NEW YORK LIFE MORBIDITY EXPERIENCE UNDER INDIVIDUAL AND FAMILY MAJOR MEDICAL POLICIES

LOWELL M. DORN

A STUDY was made in 1961 of the morbidity experience of the New York Life on individual and family major medical policies. As a result of this study, substantial increases in premium rates on existing major medical business were put into effect as of April 1, 1962. Since the major medical programs of the New York Life have been fairly typical of the programs offered by insurance companies during the 1950's, it is felt that the results of our morbidity study, as well as the steps taken in developing a new morbidity table, would be of interest.

Characteristics of the New York Life Individual and
  Family Major Medical Policies

The New York Life first issued individual and family major medical expense policies in June, 1953. This original program was revised in January, 1956, and the revised program remained in effect until February, 1962. The principal features of our major medical programs are outlined below:

Renewal Provision:
  1953 Program....... Renewable to age 65 at option of the company, but renewal not refused solely on the basis of a change in physical condition.
  1956 Program....... Guaranteed renewable to age 65.
  Coinsurance Factor.... Company pays 75 per cent of the excess of eligible medical expenses incurred during benefit period over deductible amount, subject to maximum benefit.
  Maximum Benefit..... $7,500 per accident or sickness.[1]
  Deductible Amount.... $500 per accident or sickness.[1]
Qualification Requirement for Benefits:
  1953 Program....... Hospital confinement.
  1956 Program....... Eligible medical expense exceeding the deductible amount incurred within 90 days.

[1] Under the 1953 program a policy with a $5,000 maximum and a $300 deductible was available, but very few of these policies were sold. They amounted to less than 3 per cent of the total issue.

Benefit Period:

    1953 Program....... From 2 months prior to hospital confinement through 6 months following confinement.

    1956 Program....... One year from date of first eligible medical expense which counts toward deductible, or to end of hospitalization if hospitalized at end of year.

While the policies issued from January, 1956, differed from those issued earlier with respect to renewal provision, qualification requirement, and benefit period, we have been able to establish that these differences have not had a significant effect on the morbidity experience under the two programs. The more restrictive renewal provision applicable to the 1953 program has in practice not led to any significant number of cancellations. An analysis of major medical claims has shown that hospitalization is involved in over 99 per cent of the claims under our 1956 program, so that the requirement of hospital confinement in the 1953 program has not materially affected the amount of benefits that have been paid. Similarly, our claim experience indicates that the adoption of a general one-year benefit period in 1956 has resulted in less than 2 per cent of claims being closed because of the termination of the benefit period. A comparison of the morbidity experience under the two programs did not indicate any significant difference that could be attributed to the variations in benefits. Hence, in order to provide the broadest possible base for this analysis and for developing a new morbidity table, the experiences under the two programs were merged.

Basis for Expected Morbidity

At the time we revised our major medical program in 1956, the only morbidity data directly applicable to individual major medical expense insurance was a table of annual claim costs included in Mr. Morton D. Miller's paper entitled "Gross Premiums for Individual and Family Major Medical Expense Insurance."[2] It was upon this table that our 1956 premiums were based. Since the primary purpose of the analysis of our major medical morbidity was to determine the adequacy of our morbidity basis, we used Mr. Miller's table as the basis for expected morbidity in our study.

Size and Scope of Study

The major medical morbidity study covered issues of 1953–60 exposed during the calendar years 1956–60, inclusive. The study included over 135,000 life years of exposure consisting of 54,000 years on adult male lives, 54,000 years on adult female lives, and 27,000 policy years on policies covering one or more children (averaging 2.2 at issue). Major medical

[2] *TSA* VII (1955), 1.

claims in the study totaled 2,973, of which there were 1,261 paid claims on men, 1,421 paid claims on women, and 291 paid claims on the lives of children. Hence, it was felt that the study was large enough to produce statistically significant results.

Analysis of Morbidity Results

Table 1 summarizes the experience by sex and attained age. In these summaries for both males and females the experiences under individual and family policies have been combined. Separate studies showed that

TABLE 1

MAJOR MEDICAL MORBIDITY EXPERIENCE—ISSUES OF 1953–60
EXPOSED DURING CALENDAR YEARS 1956–60

ATTAINED AGE	NO. OF CLAIMS	CLAIM RATE PER 1,000	AVERAGE SIZE CLAIM	ANNUAL CLAIM COST		RATIO OF ACTUAL TO EX-PECTED*
				Actual	Expected*	
Males						
29 and under....	56	8.4	$ 741	$ 6.25	$ 7.58	82%
30–34.........	78	10.4	866	8.97	9.58	94
35–39.........	115	13.9	969	13.43	11.32	119
40–44.........	136	16.7	690	11.53	13.38	86
45–49.........	185	23.3	1,138	26.48	15.81	167
50–54.........	303	41.2	1,045	43.04	18.69	230
55–59.........	236	41.1	1,127	46.30	22.09	210
60 and over.....	152	60.2	1,196	71.96	26.11	276
All ages....	1,261	23.3	$1,022	$23.80	$14.42	165%
Females						
29 and under....	111	13.1	$ 524	$ 6.85	$11.98	57%
30–34.........	150	18.9	738	13.95	14.44	97
35–39.........	183	21.5	681	14.62	16.50	89
40–44.........	241	28.9	715	20.69	18.85	110
45–49.........	265	34.5	847	29.20	21.54	136
50–54.........	221	32.5	923	29.97	24.61	122
55–59.........	165	36.2	998	36.11	28.11	128
60 and over.....	85	48.0	811	38.95	32.11	121
All ages....	1,421	26.3	$ 794	$20.85	$19.08	109%
Children (1956 and later issues)						
0–17.........	291	10.7†	$ 678	$ 7.27†	$11.03†	66%

* Expected claims based on Mr. Miller's table, *TSA* VII, 4.
† Per policy covering children at policy issue date.

our experience costs for both males and females were higher under individual policies than under family policies. For males the ratio of the actual to the expected[3] amount of claims was about 20 per cent higher on individual policies, while for females this difference appeared to be even more marked. However, since the data on individual policies was quite small (only 20 per cent of the total experience), the individual experience was pooled with the family experience in further analyses and in developing a morbidity table.

It is apparent from the over-all results that our experience has not been favorable. The ratio of actual to expected claims for male lives was 165 per cent, reflecting an experience annual claim cost per policy of $23.80 as compared to an expected cost of $14.42. For females the morbidity ratio was 109 per cent, with an experience annual claim cost per policy of $20.85, as compared to an expected cost of $19.08.

