

TRANSACTIONS OF SOCIETY OF ACTUARIES 1970 REPORTS

II. GROUP LONG-TERM DISABILITY INSURANCE

THIS report extends both the "Analysis of Rates of Disablement" section and the "Analysis of Rates of Termination" section to include plans with a three-month elimination period. Additionally, the analysis of rates of disablement for plans with a six-month elimination period has been expanded to include (1) an analysis of experience by calendar year of incurral and (2) a dispersion-type analysis of ratios of actual claims incurred under individual experience groups to claims based on the experience of all groups for the period studied.

The experience included in this report is predominantly that of employer-employee groups located in the United States and largely for plans that appear not to have been the result of bargaining. Groups which a contributing company considers atypical or classifies as substandard because of industry hazards are excluded. Plans selected for the study provide occupational as well as nonoccupational coverage but with benefits integrated with workmen's compensation. Virtually all the cases contributed also provide that gross monthly benefits be integrated with some or all of any social security benefits and frequently with other benefits payable as a result of the disability. Benefits are payable only on claims incurred prior to age 65 and generally cease at age 65.

The Committee wishes to point out that this study is still in the course of development and that the experience covers a period of favorable economic conditions and generally high employment; hence the results presented here should be viewed only as early indications of expected rates of disablement or termination. Since a considerable volume of exposures was not codable with respect to certain characteristics that may influence the level of rate of disablement or termination, the experience may not be representative of any particular group or plan. The Committee recommends that caution be used in the interpretation of the results and in their application on other than a broad basis.

CONTRIBUTING COMPANIES

Thirteen companies have contributed experience for the investigation covered in this report. The results are the composite experience of variations in company practices and in the underlying administration and claim procedures, as well as of variations in experience among groups.

Aetna Life & Casualty Company
Bankers Life & Casualty Company
Bankers Life Company
Connecticut General Life Insurance Company
Continental Assurance Company
Continental Casualty Company
Equitable Life Assurance Society
John Hancock Mutual Life Insurance Company
Metropolitan Life Insurance Company
New York Life Insurance Company
Provident Life & Accident Insurance Company
Prudential Insurance Company of America
Sun Life Assurance Company of Canada

ANALYSIS OF RATES OF DISABLEMENT

Table 1 shows crude rates of disablement based on number of lives, by sex and age group, for the period 1962-68 for plans with a six-month elimination period. Experience of the calendar year of issue is excluded. In over one-half of the experience contributed, the exposure could not be separated by sex. The first part of this table summarizes the experience for male, female, and sex-unknown exposure combined. The experience for which exposure was sex-coded is presented in the bottom two sections of the table.

Table 2 shows for the same period of time, in a form similar to that of Table 1, crude rates of disablement for plans with a three-month elimination period. Almost three-fourths of the exposure was codable by sex. Attention is called to the small number of claims underlying the disablement rate for some of the sex-age cells.

Experience varied considerably among contributors, most of whom based the definition of disability at commencement of benefits on the claimant's "own occupation." Approximately 8 per cent of the experience, however, is based on an "any occupation" definition for the full period of disability.

Claims were reported and included in rates of disablement, even though, because of the existence of social security or other disability income under plans with an offset provision, no benefit may have been payable.

For the six-month plans, accidents accounted for approximately 9 per cent of the claims coded for a known cause of disablement. The corresponding figure for the three-month plan was 11 per cent.

Table 1A analyzes by underlying calendar year of experience the

TABLE 1
 GROUP LONG-TERM DISABILITY INSURANCE
 CRUDE RATES OF DISABLEMENT
 PER 1,000 LIVES EXPOSED
 (Six-Month Elimination Period; Calendar
 Year of Issue Excluded)
 Calendar Years of Experience 1962-68

Attained Age	Life Years Exposed	No. Claims	Rate of Disablement per 1,000 Lives
All Experience: Males, Females, and Sex Unknown			
Under 40	775,654	640	0.83
40-44	238,788	496	2.08
45-49	205,329	704	3.43
50-54	155,618	880	5.65
55-59	112,147	1,080	9.63
60-64	68,900	1,026	14.89
All ages	1,556,436	4,826	3.10
Male Experience Only			
Under 40	254,072	153	0.60
40-44	85,629	116	1.35
45-49	72,453	197	2.72
50-54	53,936	257	4.76
55-59	40,136	326	8.12
60-64	23,783	365	15.35
All ages	530,009	1,414	2.67
Female Experience Only			
Under 40	62,450	55	0.88
40-44	17,496	53	3.03
45-49	16,285	82	5.04
50-54	12,526	72	5.75
55-59	9,194	61	6.63
60-64	4,625	68	14.70
All ages	122,576	391	3.19

Table 1 crude rates of disablement for all ages and for male, female, and sex-unknown exposures combined. The variation in the over-all disablement rate from one year to the next would appear to be the result of differences in distributions of exposed-to-risk by age group. The more meaningful ratio of actual claims to tabular claims based on Table 1 crude rates has remained quite stable over the last four years, a period that covers the bulk of the experience.

