PT	10.8	10.7	10.5	9.9	7.9	9.2
11	Increase Target Surplus	12.7	12.7	12.6	12.6	11.9	12.3
12	Mort. = 1983 GAM & Stat. Res. CC = SOA	7.8	7.8	7.7	7.2	4.7	6.3
13	(12) & Reserve Methodology = 1 year PT	7.3	7.3	7.2	6.6	4.8	6.0
14	(13) & Increase T/S	7.2	7.2	7.1	6.6	4.8	6.0

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TABLE 1b  
SAMPLE PLAN—CONTINUED\*

Change		Change to Premium (in %)					
		35	45	55	65	75	Avg.
No Inflation Protection:							
1	Mort. = 1983 GAM 40M/60F	23.2	21.8	19.6	15.1	9.6	14.0
2	Statutory Reserve Claim Cost = SOA	34.8	29.1	21.9	10.5	2.9	10.4
3	Statutory Reserve Method = 1year PT	14.1	12.8	12.3	10.3	7.1	9.5
4	Increase Target Surplus	1.8	1.8	1.6	1.2	0.6	1.1
5	Mort. = 1983 GAM & Stat. Res.						
6	CC = SOA	66.0	58.2	46.9	29.4	14.6	28.0
7	(5) & Reserve Methodology = 1 year PT	90.3	80.1	68.1	45.8	24.6	43.0
	(6) & Increase T/S	94.1	83.4	71.1	47.9	25.6	44.8
Compound Inflation Protection:							
8	Mort. = 1983 GAM 40M/60F	37.1	35.6	31.9	23.8	14.6	22.1
9	Statutory Reserve Claim Cost = SOA	36.0	33.2	27.4	15.6	5.3	14.3
10	Statutory Reserve Method = 1 year PT	21.3	21.2	20.2	16.2	10.4	14.8
11	Increase Target Surplus	1.9	2.0	1.9	1.3	0.8	1.2
12	Mort. = 1983 GAM & Stat. Res.						
	CC = SOA	86.3	81.1	70.0	47.0	23.7	43.2
13	(12) & Reserve Methodology = 1 year PT	125.4	119.1	105.6	74.7	39.7	68.0
14	(13) & Increase T/S	129.7	123.2	109.3	77.4	41.1	70.5

\*Note: basic assumptions are as follows: benefit period is 4 years, NH only; elimination period is 20 days; statutory reserve method (I=5%) is 2 year preliminary term; tax reserves (1980 CSO 30/70; I=8.1%) is 2 year P.T.; mortality is 1980 Basic 30M/70F; Morbidity is Aegon USA; interest earnings rates year 1: 8%, years 21+: 6%; IRR is 13.0% (a FIT, a T/S); administrative expenses with IP for year 1: 24.0%, for year 2+: 12.0%; administrative expenses without IP for year 1: 12.0%, for year 2+: 6.0%; marketing expenses for year 1: 75.0%, for year 2+: 18.0%.

I used a nursing-home-only plan, with a four-year benefit period, and a 20-day elimination period. The mortality table I used was the 1980 Basic Table, weighted 30% for males and 70% for females. And, unlike what the final report says, I kept the 30/70 weight constant by duration. The morbidity basis is called Aegon's morbidity. We assume that this is a fully underwritten plan. I used a two-year preliminary term method. The interest earnings rates that I used started at 8%, went down ten basis points every year until they reach 6% in year 21, and I just left them level thereafter.

For tax purposes, I used the 1980 CSO mortality. Again, I weighted it 70/30 by sex and it stayed constant by duration and by issue age. The tax interest rate was 8.1%, and I used a two-year preliminary term (PT).

The internal rate of return I looked for was 13%; that's after federal income taxes and it's after adjusting for target surplus, whatever target surplus might be. Every company is probably using something different.

I also wanted to look at the affects with and without inflation protection, so the top half of the numbers in the table are without inflation protection; the bottom half is with inflation protection. The issue ages I looked at were 35, 45, 55, 65, and 75.

