

PANEL DISCUSSION  
CURRENT ORDINARY INSURANCE UNDERWRITING  
OF LARGE AMOUNTS

*Panel Members:*

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KARL M. DAVIES  
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ALTON P. MORTON:

As I look at the audience before me, it is self-evident that most of you are not familiar at first-hand with the origin of the Society of Actuaries' large amount mortality studies. They were originated more than thirty years ago, and the Society has continued to publish them at approximately five-year intervals ever since. Why? It is because there remains a continuing concern among insurance company executives that the large amount buyer is a particularly difficult applicant to deal with and is liable, unless unusual care is observed, to outsmart the company's underwriting staff.

In my role as chairman of this panel, I will supply a little more historical background and will also suggest some questions to imply the nature of the discussions to follow.

Historically, following the onset of the Great Depression at the close of the 1920's, insurance companies reaped spectacular losses from excess mortality on their large amount business. Total mortality losses seemed for some companies to arise from too relaxed underwriting standards for regular amount as well as for large amount business. This appeared to be the product of overdone competitiveness, the effect naturally being more marked in large amount cases. Higher mortality in these companies began to emerge during several years before the onset of the depression. Other companies had apparently been successful in holding the line on their general underwriting standards. Such companies experienced normal mortality during the predepression period and relatively modest increases in their general company mortality during the depression years. Analysis showed extra losses limited chiefly to larger amount cases.

When it became apparent in the early 1930's that for most companies their large amount underwriting practices were not a match for the problems such cases presented, the companies, individually, felt some-

what helpless to deal with them. A committee of actuaries and medical directors was officially appointed to develop information, to prepare and analyze mortality data, and to recommend corrective underwriting measures. Suggested standards were outlined for using more advanced underwriting requirements, such as double medical examinations, electrocardiograms, and X-rays, supplemented by other special medical studies or tests when indicated. Improved financial underwriting standards aided by better inspection reports were among improvements considered necessary. A recording bureau was set up for large amount cases to which most major companies reported receipt of each such application. The bureau was intended to help control overinsurance by denying applicants the opportunity to suppress the fact that they were applying simultaneously for insurance to several companies. All of this was, of course, in the carefree pre-antitrust days before the SEUA decision of the United States Supreme Court.

Intercompany activities since about 1940 have been very properly, in the light of this decision, limited to the continuance of the bureau and to publishing special large amount mortality data through the Society of Actuaries' Committee on Mortality. The panel is going to review and discuss the most recent such data published in the *1965 Reports Number of the Transactions*. Some questions very naturally suggest themselves for such a discussion:

What are large amount underwriting problems?

Do they apply exclusively to cases of, say, \$50,000 and up?

Are such problems nonexistent at lower amounts?

What is the special nature of these problems which distinguishes them from underwriting problems in general?

What is the mortality outlook for current large amount underwriting?

It is quite obvious to anyone that possible antiselection exists with every insurance application processed, from \$1,000 up. Expressed on a probability scale, it is minimal in smaller amount cases with normal beneficiary nominations, increases steadily with amount, and varies in intensity also according to the apparent purpose the insurance is designed to serve. For example, insurance for business or creditor use involves a greater chance of antiselection than insurance for personal purposes. The panel cannot, therefore, discuss large amount underwriting and mortality separately, as though it were a clearly separate subject from underwriting in general.

Our first speaker is going to review the level of emerging mortality and trends suggested by the Society's recent report. He will, among other things, refer to and, to some extent, compare these with the results and

trends for all amounts from the Society's recent issues mortality studies which we publish annually. Some additional questions need evaluation as we look to the future. Is the arbitrary starting point of \$50,000, chosen at the time our studies began over thirty years ago, still an appropriate one as we plan for future intercompany large amount mortality studies? Large amount applications may at one time have been the problem mainly of the larger companies. But today, with the help of reinsurance, which is very widely available, large amount applications are readily handled by the smaller companies too. Are the Society's large amount data, reflecting the experience of only twenty large companies, even now representative of total industry experience? The intercompany data cover only policies issued at standard rates. But between 15 to 25 per cent of all large amount business in force is at substandard rates. No information is available as to whether the actual mortality results are appropriate to the premiums charged. In short, do we need to develop a more representative cross-section of large amount business in future studies?

These and other problems will be discussed by our panel. All panelists have been chosen for their acknowledged expertness on underwriting matters. Their comments will, I am sure, convince you of at least one thing—that they are all strong individualists. Views will be expressed with strong convictions even when there are no facts—the hallmark, of course, of a competent underwriting executive. The panelists are well known to most of you, so I will identify each of them only very briefly.

The first to appear will be George Hogeman, of the Aetna Life. The second to appear will be Allan Keltie. He is associated with a large Canadian company, the Great-West Life Assurance Company. The third speaker will be Chuck Walker, of the Lincoln National. Our final speaker and anchor man will be Karl Davies, of the Equitable.

Without further preliminaries, George Hogeman, will you now lead off?

GEORGE L. HOGEMAN:

Before starting on the particular items that Al has asked me to discuss, two general observations are in order. First, all of us on the panel will assume that most actuaries in the audience have studied the large amount report enough to have a general idea of its results. Second, we realize that many of you have a less-specialized interest in underwriting than we do, so we will attempt to avoid burdensome detail.

