

**TRANSACTIONS OF SOCIETY OF ACTUARIES  
1985-87 REPORTS**

**II. MORTALITY ON POLICIES FOR LARGE AMOUNTS  
BETWEEN 1978 AND 1983 ANNIVERSARIES**

**ABSTRACT**

This is the latest in a series of quinquennial reports on intercompany mortality experience under standard ordinary life insurance policies for large amounts. The study covers the experience of issues of 1954 through 1982 between policy anniversaries in 1978 and 1983. However, for certain analysis purposes, only the first 15 of the 25 policy years covered in the study are used. Policies included in the study are those with "classification amounts" of \$100,000 or more for issues of 1974 and later (\$50,000 or more for issues prior to 1974).

Expected deaths in the study are based on the 1975-80 Basic Tables. In previous studies expected deaths were based on a special table constructed from contemporaneous Standard Ordinary intercompany experience on policies for all amounts.

Analyses of the experience are shown by issue age, policy year, permanent plans (including plans with a term element), term plans, sex, classification amount (defined as the total amount of insurance in force on the insured in all companies, including the current application), purpose of insurance, and insured's annual income.

Based on the 1975-80 table, the overall mortality experience in durations 1-15 was 89 percent for large-amount policies, as compared with 94 percent for medically examined issues of all sizes combined. The male experience was 88 percent for large-amount policies and 93 percent for all amounts, while the corresponding female experience was 107 percent and 102 percent.

The overall experience in durations 1-25 was 89 percent based on the 1975-80 table. Permanent plans experienced better mortality (87 percent) than term plans (93 percent). The mortality ratio was highest during the first five durations and at ages 10-39. The male mortality ratio was 87 percent, and the female ratio was 106 percent. In the classification amount categories, the mortality ratio was highest in the two lowest-amount classes (\$50,000-\$99,999 and \$100,000-\$199,999).

Issues of 1959 and later were classified by purpose of insurance and annual income of the insured. The mortality for business and keyman insurance was below the study average, while the mortality for personal and creditor insurance was above the study average. By annual income, the mortality ratios were highest for incomes of \$100,000 and over at ages 30-39.

Compared with the previous large-amount experience between the 1973 and 1978 anniversaries, there was a significant decrease in mortality. Based on the 1975-80 table, the overall mortality ratio in the current study was 89 percent, as compared to 101 percent in the prior study.

#### DESCRIPTION OF STUDY

This report presents the findings of the latest in a series of intercompany studies of the mortality on policies of large amounts. The major objectives of the study were: (1) to compare mortality on large-amount policies with mortality on otherwise comparable policies, (2) to study the absolute level of large-amount mortality experience, and (3) to analyze the changes in large-amount mortality since the prior study.

Policies for large amounts are defined as those issued as a result of one or more applications that total \$100,000 or more on one life during a 90-day period (\$50,000 or more for issues of 1973 and prior years).

The study includes experience on standard ordinary issues of 1954-82 between 1978 and 1983 policy anniversaries. The previous report (*TSA 1981 Reports*, p. 53) covered the experience between 1973 and 1978 anniversaries. The experience underlying the present study is based on a total exposure of \$532 billion and claims of \$1,314 million on 15,637 policies.

The study is limited to the experience of the first 25 policy years. For certain analyses, only the first 15 policy years are used.

A modification of the 1975-80 Basic Tables is used as the basis for expected deaths. (See Appendix A for details.) In previous studies a special mortality table was constructed from the contemporaneous standard ordinary intercompany experience on policies for all amounts. This table was used as the primary basis for expected mortality. Mortality ratios calculated with this table as the basis for expected mortality implicitly compared large-amount mortality with all-amounts mortality.

Because a special mortality table was not constructed for this study, mortality ratios based on the 1975-80 Basic Tables are used to compare large-amount mortality with all-amounts mortality for the first 15 durations. Table 1 makes this comparison by issue age, while Table 2 makes the comparison by duration.

Tables 3-8 (comparable in form to Tables 1-6, respectively, of the prior study) report the absolute level of mortality on large-amount policies. The expected basis of mortality in these tables is the 1975-80 Basic Tables. The experience is analyzed by issue age, policy year, permanent plans, term

plans, sex, classification amount, purpose of insurance, and income. Classification amount is defined as the total of the following amounts: the amount of insurance indicated as being in force on the life when the policy was applied for (including previously issued policies in force in all companies), the amount currently being authorized for issue by the contributing company, and the amount likely to be authorized under any known concurrent applications to other companies. All kinds of individual and group insurance were included for this purpose, where the information was available. The information on the purpose of the insurance and the estimated current annual income of the insured at the time of issue were coded only for issues of 1959 and subsequent years.

Table 9 analyzes the experience by cause of death separately for term and permanent plans. For this purpose, the distribution of expected deaths by cause of death for the first 15 policy years was based on the experience under standard medically examined issues for all amounts during the period between 1978 and 1983 anniversaries. For policy years 16 and over, this distribution was based on the 1978-83 ultimate experience on medical and nonmedical issues combined.

Table 10 analyzes motor vehicle and aviation deaths as a percentage of all accident and homicide deaths.

Table 11 compares large-amount mortality in the current study with that in the prior study. The 1975-80 Basic Tables are used in this table for expected deaths for both the current and the previous studies.

Twelve companies contributed to the current study. Their names and the proportionate exposures contributed by each are indicated in the table at the top of the next page. All these companies are also contributors to the standard ordinary studies. There are, however, some marked differences in the relative proportions of the experience contributed by these companies to the two investigations. (See the *TSA 1983 Reports*, p. 48, for a table of contributors to the 1982-83 standard ordinary study.)

Company	Proportion of Permanent Insurance Exposure	Proportion of Term Insurance Exposure	Proportion of Total Exposure
Metropolitan	4.2%	12.2%	7.3%
Prudential	6.6	22.1	12.5
New York Life	16.6	0	10.3
MONY	14.4	3.7	10.3
Northwestern Mutual	20.0	20.4	20.2
Travelers	3.0	5.9	4.1
John Hancock	4.4	3.8	4.2
Mass Mutual	14.8	16.5	15.5
New England Life	2.1	1.9	2.0
Phoenix Mutual	5.3	8.1	6.4
Conn General	6.4	0	3.9
Lincoln National	2.2	5.3	3.4
All Companies	100.0%	100.0%	100.0%

The following tabulation indicates the variation in the 1978-83 aggregate large-amount mortality ratios for the contributing companies from the 1978-83 large-amount, all-company average of 89 percent (on the basis of the 1975-80 Basic Tables).

	Number of Companies	Proportion of Actual Deaths
Percentage Points below Average		
More than 15.....	0	0
10-15.....	2	20%
5-10.....	0	0
0-5.....	3	15
Percentage Points above Average		
0-5.....	3	36
5-10.....	2	22
10-15.....	1	2
More than 15.....	1	5

#### RESULTS OF THE STUDY

##### *Large-Amount Mortality Versus All-Amounts Mortality*

On the basis of the 1975-80 Basic Tables, aggregate standard large-amount mortality in durations 1-15 was 89 percent for all plans and both sexes combined, as compared with 94 percent for standard, medically examined issues generally. Male mortality in the large-amount study was 88 percent of expected, and female mortality was 107 percent. The corresponding ratios for standard medical issues for all amounts during the same period were 93

percent and 102 percent, respectively. As in previous studies, the overall mortality level was lower on large-amount policies than on policies generally, although, in contrast to the prior study, the female experience showed a slightly higher mortality in the aggregate for large-amount than for all policies. All the above can be seen from either Table 1, which compares results by issue age, or Table 2, which compares results by duration. Only durations 1-15 were used in these tables because this limitation existed in the all-amount standard ordinary experience.