I didn't change the premium in the columns on part a, but rather recalculated the internal rate of return. I changed the premium in the columns on part b so that I obtained my 13% internal rate of return; they show how much the premium would have to increase to get

back up to the 13% internal rate of return. Line one shows where all I changed from our basic assumptions was the mortality table. I used GAM-83. I weighted 40% for the male and 60% for the female. The final report indicates that, if you start off at 40/60, you should then let the mortality flow through so that your 40/60 ratio would go higher for the female as the durations passed. To get my work done, I just left the 40/60 ratios to stay constant throughout.

We had a table that had an omega age of 100. Now we have a table with an omega age of 110. I also used that change for pricing, so pricing went out to age 110. The claim cost stayed the same up to age 110. The average internal rate of return went from 13% down to 4.6%. To get that internal rate of return back up to the 13% level for each one of those issue ages, the bottom six columns (part b) show how much the premium had to go up. So at age 35 the premium had to increase 23.2%; the average was 14%. The average issue age is 66. I thought that was a fairly good first guess, so I went with it.

When we talked to our underwriters on a fully underwritten block of business about the lives that we approved, they indicate that 50% of the people would be approved as standard for life insurance, 20% would be somewhere between Table 3 and Table 20, and the other 30% would be uninsurable. That's why we thought that the 1980 Basic Table was conservative enough. As these numbers show, GAM-83 is, obviously, more conservative. Let's go to line two. All I did was take claim costs from the final report and I used those to calculate statutory reserve factors. So the mortality is the 1980 Basic Table. The pricing claim costs were still my initial pricing claim costs. The internal rate of return there changed very little by issue age, and the drop in average is to 9.1%. The premium increase that it took to get the internal rate of return back up varied quite a bit, from 34.8% at age 35 to 2.9% at age 75, or an average of 10.4%.

One point not treated adequately in the final report is any difference in the statutory reserve between LTC business that is fully underwritten and that which is nearly guaranteed issue. By using ultimately 100% of the insurers' claim costs, the resulting margins may differ significantly. Actuaries should give this further thought.

Now the final report also points out, as we just talked about, that you can allow for lapses. In calculating these statutory reserves, I didn't allow for lapses. If you allow for lapses, then you have to recognize the antiselection. Because of time constraints, I just eliminated that whole issue; there are no lapses in there.

The next line shows results where everything is similar to the standard assumptions, except I changed the statutory reserve basis to one-year PT. It dropped the internal rate of return from 13% down to 8.7%, or an average increase in the premium of 9.5%. Again, if you put the lapses in here, that would have some effect on it.

Now let's look at a target surplus change. We kind of took a guesstimate of what our target surplus requirements would be under the proposed health organizations RBC requirements. That didn't cause much of a change, about 1% of internal rate of return (IRR) or 1% of premium. Again, every company is going to be different here because everybody's going to have different levels of target surplus that they hold; also, depending on the RBC requirements, companies will do different things, depending on what they're

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trying to do with the rating bureaus. So you might hold 110% of the RBC requirements, and you might hold 200%.

Line five shows the combined effect of changing the mortality to GAM-83 and using the final report's statutory claim costs. So the internal rate of return, of course, drops and the premium went up some 28% on average. And you can see that the 28% is not additive of the component changes' 14% and 10%. With the 14%, you had more years. With the 10%, you had higher reserves. But, with the 28%, you have more reserves for more years.

The next line shows the effect if you also went to one-year preliminary term. We now know that it's not required in the Task Force's report, but it does show a big effect. It shows that the premiums would need a 43% increase on average to get your internal rate of return back up to 13%.

This last line for the policies without inflation protection changes all four items and has added on the target surplus effect. So at age 35, the premiums need to go up 94%, at age 75 they would need to go up 25%, and the average is 44.8%.

I'm going to the product with compound inflation protection. All the numbers are worse for the required change to premium. When you look at the internal rates of return, they all look just the opposite. The internal rates of return are higher for the inflation protection than they are with the noninflation protection. Those are some fairly significant changes.