The main conclusion to be drawn from the report is that large amount mortality is slightly better than that for all amounts. The ratio of large

amount mortality to the corresponding mortality of medically examined business of all amounts is 94 per cent.

The report goes on to analyze this over-all result in a variety of ways. By age the ratios of large amount to all amount mortality decrease as age increases—perhaps because of the more careful underwriting done at the older ages when the amount is large.

As the amount of insurance increases, the ratios generally show a downward trend. The tilt is not very sharp. For the largest amount bracket, one million dollars and over, this downward trend reverses abruptly and jumps to 125 per cent; however, this is based on only 44 lives and reflects one death claim on which over \$3,500,000 was paid.

The separation of data by plan of insurance shows that term mortality is worse than permanent—the ratios are 104 per cent for term and 93 per cent for permanent. This excess of term over permanent large amount mortality persists in most of the cells into which the data have been subdivided.

By duration from issue, there appears to be no clear-cut trend.

The separation by sex shows male mortality of 97 per cent and female of 60 per cent. In general, female mortality is closer to male mortality for large amounts than it is for all amounts.

The analysis by cause of death shows that accidents, homicides, and suicides are more frequent for large amount business than for all amounts. On the other hand, diseases of the heart and circulatory system are somewhat less frequent causes of death for large amounts.

Finally, a comparison of the current study with its predecessor large amount studies shows that over the period from 1934 to 1963 there has been a small but noticeable tendency for the mortality margin in favor of large amount policies to diminish.

The second general subject that I would like to put before you is the nonseparateness of large and small amounts. Of course, it is immediately apparent to everyone here that nothing magic occurs when the \$50,000 level is reached; that a dividing line of \$50,000 may not have the same significance now that it did when these studies were begun many years ago; and that the selection of \$50,000 is arbitrary in any event. Still, I think that you will be surprised if you look at the sheet labeled "Policies for Large Amounts," which was placed on your chair. Table 1, Part I, indicates that the first bracket—\$50,000 to \$99,999—contains a larger portion of the total volume of claims now than it did thirty years ago. Similarly, Table 1, Part II, shows that this bracket contains a larger portion of the number of claims now than formerly. It cannot be argued that amounts in this bracket are relatively less important than in the past.

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As underwriters, we know that what is a large amount for one applicant may be small for another. The difference lies in the applicant's age, his income, his other kinds of insurance coverage, and his health. In short, the so-called large amount study includes many instances where the amount is perhaps small in relation to the circumstances of the insured; by the same token, the study omits some instances where there is substantial overinsurance.

The amount of insurance justified by the circumstances may fluctuate sharply over the life of the policy. For example, a debtor-creditor rela-

TABLE 1  
POLICIES FOR LARGE AMOUNTS  
ALL PLANS

Classification Amount	Exposed 1934-41	Exposed 1941-48	Exposed 1948-53	Exposed 1953-58	Exposed 1958-63
I. Percentage Distribution, by Amount, of Actual Claims					
\$ 50,000-\$ 99,999 . . .	17%	21%	25%	25%	24%
100,000- 199,999 . . .	38	36	37	39	38
200,000- 499,999 . . .	33	33	29	27	26
500,000- 999,999 . . .	12*	10*	6	6	7
1,000,000 and over . . .			3	3	5
All . . . . .	100%	100%	100%	100%	100%
II. Percentage Distribution, by Number, of Actual Claims					
\$ 50,000-\$ 99,999 . . .	27%	32%	38%	38%	38%
100,000- 199,999 . . .	43	41	40	41	41
200,000- 499,999 . . .	24	23	19	17	17
500,000- 999,999 . . .	6*	4*	2	3	3
1,000,000 and over . . .			1	1	1
All . . . . .	100%	100%	100%	100%	100%
III. Mortality Ratios					
\$ 50,000-\$ 99,999 . . .	84%	95%	91%	96%	97%
100,000- 199,999 . . .	104	91	85	97	94
200,000- 499,999 . . .	88	93	92	90	90
500,000- 999,999 . . .	72*	64*	81	80	89
1,000,000 and over . . .			83	79	125
All . . . . .	90%	89%	88%	93%	94%

\* This includes \$1,000,000 and over.

tionship changes as the debt is reduced and finally eliminated. A key-man relationship changes as the executive approaches retirement. Consequently, a plan of insurance which is not tailored to anticipate amount changes of this sort may over a period of years become an overinsurance situation.

Chuck Walker will have further comments on this question of what constitutes a large amount.

The third general subject that I would like to discuss for a few minutes is the make-up of the large amount study itself. It is important for the Mortality Committee to know whether the members of the Society think this study ought to be changed and, if so, in what ways. For example, is it appropriate to continue \$50,000 as the lower limit?

Bearing on this point, the sheet which you have shows in Table 1, Part I, that, if the lowest bracket had been omitted from the current large amount study, the volume of claims would have been reduced by one-quarter. Perhaps more important, the number of claims would have been reduced by over one-third, seriously interfering with the statistical validity of some of the cells. It is true, as Table 1, Part III, shows, that the mortality ratio in this smallest bracket has been consistently nearer to the mortality for all amounts than are the mortality ratios in the other brackets, lending weight to the thought that this bracket is not of great interest from a large amount standpoint.