In view of the fact that it has been the practice of the industry to charge higher premiums for females than for males for major medical coverage, we were rather surprised to find that in the aggregate female morbidity appeared to be at least as favorable as male morbidity. Claim rates were higher for females than for males up to age 50, but beyond this age male rates exceeded female rates. At practically all ages the average size claim was substantially higher for males than for females. Combining the effects of these two trends, at the young ages the average annual claim costs for the two sexes were about the same; during the childbearing ages, those for females were somewhat higher; while at the higher ages the costs for females were considerably lower than for males. This is in contrast to Mr. Miller's table, which showed annual claim costs that were uniformly higher for females than for males, ranging from about 60 per cent at the young ages to 20 per cent at the older ages.

Analysis of the experience by attained age indicates that for males the unfavorable experience tended to be concentrated at ages above 45. Ratios of actual to expected at these ages exceed 200 per cent of the expected claim basis. For females the results by attained age show a somewhat similar pattern, except that the variations are not nearly so great. At ages above 45 female morbidity averaged about 25 per cent higher than the expected basis.

An important consideration in interpreting the results was the income level of our major medical policyholders. The average income per family ranged from about $7,500 at husband's age 25 to about $15,000 at age 55. These averages are considerably higher than for the general population and undoubtedly had an adverse influence on the experience, particularly at the high ages.

[3] Expected claims based on Mr. Miller's table (*TSA* VII, 4).

The morbidity on children was the one area in the entire study which appeared to be quite favorable. The average annual claim cost for children, per policy covering children at the issue date, was $7.27, as compared to an expected cost of $11.03.

Morbidity by Policy-Year Duration

Table 2 shows the ratios of actual to expected claims by policy year duration. The ratios during the first two policy years are substantially lower than for subsequent policy years, which would seem to indicate that the effect of selection at issue wears off in about two years' time.

TABLE 2

POLICY YEAR	MALE ADULTS		FEMALE ADULTS	
	No. of Claims	Ratio of Actual to Expected*	No. of Claims	Ratio of Actual to Expected*
1...........	295	117%	321	85%
2...........	259	143	335	103
3...........	268	188	296	125
4...........	178	179	203	111
5...........	127	237	139	143
6...........	83	295	74	136
7...........	45	195	49	169
8...........	6	†	4	†

* Ratios by amount of claims, with expected claims based on Mr. Miller's table (*TSA* VII, 4).
† Ratios not significant because of small number of claims.

It should be mentioned that the Equitable's experience, which was used as the basis for Mr. Miller's table, was highly concentrated within the two-year select period, and at that time there was no information to indicate whether select morbidity on major medical policies would be better or worse than ultimate morbidity. Hence, the marked deterioration in the experience after the second policy year was largely unexpected, and this deterioration is perhaps the most important reason why morbidity bases for major medical premiums have proven to be inadequate.

The experience by duration would, of course, be influenced by the secular trend of increasing medical costs by calendar year, since the experience at the longer durations arises only from the more recent calendar years. The slight upward trend in the experience from duration 3 on may be largely due to this calendar-year effect.

Construction of New Morbidity Table

The analysis of our morbidity experience clearly indicates that the morbidity rates used as a basis for premiums and reserves were not ade-

quate. Hence, we decided to use the information obtained from our study of major medical experience to construct a new morbidity table. This new table has been designated the New York Life 1961 Major Medical Experience Table and was used as the morbidity basis for net premiums and reserves in connection with the increase in premium rates for existing major medical policies which became effective April 1, 1962.

The new table is based on the combined experience under individual and family policies issued under our 1953 and 1956 programs. While the experiences for males and females separately indicate that there are differences in major medical morbidity between the sexes, we feel that these differences are not great enough, considering the continuing changes in such costs, to offset the practical advantages of combining the experiences by sex. Our table is based on this combined experience, so that annual claim costs and net and gross premiums produced are the same for both sexes. This marks a departure from our prior practice and the practices of other companies under which females are charged higher premiums than males. However, it is felt that over a wide range of ages female morbidity on high deductible policies will continue to be at least as favorable as that for males and that there is a distinct possibility that at some time in the future lower premium rates for females than for males may be indicated by the emerging experience.

In view of the markedly lower morbidity during the first two policy years it was decided to eliminate the experience of those years and to develop the morbidity table from ultimate experience, that is, the experience for the third and subsequent policy years.

Actual annual claim costs based on the combined ultimate experience of males and females during the period 1956–60 were then graduated by a least-squares method. The actual annual claim costs for various age groups are shown in Table 3, with the corresponding graduated annual claim costs at the central ages of those age groups.

As a further test of the method of graduation, the actual claims were compared with the claims expected on the basis of the graduated annual claim costs. The results are shown in Table 4.

The next step in the development of the new morbidity table was to adjust the graduated annual claim costs developed on the basis of our 1956–60 experience to the estimated 1961 level of morbidity. This adjustment involved the following two steps:

a) Adjustment for California business.—The first step was to take account of the fact that about half of our experience was based on policies issued prior to 1956, during which period we did not issue any major medical expense policies in California. As major medical costs in Califor-

nia are substantially higher than in the country as a whole, it was decided to increase the graduated annual claim costs by 2½ per cent in order to develop a morbidity table that would be applicable to our Guaranteed Renewable Major Medical Expense policy, which was issued in all states, including California.

b) *Adjustment for secular trends.*—The second step was to take account of the secular trend of increasing costs of medical care. It was estimated that the morbidity level during the 1956–60 period was, on the average, about 10 per cent below the current 1961 morbidity level. We, therefore, divided the adjusted annual claim costs (obtained after the first step described in the preceding paragraph) by a factor of 90 per cent, to raise them by about 11 per cent to the estimated 1961 morbidity level.