TABLE 1  
LARGE-AMOUNT ISSUES VERSUS  
ALL-AMOUNTS STANDARD MEDICAL ISSUES  
EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
ISSUES OF 1964-82 AT DURATION 1-15  
BY AGE AT ISSUE  
EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES

Age Group	Large-Amount Policies		All Amounts Standard Medical Issues
	Actual Claims	A/E Ratio	A/E Ratio
Male and Female Lives			
0-9 .....	\$ 1,425	59%	75%
10-19 .....	5,389	95	110
20-29 .....	59,298	107	93
30-39 .....	233,086	95	91
40-49 .....	318,777	86	93
50-59 .....	269,058	86	93
60-69 .....	100,448	90	102
70 and over....	6,820	62	102
All Ages .....	\$994,301	89%	94%
Male Lives			
0-9 .....	\$ 1,125	65%	77%
10-19 .....	4,045	82	103
20-29 .....	52,194	103	94
30-39 .....	215,091	95	92
40-49 .....	290,697	84	92
50-59 .....	242,005	84	92
60-69 .....	88,544	89	99
70 and over....	5,435	63	94
All Ages .....	\$899,136	88%	93%
Female Lives			
0-9 .....	\$ 300	44%	68%
10-19 .....	1,344	176	160
20-29 .....	7,104	153	90
30-39 .....	17,995	102	76
40-49 .....	28,080	113	100
50-59 .....	27,053	108	105
60-69 .....	11,904	93	122
70 and over....	1,385	59	131
All Ages .....	\$95,165	107%	102%

Note: Mortality ratios are based on amount of insurance.

TABLE 2  
 LARGE-AMOUNT ISSUES VERSUS STANDARD MEDICAL ISSUES  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 ISSUES OF 1964-82 AT DURATION 1-15  
 BY DURATION SINCE ISSUE  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES

Policy Duration	Large-Amount Policies		All Amounts Standard Medical Issues
	Actual Claims	A/E Ratio	A/E Ratio
Male and Female Lives			
1-2.....	\$229,864	100%	95%
3-5.....	264,028	92	95
6-10.....	274,516	84	91
11-15.....	225,893	84	95
1-15.....	\$994,301	89%	94%
Male Lives			
1-2.....	\$196,268	95%	91%
3-5.....	239,874	92	94
6-10.....	252,123	83	91
11-15.....	210,871	84	95
1-15.....	\$899,136	88%	93%
Female Lives			
1-2.....	\$33,596	147%	142%
3-5.....	24,154	97	102
6-10.....	22,393	91	92
11-15.....	15,022	92	93
1-15.....	\$95,165	107%	102%

Note: Mortality ratios are based on amount of insurance.

### *Absolute Level of Large-Amount Mortality*

Tables 3-8 use the 1975-80 Basic Tables as the expected basis of mortality. (These tables are comparable to Tables 1-6 of the previous study.) Male mortality ratios are based on the 1975-80 Male Basic Table, while female ratios are based on the corresponding female table. Reported results are based on experience at durations 1-25. Table 3 summarizes the experience by age at issue, sex, and plan; Table 4 summarizes the experience by policy year, sex and plan; Table 5 summarizes the experience by classification amount, sex and plan.

Each of Tables 3-5 is divided into several sections. The first section presents the data for males and females combined. Results are shown separately for permanent plans, term plans, and combined. The data for permanent plans include any term riders on these plans. The next two sections present the same data for males and females separately.

*Aggregate Experience.* Aggregate large amount mortality was 89 percent of expected.

*Experience by Reinsurance Status.* The overall large-amount mortality ratio of 89 percent includes policies that were issued standard that would not have been issued standard without reinsurance (1.1 percent of total exposure). The mortality ratio on these policies was 107 percent. If these policies were excluded from the current study, the aggregate mortality ratio would still be 89 percent.

*Term Insurance Versus Permanent Insurance (Tables 3–5).* Mortality on permanent plans (87 percent) was better than mortality on term plans (93 percent). The majority of the exposure was permanent (62 percent). Seventy percent of the prior study's exposure was permanent.

*Experience by Issue Age (Tables 3A and 3B).* No particular pattern emerges by issue age. At the adult ages the lowest ratio occurred in the 50–59 age group, while the highest occurred in the 20–29 age range.

*Experience by Duration (Tables 4A and 4B).* Mortality ratios for males were highest in the first five durations in almost all categories. This was not true for female lives.

*Experience by Classification Amount (Table 5).* The experience by classification amount was best in the \$1 million and over category (84 percent), and it was worst in the under \$200,000 category (92 percent). In the prior study, the worst experience was in the \$500,000–\$999,999 category, and the best experience was also in the \$1 million and over category.

*Experience by Sex (Tables 3–5).* Eighty-eight percent of the total exposure by amount was from policies issued on male lives. In the previous study the corresponding percentage was 93 percent. The aggregate mortality ratio for males was 87 percent.

The female ratio was 106 percent overall. Results for females were much more variable than those for males due presumably to the smaller amount of exposure.

*Experience by Purpose of Insurance and Income of Insured (Tables 6 and 7).* An analysis of experience by purpose of insurance was made for issues of 1959–82. Purpose of insurance was divided into the following categories:

- *Personal insurance.* Insurance where the beneficiary is (a) wife, child, or other close relative; (b) estate; or (c) business involving sole proprietorship.
- *Business insurance.* Insurance intended for the repurchase of the insured's interest in an organization having not more than five principal owners (partnership or closed corporation).

TABLE 3A  
 LARGE AMOUNT ISSUES OF 1954-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY AGE AND PLAN OF INSURANCE FOR ALL POLICY DURATIONS  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Age Group	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Male and Female Lives												
0-9 .....	\$ 1,550	20	\$ 2,760	56%	\$ 200	2	\$ 158	127%	\$ 1,750	22	\$ 2,918	60%
10-19 .....	5,942	73	5,684	105	550	7	679	81	6,492	80	6,363	102
20-29 .....	42,173	589	40,065	105	25,730	328	24,495	105	67,903	917	64,561	105
30-39 .....	196,910	2,700	210,355	94	112,489	1,331	117,703	96	309,399	4,031	328,058	94
40-49 .....	323,229	4,000	380,315	85	124,302	1,458	140,756	88	447,531	5,458	521,071	86
50-59 .....	271,741	3,078	327,152	83	78,525	756	83,804	94	350,266	3,834	410,956	85
60-69 .....	100,065	1,041	115,427	87	23,441	159	23,541	100	123,506	1,200	138,968	89
90 and over ..	5,878	77	10,124	58	1,492	18	1,873	80	7,370	95	11,997	61
All Ages .....	\$947,488	11,578	\$1,091,882	87%	\$366,729	4,059	\$393,010	93%	\$1,314,217	15,637	\$1,484,892	89%
Male Lives												
0-9 .....	\$ 1,250	17	\$ 2,049	61%	\$ 100	1	\$ 107	94%	\$ 1,350	18	\$ 2,156	63%
10-19 .....	4,698	60	4,908	96	450	5	589	76	5,148	65	5,497	94
20-29 .....	38,301	545	37,068	103	22,231	286	22,441	99	60,532	831	59,509	102
30-39 .....	184,579	2,544	197,278	94	102,737	1,222	110,244	93	287,316	3,766	307,522	93
40-49 .....	294,950	3,706	355,442	83	116,782	1,361	133,402	88	411,732	5,067	488,844	84
50-59 .....	240,047	2,755	299,175	80	75,335	708	79,005	95	315,382	3,463	378,180	83
60-69 .....	86,512	885	99,574	87	21,336	145	21,580	99	107,848	1,030	121,154	89
70 and over ..	4,393	61	7,897	56	1,392	17	1,481	94	5,785	78	9,378	62
All Ages .....	\$854,730	10,573	\$1,003,391	85%	\$340,363	3,745	\$368,848	92%	\$1,195,093	14,318	\$1,372,238	87%



