

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1973 REPORTS**

**REPORT OF THE COMMITTEE ON EXPERIENCE
UNDER INDIVIDUAL HEALTH INSURANCE**

**EXPERIENCE UNDER INDIVIDUAL
LOSS-OF-TIME POLICIES, 1970-71**

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SUMMARY OF EXPERIENCE UNDER INDIVIDUAL
LOSS-OF-TIME POLICIES, 1970-71

The first part of the study covers experience in the first year of the benefit period. Results of data submitted by thirteen companies are presented for males in Occupation Groups I and II and for females in Occupation Group I. Annual claim rates, average claim durations, and annual claim costs are shown for accident disability, sickness disability, and total sickness and accident disability. Annual claim costs by duration measured from date of disablement are also presented. A further part of the first-year study examines the trends in the claim rates, durations, and costs for 0-day accident, 7-day sickness, and the combination of these two during 1964-65, 1966-67, 1968-69, 1970-71, and 1964-71. Over-all evaluation of the results of the current study of the 1970-71 experience reveals an increase in annual claim costs since the study of the 1968-69 experience.

The second part of the study involves experience in the second year of the benefit period. The study is confined to male claims under policies with 0-day accident and 7-day sickness elimination periods. Claim rates, durations, and costs are shown for 0-day accident, 7-day sickness, and the combination of these two. Again the results reflect an increase in costs for the current experience over 1967-68 experience.

A. EXPERIENCE IN FIRST YEAR OF BENEFIT PERIOD

THIS section of the report presents an analysis of morbidity experience under individual loss-of-time policies during calendar years 1970-71 and a comparison of this experience with results for the periods 1964-65, 1966-67, and 1968-69. The study is limited to experience in the first year of the benefit period. Policies with benefit periods of less than one year are excluded from the study. The reporting system used for this study is generally the same as that used for the previous studies. This system is described in detail in the *1959 Reports* (pp. 126-28). Previous studies appear in the *1959*, *1961*, *1963*, *1965*, *1967*, *1969*, and *1971 Reports*.

The tables contain experience for males in Occupation Groups I and II and for females in Occupation Group I; for convenience these three groups are referred to hereafter in the text of this report as "Male I," "Male II," and "Female I." The amount of data on females in Occupation Group II was insufficient to warrant a study of this group.

Occupation Group I consists of occupations that involve little exposure to an accident hazard and do not require heavy physical activity.

In addition to those occupations involving white-collar and professional workers, Group I also includes occupations of persons engaged in trades and service work whose duties are light and nonhazardous, persons superintending manufacturing and construction operations, and so forth. Occupation Group II consists of occupations that involve a greater degree of exposure to accident hazards or in which the physical requirements of the job are reflected in longer periods of disability due either to sickness or to injury than in the Group I occupations. These generally include construction workers, drivers of heavy vehicles, mechanics, those engaged in skilled and semiskilled jobs in manufacturing industries, and the like. Persons whose work requires perfect, or nearly perfect, physical condition would also be in Group II, since such persons may be disabled by a relatively minor injury.

Policies issued to females usually include a reduction in indemnity if the insured is not gainfully employed at the time of disability. The claim data submitted reflect the smaller amounts payable under the reduction provision. However, the effect of this provision is not known.

The presentation of data generally follows the format used in prior reports. Accident and sickness disability experience is shown separately. Total disability experience is also shown.

The tables include (1) annual claim rates, (2) average claim durations in months, and (3) annual claim costs. The annual claim rates and annual claim costs for total disability are simply a sum of the separate accident and sickness annual claim rates and annual claim costs and consequently reflect experience on many different combinations of accident and sickness benefits. Annual claim rates (or frequencies) have been calculated by dividing the amounts of monthly indemnity on claims by the corresponding exposures. The exposures are based on the amounts of monthly indemnity. Annual claim costs, per \$1 of monthly income benefit, have been calculated by dividing the aggregate benefits incurred on claims by the corresponding exposures. Durations of claims in months, measured from the end of the elimination period, have been calculated by dividing the annual claim costs by the annual claim rates.

I. VOLUME OF DATA

For the calendar year period 1970-71, the Committee has compiled an aggregate exposure of 2,900,000 policy years during which 139,000 claims were incurred. The companies that contributed to the study are shown in Table 1, together with the volume of each company's data for each of the calendar years studied, measured by the number of claims reported.

Table 2 shows the distribution of the number of claims reported by type of coverage, sex, occupation group, and elimination period. Number of claims has been used as the basis for measuring the volume of data, since it is a good measure of the reliability of the statistical results. The analysis of the experience has been confined to those occupation groups and elimination periods where there is a significant amount of data. They are indicated by an asterisk in Table 2. In certain of the cells studied, virtually all the experience has been contributed by only

TABLE 1
CONTRIBUTING COMPANIES AND NUMBER OF CLAIMS

COMPANY	YEAR OF EXPERIENCE		1970-71 COMBINED
	1970	1971	
Prudential	15,826	16,026	31,852
Metropolitan	12,469	11,395	23,864
Monarch	9,045	8,624	17,669
Mutual of Omaha	5,518	6,485	12,003
New York Life	4,566	4,971	9,537
Mutual of New York	4,480	4,726	9,206
John Hancock	4,211	4,382	8,593
Pacific Mutual	4,443	3,976	8,419
Business Men's Assurance	3,811	3,548	7,359
Loyal Protective	3,766	3,043	6,809
Continental Assurance	896	981	1,877
Guardian Life Insurance		997	997
Provident Mutual	324	286	610
Total	69,355	69,440	138,795

one or two companies. The coverages for which a reasonable amount of data was contributed by all companies are the 0- and 7-day accident and the 0-, 7-, 14-, and 30-day sickness coverages. In interpreting results obtained from a small amount of data, caution should be exercised, and, in comparing current trends with those of the previous studies, it must be kept in mind that the proportion of the total experience for each company is different in the current and previous studies.

