

Mortality

- A. Since the adoption of the 1941 CSO Table the mortality rates among insured lives have tended to decrease. What is the situation at the present time? What is the outlook for the future?
- B. Since mortality margins under the 1958 CSO Table will be considerably reduced, what consideration is being given to interest and expense assumptions?
- C. Is consideration being given to changes in the mortality basis of substandard premiums as a result of recent experience on such business? In recent years there has been a tendency to issue standard and substandard policies in broader classifications and to extend the substandard classes to higher ratings. How is this trend likely to be affected by the adoption of the 1958 CSO tables? Is it likely that extended insurance will be issued to higher ratings than heretofore?

MR. ALTON P. MORTON: In response to section A, I feel attention should be drawn to the trends revealed by the annual reports of the Society of Actuaries' Committee on Mortality. The 1960 Reports will include a special section on trends from 1939 through 1959 and show:

- i) Improvement has been almost continuous in every age group.
- ii) The rate of improvement has slowed down in the last 10 years.
- iii) Ultimate mortality at ages 25-39 has been at the low level of \$1 to \$2 per \$1,000.
- iv) The considerable percentage improvement since 1950 at ages 25-39 has amounted to only 10¢ to 50¢ per \$1,000.
- v) At ages 50-64 a lesser percentage improvement meant \$1.60 to \$3 per \$1,000.
- vi) There has been a slight upturn at durations 1-5, suggesting possibly less effective underwriting procedures.

Population figures may be useful in this regard. A recent brief report of the U.S.P.H. figures reflects that mortality levels have been almost constant over the period 1956 through 1959, with a slight upturn in 1957 and 1958 due to the influenza epidemic. The figures also show less improvement for white males than for white females and all nonwhites.

These sources indicate that relatively little improvement in mortality is likely to occur in the near future. There is little room for improvement at the younger ages, and sizable reductions in our death rates at the older ages must wait for major discoveries which would reduce the toll of cancer and heart disease.

MR. HARRY A. WOODMAN, JR.: While the current slowdown in mortality improvement may not be a portent for the future, we should consider the reasons for the plateau.

The "flu" epidemics of the last three winters have not been repeated

this winter, but there is no assurance they are under control or that other epidemics will not break out. The resistance of some bacteria and viruses to modern drugs is of great concern. The accident hazard may be increased by faster transportation, more hazardous avocations and the continuation of military training among our youth. The use of alcohol and tobacco is not diminishing. Population overcrowding may cause further mortality deterioration.

Product and underwriting trends tend to increase the level of standard life insurance mortality. Higher medical examination fees result in higher nonmedical limits. Many wives are now covered under family policies rather than individual policies. They are liberally underwritten for this plan and are generally excluded in standard mortality studies, reducing the proportion of females in the standard group. Also, granting underwriting credits for individual issues results in standard issues to women previously considered substandard. The forces of competition have resulted and probably will continue to result in the expansion of the standard class. On the other hand, the action of some companies to increase blood pressure ratings as a result of the 1959 Build and Blood Pressure Study may be the first significant offset to the liberal underwriting trend since World War II.

MR. DATON GILBERT: My discussion comments on three aspects of section B.

Operating Margins.—Our studies at the Connecticut Mutual show that when based on the 1958 CSO Table, the expected “cost of insurance” on the bulk of our insurance in force at the end of 1960 is only slightly more than two-thirds of the 1941 CSO figure. However, gross premiums now in use by some companies already recognize this lower level of mortality. Our current gross premiums were developed using mortality close to the 1958 CSO pattern with $2\frac{1}{2}\%$ interest and moderately conservative loadings.

The reduced mortality margins under the new table warrant continued conservatism in interest and expense assumptions to maintain current operating margins. Reserves under the new mortality table will tend to be lower on life plans. However, if ordinary life cash values were decreased by the $2\frac{1}{2}\%$ reserve reduction amounts, such lower values would justify an average premium reduction on ordinary life of not more than about 15¢ per thousand, according to our rough calculations.

Dividend Considerations.—Our three factor dividend formula produces a fairly steep scale, reflecting more nearly the incidence of expense. We find this helpful in conservation. Our studies indicate that even on the ordinary life plan the 1958 CSO Table gives a tendency towards a rela-

tively flat or even decreasing mortality dividend element. For a company desiring a steep scale, conservative interest and loading assumptions are essential to maintain a dividend pattern of this type.

Trends.—Mortality cannot be expected to continue the dramatic improvement of past years and may even increase for periods. We may be at the peak of an interest rate cycle. Unit expense rates continue to rise in many companies, while graded premiums eliminate or reduce the offset of increased average policy size. All of these factors call for adequate premium margins. Although no decision has been reached, our studies indicate the reasonableness of continuing current aggregate premium levels with any reduction kept at a minimum.

MR. CHARLES F. B. RICHARDSON: At the Berkshire we have just adopted a new product involving the use of the 1958 CSO Table and the CET Table for extended insurance.