TABLE 3A--Continued

Age Group	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Female Lives												
0-9.....	\$ 300	3	\$ 708	42%	\$ 100	1	\$ 51	197%	\$ 400	4	\$ 759	53%
10-19.....	1,244	13	775	160	100	2	90	111	1,344	15	866	155
20-29.....	3,872	44	2,987	130	3,499	42	2,054	170	7,371	86	5,042	146
30-39.....	12,331	156	13,039	95	9,752	109	7,459	131	22,083	265	20,498	108
40-49.....	28,279	294	24,800	114	7,520	97	7,353	102	35,799	391	32,153	111
50-59.....	31,694	323	27,861	114	3,190	48	4,799	66	34,884	371	32,660	107
60-69.....	13,553	156	15,789	86	2,105	14	1,961	107	15,658	170	17,751	88
70 and over ..	1,485	16	2,227	67	100	1	392	25	1,585	17	2,619	61
All Ages.....	\$92,758	1,005	\$88,185	105%	\$26,366	314	\$24,160	109%	\$119,124	1,319	\$112,345	106%
Permanent Plans												
	Male Lives without Term Element				Male Lives with Term Element							
0-9.....	\$ 1,200	16	\$ 1,984	60%	\$ 0	0	\$ 3	0				
10-19.....	4,488	57	4,634	97	10	1	55	18%				
20-29.....	31,120	392	30,421	102	5,081	136	5,163	98				
30-39.....	147,019	1,797	159,529	92	25,620	624	27,064	95				
40-49.....	251,060	3,002	305,733	82	20,041	486	24,942	80				
50-59.....	216,998	2,459	272,002	80	5,805	138	7,550	77				
60-69.....	78,317	820	92,338	85	253	6	564	45				
70 and over ..	4,141	58	7,367	56	52	2	13	396				
All Ages.....	\$734,343	8,601	\$874,007	84%	\$56,862	1,393	\$65,353	87%				

TABLE 3B  
 LARGE AMOUNT ISSUES OF 1954-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY AGE AND PLAN OF INSURANCE FOR SELECT DURATIONS (1-15) ONLY  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Age Group	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Male and Female Lives												
0-9 .....	\$ 1,225	14	\$ 2,262	54%	\$ 200	2	\$ 148	135%	\$ 1,425	16	\$ 2,410	59%
10-19 .....	4,839	51	5,048	96	550	7	654	84	5,389	58	5,702	95
20-29 .....	35,611	444	32,454	110	23,687	282	22,784	104	59,298	726	55,238	107
30-39 .....	135,495	1,471	141,057	96	97,591	991	103,127	95	233,086	2,462	244,184	95
40-49 .....	214,459	2,126	252,205	85	104,318	1,071	118,568	88	318,777	3,197	370,773	86
50-59 .....	198,793	1,803	238,350	83	70,265	605	73,405	96	269,058	2,408	311,755	86
60-69 .....	78,752	688	90,677	87	21,696	135	21,495	101	100,448	823	112,172	90
70 and over ..	5,478	62	9,260	59	1,342	16	1,768	76	6,820	78	11,028	62
All Ages...	\$674,652	6,659	\$771,312	87%	\$319,649	3,109	\$341,949	93%	\$994,301	9,768	\$1,113,261	89%
Male Lives												
0-9 .....	\$ 1,025	12	\$ 1,625	63%	\$ 100	1	\$ 100	100%	\$ 1,125	13	\$ 1,725	65%
10-19 .....	3,595	38	4,372	82	450	5	567	79	4,045	43	4,939	82
20-29 .....	31,956	407	29,833	107	20,238	241	20,759	97	52,194	648	50,592	103
30-39 .....	126,718	1,368	130,603	97	88,373	892	95,985	92	215,091	2,260	226,588	95
40-49 .....	192,797	1,944	233,891	82	97,900	992	111,889	87	290,697	2,936	345,781	84
50-59 .....	174,580	1,601	217,718	80	67,425	568	68,928	98	242,005	2,169	286,646	84
60-69 .....	68,953	601	79,606	87	19,591	121	19,677	100	88,544	722	99,283	89
70 and over ..	4,093	49	7,235	57	1,342	16	1,435	93	5,435	65	8,671	63
All Ages...	\$603,717	6,020	\$704,884	86%	\$295,419	2,836	\$319,340	93%	\$899,136	8,856	\$1,024,224	88%

TABLE 3B—Continued

Age Group	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Female Lives												
0-9 .....	\$ 200	2	\$ 634	32%	\$ 100	1	\$ 48	208%	\$ 300	3	\$ 682	44%
10-19 .....	1,244	13	676	184	100	2	87	114	1,344	15	763	176
20-29 .....	3,655	37	2,611	140	3,449	41	2,025	170	7,104	78	4,636	153
30-39 .....	8,777	103	10,415	84	9,218	99	7,142	129	17,995	202	17,557	102
40-49 .....	21,662	182	18,239	119	6,418	79	6,677	96	28,080	261	24,917	113
50-59 .....	24,213	202	20,515	118	2,840	37	4,477	63	27,053	239	24,992	108
60-69 .....	9,799	87	11,008	89	2,105	14	1,818	116	11,904	101	12,825	93
70 and over ..	1,385	13	2,024	68	0	0	333	0	1,385	13	2,357	59
All Ages...	\$70,935	639	\$66,123	107%	\$24,230	273	\$22,607	107%	\$95,165	912	\$88,730	107%
Permanent Plans												
	Male Lives without Term Element				Male Lives with Term Element							
0-9 .....	\$ 1,025	12	\$ 1,579	65%	\$ 0	0	\$ 2	0				
10-19 .....	3,385	35	4,126	82	10	1	48	21%				
20-29 .....	25,981	300	25,368	102	4,025	91	3,325	121				
30-39 .....	103,865	1,028	109,738	95	15,120	278	14,092	107				
40-49 .....	165,749	1,625	203,476	81	11,841	226	14,044	84				
50-59 .....	158,155	1,442	198,121	80	3,188	57	5,060	63				
60-69 .....	62,623	552	74,098	85	203	5	510	40				
70 and over ..	3,841	46	6,705	57	52	2	13	396				
All Ages...	\$524,624	5,040	\$623,211	84%	\$34,439	660	\$37,094	93%				

**TABLE 4A**  
**LARGE AMOUNT ISSUES OF 1954-82**  
**EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES**  
**BY DURATION AND PLAN OF INSURANCE FOR ALL POLICY DURATIONS**  
**EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES**  
**(AMOUNTS SHOWN IN \$1,000 UNITS)**