2. DISABILITY EXPERIENCE

Tables 3, 4, and 5, respectively, give summaries of the accident, sickness, and total disability experience compiled in this report. Each table shows the three elements of disability—annual claim rate, duration of claim in months, and annual claim cost—by the four variables

studied—sex, occupation group, elimination period, and attained age. In order to give some idea of the credibility of the experience, the number of claims is shown.

Accident Disability (Table 3)

Table 3 shows accident disability data for four elimination periods. Comments, however, are restricted to male data for a 0-day elimination

TABLE 2
NUMBER OF CLAIMS BY TYPE OF COVERAGE,
SEX, OCCUPATION GROUP, AND
ELIMINATION PERIOD
1970-71 EXPERIENCE COMBINED

ELIMINATION PERIOD (DAYS)	ACCIDENT				SICKNESS			
	Male		Female		Male		Female	
	Occ. Group I	Occ. Group II	Occ. Group I	Occ. Group II	Occ. Group I	Occ. Group II	Occ. Group I	Occ. Group II
0.....	11,597*	22,611*	938*	441	6,087*	1,685*	561*	44
3.....	125	356	96	5	838	1,144	566	61
7.....	2,266*	7,147*	701*	283	17,279*	32,546*	4,812*	1,861
14.....	1,340*	2,846*	174*	71	4,218*	4,696*	827*	250
21.....	0	0	0	0	4	0	0	0
30.....	1,006*	1,368*	96*	37	3,906*	2,343*	561*	113
60.....	10	11	0	0	62	25	3	1
90.....	95	43	6	1	464	122	42	4
Total	16,439	34,382	2,011	838	32,858	42,561	7,372	2,334

* Subsequent tables and discussions are based only on data indicated.

period because other data are rather limited or are contributed largely by one company.

The significant points of interest brought out by this table follow:

Male I and Male II.—Annual claim rates decrease with age, whereas claim durations increase by age. The combined effect of these decreasing claim rates and increasing durations produces annual claim costs which are more than 30 per cent higher below age 40 than those above age 40. Ratios of Male II to Male I annual claim rates generally decrease with age, being 223 per cent at ages 20-29 and 178 per cent at ages 50-59. Male II annual claim costs (as a per cent of Male I annual claim costs) do not decrease as rapidly. In general, annual claim costs have increased since the prior study.

TABLE 3
ACCIDENT DISABILITY LOSS-OF-TIME EXPERIENCE, 1970-71, LIMITED TO FIRST YEAR OF BENEFIT PERIOD

ATTAINED AGE	MALE OCC. GROUP I				MALE OCC. GROUP II				FEMALE OCC. GROUP I				RATIOS TO MALE OCC. GROUP I					
													Male Occ. Group II			Female Occ. Group I		
	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	Annual Claim Rate	Claim Duration (Months)	Annual Claim Rate	Annual Claim Cost	Claim Duration (Months)	Annual Claim Cost
0-Day Elimination Period																		
20-29	770	.057	1 21	.069	3,583	.127	1 23	.156	119	.035	1 23	.043	223%	102%	226%	61%	102%	62%
30-39	1,776	.052	1 37	.071	5,957	.103	1 50	.155	111	.033	1 61	.053	198	109	218	63	118	75
40-49	2,472	.038	1 42	.054	6,333	.078	1 60	.125	214	.038	1 68	.064	205	113	231	100	118	119
50-59	3,565	.036	1 47	.053	5,165	.064	1 69	.108	343	.045	1 51	.068	178	115	204	125	103	128
60-69	3,014	.030	1 70	.051	1,573	.056	1 86	.104	151	.045	1 76	.079	187	109	204	150	104	155
7-Day Elimination Period																		
20-29	282	.032	1 72	.055	1,353	.070	1 64	.115	101	.030	1 57	.047	219%	95%	209%	94%	91%	85%
30-39	481	.028	1 61	.045	1,848	.061	1 84	.112	113	.024	1 83	.044	218	114	249	86	114	98
40-49	668	.026	1 81	.047	1,801	.051	1 88	.096	195	.023	1 91	.044	196	104	204	88	106	94
50-59	625	.023	1 96	.045	1,600	.041	1 98	.081	273	.029	2 00	.058	178	101	180	126	102	129
60-69	210	.021	1 71	.036	455	.039	1 92	.075	19	.021	1 38	.029	186	112	208	100	81	81
14-Day Elimination Period																		
20-29	172	.017	1 82	.031	483	.041	1 88	.077	30	.017	2 06	.035	241%	103%	248%	100%	113%	113%
30-39	348	.016	2 06	.033	835	.038	1 95	.074	31	.014	1 93	.027	238	95	224	88	94	82
40-49	392	.014	1 86	.026	815	.036	2 31	.083	47	.014	1 86	.026	257	124	319	100	100	100
50-59	349	.016	2 00	.032	571	.036	2 47	.089	51	.015	2 07	.031	225	124	278	94	104	97
60-69	79	.017	2 76	.047	142	.038	2 55	.097	15	.023	1 13	.026	224	92	206	135	41	55
30-Day Elimination Period																		
20-29	98	.006	2 33	.014	237	.019	2 95	.056	7	.003	1 67	.005	317%	127%	400%	50%	72%	36%
30-39	276	.005	1 80	.009	413	.017	2 53	.043	27	.009	2 41	.022	340	141	478	180	136	244
40-49	352	.005	2 80	.014	413	.017	3 12	.053	26	.007	2 00	.014	340	111	379	140	71	100
50-59	232	.006	2 67	.016	264	.018	2 61	.047	31	.009	2 78	.025	300	98	294	150	104	156
60-69	48	.007	2 29	.016	41	.016	2 31	.037	5	.018	3 00	.051	229	101	231	257	131	338

* Per \$1 of monthly income benefit.