TABLE 1A

GROUP LONG-TERM DISABILITY INSURANCE
ANALYSIS OF TABLE 1 RATES OF DISABLEMENT
BY CALENDAR YEAR OF INCURRAL

(Six-Month Elimination Period; Calendar Year of Issue Excluded; All Ages;
Males, Females, and Sex Unknown Combined)
Calendar Years of Experience 1962-68

CALENDAR YEAR OF INCURRAL	NUMBER OF EX- PERIENCE UNITS	LIFE YEARS EXPOSED	NUMBER OF CLAIMS			RATE OF DISABLE- MENT PER 1,000 LIVES	RATIO OF ACTUAL CLAIMS TO TAB- ULAR CLAIMS*
			Acci- dent	Sick- ness	Total (Incl. Un- known)		
1962-64	283	188,608	26	385	556	2.95	0.97
1965	361	173,456	56	468	541	3.12	1.02
1966	539	260,189	60	701	787	3.02	1.04
1967	754	407,995	105	1,115	1,290	3.16	1.03
1968	1,019	526,188	135	1,434	1,652	3.14	0.97
Total	2,956	1,556,436	382	4,103	4,826	3.10	1.00

* Tabular claims were calculated by applying to the actual age group exposures the crude rates of disablement shown in Table 1 for males, females, and sex unknown combined.

Table 1B is a dispersion analysis, by number and size of experience unit exposed, of ratios of actual claims to claims based on Table 1 crude rates of disablement for all ages and for male, female, and sex-unknown exposures combined. Note that experience units of less than 100 lives accounted for over 50 per cent of the total number of units. This explains the large number of units (over 70 per cent of the total) that experienced no claims. The results should be interpreted with some caution, since they reflect a mix of the different underwriting practices of the contributing companies and of such heterogeneous case characteristics as the distribution among salary, hourly, and bargained wages; extent of employer financial participation; type of industry; and relationship of the amount of benefit payable under the plan to take-home pay—each of which may have a measurable impact on the rate of disablement.

TABLE 1B
 GROUP LONG-TERM DISABILITY INSURANCE
 DISPERSION ANALYSIS OF RATIOS OF ACTUAL CLAIMS TO TABULAR CLAIMS BY SIZE OF EXPERIENCE UNIT EXPOSED
 (Six-Month Elimination Period; Calendar Year of Issue Excluded; All Ages; Males, Females, and Sex Unknown Combined)
 Calendar Years of Experience 1962-68

SIZE OF UNIT	NUMBER OF EXPERIENCE UNITS BY RATIO OF ACTUAL TO TABULAR CLAIMS*											TOTAL NO. OF UNITS	AVERAGE A/T RATIO
	0%	1% to 50%	50% to 75%	75% to 100%	100% to 150%	150% to 200%	200% to 250%	250% to 500%	500% to 750%	750% to 1,000%	1,000% or More		
Under 25 lives . . .	192	0	0	0	0	0	0	0	0	0	9	201	118%
25-49	585	0	0	0	0	0	0	4	16	9	15	629	59
50-99	607	0	0	0	0	1	9	57	28	7	5	714	73
100-249	490	0	0	11	35	45	29	50	14	3	2	679	76
250-499	164	6	42	23	41	11	14	21	4	1	0	327	74
500-999	48	29	20	13	25	9	12	10	2	0	0	168	88
1,000-2,499	17	28	17	19	29	13	6	3	0	0	0	132	91
2,500-4,999	1	10	18	6	8	5	0	0	0	0	0	48	81
5,000 or more . . .	0	11	7	12	14	8	5	1	0	0	0	58	121
Total	2,104	84	104	84	152	92	75	146	64	20	31	2,956	100%

* Tabular claims were calculated by applying to actual age group exposures the crude rates of disablement shown in Table 1 for males, females, and sex unknown combined.