The involvement of the Recording Bureau in this matter should be kept in mind; a questionnaire circulated among its members a few years ago indicated opinion almost evenly split on this question of revising their lower limit from \$50,000 to \$100,000. Also, there are indications that raising their lower limit to \$100,000 would not in itself cause participation by some nonmembers. Companies who participate in both the large amount study and in the Recording Bureau might find it inconvenient if the rules were different.

Another example of the kind of change which might be made in the large amount study is the inclusion of substandard lives. As you know, this study and the preceding ones have been limited to standard lives.

A survey of Aetna business indicates that almost 20 per cent by volume of policies for \$50,000 and over is substandard. Al tells me that a similar survey of Prudential business shows essentially the same relationship. Consequently, the addition of substandard lives to the next large amount study, if undertaken, would probably make an appreciable increment to the quantity of data.

Questions arise. Would substandard data be homogeneous with standard data? For example, is the antiselection by amount experienced on

substandard business the same as for standard business? My own company's experience on this point is that antiselection by amount is slightly less pronounced among substandard lives than among standard lives. For the very lowest ratings, there is no difference between the experience by amount and by number. For moderate ratings, in the neighborhood of +100 per cent, the mortality ratios by amount are definitely lower than by number. On the other hand, for the highest ratings, where admittedly the quantity of data is small, the mortality ratios by amount are much higher than by number. Clearly the addition of substandard lives to the large amount study could raise questions of homogeneity on this score.

Are the definitions of a large amount different for substandard and standard lives? Certainly life expectancy is different for substandard and standard lives, and consequently financial definitions of overinsurance based on life expectancy would be different. Further, premiums are different for substandard and standard lives, so, to the extent that the definition of overinsurance is based on ability to pay premiums, the definitions should be different.

It may be that the refinement of the definition of overinsurance in this way is impractical. Nevertheless, complete repudiation of this concept would lead to absurd offers where the premium is so high as to invite the most severe sort of antiselection from highly impaired risks. Even the extra care with which highly impaired large amount risks are customarily underwritten may not be adequate to guard against this potentially severe antiselection.

The addition of substandard lives to the large amount study would, in addition to these problems of homogeneity, introduce technical problems as well; however, the Mortality Committee believes these technical problems could be solved.

So much for my part on this panel. It is now my pleasure to turn the microphone over to your next panelist, Allan Keltie. In addition to being underwriting officer of the Great-West and a member of our Society, he is program chairman of the Home Office Life Underwriters Association. Thus he is well qualified to discuss large amount problems, especially as seen by a Canadian company. Allan, the floor is yours!

WILLIAM A. KELTIE:

For our purpose this afternoon, I have directed my prepared remarks to three areas: first, to carry on from where George Hogeman left off and to outline the significant mortality results of the large amounts study by purpose of the insurance, annual income of the insured, and total in-

surance carried; second, to describe the Canadian mortality picture as it differs from current experience in the United States for insured lives and from census records; and, finally, to comment on the standards of selection used in large amount underwriting, particularly the qualifications for appointment of medical examiners.

1. The *1964 Reports* covering policies for large amounts contain, for the first time, mortality results by purpose of insurance and earned income. The Committee, in formulating coding instructions, recognized that a clear-cut dividing line could not be made by insurance purpose, nor could the insured's income always be accurately defined. This unavoidable shortcoming should be recognized in interpreting the results.

You will have noted that for large policies covering a personal need the mortality ratio was 92 per cent. Where there was a business purpose for the insurance, the ratio was 94 per cent. The ratio was 112 per cent where the insurance was purchased for key man or deferred compensation. The highest ratio, 137 per cent, occurred under insurance issued to secure a loan. It appears, therefore, that as the insuring purpose moved away from the traditional family need, the mortality rate increased.

The *Reports* also analyze the mortality by annual income of the insured and by amount of insurance in force. The Committee no doubt intended by this separation to test the reliability of underwriting rules and to determine the upper limit of total insurance in relation to earned income that will produce satisfactory mortality. Unfortunately, the results in this section are inconclusive for lack of sufficient deaths in the minor categories. It should be noted, however, that, for the income classification "not accurately determined," the mortality ratio was 186 per cent, based on thirty-three claims. Underwriters should recognize from this result that further investigation is warranted when, on first review of a large application, no accurate figure of insured's earned income is forthcoming. This warning applies particularly to financial facts that the inspection report cannot verify. It costs money to underwrite without proper information—big money if big cases are involved.

2. For the benefit of United States members not familiar with Canadian studies, the Mortality Committee of the Canadian Institute publishes an annual report covering standard ordinary policies in all amount sizes combined for lives classified as "Canadian." The format of their report is similar to the annual study prepared by the Society. The experience is now substantial. In 1963, twenty thousand policies were terminated by death with claim payments of \$78 million. The Canadian study does not, however, cover separately the experience under large amount policies.

Is there a demonstrable difference in mortality between United States and Canadian insured lives? If so, what is the possible cause?