The annual claim costs obtained after making these two adjustments represent the estimated 1961 level of morbidity for our Guaranteed Re-

TABLE 3

MAJOR MEDICAL ULTIMATE CLAIM EXPERIENCE, 1956–60

(Males and Females Combined—Excluding First Two Policy Years)

Attained Ages	Exposure No. of Lives (1)	Actual Claims (2)	Actual Annual Claim Costs (3) = (2)÷(1)	Graduated Annual Claim Costs (4)	Central Age
Under 30......	3,932	$ 32,159	$ 8.18	$ 9.32	25
30–34.........	5,225	85,001	16.27	12.85	32
35–39.........	6,602	105,193	15.93	17.00	37
40–44.........	7,306	140,826	19.28	22.51	42
45–49.........	7,667	239,434	31.23	29.37	47
50–54.........	7,712	315,269	40.88	37.59	52
55–59.........	6,158	254,204	41.28	47.16	57
60–64.........	3,516	221,908	63.11	60.56	62

TABLE 4

Attained Ages	Actual Claims	Expected Claims	Ratio of Actual to Expected Claims
Under 30......	$ 32,159	$ 36,646	88%
30–39.........	190,194	179,375	106
40–49.........	380,260	389,638	98
50–59.........	569,473	580,343	98
60–64.........	221,908	212,929	104
All ages....	$1,393,994	$1,398,931	100%

newable Major Medical Expense policy. These annual claim costs, designated the New York Life 1961 Major Medical Experience Table, are shown in Table 5, together with commutation columns based on this morbidity table combined with the 1941 CSO mortality table and $2\frac{1}{2}$ per cent interest. The use of a table with mortality margins such as the 1941 CSO provides some offset for not taking special account of lapses, and is deemed satisfactory for determining net premiums and reserves. Net annual premiums for individual policies are shown in Table 6.

For gross premiums, of course, individual actuaries may wish to introduce appropriate variations, including tests of premium levels by asset-share methods involving the use of lapse rates.

While the experience on children was quite favorable in the study, producing an annual claim cost of less than $8.00 on policies with children's coverage, we continue to use the net annual premium formerly computed for this coverage. Since the bulk of our experience is still not very mature, it is expected that the average number of children covered under family major medical policies will continue to increase, which should tend to increase the cost of claims on children.

Annual claim costs and net premiums based on the New York Life 1961 Major Medical Experience Table are compared in Table 6 with similar figures based on Mr. Miller's table. Net annual premiums were computed by combining the annual benefit costs with the 1941 CSO Table and $2\frac{1}{2}$ per cent interest.

A comparison of annual claim costs gives a financial measure of the difference in morbidity levels between the New York Life 1961 Major Medical Experience Table and Mr. Miller's table. For both male and female lives the differential in morbidity levels between the two tables increases with increasing age both in absolute amount and as a percentage. This pattern of variation is very significant as a factor in analyzing or attempting to forecast major medical experience. For example, our early financial results under major medical policies, as indicated by a comparison of actual with expected claims, appeared to be satisfactory. This business was largely concentrated at the young and middle adult ages. However, as the business became more mature, the experience rapidly became unfavorable, reflecting the compound effect of increasing deficiency in the morbidity basis with increasing age, the wearing-off of selection, and the secular increase in the cost of medical care. Reserves under our new table are necessarily substantially higher than under our old. The total active life reserve for our major medical policies in force at the end of 1961 was increased by 150 per cent by use of the new table.

The comparison of net annual premiums illustrates the effect on

TABLE 5

NEW YORK LIFE 1961 MAJOR MEDICAL EXPERIENCE TABLE
WITH 1941 CSO AT 2½ PER CENT
$500 DEDUCTIBLE—$7,500 MAXIMUM BENEFIT—COVERAGE TO AGE 65
(Commutation Columns—Men or Women)

Age	Annual Benefit Cost (1)	$\bar{D}_x$ (2)	$H_x = (1) \times (2)$ (3)	$K_x = \sum_{x}^{64} H_x$ (4)
18.........	$ 9.56	604720.90	5781131.8	351040327.8
19.........	9.57	588594.28	5632847.3	345259196.0
20.........	9.59	572860.54	5493732.6	339626348.7
21.........	9.67	557508.29	5391105.2	334132616.1
22.........	9.82	542523.97	5327585.4	328741510.9
23.........	10.02	527897.27	5289530.6	323413925.5
24.........	10.28	513618.44	5279997.6	318124394.9
25.........	10.62	499675.78	5306556.8	312844397.3
26.........	11.00	486058.05	5346638.6	307537840.5
27.........	11.46	472756.91	5417794.2	302191201.9
28.........	11.97	459759.81	5503324.9	296773407.7
29.........	12.54	447055.16	5606071.7	291270082.8
30.........	13.18	434633.88	5728474.5	285664011.1
31.........	13.88	422487.57	5864127.5	279935536.6
32.........	14.64	410606.64	6011281.2	274071409.1
33.........	15.47	398981.80	6172248.4	268060127.9
34.........	16.34	387602.35	6333422.4	261887879.5
35.........	17.29	376458.65	6508970.1	255554457.1
36.........	18.31	365541.71	6693068.7	249045487.0
37.........	19.36	354841.44	6869730.3	242352418.3
38.........	20.50	344350.61	7059187.5	235482688.0
39.........	21.69	334059.24	7245744.9	228423500.5
40.........	22.95	323958.16	7434839.8	221177755.6
41.........	24.26	314039.33	7618594.1	213742915.8
42.........	25.64	304293.97	7802097.4	206124321.7
43.........	27.08	294714.57	7980870.6	198322224.3
44.........	28.58	285291.64	8153635.1	190341353.7
45.........	30.15	276017.00	8321912.6	182187718.6
46.........	31.76	266883.76	8476228.2	173865806.0
47.........	33.45	257883.47	8626202.1	165389577.8
48.........	35.20	249009.33	8765128.4	156763375.7
49.........	37.01	240253.72	8891790.2	147998247.3
50.........	38.88	231609.25	9004967.6	139106457.1
51.........	40.82	223070.30	9105729.6	130101489.5
52.........	42.81	214630.82	9188345.4	120995759.9
53.........	44.87	206284.61	9255990.5	111807414.5
54.........	46.99	198026.62	9305270.9	102551424.0
55.........	49.17	189853.19	9335081.4	93246153.1
56.........	51.41	181759.95	9344279.0	83911071.7
57.........	53.71	173744.16	9331798.8	74566792.7
58.........	56.08	165804.07	9298292.2	65234993.9
59.........	58.51	157938.43	9240977.5	55936701.7
60.........	61.17	150147.38	9184515.2	46695724.2
61.........	64.67	142432.61	9211116.9	37511209.0
62.........	68.97	134795.77	9296864.3	28300092.1
63.........	74.07	127241.37	9424768.3	19003227.8
64.........	79.97	119775.66	9578459.5	9578459.5

