

Underwriting

- A. What problems have been encountered in putting into effect new underwriting standards based on the recent build and blood pressure study?
- B. Are there any trends in the current economic situation which are being taken into consideration in underwriting the financial aspects of a risk?
- C. Have comparisons been made of the mortality experience under uninspected business with that under inspected business? If so, with what results? As a result of such studies or other considerations, have any companies changed their practices with respect to obtaining either attending physicians' reports or inspection reports?

Toronto Regional Meeting

MR. W. ALLAN KELTIE: Great West Life reviewed all 1960 applications with a blood pressure reading of 140 systolic or 90 diastolic or higher; 90% had been standard, 1.8% rated for elevated blood pressure and 8.2% for other reasons.

Reappraisal was made on the basis of the Study, making allowance for the averaging method used in the Study and our averaging method which gives substantial weight to the highest reading within five years. We also extended our standard class to 145% of basic mortality at the young ages in place of the present 135%. The reappraisal showed 89.9% standard, 1.9% rated for blood pressure, with "other" unchanged. Of those presently rated for blood pressure, 36% were affected, representing 7.5% of medical ratings but only 0.5% of total adult business.

The resulting decision, based on these results as well as on favorable substandard mortality experience of the company in both select and ultimate durations, was to make only minor changes in underwriting standards for elevated blood pressure.

The main problem in implementing the Study results is the reticence of doctors, including Dr. A. M. Master, Cardiologist, to recognize clinically the significance of slight elevations. Those who adopt the Study today must struggle against the personal physician's opposition, lower ratings by competitors not adopting the Study, an increase in reconsiderations of ratings causing expense and delay, a higher not-taken rate because of competition, and efforts to mitigate the severity of the change by additional information such as electrocardiograms, or by use of single instead of multiple readings. I can obtain no support from our cardiologist for the view that favorable electrocardiograms should materially reduce the rating assigned for elevated blood pressure.

We will be watching the volume of our business in this area to be sure that we do not obtain more than our share.

Referring to section C, Great West has recently increased nonroutinely inspected business from \$2,500 to \$5,000 and the soundness of the practice has been supported by a continued inspection of a 10% sample of small amounts.

Our present rule of ordering Special Service for \$25,000 and over results in undue proportional expense for decreasing term policies, wherein one such report cost 39½% of the first annual premium. We intend to increase the Special Service amount and to use the Narrative type in this intermediate range.

MR. PEARCE SHEPHERD: Prudential made the following changes based on the Study: Increases resulted for short overweights (slight) and for diastolics especially in the 90-100 range. Reductions were made for tall overweights (slight) and for high systolic pressures accompanied by low diastolics. We also extended the range of pressures which we would take at our very high ratings.

The problems were less than anticipated, with no special reaction from the field or family physicians.

For section B, sound financial underwriting should not require taking into account trends in economic conditions. We hope with the moderate postwar experiences an economic collapse can be avoided. However, one trend I see and disapprove is the apparent assumption of some underwriters of the indefinite continuation of generally favorable economic conditions, resulting in granting substantial amounts on unproven and insufficient financial grounds. Such an open invitation to speculation must result in some additional claims.

Under section C, no mortality studies have been made on uninspected business as it would be difficult to do so and, by the time results were obtained, too much time would have elapsed for effectively correcting rules and practices. We do make protective information value studies, consider the loss of policing and the gain in time and trouble in omitting inspections, and adjust our ordering rules accordingly. We believe that inspections are valuable for supplementary disability and double and triple indemnity but probably do not pay off on smaller amounts at young ages. We have tried holding inspection costs to anticipated mortality savings and have liberalized particularly in the Special Service area.

Our studies of the value of attending physicians' reports have always shown appreciable mortality savings, but we use less conservative rules than such savings would justify in recognizing the adverse effect of delays and difficulties on our agents, doctors, and applicants, and our report-requesting rules have not changed substantially in recent years.

MR. DONALD J. VAN KEUREN: Metropolitan's studies are also estimates of anticipated mortality savings and not mortality experiences, the estimate being open to varying kinds of judgment, ranging from cases supported by adequate statistics such as a definite reported medical history, to those with little or no statistical base such as when the applicant is unemployed or when he fails to submit a medical examination to clarify a reported medical impairment or where criticism is moral or financial. Statistics of motor vehicle accidents are difficult to apply when the criticism is reckless driving.

A sample survey of inspected cases showed one-half of the criticisms not appearing elsewhere than in the inspection report were for reckless driving or alcoholic habits and police records, 6% for medical impairments and the remainder mostly occupation or aviation matters.

