*Substandard Insurance*

A. Is there any current statistical evidence on the trend of substandard mortality? Does it generally follow the trend of standard mortality?
B. What effect should this have on substandard extra premiums?
C. Does a lowering of substandard extras require any changes in underwriting rules, either as to the range of substandard classes or as to the ratings applied to some of the major impairments?

*Philadelphia Regional Meeting*

MR. EDWARD A. LEW: During the past 20 years Metropolitan's substandard classifications have been extended and broadened several times with numerous liberalizations in medical impairment and occupational ratings, with the most important of these changes made since 1951.

Some indication of the underlying mortality trend on substandard business *over a longer period of years* is given by the past twenty years' mortality experience for policy year durations six and over, which is less affected by the major liberalizations in underwriting limits and ratings introduced since 1951. Such ultimate mortality data for our first three substandard classifications show that since 1940 substandard mortality rates have declined at least as sharply as those on standard business: by about 50 percent at attained ages under 40, and with a mortality differential decreasing with advance in age to about 20 percent at attained ages 60 and over. In judging these figures it should be kept in mind that until 1960 the Metropolitan's broad substandard classifications included risks with both occupational and physical impairment hazards. It appears that the trend of mortality on occupational risks has been more sharply downward than on physical impairment risks.

The effect of the major liberalizations in underwriting limits and ratings introduced since 1951 is indicated by the mortality experienced on recent issues in the first three substandard classifications during 1949–1955 compared with that during 1954–1960, as shown below.

Since the absolute level of standard mortality on corresponding issues decreased about 8 percent from 1949–1955 to 1954–1960, it would appear that the absolute level of substandard mortality on recent issues remained substantially unchanged in the first two substandard classifications and decreased slightly in the third substandard classification. The actions we took during the past ten years to broaden and extend the limits of our substandard classifications and to liberalize ratings have raised the level of substandard mortality over what it otherwise would have been. We believe that the pattern of substandard mortality so produced is more nearly in line with the incidence of extra mortality assumed in our extra premi-

ums. We also think that the mortality levels thus achieved demonstrate that it is possible to influence the level of substandard mortality in the direction desired through the means at our disposal.

A major revision of substandard premium rates was made in the Metropolitan effective January 1960, with further broadening and extension of limits particularly in higher substandard classifications. A mortality

SUBSTANDARD EXPERIENCE ON RECENT ISSUES IN RELATION TO STANDARD EXPERIENCE

(Policy Year Durations 1–15 Only)

| Issue Ages | Experience 1949–1955 | Experience 1954–1960 |
|---|---|---|
| | First Substandard Classification (Intermediate) | |
| Under 40 | 135% of standard | 140% of standard |
| 40 and over | 131% " " | 143% " " |
| All ages | 133% " " | 142% " " |
| | Second Substandard Classification (Special Class) | |
| Under 40 | 197% of standard | 176% of standard |
| 40 and over | 150% " " | 172% " " |
| All Ages | 166% " " | 173% " " |
| | Third Substandard Classification (Special Class B) | |
| Under 40 | 249% of standard | 241% of standard |
| 40 and over | 229% " " | 235% " " |
| All ages | 236% " " | 236% " " |

level distinctly lower than expected has been a feature of our substandard experience in the highest substandard classifications, enabling payment of much higher dividends than those on standard business. This was particularly noticeable in the substandard classification the limit for which was 500% until January 1, 1962. Perhaps this is due to the natural tendency of medical underwriters to overestimate the gravity of many serious impairments because most knowledge of such conditions has been gained from clinical studies of people requiring medical attention, rather than from the experience of people with similar conditions of lesser severity, such as are found among life insurance applicants.

MR. ALTON P. MORTON: It is fairly probable that new medical treatment methods over-all have had a greater impact on individuals with some

impairment or history than on people free of defects who usually qualify as standard risks.

The 1959 Build and Blood Pressure Study, broadly speaking, showed a sustained extra percentage mortality by duration for moderate overweights and a mild tendency for an increasing mortality for the more marked overweights. Somewhat the same picture is shown for moderate and for marked increases in blood pressure.