TABLE 6

COMPARISON OF ANNUAL CLAIM COSTS
AND NET ANNUAL PREMIUMS

AGE	MILLER'S TABLE (1)	NYL 1961 MAJOR MEDICAL EXPERIENCE TABLE (2)	INCREASE	
			Amount (2) − (1) (3)	Per Cent (3) ÷ (1) (4)
		ANNUAL CLAIM COSTS		
		Male		
25........	$ 7.58	$10.62	$ 3.04	40%
35........	10.59	17.29	6.70	63
45........	14.79	30.15	15.36	104
55........	20.66	49.17	28.51	138
60........	24.42	61.17	36.75	150
		Female		
25........	$11.98	$10.62	$− 1.36	− 11%
35........	15.64	17.29	1.65	11
45........	20.42	30.15	9.73	48
55........	26.65	49.17	22.52	85
60........	30.45	61.17	30.72	101
		NET ANNUAL PREMIUMS* FOR COVERAGE TO AGE 65		
		Male		
25........	$13.23	$26.47	$ 13.24	100%
35........	16.02	34.83	18.81	117
45........	19.33	45.66	26.33	136
55........	23.21	58.92	35.71	154
60........	25.32	67.33	42.01	166
		Female		
25........	$18.41	$26.47	$ 8.06	44%
35........	21.54	34.83	13.29	62
45........	25.10	45.66	20.56	82
55........	29.06	58.92	29.86	103
60........	31.16	67.33	36.17	116

* Based on 1941 CSO Table and 2½ per cent interest.

these premiums of the widening differential in morbidity under the two tables as age increases. The morbidity differentials at the high ages are of most importance, since they affect all annual premiums, whereas differentials at the young ages affect premiums only at these ages. Table 6 shows that in all cases the percentage increase in net annual premium is considerably greater than the increase in one-year term costs at the same age.

The data presented in this paper represent the experience of New York Life and so are influenced by the particular characteristics of our major medical policies as well as by our underwriting and claim practices, and the geographical distribution of our business. The coverage provided by our major medical policies, however, is fairly typical of that provided by many other companies during the period of this experience. Hence, while the characteristics of our business have had some influence on the results, it seems very probable that at least two features of our experience—the high level of claim costs and the relationship between male and female claim costs—are characteristic of the business as a whole. Contributions by other companies in discussing this paper, together with future studies on an intercompany basis or by individual companies, should be of great value in supplementing our information on major medical morbidity levels and on the pattern of morbidity by sex, age, duration, and plan design.

DISCUSSION OF PRECEDING PAPER

IRVING ROSENTHAL:

The members of the Society of Actuaries are much indebted to Mr. Dorn and his company for this thorough analysis and interpretation of New York Life experience on the popular $500 deductible major medical policy and for the valuable set of commutation columns derived from that experience.

A striking feature of the study is the similarity of male and female claim experience, leading to the conclusion that for purposes of premium computation on $500 deductible policies the experiences ought to be

TABLE 1

COMPARISON OF CLAIM FREQUENCY

GROUP	NEW YORK LIFE (1956–60)			GUARDIAN (1955–60)		
	Life Years Exposed	No. of Claims	Claim Frequency per 1,000	Life Years Exposed	No. of Claims	Claim Frequency per 1,000
Adult men.......	54,000	1,261	23.3	53,000	1,486	28.0
Adult women....	54,000	1,421	26.3	53,000	1,940	36.6

combined. This does not mean that such combination is warranted for policies with lower or higher deductibles.

The relation of female to male claims in Guardian's major medical experience is quite different from the relationship in Mr. Dorn's report and more in line with the traditional expectation of a relatively more severe claim experience on women. Our experience is more nearly in line with the relationship of claim levels by sex given in the table in Mr. Miller's paper in TSA VII. The most apparent reason for the difference between our experience and that of the New York Life is the difference in deductible. Most of Guardian's major medical experience has been on a form of policy with a deductible varying with family income at time of claim and averaging for all claims combined about $300. I believe it to be the case as well that the experience from which Mr. Miller's table was derived also involves substantially lower deductibles than in the New York Life experience.

This suggests the hypothesis that the closer the deductible approaches

286

TABLE 2

GUARDIAN FORM NC 11 MAJOR MEDICAL MORBIDITY EXPERIENCE
—ISSUES OF 1955–59 EXPOSED DURING CALENDAR
YEARS 1959–60

($250 Variable Deductible*—No Coinsurance—$7,500 per
Disability Maximum—Inside Limits†)

ATTAINED AGE	ADULT MEN			
	No. of Claims	Claim Frequency per 1,000	Average Size of Claim	Annual Claim Cost
	Family Policies			
29 and under......	72	23.4	$ 493	$11.54
30–34.............	145	27.6	636	17.54
35–39.............	130	24.4	721	17.59
40–44.............	112	30.0	766	22.97
45–49.............	97	40.5	784	31.74
50–54.............	55	39.3	911	35.84
55–59.............	33	44.4	1,262	56.07
60 and over........	1	26.3	1,001	26.34
All ages.......	645	29.4	$ 738	$21.67
	Individual Policies			
29 and under......	38	19.0	$ 580	$11.02
30–34.............	40	38.6	653	25.21
35–39.............	24	43.6	1,012	44.06
40–44.............	8	24.2	367	8.90
45–49.............	12	49.0	1,401	68.60
50–54.............	9	35.2	1,434	50.43
55–59.............	15	64.7	1,048	67.77
60 and over........	....	....	....	....
All ages.......	146	31.3	$ 827	$25.93

* Deductible varies by family income at time of claim as follows:

Income	Deductible
Under $10,000........................	$ 250
$10,000–$14,999.....................	350
$15,000–$19,999.....................	500
$20,000–$24,999.....................	750
$25,000 and over....................	1,000

The average deductible actually experienced was about $300.

† Inside limits are: hospital room and board, $25 per day; surgical maximum, $1,000; private nursing, 75 per cent of charges; limitations on mental and nervous ailments.