We have concluded from our studies to waive inspections for smaller policies at the younger ages unless the underwriter's suspicion is aroused. A random sample is inspected to test the procedure and for police purposes. While our studies did not indicate the need for changes we resumed inspections on some for other reasons, and after a period returned to the former method described.

Attending physician's reports are discretionary with the underwriter, with general guidance. Studies showed two out of twelve result in more serious action, nine in the same, and one in less serious action. We feel our present course sound but are continuing the study to see if results justify the time consumed.

MR. MAURICE E. COMFORT: It would appear to be impossible to make a useful comparison between mortality on inspected and uninspected cases because of differences in the type of business involved. However, the London Life has made studies over a number of years on the value of protective information on inspection reports which may have a bearing on this question.

The most recent study in 1960 involved nearly 10,000 consecutive applications, both regular ordinary and debit, of which 29% had no inspections and 65% had inspections ordered routinely at the branch offices. The remaining 6% had inspections ordered from the head office because of special features in the application or evidence, and represented 17% of all cases not inspected routinely. Inspections had been ordered routinely on all nonmedical cases of \$2,000 or over and medical cases \$5,000 or over.

The value of protective information was estimated on a per policy or per thousand basis, according to the type and degree of protection given. In our company particular notice is taken of persistency underwriting,

and protection on this score assessed largely on a per policy basis is reflected in the results. To facilitate analysis of the value of inspections on various subgroups and avoid undue fluctuation, all protective cases were divided into classes according to the type of information, e.g., medical, financial, habits, etc., and the average saving for each class calculated. For each subgroup in the survey the value of protection was determined by finding the number and amount of each class and applying the class average to these figures. In the figures below full value of protective information is shown without deducting the cost of inspections.

TABLE 1

| Age Group | Unit Value of Protection |
|------------------|--------------------------------------|
| 0- 9..... | 33¢ per policy plus 12¢ per thousand |
| 10-19..... | 33¢ per policy plus 27¢ per thousand |
| 20-29..... | 78¢ per policy plus 70¢ per thousand |
| 30-39..... | 49¢ per policy plus 45¢ per thousand |
| 40 and over..... | 42¢ per policy plus 38¢ per thousand |

TABLE 2

| Face Amount | Total Commuted Value of Protective Information |
|---------------|--|
| \$ 1,000..... | \$1.32* |
| 2,000..... | 1.65 |
| 5,000..... | 3.35 |
| 10,000..... | 4.75 |

* Estimated from the value of information derived from those ordered for special features adjusted by the experience of earlier studies.

Value of protective information on cases routinely ordered averaged 60¢ per policy plus 40¢ per thousand and on those ordered for special features \$2.25 per policy plus \$1.74 per thousand.

By age, value of protection was at a minimum for young children and a maximum for applicants in their twenties as shown in Table 1.

A detailed study by sex was not made, unfortunately, but a review of protective cases indicated that for adult males the unit protection value may have been four times as great as for adult females. For small amounts the quality of adult male business was very poor, indeed, and value of information on these appeared to run as high as \$6.00 for a \$1,000 case, even for routine ordering.

Analysis by size was of reduced value since it is affected by the favorable experience on children and females which predominate in the small size groups. Even so, there was a tendency for unit protection value to decrease for large amounts and this undoubtedly would have been very

marked for adult males if they could have been shown separately. For the combined experience the total protection per case did increase with size as shown in Table 2.

Value of protection from medical findings not available from other regular underwriting procedures was minimal, averaging less than 10¢ per thousand.

In conclusion it was found that age and sex were much more important in determining inspection requirements than medical or nonmedical status. It appears desirable to inspect all adult male lives even for minimal policies of \$500 or \$1,000. Taking into account the findings of our study, average inspection costs and distribution of issue by size, our rules have recently been changed to inspect routinely all male lives 18 and over, females 18 and over for amounts of \$3,000 and infants or school children under age 18 for amounts over \$5,000. Other applications with certain special features respecting marital status, premium waiver nominee, occupation, file information, amounting to about 15% of those remaining have inspections ordered from the head office.

Attending Physicians' Reports

From time to time we have made studies of the value of attending physicians' reports. Although limited in extent, these consistently show valuable information being developed in cases of history of routine checks, other than for employment purposes or mass survey. Where no special tests are involved we appear financially justified in ordering these reports for routine checks within two years for amounts of \$10,000 provided the cost per report can be kept mainly in the \$3.00 to \$5.00 range. Where special tests such as ECG's, EEG's and X-rays are involved the value of protective information runs much higher, justifying investigation for smaller amounts and older histories.