If expected deaths are calculated for both the United States study and the Canadian study using the Canadian Assured Lines Table 1952-56, some measure of this difference can be shown. For select durations, male risks medically examined, the Canadian mortality has been lower in every year since 1959, averaging 8 per cent lower on the Canadian side.

Comparison of census mortality rates published in the two countries points to a difference in the same direction. For the important male age group, 35-55, the 1961 Canadian census death rate is 15 per cent lower than that for corresponding United States white males. The difference between the two countries is less at the higher ages but is still 5 per cent lower in Canada, even at age 70.

What is the reason for the difference in the results? Companies doing business in both the United States and Canada generally have the same underwriting requirements in the two countries. There are, however, these important differences in procedures:

1. Brokers licensed in several companies are almost unknown in Canada. As a result, rarely do you see a Canadian application submitted to several companies for competitive bids by the same agent or broker.
2. There are very few professional insurance medical examiners in Canada.
3. Requests to underwrite on evidence already submitted to another company are less common.
4. Medical directors in Canadian companies seem to have closer personal knowledge and acquaintance with attending physicians and examiners across Canada.

The mortality difference between the two countries cannot, however, be attributed solely to differences in underwriting standards. It also exists in census studies. Does it mean, therefore, that the United States male generally eats more, smokes more, drinks more, or "runs around" more than his Canadian cousin? The difference appears greatest in the age group 35-55, well represented at this meeting, so an answer may evolve from the informal discussion today.

3. Let us return for a few minutes to the large amount study. Credit for the favorable aggregate mortality ratio of 94 per cent under large amount policies issued in recent years is, I believe, due in part to the quality of medical examiners now being used by major companies for large amount applications. Such companies are attracting specialists in internal medicine as examiners for them and, as a result, highly qualified doctors are more often examining large cases. The Great-West Life, for example, defines an examiner for amounts of \$100,000 and higher as a fellow of

the Royal College of Physicians in Canada or a diplomate of the American Board of Internal Medicine and has a slate of such men appointed in principal branch office cities.

In addition to favorable mortality results by this practice, other advantages accrue—the reported medical finding can be relied upon, applicants for large amount policies from the top echelon of the community are impressed by this type of single examination, and it avoids in many instances the need for double examinations.

This trend away from double examinations on large applications is a sign of underwriting strength. In my opinion, a single examination by a qualified doctor is superior to multiple examinations by regular examiners. The principle unfortunately breaks down in suburban areas and in small communities where highly qualified doctors do not normally locate their offices.

Planted question: “Any upper limit?” Yes, I believe that there should be an upper limit. The examiner needs protection from criticism in case of error when a very large number of dollars are involved. Also, to avoid underwriting delay when, for example, a question is unanswered or a signature is overlooked, the applicant would otherwise have to return to the examiner’s office. We have set the upper limit at \$250,000.

4. Underwriters in major companies are being asked to approve jumbo lines of insurance much more often than ever before. It is difficult to assess the dollar value of business needs or indemnity protection in cases that can run to \$5 million or more. Underwriting success or failure as reflected in mortality may never be known, for the number of such cases is still not sufficient to guarantee reliable results.

Mr. Henry H. Jackson, past president of the American Institute of Actuaries, defined in 1950 the problem on such cases with this prediction:

A man in applying for more than one million dollars of insurance has thereby classified himself. He belongs with the happy fat man. . . . I hope I shall never live to see life insurance companies unduly perturbed about the question of selection, but I think certainly I ought to live to see the time when a man asking for two or three millions of insurance on his life will get from everybody—not from somebody, but from everybody—the answer, R.N.I.I.—“Risk Not Indulged In.” It is really an indulgence we cannot well afford.

The word “reinsurance” has not entered the discussion so far. I know that the next speaker will introduce the subject, for he is keenly interested in this line of business. I pass the microphone to Chuck Walker, vice president of the Lincoln National.

CHARLES N. WALKER:

In planning this discussion, Mr. Morton asked me to consider, among other things, the question of whether the mortality developed by the intercompany large amount study could be taken as generally representative of large policy mortality. All twenty of the contributors are, by any standard used, large companies and, for the most part, are the same companies contributing to the standard ordinary study, although the proportionate contributions to the two studies differ markedly.

In the absence of special checking of the point, therefore (and none has been reported), I think that it is reasonable to assume that this study is about as representative of large amount mortality as the standard ordinary study is of all business, a point which is not very helpful when you note that the individual company variation in the standard ordinary study has been extreme. For the 1962-63 experience, for example, it was roughly 20 points, plus and minus, from the 17 company average.

But what of the business not included in the large amount study? More specifically, what of the business written by small companies? How much do they write? And is there any reason to believe such business has significantly different mortality? These questions are easy to ask but impossible to answer. I certainly do not have any factual information, and the only reason that I can presume to offer comment is that my own company, as a large reinsurer, has opportunity to observe the operations of a number of smaller companies.

