DEVELOPMENT OF EXPECTED CLAIM COSTS FOR COMPREHENSIVE MEDICAL EXPENSE BENEFITS AND RATIOS OF 1959 AND 1960 ACTUAL EXPERIENCE THERETO

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COMPREHENSIVE Medical Expense Benefits, as used in this paper, is that type of Major Medical plan which replaces rather than supplements a plan of Basic Hospital-Surgical-Medical Benefits. In 1953 less than 10,000 persons were covered under this form of group health coverage. Today, over 9,000,000 employees and dependents enjoy its broad protection. In its simplest form, a plan of Comprehensive Medical Expense Benefits requires the claimant to pay the first few dollars (typically $50) of his medical care expenses after which the plan pays 75% or 80% of all remaining expenses up to some maximum benefit limit such as $5,000 or $10,000. Messrs. S. W. Gingery and R. J. Mellman, in their paper, "An Investigation of Group Major Medical Expense Insurance Experience," *TSA* XIII, described the variety of benefit provisions under this coverage and reported the results of a detailed study of the claims presented under these plans in the calendar year 1957. Their paper also discussed the variation in the cost of these plans due to such factors as age, sex, salary, and the medical care costs and practices in the geographical locations where covered employees reside.

While an annual study of individual claims, such as that reported in the Gingery-Mellman paper, would be desirable, it is not feasible because of the substantial cost involved. If there were a standard of expected claim costs, it would be possible to make simple but meaningful studies of the aggregate claims experience under Comprehensive plans on an annual basis without analyses of individual claims. This paper sets forth such a standard, together with the underlying rationale. To distinguish this standard from such others as may hereafter be developed, the authors have named it the "1960 Tabular." In addition, the paper describes the experience under Comprehensive plans for policy years ending in 1959 and 1960 as contributed by certain companies to the Society's Committee on Experience under Group Health Insurance.

1960 TABULAR COSTS

The 1960 Tabular for any given Comprehensive Medical Expense plan is obtained by means of a ten-step formula. These ten steps take into

account plan (types of expenses to which the deductible applies), amount of deductible, percentage of coinsurance, age, sex, area, private-room limits, California UCD hospital credit, and maternity benefits. The tabular cost factors for each step together with applicable instructions are set forth in Appendix A. In addition to the data in the paper by Messrs. Gingery and Mellman (hereinafter referred to as the 1957 Intercompany Comprehensive Study), the authors made extensive use of 1958 and 1959 calendar-year experience under standard "all cause" lifetime maximum plans written by their company. This latter experience involved groups with a total of 50,600 covered employees in 1958 and 64,900 employees in 1959. All plans had a $50 calendar-year deductible applying to all expenses or to nonhospital expenses only. The medical expenses reported for individual claims under these plans were available, and it was possible to calculate cost relationships for a variety of plans and deductibles based on these reported medical expenses. The rate scales of several major companies were also reviewed, so that the authors would be aware of any major differences between their conclusions and current rate calculation practices.

In developing this standard of expected claim costs, it was decided to limit the cost variations incorporated into the 1960 Tabular to the principal benefit variations in plans applying the deductible to medical expenses of an individual during a calendar year or other benefit period of twelve months without requiring that the individual be disabled. Over 90% of the exposure submitted by contributing companies for policy years ending in 1959 and 1960 pertains to this "all cause" type of plan. The other plans for which experience was submitted apply the deductible on an "each illness" basis and, in some cases, require an initial period of total disability. Because of the small amount of data and the lack of published studies indicating the expected differential in claim cost between "each illness" plans and "all cause" plans, it was decided to report the experience under "each illness" plans in terms of the tabular costs applicable to "all cause" plans.

Some of the benefit variations for which tabular costs are not set forth in Appendix A are the maximum benefit, accumulation restrictions on the deductible, coverage of children from birth or past the age of 19, and the restrictions incorporated into many plans for expenses in connection with the treatment of mental and nervous disorders. The authors do not feel there is sufficient statistical information to support the development of tabular cost differentials for these variations at this time.

With respect to the maximum benefit, the newness of Comprehensive plans is such that the few individuals who have collected a substantial

portion of their maximum benefit represent a very small percentage of the covered individuals. Moreover, benefit payments in excess of $5,000 for expenses incurred in a single year represent a very small percentage of aggregate benefit payments. Therefore, it would seem that the maximum benefit should have little effect on the aggregate of benefit payments made under these plans for the next few years. On the other hand, the amount of maximum benefit provided may affect the cost of a Comprehensive plan indirectly through its influence on the attitudes of covered individuals with respect to the utilization of medical services and on the fees charged by physicians.

The 1960 Tabular does not include adjustments to reflect changes in claim costs expected on account of the income distribution of employees. The authors are not aware of any reported experiences demonstrating the effect of income on claim costs of Comprehensive plans in recent years. Moreover, the effect of income can be crudely demonstrated by presenting the actual experience in relation to unadjusted tabular claims for plans covering a substantial proportion of employees with high incomes, and this was the approach adopted for this paper.

The tabular claim costs for male employees and dependent children which are set forth in Step I of Appendix A are intended to be representative of the costs for a group whose male employees have a typical distribution by age and geographical location corresponding to the distribution of the exposure for the experience data submitted by the contributing companies to this study. The percentage relationship of dependent child or children claim costs to male employee claim costs for Plan I (deductible of $50 applied to all medical expenses) is compared with the corresponding relationship from other sources in the accompanying tabulation. The

DEPENDENT CHILD OR CHILDREN COST AS A PERCENTAGE OF MALE EMPLOYEE COST FOR PLAN I

Statistical Source or Reference	Percentage
1957 Intercompany Comprehensive Study (Table 5A, pp. 550–51)	85
1958 Aetna Life Experience	84
1959 Aetna Life Experience	88
Comprehensive Medical Expense Rate Scales of Several Major Companies:	
Range of relative costs used by companies	71–106
Unweighted average relative cost	86
Relative cost adopted in 1960 Tabular	85

relative cost relationship for dependent child or children adopted for the 1960 Tabular was based primarily on the consistent pattern of relative

costs shown by the three Comprehensive Medical Expense experience investigations.

The level of claim cost in the 1960 Tabular for male employees and dependent child or children was selected so as to produce a ratio of actual to tabular claims in the neighborhood of 100% for experience contributed for policy years ending in 1960. The 1960 Tabular costs for Plan I are approximately 114% of the corresponding level of costs shown in Table 5A of the 1957 Intercompany Comprehensive Study. If the 1960 Tabular costs are adjusted upward by the average tabular area factor of 104% applicable to the 1960 policy year exposure and if the distribution of exposure by geographical location is similar in the two studies, then the 1960 Tabular costs for Plan I are approximately 119% of the corresponding 1957 Intercompany Comprehensive Study costs, indicating an annual increase in claim costs of about 7% during the $2\frac{1}{2}$-year period separating the two studies.

The relative cost relationships for the plans and deductibles described in Steps I and II of Appendix A were based primarily on the 1958 and 1959 experience data of the authors' company. Where possible, the final results were compared with plan and deductible relationships shown in the 1957 Intercompany Comprehensive Study. The additional tabular costs for 100% reimbursement of an area of hospital expenses were derived by comparing the additional costs for these plans with the cost of 80% reimbursement of all hospital expenses. The additional costs were expressed as a percentage of the cost of 80% reimbursement of all hospital expenses as derived from the Aetna Life experience studies and the 1957 Intercompany Comprehensive Study. The final percentage additional costs adopted were multiplied by the hospital portion of the tabular cost for Plan II with 80% reimbursement to obtain the additional tabular cost for the full payment feature. For 75% reimbursement plans, these extra tabular costs should be increased by 125%, the ratio of 25% to 20%.

Age Adjustments

The adjustment in the average tabular costs for male employees to be made on account of the actual age distribution of covered employees is accomplished by the calculation of an average age factor based on a scale of relative costs by age group. A comparison of the relative costs by age developed by the various studies with the 1960 Tabular age scale and the age scales used by several companies is shown in the accompanying tabulation. These relative costs have been expressed as a percentage of the average cost and, in each instance, the average cost has been obtained through the application of the distribution of exposure by age group for

policy years ending in 1960 as submitted by the contributing companies to this study.

RELATIVE COSTS BY AGE GROUP AS PERCENTAGE OF AVERAGE COST OF 100% FOR AGE DISTRIBUTION OF EXPOSURE IN 1960 COMPREHENSIVE STUDY

AGE	PERCENTAGE DISTRIBUTION OF 1960 EXPOSURE (ALL PLANS)	1957 INTERCOMPANY COMPREHENSIVE STUDY*	AETNA LIFE COMPREHENSIVE EXPERIENCE				AVERAGE OF AGE SCALES OF SEVERAL MAJOR COMPANIES		ADOPTED FOR 1960 TABULAR
			1958		1959		5 "Flat" Companies	3 "Steep" Companies	
Less than 40.....	58.5%	70%	59%		61%		71%	63%	65%
40–44....	12.4	104	94	109%	104	113%	96	94	100
45–49....	10.2		128		123		119	123	120
50–54....	7.8	160	173	186	158	176	142	156	150
55–59....	5.6		205		201		175	199	190
60–64....	3.6	256	253	284	263	279	221	255	250
65 and over...	1.9		342		309		288	341	320
Total	100.0%	100%	100%	100%	100%	100%	100%	100%	100%

* Table 7A, $50 Deductible.

As indicated in the tabulation, five companies use an age scale in the calculation of premiums for this form of coverage which is relatively flat, while three other companies use an age scale which is considerably steeper by age. The 1960 Tabular age scale was selected in recognition of the relative costs shown by the experience of the authors' company and because the tabulation of experience data by average age factor in Table 2 of this paper produced a more consistent pattern of ratios of actual to tabular claims when this age scale was used.

The 1960 Tabular "age" scale is a combined age and salary scale to the extent that older employees have higher than average incomes, and higher incomes result in greater utilization of and higher charges for medical services. It should be appropriate for average groups, however, since the studies on which it is based did not include plans limited to groups with just high salaried employees or executives.

Female Employee Factors

The application of an average age factor to the male employee tabular costs results in an age-adjusted male employee cost which must then be

modified to reflect the added cost attributable to the female employees covered under the particular plan. To the authors' knowledge, there is no statistical study of the relative costs by age of male and female employees under Comprehensive plans. However, there is evidence available under hospital and surgical expense plans that, during the working years, non-maternity coverage of a female employee costs more than coverage of a male employee and that this extra cost decreases with increasing age. Studies of the cost of benefits provided to retired employees and their dependents show that the cost of female coverage at the older ages is no more than and may be less than the cost of male coverage. Accordingly, it was decided that the adjustment to be made in the male employee tabular costs to obtain female employee costs should represent a decreasing percentage additional cost as the average age of the group of employees covered (as measured by the average age factor) increases. This has been accomplished by adding a percentage called the "female factor" to the average age factor developed from the combined age distribution of both male and female employees.

Dependent Spouse

The next problem considered was the relationship of the tabular cost of a dependent spouse to that of the employee. For an employee of a given age, the authors feel that the cost of the dependent spouse will vary not only by the age of the employee but also the sex. If dependent husbands are eligible under the plan (as is frequently the case), the age of a dependent husband will, on the average, be greater than the age of the female employee by perhaps two or three years. On the other hand, the age of the dependent wife is two to three years less, on the average, than the age of her employee husband. Therefore, for groups with the same age distributions, the average age of the covered dependent spouses (wives and husbands) will tend to increase as the female percentage of a group increases. Moreover, the group of covered dependent husbands may include a disproportionate number of truly "dependent" individuals with high claim costs.

It was decided to determine the dependent spouse tabular cost by adding a constant extra to the employee tabular cost adjusted for both age and female content. A constant rather than a percentage extra was selected in order that the dependent spouse cost as a percentage of the employee cost would decrease as the average age of the group increases. This procedure is consistent with the method of adjusting the tabular cost of employee coverage for female content.

The amount of additional claim costs for female employee and dependent spouse coverage was determined from a review of the 1957 Intercom-

pany Comprehensive Study and experience data in the authors' company. The constant additional cost for both female employees and dependent spouse is expressed in the 1960 Tabular as 28% of the tabular cost for male employees for a group with an average age factor of 100%.

Dependent Unit Distribution

The tabular cost for coverage of one or more dependents must be derived from the tabular costs for coverage of dependent spouse and dependent children in order to determine aggregate tabular claims for the Comprehensive experience reported in this paper because the exposure for each plan included in the study is expressed as the average number of employees with one or more dependents. Contributing companies were asked to furnish the dependent unit distribution wherever it was available. Two methods of recording dependent unit distribution were used: one recorded the number of employees with one dependent and the number with two or more dependents, while the other recorded the number of dependent units containing a spouse and the number containing one or more children. A dependent unit distribution on one or the other of these two methods was reported for about 72% of the total dependent exposure contributed to this study. These distributions are analyzed by average age factor and percent female content in Tables 14 and 15, respectively, of this paper.

The variations in dependent unit composition by age and female percent are irregular but, on the whole, appear reasonable. For those groups where the dependent composition was reported in terms of spouse and children units, the average dependent unit consisted of 93% spouse and 73% children (one or more). These percentages are based on the combined 1959 and 1960 data for all groups and are consistent with the percentages for "all cause" nonjumbo groups shown in Tables 14 and 15. This composition of the average dependent unit is likewise consistent with that indicated by the data reported on the one dependent and more than one dependent basis. It does differ, however, from that used in the rate scales of many companies. For example, the average percentages used in the rate scales of five major companies are 96% for dependent spouse and 70% for one or more children. The difference may well arise from the fact that the data presented in this paper are based upon a mixture of dependent groups, some with and some without husbands eligible as dependents.

While it probably would have been possible to develop formulas for the calculation of tabular costs for coverage of one or more dependents varying according to age and percentage female to be used for that portion of the data for which a dependent unit distribution was not available, it was decided to use one over-all dependent unit distribution formula for

the 1960 Tabular and for the analysis of the experience submitted for 1959 and 1960. It was felt that the development of multiple formulas should be deferred until a more substantial and reliable experience on dependent unit composition has been accumulated. Tables 14 and 15, showing dependent unit compositions, have been prepared to assist those who may wish to analyze the effect of varying dependent unit composition on the ratios of actual to tabular claims for the experience reported in this paper.

Geographical Location

The adjustments to tabular costs for geographical location of covered employees reflect the results of the 1957 Intercompany Comprehensive Study, the experience of the authors' company, and, to a considerable extent, the judgment of the authors.

Private-Room Adjustments

The tabular cost adjustments for coverage of private room and board charges in excess of average semiprivate hospital charges were developed from an analysis of the utilization of private rooms under Comprehensive Medical Expense plans provided by the authors' company during the period 1958–61. This experience includes Comprehensive plans which did not provide any additional coverage beyond the semiprivate level. While the presence of coverage for private rooms may influence utilization, it is believed that the income, standard of living, and health attitudes of covered individuals are more important factors governing the use of private-room accommodations. Another consideration which may have a bearing on the additional cost of excess private-room limits is the practice by some physicians of charging a higher fee when the individual uses a private room rather than semiprivate accommodations.

The experience in the authors' company on private-room utilization has varied somewhat from year to year. For adults, 25–33% of all days of hospital confinement were in private-room accommodations, and the corresponding proportions for dependent children fell in a range from 12% to 15%. The additional tabular costs shown in Appendix A assume that the proportion of all hospital days in private-room accommodations for a plan with a private-room limit in excess of the average semiprivate charge will be 30% for adults and 15% for children. For the sake of simplicity, it was decided to determine the additional claim costs assuming that a reimbursement percentage of 80% would apply and to use these additional costs without taking into account the actual reimbursement percentage of the plan or the presence of a full payment hospital feature. A fur-

ther simplification was accomplished by using constant additional costs for each dollar of excess private-room coverage without variation for age or percentage female content.

Maternity Costs

The 1960 Tabular costs for maternity benefits for female employees and dependent spouses are the tabular costs used by the Committee on Experience under Group Health Insurance in its 1962 Report to present the experience under Group Surgical Expense Benefits. These costs were selected by the authors because they appear to represent satisfactorily the level of maternity costs experienced under plans contributed to this study. Because maternity experience in relation to tabular claims can be presented by average age factor, as in Table 2 of this paper, it was decided to calculate maternity tabular costs without adjustment for the age distribution of covered employees.