MR. GEORGE L. HOGEMAN: Referring to section C, no mortality experience comparison has been made in Aetna but we did make a small survey of the protective and favorable underwriting values of our inspection reports. A 522 case sample of 1959 inspected business using each 100th case underwritten and representing 9 million dollars risk was used. Each case was assigned an inspection value of one or more table ratings due to its influence. A weighted table case percentage distribution follows, showing the number of table rating shifts in premium in each classification—*e.g.*, a \$1,000 case where the rating was influenced one table in the sample counted for one case and \$1,000; if the effect caused a 2 table rating it counted as 2 for \$2,000. Favorable values are also counted, such as when a previous occupational rating is now shown nonratable.

WEIGHTED UNDERWRITING VALUE OF INSPECTION REPORTS
All Ages and All Amounts of Insurance

| TYPE OF REPORT | NUMBER OF CASES | PROTECTIVE VALUE | | FAVORABLE VALUE | |
|----------------|-----------------|------------------|--------|-----------------|--------|
| | | Amount | Number | Amount | Number |
| Regular..... | 335 | 23.5% | 21.8% | 1.2% | 2.4% |
| Narrative..... | 147 | 12.6 | 12.2 | 3.5 | 5.4 |
| Special..... | 40 | 17.8 | 17.5 | | |
| Combined..... | 522 | 17.4% | 18.8% | 1.7% | 3.1% |

Similarly, weighted underwriting values are shown by amount applied for and age. While protective values do not follow any pattern by amount, favorable values concentrate under \$20,000; the value increases definitely with age. However, the sample is relatively small.

A graph graduation by age for all types combined follows:

GRADUATION OF WEIGHTED PROTECTIVE VALUE
All Types of Inspection by Ages

| Age at App. | Weighted Protective Value by Amount | Age at App. | Weighted Protective Value by Amount | Age at App. | Weighted Protective Value by Amount |
|-------------|-------------------------------------|-------------|-------------------------------------|-------------|-------------------------------------|
| 0-5..... | 0% | 26-30..... | 12% | 51-55..... | 40% |
| 6-10..... | 0 | 31-35..... | 16 | 56-60..... | 46 |
| 11-15..... | 2 | 36-40..... | 22 | 61-65..... | 51 |
| 16-20..... | 5 | 41-45..... | 27 | 66-70..... | 53 |
| 21-25..... | 8 | 46-50..... | 34 | | |

Finally, these graduated protective percentages were used as a basis for calculating the level above which an inspection report would pay for itself. First, the present value of future substandard extras for a one table increase in pricing classification was calculated; this was based on a simple distribution of plans of insurance and was discounted for mortality and lapses with Linton A rates at 3% interest, further discounted slightly to reflect the possibility of a subsequent reduction in substandard rating. Since the protective values in the table above have already been weighted for the degree of rating developed by the inspection report, it is possible to calculate for each age bracket the dollar value of inspection protection.

Our average costs for types of inspections were: Regular \$3.16; Narrative \$9.53; Special \$20.17.

Dividing the cost of the inspection by the dollar value of inspection

REGULAR, NARRATIVE AND SPECIAL COMBINED

| AMT. APPLIED FOR | No. | PROTECTIVE VALUE | | FAVORABLE VALUE | | AGE AT APP. | No. | PROTECTIVE VALUE | | FAVORABLE VALUE | |
|---------------------------|-----|------------------|-------|-----------------|------|-------------|-----|------------------|-------|-----------------|------|
| | | Amt. | No. | Amt. | No. | | | Amt. | No. | Amt. | No. |
| \$ 0-\$ 5,000.. | 174 | 17.9% | 17.8% | 4.9% | 3.4% | 0-10... | 24 | | | 9.5% | 8.3% |
| 5,001-10,000.. | 132 | 22.2 | 22.0 | 2.0 | 3.0 | 11-20..... | 30 | | | | |
| 10,001-15,000.. | 60 | 29.6 | 30.0 | 3.7 | 3.3 | 21-25..... | 70 | 13.2% | 15.7% | 2.3 | 2.9 |
| 15,001-20,000.. | 41 | 9.3 | 9.8 | 9.5 | 9.8 | 26-30..... | 81 | 17.8 | 21.0 | 4.8 | 9.9 |
| 20,001-25,000.. | 47 | 15.2 | 14.9 | | | 31-35..... | 85 | 6.4 | 15.3 | | |
| 25,001-35,000.. | 32 | 7.2 | 6.2 | | | 36-40..... | 94 | 16.2 | 14.9 | 3.6 | 4.3 |
| 35,001-50,000.. | 20 | 7.3 | 2.0 | | | 41-45..... | 54 | 23.1 | 11.1 | | |
| Over 50,000..... | 16 | 18.5 | 18.8 | | | 46-50..... | 41 | 45.7 | 31.8 | | |
| | | | | | | 51-55..... | 23 | 50.4 | 100.0 | | |
| | | | | | | 56-70..... | 20 | | | | |
| All Ages and Amounts..... | 522 | 17.4% | 18.8% | 1.7% | 3.1% | | | | | | |

protection gives the amount level above which an inspection report would more than pay for itself. Such a calculation is only a beginning in setting

