

**1991 VALUATION ACTUARY
SYMPOSIUM PROCEEDINGS**

SESSION 5

Guideline XXX (Reserves for Term Policies)

Stanton L. Cole

David H. Jungk

William M. Buchanan

Richard L. Bergstrom

GUIDELINE XXX (RESERVES FOR TERM POLICIES)

MR. STANTON L. COLE: I find myself at this presentation largely, I presume, because I have served for over two years now as ACLI staff to the industry group that has been examining proposed Guideline XXX and that recently produced, under date of September 10, 1991, what many hope will be its final report. Copies of this report, with all its many attachments, are available from the Society office.

We are fortunate to have with us a very qualified panel of experts on both our subjects of Guideline XXX and AIDS. Bill Buchanan and Dave Jungk will discuss proposed Guideline XXX, while Rick Bergstrom will tackle the AIDS portion of the program. Before proceeding further, I'd like to give brief backgrounds on each of our speakers, and I'll do so in the order in which they'll speak -- which happens to be reverse alphabetical order.

Dave Jungk is vice president and assistant actuary with Prudential, and like Bill Buchanan, a member of the Joint ACLI-National Association of Life Companies (NALC) Task Force on Reserves, which was appointed to study proposed Guideline XXX. In recent years Dave has had responsibility for various aspects of statutory valuation, tax reserves, Regulation 126 cash-flow reporting, and dividends for Prudential's individual life insurance and annuity lines of business. On a personal note, little did I realize many years ago, when as a member of Prudential's actuarial student committee, I took a trip to Lehigh College to interview a somewhat younger Dave Jungk for a position as an actuarial student with the Prudential, that it would someday come to this!

Bill Buchanan is a consulting actuary with his own firm in Overland Park, Kansas. He is also the President of Unified Life Insurance Company. "Variety is the spice of life" would seem to be applicable to Bill's career in the life insurance industry, for he has logged time with life insurance companies as an employee, as well as being one of the most prominent life insurance consultants in the Midwest. While probably best known for his work with product development and pricing, he has also had experience with tax planning and strategy, merger and acquisition evaluations, reinsurance negotiations and evaluations, and

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accounting aspects of the business. In addition, he continues to be very active in insurance regulatory and legislative matters.

Rick Bergstrom has been a consultant with Milliman & Robertson, Inc. in Seattle since 1984. His areas of specialty include product design, valuation of blocks of business for purchase or sale, evaluating reinsurance proposals, and involvement in sales strategy work geared toward establishing or improving market share. In addition, Rick has published a number of papers which speak to his qualifications for appearing on our panel.

I think you'll agree that the panel is, indeed, a most qualified one.

NAIC Actuarial Guideline XXX was first proposed in late 1988, essentially as an update of Guideline IV, which applies only to 1958 CSO term policies without cash values. The scope of Guideline XXX was broadened to include policies valued on the 1980 CSO table, and whose features include nonlevel premiums or nonlevel benefits where no cash values are guaranteed during the first 10 years. The preamble to the proposed guideline includes this sentence: "At issue is the appropriateness of the 'unitary policy approach.'"

The primary motivation of the regulators in issuing this proposed guideline would appear to be their concern that use of the unitary reserve method in valuing this group of policies permits an undervaluation of liabilities -- particularly in early years prior to the time when a significant premium increase is often called for and may cause the exodus of most of the healthy insureds.

The proposed guideline generated many letters of comment to the NAIC Life and Health Actuarial Task Force from all segments of the industry. Numerous arguments were used to register concern about hasty adoption of the guideline. These arguments ranged from "Retroactivity is inappropriate" to the statement that "the guideline's abandonment of the unitary method violates a fundamental principle of the Standard Valuation Law" and many more. Ultimately, the NAIC Life and Health Actuarial Task Force appointed a broad-

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based industry group, chaired by Reed Miller of the Lincoln National. Despite the fact that the industry group's charge may be well-known to many in the audience, I think it serves as an appropriate starting point for the panelists if I repeat it here. The charge reads as follows:

The NAIC Life and Health Actuarial Task Force asks the ACLI and the NALC:

- 1. To examine, in the light of current levels of mortality and the potential impact of AIDS on mortality and the types of products currently sold, including products with reentry features, the current practices and methods used:**
 - a. to determine minimum statutory reserves for certain forms of life insurance with nonlevel premiums or benefits, and**
 - b. to determine the overall adequacy of statutory reserves for such products to make good and sufficient provision to meet a company's future obligations, and**
- 2. To develop recommendations with respect to:**
 - a. a consistent and appropriate interpretation of the Standard Valuation Law as it applies to such products,**
 - b. the establishment of actuarial standards of practice for determining the overall adequacy of reserves for such products, and**
 - c. the appropriateness of the current statutory mortality standards, including whether or not the CSO Mortality Table and/or Select Factors need to be modified.**

I'm sure you noted that the charge does include reference to AIDS, in the event anyone might be wondering why that subject is included with this panel.

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MR. DAVID JUNGK: As Stan indicated, I'm going to briefly describe some of the key findings, conclusions, and recommendations of our task force. The first conclusion noted by the task force was that the standard valuation law is deficient in several respects. There are five or six items listed in the task force report, but the ones that gave us the most difficulty are that the standard valuation law and its supporting regulations:

- Do not reflect lapses,
- Do not dynamically allow for mortality changes over time, and
- Do not allow for differences in risk classification other than smoker/nonsmoker.

This, together with the fact that the most recent industry mortality experience is significantly better, at least at some ages, than the experience underlying the 1980 CSO tables led to two task force recommendations. First, the NAIC should pursue alternatives to deal with the failings of the standard valuation law as noted in the task force report; and second, the NAIC should ask the Society of Actuaries to develop a new CSO mortality table which would be dynamic and recognize additional classifications of risks.

Recognizing that, at best, this was going to be a long, drawn-out process, the task force next turned its efforts to developing an interim process that could be implemented within the constraints of the current standard valuation law.

The first question we asked ourselves was, "What is the appropriate level of reserves for the nonlevel premium nonlevel benefit policies" we had been charged to look at. There was an intuitive feeling on the part of many task force members that Guideline XXX would require a level of reserves which was too high. At the same time, it was recognized that the unitary approach was potentially abusive and could produce reserves which were too low. Furthermore, neither method, when used with the 1980 CSO, explicitly recognized the higher lapse experience and resulting deteriorated mortality that would likely result from premium increases. In order to address these issues, we developed what we called test benefit reserves (TBRs) that would serve as a benchmark against which proposed statutory reserves could later be compared.