First, let us consider the question of volume. To get a rough idea of what proportion of the contributing companies' new business was in the large policy category, the 1963 duration 1 exposure of the study was compared to the total ordinary new business written, as reported in *Best's*. This is more an index than anything else, since the figures are not really compatible, but it appears that 6-7 per cent of the contributors' new business is large policies, with individual contributors ranging from 2 per cent to 30 per cent. Then to get somewhat similar figures for smaller companies, comparison was made for a few selected companies of reinsurance requests (on the assumption that all large cases would result in such a request) with their total ordinary new business written. Two groups of small companies were used. The first was a group of eight companies selected at random. Here the proportion of large policy business was 2-3 per cent, with individual companies ranging from practically nothing to 20 per cent. The second group consisted of seven companies that we thought would have a high proportion of large

policy business (i.e., a deliberately biased sample). For these, large policy business was 20 per cent of the total, with individual companies ranging from 7 per cent to 30 per cent. Small companies would appear to have a significant share of the large policy market, and I would suggest that they probably have the same share of the large policy market that they have of the total ordinary insurance market.

Next is the question of mortality differences. Again, only impressions can be offered. While one can only speculate on how much mortality difference might actually emerge, there are differences in underwriting practices which could readily lead to different—and probably higher—mortality on business written by smaller companies.

There are differences in the manner in which the business originates. Among smaller companies, more of the large policy business is competitive—competitive with either large companies or other small companies; more of it either has been or is being shopped; more of it is brokerage; and, when written by regular agents, more of it is written by inexperienced and, hence, less-skillful agents. The net result is presentation to the home office under circumstances which make the home office underwriting more difficult.

And home office problems differ. The large case is comparatively more important and of more concern, so the underwriter (who, incidentally, is sometimes less experienced than the higher-ranking, large-company underwriters used for large cases) is more subject to pressure, both from the field and from other home office departments for whatever handling—both speed and the action taken—will be most apt to result in a paid case. This can make his position a difficult one. Often he is the second or third to look at the risk, rather than the first, so he must struggle to make up lost time. He sometimes has information about other companies' underwriting action, but it is usually hearsay, so an assessment of the reliability of that information is an additional underwriting problem. Concern about brokerage business is little different for small companies from that of the large companies, but, as Mr. Keltie pointed out, it is a matter of concern. Business from regular agents not only makes for different pressures, but, when the agent is inexperienced in handling large cases, it makes development of adequate information—particularly financial information—more difficult. These are but a few of the things which differ between the large and small companies. Let me emphasize that they are not absolute differences, but they are, all in all, significant differences of degree and relative frequency.

The net effect, if I may try to generalize, is considerably more pressure for lower ratings. How much actual yielding to this pressure occurs is

anyone's guess, but it does happen, probably more often in smaller companies than large. One specific instance which occurs from time to time is attempts to deliberately underrate cases to offset differences in premium scales. In addition, there is a tendency—especially because of the pressure for speed—to act on less complete information.

There is pressure as well as the tendency for all companies—large and small—to “shave” ratings on their largest cases, but, since “large case” is a relative matter, this tendency occurs at distinctly lower amount levels in the smaller companies. I refer here to the admittedly substandard cases. The phenomenon of “squeezing” Table A and Table B cases into the standard group is somewhat different. This seems to be independent of company size.

Observations such as these, however imprecise they may be, would lead me to suggest, first, that the large amount study, in spite of its size, does not cover an appreciable part of the market, namely, that written by smaller companies; second, that the smaller company business has somewhat different characteristics; and, third, that those characteristics probably result in somewhat higher mortality than that shown in the study.

Now let me make a few comments on a somewhat different, but still somewhat related, subject. Some of the results of the current large amount study are, I think, particularly noteworthy. Even for the large company business involved, the results are rather suggestive, in that nearly all the unfavorable mortality occurs at precisely the places it should be expected when underwriters yield to the temptations and pressures associated with large applications. Mr. Keltie referred to some of these, but some additional emphasis is in order.

The mortality ratios by purpose of insurance, as he indicated, increased from personal to business to key-man to creditor coverages. Note that this progression involves more and more financially oriented purchases which are more and more influenced by third parties. The figures by income at issue, with the very high ratio for the group where income was not accurately determined, emphasize the need for thorough consideration of the financial factors in underwriting. As the report notes, suicides, accidents, and homicides are quite high. What is especially notable is the fact that these are the only causes of death in the 1958-63 period which were higher than the expected. Suicide offers a solution, albeit an unsatisfactory one, to personal problems, financial and otherwise. Since it also offers a solution for the financial problems of the family and business associates of the large policyholder who has suffered financial reverses, the high mortality ratio here is not exactly startling. For acci-

dent and homicide it is interesting to note that the average claim size is distinctly higher than that for other causes. Note, too, that much of the excess mortality resulted from aviation deaths—undoubtedly a matter of the large-policy-buyer's spending much more time traveling, a great deal of it by air. I sometimes refer to this phenomenon as "overexposure," since it is not quite the same thing as antiselection. By amounts, jumbo lines—\$1,000,000 and up—were distinctly higher than the lower amount categories. Here the worst experience resulted from five term-plan deaths with an average claim size which was not only very high but also "out of pattern" with other amount groups, both term and permanent. Finally, as both the report and Mr. Hogeman properly stated, there was no clear-cut pattern by duration, but the high ratio for term plans in durations 3-5 should be mentioned.

