

**Reinsurance  
Advanced Age  
Mortality Study**

**Society of Actuaries  
Reinsurance Council**

**1997 and 1998  
Intercompany  
Experience**

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**REINSURANCE**  
**INTERCOMPANY MORTALITY STUDY**  
**FOR**  
**ADVANCED AGE**  
**(1997 and 1998 EXPERIENCE)**

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# DESCRIPTION of the STUDY

## **Observation Period and Policy Issue Years**

This report covers the experience for calendar years 1997 and 1998. The earliest issue year for all policies reported by participants was 1960.

## **Policies Included in the Study**

Policies for advanced ages are those with an issue age of 70 and over regardless of face amount level, where the residence of the insured at issue is the United States, and the currency of the policy is in U.S. dollars. This study includes only single life policies and exposure which is equal to the net amount at risk reinsured to the participants.

## **Exposure Calculation**

The net amount at risk is assumed to be level throughout the exposure period and is either the most current information or the recorded face amount, depending on the company's reporting method as at the end of 1997 for the 1997 data or 1998 for the 1998 data.

For a policy in force through the study year, two exposure records are created. One reflects the fraction of the year between the prior December 31 and the policy anniversary. The other reflects the fraction of the year between the policy anniversary and December 31 of the study year. Obviously these two fractions sum to one. The difference between the two records is in the policy duration.

For policies withdrawing during the study year, one or two exposure records will be created, depending on whether the withdrawal is after the anniversary or not. The exposure fraction is calculated consistent with the in force situation. Fractions would not sum to one in this case except for withdrawals occurring on December 31 of the study year.

For death claims, one or two exposure records will be created, depending on whether the death occurs before the anniversary or not. Note the difference in treatment of exact anniversary deaths and withdrawals. The exposure will be one for the record reflecting the period in which the death occurs. Hence, the total exposure will be greater than one for policies with deaths that occur on or after the anniversary date.

For policies issued in the study year, one exposure record will be created consistent with the rest of the exposure calculations. Hence, a policy issued on January 1 of the study year will contribute one day less than a full year's exposure to the study, while one issued on December 31 of the study year will be included in the study, but with a zero exposure value.

## **Expected Deaths**

Expected deaths in the study are based on 100% of the Society of Actuaries A75-80 Basic Select and Ultimate Tables (pages 205-227 of TSA 38, 1986). The tables vary by sex and age type (age nearest birthday and age last birthday).

The A75-80 Basic Tables were extended to issue age 90 and the resulting tables were used to calculate the expected mortality for issue ages over 70. In the 1990 study, the ultimate attained age was 100. Study years 1991 and later extended this ultimate age to 105 using the constant difference pattern implicit in the values at age 100 and immediately prior. The extension is described in Appendix P.

For substandard risks, the appropriate base table was increased by the appropriate substandard rating.

# DESCRIPTION of the STUDY

## **Actual Claims**

Actual claims are the amounts actually paid by the reinsurer. In the case of contestable claims, the actual claim amount is that actually paid out, if any.

## **Other Comments**

Underwriting status refers to the standard and substandard categories.

Preferred and Non-preferred risks are treated as Regular risks.

Reinsurance status refers to how the participating company receives the business based on automatic, facultative and shopped categories.

## **Participants to the Study**

See Appendix A.

In this year's two year study of 1997 and 1998 data, 5 of the 9 participants from 1996 remained and one new participant entered.

## **Products Included in the Study**

Permanent plans include Whole Life, Limited Pay Plans and other permanent plans. Universal Life plans are interest-sensitive plans with a cash value buildup. Term plans include Re-entry, Level and Decreasing type plans.

## **New Sections to the Study**

The Advanced Age Study has been conducted since 1990. This year's two year study includes all sections that were completed in the past, plus 4 new tables. The new tables are:

Table 2 - Trends in Exposure (By Number) (1990-1998)

Table 4 - Trends by Exposure (000s) (1990-1998)

Table 5 - 5 year Rolling Average Ratios (1990-1994, 1991-1995, 1992-1996, 1993-1997, 1994-1998)

Table 6 - 3 year Period Average Ratios (1990-1992, 1993-1995 and 1996-1998)

The additional tables allow the reader to more easily view the mortality trends and assign credibility to those trends.

## HIGHLIGHTS of the STUDY (1997 and 1998)

### **Overall Experience**

The experience underlying the 1997 and 1998 data is based on total exposures of \$1.9 billion and \$2.3 billion, respectively. Claims in 1997 were \$12 million and in 1998 they were \$19 million. The total exposures by number in 1997 and 1998 are 20,578 and 28,175, respectively. In 1997, 237 claims were reported and in 1998, 333 claims were reported. The 1997 and 1998's exposure by number and 1998's claim count are the largest in this study's history.

The overall mortality ratios by amounts for the 1997 and 1998 study are 19% and 24% respectively (33% in 1996).

The overall mortality ratios by number for the 1997 and 1998 study are 27% and 31% respectively (54% in 1996).

### **Experience by Sex**

In 1997 and 1998, 45% of policy amounts were from male lives. This marks the first time, in this study's history that female amounts outnumber the male amounts.

The mortality ratio by amount for males is 20% in 1997 and 22% in 1998.

The mortality ratio by amount for females is 17% in 1997 and 27% in 1998.

Both of the above ratios, although volatile, have decreased through the years on both a three year period average and on a five year moving average.

The mortality ratios by number for males in 1997 and 1998 are 27% and 29%, respectively. The ratios for females are 28% and 33% in 1997 and in 1998, respectively.

### **Experience by Issue Age**

The issue age group 70-74 dominates the results. By amount, approximately 65% of policies have issue ages between 70 and 74 in both 1997 and 1998. By number, approximately three quarters of policies issued in 1997 and 1998 have issue ages 70 to 74. By amount in 1997, the age band 70-74 experienced a mortality ratio of 14% (27% in 1998). The age band 75-79 experienced a ratio of 30% in 1997 (26% in 1998).

### **Experience by Policy Years**

In 1998, approximately half of all exposures by number and by amount are in durations one and two, compared to 41% for 1997 data. The mortality ratio by amount at duration 1 is 16% in 1997 and 24% in 1998.

## HIGHLIGHTS of the STUDY (1997 and 1998)

### **Experience by Classification Amount**

A total of 237 claims were reported in 1997. In 1998, 333 claims were reported. The majority of the claims occurred with amounts less than \$250,000.

Due to the volatility no clear trend is visible with the ratios by amount and by number in 1997 and 1998.

### **Experience by Smoking Status**

Approximately 90% of non-smokers comprise the overall total exposure by number and by amount. The 1997 non-smoker and smoker ratios by amount are both close to 19%. The 1998 non-smoker ratio by amount is 24%, and surprisingly the smoker ratio is less at 16%. However, since there are far fewer smoker exposures as compared to non-smokers, the validity of the result is weak. Historically, the smoker ratio is over 2 times the non-smoker ratio.

### **Experience by Underwriting Status**

The mortality ratio by amount for standard policies is 23% for 1997 data, and 22% for 1998 data. The exposure by number and by amount for standard policies is between four and five times larger than that of sub-standard policies.

## HIGHLIGHTS of the STUDY (1997 and 1998)

### **Experience by Reinsurance Status**

In 1997 and 1998, the exposure by number for automatic reinsurance is approximately 90% for both years. However, the 1997 and 1998 exposure by amount for automatic comprises on average 65% of the study.

The mortality ratio by amount for policies reinsured automatically is 20% (17% for facultative) for 1997 data, and 21% (28% for facultative) for 1998 data. In 1997 and 1998 no claims were from shopped business.

### **Experience by Plan of Insurance**

In this year's two year study, many (1997:48% by amount; 1998 : 44%) policies were classified as Unknown. Term insurance comprised of 32% of the exposure by amount total in 1997 (36% in 1998). The term mortality ratio by amount is 30% for 1997 data, and 40% for 1998 data.

## HIGHLIGHTS of the STUDY (1997 and 1998)

### **Overall Experience**

The experience underlying the years 1990 to 1998 is based on a total dollar exposure of \$15.5 billion. During those years \$188 million of claims was experienced. The total 1990 to 1998 exposure by number is 115,106 with 2,023 claims.

The overall mortality ratio by amounts for the 1990 to 1998 study is 36%.

The overall mortality ratio by number for the 1990 to 1998 study is 45%.

There is a decreasing trend in both ratios above when analyzed on each of a moving and period average basis.

### **Experience by Sex**

1997 and 1998 represent the first years in which females have surpassed males in exposure by amount and by number. In the early nineties, male comprised of close to two-thirds of all exposures.

The mortality ratio by amount for males is 35%. The ratio by number is 44%.

The mortality ratio by amount for females is 38%. The ratio by number is 46%.

Each five year rolling average, and each three year period average shows a decreasing mortality ratio by amount and by number for both sexes.

### **Experience by Issue Age**

Almost all of the claims occur between the ages of 70 and 79 since over 95% of the exposure by both number and by amount is in this age range. The mortality ratio by amount is 41% for issue ages 70 to 74, and 30% for issue ages 75 to 79. The ratio by number is 50% for issue ages 70 to 74, and 37% for issue ages 75 to 79.

### **Experience by Policy Years**

The mortality ratio by amount varies by policy year. When analyzed on a by number basis the ratios are fairly constant from one duration to the next. By amount, policy year one's ratio is 31%. Duration 6-10's ratio by amount is 44%.

## HIGHLIGHTS of the STUDY (1997 and 1998)

### **Experience by Classification Amount**

The lower bands show the highest mortality ratio by amount. By number, the band <\$100,000 represents almost 40% of all policies. Meanwhile, on an exposure amount basis, the band <\$100,000 represents less than 5% of all amounts. The two amount bands with the greatest exposure by amount are \$500,000 - \$999,999 (17% of all amounts) and \$1,000,000 - \$1,999,999 (23% of all amounts). The amount band of \$500,000- \$999,999 has an amount ratio of 38%, whereas the band \$1,000,000 - \$1,999,999 has an amount ratio of 30%.

The experience by classification amount in the study is calculated using one record per policy. If the experience was calculated using one record per life, several claims would move to higher classification amounts.

### **Experience by Smoking Status**

The overall mortality ratio by number for non-smoker is 37%. The ratio for smoker is 63%. The ratios by amount for non-smoker and smoker are 31% and 63%, respectively. The smoker (A/E) to non-smoker (A/E) ratio has been decreasing over the years according to this study's results.

### **Experience by Underwriting Status**

The mortality ratio by amount for standard policies is 37%. The ratio is 35% for substandard policies.

The mortality ratio by number for standard policies is 48%. The ratio is 38% for substandard policies.

81% of the exposure by amount is comprised of standard policies.

### **Experience by Reinsurance Status**

The mortality ratio by amount for policies reinsured automatically is 32%. Policies reinsured facultatively have a ratio of 39%. By number of exposures the ratios are 43% for automatic and 47% for facultative reinsurance.

Exposure amounts are \$7.0 billion (45%) for automatic reinsurance, and \$8.5 billion (55%) for facultative reinsurance. In this study's early years (1990-1992) facultative reinsurance was almost double the automatic exposure by amount. However, in the last few years, automatic reinsurance is now double the facultative exposure by amount.

### **Experience by Plan of Insurance**

By dollar amount, Whole Life, Term and UL mortality ratios are 28%, 46% and 35%, respectively.

By number, Whole Life, Term and UL mortality ratios are 50%, 33% and 50%, respectively.

### **Experience by Method of Reinsurance**

Overall, \$11.5 billion of exposure is YRT. This represents 81% of total exposure by amount. Coinsurance represents 12% of total exposures by amount, or \$1.7 billion. By amount, the YRT ratio is 32%. The coinsurance ratio is also 32%.

**TABLE 1**

**TRENDS IN MORTALITY RATIOS BY NUMBER - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	1990	1991	1992	1993 *	1994	1995	1996	1997	1998	1990-98
<b>SEX</b>										
MALE	72%	59%	46%	56%	48%	49%	51%	27%	29%	44%
FEMALE	63%	74%	61%	65%	57%	60%	61%	28%	33%	46%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>ISSUE AGES</b>										
70-74	82%	70%	56%	66%	52%	56%	67%	28%	34%	50%
75-79	44%	46%	42%	46%	50%	45%	39%	30%	24%	37%
80-84	55%	32%	11%	39%	35%	65%	26%	16%	13%	25%
85-89	98%	247%	0%	0%	0%	0%	0%	28%	109%	69%
90+	0%	81%	0%	0%	0%	0%	0%	0%	0%	23%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>POLICY YEARS</b>										
1	92%	67%	24%	45%	18%	37%	31%	33%	42%	40%
2	66%	75%	57%	86%	37%	40%	40%	39%	37%	48%
3	54%	44%	39%	32%	38%	56%	45%	40%	20%	38%
4	70%	82%	39%	43%	38%	47%	43%	13%	37%	45%
5	49%	50%	41%	29%	52%	51%	56%	31%	41%	44%
6-10	82%	60%	48%	56%	55%	57%	57%	24%	29%	45%
11-15	64%	56%	75%	82%	72%	55%	63%	28%	25%	44%
16+ **	68%	217%	254%	374%	61%	77%	131%	19%	20%	68%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>CLASSIFICATION AMOUNTS</b>										
< \$100,000	71%	62%	54%	60%	61%	51%	57%	36%	22%	45%
\$100,000 - \$249,999	83%	74%	46%	64%	46%	56%	48%	21%	37%	46%
\$250,000 - \$499,999	59%	43%	61%	62%	52%	52%	54%	20%	31%	42%
\$500,000 - \$999,999	40%	67%	22%	50%	43%	74%	70%	20%	45%	45%
\$1,000,000 - \$1,999,999	56%	34%	55%	36%	20%	37%	45%	28%	53%	40%
\$2,000,000 - \$2,999,999	0%	61%	77%	42%	13%	21%	32%	0%	69%	36%
\$3,000,000 - \$4,999,999	181%	33%	0%	39%	81%	60%	0%	0%	30%	36%
> \$5,000,000	0%	176%	0%	0%	41%	0%	111%	0%	13%	29%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>SMOKING STATUS</b>										
NON-SMOKER	67%	56%	35%	46%	46%	50%	49%	26%	27%	37%
SMOKER	114%	104%	67%	75%	79%	62%	63%	33%	42%	63%
AGGREGATE	64%	63%	82%	82%	55%	60%	75%	46%	74%	67%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>UNDERWRITING STATUS</b>										
STANDARD	70%	63%	53%	61%	52%	55%	50%	36%	37%	48%
SUBSTANDARD	71%	62%	45%	53%	47%	47%	60%	13%	20%	38%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>REINSURANCE STATUS</b>										
AUTOMATIC	76%	67%	58%	65%	55%	56%	63%	29%	30%	43%
FACULTATIVE	65%	58%	42%	52%	45%	48%	49%	21%	36%	47%
SHOPPED	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ALL	70%	62%	50%	58%	51%	53%	54%	27%	31%	45%
<b>PLAN OF INSURANCE***</b>										
WHOLE LIFE		62%	41%	55%	48%	54%	59%	5%	40%	50%
TERM		55%	43%	44%	33%	57%	45%	27%	30%	33%
UNIVERSAL LIFE		64%	55%	45%	65%	41%	39%	48%	40%	50%
UNKNOWN		66%	57%	94%	63%	69%	63%	27%	30%	51%
ALL		62%	50%	58%	51%	53%	54%	27%	31%	43%
<b>REINSURANCE METHOD***</b>										
COINSURANCE		111%	80%	91%	70%	50%	52%	38%	35%	58%
MODIFIED COINSURANCE		222%	130%	70%	161%	0%	137%	0%	0%	135%
Y.R.T.		57%	44%	54%	43%	56%	54%	6%	8%	31%
UNKNOWN		38%	54%	0%	118%	17%	0%	272%	324%	191%
ALL		62%	50%	58%	51%	53%	54%	27%	31%	43%

\* AN ERROR WAS FOUND IN THE 1993 DATA. THIS AFFECTED THE EXPECTED CLAIM BY NUMBER ONLY. THE PREVIOUS REPORTED MORTALITY RATIO FOR 1993 WAS 62.7%.