TABLE 4

SICKNESS DISABILITY LOSS-OF-TIME EXPERIENCE, 1970-71, LIMITED TO FIRST YEAR OF BENEFIT PERIOD

ATTAINED AGE	MALE OCC. GROUP I				MALE OCC. GROUP II				FEMALE OCC. GROUP I				RATIOS TO MALE OCC. GROUP I					
	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	Male Occ. Group II			Female Occ. Group I		
													Annual Claim Rate	Claim Duration (Months)	Annual Claim Rate	Annual Claim Cost	Claim Duration (Months)	Annual Claim Cost
0-Day Elimination Period																		
20-29	0	.0	0.0	.0	10	.282	1.45	.408	0	.0	0.0	.0	0%	0%	0%	0%	0%	0%
30-39	57	.099	1.02	.101	72	.154	0.83	.128	12	.170	1.00	.170	156%	81%	127%	172%	98%	168%
40-49	662	.109	1.31	.143	361	.159	1.33	.212	88	.231	1.06	.246	146%	102%	148%	212%	81%	172%
50-59	3,076	.147	1.71	.251	803	.169	1.86	.315	264	.199	1.50	.299	115%	109%	125%	135%	88%	119%
60-69	2,292	.150	2.25	.338	439	.178	3.00	.534	197	.185	1.95	.361	119%	133%	158%	123%	87%	107%
7-Day Elimination Period																		
20-29	1,007	.049	1.24	.061	2,957	.062	1.32	.082	533	.085	1.05	.089	127%	106%	134%	173%	85%	146%
30-39	2,285	.051	1.41	.072	5,459	.065	1.55	.101	877	.113	1.61	.182	127%	110%	140%	222%	114%	253%
40-49	4,348	.066	1.97	.130	8,772	.082	2.06	.169	1,542	.124	1.82	.226	124%	105%	130%	188%	92%	174%
50-59	6,603	.096	2.38	.228	11,154	.106	2.64	.280	1,669	.118	2.09	.247	110%	111%	123%	123%	88%	108%
60-69	3,036	.119	2.88	.343	4,204	.131	3.38	.443	191	.097	2.56	.248	110%	117%	129%	82%	89%	72%
14-Day Elimination Period																		
20-29	252	.023	1.26	.029	379	.030	1.73	.052	71	.034	1.38	.047	130%	137%	179%	148%	110%	162%
30-39	593	.023	1.74	.040	884	.037	2.00	.074	149	.057	2.02	.115	161%	115%	185%	248%	116%	288%
40-49	1,263	.038	2.16	.082	1,445	.057	2.67	.152	282	.081	2.06	.167	150%	124%	185%	213%	95%	204%
50-59	1,514	.063	2.68	.169	1,512	.083	2.93	.243	260	.079	2.77	.219	132%	109%	144%	125%	103%	130%
60-69	596	.085	3.33	.283	476	.114	3.90	.445	65	.092	3.53	.325	134%	117%	157%	108%	106%	115%
30-Day Elimination Period																		
20-29	136	.006	2.17	.013	152	.012	1.92	.023	34	.013	2.23	.029	200%	88%	177%	217%	103%	223%
30-39	616	.010	2.00	.020	506	.020	2.35	.047	90	.023	2.39	.055	200%	118%	235%	230%	120%	275%
40-49	1,303	.017	2.82	.048	730	.028	2.86	.080	248	.046	1.93	.089	165%	101%	167%	271%	68%	185%
50-59	1,320	.030	3.27	.098	751	.047	3.49	.164	165	.037	3.05	.113	157%	107%	167%	123%	93%	115%
60-69	531	.060	3.85	.231	204	.069	4.35	.300	24	.063	2.81	.177	115%	113%	130%	105%	73%	77%

* Per \$1 of monthly income benefit.

TABLE 5

TOTAL DISABILITY LOSS-OF-TIME EXPERIENCE, 1970-71, LIMITED TO FIRST YEAR OF BENEFIT PERIOD

ATTAINED AGE	MALE OCC. GROUP I				MALE OCC. GROUP II				FEMALE OCC. GROUP I				RATIOS TO MALE OCC. GROUP I					
	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	Male Occ. Group II			Female Occ. Group I		
													Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost
0-Day Elimination Period																		
20-29	770	057	1 21	069	3,593	409	1 38	564	119	035	1 23	043	718%	114%	817%	61%	102%	62%
30-39	1,833	151	1 14	172	6,029	257	1 10	283	123	203	1 10	223	170	96	165	134	96	130
40-49	3,134	147	1 34	197	6,694	237	1 42	337	302	269	1 15	310	161	106	171	183	86	157
50-59	6,641	183	1 66	304	5,968	233	1 82	423	607	244	1 50	367	127	110	139	133	90	121
60-69	5,306	180	2 16	389	2,012	234	2 73	638	348	230	1 91	340	130	126	164	128	88	113
7-Day Elimination Period																		
20-29	1,289	081	1 43	116	4,310	132	1 49	197	634	115	1 18	136	163%	104%	170%	142%	83%	117%
30-39	2,766	079	1 48	117	7,307	126	1 69	213	990	137	1 65	226	159	114	182	173	111	193
40-49	5,016	092	1 92	177	10,663	133	1 99	265	1,737	147	1 84	270	145	104	150	160	96	153
50-59	7,228	119	2 29	273	12,754	147	2 46	361	1,942	147	2 07	305	124	107	132	124	90	112
60-69	3,246	140	2 71	379	4,659	170	3 05	818	210	118	2 35	277	121	113	137	84	87	73
14-Day Elimination Period																		
20-29	424	040	1 50	060	862	071	1 82	129	101	051	1 61	082	178%	121%	215%	128%	107%	137%
30-39	941	039	1 87	073	1,719	075	1 97	148	180	071	2 00	142	192	105	203	182	107	195
40-49	1,655	052	2 08	108	2,260	093	2 53	235	329	095	2 03	193	179	122	218	183	98	179
50-59	1,863	079	2 54	201	2,083	119	2 79	332	311	094	2 66	250	151	110	165	119	105	124
60-69	675	102	3 24	330	618	152	3 57	542	80	115	3 05	351	149	110	164	113	94	106
30-Day Elimination Period																		
20-29	234	012	2 25	027	389	031	2 55	079	41	016	2 13	034	258%	113%	293%	133%	95%	126%
30-39	892	015	1 93	029	919	037	2 43	090	117	032	2 41	077	247	126	310	213	125	266
40-49	1,655	022	2 82	062	1,143	045	2 96	133	274	053	1 94	103	205	105	215	241	69	166
50-59	1,552	036	3 17	114	1,015	065	3 25	211	196	046	3 00	138	181	103	185	128	95	121
60-69	579	067	3 69	247	245	085	3 96	337	29	081	2 85	231	127	107	136	121	77	94

* Per \$1 of monthly income benefit.

