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## **Session 63TS**

### **Preferred Risk Underwriting Criteria: Task Force Survey Results**

**Track:** Product Development/Reinsurance

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*Summary: Results of the recently completed survey on preferred risk criteria for individual ordinary life insurance are presented. Panelists will discuss:*

- *Reasons for forming the Task Force*
- *Survey results*
- *Limitations of results*
- *Implications for pricing actuaries, underwriters, and reinsurers of preferred risk products.*

**Mr. Allen M. Klein:** I am the pricing actuary for the life reinsurance strategic business unit of CNA Insurance Companies. I would like to introduce our other speakers. Rick Bergstrom is a consulting actuary with Milliman & Robertson, Seattle, and he specializes in product development and various underwriting issues. Jess Mast is a guest speaker. He is second vice president and director of risk management research for Lincoln National Reinsurance. He directs research activities for underwriting product development and pricing. The three of us have all served on the SOA Task Force on Preferred Underwriting and Large Amounts. I am the Chairperson of that Task Force.

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I am going to start off by providing a background on preferred underwriting. What is it, and how did it come about? I'll also briefly describe the history of the SOA Task Force, and then Rick and Jess will present the Task Force results. Then I'll come back at the end and present the results of a survey that I did of reinsurers.

What is preferred underwriting? Classification of risk by underwriting factors which exhibit different trends and levels of mortality has been around for many years. In the 1940s, we introduced a distinction by sex. The 1970s brought about a distinction between smoker and nonsmoker. Later in the 1970s, those who exercised regularly received a discount in their rates. The 1980s introduced the tobacco/nontobacco split. Today, further refinement has been introduced.

Preferred underwriting is determined based on various criteria. The criteria vary by company, product, and even from one generation of a product to the next. One theme that you're going to hear throughout this presentation is that these criteria are still very much evolving.

Preferred underwriting is the splitting of the nonsubstandard aggregate class into two or more distinct classes. The class with the better expected mortality is referred to as preferred. There are many other names that are used for this class as well. The residual nonsubstandard class, or the nonpreferred nonsubstandard class, is referred to as the standard class. We will use this definition of the standard class in this presentation.

There are a number of different ways of determining preferred and standard mortality from an aggregate class. The one I will discuss is probably the one that was first used; however, I do not believe that it's the most commonly used right now. This formula is used to split an aggregate class into a preferred and standard class. This method uses two formulas, the first one being the aggregate mortality is equal to the preferred mortality times the percentage expected to qualify for preferred, plus the standard mortality times one minus the percentage expected to qualify for preferred. The second formula is the standard mortality is equal to a ratio times the preferred mortality.

Let's take a closer look at the assumptions that go into the formulas. The percentage qualifying for preferred can be from 1% to 99%, and when you hear the results of the survey, you will see the range that companies are using is almost that wide! The lower the assumption that you make, the less that will qualify for preferred, the more agent and policyholder complaints there will be, and the more pressure there is on the underwriters to make exceptions. However, on the other hand, the rates can be more competitive. The higher the assumption, the opposite results hold, and the rates are much closer to the standard class.

There is an interesting phenomenon here. As the percentage expected to qualify for preferred increases, both the standard and preferred mortality also increase. I have an example. Assume a standard-to-preferred ratio of 2:1, at a 50/50 preferred-to-standard split. The preferred mortality is 67% of aggregate, and the standard mortality is 133% of aggregate. When you increase the percentage qualifying for preferred to a 75/25 split, the preferred mortality is 80% of aggregate and standard mortality is 160% of aggregate. Both of the numbers increase.

I have another example for you. Using a 1.35:1 split, which is closer to where the actual ratio came in, with a 50/50 preferred to standard split, the preferred mortality is 85% of aggregate, and the standard mortality is 115% of aggregate. Then with a 75/25 split, they both increase again, preferred to 93% and standard to 131%. The other reason for providing you with this additional example is to demonstrate another relationship. As the standard-to-preferred ratio gets closer to one, the percentages of aggregate also get narrower; that is, they get closer to 100%.

Companies must balance all of these considerations with their own marketing objectives. If the mortality assumption is set properly, it may not matter what the actual percentage qualifying for preferred ends up being. For example, we expect the actual qualifying percentage to be greater than expected, initially, for a couple of reasons. One is that the agents bring their better risks forward when a new preferred program is introduced. Another is that those who do not qualify for preferred, but expected to, will probably not take their policies.

The other assumption was the ratio of standard-to-preferred mortality. There is a wide range of possible assumptions here as well. It depends on what criteria are chosen, and it can vary by age.