Policy Year	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Male and Female Lives												
1-2.....	\$137,496	879	\$ 135,401	102%	\$ 92,368	649	\$ 95,149	97%	\$ 229,864	1,528	\$ 230,550	100%
3-5.....	164,700	1,211	193,764	85	99,328	664	92,949	107	264,028	1,875	286,713	92
6-10.....	195,511	2,124	234,582	83	79,005	958	93,913	84	274,516	3,082	328,495	84
11-15.....	176,945	2,445	207,564	85	48,948	838	59,939	82	225,893	3,283	267,503	84
16-20.....	141,097	2,332	171,040	82	34,182	645	37,275	92	175,279	2,978	208,316	84
21-25.....	131,739	2,587	149,530	88	12,898	304	13,785	94	144,637	2,891	163,315	89
All Years..	\$947,488	11,578	\$1,091,882	87%	\$366,729	4,059	\$393,010	93%	\$1,314,217	15,637	\$1,484,892	89%
Male Lives												
1-2.....	\$113,844	745	\$ 119,747	95%	\$ 82,424	555	\$ 87,707	94%	\$ 196,268	1,300	\$ 207,454	95%
3-5.....	147,498	1,067	175,556	84	92,376	596	86,241	107	239,874	1,663	261,796	92
6-10.....	178,610	1,946	216,020	83	73,513	880	87,840	84	252,123	2,826	303,860	83
11-15.....	163,765	2,262	193,561	85	47,106	805	57,553	82	210,871	3,067	251,114	84
16-20.....	129,998	2,147	159,203	82	32,425	613	35,908	90	162,423	2,760	195,111	83
21-25.....	121,015	2,406	139,303	87	12,519	296	13,600	92	133,534	2,702	152,903	87
All Years..	\$854,730	10,573	\$1,003,391	85%	\$340,363	3,745	\$368,848	92%	\$1,195,093	14,318	\$1,372,238	87%

TABLE 4A—Continued

Policy Year	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Female Lives												
1-2.....	\$23,652	134	\$15,403	154%	\$ 9,944	94	\$ 7,441	134%	\$ 33,596	228	\$ 22,844	147%
3-5.....	17,202	144	18,156	95	6,952	68	6,708	104	24,154	212	24,865	97
6-10.....	16,901	178	18,561	91	5,492	78	6,073	90	22,393	256	24,634	91
11-15.....	13,180	183	14,002	94	1,842	33	2,385	77	15,022	216	16,387	92
16-20.....	11,099	185	11,836	94	1,747	33	1,367	128	12,856	218	13,203	97
21-25.....	10,724	181	10,226	105	379	8	185	204	11,103	189	10,412	107
All Years ..	\$92,758	1,005	\$88,185	105%	\$26,366	314	\$24,160	109%	\$119,124	1,319	\$112,345	106%
Permanent Plans												
	Male Lives without Term Element				Male Lives with Term Element							
1-2.....	\$100,906	656	\$109,200	92%	\$ 4,725	48	\$ 3,723	127%				
3-5.....	130,809	945	159,979	82	5,833	65	5,629	104				
6-10.....	155,202	1,636	190,049	82	9,800	211	11,259	87				
11-15.....	137,707	1,803	163,981	84	14,081	336	16,483	85				
16-20.....	110,367	1,683	136,142	81	12,744	379	16,074	79				
21-25.....	99,352	1,878	114,654	87	9,679	354	12,186	79				
All Years ..	\$734,343	8,601	\$874,007	84%	\$56,862	1,393	\$65,353	87				

TABLE 4B  
 LARGE AMOUNT ISSUES OF 1954-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY DURATION AND PLAN OF INSURANCE FOR SELECT DURATIONS (1-15) ONLY  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Policy Year	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Male and Female Lives												
1-2 .....	\$137,496	879	\$135,401	102%	\$ 92,368	649	\$ 95,149	97%	\$229,864	1,528	\$ 230,550	100%
3-5 .....	164,700	1,211	193,764	85	99,328	664	92,949	107	264,028	1,875	286,713	92
6-10 .....	195,511	2,124	234,582	83	79,005	958	93,913	84	274,516	3,082	328,495	84
11-15 .....	176,945	2,445	207,564	85	48,948	838	59,939	82	225,893	3,283	267,503	84
All Years ..	\$674,652	6,659	\$771,312	87%	\$319,649	3,109	\$341,949	93%	\$994,301	9,768	\$1,113,261	89%
Male Lives												
1-2 .....	\$113,844	745	\$119,747	95%	\$ 82,424	555	\$ 87,707	94%	\$196,268	1,300	\$ 207,454	95%
3-5 .....	147,498	1,067	175,556	84	92,376	596	86,241	107	239,874	1,663	261,796	92
6-10 .....	178,610	1,946	216,020	83	73,513	880	87,840	84	252,123	2,826	303,860	83
11-15 .....	163,765	2,262	193,561	85	47,106	805	57,553	82	210,871	3,067	251,114	84
All Years ..	\$603,717	6,020	\$704,884	86%	\$295,419	2,836	\$319,340	93%	\$899,136	8,856	\$1,024,224	88%

TABLE 4B—Continued

Policy Year	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Female Lives												
1-2 .....	\$23,652	134	\$15,403	154%	\$ 9,944	94	\$ 7,441	134%	\$33,596	228	\$22,844	147%
3-5 .....	17,202	144	18,156	95	6,952	68	6,708	104	24,154	212	24,865	97
6-10 .....	16,901	178	18,561	91	5,492	78	6,073	90	22,393	256	24,634	91
11-15 .....	13,180	183	14,002	94	1,842	33	2,385	77	15,022	216	16,387	92
All Years ..	\$70,935	639	\$66,123	107%	\$24,230	273	\$22,607	107%	\$95,165	912	\$88,730	107%
Permanent Plans												
	Male Lives Without Term Element				Male Lives with Term Element							
1-2 .....	\$100,906	656	\$109,200	92%	\$ 4,725	48	\$ 3,723	127%				
3-5 .....	130,809	945	159,979	82	5,833	65	5,629	104				
6-10 .....	155,202	1,636	190,049	82	9,800	211	11,259	87				
11-15 .....	137,707	1,803	163,981	84	14,081	336	16,483	85				
All Years ..	\$524,624	5,040	\$623,211	84%	\$34,439	660	\$37,094	93%				