Sickness Disability (Table 4)

Table 4 shows sickness disability data for four elimination periods. Comments, however, are based primarily on data for the 7-day elimination period because other data are rather limited or are contributed largely by one company.

Male I and Male II.—Annual claim rates, claim durations, and annual claim costs generally increase with age. For the 7-day elimination period, ratios of Male II to Male I annual claim rates decrease with age, from 127 per cent at ages 20–29 to 110 per cent at ages 60–69. The ratio of Male II to Male I annual claim costs is fairly constant by age.

Female I.—Ratios of Female I to Male I annual claim rates increase from 173 per cent at ages 20–29 to 222 per cent at ages 30–39, and then decrease to 82 per cent at ages 60–69, with an unusually high ratio at ages 30–39. Ratios of Female I to Male I annual claim costs follow the pattern set by the ratios of annual claim rates, increasing from 146 per cent at ages 20–29 to 253 per cent at ages 30–39, and then decreasing to 72 per cent at ages 60–69.

Total Disability (Table 5)

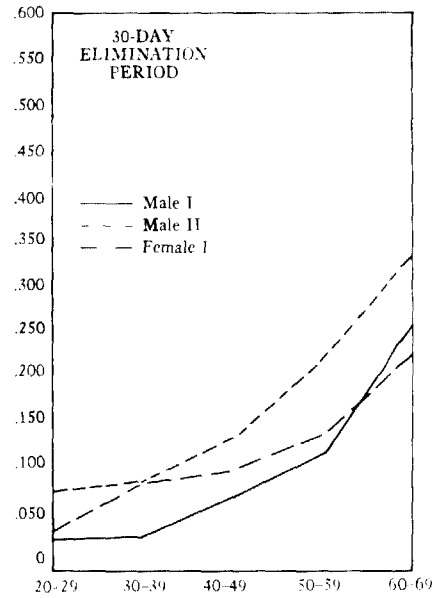
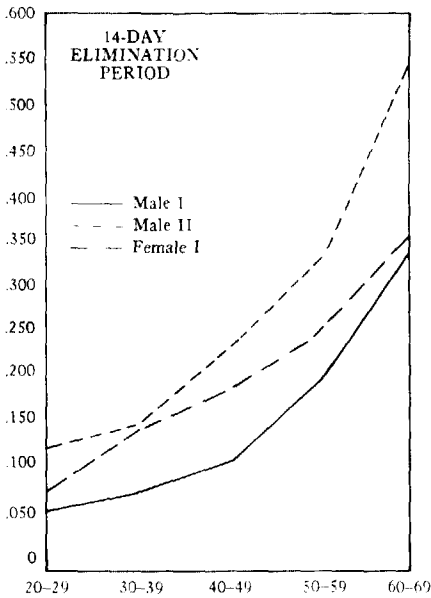
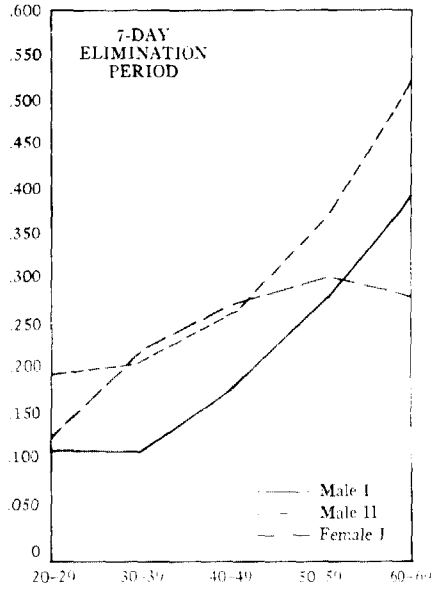
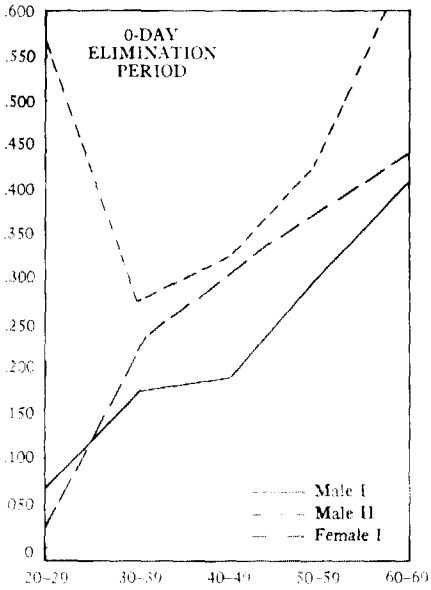
Total disability annual claim rates and annual claim costs as derived in this study are the sums of the annual claim rates and annual claim costs for accident disability and sickness disability. Since sickness disability annual claim rates and annual claim costs are generally much higher than corresponding rates and costs for accident disability, total disability annual claim rates and annual claim costs tend to follow the pattern of those for sickness disability. A graphic comparison of Male I, Male II, and Female I total disability annual claim costs is shown in Chart I. Male II annual claim costs are higher than Male I annual claim costs for the four elimination periods at all ages. Female I costs generally lie between Male I and Male II costs.

Ratios of Accident Disability to Total Disability (Table 6)

The accident and sickness components of the total disability annual claim rates and annual claim costs are based on data which were contributed in different proportions by the various companies and which came from a wide variety of accident and sickness benefit combinations. This could have a significant effect on the ratios and should be kept in mind in their interpretation. Table 6 is shown, however, so that some idea may be obtained of the relationship of accident disability to total disability rates. Only ratios based on data for 0- and 7-day elimination periods are shown because of the even greater limitations of data for the other elimination periods.