Why has preferred underwriting developed? Although legitimate discrimination and equity considerations are certainly reasons for developing preferred underwriting, I believe that the first preferred products were developed as a marketing tool. Companies felt that they could gain a competitive advantage by doing this. Now companies are developing preferred products for both competitive reasons and defensive purposes. Companies that don't develop a preferred product will probably be selected against and wind up with more than their fair share of the standard risks. Standard is defined as we talked about earlier. This is probably another theme that you are going to hear as well.

Here's a brief history of our Task Force. It was formed in early 1995 and the mission can be summarized as follows: we were to determine the criteria and assumptions used in preferred underwriting through a survey. We have done this.

Then we were to determine the feasibility of a preferred mortality study, which we are going to do in the near future.

We mailed out over a thousand surveys to underwriters and actuaries in June 1995. We had several mailing lists and we did not cross-check them. I cannot tell you how many companies that represents, but it was certainly much less than a thousand. We asked for data to be returned in September 1995, based on July 1995 products. The SOA compiled all of the data for us, in order to maintain confidentiality. We did see individual company results, but the companies were not identified. We met several times and finally have a report that is ready and is due out June 1996. We will talk about that a little later.

Before we get into the actual results of the study, there are a few caveats that I want to share. The data, while representative and comprehensive, do not cover the whole industry. The data, while reviewed for inconsistencies, were not verified. We did find some inconsistencies and attempted to fix them. Also, the data are as of July 1995 and are no longer current. As I mentioned before, the criteria are still evolving. I think that the data are still representative of what's happening, but there have been changes since 1995. Another caveat is that the purpose of the report is not to pass judgment, but to just report on the results. We did not go and compare one set of assumptions to the criteria that were used to make sure that they were reasonable. We are just presenting the results. And finally, for antitrust purposes, these data are not intended for the industry to set prices or any other criteria.

Getting to the results of the survey, 51 companies responded that they had a preferred class, and 59 responded that they didn't. We have divided the report into four sections. The first one is on expected percentages and ratios, and we have some actual results here as well. The second section covers the minimum size of the criterion used. The third section covers the prevalence of the specific criterion used by the respondents. And finally, the last section covers the range of values for each criterion. Rick is going to present the first two sections, and Jess will present the last two. Then I will be back with the reinsurance results.

**Mr. Richard L. Bergstrom:** The Task Force, where possible in the report, tried to make observations of things that we noted, but we really don't feel that we had enough information, or spent the time, to try to draw any specific conclusions. Now, it's the natural thing to want to try to draw some conclusions, but you need to be careful in trying to do that. So the comments that we make are basically observations.

There is no way to do this other than by putting up a large amount of numbers, so what I'll discuss are responses to questions that we asked. In effect we asked, I

would imagine, 200-plus questions. And while 51 companies responded, not all the companies answered all of the questions.

As far as the number of preferred-rate classes goes, this is what we found. Twenty-six respondents said they had three rate classes, and by three rate classes, we mean one preferred nonsmoker class, one standard nonsmoker class, and one smoker class. About half the companies also said they had four classes. Now, we presumed that meant one preferred nonsmoker as well as one preferred smoker, but it could have also meant two preferred nonsmokers; we had no way of finding out. And actually, there were a few companies that claimed they have five or more classes. There's one company that I know has eight classes. Again, we need to be a little careful with that, but one thing that the Task Force did observe was that, since the summer of 1995, there has really been a proliferation of companies writing this type of business, and those that were writing it early on have now gone to second- or third-generation products, so we feel that proliferation of preferred classes will continue to grow.

The range of the percentage of applicants expected to qualify as preferred is quite wide. Actually, at the low end, two companies claimed that they only expected 15% of their nonsmoker applicants to qualify, and I believe there was one company that claimed 90% of their applicants would qualify for preferred. The average ended up being about 53%.

For a smoker aged 45, we asked the same question: What percentage is expected to qualify? There were fewer companies that answered the smoker question because there were fewer companies that had a preferred smoker category. But again, the range is quite wide, centering around 50% to 70%. And if you look at it from the high to low standpoint, if one company claimed 1%, it would qualify. I'm not sure what that means. And one company was, again, as high as 90%. That may or may not have been the same company that said 90% would qualify for preferred nonsmoker. The average here was 57%. If you want to try to draw the conclusion that the percentage is higher for a reason—for smokers than nonsmokers—don't. The reason is because there were only 17 companies that answered the smoker question, and so those 17 companies likely had a higher percentage qualifying for their nonsmokers as well.

We also asked companies that have been monitoring their results: How do your expected compare to your actual? We found fewer companies responding, probably because fewer companies had actually taken the time to compare their actual results to their expected results. But there were 34 companies that answered the question. The range, again, is quite wide. Four companies were only qualifying less than 20%, even though, at age 45, only two companies had been expected to

do that. We don't even know if the same two companies are in there. Again, it's hard to draw conclusions; these are just observations. But it's quite wide, and it was wider than we expected it to be.