TABLE 3

GUARDIAN FORM NC 11 MAJOR MEDICAL MORBIDITY EXPERIENCE
—ISSUES OF 1955–59 EXPOSED DURING CALENDAR
YEARS 1959–60

($250 Variable Deductible*—No Coinsurance—$7,500 per
Disability Maximum—Inside Limits†)

ATTAINED AGE	ADULT WOMEN			
	No. of Claims	Claim Frequency per 1,000	Average Size of Claim	Annual Claim Cost
	Family Policies			
29 and under.....	99	30.5	$ 664	$ 20.28
30–34...........	169	31.3	616	19.25
35–39...........	203	36.9	689	25.41
40–44...........	140	36.1	1,048	37.77
45–49...........	104	41.8	778	32.54
50–54...........	75	50.8	1,050	53.41
55–59...........	39	51.7	1,224	63.33
60 and over	1	26.3	719	18.92
All ages......	830	36.4	$ 801	$ 29.16
	Individual Policies			
29 and under.....	33	31.9	$ 624	$ 19.90
30–34...........	12	45.6	546	24.93
35–39...........	17	64.2	633	40.58
40–44...........	14	52.2	1,039	54.28
45–49...........	40	98.3	654	64.31
50–54...........	35	63.8	837	53.34
55–59...........	58	94.0	1,303	122.51
60 and over.......	2	60.6	444	26.88
All ages......	211	61.4	$ 874	$ 53.65

* Deductible varies by family income at time of claim as follows:

Income	Deductible
Under $10,000......................	$ 250
$10,000–$14,999.....................	350
$15,000–$19,999.....................	500
$20,000–$24,999.....................	750
$25,000 and over.....................	1,000

The average deductible actually experienced was about $300.

† Inside limits are: hospital room and board, $25 per day; surgical maximum, $1,000; private nursing, 75 per cent of charges; limitations on mental and nervous ailments.

to $500 the more nearly do male and female major medical experiences coincide. Gingery's paper in *TSA* XIII provides several tables derived from Group experience, particularly Table 7A, which supports this hypothesis. This support is, however, weakened by the fact that the Gingery comparison between males and females is not standardized for age distribution and because the costs for the higher deductible plans are deduced from low deductible plan claim experience. The effect of changes in deductible on the character of the experience, at this point undeterminable, has perforce been left out of account.

Although the experience on Guardian's policy (form NC 11 for identification) which covers issues of 1955–59 in calendar years 1955–60 is as large as the New York Life experience, we have only been able to analyze it by age for the segment of our experience occurring in calendar years 1959 and 1960. This section of our experience is given in the tables at the end of my discussion. However, an idea of the difference between New York Life and Guardian's results by sex can be gleaned from the comparison in Table 1 of over-all claim frequencies.

In New York Life's experience the somewhat higher claim frequency for women is offset by a lower average claim; in Guardian's experience average claim values do not differ significantly by sex, as can be seen from the following tables. From this one may conclude that an adjustment of Guardian's experience to a $500 deductible level would not seriously change the relationship of female to male experience. This bit of evidence contradicts the hypothesis suggested earlier, and I can only conclude that there are important selection differences between New York Life and Guardian experience in addition to the difference in deductibles.

I am happy that we can confirm one feature of the New York Life experience, namely, the higher claim costs under individual policies than under family policies for both men and women, but especially for women. The differences for men do not warrant separate premium schedules, in my opinion, but the differences for women do seem quite significant.

<p style="text-align:center">JAMES J. OLSEN:</p>

Mr. Dorn's paper has helped to fill a definite need for more data on major medical insurance. I have compiled some information with regard to The Prudential's experience.

The Prudential's first individual major medical plan was issued during the period from March, 1957, to April, 1963. This plan is guaranteed renewable to age 65 and was available with either a $200, $500, or $1,000 deductible, with the maximum corresponding to these deductibles of $5,000, $7,500, and $10,000. The amount payable, in each benefit period

of two years, is 75 per cent of the eligible expenses incurred in excess of the deductible amount.

In order to minimize the duplication of benefits and in realization that most people have a basic hospital plan, our major medical policies do not allow as an eligible expense the charges for hospital room and board for the first ninety days of hospitalization. For those persons who had no basic hospital plan or wanted to augment their basic hospital plan, we offered, subject to needs underwriting, under Part II of the policy, a daily hospital benefit of $8, $12, $16, $20 or $24, with a maximum duration of ninety days of hospital confinement. This benefit is not subject to the deductible amount or to the coinsurance factor. Subsequent comments are with reference to the plan with the $200 deductible.

TABLE 1

MAJOR MEDICAL EXPENSE MORBIDITY STUDY ($200 DEDUCTIBLE)
CLAIMS INCURRED IN 1959, 1960, AND 1961

ISSUE AGE	NO. OF CLAIMS	CLAIM RATE PER 1,000	AVERAGE SIZE OF CLAIM	ANNUAL CLAIM COST
Males				
29 and under..	226	25	$187	$ 4.69
30–34........	183	30	288	8.77
35–39........	177	32	290	9.35
40–44........	202	41	316	12.96
45–49........	206	49	432	21.22
50–54........	259	73	410	29.96
55..........	62	87	342	29.84
All ages..	1,315	39	$324	$12.59
Females				
29 and under..	387	40	$309	$12.35
30–34........	303	53	325	17.28
35–39........	381	68	300	20.49
40–44........	437	81	321	26.01
45–49........	433	87	340	29.52
50–54........	295	76	363	27.64
55..........	48	69	381	26.24
All ages..	2,284	64	$326	$20.75
Children (per Child Basis)				
0–17........	793	19	$200	$ 3.88

The plan with the $200 deductible has been the most popular plan and originally was sold only to individuals and families with incomes of less than $15,000 a year. As a result of our major medical experience being worse than we originally had anticipated, we found it necessary, in April, 1961, to make the $200 deductible plan available only where (1) gross annual income of individual or family did not exceed $10,000; (2) no

TABLE 2

EXPERIENCE ON CLAIMS INCURRED DURING THE
CALENDAR YEAR *n* YEARS AFTER ISSUE

CALENDAR YEAR *n*	No. OF CLAIMS	CLAIM RATE PER 1,000	AVERAGE SIZE OF CLAIM	ANNUAL CLAIM COST
Males				
1........	526	34	$268	$ 9.18
2........	411	38	354	13.55
3........	261	46	355	16.46
4........	117	54	406	22.01
Females				
1........	971	59	$319	$18.70
2........	728	64	301	19.31
3........	422	72	376	27.04
4........	163	77	354	27.09
Children (per Child Basis)				
1........	379	19	$184	$ 3.46
2........	249	20	202	4.00
3........	115	19	232	4.39
4........	50	25	236	5.97

basic hospital expense plan was in force; and (3) the application included Part II, daily hospital benefit of $8, $12, or $16.

Since the average premium for the major medical benefits was so relatively small, it was felt necessary to increase the average premium per policy by requiring the inclusion of Part II, daily hospital benefit, and by doing this we had a broader base to spread our expenses. In addition, the morbidity cost for the daily hospital benefit should increase less rapidly by policy duration, and thus the increasing cost by policy duration should be somewhat less than if only the major medical benefit is included.