\*\* THE ULTIMATE EXPECTED MORTALITY RATES FOR DURATION 16+ WAS FOUND TO BE DEFICIENT FOR ALL STUDY YEARS PRIOR TO 1994, HENCE OVERSTATING THE MORTALITY RATIOS FOR THOSE YEARS. THE OVERSTATEMENT WAS UNDER 0.5% PER YEAR.

\*\*\* 1990 DATA WAS NOT AVAILABLE AND THEREFORE NOT INCLUDED IN THE AVERAGE

TABLE 2

## TRENDS IN EXPOSURE (BY NUMBER) - AGES 70 AND OVER

IN 000s

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1990-98
<b>SEX</b>										
MALE	4,788	6,296	6,665	5,247	6,426	7,154	3,320	10,172	12,972	63,039
FEMALE	2,673	3,675	4,141	3,418	4,405	5,290	2,857	10,405	15,203	52,067
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>ISSUE AGES</b>										
70-74	5,793	7,929	8,504	6,740	8,411	9,502	4,328	15,288	20,351	86,845
75-79	1,485	1,854	2,087	1,734	2,180	2,553	1,568	4,298	6,346	24,106
80-84	170	172	202	181	231	359	268	895	1,334	3,811
85-89	12	8	5	5	6	29	12	95	144	316
90+	1	8	7	5	3	2	2	1	1	29
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>POLICY YEARS</b>										
1	1,190	1,922	1,676	1,426	1,900	3,000	1,449	5,423	8,757	26,744
2	1,087	1,581	1,761	1,281	1,517	1,875	1,043	3,008	5,663	18,817
3	1,162	16	36	0	252,530	1,821	5,924	0	0	0
4	1,124	1,327	1,030	910	1,299	1,183	543	1,597	1,886	10,899
5	829	1,162	1,148	755	951	1,206	490	1,447	1,469	9,456
6-10	1,615	2,305	3,245	2,590	3,104	3,188	1,472	5,547	5,685	28,752
11-15	413	303	501	435	561	536	456	1,368	1,863	6,436
16+ **	41	49	95	83	118	95	48	106	140	775
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>CLASSIFICATION AMOUNTS</b>										
< \$100,000	3,662	4,383	4,224	2,905	3,164	3,845	2,040	7,999	13,074	45,295
\$100,000 - \$249,999	1,861	2,567	2,832	2,324	3,008	3,073	1,433	4,921	6,114	28,133
\$250,000 - \$499,999	706	1,167	1,377	1,286	1,690	2,004	835	3,058	3,555	15,678
\$500,000 - \$999,999	541	855	1,123	1,073	1,407	1,651	743	2,200	2,580	12,174
\$1,000,000 - \$1,999,999	417	636	832	735	1,042	1,250	675	1,413	1,569	8,569
\$2,000,000 - \$2,999,999	104	185	232	189	288	346	232	434	538	2,547
\$3,000,000 - \$4,999,999	95	103	106	87	129	155	122	335	462	1,593
\$5,000,000	76	74	80	67	104	119	97	217	284	1,118
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>SMOKING STATUS</b>										
NON-SMOKER	4,624	6,643	7,850	6,225	8,325	10,509	5,054	18,342	25,226	92,799
SMOKER	659	722	857	581	715	818	576	1,547	2,049	8,524
AGGREGATE	2,178	2,606	2,099	1,859	1,791	1,117	546	688	899	13,784
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>UNDERWRITING STATUS</b>										
STANDARD	5,450	7,404	8,319	6,593	8,523	9,995	4,494	16,796	23,048	90,622
SUBSTANDARD	2,012	2,567	2,487	2,072	2,308	2,449	1,682	3,781	5,127	24,484
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>REINSURANCE STATUS</b>										
AUTOMATIC	4,126	5,613	6,274	5,014	6,898	8,562	3,348	18,065	25,499	83,398
FACULTATIVE	3,293	4,341	4,515	3,651	3,933	3,881	2,828	2,513	2,676	31,633
SHOPPED	42	16	16	0	0	0	0	0	0	75
ALL	7,461	9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	115,106
<b>PLAN OF INSURANCE *</b>										
WHOLE LIFE		2,105	2,398	1,320	1,503	1,641	1,306	332	362	10,967
TERM		2,089	1,750	2,719	3,772	2,439	1,001	11,636	18,601	44,007
UNIVERSAL LIFE		2,368	3,177	2,237	2,641	5,435	747	1,293	1,536	19,433
UNKNOWN		3,409	3,481	2,388	2,915	2,929	3,123	7,317	7,676	33,239
ALL		9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	107,645
<b>REINSURANCE METHOD*</b>										
COINSURANCE		1,077	1,352	1,149	1,461	2,469	703	3,373	6,080	17,665
MODIFIED COINSURANCE		48	54	17	11	8	6	2	1	148
Y.R.T.		8,300	8,450	7,498	8,784	9,359	5,467	15,717	20,538	84,113
UNKNOWN		545	948	0	575	608	0	1,486	1,556	5,719
ALL		9,971	10,805	8,665	10,831	12,444	6,176	20,578	28,175	107,645
<b>DEATHS</b>										
	206	225	213	200	222	243	144	237	333	2,023

\* 1990 WAS NOT AVAILABLE AND THEREFORE NOT INCLUDED IN THE TOTAL

TABLE 3

## TRENDS IN MORTALITY RATIOS BY AMOUNT (000's) - AGES 70 AND OVER

## MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1990-98
<b>SEX</b>										
MALE	35%	63%	40%	56%	28%	28%	30%	20%	22%	35%
FEMALE	68%	85%	35%	31%	47%	32%	38%	17%	27%	38%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>ISSUE AGES</b>										
70-74	42%	83%	44%	54%	31%	33%	48%	14%	27%	41%
75-79	30%	50%	34%	42%	39%	13%	15%	30%	26%	30%
80-84	122%	10%	2%	7%	46%	72%	7%	4%	5%	25%
85-89	1%	2%	0%	0%	0%	0%	0%	51%	20%	18%
90+	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>POLICY YEARS</b>										
1	120%	57%	9%	38%	11%	17%	22%	16%	24%	31%
2	36%	160%	28%	97%	30%	7%	11%	7%	9%	39%
3	10%	38%	32%	13%	18%	24%	26%	13%	5%	20%
4	24%	46%	7%	40%	8%	10%	59%	2%	40%	25%
5	35%	17%	29%	15%	28%	30%	34%	12%	28%	26%
6-10	44%	79%	56%	43%	54%	36%	21%	32%	30%	44%
11-15	40%	31%	43%	100%	38%	77%	72%	25%	35%	48%
16+ **	34%	100%	107%	660%	85%	46%	274%	3%	15%	58%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>CLASSIFICATION AMOUNTS</b>										
< \$100,000	50%	43%	36%	38%	54%	45%	45%	65%	18%	43%
\$100,000 - \$249,999	64%	60%	43%	51%	40%	43%	37%	32%	26%	43%
\$250,000 - \$499,999	36%	41%	52%	53%	50%	47%	53%	25%	23%	41%
\$500,000 - \$999,999	27%	41%	30%	59%	45%	52%	62%	14%	20%	38%
\$1,000,000 - \$1,999,999	53%	34%	49%	37%	20%	14%	34%	30%	20%	30%
\$2,000,000 - \$2,999,999	0%	53%	81%	59%	27%	14%	7%	0%	61%	34%
\$3,000,000 - \$4,999,999	124%	101%	0%	69%	45%	25%	0%	0%	32%	35%
> \$5,000,000	0%	258%	0%	0%	4%	0%	8%	0%	1%	27%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>SMOKING STATUS</b>										
NON-SMOKER	48%	57%	31%	37%	32%	25%	31%	19%	24%	31%
SMOKER	34%	152%	70%	102%	75%	63%	26%	19%	16%	63%
AGGREGATE	39%	80%	55%	77%	34%	50%	59%	19%	37%	53%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>UNDERWRITING STATUS</b>										
STANDARD	42%	81%	36%	43%	38%	29%	33%	23%	22%	37%
SUBSTANDARD	47%	47%	43%	57%	26%	30%	33%	8%	29%	35%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>REINSURANCE STATUS</b>										
AUTOMATIC	56%	21%	39%	38%	45%	35%	56%	20%	21%	32%
FACULTATIVE	38%	100%	38%	52%	29%	26%	25%	17%	28%	39%
SHOPPED	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ALL	44%	69%	38%	47%	34%	29%	33%	19%	24%	36%
<b>PLAN OF INSURANCE*</b>										
WHOLE LIFE		37%	20%	53%	34%	25%	28%	0%	27%	28%
TERM		140%	46%	39%	23%	39%	49%	30%	40%	46%
UNIVERSAL LIFE		33%	52%	53%	46%	21%	24%	40%	12%	35%
UNKNOWN		73%	39%	45%	37%	46%	36%	6%	9%	30%
ALL		69%	38%	47%	34%	29%	33%	19%	24%	35%
<b>REINSURANCE METHOD*</b>										
COINSURANCE		148%	16%	27%	19%	18%	36%	3%	12%	32%
MODIFIED COINSURANCE		17%	108%	12%	34%	0%	573%	0%	0%	98%
Y.R.T.		60%	40%	50%	31%	32%	31%	11%	15%	32%
UNKNOWN		76%	69%	0%	197%	37%	0%	76%	83%	85%
ALL		69%	38%	47%	34%	29%	33%	19%	24%	35%

\* 1990 DATA WAS NOT AVAILABLE AND THEREFORE WAS NOT INCLUDED IN THE AVERAGE

\*\* THE ULTIMATE EXPECTED MORTALITY RATES FOR DURATION 16+ WAS FOUND TO BE DEFICIENT FOR ALL STUDY YEARS PRIOR TO 1994, HENCE OVERSTATING THE MORTALITY RATIOS FOR THOSE YEARS. THE OVERSTATEMENT WAS UNDER 0.5% PER YEAR.

TABLE 4

## TRENDS BY AMOUNT (000's) - AGES 70 AND OVER

AMOUNT IN 000s

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1990-98
<b>SEX</b>										
MALE	753,347	1,022,948	1,018,714	661,186	965,263	1,169,967	729,907	855,966	1,039,885	8,217,181
FEMALE	502,654	737,437	840,656	594,499	779,986	873,097	606,892	1,043,737	1,266,431	7,245,389
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>ISSUE AGES</b>										
70-74	990,950	1,398,418	1,454,798	961,044	1,315,979	1,472,157	948,926	1,292,919	1,514,759	11,349,950
75-79	228,516	326,596	361,872	261,270	384,100	492,545	326,321	481,416	633,467	3,496,103
80-84	35,277	34,244	41,702	31,822	43,625	75,717	58,637	116,255	144,166	581,446
85-89	1,158	813	494	1,313	1,468	2,404	2,435	8,863	13,674	32,622
90+	100	313	503	236	76	240	480	250	250	2,448
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>POLICY YEARS</b>										
1	330,653	368,463	300,893	252,879	357,921	492,784	295,979	549,551	557,038	3,506,162
2	204,297	387,218	356,474	221,457	295,502	339,566	238,585	430,254	496,681	2,970,035
3	188,997	238,142	311,651	177,277	252,530	280,524	185,592	211,641	404,619	2,250,973
4	143,771	211,599	186,929	142,817	208,194	240,446	134,863	150,248	195,927	1,614,796
5	109,540	175,838	178,607	110,885	166,699	212,775	128,507	117,995	141,491	1,342,337
6-10	243,993	358,739	463,202	314,982	406,114	416,820	294,694	354,832	404,466	3,257,843
11-15	33,385	17,554	57,266	33,022	55,449	56,593	56,084	78,297	95,110	482,761
16+ **	1,364	2,832	4,347	2,365	2,839	3,555	2,494	6,884	10,984	37,665
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>CLASSIFICATION AMOUNTS</b>										
< \$100,000	82,149	111,750	94,626	64,049	65,126	66,623	41,841	82,034	112,805	721,002
\$100,000 - \$249,999	160,295	208,177	195,156	146,883	176,713	167,541	102,052	171,755	213,114	1,541,686
\$250,000 - \$499,999	136,581	198,680	195,980	152,248	201,471	222,085	137,074	213,376	252,868	1,710,363
\$500,000 - \$999,999	208,406	294,706	327,088	246,730	318,239	381,619	229,869	316,468	373,347	2,696,473
\$1,000,000 - \$1,999,999	258,000	386,361	444,085	307,558	444,734	547,486	322,577	386,015	447,136	3,543,952
\$2,000,000 - \$2,999,999	99,085	184,459	214,365	130,270	208,984	283,813	182,390	225,173	270,639	1,799,178
\$3,000,000 - \$4,999,999	125,714	171,868	154,901	96,385	136,853	168,426	138,891	232,115	297,505	1,522,656
> \$5,000,000	185,771	204,384	233,169	111,562	193,130	205,470	182,105	272,768	338,902	1,927,260
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>SMOKING STATUS</b>										
NON-SMOKER	865,461	1,304,307	1,506,882	1,034,241	1,509,470	1,780,683	1,221,623	1,737,894	2,107,011	13,067,572
SMOKER	88,462	112,308	130,689	58,255	81,616	80,127	49,377	87,147	101,630	789,611
AGGREGATE	302,079	343,770	221,798	163,190	154,162	182,254	65,799	74,662	97,675	1,605,388
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>UNDERWRITING STATUS</b>										
STANDARD	960,647	1,383,730	1,475,225	992,790	1,375,641	1,666,694	1,030,071	1,620,591	1,960,766	12,466,156
SUBSTANDARD	295,354	376,655	384,144	262,896	369,607	376,369	306,728	279,112	345,549	2,996,415
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>REINSURANCE STATUS</b>										
AUTOMATIC	452,799	698,642	681,279	435,783	582,882	912,453	395,916	1,220,193	1,578,254	6,958,201
FACULTATIVE	783,535	1,059,092	1,175,684	819,902	1,162,367	1,130,610	940,883	679,510	728,062	8,479,645
SHOPPED	19,668	2,651	2,406	0	0	0	-	0	0	24,724
ALL	1,256,001	1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	15,462,570
<b>PLAN OF INSURANCE</b>										
WHOLE LIFE		430,067	503,946	222,079	410,076	456,840	429,340	164,540	189,013	2,805,903
TERM		352,997	402,005	366,652	512,070	341,591	198,759	616,891	842,719	3,633,685
UNIVERSAL LIFE		386,656	629,723	390,167	465,230	874,340	282,057	211,646	265,886	3,505,705
UNKNOWN		590,665	323,695	276,787	357,872	370,292	426,642	906,626	1,008,697	4,261,277
ALL		1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	14,206,569
<b>REINSURANCE METHOD</b>										
COINSURANCE		199,221	219,099	133,340	169,906	436,585	102,690	182,834	252,699	1,696,376
MODIFIED COINSURANCE		7,085	6,967	1,929	1,380	1,397	977	52	50	19,837
Y.R.T.		1,506,439	1,586,112	1,120,417	1,537,327	1,545,146	1,233,131	1,343,231	1,655,234	11,527,039
UNKNOWN		47,640	47,191	0	36,634	59,935	-	373,586	398,332	963,318
ALL		1,760,385	1,859,370	1,255,685	1,745,248	2,043,063	1,336,798	1,899,703	2,306,316	14,206,569
<b>DEATHS CLAIMS in \$000s</b>										
	17,472	37,439	24,402	20,012	20,580	20,158	16,224	11,883	19,418	187,589