In the 1951 Impairment Study we find evidence of a great variety in the incidence of mortality by type of impairment: every incidence of extra mortality is seen, but we see a number of important impairments where the extra mortality tapers off sharply with increasing duration—an important example is most of the unoperated stomach ulcers. I would point to the fact that percentage extra mortality classes will not fit every type of medical impairment but only those where an extra mortality hazard is considered to be of somewhat indefinite duration.

Where percentage extra mortality is expected to decrease moderately by duration a constant extra premium per thousand is theoretically and practically best—*i.e.*, hazards such as aviation and occupation. When the extra mortality decreases sharply enough so that it may be assumed to merge into standard mortality in a short time, a temporary extra premium is in order.

Modernization of substandard extras presents no problems with either temporary or permanent flat extra premiums. With multiple mortality classes we may find that extra premiums at some ages and ratings have become too small for practical use; hence there might be room for some adjustment or even the need to reduce the number of rating classes. Generally the company's underwriting manual must use the same language as the extra premiums which the company uses in translating debits to practical use.

British physicians in reports published in the two leading medical journals, *The Lancet* and *The British Medical Journal*, stated that cigarette smoking and lung cancer are linked in a cause and effect fashion. They called on the Government to take steps to curb smoking. Their published report analyzing the available data and outlining their conclusions is under the title "Smoking and Health," published by the Pitman Medical Publishing Company. The popularized press reports draw attention only to the increased deaths from lung cancer, but I would point out that all causes of death are increased, including especially causes of a cardiovascular nature.

MR. WILLIAM J. NOVEMBER: The Equitable has studied its level of substandard mortality fairly regularly over the years and I have been constantly surprised at how stable the ratios of substandard to standard mortality have been for specified ranges of substandard mortality. Some sense of this stability may be derived from the table included in this discussion which portrays for three groups of years in the period running from policy anniversaries in 1941 to policy anniversaries in 1959 the mortality ratios we experienced for our lower classifications of substandard insurance and for what are now our middle classifications (but which at one time were our high classifications). The experience was based on valuation data and hence the analysis was made in broad categories of underwriting classes. The "Sesqui-B C Class" category represents a combination of substandard policies issued before November 1947 with a maximum numerical rating of 170, and of substandard policies issued thereafter with a maximum rating of 195. The weight of issues by actual rating was such that there was only a five point difference in the average numerical rating between these two groups of policies. The "Double-D E Class" category represents a combination of policies issued before November 1947 with a numerical range of 175 to 300 and of later substandard issues with numerical ratings of 200 to 295. There was a difference of about 30 points in the average numerical ratings of these two groups of policies.

EQUITABLE SUBSTANDARD INSURANCE MORTALITY
RELATIVE TO CONTEMPORANEOUS STANDARD MORTALITY BY AMOUNTS

| Policy Anniversaries | Policy Years 1 to 15 | | | Policy Years 16 and Later | |
|---|---|---|---|---|---|
| | Number of Claims | Mortality Ratio | | Amount of Claims (000 omitted) | M.R. by Amounts |
| | | By Policies | By Amounts | | |
| | Sesqui-B C Class | | | | |
| 1941 to 1949 | 2,954 | 146% | 167% | Not Available | |
| 1949 to 1954 | 1,869 | 164 | 158 | $8,703 | 143% |
| 1954 to 1959 | 1,951 | 164 | 168 | 8,627 | 139 |
| | Double-D E Class | | | | |
| 1941 to 1949 | 1,156 | 203% | 225% | Not Available | |
| 1949 to 1954 | 715 | 234 | 248 | $2,650 | 185% |
| 1954 to 1959 | 539 | 197 | 191 | 2,696 | 177 |

As already intimated, the main conclusion to be drawn from the table is that our substandard business has given us a stable level of mortality ratios in relation to standard policies. Since the basic standard mortality has been improving, it follows that the extra mortality of substandard policies, when expressed in absolute terms, has also been improving. This suggests that a reduction of substandard extra premiums is in order, or, in the alternative, a company could extend its substandard classes so as to take in a higher level of rating for the same premium. The latter course is in effect a reduction of premium also.