I am not at all sure that any of these figures can be taken as conclusive. Certainly it cannot be stated that they are the result of imperfect underwriting practices. Nevertheless, I think that it is appropriate to make two observations about them—first, they make a cumulative impression which is stronger than any one of the items looked at separately, and, second, as I mentioned, they have a common theme of presenting higher mortality at precisely the places where it should be expected from the hazards of antiselection, overinsurance, and less-than-rigorous underwriting.

So, having tolled the bell of doom, I would like to turn this discussion over to Karl Davies, vice president of Equitable Life Assurance Society. I think that he may provide a more optimistic note.

KARL M. DAVIES:

Mr. Chairman, before getting into the serious part of my discussion, I must rise to the bait cast by Allan Keltie in his search for an explanation for the difference between Canadian and United States mortality. He has implied that the Canadian male is a real puritan compared to his United States counterpart. Perhaps this is true, and perhaps this accounts for the lower mortality rates in Canada. May I cite the following poem:

He was a very cautious man, who never romped or played.  
He never smoked, he never drank, nor even kissed a maid.  
And when he up and passed away, insurance was denied.  
For since he hadn't ever lived, they claimed he never died.

Now, Allan, if this is the way your insurance terminates, it clearly can be expected that your death rates would be quite low.

My first topic is to compare trends in large amount insurance mortality, in all amount insurance mortality, and in census mortality. I have used

historical data which have been presented in this year's large amount study, in mortality trends reported in the 1960 Mortality Committee report, and in United States Life Tables. To present this information in reasonably brief form, it has been necessary to use a number of approximations and consolidations. Nevertheless, I believe that the results are valid.

We shall compare 1960 mortality with 1940 mortality for an attained age range of 30-70. As for general all amount insurance mortality, the 1960 mortality rates are about 70 per cent of the 1940 rates for all ages in this range.

*For ages less than fifty*, the census mortality showed greater improvement than the general insurance mortality during the period 1940-60; the 1960 census mortality was about 60 per cent of the 1940 mortality. On the other hand, large amount mortality showed an improvement which was less than that for all amounts. Thus, for the younger ages—less than fifty—the people who were buying large amounts of life insurance showed the least improvement in mortality during the twenty-year period. I am not able to make any comparison of causes of death in this type of study but would suspect that the accidental death mortality which is so high in the large amount study is largely responsible for this result.

*For ages over fifty*, the pattern is reversed. The census mortality shows substantially less improvement than the mortality among insurance policyholders generally; the 1960 mortality rates are 80-90 per cent of the 1940 rates. The large amount mortality seems to show even greater improvement than that shown in all amount mortality. Thus, for this age range, the large amount mortality has shown the greatest improvement, and the general population has shown the least improvement. Perhaps this can be attributed to the thesis that older people who can afford large amounts of insurance can also afford better medical treatment than persons in the other two mortality studies.

George Hogeman has commented on the changes in volume of cases which enter into the various classification amounts in the large amount mortality study. I thought it might be well to add a comment concerning Equitable's experience with the increasing volume of large amount cases.

At the present time, 2.3 per cent of the policies we issue are in amounts of \$50,000 and larger; this percentage is about double the figure in the period 1948-52. As for the dollar volume, these large policies account for 11.4 per cent of our volume currently—a figure which is about  $1\frac{1}{2}$  times the corresponding figure of fifteen years ago. The increases are about the same in each of the classification amounts. One must conclude

that the growth in our large amount business has been evenly spread among the various amount categories.

Now I wish to comment about competitive developments in large amount underwriting. The ratio of large amount mortality to mortality under all standard issues for corresponding periods of time has been generally favorable for the last thirty years. By this I mean that the ratios have stayed at less than 100 per cent—94 per cent in the latest study. However, the ratios do appear to be getting worse as time passes, with the percentages somewhat higher in the more recent periods.

Does this trend reflect competition in underwriting? If one looks at large amount mortality experience by duration, the answer seems to be No. At least the trend in mortality ratios for early durations (first two years) has been improving. The higher recent mortality ratios which produce the general trends referred to above are for durations six years and later.

On the other hand, if one looks at the large amount mortality ratios by amounts of insurance, one finds that there is a sharply increasing trend in time for the ratios of amounts of insurance \$500,000 and more. This trend may very well reflect competition in underwriting.

Surely we see examples every week where time-proven conventional underwriting standards are being ignored. We are reminded of this in no uncertain terms by our sales force quite frequently. They can cite large cases which we have declined, or limited for financial or moral hazard reasons, which have been easily placed in full with other companies. The other companies involved are frequently small, new ones but sometimes are older, established companies. It should be recognized that, in this large amount range, most of these risks also require reinsurance, and there apparently has been no great difficulty in filling the line in that market.

We sometimes suspect "the other fellow" of using specially liberal underwriting standards in large amount cases. I hope not. There are dangerous seeds of discrimination in such a practice, not to mention the possibility of poor mortality experience in amount levels that can really hurt.