TABLE 5

## 1990 -1998 FIVE YEAR ROLLING AVERAGE EXPERIENCE

## MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	By Number					By Dollar Exposure				
	1990-1994	1991-1995	1992-1996	1993-1997	1994-1998	1990-1994	1991-1995	1992-1996	1993-1997	1994-1998
<b>SEX</b>										
MALE	55%	51%	50%	43%	37%	44%	42%	35%	31%	26%
FEMALE	63%	62%	60%	47%	40%	51%	44%	37%	32%	30%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>ISSUE AGES</b>										
70-74	64%	60%	58%	48%	41%	51%	48%	41%	35%	30%
75-79	46%	46%	45%	40%	34%	39%	33%	27%	27%	25%
80-84	33%	39%	38%	31%	23%	36%	35%	33%	28%	22%
85-89	85%	42%	0%	17%	65%	1%	0%	0%	23%	23%
90+	25%	26%	0%	0%	0%	1%	1%	0%	0%	0%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>POLICY YEARS</b>										
1	46%	38%	31%	33%	36%	45%	25%	18%	19%	18%
2	64%	58%	51%	46%	38%	74%	63%	30%	24%	11%
3	41%	42%	42%	42%	36%	24%	26%	23%	19%	16%
4	56%	51%	42%	34%	33%	25%	21%	21%	20%	22%
5	45%	45%	45%	42%	44%	25%	25%	28%	25%	27%
6-10	58%	55%	54%	44%	38%	56%	54%	43%	38%	35%
11-15	71%	68%	69%	49%	37%	50%	58%	64%	56%	46%
16+	118%	112%	111%	75%	48%	132%	115%	152%	88%	43%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>CLASSIFICATION AMOUNTS</b>										
<\$100,000	61%	57%	56%	49%	38%	44%	43%	43%	50%	44%
\$100,000 - \$249,999	60%	56%	52%	42%	38%	51%	47%	43%	40%	35%
\$250,000 - \$499,999	55%	54%	56%	42%	36%	47%	49%	51%	45%	38%
\$500,000 - \$999,999	43%	52%	52%	46%	45%	41%	45%	49%	46%	38%
\$1,000,000 - \$1,999,999	38%	36%	38%	32%	38%	38%	30%	30%	26%	23%
\$2,000,000 - \$2,999,999	41%	39%	34%	18%	30%	49%	43%	34%	17%	23%
\$3,000,000 - \$4,999,999	63%	44%	38%	28%	28%	63%	44%	23%	20%	20%
> \$5,000,000	42%	37%	34%	27%	24%	55%	53%	2%	2%	2%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>SMOKING STATUS</b>										
NON-SMOKER	48%	46%	45%	39%	34%	39%	35%	30%	28%	25%
SMOKER	86%	77%	69%	57%	50%	88%	92%	68%	55%	38%
AGGREGATE	69%	69%	71%	64%	61%	57%	62%	55%	49%	40%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>UNDERWRITING STATUS</b>										
STANDARD	58%	56%	54%	48%	43%	48%	44%	35%	32%	28%
SUBSTANDARD	55%	51%	50%	37%	29%	43%	39%	37%	29%	25%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>REINSURANCE STATUS</b>										
AUTOMATIC	63%	60%	59%	44%	37%	38%	35%	41%	35%	30%
FACULTATIVE	52%	49%	47%	44%	41%	50%	46%	33%	29%	26%
SHOPPED	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ALL	57%	54%	53%	44%	38%	46%	42%	36%	31%	27%
<b>PLAN OF INSURANCE</b>										
WHOLE LIFE	51%	52%	50%	51%	49%	33%	31%	29%	28%	25%
TERM	42%	44%	43%	33%	31%	57%	53%	37%	34%	35%
UNIVERSAL LIFE	57%	52%	49%	48%	47%	47%	39%	37%	34%	28%
UNKNOWN	68%	68%	67%	55%	43%	51%	50%	40%	28%	20%
ALL	55%	54%	53%	44%	38%	47%	42%	36%	31%	27%
<b>REINSURANCE METHOD</b>										
COINSURANCE	86%	75%	68%	57%	45%	54%	40%	21%	19%	16%
MODIFIED COINSURANCE	152%	141%	113%	91%	95%	49%	42%	126%	133%	177%
Y.R.T.	49%	50%	50%	35%	23%	44%	41%	36%	30%	24%
UNKNOWN	67%	56%	60%	184%	240%	118%	103%	112%	91%	87%
ALL	55%	54%	53%	44%	38%	47%	42%	36%	31%	27%

TABLE 6

## 1990 -1998 THREE YEAR PERIOD AVERAGE EXPERIENCE

## MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	By Number			By Dollar Exposure		
	1990-1992	1993-1995	1996-1998	1990-1992	1993-1995	1996-1998
<b>SEX</b>						
MALE	57%	51%	31%	46.7%	35%	24%
FEMALE	65%	60%	34%	59.5%	37%	26%
ALL	60%	53%	32%	50.3%	36%	25%
<b>ISSUE AGES</b>						
70-74	68%	57%	35%	56.5%	38%	28%
75-79	44%	47%	28%	38.5%	29%	25%
80-84	31%	49%	15%	39.9%	51%	5%
85-89	118%	0%	74%	1.3%	0%	27%
90+	42%	0%	0%	0.8%	0%	0%
ALL	60%	53%	32%	50.3%	36%	25%
<b>POLICY YEARS</b>						
1	58%	33%	38%	62.3%	19%	21%
2	66%	52%	38%	82.3%	37%	8%
3	45%	42%	31%	28.2%	19%	13%
4	66%	42%	28%	26.4%	17%	32%
5	47%	45%	39%	25.9%	26%	25%
6-10	60%	56%	30%	61.0%	44%	28%
11-15	66%	69%	30%	39.8%	67%	40%
16+	142%	94%	36%	70.6%	117%	38%
ALL	60%	53%	32%	50.3%	36%	25%
<b>CLASSIFICATION AMOUNTS</b>						
<\$100,000	62%	57%	31%	42.9%	46%	40%
\$100,000 - \$249,999	65%	54%	32%	55.1%	44%	30%
\$250,000 - \$499,999	55%	54%	29%	43.7%	50%	31%
\$500,000 - \$999,999	41%	57%	38%	32.8%	52%	29%
\$1,000,000 - \$1,999,999	49%	31%	42%	44.8%	22%	27%
\$2,000,000 - \$2,999,999	56%	23%	37%	55.7%	27%	26%
\$3,000,000 - \$4,999,999	63%	62%	15%	67.1%	41%	15%
> \$5,000,000	53%	15%	26%	79.8%	1%	2%
ALL	60%	53%	32%	50.3%	36%	25%
<b>SMOKING STATUS</b>						
NON-SMOKER	50%	48%	29%	43.4%	30%	24%
SMOKER	92%	72%	42%	88.4%	78%	19%
AGGREGATE	69%	66%	65%	58.0%	54%	38%
ALL	60%	53%	32%	50.3%	36%	25%
<b>UNDERWRITING STATUS</b>						
STANDARD	60%	56%	38%	52.7%	36%	25%
SUBSTANDARD	58%	49%	23%	45.4%	35%	24%
ALL	60%	53%	32%	50.3%	36%	25%
<b>REINSURANCE STATUS</b>						
AUTOMATIC	66%	58%	31%	36.3%	39%	25%
FACULTATIVE	54%	48%	36%	58.4%	34%	24%
SHOPPED	0%	0%	0%	0%	0%	0%
ALL	60%	53%	32%	50.3%	36%	25%
<b>PLAN OF INSURANCE</b>						
WHOLE LIFE	51%	53%	45%	27.4%	35%	21%
TERM	49%	42%	29%	87.3%	32%	38%
UNIVERSAL LIFE	59%	49%	43%	45.1%	35%	24%
UNKNOWN	61%	74%	34%	59.4%	42%	13%
ALL	56%	53%	32%	52.6%	36%	25%
<b>REINSURANCE METHOD</b>						
COINSURANCE	93%	66%	38%	76.8%	20%	14%
MODIFIED COINSURANCE	168%	88%	85%	63.9%	15%	516%
Y.R.T.	50%	51%	13%	49.2%	36%	18%
UNKNOWN	49%	65%	299%	72.5%	135%	80%
ALL	56%	53%	32%	52.6%	36%	25%

TABLE 7

## 1997 EXPERIENCE BY NUMBER - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b>SEX</b>				
MALE	10,172	143	529	27%
FEMALE	10,405	94	334	28%
ALL	20,578	237	863	27%
<b>ISSUE AGES</b>				
70-74	15,288	151	542	28%
75-79	4,298	72	242	30%
80-84	895	11	68	16%
85-89	95	3	11	28%
90+	1	0	0	0%
ALL	20,578	237	863	27%
<b>POLICY YEARS</b>				
1	5,423	25	76	33%
2	3,008	23	59	39%
3	2,080	22	55	40%
4	1,597	7	53	13%
5	1,447	17	55	31%
6-10	5,547	89	367	24%
11-15	1,368	50	177	28%
16+	106	4	21	19%
ALL	20,578	237	863	27%
<b>CLASSIFICATION AMOUNTS</b>				
< \$100,000	7,999	143	399	36%
\$100,000 - \$249,999	4,921	45	212	21%
\$250,000 - \$499,999	3,058	22	108	20%
\$500,000 - \$999,999	2,200	15	75	20%
\$1,000,000 - \$1,999,999	1,413	12	43	28%
\$2,000,000 - \$2,999,999	434	0	12	0%
\$3,000,000 - \$4,999,999	335	0	10	0%
\$5,000,000	217	0	5	0%
ALL	20,578	237	863	27%
<b>SMOKING STATUS</b>				
NON-SMOKER	18,342	192	747.20	26%
SMOKER	1,547	21	63.56	33%
AGGREGATE	688	24	52.24	46%
ALL	20,578	237	863.00	27%
<b>UNDERWRITING STATUS</b>				
STANDARD	16,796	195	536.80	36%
SUBSTANDARD	3,781	42	326.19	13%
ALL	20,578	237	863.00	27%
<b>REINSURANCE STATUS</b>				
AUTOMATIC	18,065	209	729.53	29%
FACULTATIVE	2,513	28	133.47	21%
SHOPPED	0	0	0.00	0%
ALL	20,578	237	863.00	27%
<b>PLAN OF INSURANCE</b>				
WHOLE LIFE	332	1	21.35	5%
TERM	11,636	148	558.09	27%
UNIVERSAL LIFE	1,293	27	56.39	48%
UNKNOWN	7,317	61	227.17	27%
ALL	20,578	237	863.00	27%
<b>REINSURANCE METHOD</b>				
COINSURANCE	3,373	32	83.36	38%
MODIFIED COINSURANCE	2	0	0.27	0%
Y.R.T.	15,717	44	720.12	6%
UNKNOWN	1,486	161	59.24	272%
ALL	20,578	237	863.00	27%

TABLE 8

## 1998 EXPERIENCE BY NUMBER - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b>SEX</b>				
MALE	12,972	188	643	29%
FEMALE	15,203	145	445	33%
ALL	28,175	333	1,088	31%
<b>ISSUE AGES</b>				
70-74	20,351	226	659	34%
75-79	6,346	76	315	24%
80-84	1,334	12	96	13%
85-89	144	19	17	109%
90+	1	0	0	0%
ALL	28,175	333	1,088	31%
<b>POLICY YEARS</b>				
1	8,757	56	132	42%
2	5,663	40	109	37%
3	2,712	14	71	20%
4	1,886	23	62	37%
5	1,469	24	58	41%
6-10	5,685	108	378	29%
11-15	1,863	62	248	25%
16+	140	6	30	20%
ALL	28,175	333	1,088	31%
<b>CLASSIFICATION AMOUNTS</b>				
< \$100,000	13,074	115	525	22%
\$100,000 - \$249,999	6,114	93	253	37%
\$250,000 - \$499,999	3,555	41	131	31%
\$500,000 - \$999,999	2,580	41	91	45%
\$1,000,000 - \$1,999,999	1,569	28	52	53%
\$2,000,000 - \$2,999,999	538	10	15	69%
\$3,000,000 - \$4,999,999	462	4	14	30%
\$5,000,000	284	1	7	13%
ALL	28,175	333	1,088	31%
<b>SMOKING STATUS</b>				
NON-SMOKER	25,226	260	957	27%
SMOKER	2,049	31	74	42%
AGGREGATE	899	42	57	74%
ALL	28,175	333	1,088	31%
<b>UNDERWRITING STATUS</b>				
STANDARD	23,048	252	687	37%
SUBSTANDARD	5,127	81	401	20%
ALL	28,175	333	1,088	31%
<b>REINSURANCE STATUS</b>				
AUTOMATIC	25,499	281	943	30%
FACULTATIVE	2,676	52	145	36%
SHOPPED	0	0	0	0%
ALL	28,175	333	1,088	31%
<b>PLAN OF INSURANCE</b>				
WHOLE LIFE	362	10	25	40%
TERM	18,601	225	760	30%
UNIVERSAL LIFE	1,536	27	67	40%
UNKNOWN	7,676	71	236	30%
ALL	28,175	333	1,088	31%
<b>REINSURANCE METHOD</b>				
COINSURANCE	6,080	44	127	35%
MODIFIED COINSURANCE	1	0	0	0%
Y.R.T.	20,538	71	893	8%
UNKNOWN	1,556	218	67	324%
ALL	28,175	333	1,088	31%