In fact, if you look at it from the high-low perspective again—this is for nonsmokers, all ages—the low range was lower than the expected and the high range was higher than the expected. I'm not sure what 96% qualifying means, but again, the average, coincidentally, was 53%, so we felt, in aggregate, companies were probably getting what they expected. But frankly, there was quite a bit of movement. In fact, there were 16 companies that had more applicants qualify than expected at age 45, and there were 13 companies that had fewer qualify. We did note that there were 5 or 6 companies that were substantially off the mark, at age 45.

If we look now at the ratio of the standard-to-preferred expected mortality, and this is just for nonsmokers age 45, this is what we found. Again, the range was quite wide, but frankly, it was not as wide as the task force had expected it to be. At the low end, the standard-to-preferred ratio was 110%, and at the high end, it was 159%. And the average, which is just the arithmetic average, is 136% for nonsmokers. The average was concentrated pretty much at about a ratio of 4:3. When we do the same thing for the male smokers, at age 45, again, there is quite a wide spread. The low end is 115%, the high is 150%. Two companies had 150%, and the average was about 133%.

If we look now at expected mortality, we asked for mortality for two durations: duration one and duration six. And this was quite a surprise to the group. There were three companies in duration one that were pricing their preferred male nonsmoker mortality at age 45, based on a percentage of the 1975–80 Basic aggregate table, at less than 30%. And there were seven companies that were greater than 60%. The low-to-high range was 24% at duration one for the low, 70% for the high, with an average of about 48%. That's quite a difference: that's a three-fold difference! If we look at duration six, we see a little movement. Actually, there has been more movement than this information really shows: At the low end, it's 25%, and at the high end, it's 80%, so the average is still about the same at about 50%.

There has been quite a variation in smoker expected mortality. At the low end, the lowest expected mortality was 71% of the 1975–80 Basic tables. This is of the aggregate table! At the high end, it was 156%, with an average of about 105%. Again, there was some movement by duration six. On average, the smoker mortality was expected to be a little greater than twice what the nonsmoker mortality was. But, frankly, there was more movement than we had anticipated. Of those that responded to this question, many companies' mortality went up from duration one

to six. Many companies' mortality went down from durations one to six. And a very few companies' mortality was expected to stay about the same. I should point out to you that this is just male smoker age 45 and male nonsmoker age 45; there was some variation by age. When you get the full report, you'll be able to go through that analysis yourself.

Regarding maximum age, the range for preferred was age 60–90. One company was actually at age 90. I personally am not sure what preferred at age 90 means. I see that there are no smokers at age 85 or 90, and that's probably because there are no smokers left at age 80 or 90. But, as you can see, most of the companies had a maximum in the 70–75 age range.

Let's discuss what the minimum allowable face amounts for preferred consideration might be. We have to be a little careful in trying to interpret this. There were six companies that had a preferred classification below \$100,000 applied for, and there was at least one company that actually went down to \$10,000 for a preferred classification. At the high end, there were five companies that started their preferred classifications at \$250,000 for the nonsmokers. The smokers had a similar trend, but fewer companies, of course.

Part of the problem in trying to interpret this is that we don't know what the minimum policy issue limits were. It could certainly be that some companies, at least for their term plans, may not simply issue term below \$250,000. I am curious how many companies represented in the room are now writing preferred? There's more people writing preferred than we even have in the survey, Al. That's how out-of-date it is. The others are consultants? I see—yes.

We were curious about testing limits as well, and we asked questions about laboratory testing. We asked, for example, at what limits do you start blood testing, urine testing, or other types of testing? One of the questions we asked was about saliva testing. It turned out that only three companies acknowledged using saliva as part of their underwriting profile, so we didn't feel the results were that significant. But when we look at blood profile testing, and the minimum face amount requirements, this is what surfaced. It's very obvious that a preponderance of companies, at least, as of 1995, were blood testing at exactly \$100,000, although there were certainly some that were testing below that, and above that, as well. In fact, one company actually answered "zero." We don't know if zero really means zero, or if they just test at all amounts.

When we look at urine testing, the results are similar, but I think there actually is a difference between urine testing limits and blood testing limits. Some of the respondents claimed that they start the urine testing process at amounts generally

lower than they do blood. Many companies, of course, use the same limits, because to do that, they typically have to have a collector, be it for a blood specimen or a urine specimen. Oftentimes, the collector is a paramedic. It does not have to be a paramedic, but even when it is a paramedic, that does not necessarily mean that they request a separate paramedical exam.

We asked about cotinine testing. Cotinine is essentially a by-product of nicotine, so this would be a urine test. It's one of the about ten components you can test for in a urine specimen. The distribution of test results are very similar to those for urine, as you would expect for obvious reasons.