COLLECTION OF 1959 AND 1960 POLICY YEAR EXPERIENCE

Experience under Comprehensive plans for policy years ending in 1959 and 1960 was made available to the authors by the Committee to determine the level and trend of experience and to evaluate the usefulness of the 1960 Tabular costs in relation to this experience. Groups in their first policy year or in the terminal year of coverage and other groups whose characteristics might distort the results (such as high income groups) were excluded from the study. Groups with a substantial proportion of employees in California were excluded if the plan of benefits was not integrated with the California UCD hospital benefit such that these benefits would be deducted from covered medical expenses before the deductible and coinsurance provisions of the plan were applied.

The experience was submitted in the form of total incurred nonmaternity and maternity claims together with the average number of employees or dependent units exposed during the policy year. In order to permit studies of cost variations by age, sex, and salary, the percentage distribution of employees by age and income groupings and the percentage female content were reported by contributing companies. The percentage female was reported in ranges such as 0–11%, 11–21%, etc., and the authors used 5% to represent the range 0–11%, 15% to represent 11–21%, etc. The geographical location of covered employees was reported by metropolitan area in those instances where 75% or more of the employees were in a defined metropolitan area. Where it was not possible to report a specific metropolitan area, the state in which 75% or more of the employees were located was reported and, if less than 75% of the employees were in a single state, the companies were asked to identify the geographical region in which 75% or more of the employees were located. For about 38% of

the total exposure, less than 75% of the employees were in a single region, and a tabular area factor of 100% was established for these groups. The metropolitan areas used are the same as those in the area portion of the 1957 Intercompany Comprehensive Study. In view of the above coding for geographical location, the authors were able to adjust the employee tabular cost for the effect of the California UCD hospital benefit (see Step IX of Appendix A) only for those cases which had 75% or more of the insured employees located in either a California metropolitan area or the state of California.

Switch Maternity

A considerable proportion of the experience was contributed under plans providing female employee maternity benefits on a "switch maternity" basis. Under this basis, a female employee is entitled to maternity benefits only if she insures her husband as a dependent. For these plans, some companies allocate female employee maternity claims to dependent experience along with dependent maternity claims, while other companies charge such claims against employee experience. Since it is believed that the total dollars of maternity claims for a group of employees covered on a switch maternity basis will be the same as or only slightly smaller than the total dollars of maternity claims for employees covered for maternity benefits on the standard basis, female employee aggregate tabular claims were calculated for these plans in the same manner as for plans with standard maternity benefits. However, aggregate tabular female employee maternity claims calculated in this fashion were combined with dependent tabular maternity claims for those plans where the contributing companies included female employee maternity claims together with dependent maternity claims. The experience under these latter cases is included in the dependent maternity experience reported in this paper. Because of the above method of handling switch maternity cases, it was not practical to develop exposure data for employee and dependent maternity benefits, and none is shown.

ANALYSIS OF EXPERIENCE

Tables 1 through 10 show analyses of the 1959 and 1960 policy year experience data in relation to tabular claims. Table 1 shows 1959 and 1960 experience separately for all groups and for nonjumbo groups. Tables 2 through 10 are based on the combined 1959 and 1960 experience under "all cause" plans covering nonjumbo groups. In the authors' opinion, the "all cause" experience of nonjumbo groups gives the most accurate measure of the cost variables illustrated in these tables. For purposes

TABLE 1

1959 POLICY YEAR NONMATERNITY EXPERIENCE BY PLAN

PLAN	ALL SIZE GROUPS				NONJUMBO GROUPS	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular
	Employee					
All Cause Plans:						
Without Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	77	10,459	492,273	108%	492,273	108%
Deductible Waived for Hospital Expenses	8	6,782	206,149	87	29,854	85
Deductible Waived for Hospital and Surgical Expenses	15	6,420	296,591	98	296,591	98
Total	100	23,661	995,013	100	818,718	103
With Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	73	27,302	1,057,679	89	882,730	94
Deductible Waived for Hospital Expenses	307	79,442	3,608,548	100	2,368,368	101
Deductible Waived for Hospital and Surgical Expenses	202	42,026	1,907,344	91	1,496,536	96
Total	582	148,770	6,573,571	95	4,747,634	98
Total, All Cause Plans	682	172,431	7,568,584	96	5,566,352	99
Total, Each Illness Plans, Total Disability Not Required	28	7,363	346,169	95†	346,169	95†
Total, Each Illness Plans, Total Disability Required	7	2,724	74,315	64†	74,315	64†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

TABLE 1—*Continued*

1959 POLICY YEAR NONMATERNITY EXPERIENCE BY PLAN

PLAN	ALL SIZE GROUPS				NONJUMBO GROUPS	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular
	Dependent					
All Cause Plans:						
Without Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	73	7,831	606,547	99%	606,547	99%
Deductible Waived for Hospital Expenses	7	4,455	251,322	82	33,186	90
Deductible Waived for Hospital and Surgical Expenses	13	3,651	304,866	101	304,866	101
Total	93	15,937	1,162,735	95	944,599	99
With Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	72	19,515	1,597,037	103	1,279,310	105
Deductible Waived for Hospital Expenses	304	54,788	4,527,043	98	2,951,035	98
Deductible Waived for Hospital and Surgical Expenses	194	29,729	2,560,500	94	2,114,832	100
Total	570	104,032	8,684,580	97	6,345,177	100
Total, All Cause Plans	663	119,969	9,847,315	97	7,289,776	100
Total, Each Illness Plans, Total Disability Not Required	28	5,105	398,576	86†	398,576	86†
Total, Each Illness Plans, Total Disability Required	7	1,948	106,638	70†	106,638	70†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

TABLE 1—*Continued*

1960 POLICY YEAR NONMATERNITY EXPERIENCE BY PLAN

PLAN	ALL SIZE GROUPS				NONJUMBO GROUPS	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular
	Employee					
All Cause Plans:						
Without Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	175	21,141	1,025,745	112%	1,025,745	112%
Deductible Waived for Hospital Expenses	14	8,872	266,255	85	75,684	86
Deductible Waived for Hospital and Surgical Expenses	19	5,816	247,457	93	247,457	93
Total	208	35,829	1,539,457	103	1,348,886	107
With Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	96	47,208	2,015,607	94	1,574,440	101
Deductible Waived for Hospital Expenses	500	112,657	5,344,607	103	3,953,494	102
Deductible Waived for Hospital and Surgical Expenses	211	42,972	2,145,563	99	1,682,194	102
Total	807	202,837	9,505,777	100	7,210,128	102
Total, All Cause Plans	1,015	238,666	11,045,234	101	8,559,014	102
Total, Each Illness Plans, Total Disability Not Required	60	12,193	654,095	110†	654,095	110†
Total, Each Illness Plans, Total Disability Required	30	14,994	493,097	87†	218,293	75†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

TABLE 1—*Continued*

1960 POLICY YEAR NONMATERNITY EXPERIENCE BY PLAN

PLAN	ALL SIZE GROUPS				NONJUMBO GROUPS	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular
	Dependent					
All Cause Plans:						
Without Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	169	15,472	1,231,380	104%	1,231,380	104
Deductible Waived for Hospital Expenses	14	6,061	386,233	92	98,330	87
Deductible Waived for Hospital and Surgical Expenses	17	3,278	271,547	102	271,547	102
Total	200	24,811	1,889,160	101	1,601,257	102
With Full Reimbursement of Hospital Expenses—						
Deductible Applied to All Expenses	96	34,262	2,723,495	97	2,100,645	101
Deductible Waived for Hospital Expenses	490	76,318	6,536,068	101	4,736,024	99
Deductible Waived for Hospital and Surgical Expenses	200	30,380	2,629,535	93	2,189,312	100
Total	786	140,960	11,889,098	98	9,025,981	100
Total, All Cause Plans	986	165,771	13,778,258	98	10,627,238	100
Total, Each Illness Plans, Total Disability Not Required	59	7,277	598,113	94†	598,113	94†
Total, Each Illness Plans, Total Disability Required	30	10,616	631,434	84†	296,164	82†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

of this paper, nonjumbo groups were those with less than 5,000 insured employees.

Table 1 summarizes the nonmaternity experience for broad groups of plans. Since tabular claims represent expected claim costs for "all cause" plans, the experience is shown separately for these plans and for "each illness" plans with a further separation of the latter group for plans requiring total disability. The ratio of actual to tabular claims for plans without full reimbursement of hospital expenses which apply the deductible to all expenses is generally higher in this experience study than for plans which waive the deductible for hospital or for hospital and surgical expenses. This variation, which is contrary to expectations, may be the result of the tendency on the part of employers with poor experience to reduce benefits by eliminating any 100% reimbursement feature and any waiver of the deductible for hospital or surgical expenses.

Table 1 also measures the difference in level of cost as between "each illness" plans and "all cause" plans. The results appear to indicate that there may not be a substantial difference between the cost of an "all cause" plan and an "each illness" plan unless the latter includes a total disability requirement. However, these results may not be reliable because of the small amount of data involved.

The increase in the over-all ratios of actual to tabular claims shown in Table 1 for policy years ending in 1960 as compared to policy years ending in 1959 is below the average yearly increase in cost which is expected on account of price inflation and increasing utilization. A further analysis of the data shown in Table 1 was made to examine the experience under plans for which data were contributed in both the 1959 and 1960 policy years. A comparison of the ratios of actual to tabular claims for this portion of the experience did not show any significant difference from the total experience. The relatively small increase in level of claim costs from 1959 to 1960 policy years is also inconsistent with the day-to-day experience of those individuals in the contributing companies responsible for underwriting this form of health insurance. These results should not, therefore, be considered as representative or indicative of the increasing claim costs to be expected under Comprehensive plans.

Table 2 sets forth nonmaternity and maternity experience by female percentage and average age factor. The ratios of actual to tabular claims for nonmaternity experience are reasonably consistent and indicate that the 1960 Tabular age scale may represent satisfactorily the pattern of claim costs by age. In interpreting the ratios of actual to tabular claims for the maternity experience presented in this table, it should be noted that tabular claims have not been varied according to the age distribution

TABLE 2

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY AND MATERNITY EXPERIENCE BY AGE AND FEMALE PERCENT
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

AVERAGE AGE FACTOR AND FEMALE PERCENT	NONMATERNITY EXPERIENCE				MATERNITY EXPERIENCE	
	Number of Experience Units	Employee Years of Exposure	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular*
	Employee					
60–79:						
<31%	89	12,423	451,466	101%	27,492	137%†
31% or more	35	5,096	193,627	97	25,539	158†
Total	124	17,519	645,093	100	53,031	146†
80–89:						
<31%	198	38,910	1,605,715	96	45,277	113†
31% or more	61	6,823	321,057	106	18,621	128†
Total	259	45,733	1,926,772	98	63,898	117
90–99:						
<31%	244	54,593	2,252,581	98	94,736	136
31% or more	123	18,184	899,568	102	38,315	57
Total	367	72,777	3,152,149	99	133,051	97
100–109:						
<31%	283	59,970	2,727,347	98	71,233	103
31% or more	113	17,266	924,485	100	56,641	81
Total	396	77,236	3,651,832	99	127,874	92
110–119:						
<31%	170	35,911	1,811,004	103	33,736	92†
31% or more	76	10,920	615,995	100	27,262	64†
Total	246	46,831	2,426,999	102	60,998	77
120 or more:						
<31%	179	21,964	1,442,428	111	11,253	64†
31% or more	115	12,355	880,093	107	12,519	54†
Total	294	34,319	2,322,521	110	23,772	58†
All ages:						
<31%	1,163	223,771	10,290,541	100	283,727	112
31% or more	523	70,644	3,834,825	102	178,897	77
Total	1,686	294,415	14,125,366	101	462,624	95

* Tabular maternity claims do not vary by age distribution.

† Less than $50,000 of tabular claims.

TABLE 2—*Continued*

Average Age Factor and Female Percent	Nonmaternity Experience				Maternity Experience	
	Number of Experience Units	Employee Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular*
	Dependent					
60–79:						
<31%.....	88	8,378	607,817	93%	205,006	155%
31% or more.	35	2,954	229,694	98	57,864	154†
Total.....	123	11,332	837,511	95	262,870	155
80–89:						
<31%.....	196	29,017	2,767,666	107	464,644	119
31% or more.	59	3,723	332,112	100	26,065	108†
Total.....	255	32,740	3,099,778	106	490,709	118
90–99:						
<31%.....	242	42,051	3,476,037	103	775,473	112
31% or more.	122	9,328	774,073	90	114,915	109
Total.....	364	51,379	4,250,110	100	890,388	111
100–109:						
<31%.....	279	47,080	4,021,530	102	606,714	94
31% or more.	111	8,774	801,391	95	84,306	79
Total.....	390	55,854	4,822,921	101	691,020	92
110–119:						
<31%.....	160	26,693	2,291,205	100	292,384	81
31% or more.	69	5,836	407,482	73	35,577	47
Total.....	229	32,529	2,698,687	95	327,961	75
120 or more:						
<31%.....	172	16,445	1,579,036	100	154,136	72
31% or more.	105	6,217	628,971	94	36,685	46
Total.....	277	22,662	2,208,007	98	190,821	65
All Ages:						
<31%.....	1,137	169,664	14,743,291	102	2,498,357	102
31% or more.	501	36,832	3,173,723	91	355,412	83
Total.....	1,638	206,496	17,917,014	100	2,853,769	100

* Tabular maternity claims do not vary by age distribution.

† Less than $50,000 of tabular claims.

‡ For dependents, exposure of employees insured with respect to their dependents.

of covered employees. Therefore, the ratios of actual to tabular claims shown for groups with average age factors less than 100% should indicate the approximate amount of increase in claim cost for maternity benefits which may be attributable to the age distribution. The ratios of actual to tabular maternity claims by average age factor are fairly consistent

TABLE 3

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY AND MATERNITY EXPERIENCE BY FEMALE PERCENT
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Female Percent	Nonmaternity Experience				Maternity Experience	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular†
	Employee					
<11%	489	90,010	3,967,856	97%	53,622	147%‡
11–21	391	80,418	3,736,784	101	90,189	93
21–31	283	53,343	2,585,901	105	139,916	117
31–41	143	17,731	906,233	102	40,894	82‡
41–51	149	23,414	1,275,946	106	62,106	94
51–61	90	14,706	799,512	99	32,864	53
61–71	69	6,559	379,241	107	23,457	113‡
71–81	44	3,856	236,861	102	4,285	31‡
81–91	25	4,231	221,293	89	14,799	69‡
91–100	3	147	15,739	163‡	492	109‡
Total	1,686	294,415	14,125,366	101	462,624	95
	Dependent					
<11%	479	73,208	6,285,379	102%	980,846	97%
11–21	384	60,448	5,299,570	101	875,542	102
21–31	274	36,008	3,158,342	104	641,969	115
31–41	134	10,422	814,474	87	123,142	87
41–51	144	12,393	1,158,347	98	116,389	99
51–61	85	7,460	685,417	96	70,288	71
61–71	67	3,024	253,933	83	25,324	90‡
71–81	43	1,448	103,534	71	8,522	41‡
81–91	25	2,045	154,452	75	11,747	53‡
91–100	3	40	3,566	80‡	.....	.....
Total	1,638	206,496	17,917,014	100	2,853,769	100

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular maternity claims do not vary by age distribution.

‡ Less than $50,000 of tabular claims.

and demonstrate a generally downward trend as the average age factor increases.

Table 3 presents nonmaternity and maternity experience by female percentage only. The ratios of actual to tabular claims for nonmaternity experience are reasonably consistent, but the ratios for maternity experience are irregular.

Table 4 shows the nonmaternity experience by percentage of employees earning $10,000 or more annually for that portion of the experience data for which contributing companies were able to submit an income distribution of covered employees. The tabular claims determined in accordance with the formula described in this paper are not adjusted to reflect the increased claim cost expected on account of high income.