TABLE 9

## 1997 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b>SEX</b>				
MALE	855,966	7,056	35,595	20%
FEMALE	1,043,737	4,827	27,613	17%
ALL	1,899,703	11,883	63,207	19%
<b>ISSUE AGES</b>				
70-74	1,292,919	4,798	34,131	14%
75-79	481,416	6,410	21,174	30%
80-84	116,255	252	7,023	4%
85-89	8,863	423	828	51%
90+	250	0	51	0%
ALL	1,899,703	11,883	63,207	19%
<b>POLICY YEARS</b>				
1	549,551	1,270	8,167	16%
2	430,254	572	8,684	7%
3	211,641	812	6,072	13%
4	150,248	103	5,972	2%
5	117,995	587	4,763	12%
6-10	354,832	6,446	20,215	32%
11-15	78,297	2,063	8,219	25%
16+	6,884	29	1,116	3%
ALL	1,899,703	11,883	63,207	19%
<b>CLASSIFICATION AMOUNTS</b>				
< \$100,000	82,034	2,253	3,479	65%
\$100,000 - \$249,999	171,755	2,329	7,356	32%
\$250,000 - \$499,999	213,376	1,938	7,785	25%
\$500,000 - \$999,999	316,468	1,533	11,006	14%
\$1,000,000 - \$1,999,999	386,015	3,831	12,586	30%
\$2,000,000 - \$2,999,999	225,173	0	6,465	0%
\$3,000,000 - \$4,999,999	232,115	0	7,597	0%
\$5,000,000	272,768	0	6,934	0%
ALL	1,899,703	11,883	63,207	19%
<b>SMOKING STATUS</b>				
NON-SMOKER	1,737,894	10,371	55,236	19%
SMOKER	87,147	664	3,412	19%
AGGREGATE	74,662	849	4,559	19%
ALL	1,899,703	11,883	63,207	19%
<b>UNDERWRITING STATUS</b>				
STANDARD	1,620,591	10,606	46,291	23%
SUBSTANDARD	279,112	1,277	16,916	8%
ALL	1,899,703	11,883	63,207	19%
<b>REINSURANCE STATUS</b>				
AUTOMATIC	1,220,193	6,791	33,638	20%
FACULTATIVE	679,510	5,093	29,569	17%
SHOPPED	0	0	0	0%
ALL	1,899,703	11,883	63,207	19%
<b>PLAN OF INSURANCE</b>				
WHOLE LIFE	164,540	6	8,480	0%
TERM	616,891	7,277	23,946	30%
UNIVERSAL LIFE	211,646	3,354	8,467	40%
UNKNOWN	906,626	1,247	22,315	6%
ALL	1,899,703	11,883	63,207	19%
<b>REINSURANCE METHOD</b>				
COINSURANCE	182,834	151	4,965	3%
MODIFIED COINSURANCE	52	0	8	0%
Y.R.T.	1,343,231	5,414	49,916	11%
UNKNOWN	373,586	6,318	8,318	76%
ALL	1,899,703	11,883	63,207	19%

TABLE 10

## 1998 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b>SEX</b>				
MALE	1,039,885	10,019	45,218	22%
FEMALE	1,266,431	9,399	35,392	27%
ALL	2,306,316	19,418	80,610	24%
<b>ISSUE AGES</b>				
70-74	1,514,759	11,296	41,221	27%
75-79	633,467	7,326	28,255	26%
80-84	144,166	514	9,657	5%
85-89	13,674	282	1,421	20%
90+	250	0	57	0%
ALL	2,306,316	19,418	80,610	24%
<b>POLICY YEARS</b>				
1	557,038	2,435	10,046	24%
2	496,681	893	10,379	9%
3	404,619	532	10,839	5%
4	195,927	2,801	6,964	40%
5	141,491	1,867	6,702	28%
6-10	404,466	7,095	23,674	30%
11-15	95,110	3,504	10,062	35%
16+	10,984	292	1,945	15%
ALL	2,306,316	19,418	80,610	24%
<b>CLASSIFICATION AMOUNTS</b>				
< \$100,000	112,805	796	4,389	18%
\$100,000 - \$249,999	213,114	2,261	8,793	26%
\$250,000 - \$499,999	252,868	2,284	9,866	23%
\$500,000 - \$999,999	373,347	2,695	13,805	20%
\$1,000,000 - \$1,999,999	447,136	3,171	16,100	20%
\$2,000,000 - \$2,999,999	270,639	4,930	8,049	61%
\$3,000,000 - \$4,999,999	297,505	3,214	10,137	32%
\$5,000,000	338,902	67	9,471	1%
ALL	2,306,316	19,418	80,610	24%
<b>SMOKING STATUS</b>				
NON-SMOKER	2,107,011	16,744	71,172	24%
SMOKER	101,630	620	3,948	16%
AGGREGATE	97,675	2,054	5,490	37%
ALL	2,306,316	19,418	80,610	24%
<b>UNDERWRITING STATUS</b>				
STANDARD	1,960,766	13,129	59,143	22%
SUBSTANDARD	345,549	6,289	21,467	29%
ALL	2,306,316	19,418	80,610	24%
<b>REINSURANCE STATUS</b>				
AUTOMATIC	1,578,254	10,038	47,206	21%
FACULTATIVE	728,062	9,380	33,404	28%
SHOPPED	0	0	0	0%
ALL	2,306,316	19,418	80,610	24%
<b>PLAN OF INSURANCE</b>				
WHOLE LIFE	189,013	2,802	10,204	27%
TERM	842,719	12,881	32,151	40%
UNIVERSAL LIFE	265,886	1,232	10,637	12%
UNKNOWN	1,008,697	2,503	27,618	9%
ALL	2,306,316	19,418	80,610	24%
<b>REINSURANCE METHOD</b>				
COINSURANCE	252,699	827	6,920	12%
MODIFIED COINSURANCE	50	0	9	0%
Y.R.T.	1,655,234	9,393	62,572	15%
UNKNOWN	398,332	9,198	11,109	83%
ALL	2,306,316	19,418	80,610	24%

TABLE 11

## 1990 - 1998 EXPERIENCE BY NUMBER - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b>SEX</b>				
MALE	63,039	1,324	3,024	44%
FEMALE	52,067	699	1,518	46%
ALL	115,106	2,023	4,542	45%
<b>ISSUE AGES</b>				
70-74	86,845	1,425	2,868	50%
75-79	24,106	495	1,332	37%
80-84	3,811	74	294	25%
85-89	316	27	39	69%
90+	29	2	9	23%
ALL	115,106	2,023	4,542	45%
<b>POLICY YEARS</b>				
1	26,744	160	396	40%
2	18,817	181	377	48%
3	13,228	137	356	38%
4	10,899	164	366	45%
5	9,456	165	379	44%
6-10	28,752	804	1,797	45%
11-15	6,436	337	760	44%
16+	775	75	110	68%
ALL	115,106	2,023	4,542	45%
<b>CLASSIFICATION AMOUNTS</b>				
< \$100,000	45,295	956	2,102	45%
\$100,000 - \$249,999	28,133	519	1,120	46%
\$250,000 - \$499,999	15,678	219	525	42%
\$500,000 - \$999,999	12,174	178	398	45%
\$1,000,000 - \$1,999,999	8,569	101	253	40%
\$2,000,000 - \$2,999,999	2,547	25	69	36%
\$3,000,000 - \$4,999,999	1,593	17	48	36%
\$5,000,000	1,118	8	28	29%
ALL	115,106	2,023	4,542	45%
<b>SMOKING STATUS</b>				
NON-SMOKER	92,799	1,280	3,415	37%
SMOKER	8,524	218	345	63%
AGGREGATE	13,784	525	781	67%
ALL	115,106	2,023	4,542	45%
<b>UNDERWRITING STATUS</b>				
STANDARD	90,622	1,396	2,885	48%
SUBSTANDARD	24,484	627	1,656	38%
ALL	115,106	2,023	4,542	45%
<b>REINSURANCE STATUS</b>				
AUTOMATIC	83,398	1,280	2,954	43%
FACULTATIVE	31,633	743	1,585	47%
SHOPPED	75	0	3	0%
ALL	115,106	2,023	4,542	45%
<b>PLAN OF INSURANCE*</b>				
WHOLE LIFE	10,967	289	574	50%
TERM	44,007	610	1,851	33%
UNIVERSAL LIFE	19,433	361	726	50%
UNKNOWN	33,239	557	1,096	51%
ALL	107,645	1,817	4,247	43%
<b>REINSURANCE METHOD*</b>				
COINSURANCE	17,665	286	497	58%
MODIFIED COINSURANCE	148	15	11	135%
Y.R.T.	84,113	1,081	3,511	31%
UNKNOWN	5,719	435	227	191%
ALL	107,645	1,817	4,247	43%

\* 1990 DATA WAS NOT AVAILABLE AND THEREFORE NOT INCLUDED.

TABLE 12

## 1990 - 1998 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b>SEX</b>				
MALE	8,217,181	119,964	341,779	35%
FEMALE	7,245,389	67,625	180,153	38%
ALL	15,462,570	187,589	521,931	36%
<b>ISSUE AGES</b>				
70-74	11,349,950	127,080	310,082	41%
75-79	3,496,103	49,428	166,608	30%
80-84	581,446	10,366	40,729	25%
85-89	32,622	713	3,869	18%
90+	2,448	2	644	0%
ALL	15,462,570	187,589	521,931	36%
<b>POLICY YEARS</b>				
1	3,506,162	16,486	53,599	31%
2	2,970,035	23,393	60,430	39%
3	2,250,973	11,810	60,491	20%
4	1,614,796	13,491	54,244	25%
5	1,342,337	14,007	54,326	26%
6-10	3,257,843	82,608	186,215	44%
11-15	482,761	22,969	47,717	48%
16+	37,665	2,824	4,910	58%
ALL	15,462,570	187,588	521,931	36%
<b>CLASSIFICATION AMOUNTS</b>				
< \$100,000	721,002	13,721	31,920	43%
\$100,000 - \$249,999	1,541,686	27,602	63,656	43%
\$250,000 - \$499,999	1,710,363	25,680	62,562	41%
\$500,000 - \$999,999	2,696,473	37,052	96,855	38%
\$1,000,000 - \$1,999,999	3,543,952	35,115	115,313	30%
\$2,000,000 - \$2,999,999	1,799,178	18,082	52,839	34%
\$3,000,000 - \$4,999,999	1,522,656	16,043	45,359	35%
\$5,000,000	1,927,260	14,295	53,428	27%
ALL	15,462,570	187,589	521,931	36%
<b>SMOKING STATUS</b>				
NON-SMOKER	13,067,572	128,901	416,404	31%
SMOKER	789,611	17,980	28,608	63%
AGGREGATE	1,605,388	40,707	76,920	53%
ALL	15,462,570	187,589	521,931	36%
<b>UNDERWRITING STATUS</b>				
STANDARD	12,466,156	133,601	365,787	37%
SUBSTANDARD	2,996,415	53,988	156,144	35%
ALL	15,462,570	187,589	521,931	36%
<b>REINSURANCE STATUS</b>				
AUTOMATIC	6,958,201	66,287	206,471	32%
FACULTATIVE	8,479,645	121,302	314,637	39%
SHOPPED	24,724	0	824	0%
ALL	15,462,570	187,589	521,931	36%
<b>PLAN OF INSURANCE*</b>				
WHOLE LIFE	2,805,903	30,895	110,438	28%
TERM	3,633,685	63,137	137,392	46%
UNIVERSAL LIFE	3,505,705	41,327	118,960	35%
UNKNOWN	4,261,277	34,757	115,015	30%
ALL	14,206,569	170,117	481,804	35%
<b>REINSURANCE METHOD*</b>				
COINSURANCE	1,696,376	15,585	49,038	32%
MODIFIED COINSURANCE	19,837	1,451	1,477	98%
Y.R.T.	11,527,039	131,674	406,135	32%
UNKNOWN	963,318	21,407	25,154	85%
ALL	14,206,569	170,117	481,804	35%

\* 1990 DATA WAS NOT AVAILABLE AND THEREFORE NOT INCLUDED.

# Claims Analysis 1997 and 1998

## **Experience by Cause of Death**

A total of 237 and 333 claims are included in the 1997 and 1998 study, respectively. In 1997, 101 claims (43%) were Circulatory related and in 1998, those claims increased to 124 (37%). There were 69 (29%) Cancer claims in 1997, and 74 (22%) in 1998.

## **Experience by Sex**

A total of 143 claims were reported on male lives in 1997. This represents 60% of all the claims. In 1998, male claims represented 56% (188) of all claims.

## **Experience by Issue Age**

For all issue ages, circulatory claims caused more deaths than for all cancer and respiratory deaths combined.

## **Experience by Policy Years**

In 1997 and 1998, circulatory claims as a percentage of total claims by duration tended to increase as the policy duration increased.

## **Experience by Classification Amount**

Well over half of all claims are for amounts less than \$250,000.

There was only one claim over \$5 million and it occurred in 1998. It was a circulatory claim.

## **Experience by Smoking Status**

In both years approximately half of smoker claims were Cancer and 20% were Circulatory. Of non-smokers, 45% in 1997 (39% in 1998) were Circulatory and 30% (20% in 1998) were Cancer.

## **Experience by Reinsurance Status**

Over 84% of claims are reinsured on an automatic basis in both 1997 and 1998. The percentages of Circulatory and Cancer claims are similar for both automatic and facultative methods.

## **Experience by Underwriting Status**

Over 75% of claims are rated as standard cases in 1997 (over 82% in 1998). 45% of 1997 (40% of 1998) Standard claims were Circulatory related and 29% (24% in 1998) were Cancer related.