The same thing goes for cocaine. Cocaine usage can be identified from a urine test, and the preponderance of companies are doing this right at \$100,000. My sense, though, is that since the Food and Drug Administration (FDA) has recently approved the home HIV test, companies are going to have to reexamine their testing limits. So, beginning June 1, 1996, in at least two states, the home test will be available for HIV, and by January 1, 1997, it will be available nationally. If you were not aware of this, you need to make mental note that it might be worthwhile to reinvestigate your blood and urine testing limits.

Minimum face amount requirements in paramedical testing actually have quite a wide spread. Part of the reason for this is that companies can actually do blood and urine testing without doing the paramedical exam. There were obviously two areas of importance here, one at \$100,000 and the other at \$250,000, where companies generally set the paramedical limits. And that breakdown seemed to be fairly common between the preferred and the standard classifications. I don't know that we can draw any conclusions as to whether companies have different face amounts for preferred versus standard. We did note that this was true for some companies, but not that many. I should also point out that the actual range here is really from about \$0 (I think zero probably means those companies paramedically examine everybody versus an actual zero), to as high as \$1 million.

We asked about attending physician statements (APSs). Not as many companies answered this question, and my sense here is not that companies don't do it, but they probably don't do it routinely. Maybe it's at the underwriter's discretion; two companies wrote in that they do it, but it really is at the underwriter's discretion. My sense is that the real number is much larger. Many companies have, for cost-cutting measures, looked at the APS to try to determine if they felt it was a cost-effective procedure. So I'm not sure we can really draw any conclusions.

As regards the motor vehicle report (MVR), we found it rather interesting that, of all the criteria that companies look at in classifying their preferreds, the driving record

of an applicant ranked the highest in prevalence, and, of course, the MVR is a portion of the driving record. Obviously, these statistics varied by age and also by amount. Companies oftentimes will look more closely at the MVRs at the younger ages, particularly for the males, to try to determine if there is any adverse driving record that could indicate a higher-than-expected accident risk. And companies also look at these things to see if there's been any driving charges for alcohol-related reasons. It's just all part of the process. These are not necessarily done routinely, and the range is rather wide. In fact, it goes up to as high as \$2 million. One company actually stated that it did not require an MVR until at least \$2 million.

If we now look at the electrocardiogram (EKG), we should note that this is a more expensive test in the underwriting process. The ranges did vary quite a bit by age. The actual upper limit was \$5 million. In this case, there was one company that was at \$5 million, and that's fairly standard for both preferred and the standard risks.

We also inquired about prostate specific antigen (PSA) testing. PSA is a blood test that essentially is viewed as a tumor marker for prostate cancer. It's not necessarily an expensive test and companies do use it, but they have used it infrequently up to now, although there is an increasing trend to using it more frequently. Obviously, it's used only for male applicants, and the typical range of tested ages might be between 40 and 70. However, for the majority of companies that answered when they start testing for it, the lower age range was commonly 50–60. And again, that varied somewhat by company, by amount and by age.

And finally, regarding the stress test, as with the EKG, this is a more expensive test to perform. It may also require a physician to actually do it, and certainly to interpret the results of the test. Even for the preferred classification, the majority of the companies didn't even think about the exercise EKG until the applicants were applying for more than \$2 million of face value.

**Mr. Jess L. Mast:** I'll be discussing the preferred risk qualification that we asked for specific feedback on and is being used to decide whether someone may really qualify on a preferred risk basis. We wanted to find out, too, how often each of those criteria are actually used to determine who qualifies versus who does not qualify for the preferred class. For analytic purposes, we divided the criteria into three broad categories: personal history, such as a personal history of heart disease or personal history of diabetes; family history of diabetes or heart disease or cancer or whatever; and lifestyle considerations, such as what people do in their spare time, like racing cars or flying airplanes. Anyway, the information used to determine these particular criteria is based on data in the application forms, the medical and nonmedical exam, lab test findings, and other reports that are used to select and classify risk.

The most widely used criterion among respondents is the driving record, and a lifestyle factor, which is used by virtually all companies, and the source of such information generally is the application form itself. There's generally a question on the application about driving record, such as whether you've had several accidents or driven under the influence (DUI) of alcohol or some other drug. Again, most respondents use those particular factors. Of course, a personal history of diabetes is very important. Some companies do accept such cases on a standard basis, but very few would accept them on a preferred basis. Also, a family history of heart disease is very significant, as you've seen from intercompany mortality studies, and 92% of the respondents indicate they use that as a factor.

Personal history criteria are used frequently. The frequency of their usage among respondents ranges from 92% to 64%; that is how often companies actually use these factors as criteria in deciding who ought to qualify on a preferred risk basis. It is noteworthy that all of these criteria are used in some way by the majority of the respondents.