CHART I

TOTAL DISABILITY LOSS-OF-TIME EXPERIENCE 1970-71 ANNUAL CLAIM COSTS* (Limited to First Year of Benefit Period)



* Per \$1 of monthly income benefit.

Male I and Male II.—Ratios of accident disability to total disability experience generally decrease by age. For Male I and Male II the ratios by age of annual claim costs for the 0-day elimination period are similar to the ratios for the 7-day elimination period costs. The ratios of accident to total disability with respect to annual claim rates and annual claim costs for Male II are approximately one-third higher than those for Male I.

Female I.—The ratios of accident disability annual claim costs to total disability annual claim costs generally decrease by age. This is a departure from the 1968-69 experience, when the ratios were relatively level.

TABLE 6
RATIOS OF ACCIDENT DISABILITY TO TOTAL DISABILITY
LOSS-OF-TIME EXPERIENCE
IN FIRST YEAR OF BENEFIT PERIOD
1970-71

ATTAINED AGE	0-DAY ELIMINATION PERIOD			7-DAY ELIMINATION PERIOD		
	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost
Male I						
20-29...	100%	100%	100%	40%	120%	47%
30-39...	34	120	41	35	109	38
40-49...	26	106	27	28	94	27
50-59...	20	89	17	19	86	16
60-69...	17	79	13	15	63	9
Male II						
20-29...	31%	89%	28%	53%	110%	58%
30-39...	40	136	55	48	109	53
40-49...	33	113	37	38	94	36
50-59...	27	93	26	28	80	22
60-69...	24	68	16	23	63	14
Female I						
20-29...	100%	100%	100%	26%	133%	35%
30-39...	16	146	24	18	111	19
40-49...	14	146	21	16	104	16
50-59...	18	101	19	20	97	19
60-69...	20	92	18	18	59	10

3. ANNUAL CLAIM COSTS BY DURATION SINCE DISABLEMENT

Table 7 shows annual claim costs by duration, measured from the date of disablement, for 0-day accident and 7-day sickness coverages. Corresponding tabular values from the 1964 Commissioners Disability Table are also shown for durations beyond the seventh day of disablement. The tabular values which are shown for accident disability for the first seven days of disablement were developed to be consistent with values in the 1964 Commissioners Disability Table for the eighth and subsequent days of disablement.

In the comparison of crude annual claim costs with corresponding values from the 1964 Commissioners Table, a special situation exists at ages 60-69. Tabular values according to the Commissioners Table have been taken at the central age of each age group, so the tabular value shown for age group 60-69 is the one that applies at age 65. However, because many disability policies terminate at age 65, the average age for this group is probably closer to age 63; consequently, the comparable Commissioners values should be somewhat lower than the values shown in Table 7. For the "Total" column in Table 7 the Commissioners Table value at age 63 for 0-day accident is 0.081, for 7-day sickness it is 0.418, and for accident and sickness it is 0.499.

It is also important to note that the Commissioners Table was intended to be a minimum reserve standard for policies providing loss-of-time benefits for disability due to accident or sickness. It was developed to provide net valuation premiums, which do not vary by occupation class or sex, rather than the type of net premiums which would be considered desirable in preparing gross premium rates.

For most durations at ages under 40, Male I 0-day accident annual claim costs are greater than corresponding costs from the Commissioners Table. At other ages, Male I 0-day accident annual claim costs are generally equal to or less than corresponding costs from the Commissioners Table. Male II 0-day accident costs are much higher than corresponding Commissioners costs.

Except at days 31-365, Male I and Male II accident annual claim costs and corresponding 1964 Commissioners costs are level or decrease with advancing age. At days 31-365 both Male I and Male II annual claim costs increase to ages 30-39 and then decrease, and the 1964 Commissioners annual claim costs increase with advancing age.

Male I 7-day sickness annual claim costs are generally less than corresponding Commissioners costs, except at days 31-372. Male II 7-day sickness annual claim costs are close to corresponding Com-

TABLE 7
 DISABILITY LOSS-OF-TIME EXPERIENCE, 1970-71
 ANNUAL CLAIM COSTS* BY DURATION MEASURED
 FROM DATE OF DISABLEMENT

ATTAINED AGE	DURATION SINCE DISABLEMENT (DAYS)																	
	1-7			8-14			15-21			22-30			31-365†			Total		
	Male I	Male II	1964 Comm.‡	Male I	Male II	1964 Comm.	Male I	Male II	1964 Comm.	Male I	Male II	1964 Comm.	Male I	Male II	1964 Comm.	Male I	Male II	1964 Comm.
Accident Disability 0-Day Elimination Period																		
20-29	.013	.027	.015	.010	.021	.010	.008	.015	.007	.007	.015	.006	.031	.078	.023	.069	.156	.061
30-39	.012	.023	.013	.010	.019	.009	.007	.015	.007	.007	.015	.006	.035	.083	.024	.071	.155	.059
40-49	.008	.017	.011	.007	.014	.009	.006	.012	.007	.006	.012	.006	.027	.070	.030	.054	.125	.063
50-59	.008	.014	.009	.007	.012	.007	.005	.010	.006	.005	.010	.006	.028	.062	.039	.053	.108	.067
60-69	.007	.013	.008	.006	.011	.007	.005	.009	.006	.005	.010	.006	.028	.061	.062	.051	.104	.089
Sickness Disability 7-Day Elimination Period																		
20-29				.011	.014	.011	.009	.011	.008	.008	.011	.007	.033	.046	.025	.061	.082	.051
30-39				.012	.015	.016	.009	.012	.011	.009	.012	.010	.042	.062	.040	.072	.101	.077
40-49				.015	.018	.021	.013	.016	.016	.014	.017	.016	.088	.118	.075	.130	.169	.128
50-59				.022	.024	.030	.020	.021	.024	.022	.024	.024	.164	.211	.158	.228	.280	.236
60-69				.027	.030	.040	.025	.027	.034	.027	.031	.037	.264	.355	.375	.343	.443	.486
Total of 0-Day Accident and 7-Day Sickness																		
20-29	.013	.027	.015	.021	.035	.021	.017	.026	.015	.015	.026	.013	.064	.124	.048	.130	.238	.112
30-39	.012	.023	.013	.022	.034	.025	.016	.027	.018	.016	.027	.016	.077	.145	.064	.143	.256	.136
40-49	.008	.017	.011	.022	.032	.030	.019	.028	.023	.020	.029	.022	.115	.188	.105	.184	.294	.191
50-59	.008	.014	.009	.029	.036	.037	.025	.031	.030	.027	.034	.030	.192	.273	.197	.281	.388	.303
60-69	.007	.013	.008	.033	.041	.047	.030	.036	.040	.032	.041	.043	.292	.416	.437	.394	.547	.575