TABLE 4

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY PERCENT OF EMPLOYEES
EARNING $10,000 OR MORE ANNUALLY
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Percent Earning $10,000 or More Annually	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular†
	Employee			
<11%	1,151	210,232	9,757,613	98%
11– 21	331	61,207	3,264,493	107
21– 31	91	10,969	486,806	100
31– 41	30	1,294	66,839	106
41–100	25	1,171	78,691	144
Unknown	58	9,542	470,924	111
Total	1,686	294,415	14,125,366	101
	Dependent			
<11%	1,118	145,951	12,281,525	98%
11– 21	322	43,979	4,159,235	102
21– 31	89	8,250	729,411	112
31– 41	28	802	79,022	115
41–100	25	913	103,527	135
Unknown	56	6,601	564,294	107
Total	1,638	206,496	17,917,014	100

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular claims do not vary by income distribution.

Therefore, the higher ratios of actual to tabular claims shown for groups with a high proportion of employees earning $10,000 or more annually may be indicative of the effect of these incomes on claim cost. The actual income distribution of covered employees for each of the income categories of the proportion earning $10,000 or more annually are shown in Table 12 and may be used to estimate the effect of a scale of income adjustment factors on the ratios of actual to tabular claims shown in this table.

Table 5 presents the combined employee and dependent nonmaternity experience by metropolitan area, state, and region. The 1960 Tabular area factor is also shown in the table in order to facilitate comparisons with actual experience. In assigning metropolitan area codes to the data submitted, contributing companies used state and region codes in those instances where it was not known whether 75% of the covered employees were in a given metropolitan area. Hence, the experience shown for states and regions may include a few cases where a substantial proportion of the employees are actually located in one of the metropolitan areas shown in the table. In general, the ratios of actual to tabular claims appear to indicate that the 1960 Tabular area factors adopted are reasonably satisfactory at least for those metropolitan areas and states with a substantial volume of experience.

Table 6 summarizes the experience in Table 5 for the nine metropolitan areas and thirteen states for which the largest amount of experience data was submitted. It provides a comparison of the relative level of experience with the previous intercompany area study results included in the 1957 Intercompany Comprehensive Study. The ratio of the 1959–60 experience to Los Angeles was obtained by determining for each area the area tabular that would have resulted in a ratio of actual to tabular equal to that for "Total, All Locations Above" shown in Table 5 and then dividing all such factors by the corresponding Los Angeles factor.

Table 7 shows the nonmaternity experience for plans classified according to the type of restriction applicable to treatment of mental and nervous disorders. The ratios of actual to tabular claims shown in this table are, as would be expected, generally less for plans including a restriction on the treatment of mental and nervous disorders.

Table 8 shows the nonmaternity experience by maximum benefit provided by the plan. As indicated earlier in this paper, the 1960 Tabular costs do not include adjustments for the amount of maximum benefit provided. The ratios of actual to tabular claims indicate, however, that plans with a $10,000 maximum benefit do have a level of claim cost which is greater than that of plans with a $5,000 maximum benefit.

TABLE 5

EMPLOYEE AND DEPENDENT 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY REGION, STATE, AND METROPOLITAN AREA
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Region,* State,† or Metropolitan Area	Number of Experience Units‡	Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	1960 Tabular Area Factor
Region	3	667	88,357	109%	100%
Connecticut	1	77	5,719	70§	100
Bridgeport	4	1,258	118,422	110	100
New Haven	3	158	14,729	103§	100
Total	8	1,493	138,870	106	.....
Maine	9	1,293	147,489	100	92
Massachusetts	6	560	66,745	109	100
Boston	24	2,350	249,340	96	108
Total	30	2,910	316,085	98	.....
Rhode Island	.....	.....	.....	.....	108
Providence	2	141	20,060	97§	108
Total	2	141	20,060	97§	.....
Region Total	52	6,504	710,861	101	.....
Region	3	2,112	232,960	98%	100%
District of Columbia	1	62	5,303	72§	100
New Jersey	7	2,611	194,340	100	100
New York	26	3,229	313,023	93	92
Albany–Schenectady–Troy	7	451	40,758	95§	100
Buffalo	14	922	93,287	95	100
New York–Northeastern New Jersey	38	3,366	351,070	98	108
Syracuse	8	1,337	119,429	92	100
Total	93	9,305	917,567	95	.....
Pennsylvania	7	2,481	198,100	95	92
Philadelphia	13	656	71,819	108	100
Pittsburgh	3	188	24,407	110§	100
Total	23	3,325	294,326	99	.....
Region Total	127	17,415	1,644,496	97	.....
Region	8	1,384	128,943	97%	100%
Illinois	58	7,453	718,905	97	92
Chicago	101	14,754	1,477,209	96	100
Total	159	22,207	2,196,114	96	.....
Indiana	38	4,429	359,357	94	84
Indianapolis	16	4,712	440,668	96	84
Total	54	9,141	800,025	95	.....
Kentucky	10	554	60,457	112	84
Louisville	8	415	42,613	96§	92
Total	18	969	103,070	105	.....

* Excludes groups coded for a specific state or metropolitan area.

† Excludes groups coded for a specific metropolitan area.

‡ Employee only.

§ Less than $50,000 of tabular claims.

TABLE 5—*Continued*

Region,* State,† or Metropolitan Area	Number of Experience Units‡	Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	1960 Tabular Area Factor
Region—*Continued*					
Michigan	24	3,606	374,348	99%	100%
Detroit	25	1,339	181,455	108	116
Total	49	4,945	555,803	102	.....
Ohio	13	2,024	207,371	102	92
Cincinnati	3	329	34,660	102§	100
Cleveland	3	572	72,548	105	108
Columbus	7	2,597	260,169	91	100
Dayton	5	689	67,224	101	100
Toledo	2	59	7,623	113§	100
Total	33	6,270	649,595	98	.....
Wisconsin	7	908	80,819	73	92
Milwaukee	14	2,251	257,739	107	100
Total	21	3,159	338,558	96	.....
West Virginia	12	733	113,628	158	84
Region Total	354	48,808	4,885,736	98	.....
Region	7	2,158	217,355	106%	100%
Iowa	15	4,229	439,204	97	100
Kansas	17	1,467	147,778	118	92
Minnesota	10	4,348	376,065	93	92
Minneapolis–St. Paul	13	720	77,644	93	108
Total	23	5,068	453,709	93	.....
Missouri	17	935	107,010	113	92
Kansas City	8	470	42,360	96§	100
St. Louis	16	1,521	147,398	89	100
Total	41	2,926	296,768	97	.....
North Dakota	1	40	3,870	82§	92
South Dakota	2	1,279	114,333	92	92
Region Total	106	17,167	1,673,017	98	.....
Region	1	89	10,043	95%§	100%
Colorado	2	343	61,186	151§	100
Denver	4	285	36,773	129§	108
Total	6	628	97,959	142	.....
Idaho	6	460	48,741	91	100
Montana	3	118	16,544	107§	100
Nevada	4	420	45,175	128§	108
Utah	7	3,365	326,367	87	92
Region Total	27	5,080	544,829	98	.....
Region	1	54	10,512	127%§	124%
California	91	16,448	2,074,334	103	132
Los Angeles	298	29,172	3,797,711	101	140
San Diego	16	1,049	123,741	96	132
San Francisco–Oakland	33	2,725	380,472	106	140
Total	438	49,394	6,376,258	102	.....
Oregon	13	1,890	230,087	89	108
Portland	5	333	35,762	86§	116
Total	18	2,223	265,849	89	.....

* Excludes groups coded for a specific state or metropolitan area.

† Excludes groups coded for a specific metropolitan area.

‡ Employee only.

§ Less than $50,000 of tabular claims.

TABLE 5—*Continued*

Region,* State,† or Metropolitan Area	Number of Experience Units‡	Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	1960 Tabular Area Factor
Region—*Continued*					
Washington	6	3,141	341,744	102%	108%
Seattle	10	1,387	155,820	108	116
Total	16	4,528	497,564	104	.....
Region Total	473	56,199	7,150,183	102	.....
Region	11	640	68,821	99%	100%
Arizona	22	1,093	156,800	113	116
Arkansas	18	2,830	196,794	80	84
Louisiana	25	6,872	698,130	93	100
New Orleans	2	153	12,884	80§	108
Total	27	7,025	711,014	93	.....
New Mexico	9	759	84,194	97	100
Oklahoma	16	854	83,657	100	92
Texas	50	8,287	933,089	98	108
Dallas	15	1,548	216,037	101	124
Fort Worth	6	1,143	108,897	100	124
Houston	51	8,835	1,169,350	104	140
San Antonio	2	164	8,873	56§	108
Total	124	19,977	2,436,246	101	.....
Region Total	227	33,178	3,737,526	98	.....
Region	8	10,380	1,288,714	104%	92%
Alabama	2	193	30,762	195§	92
Birmingham	6	343	22,995	67§	100
Total	8	536	53,757	107	.....
Florida	26	4,052	396,774	92	92
Miami	15	1,132	141,443	110	108
Tampa	4	137	13,139	84§	108
Total	45	5,321	551,356	96	.....
Georgia	14	7,651	855,791	104	92
Atlanta	13	443	30,505	63§	100
Total	27	8,094	886,296	101	.....
Maryland	8	759	50,475	86	84
Baltimore	14	1,632	162,402	91	92
Total	22	2,391	212,877	90	.....
Mississippi	4	275	31,347	109§	92
North Carolina	15	2,184	173,974	100	84
South Carolina	7	1,237	124,143	93	76
Tennessee	14	1,646	128,501	91	92
Memphis	8	1,256	168,640	122	100
Total	22	2,902	297,141	106	.....
Virginia	9	1,063	63,805	87	84
Norfolk–Portsmouth	5	223	16,105	85§	92
Total	14	1,286	79,910	87	.....
Region Total	172	34,606	3,699,515	100	.....
Hawaii	4	357	27,138	106§	100
Total, All Locations Above	1,542	219,314	24,073,301	99	.....
All Other‖	144	75,101	7,969,079	103	100
Total, All Locations	1,686	294,415	32,042,380	100	.....

* Excludes groups coded for a specific state or metropolitan area.

† Excludes groups coded for a specific metropolitan area.

‡ Employee only.

§ Less than $50,000 of tabular claims.

‖ Less than 75% of employees in one region, state, or metropolitan area.

Table 9 sets forth the nonmaternity experience for the more common accumulation restrictions on the deductible included in these plans. The 1960 Tabular costs have not been adjusted to reflect variations in claim costs due to this feature of these plans. Therefore, the ratios of actual to tabular claims shown in the table should indicate the approximate effect of these limitations in benefits. The results are not sufficiently consistent to warrant a high degree of credibility, but they appear to indicate modest savings for plans with an accumulative restriction.

Table 10 shows the nonmaternity experience according to the coinsurance provision of the plan. Even though the tabulars were adjusted for coinsurance, the ratios of actual to tabular for 80% coinsurance plans are uniformly greater than those for 75% coinsurance plans.

Tables 11, 12, 13, 14, and 15 show distributions of the combined 1959 and 1960 exposure by age, income, and dependent unit composition for

TABLE 6

EMPLOYEE AND DEPENDENT 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY STATE AND METROPOLITAN AREA
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

METROPOLITAN AREA OR STATE	NUMBER OF EXPERIENCE UNITS*	YEARS OF EXPOSURE*	ACTUAL CLAIMS	RATIO OF ACTUAL TO 1960 TABULAR	1960 TABULAR AREA FACTOR	RATIO TO LOS ANGELES		
						1960 Tabular Area Factor	1959–60 Actual Experience	1959 Area Study†
Metropolitan Area:								
Boston, Mass.	24	2,350	249,340	96%	108	77%	73%	69.6%
Chicago, Ill.	101	14,754	1,477,209	96	100	71	68	68.7
Columbus, Ohio	7	2,597	260,169	91	100	71	64	73.7
Houston, Tex.	51	8,835	1,169,350	104	132	94	97	91.5
Indianapolis, Ind.	16	4,712	440,668	96	92	66	62	55.1
Los Angeles, Cal.	298	29,172	3,797,711	101	140	100	100	100.0
Milwaukee, Wis.	14	2,251	257,739	107	108	77	82	66.2
New York, N.Y.	38	3,366	351,070	98	108	77	75	77.2
San Francisco–Oakland, Cal.	33	2,725	380,472	106	140	100	105	93.6
Total	582	70,762	8,383,728	100%				
State:‡								
California	91	16,448	2,074,334	103%	124	89%	90%	84.8%
Florida	26	4,052	396,774	92	92	66	60	122.1
Georgia	14	7,651	855,791	104	84	60	62	
Illinois	58	7,453	718,905	97	92	66	63	66.8
Indiana	38	4,429	359,357	94	84	60	56	50.5
Iowa	15	4,229	439,204	97	100	71	69	73.6
Louisiana	25	6,872	698,130	93	100	71	66	74.8
Michigan	24	3,606	374,348	99	100	71	70	75.4
Minnesota	10	4,348	376,065	93	100	71	66	63.8
New York	26	3,229	313,023	93	92	66	61	70.0
Texas	50	8,287	933,089	98	100	71	69	57.2
Utah	7	3,365	326,367	87	92	66	57	56.2
Washington	6	3,141	341,744	102	108	77	78	
Total	390	77,110	8,207,131	98%				

* Employee only.

† *TSA* XII, 573–74.

‡ Excludes groups coded for a specific metropolitan area.

"all cause" nonjumbo plans. These distributions were prepared to facilitate a comparison of the exposure characteristics with the claim experience shown in Tables 1–10. The exposure tables relate to nonmaternity experience only; separate exposure for plans with maternity benefits is not shown in this paper. Table 11 shows the percentage distribution of covered employees by age for groupings of the average age factor and female percentage. Table 12 shows the distribution of covered employees by income for those cases having specified percentages of their employees earning $10,000 or more annually, while Table 13 shows income distribu-

TABLE 7

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY MENTAL AND NERVOUS RESTRICTION
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Code*	Number of Experience Units	Employee Years of Exposure†	Actual Claims	Ratio of Actual to 1960 Tabular‡
	Employee			
1.....	1,162	206,337	10,050,671	103%
2.....	249	69,464	3,189,968	97
3.....	271	17,106	831,837	95
4.....	2	1,306	43,360	76
5.....	2	202	9,530	104§
Total.....	1,686	294,415	14,125,366	101
	Dependent			
1.....	1,131	146,006	12,643,184	101%
2.....	235	48,359	4,246,875	99
3.....	268	10,826	916,462	85
4.....	2	1,188	101,104	113
5.....	2	117	9,389	95§
Total.....	1,638	206,496	17,917,014	100

* Mental and nervous restriction code:
1. Covered for full plan benefits whether or not confined in a hospital.
2. Covered for full plan benefits while confined in a hospital and reduced or limited benefits while not confined in a hospital.
3. Covered for full plan benefits while confined in a hospital and no benefits while not confined in a hospital.
4. Covered for reduced or limited benefits whether or not confined in a hospital.
5. Not covered.

† For dependents, exposure of employees insured with respect to their dependents.

‡ Tabular claims do not vary by mental and nervous restriction.

§ Less than $50,000 of tabular claims.

TABLE 8

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY MAXIMUM BENEFIT
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Lifetime Maximum	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to to 1960 Tabular†
	Employee			
$ 2,500–$ 4,999	6	2,358	87,528	88%
5,000	1,044	107,977	5,146,783	98
5,001– 9,999	52	10,890	476,864	102
10,000	575	165,106	8,065,774	103
10,001– 19,999	7	5,354	212,036	98
20,000 or more	2	2,730	136,381	102
Total	1,686	294,415	14,125,366	101
	Dependent			
$ 2,500–$ 4,999	2	1,123	85,365	107%
5,000	1,014	73,323	6,445,005	97
5,001– 9,999	52	8,047	617,959	96
10,000	561	117,822	10,318,439	102
10,001– 19,999	7	4,310	298,798	92
20,000 or more	2	1,871	151,448	93
Total	1,638	206,496	17,917,014	100

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular claims do not vary by lifetime maximum.