TABLE 2
 GROUP LONG-TERM DISABILITY INSURANCE
 CRUDE RATES OF DISABLEMENT
 PER 1,000 LIVES EXPOSED
 (Three-Month Elimination Period; Calendar
 Year of Issue Excluded)
 Calendar Years of Experience 1962-68

Attained Age	Life Years Exposed	No. Claims	Rate of Disablement per 1,000 Lives
All Experience: Males, Females, and Sex Unknown			
Under 40	95,847	184	1.92
40-44	31,451	92	2.93
45-49	27,751	162	5.84
50-54	24,200	165	6.82
55-59	17,631	223	12.65
60-64	11,231	194	17.27
All ages	208,111	1,020	4.90
Male Experience Only			
Under 40	53,517	100	1.87
40-44	18,835	47	2.50
45-49	16,252	91	5.60
50-54	13,610	102	7.49
55-59	9,765	132	13.52
60-64	6,150	104	16.91
All ages	118,129	576	4.88
Female Experience Only			
Under 40	16,234	48	2.96
40-44	4,770	25	5.24
45-49	4,400	32	7.27
50-54	4,797	22	4.59
55-59	3,094	24	7.76
60-64	1,956	28	14.31
All ages	35,251	179	5.08

ANALYSIS OF RATES OF TERMINATION

Table D-1 shows, for plans with a six-month elimination period, crude rates of termination from death or recovery based on number of lives, by sex and age groups, for the period 1962-68. Annual rates of termination were not calculated for any experience cell for which there were fewer than ten terminations. Because of the small number of terminations at the later durations, the experience has been truncated at the end of four years of disablement. It should be noted that the termination rates for year of disablement relate to the six-month period following the end of the elimination period.

There were 10,332 claims exposed to termination, 4,826 of which originated from Table 1 experience and the balance from experience units which were not included in the study of rates of disablement. The actual number of claims that terminated by death or recovery are shown in Table D-1A. Ratios of the actual terminations to the number of terminations that would have been produced by application of termination rates from the 1964 Commissioners Disability Table to the Table D-1 exposure are presented in Table D-1B.

For plans with a six-month elimination period, the Committee separately analyzed the termination rates for only those claims that were included in the study of rates of disablement (Table 1) and found no significant difference from the results shown in Table D-1.

Tables D-2, D-2A, and D-2B analyze the experience of terminations from plans with a three-month elimination period and are similar in form and content to the D-1 series, except that experience has been truncated at three years. The number of claims exposed to termination was 4,004, of which 1,020 were included in the active lives study (Table 2). Termination rates for the first year of disablement cover the nine months immediately following the elimination period. Although the volume of claims completing two years of disability is rather limited, there appears to be some indication that much of the effect of selection under the plans with the shorter three-month elimination period has largely disappeared after the second year, at least at the higher ages.

For both the six- and three-month elimination period plans the low first-year ratios appearing in Tables D-1B and D-2B, respectively, would seem to be due to the shorter elimination periods of the individual health insurance experience underlying the first-year termination rates of the 1964 Commissioners Disability Table.

TABLE D-1
 GROUP LONG-TERM DISABILITY INSURANCE
 CRUDE TERMINATION RATES PER 1,000 CLAIMS EXPOSED
 TO DEATH OR RECOVERY

(Six-Month Elimination Period; Calendar Years of Experience 1962-68)

DURATION OF DISABILITY	AGE AT DISABLEMENT					
	Under 30	30-39	Under 40	40-49	50-59	60-64
Male and Female Combined						
7th month	66.0	60.1	62.0	38.0	27.3	20.6
8th month	78.7	70.3	73.0	53.1	31.4	21.0
9th month	84.2	72.3	76.0	50.6	27.0	19.7
10th month	78.4	55.3	62.5	45.8	26.0	17.9
11th month	61.7	51.6	54.7	42.5	23.9	19.0
12th month	52.5	58.8	56.8	43.3	19.2	17.5
1st year (last 6 months)	354.3	316.3	328.5	244.1	145.2	110.2
13th month	51.5	57.6	55.7	40.9	19.9	13.4
14th month	65.8	39.5	47.6	36.5	21.4	10.9
15th month	50.9*	29.9	36.5	33.3	17.2	12.0
16th month	25.2*	26.8	26.4	25.6	13.9	13.2
17th month	50.7	20.6	29.4	21.5	14.1	10.9
18th month	53.7*	16.7*	27.4	21.1	17.7	10.9
19th month	37.1*	19.4	24.3	18.2	16.8	11.0
20th month	35.7*	12.5*	18.6*	16.7	13.9	12.8
21st month	28.2*	11.6	15.9	21.0	14.7	14.8
22d month	24.6*	24.1	24.2	17.8	13.4	9.0*
23d month	19.3*	21.2*	20.7	8.6*	7.5*	5.8*
24th month	13.5*	24.6	21.8	13.5	3.9	7.9
2d year	372.9	266.1	298.4	243.0	161.2	124.9
3d year	275.0	244.0	251.6	158.1	119.5	126.9
4th year	†	143.0	135.1	109.0	107.6	†
Male Only						
1st year (last 6 months)	401.5	334.2	356.2	238.6	139.7	109.1
2d year	370.6	268.1	299.4	232.3	164.7	120.5
3d year	†	240.8	243.9	163.7	119.6	125.2
4th year	†	†	†	97.2	97.7	†
Female Only						
1st year (last 6 months)	274.7	289.2	285.2	253.6	162.9	116.0
2d year	373.7	261.9	296.4	262.2	147.9	149.6
3d year	†	247.2	262.6	147.0	118.5	†
4th year	†	†	†	129.2	140.3	†