* Per \$1 of monthly income benefit.

† Days 31-372 for 7-day sickness coverage.

‡ These values were developed to be consistent with values in the 1964 Commissioners Disability Table for the eighth and subsequent days of disablement.

missioners costs for earlier durations, but they are generally considerably higher than Commissioners costs at days 361-372.

The combined accident and sickness disability experience generally shows that the Commissioners costs are between Male I and Male II costs, except at ages 60-69. The Commissioners costs should be used as a standard of comparison against the unweighted average of Male I and Male II costs. Except for ages 60-69, the unweighted average costs are somewhat higher than the Commissioners costs.

4. TRENDS IN EXPERIENCE

Tables 8, 9, and 10 show the accident experience with a 0-day elimination period and the sickness experience with a 7-day elimination period, and the total of these two for the four calendar-year periods 1964-65, 1966-67, 1968-69, and 1970-71, as well as the unweighted average of these four periods, which reflects the experience for 1964-71.

Annual Claim Rates (Table 8)

In general, claim rates for the period 1970-71 are about equal to those for the period 1964-71.

Claim Durations in Months (Table 9)

The claim durations are generally higher in the current study than they are for the 1964-71 period.

Annual Claim Costs per \$1 of Monthly Income Benefit (Table 10)

Both accident and sickness annual claim costs for the current experience are generally higher than corresponding costs for the entire period 1964-71.

B. EXPERIENCE IN SECOND YEAR OF BENEFIT PERIOD

Ten companies contributed to this part of the study. The study is based on the experience during the second year of the benefit period with respect to claims incurred during 1969 and 1970. Previous studies of the experience during the second year of the benefit period appear in the 1967, 1969, and 1971 Reports. Experience on policies having maximum benefit periods of less than two years is omitted. Annual claim rates were calculated by dividing the amounts of monthly indemnity on claims which continued for twelve months from the end of the elimination period by the corresponding exposures. Annual claim costs were calculated by dividing the aggregate benefits incurred on claims during the second year of the benefit period by the corresponding exposures.

TABLE 8
 ACCIDENT AND SICKNESS EXPERIENCE IN FIRST YEAR OF BENEFIT PERIOD
 ELIMINATION PERIOD OF 0 DAY FOR ACCIDENT AND 7 DAYS FOR SICKNESS
 EXPERIENCE DURING 1964-65, 1966-67, 1968-69, 1970-71, AND 1964-71
 ANNUAL CLAIM RATE

ATTAINED AGE	MALE OCC. GROUP I					MALE OCC. GROUP II					FEMALE OCC. GROUP I				
	1964-65	1966-67	1968-69	1970-71	1964-71	1964-65	1966-67	1968-69	1970-71	1964-71	1964-65	1966-67	1968-69	1970-71	1964-71
0-Day Accident															
20-29.....	.057	.051	.053	.057	.055	.123	.107	.111	.127	.117	.035	.041	.034	.035	.036
30-39.....	.050	.045	.048	.052	.049	.101	.097	.096	.103	.099	.039	.032	.030	.033	.034
40-49.....	.044	.038	.038	.038	.040	.085	.076	.075	.078	.079	.045	.038	.044	.038	.041
50-59.....	.040	.036	.035	.036	.037	.075	.066	.064	.064	.067	.043	.041	.041	.045	.043
60-69.....	.037	.033	.032	.030	.033	.062	.057	.059	.056	.059	.057	.037	.044	.045	.046
7-Day Sickness															
20-29.....	.045	.048	.043	.049	.046	.050	.058	.058	.062	.057	.082	.082	.084	.085	.083
30-39.....	.058	.053	.052	.051	.054	.067	.065	.067	.065	.066	.114	.102	.101	.113	.108
40-49.....	.073	.068	.063	.066	.068	.084	.083	.077	.082	.082	.127	.122	.124	.124	.124
50-59.....	.105	.099	.093	.096	.098	.116	.113	.110	.106	.111	.124	.125	.126	.118	.123
60-69.....	.126	.127	.117	.119	.122	.146	.141	.132	.131	.138	.119	.132	.121	.097	.117
Total of 0-Day Accident and 7-Day Sickness															
20-29.....	.102	.099	.096	.106	.101	.173	.165	.169	.189	.174	.117	.123	.118	.120	.119
30-39.....	.108	.098	.100	.103	.103	.168	.162	.163	.168	.165	.153	.134	.131	.146	.142
40-49.....	.117	.106	.101	.104	.108	.169	.159	.152	.160	.161	.172	.160	.168	.162	.165
50-59.....	.145	.135	.128	.132	.135	.191	.179	.174	.170	.178	.167	.166	.167	.163	.166
60-69.....	.163	.160	.149	.149	.155	.208	.198	.191	.187	.197	.176	.169	.165	.142	.163

TABLE 9

ACCIDENT AND SICKNESS EXPERIENCE IN FIRST YEAR OF BENEFIT PERIOD
 ELIMINATION PERIOD OF 0 DAY FOR ACCIDENT AND 7 DAYS FOR SICKNESS
 EXPERIENCE DURING 1964-65, 1966-67, 1968-69, 1970-71, AND 1964-71
 CLAIM DURATION IN MONTHS