BREAK-EVEN AMOUNTS FOR ORDERING INSPECTIONS

| AGE AT APPLICATION | PRESENT VALUE PER THOUSAND OF SUBSTANDARD EXTRAS* | WEIGHTED PROTECTIVE PERCENT-AGE † | DOLLAR VALUE OF PROTECTION PER THOUSAND | BREAK-EVEN AMOUNTS | | |
|--------------------|---|-----------------------------------|---|--------------------|-----------|----------|
| | | | | Regular | Narrative | Special |
| 0-10..... | \$ 16.50 | 0% | \$.00 | | | |
| 11-15..... | 23.00 | 2 | .46 | \$6,870 | \$20,720 | \$43,850 |
| 16-20..... | 20.00 | 5 | 1.00 | 3,160 | 9,530 | 20,170 |
| 21-25..... | 21.50 | 8 | 1.72 | 1,840 | 5,440 | 11,730 |
| 26-30..... | 24.00 | 12 | 2.88 | 1,100 | 3,310 | 7,030 |
| 31-35..... | 26.50 | 16 | 4.24 | 740 | 2,250 | 4,760 |
| 36-40..... | 30.50 | 22 | 6.71 | 470 | 1,420 | 3,010 |
| 41-45..... | 36.50 | 27 | 9.85 | 320 | 970 | 2,050 |
| 46-50..... | 44.00 | 34 | 14.96 | 210 | 640 | 1,350 |
| 51-55..... | 54.50 | 40 | 21.80 | 140 | 440 | 920 |
| 56-60..... | 72.00 | 46 | 33.12 | 90 | 290 | 610 |
| 61-65..... | 122.00 | 51 | 62.22 | 50 | 150 | 320 |
| 66-70..... | 220.00 | 53 | 116.60 | 30 | 80 | 170 |

* For a rating of one table.

† Graduated.

inspection limits. Savings on higher amount levels could be used to offset losses at lower levels and the favorable value to the insured should not be overlooked. Levels used by competitors must also be considered.

MR. GEORGE W. WILSON: With regard to section B, the present factors relating the amount of cover to earned income probably reflect too low an interest factor. For example, at age 30 a common factor is about 16 times income. Thus a \$6,000 income could purchase \$96,000 insurance. Under today's high bond yield this means virtually an interest return approaching 100% of income, which is obviously too high. Recalculating at 5% interest moves this factor down to about 11½ times income.

Referring to section C, we are one of the companies which inspect all cases as a result of continuing studies. We have found that the new type of streamlined report, costing slightly less than the regular report, can be read and processed more easily, so that we have been able to dispense with one clerk. Our minimum adult policy is \$2,000.

MR. E. SYDNEY JACKSON: There are two distinct steps involved in section A: producing a rating table for hypertension and deciding on the blood pressure readings which enter the table. Lack of uniformity of companies in reporting multiple readings, and considerable variation in mortality experience of the contributing companies, are difficulties in preparing such a table suitable for a particular company, and several companies have produced tables that vary markedly.

Establishing rules for entering the table is even more difficult. We do not know the significance of a history of hypertension. Sixteen out of 23 contributing companies ignored past readings in calculating the blood pressure reading reported to the Study. Widely held opinion suggests constant increased blood pressure is not as bad as one which rises sharply, but supporting statistics are lacking. Additional studies on this point as well as on the effect of new hypertensive drugs would be helpful.

The Study has added to our knowledge, but judgment will still enter largely into underwriting hypertension, with shopping and requests for reviews a considerable problem.

Manufacturers Life has been hesitant to increase blood pressure ratings generally because of all these problems and our feeling that the dollar extra premium need not necessarily be increased as our present extra premium tables may not reflect current conditions.

Los Angeles Regional Meeting

MR. ARNOLD B. BROWN: The 1959 Build and Blood Pressure Study introduced definitive information which showed that mortality experience of underweights was very much more favorable than in earlier studies; the experience of tall overweights was somewhat better than in earlier studies; and the experience of other overweights was not significantly different from that of earlier studies.