Admittedly, it is now legal to discriminate by policy size in terms of the premium charged. Perhaps some might argue that there should also be no objection to extending this principle to underwriting and to discriminate there by size. It should be borne in mind, however, that if the economies of large size policies are already reflected in the premium levels, either through a graded premium structure or through a policy fee approach, these economies cannot also be reflected in underwriting standards.

There is one other thought to bear in mind. The costs associated with discrimination in premium levels and with discrimination in underwriting are of two different orders of magnitude. The reduction in premium for the higher size bands might be in the order of a dollar or so per \$1,000. On the other hand, any relaxation in underwriting standards will produce mortality differentials whose cost would be many times that large.

At the conclusion of the presentations by the panel members, the moderator opened the meeting for questions and informal discussion from the floor. A report of this portion of the program follows, in digest form.

**MODERATOR MORTON:** Is there any evidence that excess mortality due to suicides and accidents is due to financial reverses?

**MR. WALKER:** Yes, I think there is. A review of death-claim papers on large cases reveals that a striking number have suffered financial reverses just prior to death. Some early accident claims are, in fact, suicides which, for lack of proof of suicide, must be paid in full.

**MR. DAVIES:** The poorest mortality can be expected among insureds at the younger ages, with very large amounts of insurance and where the insurance is to cover business indebtedness; accidental deaths figure prominently in this picture. Here is a case in point. We had an application for half a million dollars from a young man with \$570,000 in force, who had also inquired of several other companies for amounts of a million dollars or more. The purpose of the insurance was to cover business indebtedness in the hope of cleaning up a rather messy financial picture. We agreed to give him half a million dollars only if he would sign a statement that he would not be insured for more than one and a half million in total, which statement he refused to sign. We have now learned that a year later, after lunching with some friends, he was killed when his car (operated at a high speed) failed to make a curve. At that time he was insured for \$2,000,000 and his financial problems had become more difficult.

**MODERATOR MORTON:** Is there extra mortality on minimum deposit plans because of antiselection on termination because the dividends do not live up to what the insured expected?

**MR. HOGEMAN:** We feel that this results more in lapses than death claims. I think that term insurance would serve someone who premeditates in an antiselective way better than a minimum deposit plan.

MODERATOR MORTON: Does the professional examiner tend to favor the applicant as against the insurer?

MR. CHARLES A. ORMSBY: To elaborate on this question, did Mr. Keltie's reference to the professional examiner as a reason for mortality differences between Canada and the United States imply that the use of the professional examiner was the cause of the higher mortality?

MR. KELTIE: I believe that the internist who is an appointed examiner of a life insurance company and fits the life insurance work around his regular practice in general does a better job for the company than a professional examiner who is making it his full-time daily work.

MR. HOGEMAN: I agree. The professional examiner must have examinations to stay in business and must, therefore, be convenient and available for agents. He may therefore tend to favor the agents and applicants as against the company. He also knows the kind of examination that will slide through the home office.

MR. WALKER: I think that he has a tendency to rush his examination, too, since he has to make enough money.

MODERATOR MORTON: A doctor has to be acceptable to the field, and agents having an alternative will not use a doctor who is considered unduly strict or inconvenient. We had a doctor who was so popular that he drew his examinations from clients of agents in another city many miles distant. You can draw your own conclusions with regard to whether we were getting good, objective exams.

MR. ORMSBY: Perhaps we should have the examiner send the examination directly to the home office and say to the examiner, "You get your business from the home office, not from the field."

MODERATOR MORTON: A company which does not have this arrangement would find it difficult to change from having the examinations pass through the agency office.

Now we have several questions bearing on the value of special medical requirements, such as exercise electrocardiograms, cholesterol tests, and other blood tests of various kinds.

MR. KELTIE: The actual diagnostic value of these tests as a single, isolated test is not known. I think that it would not be worthwhile to ask for cholesterol tests routinely, since I have never seen any positive

proof of the mortality directly associated with high levels of cholesterol. I do not think that it is time to start using these tests routinely until we have proof that there is excess mortality associated with abnormal findings.

MODERATOR MORTON: I agree, as it seems to me that our industry should not buy needless trouble and inconvenience. When the time comes that a new test is widely accepted as valid, conclusive evidence of, say, early degenerative changes of some type, applicants will certainly be motivated to purchase large amounts of insurance that they would not otherwise buy. This is antiselection, and companies must then attempt to counteract its effects by underwriting rules based on the results of such tests.

MR. ERNEST J. MOORHEAD: In view of the interest of Mr. Walker's company in cholesterol, particularly as indicated in a recent issue of "The Reinsurance Reporter," I believe we would be interested in further observations from the Lincoln National on this subject.

MR. NORMAN F. BUCK: We are nearing the end of collecting blood specimens for our cholesterol study. In collaboration with Dr. Ancel Keys, the University of Minnesota and others, the Lincoln has for six years been collecting small samples of blood on filter paper disks and sending these away to a laboratory for determination of blood serum cholesterol levels.

We have kept these findings away from the underwriters, so that their judgment would not be influenced. We are approaching this subject in the scientific sense—we want to find out something about cholesterol and how valuable it might be in underwriting. At the moment we have no meaningful results and are a number of years away from anything. The result may be that we get no result, which in itself would mean something.