TABLE 9

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY DEDUCTIBLE ACCUMULATION PERIOD
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Deductible Accumulation Period	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular†
	Employee			
30 days	6	5,436	297,671	114%
60 days	141	23,217	1,101,463	100
90 days	126	36,838	1,738,692	96
120 days or more, but less than benefit period	389	59,534	2,738,252	99
Entire benefit period	1,024	169,390	8,249,288	102
Total	1,686	294,415	14,125,366	101
	Dependent			
30 days	6	4,323	363,315	96%
60 days	132	16,450	1,328,775	96
90 days	122	27,957	2,600,574	100
120 days or more, but less than benefit period	369	39,826	3,321,151	97
Entire benefit period	1,009	117,940	10,303,199	102
Total	1,638	206,496	17,917,014	100

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular claims do not vary by deductible accumulation period.

TABLE 10

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY COINSURANCE PERCENTAGE
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Coinsurance Percentage	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular
	Employee			
75–25%				
Without Full Reimbursement of Hospital Expenses	40	9,814	467,975	110%
With Full Reimbursement of Hospital Expenses	150	37,930	1,578,465	90
Total	190	47,744	2,046,440	94
80–20%				
Without Full Reimbursement of Hospital Expenses	266	36,659	1,699,629	104
With Full Reimbursement of Hospital Expenses	1,230	210,012	10,379,297	102
Total	1,496	246,671	12,078,926	102
Total	1,686	294,415	14,125,366	101
	Dependent			
75–25%				
Without Full Reimbursement of Hospital Expenses	36	8,047	702,623	109%
With Full Reimbursement of Hospital Expenses	149	27,561	2,152,825	95
Total	185	35,608	2,855,448	98
80–20%				
Without Full Reimbursement of Hospital Expenses	255	24,080	1,843,233	98
With Full Reimbursement of Hospital Expenses	1,198	146,808	13,218,333	100
Total	1,453	170,888	15,061,566	100
Total	1,638	206,496	17,917,014	100

* For dependents, exposure of employees insured with respect to their dependents.

TABLE 11

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
EMPLOYEE AGE DISTRIBUTION BY AVERAGE AGE FACTOR AND FEMALE PERCENT
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

AVERAGE AGE FACTOR AND FEMALE PERCENT	NUMBER OF EXPERIENCE UNITS	EMPLOYEE YEARS OF EXPOSURE	PERCENTAGE DISTRIBUTION BY AGE							
			<40	40–44	45–49	50–54	55–59	60–64	>65	Total
60–79:										
<31%.....	89	12,423	82.4%	9.2%	5.0%	2.1%	0.9%	0.3%	0.1%	100%
31% or more	35	5,096	81.4	7.8	6.2	2.6	1.3	0.6	0.1	100
Total.....	124	17,519	82.0	8.8	5.4	2.3	1.0	0.4	0.1	100
80–89:										
<31%.....	198	38,910	68.6	13.1	8.8	5.1	2.8	1.1	0.5	100
31% or more	61	6,823	69.7	11.9	8.6	4.8	3.0	1.2	0.8	100
Total.....	259	45,733	68.7	12.9	8.8	5.1	2.8	1.1	0.6	100
90–99:										
<31%.....	244	54,593	61.3	12.8	10.1	7.2	4.8	2.8	1.0	100
31% or more	123	18,184	62.1	12.9	9.9	6.8	4.3	2.8	1.2	100
Total.....	367	72,777	61.5	12.8	10.1	7.1	4.7	2.8	1.0	100
100–109:										
<31%.....	283	59,970	52.9	13.4	12.0	9.4	6.7	4.0	1.6	100
31% or more	113	17,266	53.3	12.7	11.4	9.9	6.7	3.7	2.3	100
Total.....	396	77,236	53.0	13.2	11.9	9.5	6.7	3.9	1.8	100
110–119:										
<31%.....	170	35,911	45.5	13.9	12.7	10.9	8.3	5.8	2.9	100
31% or more	76	10,920	44.9	13.8	13.2	11.8	8.4	4.6	3.3	100
Total.....	246	46,831	45.4	13.9	12.8	11.1	8.3	5.5	3.0	100
120 or more:										
<31%.....	179	21,964	33.9	12.3	13.0	13.0	12.2	9.1	6.5	100
31% or more	115	12,355	34.4	11.9	12.7	13.8	11.0	9.0	7.2	100
Total.....	294	34,319	34.0	12.2	12.8	13.3	11.8	9.1	6.8	100
All Groups:										
<31%.....	1,163	223,771	56.3	12.9	10.8	8.3	6.0	3.8	1.9	100
31% or more	523	70,644	54.5	12.3	10.9	9.1	6.4	4.1	2.7	100
Total.....	1,686	294,415	55.8	12.8	10.8	8.5	6.1	3.9	2.1	100

TABLE 12

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
EMPLOYEE INCOME DISTRIBUTION BY PERCENT OF EMPLOYEES
EARNING $10,000 OR MORE ANNUALLY
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

PERCENT EARNING $10,000 OR MORE ANNUALLY	NUMBER OF EXPERIENCE UNITS	EMPLOYEE YEARS OF EXPOSURE	PERCENTAGE DISTRIBUTION BY ANNUAL EARNINGS						
			Less than $5,000	$5,000 to $7,500	$7,500 to $10,000	$10,000 to $15,000	$15,000 to $20,000	$20,000 or More	Total
<11%.	1,151	210,232	56.2%	29.1%	10.4%	2.8%	0.8%	0.7%	100%
11–21...	331	61,207	34.1	31.8	19.0	10.2	2.8	2.1	100
21–31...	91	10,969	27.8	29.6	18.9	14.4	4.5	4.8	100
31–41...	30	1,294	29.1	22.9	14.6	16.0	9.5	7.9	100
41 or more..	25	1,171	14.7	18.2	12.7	30.4	8.5	15.5	100
Total.	1,628	284,873	50.0	29.6	12.6	5.0	1.5	1.3	100
	58	9,542	Distribution not available						

TABLE 13

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
EMPLOYEE INCOME DISTRIBUTION BY AVERAGE AGE FACTOR
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Average Age Factor	Number of Experience Units	Employee Years of Exposure	Percentage Distribution by Annual Earnings						
			Less than $5,000	$5,000 to $7,500	$7,500 to $10,000	$10,000 to $15,000	$15,000 to $20,000	$20,000 or More	Total
60– 79...	123	16,173	55.4%	27.9%	9.2%	4.9%	1.9%	0.7%	100%
80– 89...	256	45,309	47.8	28.3	15.7	5.8	1.3	1.1	100
90– 99...	353	70,959	52.3	28.1	12.1	4.9	1.5	1.1	100
100–109...	378	74,373	49.0	31.1	12.7	4.4	1.4	1.4	100
110–119...	234	44,896	47.5	34.5	10.5	4.8	1.5	1.2	100
120 or more	284	33,163	51.8	25.5	13.6	5.6	1.6	1.9	100
Total...	1,628	284,873	50.0	29.6	12.6	5.0	1.5	1.3	100
	58	9,542	Distribution not available						

TABLE 14

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
DEPENDENT UNIT COMPOSITION BY AVERAGE AGE FACTOR
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Average Age Factor	Number of Experience Units	Dependent Unit Years of Exposure*	Percentage of Dependent Units Containing:	
			Spouse	Children
60– 79.....	21	2,093	91.8%	76.9%
80– 89.....	49	17,676	94.8	80.3
90– 99.....	90	19,863	92.2	74.1
100–109.....	152	22,050	90.0	76.2
110–119.....	80	8,442	93.5	70.1
120 or more....	96	12,273	93.6	62.6
Total.....	488	82,397	92.5	74.0
			One Dependent	Two or More Dependents
60– 79.....	31	4,677	30.0%	70.0%
80– 89.....	106	10,392	25.1	74.9
90– 99.....	126	23,124	26.9	73.1
100–109.....	115	19,037	29.0	71.0
110–119.....	78	13,179	35.8	64.2
120 or more....	93	6,003	40.6	59.4
Total.....	549	76,412	30.0	70.0
	601	47,687	Distribution not available	

* Exposure of employees insured with respect to their dependents.

tions for groupings of the average age factor. Table 14 shows the composition of dependent units by average age factor, and Table 15 shows this information by female percentage. In Tables 12–15, only a portion of the total exposure was distributed by income or dependent unit composition, since this information was not available for many groups.

CONCLUSIONS

As previously mentioned, the experience results in this study pertain to policy years ending in 1959 and 1960. Hence the experience level for these combined policy years centers about July 1, 1959. Substantial increases in claim costs for these plans have been experienced by the contributing companies since 1959, and these changes in the level of medical expenses and insurance costs must be considered in interpreting these results or in applying them for future use. It is our opinion that the 1960

TABLE 15

COMBINED 1959–60 POLICY YEARS' EXPERIENCE
DEPENDENT UNIT COMPOSITION BY FEMALE PERCENT
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

FEMALE PERCENT	NUMBER OF EXPERIENCE UNITS	DEPENDENT UNIT YEARS OF EXPOSURE*	PERCENTAGE OF DEPENDENT UNITS CONTAINING:	
			Spouse	Children
<11%	116	25,906	96.6%	74.5%
11–21	112	24,403	95.1	75.8
21–31	98	17,463	93.1	72.4
31–41	35	2,512	87.5	75.4
41–51	41	4,033	86.1	66.3
51 or more	86	8,080	74.9	73.5
Total	488	82,397	92.5	74.0
			One Dependent	Two or More Dependents
<11%	150	22,172	26.6%	73.4%
11–21	158	28,874	29.6	70.4
21–31	81	12,364	32.0	68.0
31–41	51	4,805	33.2	66.8
41–51	43	4,554	32.2	67.8
51 or more	66	3,643	39.5	60.5
Total	549	76,412	30.0	70.0
	601	47,687	Distribution not available	

* Exposure of employees insured with respect to their dependents.

Tabular measures the principal variations in claim costs due to plan characteristics and the age and sex composition of the exposure. We hope that this study and the development of the 1960 Tabular will make possible future annual studies of Comprehensive Medical Expense plans and furnish a tool which will enable the increasing costs of these benefits to be demonstrated. Also, we hope that the members of the Society will be able to provide supplemental statistics available to them which may indicate more recent levels of Comprehensive experience or which will contribute to the further development or modification of the tabular costs reported in this paper.

CONTRIBUTING COMPANIES

The following companies submitted experience to the study:

Aetna Life Insurance Company
Connecticut General Life Insurance Company
Continental Assurance Company
Equitable Life Assurance Society
John Hancock Mutual Life Insurance Company
Metropolitan Life Insurance Company
Occidental Life Insurance Company of California
Provident Life and Accident Insurance Company
Prudential Insurance Company of America
The Travelers Insurance Company

The authors are deeply appreciative of the co-operation and assistance of the individual members of the Committee on Experience under Group Health Insurance who made this paper possible. They also wish to thank Mr. John Mahder, who assisted in the preparation of the data.

APPENDIX A

1960 TABULAR COSTS FOR COMPREHENSIVE MEDICAL EXPENSE PLANS

Tabular costs for an "all cause" plan of Comprehensive Medical Expense Benefits are determined as set forth below:

Step I. Basic Tabular Costs

Basic annual claim costs for Plans I through IV with a $50 deductible, 80% reimbursement, and a private-room limit equal to the hospital's average semi-private room and board charge are shown below for coverage of male employees and for coverage of one or more children.

	Annual Tabular Costs for Coverage of:	
	Male Employee	One or More Children
Plan I—Deductible applies to all expenses	$37.40	$31.80
Plan II—No deductible for hospital expenses; deductible applies to nonhospital expenses:		
Tabular cost for hospital expenses	21.21	21.37
Tabular cost for nonhospital expenses	18.06	14.25
Total	$39.27	$35.62
Tabular for Plan II as percentage of tabular for Plan I	105%	112%
Plan III—$25 deductible for hospital expenses; $50 deductible for nonhospital expenses and a maximum deductible of $50 for all expenses	$37.77	$32.44
Tabular for Plan III as percentage of tabular for Plan I	101%	102%
Plan IV—No deductible for hospital or surgical expenses; deductible applies to "other" expenses:		
Tabular cost for hospital expenses	$21.21	$21.37
Tabular cost for surgical expenses	7.85	10.34
Tabular cost for "other" expenses	11.29	7.19
Total	$40.35	$38.90
Tabular for Plan IV as percentage of tabular for Plan I	108%	122%

Step II. Deductible Adjustment

The portion of the tabular cost of any given plan which represents the expenses subject to the deductible is multiplied by the appropriate deductible adjustment factor shown below to obtain the adjusted tabular cost for the deductible provided by the plan. This adjusted tabular cost is then added to the tabular costs, if any, for expenses not subject to the application of the deductible.

Plan and Deductible	Deductible for Nonhospital Expenses	Deductible Adjustment Factor: Male Employee	Deductible Adjustment Factor: Children
Plan I—Factor is applicable to total tabular cost:			
$ 25		120%	135%
50		100	100
75		92	85
100		85	73
Plan II—Factor is applicable only to nonhospital tabular cost:			
$ 25		135%	165%
50		100	100
75		85	76
100		74	59
Plan III—Factor is applicable to total tabular cost:			
Deductible for Hospital Expenses	Deductible for Nonhospital Expenses		
$25	$ 50	100%	100%
25 or 50	75	93	87
25 or 50	100	86	76
Plan IV—Factor is applicable only to tabular cost for "other" expenses:			
$ 25		150%	200%
50		100	100
75		82	72
100		68	53

Step III. Coinsurance Adjustment

a) No adjustment is necessary if the plan provides 80% reimbursement. If the plan provides 75% reimbursement, the total adjusted tabular cost from Step II is multiplied by 94%.

b) If the plan provides for a full payment feature on an area of hospital expenses and 80% reimbursement of other expenses, the additional tabular costs shown below are added to the Step III*a* total tabular costs.

Area of Hospital Expenses Reimbursed in Full	Additional Annual Tabular Costs for Coverage of: Male Employee	Additional Annual Tabular Costs for Coverage of: One or More Children
$200*-$299	$2.97	$3.85
$300	3.82	4.49
$301 -$499	4.24	4.70
$500	4.45	4.92
$501 or more	4.67	5.13

* Plans with hospital reimbursement features less than $200 were not included in the study.

c) If the plan provides for a full payment feature on an area of hospital expenses and 75% reimbursement of other expenses, the additional tabular costs

in Step III*b* are multiplied by 125% before being added to the Step III*a* tabular costs.

Step IV. Adjustments for Age and Female Content

a) The average age factor for each group of employees is determined by multiplying the appropriate age factor shown in the table below by the percentage of employees in the corresponding age group and summing the results.

Age Group	Age Factor
Less than 40	65%
40–44	100
45–49	120
50–54	150
55–59	190
60–64	250
65 and over	320

b) The female factor is obtained by multiplying the percentage female by 28%.

c) The female factor is added to the age factor to obtain the age-female factor.

d) The employee tabular cost adjusted for age and for female content is obtained by multiplying the Step III male employee tabular cost by the age-female factor. The dependent child or children tabular cost from Step III is not adjusted in Step IV for age or female content.

Step V. Dependent Spouse Tabular Cost

The dependent spouse tabular cost is derived by adding 28% of the Step III tabular cost for a male employee to the age and female adjusted tabular cost for employee coverage from Step IV*d*.

Step VI. Tabular Cost for Coverage of One or More Dependents

The tabular cost for coverage of one or more dependents is obtained by taking 93% of the dependent spouse tabular cost from Step V and adding 73% of the dependent child or children tabular cost from Step III.

Step VII. Area Adjustment

The employee tabular cost from Step IV and the dependent tabular cost from Step VI are multiplied by the area factor for the metropolitan area, state, or region in which employees are located. The metropolitan area factors are to be used wherever possible, next the state factors, and finally the region factors. The table of area factors is shown at the end of this Appendix (pp. 47–48).

Step VIII. Private-Room Adjustment

No adjustment is made for cases with a private-room limit equal to or less than the average semiprivate hospital room and board charge. If the plan has a private-room limit which is a specified number of dollars above the hospital's average semiprivate rate, then the appropriate additional tabular costs shown

below are added to the Step VII employee and dependent tabular costs. No adjustment is made for coinsurance, age, female content, or area.