ATTAINED AGE	MALE OCC. GROUP I					MALE OCC. GROUP II					FEMALE OCC. GROUP I				
	1964-65	1966-67	1968-69	1970-71	1964-71	1964-65	1966-67	1968-69	1970-71	1964-71	1964-65	1966-67	1968-69	1970-71	1964-71
0-Day Accident*															
20-29.....	1.02	1.20	1.04	1.21	1.11	0.98	1.12	1.26	1.23	1.15	1.03	0.83	1.00	1.23	1.03
30-39.....	1.08	1.22	1.21	1.37	1.22	1.14	1.27	1.35	1.50	1.32	0.97	1.50	1.67	1.61	1.38
40-49.....	1.14	1.18	1.29	1.42	1.23	1.28	1.37	1.45	1.60	1.42	1.38	1.63	1.39	1.68	1.51
50-59.....	1.18	1.25	1.40	1.47	1.32	1.31	1.52	1.58	1.69	1.52	1.60	1.46	1.63	1.51	1.53
60-69.....	1.35	1.45	1.59	1.70	1.52	1.63	1.74	1.90	1.86	1.76	1.53	1.62	1.43	1.76	1.57
7-Day Sickness*															
20-29.....	1.07	0.98	1.07	1.24	1.11	1.12	1.19	1.16	1.32	1.21	1.12	1.17	1.10	1.05	1.11
30-39.....	1.31	1.26	1.33	1.41	1.31	1.39	1.40	1.37	1.55	1.42	1.68	1.73	1.43	1.61	1.60
40-49.....	1.62	1.66	1.76	1.97	1.74	1.79	1.82	1.77	2.06	1.85	1.80	1.85	1.68	1.82	1.79
50-59.....	2.02	2.07	2.17	2.38	2.16	2.22	2.34	2.34	2.64	2.39	1.79	1.89	1.82	2.09	1.90
60-69.....	2.55	2.70	2.91	2.88	2.76	2.98	3.10	3.02	3.38	3.11	2.20	2.11	2.02	2.56	2.21
Total of 0-Day Accident and 7-Day Sickness*															
20-29.....	1.04	1.09	1.05	1.23	1.11	1.02	1.15	1.22	1.26	1.17	1.09	1.06	1.07	1.10	1.08
30-39.....	1.20	1.24	1.27	1.39	1.27	1.24	1.32	1.36	1.52	1.36	1.50	1.67	1.48	1.61	1.55
40-49.....	1.43	1.49	1.58	1.77	1.55	1.53	1.60	1.61	1.84	1.64	1.69	1.80	1.60	1.79	1.72
50-59.....	1.79	1.85	1.96	2.13	1.93	1.86	2.03	2.06	2.28	2.06	1.74	1.78	1.77	1.93	1.81
60-69.....	2.28	2.44	2.62	2.64	2.50	2.58	2.71	2.68	2.93	2.71	1.98	2.00	1.87	2.30	2.02

* Table 10 divided by Table 8.

TABLE 10

ACCIDENT AND SICKNESS EXPERIENCE IN FIRST YEAR OF BENEFIT PERIOD
 ELIMINATION PERIOD OF 0 DAY FOR ACCIDENT AND 7 DAYS FOR SICKNESS
 EXPERIENCE DURING 1964-65, 1966-67, 1968-69, 1970-71, AND 1964-71
 ANNUAL CLAIM COSTS PER \$1 OF MONTHLY INCOME BENEFIT

ATTAINED AGE	MALE OCC. GROUP I					MALE OCC. GROUP II					FEMALE OCC. GROUP I				
	1964-65	1966-67	1968-69	1970-71	1964-71	1964-65	1966-67	1968-69	1970-71	1964-71	1964-65	1966-67	1968-69	1970-71	1964-71
0-Day Accident															
20-29.....	.058	.061	.055	.069	.061	.121	.120	.140	.156	.134	.036	.034	.034	.043	.037
30-39.....	.054	.055	.058	.071	.060	.115	.123	.130	.155	.131	.038	.048	.050	.053	.047
40-49.....	.049	.045	.049	.054	.049	.109	.104	.109	.125	.112	.062	.062	.061	.064	.062
50-59.....	.047	.045	.049	.053	.049	.098	.100	.101	.108	.102	.069	.060	.067	.068	.066
60-69.....	.050	.048	.051	.051	.050	.101	.099	.112	.104	.104	.087	.060	.063	.079	.072
7-Day Sickness															
20-29.....	.048	.047	.046	.061	.051	.056	.069	.067	.082	.069	.092	.096	.092	.089	.092
30-39.....	.076	.067	.069	.072	.071	.093	.091	.092	.101	.094	.191	.176	.144	.182	.173
40-49.....	.118	.113	.111	.130	.118	.150	.151	.136	.169	.152	.229	.226	.208	.226	.222
50-59.....	.212	.205	.202	.228	.212	.257	.264	.257	.280	.265	.222	.236	.229	.247	.234
60-69.....	.321	.343	.340	.343	.337	.435	.437	.399	.443	.429	.262	.278	.245	.248	.258
Total of 0-Day Accident and 7-Day Sickness															
20-29.....	.106	.108	.101	.130	.112	.177	.189	.207	.238	.203	.128	.130	.126	.132	.129
30-39.....	.130	.122	.127	.143	.131	.208	.214	.222	.256	.225	.229	.224	.194	.235	.220
40-49.....	.167	.158	.160	.184	.167	.259	.255	.245	.294	.264	.291	.288	.269	.290	.284
50-59.....	.259	.250	.251	.281	.261	.355	.364	.358	.388	.367	.291	.296	.296	.315	.300
60-69.....	.371	.391	.391	.394	.387	.536	.536	.511	.547	.533	.349	.338	.308	.327	.330

Durations of claims in months, with respect to the second year of the benefit period, were calculated by dividing the annual claim costs by the annual claim rates. Contributions to the accident portion of the study were limited to experience under policies with a 0-day accident elimination period, and contributions to the sickness portion were limited to experience under policies with a 7-day sickness elimination period. This study is confined to male experience, for which there were 1,515 claims incurred. There were only 49 female claims in Occupation Group I, under which benefits were paid in the second year of the benefit period, and this number was insufficient to provide any significant data. Using Male I results as the expected, the ratio of actual to expected claims costs for these females on an over-all basis was 133 per cent.