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A TBR, as we defined it, is a one-year, preliminary-term, net-premium reserve. It reflects both deaths and lapses. The base mortality assumptions were based on 1983-86 industry experience for standard ordinary issues. The base lapse assumptions represented the task force's estimate of current industry experience.

The base lapse assumptions were then adjusted by formula to recognize that increases in premiums would cause lapses in excess of the base case. Similarly, the mortality assumptions were refined to recognize that the excess lapses would tend to come from the healthier lives.

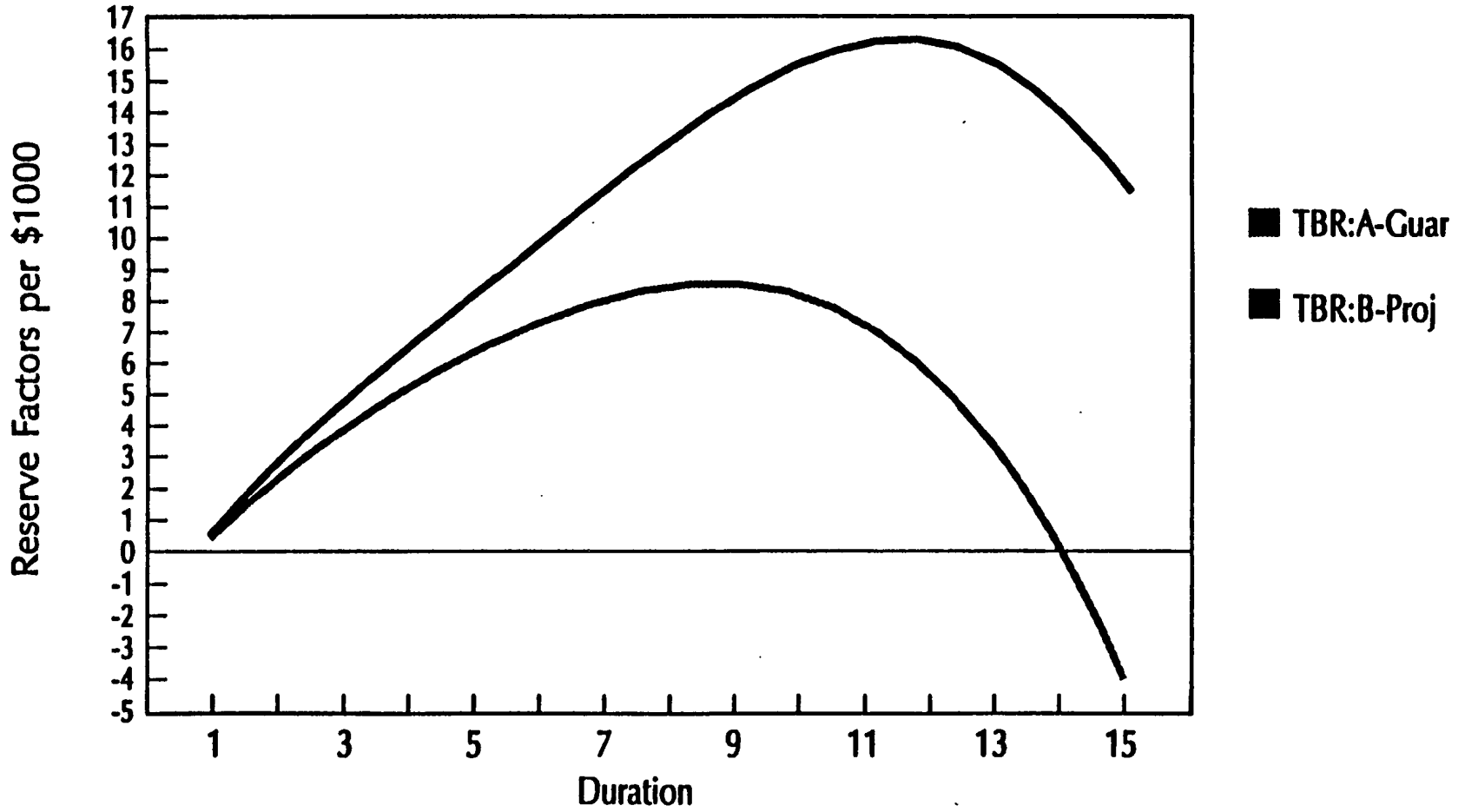
We looked at results based on a number of different assumptions. We found that the results were not particularly sensitive to some assumptions, e.g., the interest-rate assumption, but were very sensitive to others, e.g., the premium increases and the associated higher lapses and deteriorated mortality. We eventually ran four different sets of TBRs. These are included in the task force report for anyone who is interested. For those of you who would rather look at pictures (Chart 1), this chart shows for one typical cell the highest and lowest TBRs. This plan is a level benefit plan with a level guaranteed premium for 15 years and one-year term premiums thereafter. As you can see, there's a fairly wide spread between the highest and lowest TBR.

While one can debate whether there is too much conservatism, or not enough conservatism, in the specific assumptions underlying the TBRs, the task force believes that they are a reasonable benchmark test for the pattern of good and sufficient reserves. One other point that came out of the development of the TBRs was that our testing indicated that the 1980 basic tables, i.e., the unloaded tables, are generally sufficient to support the deteriorated mortality arising from excess lapses.

Now, having developed the TBRs, we proceeded to compare them to various proposed reserve methods. We first compared them to Guideline XXX reserves (Chart 2). As you can see, for this particular cell the Guideline XXX reserves are substantially larger. This

CHART 1

Plan 15L Male Nonsmoker 45
TBR: A-Guar, TBR: B-Proj



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relationship is typical of what we found for almost every plan, age, sex combination that we tested. The problem here is not so much with the Guideline XXX methodology -- in fact, the methodology is very similar to what was ultimately recommended by the task force. The problem is that the Guideline XXX reserves are based on the 1980 CSO with no lapses. This gave rise to very large deficiency reserves. It was this relationship between Guideline XXX reserves and the TBRs that led the task force to the conclusion that the Guideline XXX reserves are inappropriate as to both incidence and magnitude.