MR. MUNSON: The report has 25 cases where the Task Force used our diskette and changed one assumption at a time. The report shows, in standard format, the results of 25 such changes where we compared a default case, that we settled on for a base line, with changes. Bob has done some of that in his own way, in the short time he's had here; he's taken a look at it from their perspective.

The Task Force did look at many more than 25 cases in arriving at some of our conclusions. It's also safe to say we could have spent months more looking at many more cases and, especially, combinations thereof. But where do we draw the line, and when do we let the world do that, as Bob has been working on it now since it's available.

MR. DARNELL: One thing I'd like to point out is, if you're not looking at your internal rates of return on an after-tax basis, and you're pricing compound inflation protection, you're going to be surprised. The numbers are a lot different. The results for compound inflation protection is in no way related to the policies without the inflation protection. So if you're using, say, a more traditional pricing method where you're looking at numbers before taxes, you need to start looking at your internal rates of return after taxes, especially when you're pricing an inflation protection plan.

MR. FRANK E. KNORR: I notice, in your assumptions for the statutory reserves, you're assuming a 5% interest rate.

MR. DARNELL: Right.

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MR. KNORR: As far as I understand, the interest rate for policies issued during 1995 is now 4.5%. Have you looked at the impact of decreasing that interest rate and what impact that has on the pricing?

MR. DARNELL: No, I have not. Like I said, I tried to pick some assumptions that nobody's using. The 5% is probably a year old anyway. That 8.1%, for tax purposes, is two years old.

MS. DIANA S. WRIGHT: The NAIC is very appreciative of the extensive effort that has been put forth on LTC valuation by the SOA and its LTC Insurance Valuation Methods Task Force. That effort provides additional insight, information, and analysis that is very valuable to the regulatory environment.

To date, the NAIC Model Laws or Regulations have not provided definitive guidelines for LTC valuation. It has been a little more open-ended than other regulations. There are three models that currently address LTC; one is the LTC Insurance Act; another is the LTC Regulation; and the other is the Minimum Reserve Standards for Individual and Group Health Insurance. Among these, the LTC Model Act is silent relative to valuation, so that one doesn't even address this issue.

Section 15 of the LTC Model Regulation distinguishes between whether or not the LTC benefits are provided through acceleration of benefits under life policies versus other LTC benefits. For the benefits that are provided through the acceleration type of policy, whether it be group or individual, any applicable valuation morbidity table may be used for statutory purposes, as long as it is certified by a Member of the AAA. For other LTC benefits, reference is made to the minimum reserve standards for individual and group health. That minimum standard was not originally designed with LTC policy in mind; it's more for your typical health policy. Again, it does not refer to any specific morbidity table. Because of this, the NAIC, in December 1990, asked the SOA for assistance in developing these tables suitable for statutory purposes in LTC insurance. I think we're appreciative of the endproduct.

The SOA presented its final report to the NAIC's Life and Health Actuarial Task Force in early June of 1995, and it's only this June 2 that we were in St. Louis receiving the report. Hopefully, you'll understand that that's a short time frame for us to have too much of a reaction yet. I would like to tell you that the NAIC is carefully considering the recommendations contained in this report. As a result of that meeting, there was a request for additional future considerations from the SOA to be suggested in a follow-up memo. That memo was received right before I left. We've not had a chance to discuss it yet. There's a conference call scheduled for the end of July to discuss the report and the suggested future recommendations. So that's where we stand at the NAIC.

MR. JERRY W. FICKES: As chair of the Health Working Group of the NAIC Life and Health Actuarial Task Force, I want to echo what Diana said. We do thank your Task Force for producing this report that was requested clear back in December 1990. Needless to say, it has taken some time to get here and we can understand why by looking at it. By the same token, it's going to take us a little time to absorb it. We look at things maybe a little bit differently; the solvency issue is a primary goal of the NAIC. There has been a great deal of reaction to your report already. And, while we look at the solvency, it seems

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as if the primary issue in everybody's mind today is the taxation. We hope you won't disappear because you've given us something that I don't think we will absorb within the next month or two, but it will take us quite a few months to decide how to use this and how to move forward in establishing a new LTC valuation standard. At the same time, the LTC group, which is now part of the Senior Issues group, is reexamining LTC to see if it should change some of the things we've done over the last three or four years. These, in turn, could affect some of these valuation issues.