TABLE 5  
 LARGE AMOUNT ISSUES OF 1954-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY CLASSIFICATION AMOUNT AND PLAN OF INSURANCE  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Classification Amount	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Male and Female Lives												
\$ 50,000-99,999.....	\$137,917	3,047	\$ 154,935	89%	\$ 42,157	990	\$ 41,687	101%	\$ 180,074	4,037	\$ 196,621	92%
\$100,000-199,999.....	292,823	4,624	320,089	91	111,611	1,683	120,034	93	404,434	6,307	440,122	92
\$200,000-249,999.....	85,072	1,038	97,382	87	32,728	372	37,059	88	117,800	1,410	134,441	88
\$250,000-499,999.....	208,494	1,939	245,279	85	78,114	666	88,479	88	286,608	2,605	333,758	86
\$500,000-999,000.....	114,032	635	135,585	84	50,428	248	51,829	97	164,460	883	187,415	88
\$1 Million and over.....	109,150	295	138,613	79	51,691	100	53,922	96	160,841	395	192,535	84
All Classifications.....	\$947,488	11,578	\$1,091,882	87%	\$366,729	4,059	\$393,010	93%	\$1,314,217	15,637	\$1,484,892	89%
Male Lives												
\$ 50,000-99,999.....	\$123,410	2,708	\$139,030	89%	\$ 38,652	920	\$ 38,881	99%	\$ 162,062	3,628	\$ 177,911	91%
\$100,000-199,999.....	261,112	4,229	289,668	90	98,694	1,511	109,220	90	359,806	5,740	398,889	90
\$200,000-249,999.....	78,301	967	89,102	88	29,150	336	34,557	84	107,451	1,303	123,659	87
\$250,000-499,000.....	195,359	1,830	230,038	85	74,413	637	84,747	88	269,772	2,467	314,785	86
\$500,000-999,999.....	105,748	586	126,742	83	48,763	242	49,726	98	154,511	828	176,467	88
\$1 Million and over.....	90,800	253	128,811	70	50,691	99	51,716	98	141,491	352	180,527	78
All Classifications.....	\$854,730	10,573	\$1,003,391	85%	\$340,363	3,745	\$368,848	92%	\$1,195,093	14,318	\$1,372,238	87%



TABLE 5—Continued

Classification Amount	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Female Lives												
\$ 50,000-99,999.....	\$14,507	339	\$15,760	92%	\$3,505	70	\$2,805	125%	\$18,012	409	\$18,565	97%
\$100,000-199,999.....	31,711	395	30,394	104	12,917	172	10,813	119	44,628	567	41,207	108
\$200,000-249,999.....	6,771	71	8,265	82	3,578	36	2,502	143	10,349	107	10,767	96
\$250,000-499,999.....	13,135	109	15,212	86	3,701	29	3,731	99	16,836	138	18,943	89
\$500,000-999,999.....	8,284	49	8,831	94	1,665	6	2,104	79	9,949	55	10,934	91
\$1 Million and over.....	18,350	42	9,723	189	1,000	1	2,206	45	19,350	43	11,929	162
All Classifications.....	\$92,758	1,005	\$88,185	105%	\$26,366	314	\$24,160	109%	\$119,124	1,319	\$112,345	106%
Permanent Plans												
	Male Lives without Term Element				Male Lives with Term Element							
\$ 50,000-99,999.....	\$100,523	2,028	\$113,322	89%	\$12,275	486	\$14,926	82%				
\$100,000-199,999.....	218,306	3,400	243,051	90	22,770	616	26,530	86				
\$200,000-249,999.....	65,361	803	77,854	84	6,842	121	6,069	113				
\$250,000-499,999.....	174,160	1,613	206,714	84	8,090	132	10,986	74				
\$500,000-999,999.....	95,369	530	114,350	83	4,259	30	4,452	96				
\$1 Million and over.....	80,624	227	118,717	68	2,626	8	2,391	110				
All Classifications.....	\$734,343	8,601	\$874,007	84%	\$56,862	1,393	\$65,353	87%				

- *Keyman or deferred compensation insurance.* Insurance intended primarily for keyman or deferred compensation purposes.
- *Creditor or other insurance.* Insurance taken out to insure the repayment of a loan for which either the creditor is the designated beneficiary or the policy is assigned to the creditor. Also included here is any insurance the purpose of which does not fit the other categories.

Table 6 shows the experience for males and females combined according to purpose of insurance, plan of insurance, and issue-age group. As in the previous study, the mortality ratio for personal insurance (89 percent) was higher than that for business insurance and keyman insurance (83 percent and 86 percent, respectively). The mortality ratio for creditor and other insurance was high (102 percent), but this ratio is based on a relatively small amount of experience (only 2.7 percent of the total experience underlying Table 6).

Table 7 shows the experience for males and females combined according to estimated annual income at issue, plan of insurance and issue-age group. There is probably a relatively larger concentration of low-duration policies included in the higher-income policies because of the effects of inflation. The mortality did not vary greatly by annual income at issue for all ages combined, although the worst experience was at incomes of \$100,000 and over (92 percent) and at \$20,000–\$29,999 (93 percent); the best experience was at incomes between \$50,000 and \$99,000 (82 percent).

*Experience by Annual Income and Classification Amount (Table 8).* The experience by annual income and classification amount shows no significant variations other than those previously described for income and classification amount separately.

*Experience by Cause of Death (Table 9).* For large-amount term insurance plans, suicide had the highest cause-of-death mortality ratio (103 percent). Accidents and homicides had the third-highest ratio (92 percent). This contrasts with the results of the prior study in which the ratio for accidents and homicides was higher than that for suicide.

For permanent plans, the picture is different. Accidents and homicides had the highest ratio (99 percent). The ratio for suicides was 89 percent. In the prior study, the highest ratio was for malignant neoplasms.

As in the prior study, deaths due to heart and circulatory diseases accounted for the greatest number of deaths, both by policy (32 percent) and amount (29 percent).

*Motor Vehicle and Aviation Accident Deaths (Table 10).* Motor vehicle and aviation accident deaths continued to account for the majority of deaths in the accidents and homicides category.

TABLE 6  
 LARGE AMOUNT ISSUES OF 1959-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY PURPOSE OF INSURANCE, PLAN OF INSURANCE, AND AGE AT ISSUE  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Issue Age	Permanent Plans			Term Plans			All Plans		
	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio
Personal Insurance									
0-29 .....	\$ 40,657	541	102%	\$ 23,122	302	106%	\$ 63,779	843	104%
30-39 .....	140,187	1,888	96	84,138	1,020	91	224,325	2,908	94
40-49 .....	198,231	2,492	84	87,597	1,045	91	285,828	3,537	86
50 and over .....	231,958	2,688	83	67,490	641	99	299,448	3,329	86
All Ages .....	\$611,033	7,609	87%	\$262,347	3,008	94%	\$873,380	10,617	89%
Business Insurance									
0-29 .....	\$ 2,550	31	85%	\$ 1,833	20	112%	\$ 4,383	51	95%
30-39 .....	19,039	226	81	15,844	153	128	34,883	379	97
40-49 .....	50,904	531	86	19,506	207	85	70,410	738	85
50 and over .....	58,085	537	77	14,798	124	72	72,883	661	76
All Ages .....	\$130,578	1,325	81%	\$51,981	504	90%	\$182,559	1,829	83%
Keyman Insurance									
0-29 .....	\$ 3,342	36	105%	\$ 1,153	8	88%	\$ 4,495	44	100%
30-39 .....	17,076	179	91	8,962	78	109	26,038	257	96
40-49 .....	37,154	364	80	9,601	102	64	46,755	466	76
50 and over .....	52,291	416	85	15,728	109	104	68,019	525	89
All Ages .....	\$109,863	995	84%	\$35,444	297	90%	\$145,307	1,292	86%

TABLE 6—Continued

Issue Age	Permanent Plans			Term Plans			All Plans		
	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio
Creditor and Other Insurance									
0-29 .....	\$ 650	5	97%	\$ 177	2	55%	\$ 827	7	84%
30-39 .....	3,146	34	92	1,873	19	79	5,019	53	87
40-49 .....	8,997	49	117	5,014	31	143	14,011	80	125
50 and over .....	10,195	80	93	3,214	23	89	13,409	103	92
All Ages .....	\$22,988	168	101%	\$10,278	75	105%	\$33,266	243	102%
All Purposes									
0-29 .....	\$ 47,199	613	101%	\$ 26,285	332	105%	\$ 73,484	945	103%
30-39 .....	179,448	2,327	93	110,817	1,270	96	290,265	3,597	94
40-49 .....	295,286	3,436	85	121,718	1,385	89	417,004	4,821	86
50 and over .....	352,529	3,721	82	101,230	897	94	453,759	4,618	85
All Ages .....	\$874,462	10,097	86%	\$360,050	3,884	93%	\$1,234,512	13,981	88%