We next compared TBRs to unitary reserves, also calculated on the 1980 CSO with no lapses (Chart 3). In this particular example, the unitary reserves are less than the TBRs for the first 12 durations. This relationship was not consistent across all of the cells tested. In some cells, the unitary reserves fell within the range suggested by the TBRs. However, the unitary reserves were less than the TBRs often enough that this fact is noted as one of the task force conclusions, and led the task force to reject the unitary approach as an appropriate reserve method for these plans.

Having rejected both Guideline XXX and the unitary reserve method, we were faced with the necessity of coming up with an alternative proposal. What we came up with is that reserves should be calculated as the greater of what we called a unitary 3 reserve or a segmented reserve.

The unitary 3 reserve is simply a unitary reserve with the terminal reserves subject to a minimum of zero and the mean reserves subject to a minimum of $1/2 cx$.

The segmented reserve is based on a methodology described by Stephen Beach in a paper, "Statutory Reserves for Nonlevel-Premium Policies," published in Volume 42 of the *Transactions*. The details of this method and a sample calculation are included in the task force report. In general, under this method one calculates the valuation net premiums, using the unitary method, which would be sufficient to provide for all future guaranteed benefits if the policy were to terminate at each possible future duration. The termination

CHART 2

Plan 15L Male Nonsmoker 45
TBR: A-Guar, TBR: B-Proj, & Proposed XXX

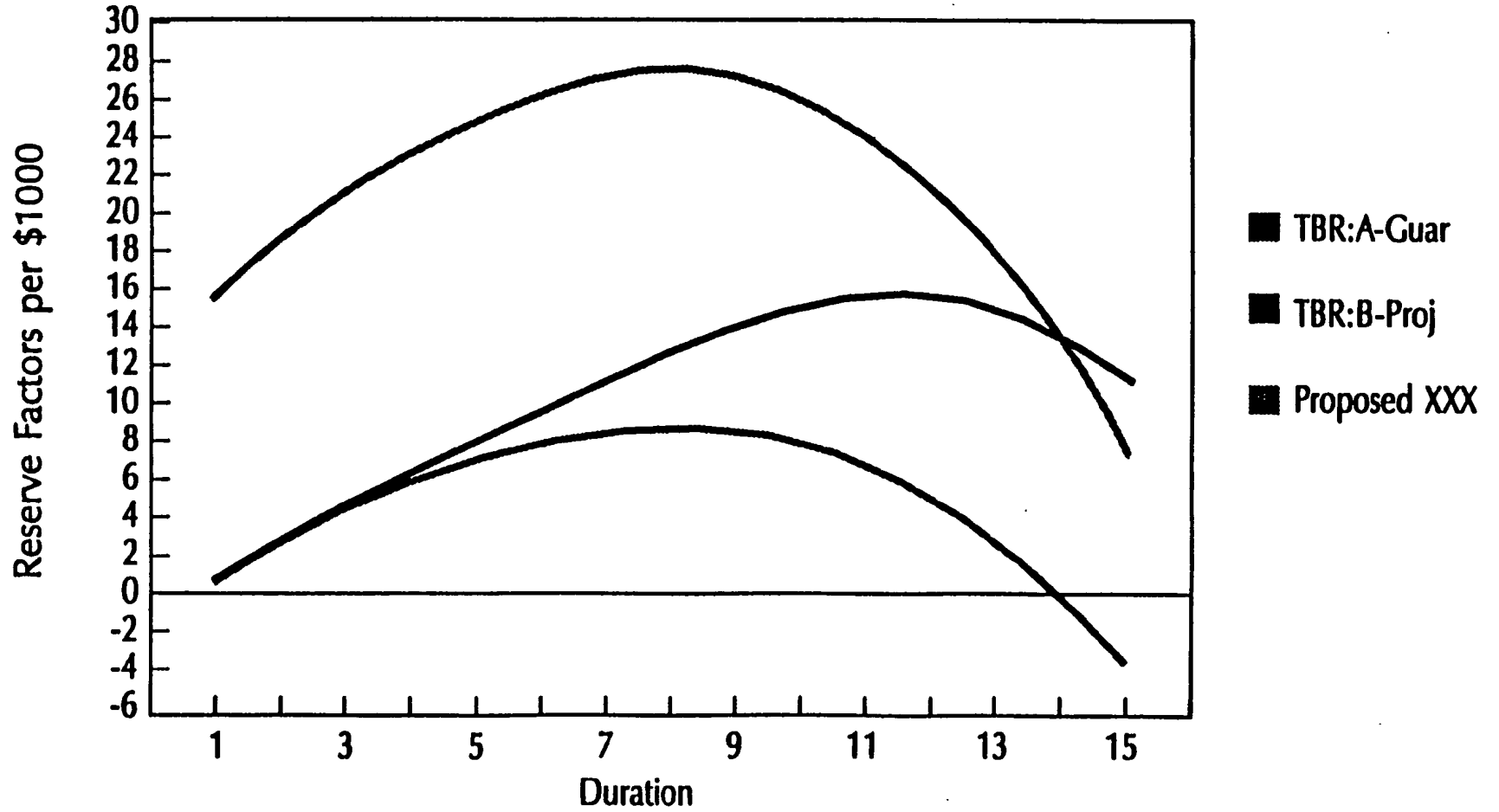
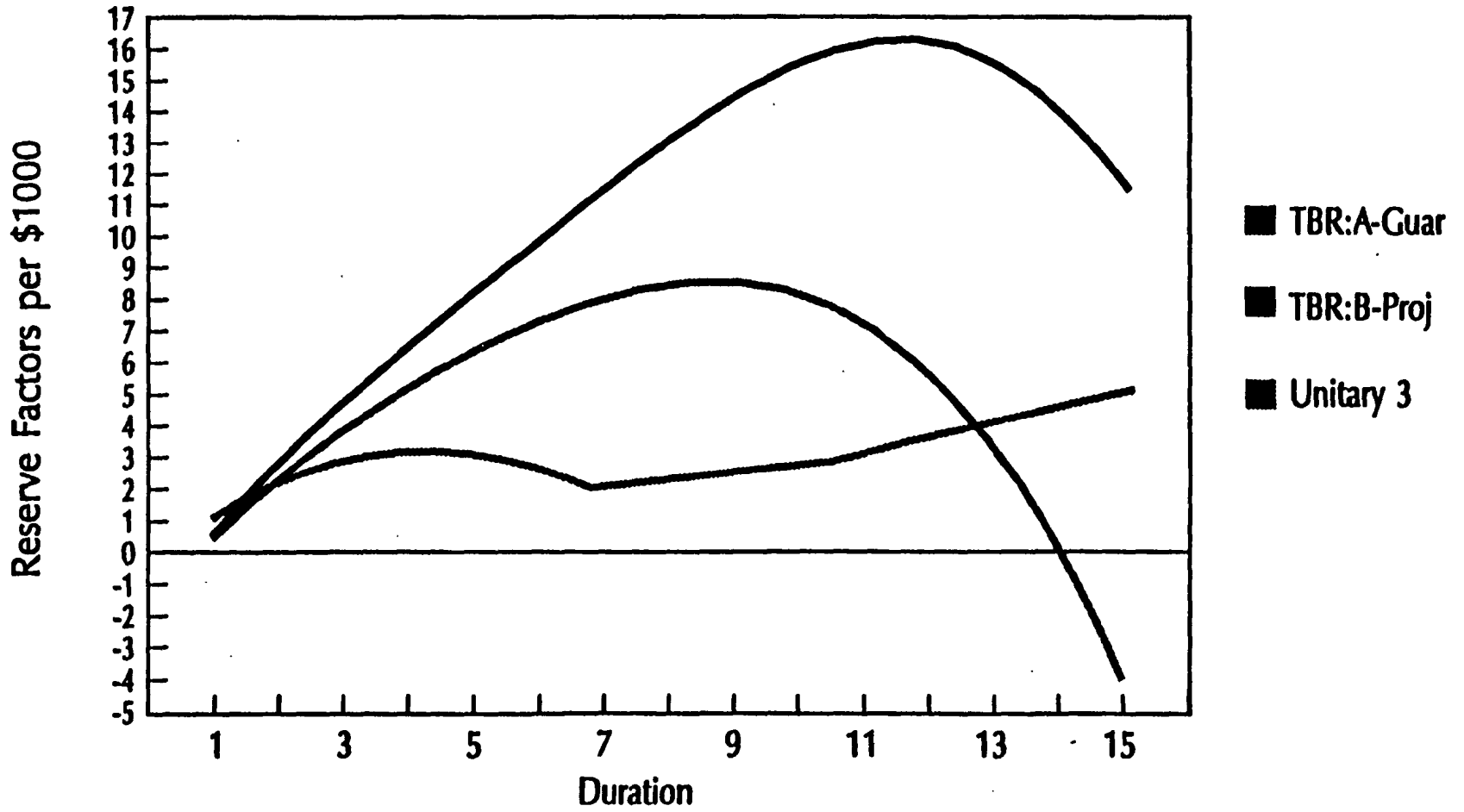