We have developed two distinct types of product. One line features low premiums and moderate cash values for the individual purchaser and uses a 3% interest assumption. A more limited line is based on 2½%, featuring high early cash values and premiums in the middle range for corporate purchasers and those in high tax brackets interested in credit purchases. For the 3% policies, expense assumptions were an acute problem and these were carefully tested to avoid encroachment on the modest interest and mortality margins. Expenses were adjusted for the policy fee system, varying by premium frequency.

For life income settlement options we used 2¾% interest and Mr. McCarter's 1955 American Annuity Table. Compared with our old basis the results were more conservative at the young ages and gave somewhat higher incomes at the older ages. All options not involving life contingencies are based on 2½% interest.

MR. F. RUSSELL SCHNEIDER: Our recent Connecticut General experience on direct agency substandard business has been good on an over-all basis. However, ratings of 300% and over have been somewhat unfavorable in contrast to our earlier experience.

Our new scale of substandard extras represents 10% to 20% reductions. They are based on multiples of our own select and ultimate standard experience table computed as net extras loaded for expenses and contingencies. The new rate levels take into account recent liberalized underwriting of many impairments. We felt that lowering rates was more desirable than increasing the upper limits of the various classes. In this regard our standard class has broadened. In 1960, 91% of our issues were standard as compared to 85% in 1950.

We have retained our 10 classes, being reluctant to reduce the number since borderline risks tend to end up in the next lower category. Our method of developing our new extras was independent of the valuation table, so that the 1958 CSO Table should have no effect.

Extended term insurance is not allowed on substandard risks except for flat extras of \$2.50 or less. We are seriously considering use of the 1958 CET Table for extended term insurance, but we do not expect to change our current practice for substandard risks.

MR. HENRY F. ROOD: The general revision which will take place with the adoption of the 1958 CSO Table may make it timely to consider revision of substandard classifications. Otherwise I feel the adoption of the new table should have no effect on this matter.

Our most recent company standard mortality table shows about one death per thousand at age 30. The question naturally arises as to whether it is practical in view of the extra expense to have ratings as low as 125% of standard. Also, the differences in premium dollars between 125% and 137½% or even 150% are small and there would appear to be justification for broader groups at the younger ages. However, the vast majority of substandard issues are at the older ages where the extra deaths per thousand are substantial. We believe we can rate reasonably accurately in 25% groupings and will likely continue such classifications. Higher expenses, including cost of not-taken policies, should be considered in determining substandard extra premiums.

As standard mortality rates decrease I expect to see the trend toward higher ratings continued.

As with the 1941 CSO Table, companies that adopt the 1958 CSO Table for extended insurance will probably not provide the benefit in substandard policies. In view of our extensive use of the automatic premium loan, we may use the 1958 CSO Table for extended insurance and in that case we would not expect to offer extended insurance on substandard policies.

MR. BARTON S. PAULEY: At Prudential we narrowed our substandard mortality ranges with our 1957 revision. Large premium jumps place an unfair burden on the underwriter in deciding borderline cases. We considered a hybrid scheme to avoid small premium differentials at the younger ages, but felt it was unduly complicated and would create anomalies.

An increasing number of impairments are charged temporary flat extras. Only the poorest risks remain in the percentage classes. Even so, in calculating extra premiums the percentage should be graded down at the older attained ages to avoid extras that are unnecessarily large.

Higher rating classes are limited by size of the total premium and there isn't much room left at the older ages.

MR. EDWARD A. LEW: The Metropolitan's 1960 revision of insurance classifications for Ordinary policies of \$5,000 and over adopted the following limits for standard insurance, because of the low level of mortality and the difficulty of making fine differentiations between risks at the younger ages:

Issue Ages	Percent of Standard
15-29.....	140%
30-39.....	130
40-49.....	125
50 and over.....	120

The upper limits for the first substandard class were also made to vary by age groups at issue. The limits for higher substandard classes were unchanged, but a fifth substandard class was added with a maximum limit of 750% to provide coverage for risks with very high blood pressures, histories of uncomplicated cases of coronary disease, etc.

For each of the substandard classes, mortality tables were derived from actual experience, taking account of the changes in standard and substandard limits and the transfer to a flat extra premium basis of many occupations and certain medical impairments previously assigned to broad substandard classifications.

The new gross premiums for the substandard classes were calculated by the same formula as that used for standard insurance, with net premiums on the 1941 CSO Table increased by the mortality in excess of standard measured from the new substandard mortality tables, and with an additional allowance in the loading for special costs and contingencies on substandard business. Generally speaking, this produced lower substandard premium rates than had been charged before. However, the comparison is not meaningful, since prior to 1960 different scales were used for standard and substandard policies.

In the case of policies with reduced premiums guaranteed for five years, the substandard gross premiums were obtained by adding to the standard premiums the differences between standard and substandard premiums for a comparable level premium policy.