TABLE 13A

1997 - CLAIMS ANALYSIS BY SEX & ISSUE AGES

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	ALL	MALE	FEMALE	ISSUE AGES				
				70-74	75-79	80-84	85-89	90+
OTHER ACCIDENT	2	2	0	1	1	0	0	0
HOMICIDE	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0
AVIATION	1	1	0	1	0	0	0	0
MOTOR VEHICLE	6	3	3	3	2	1	0	0
<b>"MISADVENTURE"</b>	<b>9</b>	<b>6</b>	<b>3</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	90	56	34	52	33	4	1	0
CEREBROVASCULAR	11	6	5	8	2	1	0	0
<b>CIRCULATORY</b>	<b>101</b>	<b>62</b>	<b>39</b>	<b>60</b>	<b>35</b>	<b>5</b>	<b>1</b>	<b>0</b>
RESPIRATORY	13	6	7	7	5	1	0	0
PNEUMONIA	1	1	0	0	1	0	0	0
<b>ALL RESPIRATORY</b>	<b>14</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>CANCER</b>	<b>69</b>	<b>39</b>	<b>30</b>	<b>50</b>	<b>16</b>	<b>3</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	1	0	1	0	1	0	0	0
DIGESTIVE	2	2	0	0	2	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	5	5	0	3	2	0	0	0
<b>OTHER</b>	<b>8</b>	<b>7</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>36</b>	<b>22</b>	<b>14</b>	<b>26</b>	<b>7</b>	<b>1</b>	<b>2</b>	<b>0</b>
<b>ALL</b>	<b>237</b>	<b>143</b>	<b>94</b>	<b>151</b>	<b>72</b>	<b>11</b>	<b>3</b>	<b>0</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	ALL	MALE	FEMALE	ISSUE AGES				
				70-74	75-79	80-84	85-89	90+
OTHER ACCIDENT	1	1	0	1	1	0	0	0
HOMICIDE	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0
AVIATION	0	1	0	1	0	0	0	0
MOTOR VEHICLE	3	2	3	2	3	9	0	0
<b>"MISADVENTURE"</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>9</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	38	39	36	34	46	36	33	0
CEREBROVASCULAR	5	4	5	5	3	9	0	0
<b>CIRCULATORY</b>	<b>43</b>	<b>43</b>	<b>41</b>	<b>40</b>	<b>49</b>	<b>45</b>	<b>33</b>	<b>0</b>
RESPIRATORY	5	4	7	5	7	9	0	0
PNEUMONIA	0	1	0	0	1	0	0	0
<b>ALL RESPIRATORY</b>	<b>6</b>	<b>5</b>	<b>7</b>	<b>5</b>	<b>8</b>	<b>9</b>	<b>0</b>	<b>0</b>
<b>CANCER</b>	<b>29</b>	<b>27</b>	<b>32</b>	<b>33</b>	<b>22</b>	<b>27</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>						
OTHER DISEASE	0	0	1	0	1	0	0	0
DIGESTIVE	1	1	0	0	3	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	3	0	2	3	0	0	0
<b>OTHER</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>17</b>	<b>10</b>	<b>9</b>	<b>67</b>	<b>0</b>
<b>ALL</b>	<b>100</b>	<b>0</b>						

TABLE 13B

1997 - CLAIMS ANALYSIS BY POLICY YEARS

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	POLICY YEARS								
	ALL	1	2	3	4	5	6 - 10	11 - 15	16 +
OTHER ACCIDENT	2	1	0	1	0	0	0	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0	0
AVIATION	1	1	0	0	0	0	0	0	0
MOTOR VEHICLE	6	3	0	1	0	0	2	0	0
<b>"MISADVENTURE"</b>	<b>9</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	90	7	8	7	3	7	28	27	3
CEREBROVASCULAR	11	1	1	1	1	1	6	0	0
<b>CIRCULATORY</b>	<b>101</b>	<b>8</b>	<b>9</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>34</b>	<b>27</b>	<b>3</b>
RESPIRATORY	13	0	2	2	2	0	5	2	0
PNEUMONIA	1	0	0	0	0	0	0	1	0
<b>ALL RESPIRATORY</b>	<b>14</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>3</b>	<b>0</b>
<b>CANCER</b>	<b>69</b>	<b>8</b>	<b>11</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>27</b>	<b>13</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	1	0	0	0	0	0	1	0	0
DIGESTIVE	2	0	0	0	0	0	2	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	5	0	1	0	0	0	1	3	0
<b>OTHER</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>0</b>
<b>UNKNOWN</b>	<b>36</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>17</b>	<b>4</b>	<b>1</b>
<b>ALL</b>	<b>237</b>	<b>25</b>	<b>23</b>	<b>22</b>	<b>7</b>	<b>17</b>	<b>89</b>	<b>50</b>	<b>4</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	POLICY YEARS								
	ALL	1	2	3	4	5	6 - 10	11 - 15	16 +
OTHER ACCIDENT	1	4	0	5	0	0	0	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0	0
AVIATION	0	4	0	0	0	0	0	0	0
MOTOR VEHICLE	3	12	0	5	0	0	2	0	0
<b>"MISADVENTURE"</b>	<b>4</b>	<b>20</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	38	28	35	32	43	41	31	54	75
CEREBROVASCULAR	5	4	4	5	14	6	7	0	0
<b>CIRCULATORY</b>	<b>43</b>	<b>32</b>	<b>39</b>	<b>36</b>	<b>57</b>	<b>47</b>	<b>38</b>	<b>54</b>	<b>75</b>
RESPIRATORY	5	0	9	9	29	0	6	4	0
PNEUMONIA	0	0	0	0	0	0	0	2	0
<b>ALL RESPIRATORY</b>	<b>6</b>	<b>0</b>	<b>9</b>	<b>9</b>	<b>29</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>0</b>
<b>CANCER</b>	<b>29</b>	<b>32</b>	<b>48</b>	<b>32</b>	<b>0</b>	<b>18</b>	<b>30</b>	<b>26</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	1	0	0
DIGESTIVE	1	0	0	0	0	0	2	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	0	4	0	0	0	1	6	0
<b>OTHER</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>6</b>	<b>0</b>
<b>UNKNOWN</b>	<b>15</b>	<b>16</b>	<b>0</b>	<b>14</b>	<b>14</b>	<b>35</b>	<b>19</b>	<b>8</b>	<b>25</b>
<b>ALL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

TABLE 13C

1997 - CLAIMS ANALYSIS BY CLASSIFICATION AMOUNT

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	CLASSIFICATION AMOUNTS								
	ALL	<\$ .1 M	\$.1-.25 M	\$.25-.5 M	\$.5-1 M	\$1-2 M	\$2-3 M	\$3-5 M	> \$5 M
OTHER ACCIDENT	2	2	0	0	0	0	0	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0	0
AVIATION	1	0	0	1	0	0	0	0	0
MOTOR VEHICLE	6	6	0	0	0	0	0	0	0
<b>"MISADVENTURE"</b>	<b>9</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	90	52	22	6	5	5	0	0	0
CEREBROVASCULAR	11	9	1	1	0	0	0	0	0
<b>CIRCULATORY</b>	<b>101</b>	<b>61</b>	<b>23</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>
RESPIRATORY	13	11	0	1	0	1	0	0	0
PNEUMONIA	1	1	0	0	0	0	0	0	0
<b>ALL RESPIRATORY</b>	<b>14</b>	<b>12</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CANCER</b>	<b>69</b>	<b>42</b>	<b>11</b>	<b>7</b>	<b>4</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	1	0	0	0	1	0	0	0	0
DIGESTIVE	2	0	2	0	0	0	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	5	3	2	0	0	0	0	0	0
<b>OTHER</b>	<b>8</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>36</b>	<b>17</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ALL</b>	<b>237</b>	<b>143</b>	<b>45</b>	<b>22</b>	<b>15</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	CLASSIFICATION AMOUNTS								
	ALL	<\$ .1 M	\$.1-.25 M	\$.25-.5 M	\$.5-1 M	\$1-2 M	\$2-3 M	\$3-5 M	> \$5 M
OTHER ACCIDENT	1	1	0	0	0	0	0	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0	0
AVIATION	0	0	0	5	0	0	0	0	0
MOTOR VEHICLE	3	4	0	0	0	0	0	0	0
<b>"MISADVENTURE"</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	38	36	49	27	33	42	0	0	0
CEREBROVASCULAR	5	6	2	5	0	0	0	0	0
<b>CIRCULATORY</b>	<b>43</b>	<b>43</b>	<b>51</b>	<b>32</b>	<b>33</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>0</b>
RESPIRATORY	5	8	0	5	0	8	0	0	0
PNEUMONIA	0	1	0	0	0	0	0	0	0
<b>ALL RESPIRATORY</b>	<b>6</b>	<b>8</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CANCER</b>	<b>29</b>	<b>29</b>	<b>24</b>	<b>32</b>	<b>27</b>	<b>42</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	7	0	0	0	0
DIGESTIVE	1	0	4	0	0	0	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	2	4	0	0	0	0	0	0
<b>OTHER</b>	<b>3</b>	<b>2</b>	<b>9</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>15</b>	<b>12</b>	<b>16</b>	<b>27</b>	<b>33</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>ALL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>

TABLE 13D

1997 - CLAIMS ANALYSIS BY SMOKING, U/W, REINSURANCE STATUS

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	SMOKING STATUS			U/W STATUS		REINSURANCE STATUS			
	ALL	N-SMK.	SMK.	AGG.	STD	SUBSTD	AUTO	FAC	SHOPPED
OTHER ACCIDENT	2	2	0	0	2	0	2	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0	0
AVIATION	1	1	0	0	1	0	1	0	0
MOTOR VEHICLE	6	4	1	1	6	0	6	0	0
<b>"MISADVENTURE"</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>9</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	90	75	4	11	78	12	80	10	0
CEREBROVASCULAR	11	11	0	0	9	2	8	3	0
<b>CIRCULATORY</b>	<b>101</b>	<b>86</b>	<b>4</b>	<b>11</b>	<b>87</b>	<b>14</b>	<b>88</b>	<b>13</b>	<b>0</b>
RESPIRATORY	13	9	3	1	8	5	13	0	0
PNEUMONIA	1	1	0	0	0	1	0	1	0
<b>ALL RESPIRATORY</b>	<b>14</b>	<b>10</b>	<b>3</b>	<b>1</b>	<b>8</b>	<b>6</b>	<b>13</b>	<b>1</b>	<b>0</b>
<b>CANCER</b>	<b>69</b>	<b>57</b>	<b>10</b>	<b>2</b>	<b>57</b>	<b>12</b>	<b>62</b>	<b>7</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	1	1	0	0	1	0	0	1	0
DIGESTIVE	2	1	1	0	0	2	0	2	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	5	4	0	1	5	0	5	0	0
<b>OTHER</b>	<b>8</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>0</b>
<b>UNKNOWN</b>	<b>36</b>	<b>26</b>	<b>2</b>	<b>8</b>	<b>28</b>	<b>8</b>	<b>32</b>	<b>4</b>	<b>0</b>
<b>ALL</b>	<b>237</b>	<b>192</b>	<b>21</b>	<b>24</b>	<b>195</b>	<b>42</b>	<b>209</b>	<b>28</b>	<b>0</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	SMOKING STATUS			U/W STATUS		REINSURANCE STATUS			
	ALL	N-SMK.	SMK.	AGG.	STD	SUBSTD	AUTO	FAC	SHOPPED
OTHER ACCIDENT	1	1	0	0	1	0	1	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	0	0	0
AVIATION	0	1	0	0	1	0	0	0	0
MOTOR VEHICLE	3	2	5	4	3	0	3	0	0
<b>"MISADVENTURE"</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	38	39	19	46	40	29	38	36	0
CEREBROVASCULAR	5	6	0	0	5	5	4	11	0
<b>CIRCULATORY</b>	<b>43</b>	<b>45</b>	<b>19</b>	<b>46</b>	<b>45</b>	<b>33</b>	<b>42</b>	<b>46</b>	<b>0</b>
RESPIRATORY	5	5	14	4	4	12	6	0	0
PNEUMONIA	0	1	0	0	0	2	0	4	0
<b>ALL RESPIRATORY</b>	<b>6</b>	<b>5</b>	<b>14</b>	<b>4</b>	<b>4</b>	<b>14</b>	<b>6</b>	<b>4</b>	<b>0</b>
<b>CANCER</b>	<b>29</b>	<b>30</b>	<b>48</b>	<b>8</b>	<b>29</b>	<b>29</b>	<b>30</b>	<b>25</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	1	0	0	1	0	0	4	0
DIGESTIVE	1	1	5	0	0	5	0	7	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	2	0	4	3	0	2	0	0
<b>OTHER</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>11</b>	<b>0</b>
<b>UNKNOWN</b>	<b>15</b>	<b>14</b>	<b>10</b>	<b>33</b>	<b>14</b>	<b>19</b>	<b>15</b>	<b>14</b>	<b>0</b>
<b>ALL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0</b>

TABLE 14A

## 1998 - CLAIMS ANALYSIS BY SEX &amp; ISSUE AGES

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	ALL	MALE	FEMALE	ISSUE AGES				
				70-74	75-79	80-84	85-89	90+
OTHER ACCIDENT	6	5	1	5	1	0	0	0
HOMICIDE	1	1	0	0	1	0	0	0
SUICIDE	1	1	0	1	0	0	0	0
AVIATION	0	0	0	0	0	0	0	0
MOTOR VEHICLE	3	2	1	3	0	0	0	0
<b>"MISADVENTURE"</b>	<b>11</b>	<b>9</b>	<b>2</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	104	61	43	75	24	2	3	0
CEREBROVASCULAR	20	11	9	9	9	2	0	0
<b>CIRCULATORY</b>	<b>124</b>	<b>72</b>	<b>52</b>	<b>84</b>	<b>33</b>	<b>4</b>	<b>3</b>	<b>0</b>
RESPIRATORY	27	10	17	19	4	3	1	0
PNEUMONIA	8	3	5	1	7	0	0	0
<b>ALL RESPIRATORY</b>	<b>35</b>	<b>13</b>	<b>22</b>	<b>20</b>	<b>11</b>	<b>3</b>	<b>1</b>	<b>0</b>
<b>CANCER</b>	<b>74</b>	<b>42</b>	<b>32</b>	<b>61</b>	<b>12</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0
DIGESTIVE	4	2	2	2	2	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	2	0	2	0	0	0	0
<b>OTHER</b>	<b>6</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>83</b>	<b>48</b>	<b>35</b>	<b>48</b>	<b>16</b>	<b>4</b>	<b>15</b>	<b>0</b>
<b>ALL</b>	<b>333</b>	<b>188</b>	<b>145</b>	<b>226</b>	<b>76</b>	<b>12</b>	<b>19</b>	<b>0</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	ALL	MALE	FEMALE	ISSUE AGES				
				70-74	75-79	80-84	85-89	90+
OTHER ACCIDENT	2	3	1	2	1	0	0	0
HOMICIDE	0	1	0	0	1	0	0	0
SUICIDE	0	1	0	0	0	0	0	0
AVIATION	0	0	0	0	0	0	0	0
MOTOR VEHICLE	1	1	1	1	0	0	0	0
<b>"MISADVENTURE"</b>	<b>3</b>	<b>5</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	31	32	30	33	32	17	16	0
CEREBROVASCULAR	6	6	6	4	12	17	0	0
<b>CIRCULATORY</b>	<b>37</b>	<b>38</b>	<b>36</b>	<b>37</b>	<b>43</b>	<b>33</b>	<b>16</b>	<b>0</b>
RESPIRATORY	8	5	12	8	5	25	5	0
PNEUMONIA	2	2	3	0	9	0	0	0
<b>ALL RESPIRATORY</b>	<b>11</b>	<b>7</b>	<b>15</b>	<b>9</b>	<b>14</b>	<b>25</b>	<b>5</b>	<b>0</b>
<b>CANCER</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>27</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>						
OTHER DISEASE	0	0	0	0	0	0	0	0
DIGESTIVE	1	1	1	1	3	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	1	1	0	1	0	0	0	0
<b>OTHER</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>25</b>	<b>26</b>	<b>24</b>	<b>21</b>	<b>21</b>	<b>33</b>	<b>79</b>	<b>0</b>
<b>ALL</b>	<b>100</b>	<b>0</b>						