On the other hand the mortality experienced on slight and moderate elevations in blood pressure was considerably higher than in earlier studies when expressed in ratios of actual to expected mortality, but when expressed in terms of extra deaths per 1,000 the extra mortality was not much different from that in the 1939 Blood Pressure Study.

Our company, the Metropolitan, put new and more stringent blood pressure ratings into effect as of January 1, 1960. At the same time, the ratings for underweights and for tall overweights were liberalized and some changes were made in our standard insurance limits. The combined effect of these changes produced a higher proportion of cases issued at standard premium rates, thus easing the problem of adopting more stringent blood pressure ratings insofar as our field force was concerned.

We are continuing to have some difficulties in the underwriting of blood pressure. One problem arises from the tendency for successive medical examinations to report lower blood pressure readings. The practical question therefore becomes how many successive readings of blood pressure should be permitted. Another problem comes up on additional ratings for certain combinations of blood pressure and other impairments, such as overweight and albuminuria. The 1959 Build and Blood Pressure

Study indicated that the mortality on such combinations of impairments was considerably greater than that which would have been expected by adding the mortality associated with the respective impairments. Earlier Metropolitan studies on this same point showed the same results. Where the rating for a combination of impairments is very much higher than the sum of the ratings for the individual impairments, it is frequently necessary to recheck the reports received as to the seriousness of the other impairments, *e.g.*, degree of overweight or amount and frequency of albuminuria.

MR. G. PHILIP STREATFEILD: In reference to section A, our company, the Beneficial Standard, has not made any changes in its selection methods based on the recent build and blood pressure study. We are very strict, however, with minor impairments found in conjunction with borderline hypertension, particularly at the younger ages.

In reference to section B, our company is receiving an increasing volume of applications on decreasing term plans for sizable amounts of insurance on individuals with moderate and small incomes. While we enforce strictly our limits on amount of insurance based on income, we find that we are receiving more applications for insurance in excess of our limits than in the past.

In reference to section C, we recently made a study of applications for smaller amounts of insurance and found that our practice of requesting inspection reports on all adult applications has been justified.

MR. ROBERT C. TOOKEY: We, at Lincoln National, have not made any changes as yet in our underwriting or rating practices with respect to build and blood pressure. This is not because we do not plan to make changes, but rather than do a patch job on our underwriting manual we are taking a look at the entire scale of substandard ratings and substandard premiums. This is such a comprehensive program that a considerable amount of time will transpire before any real changes can be made. About all we can say at the present time is that we will definitely have a different break-off point between standard and substandard insurance at certain ages.

I was very much interested to hear Mr. Brown mention the fact that a combination of borderline blood pressure with another impairment, even a minor impairment, causes substantial extra mortality. We have noted this in many of our own studies. It is a real "red flag."

On section B, I do not think that there is anything in the current economic trend that would cause significant changes in our philosophy on speculative risks. However, if these "Soaring '60's" turn out to be the

"Stable '60's" and there is some evidence that they may not boom to the extent that many economic prognosticators have predicted, we will have to be a little more careful in underwriting the fellow who is a questionable financial risk. The expansion-minded individual, who operates on a shoestring and gets completely extended, is often a potential suicide in the face of impending bankruptcy. Business failures are on the increase, and there may be many more failures in the '60's than in the '50's.

MR. FRED DEBARTOLO: The American United has recently brought out new build and blood pressure tables that we are using on both direct business and reinsurance. In the past, in most instances, the various mortality studies of individual impairments showed the experience was more favorable than had been expected and as a result the rating could be reduced. However, this was not so in regard to the most recent blood pressure study. Formerly readings of 140-90 were considered borderline between standard and substandard, but the current experience shows that readings in this region exhibited substantial extra mortality. What part of this extra mortality was the result of including cases with a blood pressure history in the same group as those without a history is not known. Since most of the companies were still rating on the basis of their old blood pressure tables, we were hesitant to bring out a table which increased ratings. However, since we have increased these ratings we have had no complaints from either client companies or the agency force.

Along with the new build and blood pressure table we have prepared a table to provide for the extra mortality we expect on cases where there is a debit for both build and blood pressure. There are three groups of build debits: 10 to 24, 25 to 49, and 50 and up. There are the same three groups for blood pressure debits. Each of the nine resulting cells contains the instructions by which the combination rating is obtained. For example, if the blood pressure debit is +20 and the build debit +50, we double the smaller debit (blood pressure) and add the build debit. Our total debit for build, blood pressure and combination is +90.