In the last few years a number of companies, including my own, have made significant reductions in their substandard extra premiums. Question C asks whether such a course of action requires any change in underwriting rules. I suppose if a company has been depending on redundant extra premiums to support numerical ratings that are not adequate for the extra mortality to be expected, a reduction of the extra premiums should be accompanied by a rectification of the numerical ratings. If a company has not deliberately pursued that policy, then I do not see that a reduction of the substandard extras requires a change in underwriting rules. In fact, the reduction could be regarded as a means of making a change in rules unnecessary.

MR. HENRY F. ROOD: The primary aim of underwriting impaired lives is the determination of a dollar and cent charge to cover the extra hazards involved. Basically, this involves two steps: (1) the computation of extra premiums, and (2) the determination of the ratings to be used in evaluating individual risks. The two operations must be closely correlated if the company is to make the proper charge.

Among actuaries, underwriters, and medical directors several assumptions have been made in the past as a means to achieve the desired goal. These are as follows:

(1) that mortality studies should measure substandard extra mortality as a percentage of some acceptable standard table,
(2) that for premium calculations the mortality percentages should be assumed to continue as a level extra percentage throughout life,
(3) that the extra percentage of standard mortality should be a debit for underwriting purposes,
(4) that risks should be grouped in classes or tables in which the underwriting debits and mortality percentages are identical for all issue ages,
(5) that the dividing line between standard and substandard insurance should be a level percentage at all ages. For example, up to 120% might be included in the standard group and everything over that in the substandard group.

All of us realize there are limitations to these assumptions.

Recently at the Lincoln National we have attempted to take our own substandard mortality. We found some tendency for mortality ratios to decrease by duration, by issue age, and by attained age, despite the fact that the ratings for many substandard policies had been reduced after the policies had been in force several years.

An analysis of Lincoln substandard business by class or table rather than by impairment has revealed that for most issue ages the mortality percentage experienced continues level for many years, until about attained age 55, and that thereafter it gradually decreases. It appears that the mortality never reaches standard mortality, but that in the lower substandard classes 115% of standard mortality may be reached in the early 70's and that in the higher substandard classes 115% mortality may be reached in the early 80's. As the age at issue increases, the period during which the mortality percentage remains level gradually decreases. For age at issue group 60 to 69 some decrease in mortality percentage becomes evident after five years.

Accordingly, when the Lincoln revised its schedule of extra premiums in December 1961, we were satisfied to make provision for some decrease in mortality percentage at older attained ages.

The percentage reductions with increasing duration were also quite pronounced at attained ages under 30. At the young ages we also recognized the fact that the standard rates of mortality were extremely low and that substandard premiums based on percentages of the standard would not cover many extra deaths. This, coupled with a general feeling that certain types of impairments at the young ages are quite severe but will reduce with age, resulted in our using a percentage mortality decreasing with attained age at ages under 30.

As might be expected, underwriters tend to be more conservative at the higher rating. We found that the experience for policies issued with a 100% additional rating was close to 100% extra, but that for lower ratings the experience tended to be somewhat higher than the assessed ratings, while for ratings above 100% extra the experience was slightly less than the rating assessed and the deviation became greater as the rating increased. However, the deviations were not great enough to justify a change in the basic concept of using multiples of the standard table.

The definition of table ratings based on multiples of standard which decreased by attained ages at the lower ages naturally brought up the question of whether the standard class should not be extended at those ages. We have decided to extend our standard class to include extra ratings up to 140% for ages not greater than 29 and up to 130% for ages from

30 to 39. At age 40 and above the standard class will include ratings up to 120% of standard.

Basically we have continued to follow the assumptions which have been traditional with the multiple rating method of underwriting, but we have adjusted the younger and older ages to more nearly reflect the actual situations for the average group.

I suspect some underwriters occasionally may have been too liberal in recent years because of the feeling that extra premiums had more than adequate margins. With new lower premiums it will not be possible to take such liberties.

*Kansas City Regional Meeting*

MR. FRANK G. WHITBREAD reviewed a discussion presented by Mr. Henry F. Rood at the Philadelphia regional meeting.

MR. WILLIAM J. NOVEMBER repeated the discussion which he had given at that meeting.