Table 1 shows the experience of the major medical benefit but not the

daily hospital benefit, by sex and age, on claims incurred in 1959, 1960, and 1961, with respect to policies issued from 1957 to 1961 inclusive. The experience on claims incurred during the calendar year of issue is not included. All claims were followed to December 31, 1962, and an appropriate adjustment has been made for claims still pending as of that date. Table 2 shows the experience by calendar year duration and sex, but not by age.

Our experience below age 50 clearly indicates that for our plan the premium rates for women below age 50 should be higher than for men. Even after age 50, where the annual claim costs for women appear to be lower than for men, our asset share calculations indicate that where the better persistency for women is taken into account, the gross premiums up to age 55, our highest issue age, should be at least as high for women as for men.

Although the New York Life decided as a practical matter that there would be advantages to having the same rate for males and females, we find no disadvantages in having different rates for males and females. If a company uses the same premium rates for males and females and then subsequently determines that the rates must be raised but differently for males and females, a question arises whether this is a reclassification by a factor not used at issue.

As of April, 1963, we introduced a new major medical plan which is guaranteed renewable for life. We have not raised the premium rates on our existing major medical policies.

<div align="center">ROBERT P. COATES:</div>

Mr. Dorn is to be congratulated on offering the Society a valuable and helpful paper. The field of major medical expense insurance is a relatively new one, and there is a great paucity of reliable data on which to base premiums and reserves and with which individual companies may compare their own experience. The Equitable is glad to supplement Mr. Dorn's paper by presenting our experience under a similar policy.

The experience to be presented is under a policy which is quite similar to that issued by the New York Life under their 1956 program. It was described in Mr. Miller's paper in *TSA* VII, 1. We studied our experience under this policy on issues of 1954–59 covering exposure from issue to the policy anniversaries in 1960. The study included some 54,000 life years of exposure on adult males, 55,000 life years of exposure on adult females, and 33,000 policy years of exposure on policies with one or more children. There were over 3,000 claims. Results of the study are presented in Table 1.

It is apparent from a comparison of these figures with those presented by Mr. Dorn that the results of the two studies are essentially similar. The experience during the period under study had proved to be generally higher, particularly at the higher attained ages, than that indicated by the table presented in Mr. Miller's paper in 1955, which had to be derived from early policy year experience under a quite different form of major medical expense policy.

TABLE 1

EQUITABLE MAJOR MEDICAL MORBIDITY EXPERIENCE
ISSUES OF 1954 TO 1959
EXPOSED FROM ISSUE TO POLICY ANNIVERSARY IN 1960

ATTAINED AGE	ANNUAL CLAIM COST		RATIO OF ACTUAL TO EXPECTED*	ANNUAL CLAIM COST		RATIO OF ACTUAL TO EXPECTED*
	Actual	Expected*		Actual	Expected*	
	Males			Females		
29 and under..	$ 7.70	$ 7.58	102%	$13.61	$11.98	114%
30–34.........	10.74	9.58	112	11.22	14.44	78
35–39.........	8.64	11.32	76	15.24	16.50	92
40–44.........	16.15	13.38	121	17.85	18.85	95
45–49.........	24.18	15.81	153	29.81	21.54	138
50–54.........	27.89	18.69	149	37.13	24.61	151
55–59.........	52.74	22.09	239	33.96	28.11	121
60 and over....	62.98	26.11	241	44.66	32.11	139
All ages...	$21.76	$14.35	152%	$22.05	$18.98	116%
	Children					
0–17..........	$ 8.06	$11.00	73%	....	....	....

* Expected claims based on Mr. Miller's table, *TSA* VII, 4.

The crude claim costs in this table show more favorable morbidity for males than for females at the younger ages and less favorable at the older ages. In both cases there is a considerable rise of claim costs with increasing age. After some consideration of the extent of statistical fluctuations and the probable effect on premium rates, we concluded, as did Mr. Dorn, that a merger of the two experiences was not unreasonable, especially since it would offer important practical advantages. A graduated table was developed on the basis of the merged experience.

In developing a graduated table by attained age we wished to avoid possible distortions from the effect of wearing off of underwriting selection

and from the changes in claim costs caused by the year-by-year increases in the costs of medical care. The latter have been demonstrated in many ways by independent statistical data. In the case of life insurance the selection factor is commonly dealt with by eliminating early policy years' experience and constructing a table based on ultimate data. Theoretically, the secular trend could be dealt with by constructing a table based on a single calendar year's experience. The volume of data, however, would be drastically limited if methods of this sort were applied. As a device for combining all available data with a minimum of distortion, we set up a hypothetical grid of index numbers intended to be representative of the selection trend combined with the change of morbidity experience from

TABLE 2

GRADUATED ULTIMATE ANNU-
AL CLAIM COSTS AS OF
JANUARY 1, 1958

(MALE AND FEMALE COMBINED)

Age	Annual Claim Cost
25...............	$ 9.20
30...............	11.50
35...............	14.00
40...............	17.10
45...............	22.40
50...............	29.80
55...............	39.00
60...............	46.00

one calendar year to another. For this purpose we assumed that claims in the first and second policy years would be at 90 per cent of the ultimate (fourth and later years) claim rate and in the third policy year would be at 95 per cent of the ultimate claim rate. For translating from one calendar year to another, a factor of 6 per cent per year was used. Imposing this grid of index numbers on our actual experience gave us a body of data which might be described as an ultimate experience as of January 1, 1958. This was graduated by graphic methods and the results are summarized in Table 2.

Perhaps it should be emphasized that the particular factors used in our graduation method should not be given too much sanctity as experience factors for either the relationship between select and ultimate experience or the secular trend of claim cost. In fact, in any use of a morbidity table which involves projection into the future it is important to take into account not only whatever indications past experience supplies but other

collateral information about both underwriting selection and the trend of medical care costs. In projecting the graduated claim costs shown in Table 2 from 1958 to a current level we actually used a factor of 7 per cent a year, not compounded.

It is interesting to compare our results with those published by Mr. Dorn as the New York Life 1961 Major Medical Experience Table. For this purpose we have increased our claim cost factors by 24½ per cent to bring them to approximately the same point of time (July 1, 1961) as his table. Table 3 shows this comparison.