CHART 3

Plan 15L Male Nonsmoker 45
TBR: A-Guar, TBR: B-Proj, & Unitary 3



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duration, which results in the highest ratio of net premiums to gross premiums, defines the length of the first segment. Then start at the end of the first segment, and repeat the process to determine the length of the second segment and the corresponding net premium, and so on. For the first segment, the net premium is a commissioners reserve valuation method (CRVM) renewal beta; for subsequent segments, the net premium is a net level premium. The reserve at any point is simply the present value of future benefits less the present value of future net premiums.

This method is founded on the same principles as the commissioners annuity reserve valuation method (CARVM) -- that is, assume the policyholder will take that action which would require the company to hold the largest reserve, and reserve for that contingency.

Both basic and deficiency reserves are to be calculated by the same method using the same segments. To be absolutely certain that there is no misunderstanding, the report explicitly states that the deficiency reserve must provide for all future deficiencies -- not just those in the current segment -- and that future sufficiencies cannot be used to offset earlier deficiencies.

Having resolved the issue of a reserve method, the task force then directed its attention to the mortality basis. This proved to be the most difficult of all the issues we had to resolve. Bill Buchanan will have more to say about that; for now, I am just going to review what the task force's final recommendations are.

Recognizing that mortality experience has improved since the 1980 CSO table was developed, the task force recommends that the mortality basis for both basic and deficiency reserves be dynamically based on the most recent three years' industry experience. This would be accomplished through a new set of 15-year select factors which could be applied to any of the versions of the 1980 CSO table.

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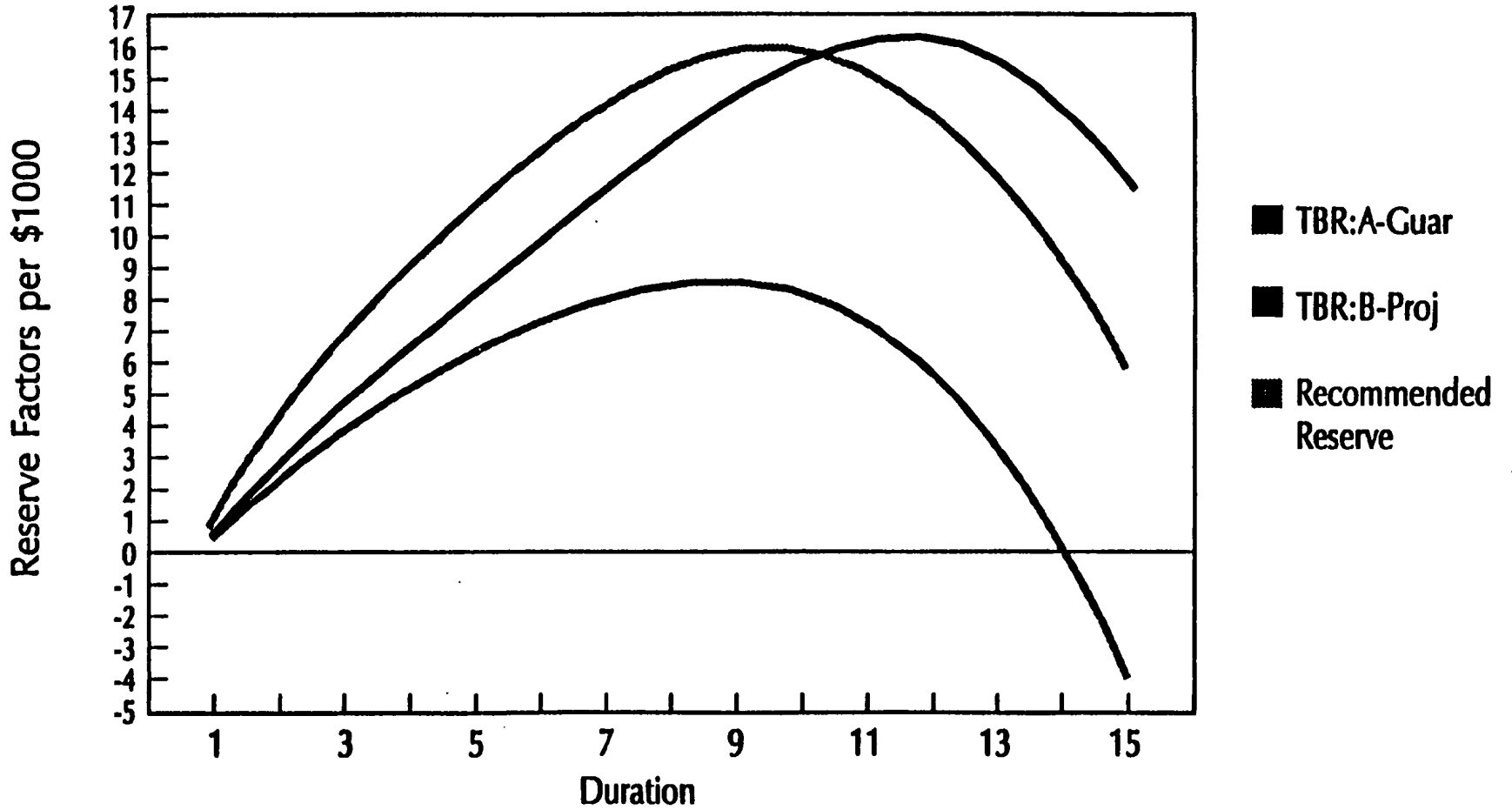
For basic reserves, i.e., net premium reserves calculated without regard to any premium deficiencies, the recommended select factors produce mortality rates that are about 150% of the underlying industry three-year experience. The 50% margin is intended to approximately reproduce the margins contained in the 1980 CSO table.