* Involves fewer than 5 terminations.

† Involves fewer than 10 terminations.

TABLE D-1A
 GROUP LONG-TERM DISABILITY INSURANCE
 NUMBER OF CLAIMS TERMINATED BY DEATH OR RECOVERY
 (Six-Month Elimination Period; Calendar Years of Experience 1962-68)

DURATION OF DISABLEMENT	AGE AT DISABLEMENT					
	Under 30	30-39	Under 40	40-49	50-59	60-64
Male and Female Combined						
1st year (last 6 months)	118	228	346	458	484	190
2d year	55	88	143	226	310	111
3d year	16	41	57	68	121	47
4th year	2	11	13	26	50	7
Male Only						
1st year (last 6 months)	82	144	226	285	354	158
2d year	32	52	84	137	249	91
3d year	8	23	31	45	95	40
4th year	0	4	4	14	34	6
Female Only						
1st year (last 6 months)	36	84	120	173	130	32
2d year	23	36	59	89	61	20
3d year	8	18	26	23	26	7
4th year	2	7	9	12	16	1

TABLE D-1B
GROUP LONG-TERM DISABILITY INSURANCE
RATIOS OF ACTUAL CLAIMS TERMINATED BY DEATH OR
RECOVERY TO NUMBER OF TERMINATIONS EXPECTED FROM THE
1964 COMMISSIONERS DISABILITY TABLE*
(Six-Month Elimination Period; Calendar Years of Experience 1962-68)

DURATION OF DISABILITY	ALL AGES OF DISABILITY COMBINED	AGE AT DISABILITY					
		Under 30	30-39	Under 40	40-49	50-59	60-64
Male and female combined:							
1st year (last 6 months)	44.2	66.0	60.9	62.5	52.0	37.6	32.3
2d year	96.5	116.5	96.6	102.8	103.1	92.2	90.8
3d year	100.3	116.9	120.0	119.1	98.0	89.6	105.3
4th year	90.6	†	108.3	94.1	88.1	101.7	†
Male only:							
1st year (last 6 months)	42.8	74.8	64.4	67.8	50.8	36.2	32.0
2d year	95.1	115.8	97.3	102.8	98.5	94.2	87.7
3d year	98.0	†	118.4	115.6	101.4	89.7	103.9
4th year	80.5	†	†	†	78.5	92.4	†
Female only:							
1st year (last 6 months)	48.0	51.2	55.7	54.3	54.0	42.2	34.0
2d year	99.9	116.8	95.0	102.2	111.2	84.6	108.8
3d year	99.6	†	121.5	123.6	91.1	88.8	†
4th year	117.6	†	†	†	104.4	132.6	†

* As published by the Health Insurance Association of America, Table B1, Volume III.

† Involves fewer than 10 terminations.

TABLE D-2

GROUP LONG-TERM DISABILITY INSURANCE
CRUDE TERMINATION RATES PER 1,000 CLAIMS EXPOSED
TO DEATH OR RECOVERY

(Three-Month Elimination Period; Calendar Years of Experience 1962-68)