TABLE 7  
 LARGE AMOUNT ISSUES OF 1959-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY ESTIMATED ANNUAL INCOME AT ISSUE, AGE AT ISSUE, AND PLAN OF INSURANCE  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Estimated Annual Income at Issue	Permanent Plans			Term Plans			All Plans		
	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio
Issue Ages 0-29									
Under \$10,000.....	\$11,802	169	99%	\$ 3,611	64	94%	\$15,413	233	98%
\$10,000-19,999.....	11,037	174	98	9,101	148	109	20,138	322	103
\$20,000-29,999.....	8,206	98	105	5,846	58	98	14,052	156	102
\$30,000-49,999.....	6,002	50	113	2,972	25	79	8,974	75	99
\$50,000-99,999.....	2,631	32	90	2,686	19	164	5,317	51	116
\$100,000 and over.....	1,060	12	72	950	7	153	2,010	19	96
Not accurately determined.....	6,461	78	110	1,119	11	114	7,580	89	111
All.....	\$47,199	613	101%	\$26,285	332	105%	\$73,484	945	103%
Issue Ages 30-39									
Under \$10,000.....	\$ 7,278	148	79%	\$ 4,422	87	86%	\$ 11,700	235	82%
\$10,000-19,999.....	25,922	539	91	17,461	349	83	43,383	888	88
\$20,000-29,999.....	30,883	479	89	24,371	319	99	55,254	798	93
\$30,000-49,999.....	39,278	466	99	21,276	228	76	60,554	694	90
\$50,000-99,999.....	26,886	231	84	19,923	156	97	46,809	387	89
\$100,000 and over.....	16,534	64	106	16,158	45	166	32,692	109	129
Not accurately determined.....	32,667	400	100	7,206	86	110	39,873	486	101
All.....	\$179,448	2,327	93%	\$110,817	1,270	96%	\$290,265	3,597	94%
Issue Ages 40-49									
Under \$10,000.....	\$ 12,982	160	106%	\$ 2,981	53	75%	\$ 15,963	213	99%
\$10,000-19,999.....	22,105	455	90	13,571	285	97	35,676	740	93
\$20,000-29,999.....	38,552	619	87	21,055	329	98	59,607	948	91
\$30,000-49,999.....	53,656	698	80	24,636	292	84	78,292	990	81
\$50,000-99,999.....	59,975	545	78	26,227	220	81	86,202	765	79
\$100,000 and over.....	39,909	206	80	22,020	83	100	61,929	289	86
Not accurately determined.....	68,107	753	92	11,228	123	79	79,335	876	90
All.....	\$295,286	3,436	85%	\$121,718	1,385	89%	\$417,004	4,821	86%

TABLE 7—Continued

Estimated Annual Income at Issue	Permanent Plans			Term Plans			All Plans		
	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio	Actual Claims	No. of Policies	A/E Ratio
Issue Ages 50 and Over									
Under \$10,000.....	\$ 11,343	161	79%	\$ 1,532	24	62%	\$ 12,875	185	76%
\$10,000–19,999.....	12,905	238	85	3,455	77	77	16,360	315	83
\$20,000–29,999.....	29,453	463	88	9,811	129	103	39,264	592	92
\$30,000–49,999.....	53,942	690	88	14,557	176	88	68,499	866	88
\$50,000–99,999.....	78,645	802	77	23,868	208	88	102,513	1,010	79
\$100,000 and over.....	78,702	452	81	31,469	121	116	110,171	573	88
Not accurately determined.....	87,539	915	85	16,538	162	80	104,077	1,077	84
All.....	\$352,529	3,721	82%	\$101,230	897	94%	\$453,759	4,618	85%
All Issue Ages									
Under \$10,000.....	\$ 43,405	638	91%	\$ 12,546	228	81%	\$ 55,951	866	89%
\$10,000–19,999.....	71,969	1,406	91	43,588	859	91	115,557	2,265	91
\$20,000–29,999.....	107,094	1,659	89	61,083	835	99	168,177	2,494	93
\$30,000–49,000.....	152,878	1,904	89	63,441	721	82	216,319	2,625	86
\$50,000–99,999.....	168,137	1,610	79	72,704	603	89	240,841	2,213	82
\$100,000 and over.....	136,205	734	83	70,597	256	119	206,802	990	92
Not accurately determined.....	194,774	2,146	90	36,091	382	85	230,865	2,528	89
All.....	\$874,462	10,097	86%	\$360,060	3,884	93%	\$1,234,512	13,981	88%

TABLE 8

LARGE AMOUNT ISSUES OF 1959-82  
EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
BY ESTIMATED ANNUAL INCOME AT ISSUE, AND CLASSIFICATION AMOUNT OF INSURANCE  
EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
(AMOUNTS SHOWN IN \$1,000 UNITS)

Estimated Annual Income at Issue	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
	\$50,000-\$99,999				\$100,000-\$199,999				\$200,000-\$249,999			
Under \$10,000.....	\$ 20,037	509	\$ 22,497	89%	\$ 19,877	267	\$ 21,847	91%	\$ 3,221	31	\$ 3,963	81%
\$10,000-19,999.....	40,183	1,064	42,676	94	60,745	1,049	66,199	92	5,953	68	8,013	74
\$20,000-29,000.....	23,342	547	25,674	91	89,514	1,381	97,978	91	20,876	257	22,273	94
\$30,000-49,999.....	11,406	252	14,256	80	87,263	1,266	93,435	93	30,456	369	37,205	82
\$50,000-99,999.....	4,344	90	5,635	77	43,764	591	50,333	87	24,582	297	29,055	85
\$100,000 and over .....	1,263	20	1,289	98	10,117	121	10,650	95	7,020	72	7,107	99
Not accurately determined	57,632	953	61,394	94	64,880	951	69,079	94	15,354	139	16,291	94
All .....	\$158,207	3,435	\$173,420	91%	\$376,160	5,626	\$409,522	92%	\$107,462	1,233	\$123,906	87%
	\$250,000-\$499,999				\$500,000-\$999,999				\$1,000,000 and Over			
Under \$10,000.....	\$ 4,875	36	\$ 6,832	71%	\$ 2,224	17	\$ 3,596	62%	\$ 5,717	6	\$ 4,428	129%
\$10,000-19,999.....	7,926	78	8,331	95	650	5	1,436	45	100	1	513	20
\$20,000-29,999.....	27,503	279	28,558	96	4,255	21	5,515	77	2,687	9	1,620	166
\$30,000-49,999.....	62,547	609	77,589	81	20,322	117	20,858	97	4,325	12	6,826	63
\$50,000-99,999.....	89,809	843	111,333	81	57,380	325	65,052	88	20,962	67	33,720	62
\$100,000 and over .....	38,632	312	40,857	95	46,180	237	56,289	82	103,590	228	107,975	96
Not accurately determined	47,331	338	49,943	95	27,559	107	28,396	97	18,109	40	33,516	54
All .....	\$278,623	2,495	\$323,443	86%	\$158,570	829	\$181,141	88%	\$155,490	363	\$188,597	82%
	All Classifications											
Under \$10,000.....	\$ 55,951	866	\$ 63,162	89%								
\$10,000-19,999.....	115,557	2,265	127,169	91								
\$20,000-29,999.....	168,177	2,494	181,618	93								
\$30,000-49,999.....	216,319	2,625	250,168	86								
\$50,000-99,999.....	240,841	2,213	295,127	82								
\$100,000 and over .....	206,802	990	224,167	92								
Not accurately determined	230,865	2,528	258,619	89								
All .....	\$1,234,512	13,981	\$1,400,029	88%								