TABLE 3

GRADUATED ULTIMATE ANNUAL CLAIM COSTS
1961 LEVEL
(MALE AND FEMALE COMBINED)

AGE	ANNUAL CLAIM COST		RATIO (2)÷(1)
	New York Life (1)	Equitable (2)	
25..........	$10.62	$11.45	108%
30..........	13.18	14.32	109
35..........	17.29	17.43	101
40..........	22.95	21.29	93
45..........	30.15	27.89	93
50..........	38.88	37.10	95
55..........	49.17	48.56	99
60..........	61.17	57.27	94

A further question which we faced in developing a new policy and in offering a contractual extension of benefits under our older policy beyond age 65 was the extension of our tables to the higher ages. In this area there was no major medical experience to rely on, and the rates adopted were derived by judgment and by analogy with morbidity experience under other forms of coverage.

Certain practical points also merit consideration at this point. If conservatism is allowed full sway and a very steep ascending claim curve is employed, the result may well be to impose excessive premium charges not only at the high issue ages but also at the younger ages for anticipated claim costs to be incurred after age 70 that have very little factual support. On the other hand, if it develops that insufficient recognition has been given to the increase of claim cost by age, the emerging experience will produce inadequate premiums, and the necessity of a revision of premiums at an earlier date than might be required by the general trend toward high medical care costs.

In considering this whole matter it is probably well to remember the sizable increases that have taken place in the cost of medical care over the past decade or more and the current indications that this trend has not yet run its course. If such increases occur in the next five, ten, or twenty years in the same degree it will clearly be necessary to revise premiums under guaranteed renewable blanket coverage policies at periodic intervals. In the face of these uncertainties there is much to be said for a middle-of-the-road position on the costs to be charged for in our current premiums with respect to medical care to be rendered at the more advanced ages.

It is indeed helpful that the Society of Actuaries committee on experience under individual health insurance is embarking upon a program of collecting data on major medical expense insurance policies, so that contributions such as Mr. Dorn's may be supplemented by an industry-wide approach. The collection of facts about this important and fascinating branch of our business has been much forwarded by the contribution made by Mr. Dorn.

<div align="center">MARTINA E. DOYLE:</div>

Mr. Dorn's paper is a welcome addition to the scanty literature available on an important area of individual health insurance—individual major medical coverage. Connecticut General issued individual major medical policies from 1952 until late in 1962 which provided coverage very similar to those of the New York Life 1953 program, except that the qualification requirement for benefits was eligible medical expenses exceeding the deductible amount incurred within ninety days, and the benefit period was two years from the date of the first eligible medical expenses which counted toward the deductible.

Using Mr. Miller's table to compute the expected, the experience on issues of 1952 through 1960 exposed during calendar years 1956 through 1960, like that of New York Life, showed a heavier excess of actual over expected for males than females. The actual to expected ratio on Connecticut General business was not as unfavorable at the higher attained ages as the New York Life experience. Attained ages below 30 where exposures were relatively light did, however, run a rather high actual to expected ratio. The comparable Connecticut General figures, based on approximately the same dollar volume of claims as the New York Life study and using broad age groups, are given in Table 1.

The Connecticut General experience by policy year shows a similar deterioration as duration advances. The over-all ratio of actual to expected for policy years 1 through 3 was 99 per cent, while the ratio was 110 per cent for policy years 4 through 8.

Our experience corroborates the New York Life finding that claim costs for women over age 50 are somewhat below those for men. For ages 30–49, however, claim costs for women are significantly higher than those for men of the same age span.

Preliminary results for the calendar year 1961 and indicated experience for the calendar year 1962 show a continuing upward trend in major medical cost. The New York Life experience particularly at the older ages and our 1961 and 1962 over-all results seem to indicate that we should be seriously concerned about the future cost of providing major medical coverage.

TABLE 1

MAJOR MEDICAL MORBIDITY EXPERIENCE—ISSUES
OF 1952–60 EXPOSED DURING CALENDAR
YEARS 1956–60

ATTAINED AGE	ACTUAL/EXPECTED		
	Men	Women	Total
Under 30........	160%	159%	159%
30–49..........	110	108	109
50–65..........	174	92	126
All ages.......	139	103	118
Children.......	....	....	61
Total........	139%	103%	104%

WILLIAM A. HALVORSON:

It occurred to me that it would be useful to attempt to translate the table of net claim costs presented by Mr. Dorn into hypothetical gross premiums. These hypothetical gross premiums will be inappropriate for use by any company, because no company would have exactly the same persistency and expenses that are assumed here, nor would any company have claim costs identical with those of Mr. Dorn's company, due to differences in exposure to insurable classes, underwriting standards, geographical distribution of insureds, and claims administration practices. However, if the following assumptions are made, the gross premiums in Table 1 are produced.

Expenses, including commissions and profit and contingencies: First year: 65 per cent of premiums received plus $15 per policy issued. Renewal: 30 per cent of premium received plus $2 per average policy in force.

Persistency: Scale A terminations: 40 per cent, 25 per cent, 18 per cent, 15 per cent, 10 per cent, 10 per cent. Scale B terminations: 20 per cent, 15 per cent,

10 per cent, 10 per cent, 10 per cent, 10 per cent (lapses assumed to be continuous).

Interest: 3 per cent.

Selection factors: 75 per cent first year, 90 per cent second, 105 per cent, 120 per cent, 135 per cent, and 150 per cent yearly thereafter of the New York Life 1961 table.

Projected trend: None (about as realistic as assuming no future taxes).

Tenth-year reserve: Estimated on basis of 150 per cent of New York Life 1961 table, two-year preliminary term, 1958 CSO Table ALB 3 per cent.

Gross premium formula: Present value of gross premiums during first ten years = p.v. of net claim cost first ten years plus p.v. of tenth-year terminal reserve, plus p.v. of expenses first 10 years.

TABLE 1

MAJOR MEDICAL COVERAGE TO AGE 65
1961 HYPOTHETICAL PREMIUMS

MALE AGE	12 TIMES MONTHLY PREMIUM	
	Scale A	Scale B
27........	$ 48.93	$ 48.05
32........	56.63	55.97
37........	66.36	65.85
42........	78.12	77.69
47........	91.88	91.46
52........	107.66	107.18

In Table 1, Scale B persistency premiums are almost the same as Scale A premiums, showing the important effect of the reserve. In fact, the percentage of each of the above gross premiums in each of the first ten policy years that is needed to accumulate the tenth-year terminal is as follows:

Male Age	Scale A	Scale B
27..........	18%	20%
37..........	12	13
47..........	6	6

As I mentioned earlier, the assumptions on which the hypothetical gross premiums are based are not particularly realistic. For instance, assuming no trend is "head-in-sand" thinking. Projecting trend at any realistic level produces premiums completely out of line. But if we were to assume an 8 per cent annual trend factor and project the 1961 table

to 1964, for instance, and assume no further trend beyond 1964, the premiums above would be increased as follows:

MALE AGE	SCALE A	
	1964	Increase
27.............	$ 58.93	20%
37.............	80.89	22
47.............	113.05	23

If we were to develop premiums for California and assume that the adequate premiums were desired for California business, then an additional 30 to 40 per cent morbidity cost would have to be added to average morbidity costs for the United States as a whole (including California), and the above gross premiums increased by 25 to 30 per cent.