There are two items to note regarding the use of these select factors -- and these two items also apply to the deficiency reserve select factors, which I will discuss in a moment. First, there is a limitation on the use of these factors for increasing premium plans. In general, if the slope of the premium scale is greater than the slope of the mortality curve, the selection factors must be increased, resulting in higher mortality rates. We felt this was necessary since increasing premiums tend to generate higher lapses, and these lapses tend to be the healthier lives. Second, the new 15-year select factors may be used for all plans - - not just the nonlevel premium and benefit plans our task force focused on. I would emphasize the words "may be used." While the proposed reserve method would be mandatory for the types of plans we were charged to look at, the new mortality bases would be optional -- you may continue to use any of the existing versions of the 1980 CSO table if you prefer.

Now let's turn to the mortality basis for deficiency reserves -- probably the most controversial recommendation in the task force report. The recommendation is that, without any special actuarial justification, deficiency reserves may be based on new 15-year select factors which produce mortality rates which are approximately 120% of the most recent three-year industry experience, or about 80% of the recommended mortality basis for the basic reserves. Again, Bill Buchanan will discuss this issue in more detail. For now, suffice it to say that while good arguments can be made for and against having a different mortality standard for deficiency reserves than for basic reserves, the task force feels that, on balance, this recommendation produces about the right level of reserves (Chart 4).

CHART 4

Plan 15L Male Nonsmoker 45
TBR: A-Guar, TBR: B-Proj, & Recomm. Res



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As you can see in this chart, for this particular plan, the recommended reserves are slightly above or within the range suggested by the TBRs. This relationship tends to hold for most of the plan, age, duration cells that we tested.

While the 120% recommendation seemed to produce about the right level of reserves for "standard plans," it did not address the issue of the so-called super select plans. For example, some companies are subdividing their nonsmoker class into standard and preferred classes; the 120% recommendation would have required a level of deficiency reserves on the preferred nonsmokers which was thought by some to be unreasonable.

After considering this issue, the task force has recommended that the valuation actuary be given some leeway in selecting the mortality basis for deficiency reserves. Subject to certain conditions, the valuation actuary may use 15-year select factors for deficiency reserves which produce mortality rates which are not less than the greater of 85% of the most current three-year industry experience or 120% of expected company experience.

In order to use this lower level of mortality, a company must file with its annual statement a report of a qualified actuary which contains the following three items:

1. First, an actuarial opinion, which justifies the mortality level selected for both the preferred and nonpreferred classes.

The point to note here is that if an actuary uses something less than 120% for his preferred business, it is expected that he then use something greater than 120% for the corresponding nonpreferred class. His nonpreferred class will actually be a substandard class since the healthier lives have been selected out and put in the preferred class.

2. The second item to be filed with the annual statement is a statement disclosing the amount of additional reserves the company would have held if 120% factors had been used for all deficiency reserves.
3. The third item is an actuarial memorandum that includes a review of emerging experience, a discussion of the amount and source of funds needed to meet any future needs, and a discussion of the cash-flow testing that was done.

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A point to note is that by establishing a deficiency reserve standard which is weaker than the basic reserve standard, a company is anticipating future experience gains. One of the purposes of this last requirement is to require the actuary to demonstrate whether or not these experience gains will be sufficient to fund the increase in the basic reserve.

The last recommendation that I am going to mention is that all of the recommended reserve standards are to apply prospectively only -- there should be no retroactive application to in-force business. While the task force's proposal represents a weakening of mortality standards, especially as it applies to deficiency reserves, the recommended reserve method will actually result in higher reserves for many companies. Especially in light of the new standard valuation law and its requirement to do cash-flow testing, it seemed unreasonable to retroactively increase the minimum reserve requirements on in-force business.

JOINT ACLI-NALC TASK FORCE ON PREMIUMS FOR CERTAIN LIFE INSURANCE CONTRACTS WITH NONLEVEL PREMIUMS OR BENEFITS -- DIFFICULT ISSUES

MR. WILLIAM M. BUCHANAN: I drew a few pictures for my slides. Those on the right side of the room, would you say the lady in the slide is old or young? Would you call her pretty or ugly? Most of you would agree she is young and pretty.

Those on the left side of the room, would you say the lady in the slide is old or young? Would you call her pretty or ugly? You seem to feel she is old and ugly.

There seems to be a conflict here. Is it possible that you all see the same thing and draw conclusions so opposite in nature? Can both be right and both be wrong. I would contend that we are all influenced by how we are preconditioned.