In this study 52 per cent of the experience was contributed by one company, while 83 per cent of the experience studied was contributed by four companies. Because of the sparsity of data, second-year annual claim rates and annual claim costs developed from these data may prove to be unreliable.

Table 11 shows second-year Male I and Male II experience for 0-day accident, 7-day sickness, and the combined 0-day accident and 7-day sickness coverages. Corresponding annual claim costs for the 1964 Commissioners Disability Table are also shown. The Commissioners Disability Table provides a useful basis of comparison with second-year costs even though it was developed to provide valuation net premiums and not to provide net premiums which might be considered appropriate in developing gross premiums.

The annual claim rates and annual claim costs for Male I 0-day accident increases by age except for the high rate and cost at ages 30-39. Male II 0-day accident annual claim rates and annual claim costs are somewhat level except at ages 30-39 and 60-64. Male II annual claim costs are generally significantly higher than Male I annual claim costs.

Male I and Male II 7-day sickness annual claim rates and annual claim costs for the second year of the benefit period increase with age, with sharp increases after age 39. Male II annual claim costs are considerably higher than Male I annual claim costs.

For the combined 0-day accident and 7-day sickness coverage, the annual claim rates and annual claim costs increase with age. The slope by age of the experience is similar to the sickness experience. The Male I costs are generally lower and the Male II costs are always higher than the Commissioners claim costs.

TABLE 11
 DISABILITY LOSS-OF-TIME EXPERIENCE IN
 SECOND YEAR OF BENEFIT PERIOD
 FOR CLAIMS INCURRED DURING 1969-70

ATTAINED AGE	MALE OCC. GROUP I				MALE OCC. GROUP II				1964 COMM. ANNUAL CLAIM COST*
	No. Claims	Annual Claims Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	
0-Day Accident									
20-29.....	2	.00011	9.1	.0010	32	.00164	7.8	.0128	.0034
30-39.....	18	.00085	8.8	.0075	85	.00214	8.6	.0183	.0040
40-49.....	21	.00040	7.0	.0028	99	.00172	9.0	.0154	.0069
50-59.....	47	.00062	8.1	.0050	85	.00160	9.2	.0147	.0141
60-64.....	40	.00072	6.9	.0050	35	.00220	9.4	.0206	.0255
7-Day Sickness									
20-29.....	4	.00036	6.1	.0022	27	.00101	7.6	.0077	.0036
30-39.....	35	.00116	7.9	.0092	61	.00122	7.5	.0091	.0066
40-49.....	77	.00229	8.5	.0194	164	.00285	9.5	.0270	.0169
50-59.....	142	.00514	10.0	.0515	311	.00829	9.1	.0755	.0573
60-64.....	82	.01229	10.3	.1261	148	.01659	9.3	.1551	.1393
Total of 0-Day Accident and 7-Day Sickness									
20-29.....	6	.00047	6.8	.0032	59	.00265	7.7	.0205	.0070
30-39.....	53	.00201	8.3	.0167	146	.00336	8.2	.0274	.0106
40-49.....	98	.00269	8.3	.0222	263	.00457	9.3	.0424	.0238
50-59.....	189	.00576	9.8	.0565	396	.00989	9.1	.0902	.0714
60-64.....	122	.01301	10.1	.1311	183	.01879	9.4	.1757	.1648

* Per \$1 of monthly income benefit.

Table 12 shows the combined experience of the previous study for claims incurred during 1967 and 1968, and the current study for claims incurred during 1969 and 1970. Using the annual claim costs in Table 12 as the expected, the ratio of actual to expected was 86 per cent for the 1967-68 experience and 112 per cent for the 1969-70 experience, showing that experience has been significantly worse during the last two-year period studied.

TABLE 12
 DISABILITY LOSS-OF-TIME EXPERIENCE IN
 SECOND YEAR OF BENEFIT PERIOD
 FOR CLAIMS INCURRED DURING 1967-70

ATTAINED AGE	MALE OCC. GROUP I				MALE OCC. GROUP II				1964 COMM. ANNUAL CLAIM COST*
	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	No. Claims	Annual Claim Rate	Claim Duration (Months)	Annual Claim Cost*	
0-Day Accident									
20-29	9	.00032	7.5	.0024	58	.00134	7.6	.0102	.0034
30-39	30	.00061	8.9	.0054	136	.00160	8.7	.0139	.0040
40-49	39	.00035	8.0	.0028	165	.00133	8.7	.0116	.0069
50-59	86	.00057	6.8	.0039	150	.00140	8.8	.0123	.0141
60-64	70	.00078	7.1	.0055	60	.00177	9.6	.0170	.0255
7-Day Sickness									
20-29	5	.00025	7.2	.0018	42	.00089	8.1	.0072	.0036
30-39	49	.00086	8.3	.0071	94	.00107	7.6	.0081	.0066
40-49	133	.00205	8.6	.0177	271	.00265	9.6	.0254	.0169
50-59	241	.00480	10.1	.0485	512	.00761	9.3	.0711	.0573
60-64	129	.01112	10.3	.1141	251	.01653	9.5	.1572	.1393
Total of 0-Day Accident and 7-Day Sickness									
20-29	14	.00057	7.4	.0042	100	.00223	7.8	.0174	.0070
30-39	79	.00147	8.5	.0125	230	.00267	8.2	.0220	.0106
40-49	172	.00240	8.5	.0205	436	.00398	9.3	.0370	.0238
50-59	327	.00537	9.8	.0524	662	.00901	9.3	.0834	.0714
60-64	199	.01190	10.1	.1196	311	.01830	9.5	.1742	.1648

* Per \$1 of monthly income benefit.