DURATION OF DISABILITY	AGE AT DISABILITY					
	Under 30	30-39	Under 40	40-49	50-59	60-64
Male and Female Combined						
4th month.....	163.2	103.0	120.7	108.1	93.3	51.8
5th month.....	171.8	150.2	156.3	112.2	91.0	72.2
6th month.....	178.1	149.6	157.6	106.8	75.4	61.5
7th month.....	142.8	113.4	121.8	99.3	67.9	49.1
8th month.....	119.1	81.5	91.7	93.9	52.0	42.5
9th month.....	130.3	73.1	87.7	65.7	38.3	21.4
10th month.....	123.5	71.6	84.4	50.4	33.6	19.7
11th month.....	76.5*	64.5	67.5	52.1	32.1	24.4
12th month.....	24.4*	71.6	60.6	39.6	26.4	13.5*
1st year (last 9 months).....	704.5	605.4	635.3	533.8	410.3	305.9
13th month.....	83.3	80.0	81.7	37.1	23.1	7.3*
14th month.....	116.7*	58.6*	73.1	36.1	17.4	10.8*
15th month.....	33.3*	39.9*	38.2*	24.7	12.1	13.3*
16th month.....	18.5*	58.5	48.2	24.9	11.8	10.9*
17th month.....	58.5*	57.4*	57.8	36.0	14.5	3.9*
18th month.....	40.0*	22.7*	27.5*	30.7*	14.0	6.5*
19th month.....	0.0*	9.4*	6.8*	20.9	7.9*	11.2*
20th month.....	0.0*	29.4*	21.1*	30.3	9.6	9.8*
21st month.....	25.0*	42.2*	37.4*	23.3*	16.1	8.0*
22d month.....	25.0*	46.6*	40.3*	16.4*	18.4	9.0*
23d month.....	35.7*	37.5*	36.5*	10.1*	12.4*	19.1*
24th month.....	35.7*	27.0*	29.6*	12.0*	6.0*	19.9*
2d year.....	386.2	407.2	400.4	264.3	151.6	122.5
3d year.....	†	†	†	152.7	123.0	118.5
Male Only						
1st year (last 9 months).....	728.9	622.4	657.7	534.6	400.8	320.3
2d year.....	†	455.5	449.3	303.5	147.8	155.1
3d year.....	†	†	†	†	134.7	†
Female Only						
1st year (last 9 months).....	656.1	578.4	598.7	531.7	435.0	258.1
2d year.....	†	346.7	335.1	194.8	160.9	†
3d year.....	†	†	†	†	†	†

* Involves fewer than 5 terminations.

† Involves fewer than 10 terminations.

TABLE D-2A
GROUP LONG-TERM DISABILITY INSURANCE
NUMBER OF CLAIMS TERMINATED BY DEATH OR RECOVERY
(Three-Month Elimination Period; Calendar Years of Experience 1962-68)

DURATION OF DISABLEMENT	AGE AT DISABLEMENT					
	Under 30	30-39	Under 40	40-49	50-59	60-64
Male and Female Combined						
1st year (last 9 months)	117	239	356	467	527	196
2d year	13	33	46	65	71	29
3d year	2	5	7	14	32	10
Male Only						
1st year (last 9 months)	79	145	224	299	372	156
2d year	9	20	29	48	53	27
3d year	2	2	4	9	28	8
Female Only						
1st year (last 9 months)	38	94	132	168	155	40
2d year	4	13	17	17	18	2
3d year	0	3	3	5	4	2

TABLE D-2B
GROUP LONG-TERM DISABILITY INSURANCE
RATIOS OF ACTUAL CLAIMS TERMINATED BY DEATH OR
RECOVERY TO NUMBERS OF TERMINATIONS EXPECTED FROM THE
1964 COMMISSIONERS DISABILITY TABLE*
(Three-Month Elimination Period; Calendar Years of Experience 1962-68)

DURATION OF DISABLEMENT	ALL AGES OF DIS- ABLE- MENT COM- BINED	AGE AT DISABLEMENT					
		Under 30	30-39	Under 40	40-49	50-59	60-64
Male and female combined:							
1st year (last 9 months)	58.0	79.4	68.8	71.6	63.3	54.4	46.1
2d year	101.1	120.7	147.7	139.8	112.1	86.7	89.1
3d year	93.7	†	†	†	94.6	92.2	98.4
Male only:							
1st year (last 9 months)	57.7	82.2	70.7	74.1	63.4	53.1	48.3
2d year	107.8	†	165.3	155.2	128.8	84.6	112.8
3d year	103.8	†	†	†	†	101.0	†
Female only:							
1st year (last 9 months)	58.7	74.0	65.7	67.6	63.0	57.6	38.9
2d year	83.3	†	125.8	117.7	82.6	92.0	†
3d year	68.1	†	†	†	†	†	†

* As published by the Health Insurance Association of America, Table B1, Volume III.
† Involves fewer than 10 terminations.