TABLE 14B

1998 - CLAIMS ANALYSIS BY POLICY YEARS

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	POLICY YEARS								
	ALL	1	2	3	4	5	6 - 10	11 - 15	16 +
OTHER ACCIDENT	6	2	1	0	0	0	3	0	0
HOMICIDE	1	1	0	0	0	0	0	0	0
SUICIDE	1	0	0	0	0	0	1	0	0
AVIATION	0	0	0	0	0	0	0	0	0
MOTOR VEHICLE	3	1	1	0	0	0	1	0	0
<b>"MISADVENTURE"</b>	<b>11</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	104	12	7	5	7	7	40	23	3
CEREBROVASCULAR	20	1	1	0	2	1	10	5	0
<b>CIRCULATORY</b>	<b>124</b>	<b>13</b>	<b>8</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>50</b>	<b>28</b>	<b>3</b>
RESPIRATORY	27	2	2	1	1	7	7	7	0
PNEUMONIA	8	1	0	0	0	0	3	4	0
<b>ALL RESPIRATORY</b>	<b>35</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>10</b>	<b>11</b>	<b>0</b>
<b>CANCER</b>	<b>74</b>	<b>10</b>	<b>13</b>	<b>5</b>	<b>9</b>	<b>4</b>	<b>20</b>	<b>13</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0	0
DIGESTIVE	4	1	0	0	0	0	1	1	1
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	0	0	0	0	0	2	0	0
<b>OTHER</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>1</b>
<b>UNKNOWN</b>	<b>83</b>	<b>25</b>	<b>15</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>20</b>	<b>9</b>	<b>2</b>
<b>ALL</b>	<b>333</b>	<b>56</b>	<b>40</b>	<b>14</b>	<b>23</b>	<b>24</b>	<b>108</b>	<b>62</b>	<b>6</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	POLICY YEARS								
	ALL	1	2	3	4	5	6 - 10	11 - 15	16+
OTHER ACCIDENT	2	4	3	0	0	0	3	0	0
HOMICIDE	0	2	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	0	1	0	0
AVIATION	0	0	0	0	0	0	0	0	0
MOTOR VEHICLE	1	2	3	0	0	0	1	0	0
<b>"MISADVENTURE"</b>	<b>3</b>	<b>7</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	31	21	18	36	30	29	37	37	50
CEREBROVASCULAR	6	2	3	0	9	4	9	8	0
<b>CIRCULATORY</b>	<b>37</b>	<b>23</b>	<b>20</b>	<b>36</b>	<b>39</b>	<b>33</b>	<b>46</b>	<b>45</b>	<b>50</b>
RESPIRATORY	8	4	5	7	4	29	6	11	0
PNEUMONIA	2	2	0	0	0	0	3	6	0
<b>ALL RESPIRATORY</b>	<b>11</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>29</b>	<b>9</b>	<b>18</b>	<b>0</b>
<b>CANCER</b>	<b>22</b>	<b>18</b>	<b>33</b>	<b>36</b>	<b>39</b>	<b>17</b>	<b>19</b>	<b>21</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0	0
DIGESTIVE	1	2	0	0	0	0	1	2	17
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	1	0	0	0	0	0	2	0	0
<b>OTHER</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>17</b>
<b>UNKNOWN</b>	<b>25</b>	<b>45</b>	<b>38</b>	<b>21</b>	<b>17</b>	<b>21</b>	<b>19</b>	<b>15</b>	<b>33</b>
<b>ALL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

TABLE 14C

1998 - CLAIMS ANALYSIS BY CLASSIFICATION AMOUNT

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	CLASSIFICATION AMOUNTS								
	ALL	<\$ .1 M	\$.1-.25 M	\$.25-.5 M	\$.5-1 M	\$1-2 M	\$2-3 M	\$3-5 M	> \$5 M
OTHER ACCIDENT	6	1	1	1	2	1	0	0	0
HOMICIDE	1	0	1	0	0	0	0	0	0
SUICIDE	1	0	0	0	0	1	0	0	0
AVIATION	0	0	0	0	0	0	0	0	0
MOTOR VEHICLE	3	0	1	0	0	0	1	1	0
<b>"MISADVENTURE"</b>	<b>11</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>
CARDIOVASCULAR	104	26	32	14	15	10	3	3	1
CEREBROVASCULAR	20	3	6	6	2	1	2	0	0
<b>CIRCULATORY</b>	<b>124</b>	<b>29</b>	<b>38</b>	<b>20</b>	<b>17</b>	<b>11</b>	<b>5</b>	<b>3</b>	<b>1</b>
RESPIRATORY	27	15	5	2	4	1	0	0	0
PNEUMONIA	8	4	2	0	0	2	0	0	0
<b>ALL RESPIRATORY</b>	<b>35</b>	<b>19</b>	<b>7</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CANCER</b>	<b>74</b>	<b>26</b>	<b>18</b>	<b>10</b>	<b>10</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0	0
DIGESTIVE	4	0	3	0	1	0	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	0	0	0	1	1	0	0	0
<b>OTHER</b>	<b>6</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>83</b>	<b>40</b>	<b>24</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>ALL</b>	<b>333</b>	<b>115</b>	<b>93</b>	<b>41</b>	<b>41</b>	<b>28</b>	<b>10</b>	<b>4</b>	<b>1</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	CLASSIFICATION AMOUNTS								
	ALL	<\$ .1 M	\$.1-.25 M	\$.25-.5 M	\$.5-1 M	\$1-2 M	\$2-3 M	\$3-5 M	> \$5 M
OTHER ACCIDENT	2	1	1	2	5	4	0	0	0
HOMICIDE	0	0	1	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	4	0	0	0
AVIATION	0	0	0	0	0	0	0	0	0
MOTOR VEHICLE	1	0	1	0	0	0	10	25	0
<b>"MISADVENTURE"</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>10</b>	<b>25</b>	<b>0</b>
CARDIOVASCULAR	31	23	34	34	37	36	30	75	100
CEREBROVASCULAR	6	3	6	15	5	4	20	0	0
<b>CIRCULATORY</b>	<b>37</b>	<b>25</b>	<b>41</b>	<b>49</b>	<b>41</b>	<b>39</b>	<b>50</b>	<b>75</b>	<b>100</b>
RESPIRATORY	8	13	5	5	10	4	0	0	0
PNEUMONIA	2	3	2	0	0	7	0	0	0
<b>ALL RESPIRATORY</b>	<b>11</b>	<b>17</b>	<b>8</b>	<b>5</b>	<b>10</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CANCER</b>	<b>22</b>	<b>23</b>	<b>19</b>	<b>24</b>	<b>24</b>	<b>25</b>	<b>30</b>	<b>0</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0	0
DIGESTIVE	1	0	3	0	2	0	0	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	1	0	0	0	2	4	0	0	0
<b>OTHER</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>25</b>	<b>35</b>	<b>26</b>	<b>20</b>	<b>15</b>	<b>14</b>	<b>10</b>	<b>0</b>	<b>0</b>
<b>ALL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

TABLE 14D

## 1998 - CLAIMS ANALYSIS BY SMOKING, U/W, REINSURANCE STATUS

NUMBER OF CLAIMS FOR EACH CAUSE OF DEATH.

	SMOKING STATUS			U/W STATUS		REINSURANCE STATUS			
	ALL	N-SMK.	SMK.	AGG.	STD	SUBSTD	AUTO	FAC	SHOPPED
OTHER ACCIDENT	6	6	0	0	5	1	6	0	0
HOMICIDE	1	1	0	0	1	0	1	0	0
SUICIDE	1	1	0	0	0	1	1	0	0
AVIATION	0	0	0	0	0	0	0	0	0
MOTOR VEHICLE	3	3	0	0	1	2	3	0	0
<b>"MISADVENTURE"</b>	<b>11</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>4</b>	<b>11</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	104	84	6	14	87	17	89	15	0
CEREBROVASCULAR	20	17	1	2	14	6	18	2	0
<b>CIRCULATORY</b>	<b>124</b>	<b>101</b>	<b>7</b>	<b>16</b>	<b>101</b>	<b>23</b>	<b>107</b>	<b>17</b>	<b>0</b>
RESPIRATORY	27	22	2	3	17	10	22	5	0
PNEUMONIA	8	7	1	0	1	7	1	7	0
<b>ALL RESPIRATORY</b>	<b>35</b>	<b>29</b>	<b>3</b>	<b>3</b>	<b>18</b>	<b>17</b>	<b>23</b>	<b>12</b>	<b>0</b>
<b>CANCER</b>	<b>74</b>	<b>52</b>	<b>14</b>	<b>8</b>	<b>61</b>	<b>13</b>	<b>64</b>	<b>10</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0	0
DIGESTIVE	4	4	0	0	3	1	4	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	2	2	0	0	2	0	2	0	0
<b>OTHER</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>83</b>	<b>61</b>	<b>7</b>	<b>15</b>	<b>60</b>	<b>23</b>	<b>70</b>	<b>13</b>	<b>0</b>
<b>ALL</b>	<b>333</b>	<b>260</b>	<b>31</b>	<b>42</b>	<b>252</b>	<b>81</b>	<b>281</b>	<b>52</b>	<b>0</b>

PERCENTAGE OF CLAIMS FOR EACH CAUSE OF DEATH.

	SMOKING STATUS			U/W STATUS		REINSURANCE STATUS			
	ALL	N-SMK.	SMK.	AGG.	STD	SUBSTD	AUTO	FAC	SHOPPED
OTHER ACCIDENT	2	2	0	0	2	1	2	0	0
HOMICIDE	0	0	0	0	0	0	0	0	0
SUICIDE	0	0	0	0	0	1	0	0	0
AVIATION	0	0	0	0	0	0	0	0	0
MOTOR VEHICLE	1	1	0	0	0	2	1	0	0
<b>"MISADVENTURE"</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>0</b>	<b>0</b>
CARDIOVASCULAR	31	32	19	33	35	21	32	29	0
CEREBROVASCULAR	6	7	3	5	6	7	6	4	0
<b>CIRCULATORY</b>	<b>37</b>	<b>39</b>	<b>23</b>	<b>38</b>	<b>40</b>	<b>28</b>	<b>38</b>	<b>33</b>	<b>0</b>
RESPIRATORY	8	8	6	7	7	12	8	10	0
PNEUMONIA	2	3	3	0	0	9	0	13	0
<b>ALL RESPIRATORY</b>	<b>11</b>	<b>11</b>	<b>10</b>	<b>7</b>	<b>7</b>	<b>21</b>	<b>8</b>	<b>23</b>	<b>0</b>
<b>CANCER</b>	<b>22</b>	<b>20</b>	<b>45</b>	<b>19</b>	<b>24</b>	<b>16</b>	<b>23</b>	<b>19</b>	<b>0</b>
<b>AIDS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
OTHER DISEASE	0	0	0	0	0	0	0	0	0
DIGESTIVE	1	2	0	0	1	1	1	0	0
ENDOCRINE	0	0	0	0	0	0	0	0	0
GENITOURINARY	0	0	0	0	0	0	0	0	0
NERVOUS SYSTEM	1	1	0	0	1	0	1	0	0
<b>OTHER</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>
<b>UNKNOWN</b>	<b>25</b>	<b>23</b>	<b>23</b>	<b>36</b>	<b>24</b>	<b>28</b>	<b>25</b>	<b>25</b>	<b>0</b>
<b>ALL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>0</b>

APPENDIX A

LIST OF CONTRIBUTORS - 1997 and 1998 INTERCOMPANY MORTALITY STUDY

ALLIANZ LIFE INSURANCE COMPANY OF NORTH AMERICA

CONTINENTAL ASSURANCE COMPANY (RE)

MUNICH AMERICAN RE

REINSURANCE GROUP OF AMERICA INCORPORATED (US)

REINSURANCE GROUP OF AMERICA INCORPORATED (CANADA)

SWISS RE LIFE and HEALTH

APPENDIX B

LIST OF LARGE CLAIMS (1997 and 1998)

LARGE CLAIMS OVER \$1 MILLION ON ONE LIFE.

1997

	<u>DIRECT</u>	<u>FACE</u>	<u>AGE</u>	<u>SEX</u>	<u>POLICY</u>	<u>SMOKING</u>	<u>RATING</u>	<u>CAUSE OF DEATH</u>
	<u>AMOUNT</u>	<u>GROUP</u>		<u>YEAR</u>	<u>CLASS</u>			
1	1.43 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	CANCER	
2	1.00 M	70 - 74	MALE	2	NON-SMOKER	100%	CANCER	
3	1.00 M	70 - 74	MALE	5	NON-SMOKER	100%	CARDIOVASCULAR	
4	1.00 M	70 - 74	MALE	6 - 10	SMOKER	100%	UNKNOWN	
5	1.20 M	75 - 79	FEMALE	3	NON-SMOKER	200%	RESPIRATORY	
6	1.33 M	75 - 79	FEMALE	11 - 15	NON-SMOKER	100%	CANCER	
7	1.00 M	75 - 79	FEMALE	11 - 15	NON-SMOKER	150%	CARDIOVASCULAR	
8	1.00 M	75 - 79	MALE	5	NON-SMOKER	100%	CARDIOVASCULAR	
9	1.97 M	75 - 79	MALE	6 - 10	NON-SMOKER	100%	CANCER	
10	1.40 M	80 - 84	FEMALE	1	NON-SMOKER	100%	CARDIOVASCULAR	
11	1.00 M	80 - 84	FEMALE	3	NON-SMOKER	150%	CANCER	
12	1.00 M	80 - 84	MALE	5	NON-SMOKER	200%	CARDIOVASCULAR	

1998

1	1.00 M	70 - 74	FEMALE	1	NON-SMOKER	100%	OTHER ACCIDENT
2	1.00 M	70 - 74	FEMALE	1	NON-SMOKER	100%	CANCER
3	1.00 M	70 - 74	FEMALE	4	NON-SMOKER	100%	UNKNOWN
4	1.00 M	70 - 74	FEMALE	4	NON-SMOKER	100%	CANCER
5	1.00 M	70 - 74	FEMALE	4	NON-SMOKER	100%	CANCER
6	1.00 M	70 - 74	FEMALE	4	NON-SMOKER	100%	CANCER
7	1.00 M	70 - 74	FEMALE	5	NON-SMOKER	100%	CANCER
8	3.25 M	70 - 74	FEMALE	5	NON-SMOKER	100%	CARDIOVASCULAR
9	5.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
10	1.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	250%	CEREBROVASCULAR
11	4.00 M	70 - 74	FEMALE	11 - 15	NON-SMOKER	100%	CARDIOVASCULAR
12	1.00 M	70 - 74	FEMALE	6 - 10	SMOKER	200%	CARDIOVASCULAR
13	1.30 M	70 - 74	MALE	6 - 10	AGGREGATE	100%	CARDIOVASCULAR
14	2.60 M	70 - 74	MALE	1	NON-SMOKER	150%	MOTOR VEHICLE
15	2.00 M	70 - 74	MALE	2	NON-SMOKER	150%	CANCER
16	4.00 M	70 - 74	MALE	2	NON-SMOKER	150%	MOTOR VEHICLE
17	1.00 M	70 - 74	MALE	2	NON-SMOKER	100%	UNKNOWN
18	1.00 M	70 - 74	MALE	5	NON-SMOKER	200%	CARDIOVASCULAR
19	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	UNKNOWN
20	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	200%	RESPIRATORY
21	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	150%	SUICIDE
22	1.25 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
23	1.50 M	70 - 74	MALE	6 - 10	NON-SMOKER	150%	CARDIOVASCULAR
24	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
25	2.04 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
26	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	NERVOUS SYTEM
27	2.50 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	UNKNOWN
28	2.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CANCER
29	2.00M	75 - 79	FEMALE	1	NON-SMOKER	180%	CANCER
30	1.00 M	75 - 79	FEMALE	1	NON-SMOKER	180%	CANCER
31	1.00 M	75 - 79	FEMALE	3	NON-SMOKER	100%	CARDIOVASCULAR
32	1.00 M	75 - 79	FEMALE	3	NON-SMOKER	140%	CARDIOVASCULAR
33	3.00 M	75 - 79	FEMALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
34	2.00 M	75 - 79	FEMALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
35	1.05 M	75 - 79	FEMALE	11 - 15	SMOKER	100%	CARDIOVASCULAR
36	1.00 M	75 - 79	MALE	11 - 15	AGGREGATE	100%	CARDIOVASCULAR
37	2.00 M	75 - 79	MALE	4	NON-SMOKER	150%	CEREBROVASCULAR
38	2.00 M	75 - 79	MALE	4	NON-SMOKER	150%	CEREBROVASCULAR
39	2.00 M	75 - 79	MALE	5	NON-SMOKER	150%	CARDIOVASCULAR
40	1.61 M	75 - 79	MALE	6 - 10	NON-SMOKER	150%	PNEUMONIA
41	1.61 M	75 - 79	MALE	6 - 10	NON-SMOKER	150%	PNEUMONIA
42	1.00 M	75 - 79	MALE	11 - 15	NON-SMOKER	100%	UNKNOWN
43	1.50 M	80 - 84	FEMALE	3	NON-SMOKER	100%	CANCER

APPENDIX C

LIST OF LARGE CLAIMS (1990-1996)

LARGE CLAIMS OVER \$1 MILLION ON ONE LIFE.

