

pattern. The significant bunching in the size group \$250.01 to \$300.00, for example, demonstrates this irregularity when shown with adjoining groups:

<b>Master Medical</b>		
<b>1959</b>		
<b>Family</b>		
Size of Claim	Number	Amount
\$200.01-250.00	28	\$ 6,289
250.01-300.00	536	159,226
300.01-400.00	29	10,131

Mr. Kormes explains this aberration (and it occurs to a lesser extent in distributions for other years and for the individual contracts) by the statement: "This is most probably due to certain types of more frequent serious illnesses for which the costs fall into the above ranges." While this explanation may be valid, it would appear to the writer that this particularly freakish phenomenon should be verified by first segregating the tabulating cards by diagnosis and then preparing a tabulation by size and by diagnosis.

Because of the irregularity of these distributions, the author would probably be the first to agree that their use in determining rate credits for higher deductibles, as was done on page 125, is subject to some margin of error. Possibly it could be minimized by combining the available years of experience into one table and smoothing the resulting data into a more acceptable device for such purposes.

As a further point on this item, which point was touched upon above, the tabulation of charges in lieu of claims paid by size would also improve accuracy in deriving rate differentials for varying deductibles. That is, alternate deductibles should be applied to total charges rather than to claims to which coinsurance percentages and the current \$25 deductible have already been applied.

In conclusion, I feel that Mr. Kormes is to be commended for adding to our statistical storehouse of Accident and Health data. The theme of this discussion is only to suggest that the value of future studies would be increased if the data were arranged and refined along the lines indicated above.

#### AUTHOR'S REVIEW OF DISCUSSION

MARK KORMES

Statistics are Heaven or Hell for the actuary depending on whether or not they show what he expects and are available in such detail as he desires. It is for this reason that I have selected the title of my paper and have repeatedly indicated therein the need of further studies and more detailed analyses.

Mr. Bevan's discussion quite properly brings out the necessity for additional more detailed information. Some of the subdivisions such as age and sex may have merit if they are to be used as rating factors.

In some of the Blue Cross plans where I have been instrumental to implement this coverage an age factor was introduced to reduce the rate for groups with a large proportion of younger ages and vice versa.

Since the year of birth is punched on all claim cards an analysis of losses by age will be possible. There is, however, at the present time a lack of the corresponding information for the exposure so that the calculation of incidence and cost by ages could not be accomplished with the desired degree of accuracy.

Blue Cross Plans prefer not to differentiate by sex because of the community aspect of their philosophy. The income factor has been recognized in the rate determination as follows:

Income Range	Factor
Under \$ 5,000	.95
\$ 5,000 to 6,999	1.00
7,000 to 9,999	1.05
10,000 to 14,999	1.25
15,000 to 24,999	1.75
25,000 & over	3.00

The number of employees in each range is multiplied by the factor and the sum of the products is divided by the total number of employees to determine the average income adjustment factor. Since in practically all instances the average income factor was close to unity the expense of special statistical analyses did not seem warranted.

I cannot agree with Mr. Bevan that employees as a group and dependents are more homogeneous classes than the individual and family classifications. On the contrary, every study which was made of the employees under the family contracts showed consistently a better experience than that for single employees. This is quite understandable because a single employee is apt to stay longer in a hospital having no one to take care of him and he is also apt to be more frequently admitted as a medical case for the same reason. Just because insurance companies decided to make rates for employees and for dependents as separate categories this does not necessarily result in more homogeneous classifications.

The next criticism of Mr. Bevan is directed against the inclusion of maternity claims. I am advised by the statistical division of the Massachusetts Blue Cross that the number and amount of maternity claims is negligible and, if excluded, would in no way affect the results. This is primarily due to the fact that normal delivery is covered by the basic contract and that only under severe complications would there accrue benefits under the Master Medical coverage primarily for nursing service. Mr. Bevan is, however, entirely correct in stressing the separation of maternity cases in the experience of an insurance company major medical contract which is not in excess over basic coverage.

The desirability of having information on total medical expense is undeniable but because of the built-in deductibles per calendar quarter and special benefit provisions for diagnostic X-ray services in physician's office the information would not be complete. Furthermore, since the cost of many services following the discharge from a hospital in cases of the specific prolonged illnesses is covered in *full*, the determination of the total cost would involve additional labor. The surgical benefit for pelvic delivery cases while

in accord with a fee schedule is *not a service benefit* and the collection of reliable data on the additional charges made by physicians would be well nigh impossible. It is for these reasons that the existing statistical and claim processing set-up does not provide for the collection of this information.

I concur with Mr. Bevan that a further analysis by diagnosis of the Master Medical category "All Other" is desirable. This will be possible because the statistical card contains a three digit international classification of disease code. It is hoped that such information will be made available in the near future.

There is no doubt that a further study is needed to explain the "freakish" phenomenon of the distribution by size particularly for Master Medical. The short time at my disposal did not permit the desired analysis but the following facts may throw some additional light on the situation:

- (a) For all years (1956 to 1959) the average cost of a coronary attack was \$284. While this is an arithmetical average, subsequent studies may confirm that a large number of such cases are close to this average. From Table VI it is seen that this diagnosis accounts for approximately 9% of all Master Medical cases.
- (b) The size of loss analysis for the year 1959 is based on incurred experience as of March 31, 1960. From Table II we find that the payments are only 42% of the ultimate incurred cost. A very large number of out-standing claims carry a flat reserve of \$300. (The over-all average cost indicated by the 1959 experience as shown in Table VII for family contracts is \$354.94.)

I am grateful to Mr. Bevan for taking the time to prepare the discussion of my paper and to call attention to the various elements where detailed information is of essence in rate making.

## EXPERIENCE RATING REASSESSED

BY

ROBERT A. BAILEY

Volume XLVIII, Page 60

DISCUSSION BY JOHN W. CARLETON

Mr. Bailey has made a timely contribution to the technical literature. His examination of the structure of experience rating is well organized, and the conscientiousness with which he sorts out and labels the areas of judgment is to be commended.

The paper should be reviewed by someone qualified to deal with the mathematical developments. Absent such a qualification, I find it necessary to comment on the criteria which Mr. Bailey uses to define a good experience rating plan.

He starts with four fundamental criteria, the first relating to the measurement of something called information and the other related to practical aspects of the insurance transaction. If I understand him, he says the actuary