Excess of Private-Room Limit over Average Semiprivate Charge	Additional Annual Tabular Costs for Excess Private-Room Limits	
	Employee	Dependent
None	.....	.....
$1 or $2	$ .40	$ .68
3	.60	1.02
4	.80	1.36
5	1.00	1.70
6 or more	1.20	2.04

Step IX. Adjustment for California UCD Hospital Benefit

For groups with insured employees in the state of California, a reduction in the Step VIII employee tabular cost is made for the integration of the plan with the California UCD Hospital Benefit. No adjustment in the dependent tabular cost is necessary.

a) The basic reduction in the Step VIII employee tabular cost for integration with the California UCD Hospital Benefit is shown in the table below for each plan of benefits. When the percentage of insured employees located in California is less than 100%, the applicable reduction should be multiplied by the percentage of California employees.

	Annual Tabular Costs	
	75%–25% Coinsurance	80%–20% Coinsurance
(i) Deductible applies to all expenses (Plan I):		
$25 or $50 deductible	$6.58	$7.00
75 deductible	6.32	6.72
100 deductible	6.12	6.51
(ii) Deductible does not apply to hospital or hospital and surgical expenses or a lower deductible applies to hospital expenses (Plans II, III, and IV):		
All plans regardless of deductible	6.58	7.00

b) The basic tabular reduction from the table above is adjusted for the amount of full payment area for hospital expenses in accordance with the table below:

Area of Hospital Expenses Reimbursed in Full	Percentage Adjustment for Area of Full Reimbursement of Hospital Expenses
None	100%
$200*–$299	104
$300	108
$301 –$499	112
$500	116
$501 or more	117

* Plans with hospital reimbursement features less than $200 were not included in the study.

c) The adjusted tabular reduction from (*b*) above is multiplied by the age-

female factor from Step IV. This final result is then subtracted from the Step VIII employee tabular cost.

The final employee and dependent nonmaternity tabular costs from Step IX are multiplied by the number of employees or dependent units insured under each plan to obtain the total aggregate dollars of nonmaternity tabular claims.

Step X. Tabular Costs for Maternity Benefits

The annual tabular costs for a $100 maternity benefit (full reimbursement of all covered expenses without any deductible up to $100 per pregnancy) are $6.00 for coverage of a female employee and $9.50 for coverage of one or more dependents. If the maximum maternity benefit is other than $100, a proportionate adjustment is made.

The tabular maternity cost for employee coverage is obtained by multiplying the percentage female by the female employee tabular cost for the maternity benefit provided by the plan.

Aggregate tabular maternity claims for any plan are derived by multiplying the tabular maternity claim costs for the maternity benefit provided by the plan by the number of employees insured under the plan for employee coverage or by the number of dependent units for dependent coverage.

1960 TABULAR AREA FACTORS BY REGION, STATE, AND METROPOLITAN AREA

Region, State, or Metropolitan Area	1960 Tabular Area Factor
Region	100%
Connecticut	100
Bridgeport	100
Hartford–New Britain–Bristol	100
New Haven	100
Maine	92
Massachusetts	100
Boston	108
Springfield–Holyoke	100
New Hampshire	92
Rhode Island	108
Providence	108
Vermont	92
Region	100
Delaware	92
District of Columbia	100
New Jersey	100
Allentown–Bethlehem–Easton	92
New York–Northeastern New Jersey	108
Philadelphia (Pennsylvania)	100
New York	92
Albany–Schenectady–Troy	100
Buffalo	100
New York–Northeastern New Jersey	108
Rochester	100
Syracuse	100
Pennsylvania	92
Allentown–Bethlehem–Easton	92
Philadelphia	100
Pittsburgh	100
Region	100
Illinois	92
Chicago	100
St. Louis	100
Indiana	84
Chicago	100
Indianapolis	84
Louisville (Kentucky)	92
Kentucky	84
Cincinnati (Ohio)	100
Louisville	92
Michigan	100
Detroit	116
Region—*Continued*	
Ohio	92%
Akron	108
Cincinnati	100
Cleveland	108
Columbus	100
Dayton	100
Toledo	100
Wheeling (W.Va.)–Steubenville (Ohio)	92
Youngstown	100
Wisconsin	92
Milwaukee	100
West Virginia	84
Wheeling (W.Va.)–Steubenville (Ohio)	92
Region	100
Iowa	100
Kansas	92
Kansas City	100
Omaha (Nebraska)	100
Minnesota	92
Minneapolis–St. Paul	108
Missouri	92
Kansas City	100
St. Louis	100
Nebraska	92
Omaha	100
North Dakota	92
South Dakota	92
Region	100
Colorado	100
Denver	108
Idaho	100
Montana	100
Nevada	108
Utah	92
Wyoming	92
Region	124
California	132
Los Angeles	140
San Diego	132
San Francisco–Oakland	140
Oregon	108
Portland	116
Washington	108
Portland (Oregon)	116
Seattle	116

1960 TABULAR AREA FACTORS BY REGION, STATE, AND METROPOLITAN AREA—*Continued*

Region, State, or Metropolitan Area	1960 Tabular Area Factor
Region	100%
Arizona	116
Arkansas	84
Louisiana	100
New Orleans	108
New Mexico	100
Oklahoma	92
Texas	108
Dallas	124
Fort Worth	124
Houston	140
San Antonio	108
Region	92
Alabama	92
Birmingham	100
Florida	92
Miami	108
Tampa	108
Region—*Continued*	
Georgia	92%
Atlanta	100
Maryland	84
Baltimore	92
District of Columbia	100
Mississippi	92
North Carolina	84
South Carolina	76
Tennessee	92
Knoxville	100
Memphis	100
Virginia	84
Norfolk–Portsmouth	92
District of Columbia	100
Hawaii	100
Alaska	132

DISCUSSION OF PRECEDING PAPER

JOSEPH W. MORAN:

Mr. Burton and Mr. Pettengill have devised an excellent tool for use in comparative analysis of claims experience on comprehensive major medical coverage. The provisions for variation in tabular claims by type of benefit provision among the wide variety of plans offered currently should be extremely useful in projecting claim levels for new plans of this type as they are developed.

My own comments on the paper will relate principally to the analysis of experience data for policy years ending in 1959 and 1960 and the apparent trend in claims experience over this period.

The authors have noted that the difference shown in Table 1 between actual/tabular ratios for policy years ending in 1959 and 1960 is less than they anticipated. This difference is also less than the 7–10 per cent annual upward trend in claim cost level which we have observed in our analysis of New York Life's claim experience.

Thus it seems in order to question the validity of using such a comparison of actual/tabular ratios for successive years as a basis for estimating trends in claim costs, at least in *this* particular instance. The following observations seem pertinent:

1. The "actual claims" used as numerators in computing A/T ratios are "formula incurred claims" figures, as computed by the contributing companies for each case in connection with dividend calculations. Presumably, each company has computed its "formula incurred claims" as the sum of claims paid during the policy year plus the change in "formula claim reserve" during the year. A "*true* incurred claims" figure would be computed as the sum of paid claims plus the change in *liability* for incurred claims not yet paid. The "formula incurred claims" contributed to the study generally thus represent only a first approximation to "true incurred claims" for each case or for all cases combined.

This distortion would generally be small if the claim reserve liability, the changes in that liability, and the changes in the formula claim reserve were *each* generally *small* as a percentage of true incurred claims.

None of these characteristics seems to apply to comprehensive major medical coverage over the period under study here. The reserve liability is estimated at from 25 to 40 per cent of a year's claims. This liability increases in amount at about the same rate as current claim costs. Finally,

changes in formula claim reserves often are a large function of total incurred claims.

"Formula incurred claims" for any case will be distorted from "true incurred claims" to the extent that formula claim reserves have changed by more (or less) than true claim liabilities.

Formula claim reserves are usually computed, for most group policies, as a percentage of premium. Most insurers have made radical revisions during the past several years in the premiums to which these percentages are applied, and in the percentages themselves.

EXHIBIT I

ILLUSTRATION OF EFFECTS OF PREMIUM RATES CHARGED ON INCURRED CLAIM AND TREND FIGURES

	Year 1	Year 2	Year 3	Year 4	Year 5
I. *Assumptions*					
Common to Cases A and B:					
Average number insured	50	50	50	50	50
Tabular claims	$10,000	$10,000	$10,000	$10,000	$10,000
Claims paid during year	5,000	8,800	9,680	10,648	11,713
Claim reserve as percentage of premium	30%	30%	30%	30%	30%
Case A					
Monthly premium rate	$ 18.18	$ 20.00	$ 22.00	$ 24.20	$ 24.20
Premium	$10,908	$12,000	$13,200	$14,520	$14,520
Case B					
Monthly premium rate	$ 14.00	$ 14.00	$ 21.00	$ 21.00	$ 25.20
Premium	$ 8,400	$ 8,400	$12,600	$12,600	$15,120
II. *Apparent Results*					
Case A					
Incurred claims	$ 8,272	$ 9,128	$10,040	$11,044	$11,713
Trend from prior year	.....	+10%	+10%	+10%	+6%
Case B					
Incurred claims	$ 7,520	$ 8,800	$10,940	$10,648	$12,469
Trend from prior year	.....	+17%	+24%	−4%	+17%

An illustration of the effect of premium rate changes on formula incurred claim figures is shown in Exhibit I. For purposes of this exhibit, two group cases, A and B, have been designed with identical enrollment, exposure, tabular claims, and history of claim payments over a five-year period. It is also assumed that the formula claim reserve used in calculating formula incurred claims for each case each year is 30 per cent of the premium for that year.

The two cases are assumed to differ only as to premium rates charged. Case A is assumed to have been written at an adequate initial premium rate, with 10 per cent rate increases at the end of Year 1, Year 2, and Year 3. Case B is assumed to have been written at a much lower initial

premium rate, with rate increases of 50 per cent at the end of Year 2 and 20 per cent at the end of Year 4.

Case A incurred claims show a fairly steady pattern of a 10 per cent upward trend from year to year (the paid claim assumptions were fixed to produce this pattern). However, even for this case, the apparent trend from Year 4 to Year 5 is less, simply because no rate increase was assumed at the end of Year 4.

On the other hand, the formula incurred claims for Case B show no orderly trend pattern. The 17 per cent trend from Year 1 to Year 2 reflects the understatement in the first-year formula claim reserves due to the low initial premium rates. The 24 per cent trend indicated from Year 2 to Year 3 reflects the 50 per cent increase in formula claim reserves that result from the rate increase at the end of Year 2. The negative trend from Year 3 to Year 4 reflects to the very large reserve change included in incurred claims for Year 3. Finally, the 17 per cent trend from Year 4 to Year 5 reflects the 20 per cent increase in formula claim reserve that results from the Year 4.

The distortions illustrated for *single* cases are also representative of the distortions to be expected in *aggregate* incurred claim figures for a year in which changes in premium rate levels for all comprehensive major medical business have exceeded the extent of trends in "true" claims costs. Note that the distortions due to premium action taken in 1958 (for example) affect the apparent incurred claims for 1959 and the apparent trend from 1959 to 1960.

2. The claim trend indicated by this study is the trend in the *ratio* of actual to tabular claims. In our analysis of New York Life cases, we have found that the typical shifts in age distribution for a large block of cases from year to year for any year can be expected to exceed the tabular claims that would have been computed on the previous year's census data by about 3 per cent. (This may or may not be a situation peculiar to our cases or to this type of coverage only.) In other words, a 7 per cent annual trend in actual/tabular ratio typically would indicate a 10 per cent annual trend in the absolute level of claims.

3. The study excluded the last policy year of cases which cancelled on their anniversary. This exclusion tends to distort the exposure, since these cancelled cases probably included a disproportionately large exposure with high claims. The effect of this distortion may very likely be greater for 1960 than for 1959, since 1960 renewal reratings would tend to be based on a larger exposure because of the longer average duration of cases renewed.

RICHARD H. HOFFMAN:

The authors are to be congratulated on their extremely fine and very important contribution to our actuarial knowledge of health insurance. This is the first paper of its kind, namely, the development of group comprehensive major medical expense claim costs, to be included in the *Transactions*. Even greater credit is due when it is recognized that the task of designing a formula to produce major medical claim costs is probably the most complicated and difficult of all the coverages written in the group insurance field.

The authors have done a wonderful job of developing rating factors for the numerous plan variables and employee morbidity characteristics. But, as mentioned in the paper, they did not reflect in the tabular cost formula all the benefit variations or a rating for the employees' incomes. It was indicated that the reason for this was that there was little or no available experience on which to base such tabular cost differentials.

However, the absence of such ratings is likely to produce some spurious results. For instance, Table 8, "Analysis of Experience by Maximum Benefits," indicates that plans with higher maximum benefits are more costly. Although, of course, I do not argue with this conclusion, the higher claim ratios for the higher maximum benefit plans obtained in this study probably result more from the fact that groups with higher incomes tend to purchase plans with larger maximum benefits than because higher maximum plans are more costly. As is brought out in Table 4, "Experience by Percent of Employees Earning $10,000 or More," the claim cost for groups with higher incomes is considerably greater than for groups with lower incomes.

One might ask, however, whether there is any other alternative. I believe that there is—the data used in this study itself. If tabular cost differentials had been established for all the tabular cost variables except one, then the data could be studied with respect to that variable, and a fairly reliable differential could be determined. However, when there is an absence of ratings for several such variables, then the problem becomes much more acute. The method that we have used at my company from time to time when there is an absence of independent data might be called "successive approximations." A rating is estimated for each of the unknown variables, and each one is tested successively with the data. The ratings are then "trued up" in turn until the best possible fit is obtained. Although, admittedly, this is not a foolproof scheme, I believe it is preferable to no rating at all.

Inasmuch as the data submitted by the contributing companies pro-

vide case-by-case income distributions of the employees, I believe it might be possible to develop a reasonable income scale by measuring the effect of some trial income scales for all cases with $5,000 maximums and $10,000 maximums separately.

Also, the authors did not develop a maternity tabular which varied by age, since maternity experience by the groups' age factor was presented in the paper. Because maternity claims are studied separately from all other claims, the lack of this type of rating as contrasted to the rating for income had no effect on any of the other results. Under basic health insurance coverages, age ratings are not used on the theory that, where family coverage is included, the increasing cost of maternity benefits and the cost

TABLE 1

Age of Employee	Annual Tabular Cost per $100 of Maternity Benefits	
	Per Female Employee	Per Dependent Unit
Less than 30	$12.50	$20.00
30–34	10.00	15.50
35–39	6.00	9.50
40–44	3.00	4.50
45–49	1.50	2.50
50 and over	0	0

of children's coverage by age are offset by the decreasing cost of nonmaternity benefits. However, in the case of comprehensive major medical coverage, since premiums for nonmaternity benefits are rated for the ages of the employees, it becomes necessary to establish age ratings for the premiums for maternity benefits as well.

I have attempted to develop some claim cost factors that vary by the ages of the employees which might be employed in the tabular cost formula. These claim costs factors are based on the frequency of maternity data published in the New York State Insurance Department's report *Health Insurance and the Senior Citizen*, Table D-10, page 211. In arriving at these factors, adjustments were made to reflect the proportion of married employees within each age bracket and to take account of the difference between the ages of the wives and the ages of the employees. The resulting tabular costs, which produce the same average tabular values of $6.00 per female employee and $9.50 per employee with dependents that were used in the paper, are given in Table 1.

When these cost factors are applied to the age distribution for the 1959–

61 policy years and the resulting tabular costs compared with the actual claims for the group of cases where the proportion of females is less than 31 per cent, the results shown in Table 2 are obtained.