**MR. MUNSON:** It has taken longer than I promised when recruiting them to be on the Task Force and longer than I thought it would take when we started. I made some false promises about how long it would take and how many meetings (which turned out to be 17 official meetings). Yes, we are still in business, as I said earlier. I think the mailings will be much less frequent and we'll discontinue meeting, other than by phone; but our profession stands ready, willing, and we hope able to work with the regulators or anybody else who wants to make use of what is a research report. We had trouble knowing what to call our output. It's not a standard, for we realized that standard-setting, of course, belongs to the Actuarial Standards Board (ASB). So we did come up with the "recommendations," even after we debated to whom. It's to you, to the users of LTC insurance, to the regulators, to whomever. And, in fact, there have been several references to the tax writers on Capitol Hill, for whom we've explained parts of our report already. Just as the SOA has a role, the regulators have a role to regulate the business, the industry has a role to do what's right for them, the tax writers have a role to do what's right for tax revenue; all are very different roles. That doesn't mean we shouldn't work together. I think we have and I think we'll continue to do that for the betterment of all parties.

**FROM THE FLOOR:** Did you run any simulations and tests that take the lapsation into account relative to running them by selection? And do you have any results as to how it impacted the reserves?

**MS. HAUSER:** Yes, we did. Appendix C contains all of our published case studies. Test Case 4 shows what the impact is of recognizing or not recognizing adverse selection due to lapse. We tested quite a few of these. I don't think we went so far as to say what we believed was the appropriate set of adjustments that should be made for lapse, but the diskette provides a mechanism to recognize it, and the default case shows one set of assumptions that could be used.

**FROM THE FLOOR:** Could you tell, off the top of your head, what the impact of using a more or less conservative mortality table is relative to using lapses?

**MR. DARNELL:** I think the effects of mortality can be very significant. And I guess it would depend on how much you varied lapses. The cases that we studied showed that the difference between using different mortality tables was very significant.

**MR. MUNSON:** I suspect some illumination of those kinds of questions will come out at another session, too. That session will teach you more about the diskette. I think it's fair to say that it has been a tool not only for the Task Force, but, more importantly, a tool for each of you to use to answer some of your own questions. Everybody has different questions and different facets to apply those questions to. The diskette isn't the only answer for you or the only tool for you; you can ignore it and consider the report but use

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your own internal systems to try whatever you want, and that's perfectly fine. But I think for those numerous, endless combinations of different assumptions that would fit different people, you have to roll up your sleeves and think about them and use whatever tools you have.

MR. BIGELOW: The last comment I actually wanted to make was about one of the letters we received regarding our exposure report. The letter was lamenting that we, as a Task Force, were faced with a dilemma of whether we should be consistent with other products, long-term disability and life products, or make recommendations based on what made sense for LTC exclusively. The letter writer lamented that we did not take a stand, or go one way or another; sometimes we were consistent with other products, and sometimes we came up with unique recommendations. It seemed to me a very curious comment. If we were always consistent with other products, I'm sure that we'd be criticized for failing to consider LTC as a unique product. And, if we always came up with something unique to LTC, I'm sure many would question whether all these diversions were necessary. So I think it was obvious that, as we looked at each assumption and each question individually, we ended up going both ways. In fact, we didn't look at each question and each assumption individually; we had to look at everything as a whole. I think you have to take the report and the assumptions in it as a whole when you're considering it. And I urge you all to read the report and get the diskette and play with it.

MS. HAUSER: With the limited data that's available, we've made a good start with this report. But I don't think there's enough data or resolution of issues, yet. It's imperative that the valuation actuary use considerable judgment when using the tables and the concepts that were recommended.

MR. DARNELL: The data that the SOA intercompany study is coming up with shows less difference between males and females. They're coming up with the same incidence rates. Another issue is target surplus. Target surplus is not something that's independent of valuation.