Diabetes is the most widely used criterion. All respondents preclude a diabetic applicant from the preferred classification. And the information is verified by at least three-fourths of the respondents, usually by an APS or some sort of lab test. And all of these personal history criteria preclude an applicant from preferred by at least half of the respondents.

Looking at the family history criteria, heart disease is not only the most prevalently used criterion, but also a family history of heart disease is the only family history criterion used more often than any of the personal history criteria. Except for heart disease, family history criteria are not widely used and don't usually preclude an applicant from the preferred class. As you've probably all realized, family history criteria are difficult to verify and may not even be verifiable in most cases.

Concerning lifestyle criteria, the driving record is the most widely used of all criteria in any category. Many of the lifestyle criteria are more widely used than many of the criteria used in other categories. For the top six criteria—for example, driving, DUI, alcohol abuse, illegal drug use, tobacco, and cigarette use— verification generally is used by almost all respondents. And each one is precluded from preferred by at least three-fourths of the respondents. As Rick mentioned earlier, exercise is rarely used as a qualification criterion anymore, but the benefits from exercise are reflected in pulse rate, blood pressure, build, and other factors that are used as a surrogate, you might say, for the beneficial effects of exercise. None of the respondents indicated someone would be precluded from a preferred class simply because of lack of exercise.

The range of readings used for each of the criteria shows the maximum reading that will allow an applicant to still qualify for the preferred class. And we'll go into these results in just a moment. Actually, we did not request the corresponding information on individuals who would qualify on a preferred basis, to find out to what extent the preferred risk criteria really differed from the criteria used to decide whether an individual is a standard risk. Anyway, a reading above the maximum may or may not actually preclude someone from qualification for the preferred class. And the only data requested applied to males at ages 35, 45, and 55. We wanted to find out whether companies make a distinction by age in the criteria. Also, since we didn't expect the criteria to vary by sex, data were requested on males only. But we did ask a general question at the end of the survey about whether any criteria did vary by sex or tobacco use, which I'll comment on a bit further in a moment.

Regarding total cholesterol, the results didn't vary much by age, although there was some tendency for the levels to be a little more forgiving, you might say, with increase in age.

The average requirement used by most respondents was about 250. We were able to get distributions of actual lab test results through Lab One. Lab One was generous in offering information that we could include in our report to help readers compare the actual distributions found in real-life situations with what companies are using for criteria. Such data may help you estimate the prevalence of individuals who might qualify on a preferred basis using various criteria for maximum readings. And, for example, if companies did use the 250 as a maximum cholesterol level, roughly 90–95% of the applicants are likely to qualify at ages under 50.

Another criterion involves the ratio of the total cholesterol to high-density lipoprotein (HDL) cholesterol. And the range of responses here was quite high, higher than expected, ranging from a low of 4.0 to a high of 10.0. These ranges vary less by age than they do for cholesterol. And based on the distribution of actual lab test findings reported by Lab One, the ratio of 5.0 corresponds to about 75% of the applicants qualifying at ages 35 and 45, and about two-thirds qualifying at age 55.

Regarding the gamma-glutamyl transpeptidase (GGT) test, which is a liver enzyme test, the maximum requirements did not vary by age, but did vary considerably from company to company. Again, based on distributions of actual lab test results, and using a maximum reading of about 84, which is nearly one-and-a-half times the upper limit for the 95% confidence interval, roughly 95% will qualify at ages 45 and 55. A higher percentage will qualify at age 35, where the effects of alcohol abuse have not yet taken their toll on the liver.

The PSA test has been used as an underwriting requirement for a shorter period of time than the other blood tests that we were looking at. The PSA test has been used relatively more frequently since about 1990 or so, about the time that Rick Bergstrom published a paper on the cost-benefit analysis of the PSA test, which appeared in *The Journal of Insurance Medicine*. I think it may have had some influence on companies in deciding when to use the PSA test. Anyway, the test is used much more often at the higher ages, say, ages 50 and above, than under age 50. And it happens to be the only test that we looked at that applies strictly to males. All the other tests apply to both males and females.

Regarding the maximum blood pressure readings most respondents use in considering applicants on a preferred class basis, the readings tend to be more forgiving with increase in age, which is both expected and reasonable. About 25% of the respondents would not necessarily preclude applicants, however, from a preferred rating even if they had a higher reading than the maximum they generally consider preferred.

We also asked companies about both the maximum and minimum weights that they would consider for males in deciding whether an individual would qualify on a preferred basis. And these minimums and maximums are pretty interesting, I think, because they reflect such a broad range of philosophies. For example, the minimum weight allowable for an individual five foot ten is 113 pounds. The highest minimum is 155 pounds, which I think is more ideal on a personal level. Only four companies stated that they did not use a maximum or minimum weight in considering qualification on a preferred basis. For males, the range of minimum weights corresponds to a relative weight, that is, a ratio of actual weight to the expected average weight for the given height. The range is from 65% to 90% of the average.