Some of you were distributed a picture which clearly depicts a pretty young girl. Others were distributed a picture that no one would suggest is of a young and pretty girl. We were preconditioned when we looked at the first slide which now perhaps allows us to see both images. Steven Covey, author of "The Seven Habits of Highly Effective People" has used a similar demonstration from which I drew my pictures.

The development of an appropriate reserve for certain life insurance contracts (read term) with nonlevel premiums or benefits, included in the report that has been delivered to the NAIC by the joint ACLI/NALC industry task force, represents over two years of intense analysis. Some have called the result ugly, others beautiful, somewhat dependent upon your precondition (read "do" or "do not" write the product).

I would like to ask you to suspend your preconditioning on this subject for a few moments and go through with me some of the difficult issues with which the committee grappled and relate how we arrived at the final report. Only time will tell whether the proposal is beautiful or ugly, if, indeed, it is adopted at all. You are all encouraged to respond to the NAIC when the proposal is exposed as is expected later in 1991.

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I will be covering the following topics:

1. The reserving methods now in use.
2. The level of advance funding that may be needed.
3. Some of the alternative methods of reserving that were considered.
4. The methodology finally adopted.
5. The level of mortality used in the basic calculation of reserves.
6. The level of mortality used in the deficiency reserve calculation.

Reserving Methods Now in Use

The products we are essentially dealing with are policies with initially low premiums that are guaranteed for some period (5, 10, or 15 years) at competitive premium levels that ultimately go to a higher possible maximum premium which may be noncompetitive. By proper selection of the ultimate level of premiums, the overall ratio of net to gross premiums can be made less than one (non-deficient) when the policy is treated as a unit. This is known as the "unitary reserve" concept.

The series of net premiums, however, may generate negative terminal reserves, which are set to zero, and the mean reserve is then $1/2$ of the net premium. This is referred to as the "Unitary 2" reserve. Some have felt that the mean reserve should at least equal the cost of insurance to the next anniversary on the valuation basis and accordingly set a minimum reserve of $1/2cx$ which has been called the "Unitary 3" reserve.

Others have felt that it is inappropriate to add a higher premium to a plan and get lower reserves than if you issued the plan with termination at the date the higher premium became effective. These companies have in some cases "overlaid" the humpback reserve for the level premium segment, for example. Such companies usually either had a lot of surplus or not much of the business.

Generally, under all of the above methods, it has been my experience that the need for deficiency reserves was measured by the comparison of the gross premium and the unitary

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net premium. The Unitary 3 reserve is probably the most commonly used reserving method followed by Unitary 2 reserving.

The Level of the Reserve Needed

The concern has been raised as to whether the reserve methods in use made sufficient provision for future liabilities. Some feared that deteriorating mortality over time would create insufficient reserves at later durations as the healthy lives lapsed. Others felt insufficient initial reserves were being posted. A proposed Guideline XXX was introduced at the NAIC that would require substantial early deficiency reserves but which decreased fairly sharply. One of the first tasks was to attempt to establish what the true level of accrual of liability was for the various forms under which these policies were offered.

For statutory reserving, lapses have never been explicitly incorporated. Policies are assumed to terminate only by death. In fact, a large number of policies terminate other than by death. On one hand, this releases reserves in excess of any cash payout, but on the other hand, it leaves the block of policyholders in a poorer overall health, if it is agreed that it is the healthy lives who voluntarily terminate. This aspect is magnified in term insurance where premiums may increase substantially and there is little or no cash value.

An analysis of the interrelationship of lapse rate, premium-rate increases and the deterioration of mortality was undertaken. I'll not go into it here, but these factors were determined to be "inextricably linked," and tests were made as to the range of results that could emerge under various assumptions. For those who are interested, the report gives several references and goes through sample calculations. These tests considered both the result if a company moved to the maximum premium it had guaranteed it would not exceed as well as the result if the company used the premiums at a current level which it expected to continue to use.

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Test benefit reserves were calculated that used reasonable conservative assumptions to calculate full preliminary term "natural reserves," which incorporate lapses to get a feel for the accrual of liability under a variety of scenarios.

In these analyses it became important to consider not only the factor per \$1,000 but also the fund from applying the factor to the surviving cohort. Unlike statutory reserve factors where no lapses are used, lapses will release reserve to fund the subsequent reserve increases. If policies *do not* lapse, mortality and premium income are improved; if they *do* lapse, then reserve is released to fund the deteriorated scenarios.

Finally, efforts were made to make a gross premium valuation which is, after all, the final test for the valuation actuary. The high degree of variability in premium, lapses, mortality, average size, and expense rates and how these expenses are assessed left the results inconclusive.

Some confidence was gained, however, that the products as designed were sound in that those companies offering these products reported good experience and profitability. These are companies with competent staff and sufficient experience to be able to draw valid conclusions.

Alternative Methods of Reserving

Several methods were examined in the desire to find a method that would follow the pattern and level of the perceived needed reserve. Methods that sounded good in discussion either fell apart in implementation and became too complex or they produced good results for one plan or age and totally unacceptable results for other plans or ages.

As an example of possible alternatives, we considered limiting the ultimate level of gross premium that could be used in the calculation of the net-to-gross ratio. This bogged down in definition of that ultimate limit. Combining by overlaying several methods were reviewed and discarded. CARVM methods that were totally prospective were considered and

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eventually abandoned. We explored all proposals that were made and compared the result with the level of reserve from the test benefit reserve calculations. The problem seemed to come down to a mortality basis that was out of date and the impact of lapses actually experienced.

The Methodology Adopted

After much testing, the basic reserve was defined as being calculated over the essentially level premium period segments where the rate of increase in premium rates did not exceed the rate of increase in mortality. Stephen Beach's paper emerged at about this time and since his approach was parallel, it was adopted and incorporated into the method.

Central to the method adopted, besides the levelized premium segment, is the linking of premium-rate increases to the deterioration of mortality.

The steps in the eventual development of reserves involves:

1. Determining the basic mortality which will apply,
2. Calculating the basic reserve using the segment approach, and,
3. Determining whether deficiencies are needed and if so, the level of such additional reserve.

The Mortality for the Basic Reserve Calculation

The level of mortality proposed for the basic reserves was an effort to make the selection factors more nearly reflect today's experience and to have margins consistent with those at the time the 1980 CSO table was first introduced.