	<u>DIRECT</u>	<u>FACE</u>	<u>AGE</u>	<u>SEX</u>	<u>POLICY</u>	<u>SMOKING</u>	<u>RATING</u>	<u>CAUSE OF DEATH</u>
	<u>AMOUNT</u>	<u>GROUP</u>	<u>YEAR</u>	<u>CLASS</u>				
1	1.00 M	70 - 74	FEMALE	1	NON-SMOKER	100%	HOMICIDE	
2	1.42 M	70 - 74	FEMALE	1	AGGREGATE	100%	CANCER	
3	3.00 M	70 - 74	FEMALE	2	AGGREGATE	100%	CARDIOVASCULAR	
4	3.00 M	70 - 74	FEMALE	2	AGGREGATE	100%	CARDIOVASCULAR	
5	1.00 M	70 - 74	FEMALE	2	NON-SMOKER	100%	CARDIOVASCULAR	
6	1.00 M	70 - 74	FEMALE	2	NON-SMOKER	200%	CANCER	
7	1.53 M	70 - 74	FEMALE	2	NON-SMOKER	100%	CARDIOVASCULAR	
8	1.42 M	70 - 74	FEMALE	2	SMOKER	100%	CANCER	
9	1.00 M	70 - 74	FEMALE	3	NON-SMOKER	100%	CARDIOVASCULAR	
10	1.56 M	70 - 74	FEMALE	3	AGGREGATE	100%	CANCER	
11	1.20 M	70 - 74	FEMALE	4	NON-SMOKER	100%	CANCER	
12	1.00 M	70 - 74	FEMALE	4	NON-SMOKER	150%	UNKNOWN	
13	2.00 M	70 - 74	FEMALE	4	NON-SMOKER	100%	OTHER ACCIDENT	
14	1.00 M	70 - 74	FEMALE	5	NON-SMOKER	100%	CEREBROVASCULAR	
15	1.00 M	70 - 74	FEMALE	5	NON-SMOKER	100%	CANCER	
16	1.00 M	70 - 74	FEMALE	5	NON-SMOKER	100%	CARDIOVASCULAR	
17	3.44 M	70 - 74	FEMALE	5	NON-SMOKER	100%	CANCER	
18	1.50 M	70 - 74	FEMALE	6 - 10	AGGREGATE	100%	UNKNOWN	
19	2.51 M	70 - 74	FEMALE	6 - 10	AGGREGATE	100%	CANCER	
20	2.51 M	70 - 74	FEMALE	6 - 10	AGGREGATE	100%	CANCER	
21	4.21 M	70 - 74	FEMALE	6 - 10	AGGREGATE	300%	CARDIOVASCULAR	
22	7.50 M	70 - 74	FEMALE	6 - 10	AGGREGATE	100%	CANCER	
23	1.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR	
24	1.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	CANCER	
25	1.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	UNKNOWN	
26	2.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	UNKNOWN	
27	2.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	CANCER	
28	1.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR	
29	1.00 M	70 - 74	FEMALE	6 - 10	NON-SMOKER	100%	PNEUMONIA	
30	4.28 M	70 - 74	FEMALE	6 - 10	SMOKER	100%	CANCER	
31	2.00 M	70 - 74	FEMALE	11 - 15	AGGREGATE	100%	CANCER	
32	1.00 M	70 - 74	FEMALE	11 - 15	SMOKER	100%	CANCER	
33	1.15 M	70 - 74	MALE	1	NON-SMOKER	225%	CARDIOVASCULAR	
34	1.30 M	70 - 74	MALE	2	NON-SMOKER	100%	OTHER DISEASE	
35	2.24 M	70 - 74	MALE	2	SMOKER	100%	CARDIOVASCULAR	
36	1.00 M	70 - 74	MALE	2	AGGREGATE	150%	OTHER DISEASE	
37	1.00 M	70 - 74	MALE	2	AGGREGATE	100%	DIGESTIVE	
38	7.50 M	70 - 74	MALE	2	NON-SMOKER	100%	OTHER DISEASE	
39	1.50 M	70 - 74	MALE	2	SMOKER	100%	CEREBROVASCULAR	
40	1.00 M	70 - 74	MALE	3	NON-SMOKER	150%	CANCER	
41	1.25 M	70 - 74	MALE	3	NON-SMOKER	100%	RESPIRATORY	
42	2.50 M	70 - 74	MALE	3	NON-SMOKER	100%	UNKNOWN	
43	1.00 M	70 - 74	MALE	3	NON-SMOKER	100%	CARDIOVASCULAR	
44	2.00 M	70 - 74	MALE	3	NON-SMOKER	100%	OTHER ACCIDENT	
45	4.50 M	70 - 74	MALE	3	NON-SMOKER	100%	UNKNOWN	
46	1.83 M	70 - 74	MALE	4	AGGREGATE	100%	UNKNOWN	
47	1.94 M	70 - 74	MALE	4	NON-SMOKER	100%	PNEUMONIA	
48	1.00 M	70 - 74	MALE	4	NON-SMOKER	100%	CANCER	
49	1.00 M	70 - 74	MALE	4	NON-SMOKER	100%	CANCER	
50	1.00 M	70 - 74	MALE	6 - 10	AGGREGATE	100%	OTHER DISEASE	

APPENDIX C

LIST OF LARGE CLAIMS (1990-1996)

	<u>DIRECT</u> <u>FACE</u> <u>AMOUNT</u>	<u>AGE</u> <u>GROUP</u>	<u>SEX</u>	<u>POLICY</u> <u>YEAR</u>	<u>SMOKING</u> <u>CLASS</u>	<u>RATING</u>	<u>CAUSE OF DEATH</u>
51	1.46 M	70 - 74	MALE	6 - 10	AGGREGATE	200%	CANCER
52	1.90 M	70 - 74	MALE	6 - 10	AGGREGATE	200%	CANCER
53	5.00 M	70 - 74	MALE	6 - 10	AGGREGATE	100%	CARDIOVASCULAR
54	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	250%	CEREBROVASCULAR
55	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CANCER
56	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	AVIATION
57	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CANCER
58	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	UNKNOWN
59	1.50 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
60	2.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CANCER
61	2.50 M	70 - 74	MALE	6 - 10	NON-SMOKER	250%	CANCER
62	3.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CANCER
63	1.00 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	UNKNOWN
64	3.28 M	70 - 74	MALE	6 - 10	NON-SMOKER	100%	CANCER
65	2.66 M	70 - 74	MALE	6 - 10	NON-SMOKER	150%	CARDIOVASCULAR
66	1.13 M	70 - 74	MALE	6 - 10	SMOKER	100%	CARDIOVASCULAR
67	1.30 M	70 - 74	MALE	6 - 10	SMOKER	100%	CEREBROVASCULAR
68	3.00 M	70 - 74	MALE	11 - 15	AGGREGATE	100%	CARDIOVASCULAR
69	5.00 M	70 - 74	MALE	11 - 15	AGGREGATE	100%	CARDIOVASCULAR
70	1.00 M	70 - 74	MALE	11 - 15	NON-SMOKER	300%	HOMICIDE
71	1.00 M	70 - 74	MALE	11 - 15	NON-SMOKER	100%	CARDIOVASCULAR
72	1.37 M	70 - 74	MALE	11 - 15	SMOKER	150%	CANCER
73	1.50 M	70 - 74	MALE	11 - 15	SMOKER	175%	UNKNOWN
74	1.00 M	70 - 74	MALE	16 +	AGGREGATE	100%	CARDIOVASCULAR
75	1.00 M	75 - 79	FEMALE	1	NON-SMOKER	200%	CARDIOVASCULAR
76	2.00 M	75 - 79	FEMALE	1	NON-SMOKER	100%	CANCER
77	1.56 M	75 - 79	FEMALE	3	SMOKER	100%	CARDIOVASCULAR
78	15.26 M	75 - 79	FEMALE	5	NON-SMOKER	100%	CANCER
79	1.50 M	75 - 79	FEMALE	5	NON-SMOKER	150%	CARDIOVASCULAR
80	1.40 M	75 - 79	FEMALE	5	UNKNOWN	100%	CANCER
81	1.00 M	75 - 79	FEMALE	11 - 15	AGGREGATE	100%	CEREBROVASCULAR
82	5.50 M	75 - 79	MALE	1	NON-SMOKER	100%	CARDIOVASCULAR
83	1.00 M	75 - 79	MALE	2	NON-SMOKER	100%	OTHER DISEASE
84	2.00 M	75 - 79	MALE	2	NON-SMOKER	200%	CARDIOVASCULAR
85	1.80 M	75 - 79	MALE	3	NON-SMOKER	150%	CANCER
86	1.80 M	75 - 79	MALE	3	NON-SMOKER	150%	CANCER
87	1.00 M	75 - 79	MALE	6 - 10	NON-SMOKER	100%	CARDIOVASCULAR
88	2.28 M	75 - 79	MALE	6 - 10	NON-SMOKER	100%	CANCER
89	3.00 M	80 - 84	FEMALE	1	NON-SMOKER	100%	CARDIOVASCULAR
90	1.00 M	80 - 84	FEMALE	1	NON-SMOKER	100%	RESPIRATORY
91	1.43 M	80 - 84	FEMALE	6 - 10	NON-SMOKER	100%	NERVOUS SYSTEM
92	250.00 M	80 - 84	MALE	2	NON-SMOKER	200%	CEREBROVASCULAR
93	1.00 M	80 - 84	MALE	2	NON-SMOKER	100%	CARDIOVASCULAR

## APPENDIX D STANDARD DEVIATION

In the interest of readability, this report does not contain the standard deviations of the numerous mortality ratios that are quoted.

The standard deviation can be obtained by the use of the following formula:

$$\text{STANDARD DEVIATION OF MORTALITY RATIO} = \frac{\text{MORTALITY RATIO}}{\sqrt{\text{ACTUAL NUMBER OF CLAIMS}}}$$

It is necessary to use the number of claims in this formula even when the mortality ratio involved is based on an amount of insurance. The range of virtual certainty is plus or minus three times the standard deviation. Plus or minus the standard deviation itself indicates 68% likelihood. This assumes a normal distribution whereas the formula is binomial.

The mortality ratios for the 1997, 1998 and the 1990-98 experience by amount of insurance and their standard deviations are shown on the following pages.

**APPENDIX E**  
**STANDARD DEVIATIONS (1997)**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	ACTUAL NO. OF CLAIMS	MORTALITY RATIO	STANDARD DEVIATION
<b>ALL COMBINED</b>	237	18.8%	1.22%
<b><u>SEX</u></b>			
MALE	143	19.8%	1.66%
FEMALE	94	17.5%	1.80%
<b><u>ISSUE AGES</u></b>			
70-74	151	14.1%	1.14%
75-79	72	30.3%	3.57%
<b><u>POLICY YEARS</u></b>			
6-10	89	31.9%	3.38%
11-15	50	25.1%	3.55%
<b><u>CLASSIFICATION AMOUNTS</u></b>			
<\$100,000	143	64.8%	5.42%
\$100,000 - \$249,999	45	31.7%	4.72%
\$249,999 - \$499,999	22	24.9%	5.31%
\$499,999 - \$999,999	15	13.9%	3.60%
<b><u>SMOKING STATUS</u></b>			
NON-SMOKER	192	18.8%	1.35%
AGGREGATE	24	18.6%	3.80%
<b><u>UNDERWRITING STATUS</u></b>			
STANDARD	195	22.9%	1.64%
SUBSTANDARD	42	7.6%	1.17%
<b><u>REINSURANCE STATUS</u></b>			
AUTOMATIC	209	20.2%	1.40%
FACULTATIVE	28	17.2%	3.25%
<b><u>PLAN OF INSURANCE</u></b>			
WHOLE LIFE*			
TERM	148	30.4%	2.50%
UNIVERSAL LIFE	27	39.6%	7.62%
UNKNOWN	61	5.6%	0.72%
<b><u>REINSURANCE METHOD</u></b>			
COINSURANCE	32	3.0%	0.54%
Y.R.T.	44	10.8%	1.64%

\* WHOLE LIFE HAD ONE DEATH. NO STANDARD DEVIATION WAS CALCULATED.

STANDARD DEVIATION CALCULATIONS ARE DONE FOR CASES IN WHICH AT LEAST 35 DEATHS ARE OBSERVED. SOME CATEGORIES ABOVE DO NOT HAVE 35 DEATHS OBSERVED BUT WE ARE STILL REPORTING THE STANDARD DEVIATIONS FOR COMPARISON TO PAST STUDIES.