MR. WALKER: From reading the various studies, there appears to be sufficient evidence to suggest that there is something going on and that you do see cases in which cholesterol enters the underwriting picture. We recently saw a cholesterol history ranging from 500 to 900 milligrams per cent on an attending physician's statement and declined the case. When the cholesterol level is over 300, you should take some recognition of it. However, with all the controversy involved, the applicant may take issue with you because he and his physician belong to the school that thinks cholesterol means nothing.

We are not enthusiastic about using the exercise electrocardiogram as a routine test for insurance. We feel that it should not be used routinely unless the company is prepared to rate the unfavorable case.

MODERATOR MORTON: To what extent is the extra mortality on conversions from term insurance accounted for in the apparent mortality ratios?

MR. FRANK H. DAVID: A policy which is originally issued as term and is converted remains in the term classification; it is not reclassified as permanent insurance. Companies which cannot handle term conversions in this manner are requested to drop them from the study. There is, therefore, no mortality from term conversions in the permanent portion.

MODERATOR MORTON: Is it proper to reduce the initial amount of an application which would otherwise be acceptable except for the large amount applied for? To quote the late Henry Jackson, "Does a risk which is bad because of overinsurance become good if you issue it for only half the amount?"

MR. HOGEMAN: I believe that the practical answer is to issue the limited amount. There are cases in which the amount is too large simply because the agent oversold. The case presented by an aggressive and successful agent might be considered, while one from an unknown or weak agent might be rejected in accordance with some standard rule. I think that these additional considerations, particularly the ability of the agent, will lead to some moderation in the amount.

MODERATOR MORTON: That is, I assume that you would be very choosy as to whether you decide to call the risk bad, because it is overinsurance, or merely apparently bad only because the agent was an enthusiast.

The next question is, Have the large amount sales kept up with inflation, considering also the effect of taxes and other factors that invite large applications?

MR. ARCHIBALD H. MCAULAY: I think that inflation has made geniuses out of many of us underwriters. We start out with a case of overinsurance which, because of inflation, becomes underinsurance.

MODERATOR MORTON: I agree, but I feel that inflation should only get half the score because improvements in medical science and the care

of sick people have made heroes out of actuaries for the last sixty years or more. It has resulted in continuous mortality improvement, in making bad underwriting guesses sometimes look good.

Another question is, What influence have special studies, such as electrocardiograms and X-rays, on mortality results, and does the upward trend in mortality in the \$50,000-\$99,000 classification indicate any relaxation in requirements? I believe that in the over-age-50 group where incipient cardio-vascular disease may exist and where electrocardiograms and X-ray rules apply at somewhat lower amount limits, the mortality results have been splendid. Studies made at Prudential suggest that we could get handsome returns from a much wider use of electrocardiograms and X-rays.

MR. ORMSBY: I feel that we should not relax our underwriting rules for large amounts because we have been experiencing favorable mortality. We require this margin for reinsurance and because after issue there is much greater incentive on the part of large policyholders to continue to work against you. Antiselection is a continuing process which exists to a much larger degree in the large policy.

MR. WALKER: For example, when the need for a key-man policy no longer exists, the company may transfer ownership to the policyholder in return for an amount equal to the cash value, and these cases can involve severe antiselection.

MODERATOR MORTON: High-pressure selling results in poor persistence, and with increased lapse rates there is increased antiselection. This picture emerges most dramatically during a period of depression when lapse rates are high.

MR. HOGEMAN: The plans of insurance which are sold for these business considerations are ones which were developed for other purposes. For example, ordinary life was developed for personal insurance. We should sell some kind of insurance which would automatically terminate when the need disappears, and there would then be no opportunity for the employer to sell the policy to his retiring key man for cash.

MR. McAULAY: The question was raised of the influence of the agent or the agency on the mortality of big cases. In Australia they can underwrite a million-dollar case without a Medical Impairment Bureau report and without an inspection report largely because Australian companies have such strict control over their agents.

As actuaries we naturally seek for rules to be used in determining the special studies required for big cases. To my mind, each big case is a special problem. Instead of depending so much on rules for special studies, we should depend far more on the opinion of our medical directors as far as each individual big case is concerned.

MR. ARTHUR PEDOE: In connection with the reference to Australia, is the practice there the same as Great Britain? In Britain a confidential report from the applicant's medical attendant is obtained by the head office and this is, in Britain at any rate, usually far better than anything one can get from any medical examiner or otherwise.

MR. WILBUR M. BOLTON: Has any analysis been made of the Lincoln National's automatic reinsurance experience to see if small companies have a worse experience on large amount cases than the large companies?

MR. WALKER: No. I would very much like to see if there is any difference between automatic and facultative reinsurance, to get an impression of how our own underwriting compares with that of our clients.

MR. LESLIE ANDERSON: From the British viewpoint, we realize that we are there to provide insurance, and we do not want more tests provided we can be reasonably satisfied that the proposer himself is not aware of any defect. The point made about the prevalence of getting reports from the man's own doctor has a good deal of relevance here.

MODERATOR MORTON: This has been a useful discussion. We know that underwriting is more art than science; also, figures derived from the past reflect only past conditions, which are not necessarily those of today or the next few years.