TABLE 2

ASSUMED NET CLAIM COSTS BY POLICY YEAR
AS PERCENTAGE OF SCALE A 1961
HYPOTHETICAL PREMIUMS

Age	First Year	Second	Fifth	Tenth
27.......	18%	24%	38%	56%
37.......	23	29	52	75
47.......	28	35	60	84

Another by-product of this analysis is a comparison of assumed net claim costs by policy year, after adjustment for selection factors, with the 1961 gross premiums, as is given in Table 2. The first-year claim costs shown in this table look very favorable, but as can be seen, they develop substantial loss ratios later, assuming no secular trend in claims. When you consider that the incurred claims shown above might average two to two and one-half times the paid claims during the first policy year or three to four times paid claims during the first calendar year such a policy is offered, it is easy to understand why health insurance company management, accustomed to dealing with loss ratios, often on a cash basis, are grossly misled into believing their early experience is favorable, rather than recognizing the sure signs of impending disaster.

The analysis above also points out that the basis for developing reserves, that is, using 150 per cent of the New York Life 1961 major medical table, is inconsistent with the expense assumptions after the first few

years. The two-year preliminary term net level premiums, increased to provide for our assumed renewal expenses, would compare as shown in Table 3 with the hypothetical gross premiums.

If the gross premiums charged are to be consistent with the morbidity assumption used in determining reserves after the tenth year, substantially higher premiums will be needed after the tenth year than the ten-year gross premium formula had indicated as necessary to meet all of the company's profit objectives during the first ten years, again assuming no secular trend.

TABLE 3

COMPARISON OF PRELIMINARY TERM PREMIUMS LOADED FOR
RENEWAL EXPENSES WITH HYPOTHETICAL PREMIUMS

Age x	Net Level Premium 150 Per Cent of New York Life 1961 Table at $x+2$*	Net Level Premium Loaded for Renewal Expenses	1961 Hypothetical Gross	Increase Necessary
27........	$43.84	$ 65.49	$ 48.93	34%
32........	50.53	75.04	56.63	33
37........	58.14	85.91	66.36	30
42........	66.63	98.04	78.12	26
47........	75.97	111.39	91.88	21
52........	86.24	126.06	107.66	17

* Combined with 1958 CSO ALB, 3 per cent.

Some additional things to worry about on individual major medical might be listed as follows:

(1) There is insufficient experience on individual major medical to indicate whether anti-selection through voluntary lapse (probably replacement by group coverages) will ever level off.
(2) The level of disposable income influences utilization of medical facilities and affects the level of charges. Treating different classes of insureds equitably would require reclassifying original classes. Staying with original classes would be like not changing fire insurance premiums when the insured moves from a two-bedroom bungalow in town to a five-bedroom house in the country.
(3) Movement of insureds from one cost area to the next must be recognized in the premiums charged, if equity is to be maintained.
(4) Current trends to guaranteed renewal for life on major medical would seem to compound the premium and practical problems noted above. In fact, there would appear to be good reasons to reanalyze major medical pricing methods that do not contemplate increasing premiums regularly and predictably.

In conclusion, Mr. Dorn is to be congratulated on presenting the results of his major medical experience in such useful form. Although I cannot add the experience of our clients to that he has presented, I hope the gross premium exercise above will be useful to others.

JOHN H. MILLER:

This has been a very interesting discussion. In our office a study had been made by Alfred V. Fairbanks, a Fellow of the Casualty Actuarial Society, of the experience under a policy very similar to that described by Mr. Dorn. The results were surprisingly similar as will be noted from the accompanying schedule.

COMPARISON OF MAJOR MEDICAL MORBIDITY EXPERIENCE

ATTAINED AGE	ANNUAL CLAIM COST		RATIO OF MONARCH TO NEW YORK LIFE
	Monarch	New York Life	
Males			
29 and under.......	$ 6.64	$ 6.25	106%
30–34.............	10.22	8.97	114
35–39.............	13.68	13.43	102
40–44.............	18.55	11.53	161
45–49.............	25.40	26.48	96
50–54.............	35.47	43.04	82
55–59.............	50.45	46.30	109
60 and over.......	71.43	71.96	99
Females			
29 and under.......	$19.05	$ 6.85	278%
30–34.............	12.96	13.95	93
35–39.............	20.94	14.62	143
40–44.............	25.19	20.69	122
45–49.............	23.85	29.20	82
50–54.............	29.04	29.97	97
55–59.............	29.42	36.11	81
60 and over.......	*	38.95	....
Children			
0–21†.............	$ 9.25	$ 7.27‡	127%

* Insignificant volume. Included with age group 55–59.
† Ages 0–19 for issues prior to about April, 1958. Ages 0–17 for New York Life.
‡ Per policy covering children at policy issue date.

Perhaps the most noteworthy feature of our experience was the marked difference in results by geographical area. Our highest cost area, comprising New York City and the state of California, represented about 28 per cent of the exposures and produced a cost level more than 90 per cent above that for the remainder of the country.

(AUTHOR'S REVIEW OF DISCUSSION)

LOWELL M. DORN:

I am grateful to those who have discussed this paper. The additional morbidity experiences and the practical comments are a valuable addition to the paper and will contribute to a much better understanding of the level and incidence of major medical costs.

Without exception, the morbidity experiences show that high claim costs have developed on major medical policies. The results of the Equitable, the Monarch, and the Connecticut General under their $500 deductible policies are quite similar to the New York Life experience.

The experiences of the Guardian and Prudential follow a somewhat different pattern. The variations between the experience of these two companies and that of the New York Life may be largely due to the smaller deductibles (less than $500) in their major medical policies.

From the variations in the several experiences as well as from the comments of the discussers, it is apparent that plan characteristics, distribution of business by geographic area, and policyholder characteristics, particularly income levels, may significantly affect morbidity results.

Mr. Halvorson's development of hypothetical gross premiums on various bases illustrates the effects of persistency and increasing medical costs on premium levels. The points he mentions at the end of his discussion should be kept in mind in developing premium bases for major medical policies.