For groups where the percentage of females is more than 31 per cent, the study data do not lend themselves to a test for two reasons. First, for groups with a high proportion of females, the ages of the employees may not be a good indicator of the ages of the dependent wives. Second, the exposure data do not reveal what proportion of the dependent units include a dependent wife. In the higher percentage of female cases, for these

TABLE 2

COMBINED 1959–61 POLICY YEARS' EXPERIENCE

Average Age Factor	Employee			Dependent		
	Actual Claims	Ratio of Actual Claims to:		Actual Claims	Ratio of Actual Claims to:	
		Unadjusted 1960 Tabular	Age Adjusted 1960 Tabular		Unadjusted 1960 Tabular	Age Adjusted 1960 Tabular
60–79.....	$ 36,074	130%	87%	$ 327,213	155%	104%
80–89.....	63,563	108	87	699,540	120	96
90–99.....	143,565	129	117	1,272,323	110	100
100–109.....	105,749	98	101	920,040	91	94
110–119.....	49,888	92	109	446,077	81	96
120 or more..	20,935	60	97	325,921	66	107
All ages..	$419,774	106%	106%	$3,991,114	100%	100%

reasons, it is advisable to obtain separate distributions of the ages of the male and female employees and to obtain a count of the number of dependent units that include a wife. The maternity cost for wives can then be based on the ages of the male employees and the maternity cost for female employees on the ages of the female employees.

The minimal increase in the level of claim costs from 1959 to 1960 described in the paper is similar to the experience we obtained at the Equitable during this period. However, in 1961 our claims increased by 7 per cent over 1960, which, in our opinion, is a more normal yearly increase.

E. PAUL BARNHART:

I think this is an extremely valuable paper and will prove to be of great help to all of us who must deal with this troublesome field of medical

costs. Mr. Burton and Mr. Pettengill are to be commended for this most practical and useful tool.

I would like to offer a few comments on just one of the steps developed by the authors in determining tabular cost for a particular plan of comprehensive benefits—Step IV, adjustments for age and female content.

In discussing female employee factors, the authors comment that there is no statistical study of relative costs by age of male and female employees under comprehensive plans. Some statistical data are now beginning to emerge under individual major medical expense plans which strongly indicate that extra female costs diminish very rapidly at ages over 50, the female costs eventually becoming substantially lower than male costs of the same advanced age. This effect appears to be more pronounced than that experienced under hospital-surgical coverage, to which the authors refer. It is extremely probable, therefore, that comprehensive experience will fall between these two, so that again female costs at advanced ages will fall below those of males.

To approximate this decreasing percentage extra cost, the authors have used a "female factor" of 28 per cent, which, as used in the Step IV computation, amounts to a loading that is independent of the actual female age distribution. But, since female costs appear actually to fall *below* male costs at high ages, not only does the female extra percentage fall off but also does the dollar difference between male and female costs.

My own comprehensive medical cost tables (*TSA* XIII, 500) give these costs for a $50 deductible and $10,000 maximum (per cause), 75 per cent insurance benefit, valuing at a $5.00 unit value:

Age	Male	Female	Dollar Difference
35.....	$37.98	$63.26	$25.28
55.....	85.63	97.25	11.62

These tables do not represent actual experience, but such experience as has since been reported appears to verify the general relative comparison between male and female costs exhibited in the tables, except that the tables may be relatively too low for men above about age 60.

This raises the question whether a constant 28 per cent addition to the age factor may not become inaccurate in cases where the female age distribution is abnormally young or abnormally old in comparison to the male age distribution. In their Table 2, the authors give actual versus 1960 Tabular expected ratios for age and female percentage, but the data in the table are not exhibited in such a way as to reveal distortion arising from abnormal relative female age distribution as compared with the males.

To test this, I constructed a combination age-sex factor table based on my own tables referred to above and then adjusted so that for an average group the authors' 28 per cent is closely reproduced (Table 1), retaining the authors' scale for males.

Let me compute the age-female factor for the following three hypothetical groups, using the authors' Step IV procedure, and then the age-sex

TABLE 1

Age Group	Age Factor	
	Males	Females
Under 40	65%	104%
40–44	100	142
45–49	120	153
50–54	150	164
55–59	190	175
60–64	250	208
65 and over	320	243

TABLE 2

Age Group	I		II		III	
	Men	Women	Men	Women	Men	Women
Under 40	190	250	150	290	245	195
40–44	140	60	115	85	150	50
45–49	120	30	130	20	100	50
50–54	90	30	115	5	70	50
55–59	25	15	40	0	15	25
60–64	20	10	30	0	10	20
65 and over	15	5	20	0	10	10
Total	600	400	600	400	600	400

factors above. Each group has the same female percentage content (40 per cent) and also the same age distribution for males and females combined. However, while Group I is assumed to be average, Group II has a concentration of females at the younger ages where their costs exceed those of males by the largest dollar amount, and Group III has a heavier female content at older ages, where female costs are relatively more favorable. Each group has 1,000 lives, distributed as shown (Table 2).

For each of the three groups, the authors' calculation leads to an age-female factor of 118.0 per cent (106.8 per cent age + 11.2 per cent female).

Use of the combination age-sex factor table I have given above leads to 118.8 per cent for average Group I (practically identical to the authors' factor), 121.9 per cent for Group II, and 116.3 per cent for Group III.

Their differences are not great and suggest that, unless the relative distribution is heavily abnormal, relative female age distribution may be ignored and the authors' rule safely followed. Only when a very abnormal relative age distribution exists would it appear that such a refinement as the age-sex table above may be desirable. To use this, age data must of course be available for males and females separately. The authors' rule requires only combined age data together with total female percentage.

Similar considerations apply to the authors' Step V, "Dependent Spouse Tabular Cost" (and possibly also Step III and Step VIII).

Let me be quite clear that these comments are not intended as any criticism of the authors' excellent paper but rather merely as a suggestion for a possible refinement of method for groups of abnormal composition.

K. ARNE EIDE:

The history of successful research is marked by tremendous contrasts between the mature achievements of the present and the first pioneering endeavors of the past. If viewed without proper perspective, the contributions made by either pioneering investigations or more recent studies may be judged unfairly. Mr. Burton and Mr. Pettengill's paper shows how far research in one particular area of morbidity statistics has progressed in the short span of years since the publication of Mr. Thaler's original paper on this subject. The greatly increased volume of varied data now available has enabled the authors to select material which best suits the purpose of their study. When one reads the paper, he is impressed by the technical excellence of its content, by the relatively simple presentation of the facts, and by the logical development of that most useful device—the "1960 Tabular" standard. They have utilized to best advantage all data available, both past and present, in developing and testing the 1960 Tabular costs. All of us who are concerned with morbidity statistics should be grateful to them and also to their predecessors who in the past decade have pioneered in morbidity investigations of major medical expense insurance and its rapidly growing offspring, comprehensive medical expense insurance.

This discussion attempts to provide additional information that might aid in further refinements of one of the factors developed in the paper—the "Adjustment for Age and Female Content."

The paper states, "To the authors' knowledge, there is no statistical study of the relative costs by age of male and female employees under

Comprehensive plans." As a part of continuing studies of the morbidity experience of Metropolitan personnel, we have recently accumulated records of benefits paid under our employees' comprehensive plan. The experience includes payments incurred in the calendar year 1961, traced to December 31, 1962, thus including practically all the "carryover" expected from the year's claims. The data were compiled separately by sex, age, type of employment (clerical, supervisory and officer, nonclerical), and status (active or disabled). The tabulations are restricted to employees in the home office so that the experience is confined to the Metropolitan New York City area. There are no maternity benefits for female employees.

Table 1 shows the average annual claim cost per employee exposed, by quinquennial age groups, separately for male and female employees, for each employee group among active employees, and in total for disabled employees. Ratios of annual claim costs—female/male—are shown by age groups for each of the above classifications.

In aggregate, slightly over $1 million of claims are included, arising from a total exposure of 18,800 lives. It is apparent that this particular group exhibits certain characteristics which produce female/male ratios that differ from the patterns which are assumed in the paper. Among our clerical personnel this is due (at least in part) to a different pattern of disablement and utilization of comprehensive type benefits. For example, although female clerical employees at the younger ages experience much higher incidence rates of disability than male clerical employees of comparable age, much of the disability arises from causes which do not entail hospitalization or surgery (e.g., respiratory disease). On the other hand, accidental injuries rank higher among the younger male employees, and these injuries often necessitate surgical attendance. Consequently, one cannot assume ratios of female/male claim costs that decrease with advancing age in a group of clerical employees containing a preponderance of young women. Tabular costs will be somewhat overstated unless account is taken of the lower female costs at the youngest ages.

Among nonclerical personnel, the trend of the ratios was rather erratic but in general decreased with increase in age. Moreover, there are few employees of either sex in this category below age 30. Consequently, the pattern of the female/male ratios of claim costs more nearly approaches that described by the authors. Combining all active personnel produces a series of ratios that, because of the large percentage of clerical employees, differs little graphically from the inverted-U-shaped curve which is characteristic of the clerical group.

Table 2 shows (1) percentage distribution of exposure and (2) relative costs by age group for comparison with the similar table presented in the

TABLE 1

AVERAGE ANNUAL CLAIM COST OF COMPREHENSIVE MEDICAL EXPENSE BY AGE, SEX, TYPE OF EMPLOYEE, AND EMPLOYMENT STATUS 1961 METROPOLITAN LIFE EMPLOYEES' EXPERIENCE

Age	Annual Claim Cost per Employee Exposed						
	Active					Disabled*	Total
	Clerical (1)	Supvr., Adm., and Executive (2)	Total Clerical, Supvr., Adm., and Executive (3) (1)+(2)	Non-clerical (4)	Total Active Employees (5) (3)+(4)	All Employees (6)	All Employees (7) (5)+(6)
	Male						
Under 20	$ 23.65	.....	$ 23.65	$(13.68)†	$ 22.55	.....	$ 22.55
20–24	31.89	.....	31.89	(33.89)	32.07	.....	32.07
25–29	29.59	$(3.18)†	29.09	37.79	30.72	‡	30.72
30–34	37.71	(3.09)	33.63	29.03	32.33	‡	32.86
35–39	45.16	32.48	42.66	30.36	37.66	‡	37.53
40–44	41.48	57.79	44.80	33.69	40.97	‡	42.04
45–49	83.91	69.40	80.27	40.35	68.17	‡	70.54
50–54	81.49	66.00	77.36	84.58	79.25	$(223.70)†	81.59
55–59	112.21	115.00	113.19	88.95	105.41	169.03	107.56
60–64	102.87	107.45	104.59	83.08	95.96	250.00§	112.33
65 and over	352.93	66.05	216.16	(98.79)	180.19	.....	180.19
All ages	$ 62.63	$ 74.51	$ 64.97	$ 55.81	$ 62.39	$ 235.22	$ 65.22
	Female						
Under 20	$ 17.06	.....	$ 17.06	†	$ 17.42	.....	$ 17.42
20–24	27.69	.....	27.69	.....	27.60	.....	27.60
25–29	25.02	.....	25.02	$(46.40)	25.34	‡	25.43
30–34	46.87	.....	46.87	(58.27)	47.43	‡	47.37
35–39	56.12	.....	56.12	44.19	54.59	‡	62.75
40–44	71.91	‡	72.07	35.88	66.73	$(250.64)	69.82
45–49	71.35	‡	71.37	66.82	70.54	(118.08)	71.52
50–54	71.26	‡	71.26	47.91	66.34	214.02	72.93
55–59	84.56	‡	84.40	54.05	77.06	194.61	84.33
60–64	90.23	.....	89.22	77.05	84.10	.....	84.10
65 and over	.....	.....	.....	.....	.....	.....	.....
All ages	$ 43.01	†	$ 43.02	$ 55.88	$ 44.21	$ 201.94	$ 46.59

* Total and permanent disability.

† Based on fewer than ten claims.

‡ Less than ten persons exposed; average claim costs not computed.

§ Estimate based on prior experience.

TABLE 1—*Continued*

Age	Annual Claim Cost per Employee Exposed						
	Active					Disabled*	Total
	Clerical (1)	Supvr., Adm., and Executive (2)	Total Clerical, Supvr., Adm., and Executive (3) (1)+(2)	Non-clerical (4)	Total Active Employees (5) (3)+(4)	All Employees (6)	All Employees (7) (5)+(6)
	Ratio of Annual Claim Costs: Female/Male						
Under 20	0.721		0.721	‡	0.773		0.773
20–24	0.868		0.868	.....	0.861		0.861
25–29	0.846		0.860	‡	0.825		0.828
30–34	1.243		1.394	(2.007)	1.467		1.442
35–39	1.243		1.316	1.456	1.450		1.672
40–44	1.734	Not	1.609	1.065	1.629	Not	1.661
45–49	0.850	Com-	0.889	1.656	1.035	Computed	1.014
50–54	0.874	puted	0.921	0.566	0.837		0.894
55–59	0.754		0.746	0.608	0.731		0.784
60–64	0.877		0.853	0.927	0.876		0.749
65 and over	.....		.....	.....	.....		.....
All ages	0.687		0.662	1.001	0.709		0.714

paper. The effect on an age scale of sizable numbers of employees in either the very youngest or oldest age groups may be seen from an examination of Table 2. Normal retirement age for Metropolitan employees is 65 for men and 60 for women, and only 0.3 per cent of the total exposure of clerical personnel is beyond age 65. Insurance is continued after retirement, but the experience in that plan is tabulated separately. Thus, in spite of the very high average annual claim costs among these older employees, the effect is modest. However, in groups with higher proportions of active employees beyond age 65 the relative costs would undoubtedly approximate more closely those adopted for the 1960 Tabular or those used by the major companies.

The comprehensive medical expense plan covering the Metropolitan employees in our study is similar to Plan III in Appendix A, modified to include surgical as well as hospital expense benefits in the in-full reimbursement area of $300. Suitable modifications, based on comparison of a

TABLE 2

RELATIVE COSTS BY AGE GROUP AS PERCENTAGE OF AVERAGE COST OF 100 PER CENT FOR AGE DISTRIBUTION OF EXPOSURES BY TYPE OF EMPLOYEE AND STATUS, MALE AND FEMALE COMBINED
1961 METROPOLITAN LIFE EMPLOYEES' COMPREHENSIVE EXPERIENCE

AGE	PERCENTAGE DISTRIBUTION OF EXPOSURE							RELATIVE COSTS BY AGE GROUP AS PERCENTAGE OF AVERAGE COST OF 100% FOR AGE DISTRIBUTION OF EXPOSURE						
	Active					Disabled*	Total	Active					Disabled*	Total
	Clerical (1)	Suprv., Adm., and Executive (2)	Total Clerical, Supvr., Adm., and Executive (3) (1)+(2)	Non-clerical (4)	Total Active Employees (5) (3)+(4)	All Employees (6)	All Employees (7) (5)+(6)	Clerical (1)	Suprv., Adm., and Executive (2)	Total Clerical, Supvr., Adm., and Executive (3) (1)+(2)	Non-clerical (4)	Total Active Employees (5) (3)+(4)	All Employees (6)	All Employees (7) (5)+(6)
Under 40	60.7	12.3	57.5	23.2	51.9	6.8	51.1	59	25	56	62	56	114	54
40–44	6.6	10.1	6.8	11.7	7.6	4.1	7.6	121	79	117	61	103	140	102
45–49	10.6	18.5	11.1	17.6	12.2	11.3	12.2	156 } 143	93 } 88	149 } 137	91 } 79	135 } 123	85 } 100	132 } 121
50–54	12.3	23.6	13.1	20.1	14.2	29.5	14.5	154	89	147	120	141	100	143
55–59	7.0	20.8	7.9	15.8	9.2	29.1	9.5	196 } 169	154 } 119	196 } 165	134 } 126	179 } 156	86 } 93	179 } 157
60–64	2.5	10.6	3.0	10.4	4.2	19.2	4.4	199	142	196	144	178	116	189
65 and over	0.3	4.1	0.6	1.2	0.7	.....	0.7	726 } 258	89 } 127	429 } 233	177 } 148	352 } 202	.....	335 } 208
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	100	100	100	100	100	100

* Total and permanent disability.

plan similar to the Plan III type and the Metropolitan employees' plan, indicated that the annual tabular cost of $37.77 for Plan III should be increased by approximately 12½ per cent in Step III (*b*). From this base 1960 tabular costs, for each of the employee groups shown in our Table 3, were computed according to the procedure outlined in Appendix A.