You are probably aware that in the 1979 Build Study ( Society of Actuaries and Association of Life Insurance Medical Directors of America. *Build Study 1979*. 1980.), the relative mortality risk increases as a relative weight decreases below about 75%. In other words, the study showed a U-shaped mortality curve, where the lower the relative weight, the higher the mortality ratio. And as you move toward 100%, or the average weight, the mortality tends to be the most favorable, and then as the relative weight increases much further, the mortality increases correspondingly. The maximums used range from 100% of that average weight to 140% of the average.

We also asked about any differences in criteria used by sex and smoking habits, and again, the responses were broad and varied among the 30% of companies saying they recognized differences by sex. They're mainly differences in weight by height, though, which is to be expected. And various comments were given about how

criteria differed by smoking and tobacco habits, which may have varied, for example, by type of tobacco used or the number of cigarettes used per day, and related factors. Anyway, one company also indicated that it was a lower ratio of total cholesterol to HDL cholesterol for females. Now, many of you are probably aware that regulations in some states may bring into question the use of risk-classification criteria that vary by sex.

This does not really pertain to qualification criteria, but you may find it interesting that among the first-to-die products and second-to-die products, about half the respondents do use a preferred class. And among companies that offer a variable product, roughly three-fourths of the respondents use a preferred class in their premium rate structure.

Some of the reasons given for allowing a preferred classification, when the threshold for a specific criterion is exceeded, include the use of debits and credits, on a net basis, to balance an overall profile. Also, the overall risk is assessed, rather than any particular criteria all by itself. And in that sense, then, not all test criteria are necessarily absolute. Also, certain risk factors can offset selected negative criteria; such as a favorable total cholesterol to HDL ratio may offset, say, a slightly elevated blood pressure or a slightly elevated total cholesterol reading. And certain negative lab test factors can be explained on followups, some of which can necessarily be dismissed, depending on the reason for the elevation.

We also asked how many debits could be tabulated during the underwriting process and still allow the applicant to be considered on a preferred basis. Forty-four respondents, in total, commented about this, and the average of their responses was 28 debits. The range of debits allowed varied from zero debits (nine respondents) to a hundred debits, which is a very broad range. And most of 38 respondents wouldn't allow more than 49 debits. We also asked whether the debits were before or after credits for favorable factors were allowed. Twenty-three responded that they allowed credits before determining the maximum number of debits, and 19 said they allowed credits after. This finding represents differences in underwriting philosophy.

Companies were also asked whether any other preferred criteria were used, which we did not ask about. This was helpful because it provided a reality check on any factors being used that we did not include in the survey. For example, history of a felony conviction is obviously very important, as are the SGPT and SGOT readings, which are liver function tests and required to be no more than 110% of the normal limit for the lab. And the time vital capacity (TVC) test, if it's available, is used, as well as the pulse rate. Family history and general assessment of the overall case are

also taken into consideration. If a case is ratable for any reason, most companies do not allow it to qualify on a preferred basis anyway. The chest versus waist

measurements are used. Of course, this is only for males. Some lifestyle only and some other medical-history-type information are used, too.

Now, Al will share with you some results from the reinsurance survey that he did very recently.

**Mr. Klein:** I surveyed all 22 North American reinsurers very recently, as Jess said, in a phone survey. I did not include the professional retrocessionaires, just the professional reinsurers, and I believe I covered all of them. What I'm going to do now is present the results of that survey. All of the reinsurers review all of a company's preferred criteria before providing a quote. I don't know if you were aware of that or not, but your preferred criteria are looked at fairly thoroughly actually. All of the reinsurers also offer help in establishing preferred criteria, so feel free to go to your reinsurer and get some help if needed.

Who reviews the criteria? Every reinsurer has the underwriter reviewing the preferred criteria, while 18 of the 22 reinsurers also have the pricing actuary review them. There are only a few reinsurers that have a marketing or sales-type person or the medical director review the criteria. At one reinsurer a reinsurance executive reviews the criteria, in addition to the others. Another reinsurer has an underwriting and mortality research person review the criteria.

How is the review done? Judgment is obviously used by every reinsurer in reviewing the criteria. A number of companies (seven) mentioned that they use a table of debits and credits to come up with their evaluation of the preferred criteria a company uses. There were nine that fell under the category, which is using either a spreadsheet or a grid to either compare or rank the companies. Some of the other responses include using a computer program to evaluate the results. One actually checks the underwriting requirements versus the closed criteria. And there's one more. Only one reinsurer mentioned this one, but I think that others use this as well. The reinsurer mentioned that it uses their knowledge of the ceding company in determining the evaluation of the preferred.