TABLE 9  
 LARGE AMOUNT ISSUES OF 1954-82  
 EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
 BY CAUSE OF DEATH  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
 (AMOUNTS SHOWN IN \$1,000 UNITS)

Cause of Death	Committee 1970 Code	Number of Deaths	Proportion of All Deaths	Actual Claims	Expected Claims	A/E Ratio
Permanent Plans						
Malignant Neoplasms . . . . .	18-33	3,524	30	\$290,813	\$ 324,726	90%
Diabetes Mellitus . . . . .	37	36	0	2,343	2,621	90
Cerebrovascular Diseases . . . . .	53	425	4	30,870	34,831	89
Heart and Circulatory Diseases . . . . .	49-52,54-55	3,798	33	287,478	340,995	85
Accidents and Homicides . . . . .	88-96,98	1,155	10	128,882	131,135	99
Suicide . . . . .	97	391	3	36,970	41,492	89
All Other Causes and Unknown . . . . .	Residual	2,249	19	170,132	216,083	79
All Causes . . . . .		11,578	100	\$947,488	\$1,091,882	87%
Term Plans						
Malignant Neoplasms . . . . .	18-33	924	23	\$82,628	\$ 103,929	80%
Diabetes Mellitus . . . . .	37	6	0	293	464	63
Cerebrovascular Diseases . . . . .	53	104	3	8,728	10,280	85
Heart and Circulatory Diseases . . . . .	49-52,54-55	1,192	29	96,708	102,808	94
Accidents and Homicides . . . . .	88-96,98	605	15	73,762	80,080	92
Suicide . . . . .	97	206	5	19,940	19,349	103
All Other Causes and Unknown . . . . .	Residual	1,022	25	84,670	76,099	111
All Causes . . . . .		4,059	100	\$366,729	\$ 393,010	93%
All Plans						
Malignant Neoplasms . . . . .	18-33	4,448	28	\$373,441	\$428,655	87%
Diabetes Mellitus . . . . .	37	42	0	2,636	3,085	86
Cerebrovascular Diseases . . . . .	53	529	3	39,598	45,111	88
Heart and Circulatory Diseases . . . . .	49-52,54-55	4,990	32	384,186	443,803	87
Accidents and Homicides . . . . .	88-96,98	1,760	11	202,644	211,215	96
Suicide . . . . .	97	597	4	56,910	60,841	94
All Other Causes and Unknown . . . . .	Residual	3,271	21	254,802	292,182	87
All Causes . . . . .		15,637	100	\$1,314,217	\$1,484,892	89%

\*The 1975-80 Basic Tables were used to calculate the "expected deaths for all causes" claim data. The by-cause data had its expected deaths calculated by taking the all-causes expected deaths and distributing them among the causes on the basis of the 1978-83 cause of death study. Mortality ratios were then calculated with the certainty that the all-causes mortality ratios would agree with the mortality ratios in the rest of the study, because the expected deaths and actual claims for all-causes are identical to the data used to generate the other tables.



TABLE 10  
MOTOR VEHICLE AND AVIATION DEATHS  
INCLUDED IN ACCIDENTS AND HOMICIDES

Experience Period	Motor Vehicle Accidental Deaths		Aviation Accidental Deaths		Motor Vehicle and Aviation Accidental Deaths	
	Number	Percentage of All Accidents and Homicides	Number	Percentage of All Accidents and Homicides	Number	Percentage of All Accidents and Homicides
1953-58. ....	123	45%	47	17%	170	62%
1958-63. ....	242	39	165	26	407	65
1963-68. ....	359	38	221	23	580	61
1968-73. ....	514	37	266	19	780	56
1973-78. ....	693	32	419	19	1,112	51
1978-83. ....	689	39	304	17	993	56

Note: The 1973-78 and 1978-83 figures are based on the number of policies terminated by these causes of death, whereas the 1953-73 figures are based on the number of lives.

*Comparison with Previous Study (Table 11).* Mortality ratios in the current study are lower than those in the previous study for males and females, for practically every issue-age group, for every policy-year group, and for every classification amount.

*Experience by Underwriting Status (Table 12).* The exposure amounts in the current study were 72 percent medically examined, 24 percent paramedically examined, 3 percent nonmedical, and less than 1 percent unknown. The overall mortality ratios were 87 percent for medical issues, 98 percent for paramedical, 84 percent for nonmedical issues, and 143 percent for unknown underwriting status.

*Experience in Canada (Table 13).* The current study includes Canadian business. The Canadian business that was identified produced a mortality ratio of 93 percent, based on 70 policies terminated by death, compared with the overall ratio for the study of 89 percent.

TABLE 11  
 COMPARISON OF MORTALITY RATIOS  
 EXPERIENCE BETWEEN 1973 AND 1983 ANNIVERSARIES  
 DURING THE FIRST 25 POLICY YEARS ON LARGE-AMOUNT ISSUES OF 1948-82  
 BY AGE AT ISSUE, DURATION, CLASSIFICATION AMOUNT, AND PLAN OF INSURANCE  
 EXPECTED DEATHS BASED ON 1975-80 BASIC TABLE

	Permanent Plans		Term Plans		All Plans	
	1973-78	1978-83	1973-78	1978-83	1973-78	1978-83
<b>Classification Amount</b>						
\$50,000-99,999.....	100	89	106	101	101	92
\$100,000-199,999.....	99	91	104	93	100	92
\$200,000-499,999.....	100	86	100	88	100	86
\$500,000-999,999.....	106	84	129	97	111	88
\$1 Million and over.....	91	79	100	96	93	84
All Classifications.....	100	87	105	93	101	89
<b>Age at Issue</b>						
0-9.....	167	56	0	127	166	60
10-19.....	103	105	60	81	100	102
20-29.....	121	105	107	105	117	105
30-39.....	100	94	112	96	103	94
40-49.....	98	85	110	88	101	86
50-59.....	101	83	87	94	100	85
60-69.....	90	87	80	100	89	89
70 and over.....	96	58	65	80	93	61
All Ages.....	100	87	105	93	101	89
<b>Policy Years</b>						
1-2.....	104	102	102	97	103	100
3-5.....	98	85	104	107	99	92
6-10.....	99	83	113	84	102	84
11-15.....	94	85	104	82	96	84
16-20.....	104	82	103	92	104	84
21-25.....	102	88	102	94	102	89
All Years.....	100	87	105	93	101	89
<b>Sex</b>						
Male.....	99	85	105	92	100	87
Female.....	109	105	122	109	111	106
All.....	100	87	105	93	101	89

TABLE 12

LARGE AMOUNT ISSUES OF 1954-82  
EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
BY UNDERWRITING STATUS AND PLAN OF INSURANCE  
EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
(AMOUNTS SHOWN IN \$1,000 UNITS)