The resulting averages and comparisons of actual/expected annual claim costs are shown in Table 3. The ratios are very much in line with what we expected when allowances are made for some of the characteristics peculiar to this group. As has been mentioned previously, the application of the female factor to the average age factor for the clerical group produces a somewhat higher than average tabular cost and hence results in a lower ratio of actual/tabular. On the other hand, the result for the supervisory, administrative, and executive personnel is probably fairly

TABLE 3

COMPARISON OF 1961 ACTUAL AND 1960 TABULAR CLAIM COSTS
BY TYPE OF EMPLOYMENT AND STATUS
1961 METROPOLITAN LIFE EMPLOYEES' COMPREHENSIVE EXPERIENCE

	Active					Disabled*	Total
	Clerical	Supvr., Adm., and Executive	Total Clerical, Supvr., Adm., and Executive	Non-clerical	Total Active Employees	All Employees	All Employees
	1960 Tabular						
Total.....	$54.15	$71.22	$55.39	$67.74	$56.99	$ 85.63†	$57.46
	1961 Actual						
Male.....	$62.63	$74.51	$64.97	$55.81	$62.39	$235.22	$65.22
Female.....	43.01	59.00	43.02	55.88	44.21	201.94	46.59
Total....	$48.63	$74.39	$50.33	$55.84	$51.25	$215.50	$53.80
	Ratio: Actual/Tabular						
Total.....	90%	104%	91%	82%	90%	252%	94%

* Total and permanent disability.

† Unadjusted for status of total and permanent disability.

close to expected, with due allowance for increased costs of medical care in 1961 compared with 1960. The age-adjustment factor used in computing the 1960 Tabular costs produces a far steeper gradation by age than that actually experienced in 1961 by our nonclerical personnel. Hence, the ratio of actual/tabular is low. As explained in the footnote to Table 3, no adjustments were made in computing 1960 Tabular costs for disabled employees and the resulting ratio is not inconsistent with costs expected under a policy granting liberal medical expense benefits to employees who are totally and permanently disabled.

THEODORE J. KOWALCHUK:

The authors have presented a very fine paper which should prove to be most helpful in the determination of premium rates for group comprehensive major medical insurance.

In order to test the adequacy of our present comprehensive major medical manual premium rates at United States Life, we have calculated gross premium rates which should provide for an expected loss ratio of 75 per cent in 1963. These premium rates are based on the authors' expected claim costs which produce a ratio of actual to tabular claims of approximately 100 per cent for experience for policy years ending in 1960. The focal point of this experience is approximately January 1, 1960. Accordingly, the claim costs have been projected for three and a half years to bring them up to a mid-1963 level.

Gross monthly nonmaternity premium rates were calculated for each of the following two "all cause" plans with a twelve-month deductible accumulation period:

Plan A: Deductible and coinsurance provisions apply to all covered expenses.

Plan B: Deductible applies to all but hospital covered expenses, and coinsurance to all but first $500 of hospital covered expenses.

The employee premium rates are based on a female content of 0–10 per cent.

Table 1 summarizes our calculations.

Shown in Table 2 are the monthly premium rates we calculated for a number of important representative areas and cities for plans with a $50 deductible.

Additional adjustments are of course appropriate for other plans. For example, based on Table 9, a reduction of approximately 4 per cent should be made if the deductible accumulation period is three months instead of the full calendar year. Table 1 indicates that "each illness" (total disability not required) claim costs are approximately the same or

even slightly higher than "all cause" claim costs for employees, and about 10 per cent less than "all cause" claim costs for dependents. (The authors indicate, however, that the "each illness" data may not be statistically significant.) I would expect that most of the "each illness" experience included in Table 1 is on plans with a six-month deductible accumulation period.

We then compared the gross premiums based on the Pettengill-Burton claim costs with the undiscounted manual premium rates charged by each of eight companies for "all cause" plans in each of several representative cities. All rates were of course determined for the same typical census data.

TABLE 1

	Employee	Dependent Spouse	Dependent Child(ren)
(1) Trend adjustment $(1.07)^{3.5}$	1.268	1.268	1.268
(2) 5 per cent employee female content factor	1.014	.....	.....
(3) Dependent spouse factor	.....	1.280	.....
(4) Monthly rate adjustment	0.083	0.083	0.083
(5) 75 per cent loss ratio adjustment	1.333	1.333	1.333
Composite factor (1)×(2)×(3)×(4)×(5)	0.142	0.180	0.140
Pettengill-Burton Basic Annual Claim Costs:			
Plan A	$37.40	$37.40	$31.80
Plan B	43.72	43.72	40.54

TABLE 2

MONTHLY PREMIUM RATES TO PRODUCE 75 PER CENT LOSS RATIO
(BASED ON PETTENGILL-BURTON CLAIM COSTS)

TABULAR AREA FACTOR (PER CENT)	REPRESENTATIVE CITIES	PLAN A (NO AREA IN FULL)				PLAN B ($500 AREA IN FULL)			
		Emp.	Spouse	Child (ren)	Comp. Dep.*	Emp.	Spouse	Child (ren)	Comp. Dep.*
100.....	Chicago, Philadelphia	$5.31	$6.73	$4.45	$ 9.51	$6.21	$ 7.87	$5.68	$11.47
108.....	Boston, Cleveland, New York	5.73	7.27	4.81	10.27	6.71	8.50	6.13	12.38
116.....	Detroit	6.16	7.81	5.16	11.03	7.20	9.13	6.59	13.30
140.....	Los Angeles, San Francisco	7.43	9.42	6.23	13.31	8.69	11.02	7.95	16.05
140.....	L.A., S.F. (integrated with UCD)	6.44	9.42	6.23	13.31	7.54	11.02	7.95	16.05

* 93 per cent × Spouse rate + 73 per cent × Child(ren) rate.

Based on the average undiscounted manual rates currently charged by these eight companies, it would appear that an over-all loss ratio of approximately 70 per cent could be expected in 1963 on the block of business included in the intercompany study on which the authors' claim costs are based. In San Francisco and Los Angeles, I would expect the loss ratio based on the average undiscounted manual rates currently charged by these eight companies to run between 70 and 75 per cent in 1963.

However, our experience on very small cases has been considerably poorer than the experience on larger cases. While our own data are not statistically significant, I believe it reasonable to assume as much as 10

TABLE 3

Income	Comprehensive Major Medical Income Factors	
	Average of Seven Companies	United States Life
Less than $5,000	0.91	0.90
$ 5,000–$7,500	1.00	1.00
$ 7,500–$10,000	1.10	1.10
$10,000–$15,000	1.34	1.25
$15,000–$20,000	1.73	1.50
$20,000–$30,000	2.07	2.00
$30,000 and over	2.49	2.50
Average based on Table 12 total income distribution	1.01	1.00

per cent higher comprehensive major medical morbidity on cases with twenty-five lives than on cases with several hundred lives, all other things being equal.

The authors did not include any tabular factors for income in their paper. Therefore, I am listing seven-company-average income factors; and the comprehensive major medical income factors used at United States Life (Table 3). Both scales of income factors produce a composite income factor of approximately 1.00 for the total data on which the authors' claim costs are based (see Tables 12 and 13).

(AUTHORS' REVIEW OF DISCUSSION)

BURTON E. BURTON AND DANIEL W. PETTENGILL:

Mr. Hoffman has made a valuable addition to the study with his analysis of maternity claim costs by age and his recommendation that

tabular costs graded by age be adopted as part of the 1960 Tabular. His tabular maternity costs by age appear to fit the actual experience data very well, particularly for the dependent experience on groups with less than 31 per cent female. We believe Mr. Hoffman's suggestion that maternity experience be related to tabular costs determined by taking into account the actual age distribution of covered employees should be accepted and made a part of future studies of comprehensive medical expense plans.

Mr. Hoffman also asks whether the higher ratios of actual to tabular claims for comprehensive plans with maximum benefits greater than $5,000 is caused by the selection of these larger maximum benefits by high-income groups so that the higher ratios of actual to tabular claims are due to the effect of income rather than the higher maximum benefit itself. We have prepared a table of ratios of actual to tabular claims by percentage of employees earning $10,000 or more annually for groups with a $5,000 maximum and groups with a $10,000 maximum in an effort to determine whether the higher level of the claim experience under plans with a high maximum benefit is attributable to income. The results are given in Table I, and it appears that the higher level of experience on plans with a $10,000 maximum benefit is an inherent characteristic of groups with normal percentages of employees earning $10,000 or more as well as for higher income groups.

Mr. Hoffman suggests that it would be desirable to develop an income scale. We agree that income has an important bearing on the cost of comprehensive plans but are inclined to the view that the magnitude of the effect of income on claim costs should be statistically demonstrated to a greater degree than at present before constructing and using an income scale in a study of this type. The effect of income on claim costs may become clearer when a larger amount of data has been analyzed by percentage of employees earning $10,000 or more annually as set forth in Table 4 of this paper.

Mr. Hoffman confirms the authors' impression that the small increase in the level of claim costs from 1959 to 1960 policy years shown by Table 1 of the paper is not consistent with the actual experience of individual companies underwriting this form of health insurance.

The data contributed by Mr. Eide add significantly to our knowledge of the relationship between male and female claim costs under comprehensive medical expense plans. However, the over-all level of claim costs for female employees reported by Mr. Eide in relation to claim costs for male employees is substantially below the experience of our company on similar plans and the experience under basic hospital and surgical plans.

The general shape of the male-female relationship reported by Mr. Eide may, nevertheless, represent a more accurate picture of the progression of female claim costs by age than is produced by the age-female factor method we have utilized. Hence, an overstatement of female claim costs could occur through the use of the 1960 tabular method for groups with a female employee concentration at either the very young or old ages. Analysis indicates, however, that the 1960 Tabular is reasonably accurate over a broad range of varying age distributions.

We are also indebted to Mr. Eide for his analysis and comparison of the actual experience under the comprehensive medical expense plan for employees of his company in 1961 with 1960 tabular costs. The reported experience for employees who are totally and permanently disabled is particularly valuable because of the interest of some employers in continuing medical expense benefits coverage throughout the duration of disability.

TABLE I

NONMATERNITY EXPERIENCE BY MAXIMUM BENEFIT AND PERCENTAGE OF EMPLOYEES EARNING $10,000 OR MORE ANNUALLY

MAXIMUM BENEFIT AND PERCENTAGE EARNING $10,000 OR MORE ANNUALLY	COMBINED 1959-60 POLICY YEARS' EXPERIENCE			
	Employee		Dependent	
	Employee Years of Exposure	Ratio of Actual to 1960 Tabular*	Employee Years of Exposure†	Ratio of Actual to 1960 Tabular
$5,000 maximum:				
Less than 11%	74,793	95%	49,439	95%
11-21%	24,031	104	17,087	99
21-31%	4,109	81	3,408	110
31-100%	334	123	273	127
Unknown	4,710	114	3,116	111
Total	107,977	98%	73,323	97%
$10,000 maximum:				
Less than 11%	118,774	100%	84,302	100%
11-21%	33,785	109	24,546	105
21-31%	6,252	112	4,538	111
31-100%	1,622	139	1,074	134
Unknown	4,673	109	3,362	103
Total	165,106	103%	117,822	102%

* Tabular claims do not vary by income distribution.

† Exposure of employees insured with respect to their dependents.

Mr. Barnhart also demonstrates some of the conditions where the method we have used to obtain female claim costs may not result in an accurate determination of the cost of female employee coverage. However, Mr. Barnhart concludes, and we agree, that the 1960 tabular method of reflecting male and female claim costs is reasonably accurate except for groups with a relatively high female content and a female age distribution which is abnormally young or old in relation to the male age distribution. Unfortunately, it would be difficult to make any further refinement in the development of costs for male and female employees because separate age distributions for male and female employees are not generally available.

Mr. Moran questions the use of the 1960 Tabular to measure and compare the level of claim costs in successive years as a basis for estimating trends in claim costs because of the effect of changes in the amount of reserves for incurred but unpaid claims established by the contributing companies. To the extent that the reserves for incurred but unpaid claims are partially or entirely related to billed or undiscounted manual premiums of the contributing companies and increases in these premium rates occur to a greater extent during one set of policy years as compared to another, then a distortion can occur in the ratios of actual to tabular claims. In our company, only 20 per cent of the liability for incurred but unpaid claims is established on a basis related to premiums with the remaining amount being established in relation to paid claims. Moreover, changes in the level of manual premiums or billed premiums used as a base for the computation of liabilities for incurred but unpaid claims will occur at different times in different companies and at different times for individual group cases. Therefore, substantial distortions in aggregate intercompany results in two successive years of experience should take place only where one or more of the major contributors has made substantial changes in premiums for most cases in one of these years. We agree with Mr. Moran that the distortions he describes can occur, but it would seem reasonable to expect that conclusions with respect to trends can be obtained through the use of the 1960 Tabular when costs are measured over periods of three or four or more years.

Mr. Moran also comments that the age distribution for a large block of cases in his company shifts toward the older ages from year to year, and these shifts in age distribution have resulted in an increase in tabular claims of approximately 3 per cent so that the absolute level of claims increased by 3 per cent as well as by inflation and increasing utilization. We have examined our own company's data contributed to the study and have observed a similar but much smaller shift in age distribution (age factor increased 1.2 per cent from 1959 to 1961 policy years) when the

age distribution of the same group of cases is compared in successive years. These changes in age distribution may be peculiar to the particular group of cases, or it may perhaps reflect the effect of economic conditions on employment and layoff practices in the particular years involved.

Mr. Kowalchuk demonstrates that the 1960 tabular costs appear to be consistent with the undiscounted manual premium rates charged by a group of companies for these plans in several representative cities when the 1960 tabular costs have been adjusted for inflation and increased utilization at the rate of 7 per cent per year since 1960. Mr. Kowalchuk

TABLE II

NONMATERNITY EXPERIENCE BY PERCENTAGE OF EMPLOYEES EARNING $10,000 OR MORE ANNUALLY

Combined 1959–60 Policy Years' Experience

PERCENTAGE EARNING $10,000 OR MORE ANNUALLY	AVERAGE INCOME FACTOR	RATIO OF ACTUAL TO 1960 TABULAR ADJUSTED FOR INCOME FACTOR*	
		Employee	Dependent
Less than 11.....	98%	100%	100%
11–21.....	107	100	95
21–31.....	114	88	98
31–41.....	122	87	94
41–100.....	136	106	99
Total†.....	101%	100%	99%

* Ratio of actual claims to 1960 Tabular divided by average income factor.

† Excludes with unknown income distribution.

also indicates the average adjustment for the effect of income on claim costs for seven companies and compares the resulting income scale with the one used by his company. We have adjusted the experience in Table 4 of the paper to show the effect of using the average income scale developed by Mr. Kowalchuk with the results shown in Table II.

Since the paper was prepared, an additional year of experience has been made available by the Committee on Experience under Group Health Insurance. A number of tables similar to those in the paper have been prepared to show the level of cost in this latest year and to examine the more important cost relationships for the three years of experience combined. These tables are shown on the following pages with table numbers which are the same as for the corresponding tables in the paper.