This next question was an interesting one. Are the results of your review shared with the direct company? This was split exactly 50/50, 11 said yes and 11 said no. The ones that said no did say that they will share the results if asked. So if the results of a reinsurer analysis of your preferred criteria aren't shared with you, ask your reinsurer, if you are interested. The reinsurers also said that they would discuss the results of their analysis if there was a big difference in what they

expected versus what the ceding companies said that they expected. So if there is a big discrepancy, you will hear about it.

I asked, what criterion is the most important in setting preferred assumptions? All the ones listed had more than one reinsurer respond to them, and they're listed in order of the number of responses that I received. There were nine that said that tobacco was important, and when I say tobacco, it means making some use of either tobacco or smoking in the preferred criteria. The answers did vary, but tobacco/smoker was the one most widely mentioned. Family history was mentioned seven times, so that's another important one. Cholesterol and total cholesterol to HDL ratio was mentioned by five; blood pressure by three; personal history by two; and lifestyle considerations by two. You may have added the numbers and found it didn't add to 22. The reason is that a number of companies gave me more than one response; they said that there was no one criterion that was most important, but there were several.

The next question is my favorite one. I asked if there was any advice that the reinsurers would like to share in terms of setting the preferred underwriting assumptions and criteria. And what's interesting is that, out of the first 15 reinsurers I talked to, they all gave different answers, and they were all good answers.

To summarize the responses, it's important to get everyone involved upfront. That includes the actuary, the underwriter, and the marketing person, to make sure that everyone's happy with the way you're going to set criteria. Consider your own company's strengths and desired markets. Depending on what market you're going to go into, you may want to change your criteria slightly, or even how strict the criteria are. Keep it simple. You want everybody to understand the requirements to qualify for preferred, so there isn't any confusion on the backend. The criteria should be objective, not subjective. What I mean by that is, a cholesterol reading of 250 is an objective criterion. Being in good health is subjective. Don't use the subjective criteria. This next one is the one that was probably most widely mentioned by the reinsurers. Once you've established your criteria, stick to them, don't make exceptions, or limit the exceptions. By limiting the exceptions to a few predetermined ones, each class will contain the pool of risks you expect. Then finally, monitor the results.

I asked one other question. The reason for this question was that I was somewhat surprised by the results of our preferred underwriting survey, which showed that the standard-to-preferred ratio was about 1.35:1. I thought the ratio was going to be much closer to the smoker/nonsmoker split, which is about 2:1. I wanted to see what the reinsurers were doing here, and either confirm the results of the survey or find out something different. What's interesting is that most of the reinsurers don't

really have one assumption that they use. The ratio varies company to company. So what I often got from the reinsurers was a range of what the ratio would be. What I did, for comparison purposes, was to take a straight arithmetic average of the ranges. So the results aren't a perfect comparison, but close enough. The reinsurer results were a little bit higher (six basis points on average) than those in the survey. Although there are certainly some higher ratios than I expected, I think the answers confirm that the ratio of standard to preferred mortality is less than the ratio of smoker to nonsmoker mortality.

Let's go back to preferred underwriting in general so we can draw some conclusions. What does all this mean? The criteria and parameters do vary greatly by company. They're also still very much evolving. We're seeing a number of changes that are happening in the industry right now. There's a good number of reasons not to develop a preferred product. If you're in a niche market where there just isn't any competition, that might be a good reason not to develop a preferred product. However, my recommendation is to just do it and put a preferred product together if you haven't already done so.

Finally, I'd like to explain where we stand as a task force. I mentioned before that we've completed the report. Barring any last-minute legal complications following a legal review, we should have the report out approximately mid-June 1996. It's first going to be sent to all of the contributors to the survey, and then it will be distributed more widely, for those who are interested. It will be available on Actuaries Online. There will be an announcement in *The Actuary*; a flyer will provide the date that the report will be available for purchase, but it's just a minimal charge for mailing. But if you are on Actuaries Online, you can pick it up there to save the cost. We decided to try to meet in July 1996 to determine what kind of preferred mortality study can be done.

Finally, assuming a preferred mortality study is doable, we are going to recommend a format for the study. We are also going to recommend that we continue to do a survey similar to the one just completed to see how the preferred underwriting has changed and evolved. I hope a survey like this can be done every second or third year.

**Mr. Robert A. Gabriel:** You mentioned that several states are considering limiting use of gender for underwriting. About eight years ago, I was asked to come up with some criteria for preferred underwriting, and I drew an interesting conclusion when I looked at the results by sex. I looked at several hundred of our applications and assigned points based on build, blood pressure, liver enzymes, HDL ratio, motor vehicles, things like that. And I found that, in general, females had lower point totals than males, lower being healthier. So my observation is that maybe sex is not

needed because, using my point scale, females tended to be lower. So I guess my question to you, Jess, is what do you think of this criterion for underwriting and preferred underwriting?