Underwriting Status	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Nonmedical. . . .	\$ 9,157	119	\$ 10,989	83%	\$ 5,111	44	\$ 6,014	85%	\$ 14,268	163	\$ 17,002	84%
Paramedical . . .	72,390	729	75,350	96	62,778	623	62,878	100	135,168	1,352	138,229	98
Medical . . . . .	864,053	10,714	1,004,747	86	295,849	3,346	321,496	92	1,159,902	14,060	1,326,253	87
Unknown . . . . .	1,888	16	786	240	2,991	46	2,622	114	4,879	62	3,408	143
All . . . . .	\$947,488	11,578	\$1,091,882	87%	\$366,729	4,059	\$393,010	93%	\$1,314,217	15,637	\$1,484,892	89%

TABLE 13

LARGE AMOUNT ISSUES OF 1954-82  
EXPERIENCE BETWEEN 1978 AND 1983 ANNIVERSARIES  
BY TERRITORY OF ISSUE AND PLAN OF INSURANCE  
EXPECTED DEATHS BASED ON 1975-80 BASIC TABLES  
(AMOUNTS SHOWN IN \$1,000 UNITS)

Territory	Permanent Plans				Term Plans				All Plans			
	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio	Actual Claims	No. of Policies	Expected Claims	A/E Ratio
Unknown . . . . .	\$217,803	2,813	\$ 232,523	94%	\$ 3,930	21	\$ 5,781	68%	\$ 221,733	2,834	\$ 238,304	93%
U.S. . . . .	726,371	8,726	856,519	85	360,546	4,007	384,055	94	1,086,917	12,733	1,240,574	88
Canada . . . . .	3,314	39	2,840	117	2,253	31	3,174	71	5,567	70	6,014	93
All . . . . .	\$947,488	11,578	\$1,091,882	87%	\$366,729	4,059	\$393,010	93%	\$1,314,217	15,637	\$1,484,892	89%

## APPENDIX

EXTENSION OF SELECT PERIOD FOR 1975-80 BASIC TABLES  
(AGE NEAREST BIRTHDAY)

The select period of the 1975-80 table has been extended from 15 to 25 years to provide a more appropriate basis for expected deaths to measure mortality experience in policy years 16-25. Extending the select period eliminates the discontinuity caused by using ultimate mortality rates for expected deaths at ages for which the effect of selection is still apparent (that is, issue ages 45 and over for males and issue ages 40 and over for females).

The select period is extended by assuming that, for issue age  $X$ , the difference in mortality rates between policy years 15 and 16 is the same as that between attained ages  $X+14$  and  $X+15$  in the ultimate table. The difference in the select mortality rates between each subsequent policy year is the same as that for the same attained age in the ultimate table.

For example, for male issue ages 45-49 (central age 47), the mortality rate for policy year 16 is obtained by taking the difference in mortality rates for attained ages 61 and 62 in the ultimate table ( $14.57 - 13.17 = 1.40$ ) and adding it to the policy year 15 mortality rate (11.85) with a result of 13.25. The new policy year 16 (or attained age 62) mortality rate is 1.32 deaths per thousand less than the ultimate attained age mortality rate (14.57). This same amount (1.32) is deducted from the ultimate rates at attained ages 63-71 to obtain the issue age 47 select rates for attained ages 63-71. The same procedure is followed for the central age of each issue age group.

This methodology is needed only at the older issue ages. At issue ages under 45 for males and under 40 for females, the select mortality rates at policy year 15 grade into the ultimate table rates. Therefore, the mortality rates for policy years 16-25 are the ultimate rates without adjustment at these younger ages.

EXTENSION OF SELECT PERIOD FOR 1975-80 BASIC TABLES

Age	Policy Year									
	16	17	18	19	20	21	22	23	24	25
Male Lives										
0-0	0.68	1.01	1.14	1.22	1.31	1.37	1.40	1.41	1.40	1.38
1-1	1.01	1.14	1.22	1.31	1.37	1.40	1.41	1.40	1.38	1.34
2-4	1.22	1.31	1.37	1.40	1.41	1.40	1.38	1.34	1.29	1.24
5-9	1.41	1.40	1.38	1.34	1.29	1.24	1.20	1.17	1.14	1.12
10-14	1.24	1.20	1.17	1.14	1.12	1.11	1.12	1.14	1.17	1.22
15-19	1.11	1.12	1.14	1.17	1.22	1.28	1.36	1.45	1.56	1.70
20-24	1.28	1.36	1.45	1.56	1.70	1.87	2.07	2.31	2.58	2.89
25-29	1.87	2.07	2.31	2.58	2.89	3.24	3.61	4.02	4.45	4.92
30-34	3.24	3.61	4.02	4.45	4.92	5.44	6.00	6.61	7.27	8.01
35-39	5.44	6.00	6.61	7.27	8.01	8.82	9.73	10.75	11.89	13.17
40-44	8.82	9.73	10.75	11.89	13.17	14.57	16.07	17.71	19.50	21.47
45-49	13.25	14.75	16.39	18.18	20.15	22.33	24.73	27.37	30.25	33.36
50-54	19.14	21.54	24.18	27.06	30.17	33.49	37.09	41.03	45.39	50.20
55-59	34.19	37.79	41.73	46.09	50.90	56.22	62.04	68.37	75.21	82.55
60-64	46.35	52.17	58.50	65.34	72.68	80.44	88.67	97.73	107.63	118.37
65-69	69.94	78.17	87.23	97.13	107.87	119.45	131.87	144.94	158.43	172.34
70-	121.88	134.30	147.37	160.86	174.77	189.10	203.85	219.02	234.61	250.62
Female Lives										
0-0	0.36	0.40	0.44	0.47	0.49	0.51	0.52	0.53	0.53	0.53
1-1	0.40	0.44	0.47	0.49	0.51	0.52	0.53	0.53	0.53	0.53
2-4	0.47	0.49	0.51	0.52	0.53	0.53	0.53	0.53	0.53	0.53
5-9	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.54	0.55	0.58
10-14	0.53	0.53	0.54	0.55	0.58	0.61	0.65	0.70	0.77	0.84
15-19	0.61	0.65	0.70	0.77	0.84	0.93	1.03	1.15	1.29	1.45
20-24	0.93	1.03	1.15	1.29	1.45	1.62	1.79	1.96	2.14	2.33
25-29	1.62	1.79	1.96	2.14	2.33	2.52	2.72	2.93	3.17	3.43
30-34	2.52	2.72	2.93	3.17	3.43	3.71	4.04	4.40	4.80	5.23
35-39	3.71	4.04	4.40	4.80	5.23	5.70	6.22	6.78	7.37	8.00
40-44	5.41	5.93	6.49	7.08	7.71	8.38	9.09	9.86	10.70	11.62
45-49	8.13	8.84	9.61	10.45	11.37	12.38	13.49	14.71	16.09	17.67
50-54	10.71	11.82	13.04	14.42	16.00	17.83	19.96	22.44	25.32	28.65
55-59	16.48	18.61	21.09	23.97	27.30	31.13	35.51	40.44	45.92	51.95
60-64	26.47	30.85	35.78	41.26	47.29	53.87	61.00	68.68	76.91	85.69
65-69	41.56	48.69	56.37	64.60	73.38	82.71	92.59	103.02	114.00	125.53
70-	63.38	73.26	83.69	94.67	106.20	118.28	130.91	144.09	157.82	172.10