It is clear that the selection period exceeds 10 years, the limit of the current selection factors. Analysis of the 1983-86 SOA experience resulted in the derivation of selection factors for 15 years on six bases: male and female for smoker, nonsmoker and aggregate categories. Tables of selection factors which essentially reproduced experience were prepared (the 100% tables).

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It was agreed that a 50% loading over this experience would provide for a consistent margin to the 1980 CSO when it was introduced and would also cover recent deviations year by year of individual companies' experience. If experience over an extended period is above the valuation standard, the valuation actuary should be making specific adjustment based on cash-flow testing.

It should also be remembered that these selection factors are further modified if premium rate increases create deteriorating mortality and that the full 1980 CSO mortality rates apply in 15 years, if not earlier.

The inclusion of a provision to make these selection factors dynamic as additional experience is published by the SOA is an attempt to keep up to date in reserving standards year by year.

Since the report was completed, another year's experience has become available from the SOA. This data shows substantial overall improvement which was centered more in the younger ages and early durations than might have been expected. This would tend to make the selection factors more steep, especially at the younger ages. Overall the new year experience (1986-87) was much better (8%) than the three-year earlier experience which would drop out. The results in the three-year moving average is a drop of between 2% and 3%. A 5% change is the trigger point for development of new selection factors.

The basic mortality was not really too contentious, but finding a suitable deficiency reserve mortality standard was much more of a problem.

The Mortality for the Deficiency Reserve Calculation

The basic mortality reserve provides for swings in experience from year to year with up to a 50% excess on a sustained basis before the mortality exceeds the valuation mortality. Deficiency reserves, since you are dealing with a present value over time, would not require

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the same level of conservatism to cover the yearly deviations since they would tend to balance out from year to year.

Further, it should be remembered that the basic reserve has potential redundancy from four sources:

1. A loading of 50% of recent experience mortality.
2. Segmentation of the reserve calculation period. Some policies will continue in force and contribute to reserves. Segmentation really assumes a lapse rate of 100% at the end of a segment.
3. Lapse release of reserves, which because of segmentation are larger reserves.
4. Mortality trend improvement over time.

After much discussion, a 20% loading was agreed upon as being a safe harbor level over recent experience for, and only for, the deficiency calculations.

Probably the most difficult matter was with respect to those plans that used preferred underwriting classes resulting in rates that even using 120% of recent experience mortality produced deficient premiums. These premiums are in use in the marketplace, and the experience as reported by such companies supports such rates as adequate. It was felt, though, that a 20% margin above the actual or expected experience should be retained and in no event should a level of mortality below 85% of the intercompany experience be allowed to be used.

Again it should be kept in mind that the basic reserve using 150% is still a floor, and it is only for the deficiency reserve we are discussing using lower mortality. As preferred underwriting is effective in reducing claims, the basic mortality (and reserve) becomes more redundant.

The use of mortality lower than 120% will require an actuarial opinion that justifies its use. Further, annual analysis of experience will be required of the valuation actuary. Finally,

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it is proposed that disclosure of the amount of additional reserve, which would be required to be held if the 120% "safe harbor" basis were used, would be a part of the interrogatories. This is viewed as a step toward giving the valuation actuary some opportunity to exercise judgment.

So time will tell whether we have a picture that is the beautiful young girl we think it is or the old hag which others believe we have allowed it to become, if indeed the proposal is adopted. If it does turn out to be the old hag, the valuation actuary concept will give all of you the opportunity to post the "right" reserve.

I would encourage all of you to comment to the NAIC when the exposure draft appears.

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MR. RICHARD L. BERGSTROM: My portion of the panel presentation is to summarize the conclusions and recommendations of the joint ACLI/NALC task force in regard to the impact of HIV on the Guideline XXX products it investigated. I will also present the results of a couple of M&R surveys designed to request information about what companies are currently doing -- or not doing -- about the AIDS issue regarding reserves in general, and I will conclude my remarks by commenting briefly on laboratory testing limits -- what companies are currently doing and what, perhaps, they should be doing.

But first, I would like to address briefly what's been happening in both the United Kingdom and Canada regarding reserving for AIDS. In 1988, the British Institute of Actuaries' Working Party issued its Bulletin #2, which recommended two approaches for establishing AIDS reserves. The first approach was both specific and explicit in that a deficiency reserve calculation can be performed, the amount of the reserve equal to the additional reserve in present value of expected AIDS claims. The second approach is more implicit. A basic net premium reserve can be established that is defined as the present value of benefits, including AIDS mortality, less the present value of future net premiums excluding AIDS mortality. This approach allows actuaries to essentially make use of the margins in present reserves to partially, or perhaps in some cases, entirely offset additional AIDS reserves. As of year-end 1988, roughly one-half of the companies in the United Kingdom had established additional AIDS reserves using one of these two methods.

In Canada, the Canadian Institute of Actuaries issued Guidance Notes in 1988 and 1989 for the Canadian valuation actuaries specifying mortality, underwriting, area adjustments, and methodology that might be used for reserving for AIDS. The guidance notes also suggested separate adjustments for the U.S. business of Canadian companies. As of 1988, 140 out of 150 Canadian companies had discussed the ramifications of AIDS claims in the valuation actuary's reports, and 90 of these 140 companies explicitly determined excess AIDS reserves.

In the United States, two drafts of a potential standard of practice for reserving for AIDS were prepared in 1989 and 1990 by the Actuarial Standards Board and were exposed to the

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membership of the American Academy of Actuaries. However, a number of comment letters pointed out that the principles that apply to reserving for AIDS are the same as those that pertain to any kind of claim, and therefore it would be inappropriate to imply that AIDS claims ought to be treated differently from other causes of claims for developing opinions on the adequacy of statutory reserves. This is the same conclusion that was reached by the joint task force while analyzing the effect of AIDS claims on Guideline XXX policies. The task force reached this conclusion, at least in part, by noting that the impact of HIV varies, in some cases substantially, for each company depending upon when HIV testing for new issues was started; upon amount levels at which testing was done; and upon the distribution of the in-force business by such characteristics as age, geographical area, policy type, sex, etc. Therefore, as the need for additional margins varies substantially from company to company, any modification of reserves for potential AIDS impact should be made company by company. Attempts to recommend uniform adjustments to mortality and/or reserves for all companies would produce either inadequate or redundant reserves depending upon a company's characteristics and demographics.