TABLE 1

1961 POLICY YEAR NONMATERNITY EXPERIENCE BY PLAN

PLAN	ALL SIZE GROUPS				NONJUMBO GROUPS	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular
	Employee					
All Cause Plans:						
Without full reimbursement of hospital expenses						
Deductible applied to all expenses	318	44,506	2,239,438	110%	2,239,438	110%
Deductible waived for hospital expenses	30	9,531	358,797	103	100,403	105
Deductible waived for hospital and surgical expenses	32	6,660	306,385	99	306,385	99
Total	380	60,697	2,904,620	108%	2,646,226	108%
With full reimbursement of hospital expenses						
Deductible applied to all expenses	111	35,072	1,628,731	106%	1,445,136	113%
Deductible waived for hospital expenses	814	140,118	6,786,589	102	5,364,485	102
Deductible waived for hospital and surgical expenses	251	34,827	1,829,478	104	1,394,806	111
Total	1,176	210,017	10,244,798	103%	8,204,427	105%
Total, all cause plans	1,556	270,714	13,149,418	104%	10,850,653	106%
Total, each illness plans, total disability not required	93	14,107	695,093	98†	695,093	98†
Total, each illness plans, total disability required	57	11,746	421,143	81†	421,143	81†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

TABLE 1—*Continued*

1961 POLICY YEAR NONMATERNITY EXPERIENCE BY PLAN

PLAN	ALL SIZE GROUPS				NONJUMBO GROUPS	
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular
	Dependent					
All Cause Plans:						
Without full reimbursement of hospital expenses						
Deductible applied to all expenses	309	29,593	2,560,675	109%	2,560,675	109%
Deductible waived for hospital expenses	31	6,498	420,271	92	115,527	108
Deductible waived for hospital and surgical expenses	30	4,210	329,756	93	329,756	93
Total	370	40,301	3,310,702	105%	3,005,958	107%
With full reimbursement of hospital expenses						
Deductible applied to all expenses	109	19,934	1,700,729	104%	1,700,729	104%
Deductible waived for hospital expenses	802	93,279	8,228,008	102	6,435,156	103
Deductible waived for hospital and surgical expenses	242	23,610	2,252,928	107	1,757,668	118
Total	1,153	136,823	12,181,665	103%	9,893,553	106%
Total, all cause plans	1,523	177,124	15,492,367	104%	12,899,511	106%
Total, each illness plans, total disability not required	93	9,904	829,695	96†	829,695	96†
Total, each illness plans, total disability required	56	7,767	505,080	83†	505,080	83†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

TABLE 1A—EXPERIENCE UNITS SUBMITTED IN EACH OF 1960 AND 1961 POLICY YEARS, NONMATERNITY EXPERIENCE BY PLAN AND YEAR, NONJUMBO GROUPS

PLAN	1960				1961			
	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular
	Employee							
All Cause Plans:								
Without full reimbursement of hospital expenses	138	21,411	953,167	102%	142	22,061	1,060,466	110%
With full reimbursement of hospital expenses								
Deductible applied to all expenses	37	15,396	707,533	98	38	15,421	850,007	119
Deductible waived for hospital expenses	323	53,411	2,430,412	96	311	54,164	2,788,742	109
Deductible waived for hospital and surgical expenses	124	15,333	745,995	100	130	16,711	947,227	117
Total	484	84,140	3,883,940	97%	479	86,296	4,585,976	112%
Total, all cause plans	622	105,551	4,837,107	98%	621	108,357	5,646,442	112%
Total, each illness plans, total disability not required	22	5,360	287,245	110†	22	5,865	325,057	114†
Total, each illness plans, total disability required	22	5,736	186,623	73†	23	6,067	237,206	86†
	Dependent							
All Cause Plans:								
Without full reimbursement of hospital expenses	133	15,497	1,231,415	103%	137	16,145	1,382,694	111%
With full reimbursement of hospital expenses								
Deductible applied to all expenses	37	11,144	934,232	102	38	11,145	962,162	106
Deductible waived for hospital expenses	316	35,731	3,045,592	98	304	35,507	3,260,298	106
Deductible waived for hospital and surgical expenses	114	9,839	850,926	97	120	10,496	1,067,963	116
Total	467	56,714	4,830,750	99%	462	57,148	5,290,423	108%
Total, all cause plans	600	72,211	6,062,165	99%	599	73,293	6,673,117	108%
Total, each illness plans, total disability not required	22	3,765	295,157	88†	22	4,113	370,383	101†
Total, each illness plans, total disability required	21	3,917	238,484	77†	22	4,208	298,892	87†

* For dependents, exposure of employees insured with respect to their dependents.

† Tabular nonmaternity claims based on All Cause tabular costs.

TABLE 2

COMBINED 1959–61 POLICY YEARS' EXPERIENCE
NONMATERNITY AND MATERNITY EXPERIENCE BY AGE AND FEMALE PERCENT
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

AVERAGE AGE FACTOR FEMALE PERCENT	NONMATERNITY EXPERIENCE				MATERNITY EXPERIENCE	
	Number of Experience Units	Employee Years of Exposure	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular*
	Employee					
60–79						
<31%	156	19,833	698,814	99%	36,074	130%
31% or more	75	9,877	386,691	100	46,099	153
Total	231	29,710	1,085,505	99%	82,173	142%
80–89						
<31%	362	56,987	2,403,656	100%	63,563	108%
31% or more	119	14,691	697,577	109	39,686	104
Total	481	71,678	3,101,233	102%	103,249	106%
90–99						
<31%	472	92,003	3,922,212	101%	143,565	129%
31% or more	240	35,117	1,783,508	106	79,967	77
Total	712	127,120	5,705,720	103%	223,532	104%
100–109						
<31%	501	94,112	4,357,955	101%	105,749	98%
31% or more	209	33,421	1,825,599	102	125,647	99
Total	710	127,533	6,183,554	101%	231,396	99%
110–119						
<31%	308	56,125	2,990,221	108%	49,888	92%
31% or more	145	22,284	1,306,462	105	57,272	76
Total	453	78,409	4,296,683	107%	107,160	83%
120 or more						
<31%	408	46,191	2,964,049	105%	20,935	60%
31% or more	242	24,600	1,639,275	104	24,615	55
Total	650	71,791	4,603,324	105%	45,550	57%
All ages						
<31%	2,207	366,251	17,336,907	103%	419,774	106%
31% or more	1,030	139,990	7,639,112	104	373,286	89
Total	3,237	506,241	24,976,019	103%	793,060	97%

* Tabular maternity claims do not vary by age distribution.

TABLE 2—*Continued*

Average Age Factor Female Percent	Nonmaternity Experience				Maternity Experience	
	Number of Experience Units	Employee Years of Exposure†	Actual Claims	Ratio of Actual to 1960 Tabular	Actual Claims	Ratio of Actual to 1960 Tabular*
	Dependent					
60–79						
<31%.....	155	13,559	1,051,069	101%	327,213	155%
31% or more..	75	5,555	456,700	103	102,338	144
Total.....	230	19,114	1,507,769	102%	429,551	152%
80–89						
<31%.....	357	41,826	4,030,088	111%	699,540	120%
31% or more..	115	7,572	640,664	99	60,187	86
Total.....	472	49,398	4,670,752	110%	759,727	117%
90–99						
<31%.....	468	70,870	6,138,629	108%	1,272,323	110%
31% or more..	238	18,251	1,525,127	91	226,516	102
Total.....	706	89,121	7,663,756	105%	1,498,839	109%
100–109						
<31%.....	495	73,183	6,367,443	105%	920,040	91%
31% or more..	206	15,979	1,540,917	98	141,302	77
Total.....	701	89,162	7,908,360	103%	1,061,342	89%
110–119						
<31%.....	296	41,767	3,776,323	104%	446,077	81%
31% or more..	134	11,881	914,717	80	77,606	56
Total.....	430	53,648	4,691,040	99%	523,683	76%
120 or more						
<31%.....	395	34,977	3,225,344	96%	325,921	66%
31% or more..	223	12,107	1,149,504	93	71,974	50
Total.....	618	47,084	4,374,848	95%	397,895	63%
All ages						
<31%.....	2,166	276,182	24,588,896	105%	3,991,114	100%
31% or more..	991	71,345	6,227,629	93	679,923	82
Total.....	3,157	347,527	30,816,525	102%	4,671,037	97%

* Tabular maternity claims do not vary by age distribution.

† For dependents, exposure of employees insured with respect to their dependents.

TABLE 4

COMBINED 1959–61 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY PERCENT OF EMPLOYEES
EARNING $10,000 OR MORE ANNUALLY
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Percentage Earning $10,000 or More Annually	Number of Experience Units	Employee Years of Exposure*	Actual Claims	Ratio of Actual to 1960 Tabular†
	Employee			
<11%	2,189	350,888	16,752,805	101%
11–21	629	107,843	5,739,487	107
21–31	185	21,777	1,134,069	103
31–41	67	3,835	216,422	121
41–100	47	3,040	202,081	137
Unknown	120	18,858	931,155	112
Total	3,237	506,241	24,976,019	103%
	Dependent			
<11%	2,139	236,698	20,671,209	102%
11–21	612	77,129	7,152,661	103
21–31	182	16,289	1,484,103	104
31–41	63	2,110	227,283	131
41–100	44	1,932	216,294	131
Unknown	117	13,369	1,064,975	101
Total	3,157	347,527	30,816,525	102%

* For dependents, exposure of employees insured with respect to their dependents.
† Tabular claims do not vary by income distribution.

TABLE 5

EMPLOYEE AND DEPENDENT 1959–61 POLICY YEARS' EXPERIENCE
NONMATERNITY EXPERIENCE BY REGION, STATE, AND METROPOLITAN AREA
NONJUMBO GROUPS, ALL CAUSE PLANS ONLY

Region,* State,† or Metropolitan Area	Number of Experience Units‡	Employee Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	1960 Tabular Area Factor
Region	7	3,764	360,013	103%	100%
Connecticut	4	382	55,294	139§	100
Bridgeport	7	1,401	137,322	111	100
New Haven	5	214	22,515	110§	100
Total	16	1,997	215,131	117	
Maine	12	1,903	231,049	105	92
Massachusetts	11	982	93,245	85	100
Boston	36	3,311	349,970	95	108
Springfield-Holyoke	1	30	3,372	142§	100
Total	48	4,323	446,587	93	
New Hampshire	1	226	20,698	90§	92
Rhode Island					108
Providence	3	219	30,673	96§	108
Total	3	219	30,673	96§	92
Vermont	3	228	40,929	159§	
Region Total	90	12,660	1,345,080	102%	
Region	11	3,693	324,593	79%	100%
District of Columbia	5	3,560	465,204	80	100
New Jersey	14	4,351	372,187	103	100
New York	40	4,325	434,869	98	92
Albany-Schenectady-Troy	12	910	93,005	99	100
Buffalo	20	1,367	160,306	110	100
New York–Northeastern N.J.	81	7,045	750,865	99	108
Rochester	1	39	3,832	90§	100
Syracuse	11	1,629	160,417	98	100
Total	165	15,315	1,603,294	101	
Pennsylvania	20	4,186	358,612	95	92
Allentown-Bethlehem-Easton	1	85	9,868	90§	92
Philadelphia	27	1,404	130,591	98	100
Pittsburgh	6	755	89,007	110	100
Total	54	6,430	588,078	98	
Region Total	249	33,349	3,353,356	94%	
Region	26	3,800	364,231	93%	100%
Illinois	101	12,872	1,324,985	105	92
Chicago	191	23,957	2,540,122	103	100
Total	292	36,829	3,865,107	103	
Indiana	56	6,189	529,629	99	84
Indianapolis	28	7,421	736,965	103	84
Total	84	13,610	1,266,594	101	
Kentucky	16	890	87,945	102	84
Louisville	13	675	64,062	93	92
Total	29	1,565	152,007	98	

* Excludes groups coded for a specific state or metropolitan area.

† Excludes groups coded for a specific metropolitan area.

‡ Employee only.

§ Less than $50,000 of tabular claims.

NOTE: Less than 75 per cent of employees in one region, state or metropolitan area.

TABLE 5—*Continued*

Region,* State,† or Metropolitan Area	Number of Experience Units‡	Employee Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	1960 Tabular Area Factor
Michigan	46	6,596	765,788	108%	100%
Detroit	35	2,063	319,458	123	116
Total	81	8,659	1,085,246	112	
Ohio	22	3,536	358,855	105	92
Cincinnati	3	329	34,660	102§	100
Cleveland	6	815	101,823	104	108
Columbus	15	3,998	391,702	94	100
Dayton	7	1,028	90,814	93	100
Toledo	3	125	16,592	125§	100
Youngstown	1	110	12,308	142§	100
Total	57	9,941	1,006,754	100	
Wisconsin	24	2,260	235,527	91	92
Milwaukee	36	4,723	529,619	106	100
Total	60	4,983	765,146	101	
West Virginia	23	1,677	201,112	128	84
Wheeling (W. Va.)–Steubenville (Ohio)	3	90	8,323	87§	92
Total	26	1,767	209,435	126	
Region Total	655	83,154	8,714,520	103%	
Region	17	3,283	332,398	106%	100%
Iowa	27	5,058	510,871	94	100
Kansas	25	2,049	228,967	129	92
Minnesota	19	8,307	684,680	100	92
Minneapolis–St. Paul	26	1,573	201,609	112	108
Total	45	9,880	886,289	103	
Missouri	21	1,511	154,955	105	92
Kansas City	14	814	70,914	99	100
St. Louis	43	3,711	391,604	97	100
Total	78	6,036	617,473	99	
Nebraska	3	128	10,253	87§	92
Omaha	1	32	613	49§	100
Total	4	160	10,866	83§	
North Dakota	5	798	106,307	118	92
South Dakota	18	1,970	183,956	96	92
Region Total	219	29,234	2,877,127	102%	
Region	2	182	15,896	73%§	100%
Colorado	6	517	80,469	135	100
Denver	17	1,021	121,212	119	108
Total	23	1,538	201,681	125	
Idaho	22	1,040	117,504	97	100
Montana	17	567	70,459	100	100
Nevada	15	1,221	153,231	128	108
Utah	27	4,762	484,030	95	92
Wyoming	10	603	86,063	133	92
Region Total	116	9,913	1,128,864	105%	
Region	19	1,804	196,429	91%	124%
California	189	29,171	3,634,076	102	132
Los Angeles	508	44,834	5,690,031	104	140
San Diego	31	2,686	337,241	109	132
San Francisco–Oakland	80	7,734	990,815	103	140
Total	808	84,425	10,652,163	103	
Oregon	21	2,739	340,304	93	108
Portland	14	853	91,033	92	116
Total	35	3,592	431,337	93	

TABLE 5—*Continued*

Region,* State,† or Metropolitan Area	Number of Experience Units‡	Employee Years of Exposure‡	Actual Claims	Ratio of Actual to 1960 Tabular	1960 Tabular Area Factor
Washington	17	7,004	765,559	103%	108%
Seattle	19	2,680	302,607	106	116
Total	36	9,684	1,068,166	104	
Region Total	898	99,505	12,348,095	103%	
Region	29	1,789	161,550	93%	100%
Arizona	59	2,777	382,185	109	116
Arkansas	32	4,429	376,308	94	84
Louisiana	40	10,303	1,013,531	89	100
New Orleans	10	406	47,469	105§	108
Total	50	10,709	1,061,000	90	
New Mexico	22	1,685	198,301	102	100
Oklahoma	29	1,602	177,240	112	92
Texas	85	13,706	1,621,762	106	108
Dallas	22	2,796	397,563	107	124
Fort Worth	9	1,793	163,957	106	124
Houston	72	12,991	1,779,886	107	140
San Antonio	7	423	38,846	86§	108
Total	195	31,709	4,002,014	106	
Region Total	416	54,700	6,358,598	102%	
Region	20	12,475	1,499,229	104%	92%
Alabama	13	1,287	137,171	118	92
Birmingham	14	2,392	231,410	95	100
Total	27	3,679	368,581	103	
Florida	55	6,727	632,264	96	92
Miami	27	2,650	336,056	112	108
Tampa	12	1,196	141,079	116	108
Total	94	10,573	1,109,399	102	
Georgia	30	10,112	1,079,843	103	92
Atlanta	27	1,911	147,777	81	100
Total	57	12,023	1,227,620	99	
Maryland	13	1,120	78,638	89	84
Baltimore	27	6,505	747,275	89	92
Total	40	7,625	825,913	89	
Mississippi	8	573	64,924	114	92
North Carolina	25	3,611	333,625	113	84
South Carolina	14	2,048	208,910	97	76
Tennessee	25	2,905	258,351	100	92
Knoxville	1	90	14,999	134§	100
Memphis	16	2,204	293,614	121	100
Total	42	5,199	566,964	111	
Virginia	20	2,522	166,883	93	84
Norfolk-Portsmouth	11	459	32,828	80§	92
Total	31	2,981	199,711	91	
Region Total	358	60,787	6,404,876	101%	
Hawaii	9	561	35,458	89§	100%
Alaska	2	166	23,072	93§	132
Total, All Locations Above	3,012	384,029	42,589,046	102%	
All Other (See Note)	224	122,212	13,203,498	106	100%
Total, All Locations	3,236	506,241	55,792,544	103%	