**Mr. Mast:** I think the question is right on target, because it indicates clearly that you don't need to necessarily use the sex-distinct criterion if the effect of the criteria you're actually using really does produce appropriate risk classifications and pricing for both sexes. Even though use of unisex criteria currently may be allowing a higher proportion of females, those are reasonable factors to use.

Quite frankly, though, I'm not so sure that we always have credible information on the mortality advantage for males versus females for the same criterion. For example, most of the epidemiologic and clinical trial research studies have focused primarily on males. And we draw inferences from the health benefits or the health detriments found in data from such studies associated with a given risk factor and apply them to both sexes even though, quite often, the experience is based on males. The limitations of such data correspondingly limit our knowledge with respect to the eventual mortality implications of each of these factors by sex.

But we need to be aware that the prevalence of women who would qualify for a given risk factor, or a given criterion, is probably higher, in general, than it is for males, especially on factors such as blood pressure and perhaps even build. In situations where a medical exam and an array of laboratory test findings are available, it may become practical to ignore sex in pricing, relying instead on other factors available to screen and classify risk.

**Mr. Bergstrom:** I was curious to know how many of you were aware of the home HIV test being approved? Of those of you who now have your hand up, how many of you have either started looking at your blood testing limits or feel you need to start looking at your blood testing limits? Not that many. I was also curious, of those of you who raised your hand earlier and said that you were writing preferred risks, how many of you are at least in your second generation, or proliferated the preferred-risk products to more than, say, three? Not that many. Oh, one other thing. How many of you are using currently, in some form, the saliva test? Any-one? Several. Does anybody not know what the saliva test is? This is an informed group.

**Mr. Klein:** Do you want to go ahead and explain the saliva test?

**Mr. Bergstrom:** The saliva test is essentially a very noninvasive test that Epitope, Inc. has patented. It is used to test currently for HIV, cotinine, and cocaine. The testing device looks like a toothbrush. You stick it between your cheek and gum

and then mail the device into a reference laboratory for analysis. That is currently on the market.

**Mr. Howard W. Heidorn, Jr.:** I have just a couple questions about the survey and its contents. There were over 1,000 surveys sent. How many were returned? Second, because there's variation in underwriting by product within a company, how was that kind of variation handled in the survey results?

**Mr. Klein:** I'll start with the first question. We had 110 surveys returned. A little less than half said they had a preferred class, and a little more than half said they didn't. We did ask them specifically to give us the preferred criteria by product; we asked for term, whole life, and universal life products. And the results were very close among the three products. The results that we've presented here and also in the final report are all based on the term products. We just chose term because we thought that was the most common, but again there was very little difference between the products. I believe that we commented in the report where there was a slight difference by product.

**Mr. David J. Orr:** I think my question is probably for Rick. I was interested in the expected mortality for nonsmokers. Is it split between the preferred and the standard nonsmokers, or is it for the aggregate nonsmoker rate class? I am talking about the average rate of 48.3% as a percentage of the 1975–80 tables? It's where you're doing the mortality as a ratio of the 1975-80 basic tables. And what I'm asking is, are those nonsmokers? Are they taking into account the fact that some companies are splitting out preferred and standard nonsmoker, or is that the mortality expected for the aggregate nonsmoker rate class?

**Mr. Klein:** This is for the preferred class.

**Mr. Bergstrom:** That's preferred only, yes. That's quite a differential, isn't it? I mean, you think you know what preferred means, and then you look at expected mortality and that varies by a factor of three!

**Mr. Mark A. Gallop:** You had about a 10% response rate to the survey, about 110 companies, you said, I believe. Do you have a sense of how much of the industry, in terms of either in-force business or new business written, is represented by those 110 companies?

**Mr. Klein:** We do have some information in the report which gives a breakdown of the companies that responded by company size, by the A.M. Best categories. I'm not sure, off the top of my head, what percentage of the industry it represents. Again, I think we did get better than a 10% response rate in that there was a lot of

overlap in the mailing lists we had. I think that it is possible for a company to have received up to four surveys because of the various lists. I don't know how many companies it really represents. It is in the hundreds, but I do think we got better than a 10% response rate.

**Mr. Bergstrom:** And a number of those companies were very large companies, too.

**Mr. Klein:** Yes, they were. It was a good mix between small and large companies. Seven of the companies were in the \$2 million to \$5 million range; this is based on policyholder surplus and conditional reserve funds. Twenty-nine were in the \$25 million to \$750 million range, and 15 were in the \$750 million to \$2 billion range.