Instead, the task force feels that the Actuarial Standards Board has specifically and adequately addressed the issue with Interpretation 7-D: "Guidance on Estimating and Providing for the Cost of HIV-Related Claims Covered Under Life and Accident and Health Insurance Policies." This interpretation has been prepared to provide guidance on how HIV-related claims should affect the testing for the adequacy of statutory reserves required by Recommendation 7. The task force feels that Interpretation 7-D fully provides for dealing with the cost of HIV on all policies by requiring the following:

1. The recommendation requires that, under certain conditions, the actuary make further tests before expressing an opinion as to policy reserves. The interpretation is specific as to how the effect of the HIV epidemic should be taken into account in performing such tests.
2. In performing, for example, a gross premium valuation, the implications of the HIV epidemic on anticipated claims should be taken into account. But, the actuary may also take into account reasonably anticipated actions of the company, such as dividend scale

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decreases, or changes in nonguaranteed pricing elements. However, any offsets to future HIV claim costs which the actuary determines to be available should be specifically identified.

3. Also, if the reserve testing does indicate a need to increase aggregate reserves, the interpretation suggests that reserves be increased directly rather than appropriating surplus. However, the actuary is not precluded from establishing additional reserves or appropriating surplus if the extent of HIV-related claims is of sufficient magnitude that a specific and separate provision is warranted even though not required for total aggregate reserve adequacy.
4. Any work that the actuary performs to assess the impact of the HIV epidemic should recognize that lapse rates for the infected people will likely be significantly lower than the corresponding lapse rates for the uninfected population. If not properly taken into account, this could cause some serious understatements of liabilities.
5. Now, the main problem actuaries have in trying to develop reasonable assumptions to use is in estimating the prevalence of HIV infection in the insured population. The epidemic is distributed unevenly geographically, is higher in the general population than in the insured population, and varies by testing practice, product, attained age, and underwriting procedures. A significant amount of public information on the HIV epidemic is currently available, and estimates of the epidemic's extent among insured lives can be developed using this information. In addition, there are a number of models that can be reviewed, some of which are quite elegant.

So the point is the actuary needs to consult with and be familiar with emerging external information pertinent to his or her own work, as well as the company's own experience. The actuary must use informed judgment in selecting appropriate assumptions for this work.

6. Finally, in any report prepared by the actuary dealing with statutory reserves, the actuary should document that net reserves contain appropriate provision for the estimated cost of claims deemed related to HIV infection.

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Consequently, because of Interpretation 7-D, the task force believes that the issue of potential HIV impact has been adequately addressed with one important caveat: To the extent that 1980 CSO margins have been utilized by the recommendations of the task force to provide for excess mortality due to excess lapses, on the Guideline XXX policies, any testing for the adequacy of statutory reserves required by Recommendation 7 should take this prior utilization into account (including any offsets to future HIV claim costs which the actuary determines to be available).

As regards the potential HIV impact on deficiency reserves, Interpretation 7-D applies to all reserves, and it therefore includes the need for the valuation actuary to provide for appropriate reserves to cover the potential impact of HIV on deficiency reserves as well.

Additionally, it should be noted that based on the Society of Actuaries Committee on HIV Research mortality rates developed for the general population, for any calendar year between now and 2007, the peak HIV mortality rate is greatest at attained ages 33-35 for males and at ages 30-32 for females. The National Center for Health Statistics *Monthly Vital Statistics Report* (Sept. 26, 1989) shows the highest death rates for males are in the 10-year age group 35-44 and for females in the 10-year age group 25-34. Both documents, therefore, show the peak HIV mortality to be below age 45.

The major deficiency reserve problems, however, tend to occur at ages above age 45. Therefore, the potential HIV impact on deficiency reserves should be less significant than it is for aggregate basic reserves, which include a greater proportion of reserves on younger ages.

In summary, then, the task force concluded that the potential impact of HIV on reserves:

1. Varies company by company;
2. Because of the variation, the impact cannot be provided for by an addition to mortality and/or reserves on a basis which is uniform to all companies;

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3. It affects more than just the policies covered by their report, i.e., the Guideline XXX policies;
4. It impacts basic reserves more than deficiency reserves; and
5. It is required to be fully provided for by Interpretation 7-D with the task force's caveat for policies covered by this report that, to the extent that the 1980 CSO margins have already been utilized for excess lapse mortality, they are not available for potential HIV mortality.

In 1990 and again in 1991, Milliman & Robertson surveyed the chief actuaries at over 400 stock and mutual life insurance companies to solicit input regarding reserving issues for AIDS. Some 146 companies responded regarding year-end 1989, and 170 companies responded regarding year-end 1990. Only 6-9% of companies which responded had established additional reserves for AIDS in the 1989-90 statutory statements. Most companies that did not establish additional reserves felt that mortality was already covered by margins in the valuation tables, or that HIV/AIDS was an insignificant risk for their company. For other lines of business, such as individual disability, medical, group life and disability, and group medical, most companies which responded felt that either the risks were insignificant, covered by margins in the tables, or that their companies did not write significant amounts of these lines of business. Of the companies that responded that additional reserves had been established, no companies used a multiple of existing reserves for the individual life line of business. Instead, 27% of those companies used adjusted mortality tables and 53% used a lump-sum estimate in addition to statutory requirements. Some 20% of the companies used either a gross premium valuation approach or some other approach.

The survey also raised a question regarding blood testing limits. Of those companies which responded to this question, and for the male segment aged 25-40, 3% of responding companies stated that they did blood tests on business of all sizes. Some 2% of the companies tested business at or below \$50,000; 78% of the companies had testing limits of \$50,001-\$100,000; 13% of the companies were at exactly \$100,001; and 5% of the companies

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had testing limits in excess of this amount. The question in the survey asked for differences between term and permanent insurance, but responses indicated very little difference.

The importance of the test limit at \$100,001 lies in the fact that insurance tends to be written at even dollar amounts, most notably \$100,000. A 1988 Life Insurance Marketing and Research Association (LIMRA) study showed that 13% of all new business issued in that year was for the exact amount of \$100,000.

A 1989 M&R study of the cost-effectiveness of laboratory testing showed that companies can receive a return on investment (ROI) of 64% per year by lowering their testing limits from \$150,000 down to \$100,000. A 60% ROI can be achieved by lowering testing limits from \$100,001 to \$100,000, and a 35% ROI can be achieved by lowering testing limits from \$100,000 down to \$50,000. The ROI here as stated is the interest rate which equates the present value of future excess mortality identified by blood testing versus the cost of the testing process itself.