**APPENDIX F**  
**STANDARD DEVIATIONS (1998)**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	ACTUAL NO. OF CLAIMS	MORTALITY RATIO	STANDARD DEVIATION
<b>ALL COMBINED</b>	333	24.1%	1.32%
<b><u>SEX</u></b>			
MALE	188	22.2%	1.62%
FEMALE	145	26.6%	2.21%
<b><u>ISSUE AGES</u></b>			
70-74	226	27.4%	1.82%
75-79	76	25.9%	2.97%
<b><u>POLICY YEARS</u></b>			
6-10	108	30.0%	2.88%
11-15	62	34.8%	4.42%
<b><u>CLASSIFICATION AMOUNTS</u></b>			
<\$100,000	115	18.1%	1.69%
,000 - \$249,999	93	25.7%	2.67%
,999 - \$499,999	41	23.2%	3.62%
,999 - \$999,999	41	19.5%	3.05%
<b><u>SMOKING STATUS</u></b>			
NON-SMOKER	260	23.5%	1.46%
AGGREGATE	42	37.4%	5.77%
<b><u>UNDERWRITING STATUS</u></b>			
STANDARD	252	22.2%	1.40%
SUBSTANDARD	81	29.3%	3.26%
<b><u>REINSURANCE STATUS</u></b>			
AUTOMATIC	281	21.3%	1.27%
FACULTATIVE	52	28.1%	3.89%
<b><u>PLAN OF INSURANCE</u></b>			
WHOLE LIFE	10	27.5%	8.68%
TERM	225	40.1%	2.67%
UNIVERSAL LIFE	27	11.6%	2.23%
UNKNOWN	71	9.1%	1.08%
<b><u>REINSURANCE METHOD</u></b>			
COINSURANCE	44	12.0%	1.80%
Y.R.T.	71	15.0%	1.78%

STANDARD DEVIATION CALCULATIONS ARE DONE FOR CASES IN WHICH AT LEAST 35 DEATHS ARE OBSERVED. SOME CATEGORIES ABOVE DO NOT HAVE 35 DEATHS OBSERVED BUT WE ARE STILL REPORTING THE STANDARD DEVIATIONS FOR COMPARISON TO PAST STUDIES.

**APPENDIX G**  
**STANDARD DEVIATIONS (1990 - 1998)**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	ACTUAL NO. OF CLAIMS	MORTALITY RATIO	STANDARD DEVIATION
<b>ALL COMBINED</b>	2,023	35.9%	0.80%
<b><u>SEX</u></b>			
MALE	1,324	35.1%	0.96%
FEMALE	699	37.5%	1.42%
<b><u>ISSUE AGES</u></b>			
70-74	1,425	41.0%	1.09%
75-79	495	29.7%	1.33%
80-84	74	25.5%	2.96%
<b><u>POLICY YEARS</u></b>			
1	160	30.8%	2.43%
2	181	38.7%	2.88%
3	137	19.5%	1.67%
4	164	24.9%	1.94%
5	165	25.8%	2.01%
6-10	804	44.4%	1.56%
11-15	337	48.1%	2.62%
16+	75	57.5%	6.64%
<b><u>CLASSIFICATION AMOUNTS</u></b>			
<\$1,000	956	43.0%	1.39%
\$1,000 - \$249,999	519	43.4%	1.90%
\$250,000 - \$499,999	219	41.0%	2.77%
\$500,000 - \$999,999	178	38.3%	2.87%
\$1,000,000 - \$1,999,999	101	30.5%	3.03%
<b><u>SMOKING STATUS</u></b>			
NON-SMOKER	1,280	31.0%	0.87%
SMOKER	218	62.9%	4.26%
AGGREGATE	525	52.9%	2.31%
<b><u>UNDERWRITING STATUS</u></b>			
STANDARD	1,396	36.5%	0.98%
SUBSTANDARD	627	34.6%	1.38%
<b><u>REINSURANCE STATUS</u></b>			
AUTOMATIC	1,280	32.1%	0.90%
FACULTATIVE	743	38.6%	1.41%

**APPENDIX H**

**1997 EXPERIENCE BY NUMBER - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b><u>ISSUE AGES 70-74</u></b>				
<b><u>POLICY YEARS</u></b>				
1	3,848	13	35	37%
2	2,195	18	29	62%
3	1,516	12	28	43%
4	1,157	5	28	18%
5	1,088	11	31	35%
6-10	4,227	63	234	27%
11-15	1,157	25	137	18%
16+	101	4	20	20%
ALL	15,288	151	542	28%

<b><u>ISSUE AGES 75-79</u></b>				
<b><u>POLICY YEARS</u></b>				
1	1,232	6	25	24%
2	622	5	18	27%
3	450	8	19	43%
4	368	2	19	10%
5	280	4	16	26%
6-10	1,151	22	109	20%
11-15	190	25	35	71%
16+	5	0	1	0%
ALL	4,298	72	242	30%

**APPENDIX I**

**1997 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b><u>ISSUE AGES 70-74</u></b>				
<b><u>POLICY YEARS</u></b>				
1	340,585	593	3,107	19%
2	285,384	481	3,668	13%
3	144,954	312	2,621	12%
4	91,625	92	2,060	4%
5	82,196	365	2,383	15%
6-10	275,772	2,420	13,030	19%
11-15	65,652	507	6,175	8%
16+	6,752	29	1,088	3%
ALL	1,292,919	4,798	34,131	14%

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b><u>ISSUE AGES 75-79</u></b>				
<b><u>POLICY YEARS</u></b>				
1	159,853	390	2,978	13%
2	113,435	91	3,196	3%
3	48,272	456	2,191	21%
4	49,746	11	3,146	0%
5	27,715	202	1,584	13%
6-10	70,173	3,704	6,119	61%
11-15	12,089	1,556	1,933	80%
16+	132	0	28	0%
ALL	481,416	6,410	21,174	30%

APPENDIX J

1998 EXPERIENCE BY NUMBER - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<u>ISSUE AGES 70-74</u>				
<u>POLICY YEARS</u>				
1	5,970	25	56.69	44.1%
2	4,013	31	53.14	58.3%
3	1,987	10	35.52	28.2%
4	1,378	16	32.23	49.6%
5	1,059	15	29.87	50.2%
6-10	4,217	78	226.48	34.4%
11-15	1,597	46	197.77	23.3%
16+	129	5	27.00	18.5%
ALL	20,351	226	658.70	34.3%

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<u>ISSUE AGES 75-79</u>				
<u>POLICY YEARS</u>				
1	2,231	16	47.66	33.6%
2	1,333	8	37.19	21.5%
3	549	3	21.68	13.8%
4	409	5	20.93	23.9%
5	339	4	20.96	19.1%
6-10	1,233	25	119.93	20.8%
11-15	241	14	44.71	31.3%
16+	10	1	2.42	41.3%
ALL	6,346	76	315.49	24.1%

**APPENDIX K**

**1998 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<b><u>ISSUE AGES 70-74</u></b>				
<b><u>POLICY YEARS</u></b>				
1	320,970	880	3,174	27.7%
2	307,746	745	4,037	18.5%
3	268,310	238	4,680	5.1%
4	135,136	596	3,052	19.5%
5	86,652	991	2,294	43.2%
6-10	303,904	4,495	14,342	31.3%
11-15	81,924	3,094	7,865	39.3%
16+	10,117	257	1,778	14.5%
ALL	1,514,759	11,296	41,221	27.4%
<b><u>ISSUE AGES 75-79</u></b>				
<b><u>POLICY YEARS</u></b>				
1	185,993	1,358	4,310	31.5%
2	147,241	117	3,952	3.0%
3	109,636	190	4,176	4.5%
4	46,677	2,162	2,694	80.3%
5	45,863	516	3,478	14.8%
6-10	84,880	2,550	7,471	34.1%
11-15	12,330	398	2,013	19.8%
16+	848	35	161	21.9%
ALL	633,467	7,326	28,255	25.9%

**APPENDIX L**

**1997 EXPERIENCE BY NUMBER - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

<b><u>PLAN OF INSURANCE</u></b>	<b>EXPOSURE</b>	<b>ACTUAL CLAIMS</b>	<b>EXPECTED CLAIMS</b>	<b>MORTALITY RATIO</b>
<b><u>WHOLE LIFE</u></b>				
<b><u>POLICY YEARS</u></b>				
1	21	0	0.26	0.0%
2	21	0	0.53	0.0%
3	21	0	0.53	0.0%
4	35	0	1.41	0.0%
5	51	0	2.14	0.0%
6-10	115	0	7.89	0.0%
11-15	61	1	7.84	12.8%
16+	6	0	0.74	0.0%
ALL	332	1	21.35	4.7%
<b><u>TERM</u></b>				
<b><u>POLICY YEARS</u></b>				
1	2,988	18	41.51	43.4%
2	1,360	15	26.98	55.6%
3	1,115	16	29.77	53.7%
4	914	5	30.85	16.2%
5	862	10	34.15	29.3%
6-10	3,498	56	253.33	22.1%
11-15	816	26	124.45	20.9%
16+	83	2	17.06	11.7%
ALL	11,636	148	558.09	26.5%
<b><u>UL</u></b>				
<b><u>POLICY YEARS</u></b>				
1	230	2	3.79	52.8%
2	155	2	3.49	57.3%
3	115	1	3.04	32.8%
4	94	2	3.43	58.3%
5	72	2	2.89	69.1%
6-10	536	15	32.19	46.6%
11-15	92	3	7.55	39.7%
16+				0.0%
ALL	1,293	27	56.39	47.9%
<b><u>UNKNOWN</u></b>				
<b><u>POLICY YEARS</u></b>				
1	2,184	5	30.03	16.6%
2	1,472	6	28.05	21.4%
3	829	5	21.78	23.0%
4	554	0	17.64	0.0%
5	463	5	16.31	30.7%
6-10	1,398	18	73.11	24.6%
11-15	399	20	37.15	53.8%
16+	17	2	3.10	64.4%
ALL	7,317	61	227.17	26.9%

APPENDIX M

1997 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER

MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES

<u>PLAN OF INSURANCE</u>	EXPOSURE	ACTUAL CLAIMS	EXPECTED CLAIMS	MORTALITY RATIO
<u>WHOLE LIFE</u>				
<u>POLICY YEARS</u>				
1	11,990	0	141	0.0%
2	18,153	0	396	0.0%
3	17,998	0	468	0.0%
4	21,413	0	936	0.0%
5	18,679	0	849	0.0%
6-10	59,422	0	3,910	0.0%
11-15	16,557	6	1,731	0.3%
16+	328	0	50	0.0%
ALL	164,540	6	8,480	0.1%
<u>TERM</u>				
<u>POLICY YEARS</u>				
1	158,605	874	2,563	34.1%
2	95,488	422	1,982	21.3%
3	69,396	694	2,364	29.3%
4	59,736	51	2,268	2.2%
5	42,261	371	1,665	22.3%
6-10	147,054	2,977	8,458	35.2%
11-15	39,596	1,862	3,991	46.7%
16+	4,754	26	655	3.9%
ALL	616,891	7,277	23,946	30.4%
<u>UL</u>				
<u>POLICY YEARS</u>				
1	54,918	295	891	33.1%
2	32,796	46	626	7.4%
3	18,148	6	542	1.0%
4	16,718	52	954	5.5%
5	14,815	15	564	2.6%
6-10	66,084	2,867	3,981	72.0%
11-15	8,167	73	909	8.0%
16+				0.0%
ALL	211,646	3,354	8,467	39.6%
<u>UNKNOWN</u>				
<u>POLICY YEARS</u>				
1	324,037	101	4,572	2.2%
2	283,817	103	5,679	1.8%
3	106,099	113	2,698	4.2%
4	52,382	0	1,814	0.0%
5	42,240	202	1,685	12.0%
6-10	82,272	602	3,866	15.6%
11-15	13,977	123	1,589	7.7%
16+	1,802	3	411	0.7%
ALL	906,626	1,247	22,315	5.6%

**APPENDIX N**

**1998 EXPERIENCE BY NUMBER - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

<u>PLAN OF INSURANCE</u>	<u>EXPOSURE</u>	<u>ACTUAL CLAIMS</u>	<u>EXPECTED CLAIMS</u>	<u>MORTALITY RATIO</u>
<b><u>WHOLE LIFE</u></b>				
<b><u>POLICY YEARS</u></b>				
1	33	1	0.54	186.8%
2	22	0	0.38	0.0%
3	23	0	0.76	0.0%
4	22	1	0.70	143.9%
5	34	0	1.64	0.0%
6-10	147	2	9.65	20.7%
11-15	77	6	10.45	57.4%
16+	4	0	0.60	0.0%
ALL	362	10	24.70	40.5%

<b><u>TERM</u></b>				
<b><u>POLICY YEARS</u></b>				
1	6,493	44	98.87	44.5%
2	3,736	35	72.14	48.5%
3	1,284	9	33.99	26.5%
4	1,058	15	35.29	42.5%
5	911	16	36.79	43.5%
6-10	3,913	74	280.42	26.4%
11-15	1,093	27	177.91	15.2%
16+	114	5	24.58	20.3%
ALL	18,601	225	759.99	29.6%

<b><u>UL</u></b>				
<b><u>POLICY YEARS</u></b>				
1	241	0	4.04	0.0%
2	258	1	5.95	16.8%
3	169	1	5.00	20.0%
4	131	2	4.26	46.9%
5	94	0	4.00	0.0%
6-10	488	15	30.55	49.1%
11-15	155	8	13.43	59.6%
16+				0.0%
ALL	1,536	27	67.23	40.2%

<b><u>UNKNOWN</u></b>				
<b><u>POLICY YEARS</u></b>				
1	1,990	11	28.50	38.6%
2	1,646	4	30.11	13.3%
3	1,237	4	30.97	12.9%
4	675	5	22.10	22.6%
5	430	8	15.92	50.3%
6-10	1,138	17	57.77	29.4%
11-15	538	21	46.07	45.6%
16+	23	1	4.46	22.4%
ALL	7,676	71	235.89	30.1%

**APPENDIX O**

**1998 EXPERIENCE BY AMOUNT (000'S) - AGES 70 AND OVER**

**MORTALITY RATIOS BASED ON THE 1975-80 BASIC TABLES**

<b><u>PLAN OF INSURANCE</u></b>	<b>EXPOSURE</b>	<b>ACTUAL CLAIMS</b>	<b>EXPECTED CLAIMS</b>	<b>MORTALITY RATIO</b>
		<b><u>WHOLE LIFE</u></b>		
<b><u>POLICY YEARS</u></b>				
1	27,683	5	339	1.4%
2	10,211	0	176	0.0%
3	18,028	0	527	0.0%
4	17,774	3	588	0.6%
5	21,299	0	1,129	0.0%
6-10	72,885	444	5,086	8.7%
11-15	20,796	2,349	2,309	101.7%
16+	337	0	50	0.0%
ALL	189,013	2,802	10,204	27.5%

		<b><u>TERM</u></b>		
<b><u>POLICY YEARS</u></b>				
1	260,645	2,201	5,409	40.7%
2	151,062	858	3,483	24.6%
3	88,691	320	2,486	12.9%
4	62,974	2,500	2,611	95.8%
5	57,855	1,155	2,503	46.2%
6-10	168,410	4,651	9,713	47.9%
11-15	45,758	926	4,830	19.2%
16+	7,325	269	1,117	24.1%
ALL	842,719	12,881	32,151	40.1%

		<b><u>UL</u></b>		
<b><u>POLICY YEARS</u></b>				
1	66,319	0	1,171	0.0%
2	51,974	12	1,189	1.0%
3	31,838	18	814	2.2%
4	19,022	126	701	18.0%
5	16,881	0	1,167	0.0%
6-10	66,024	966	4,097	23.6%
11-15	13,828	111	1,497	7.4%
16+				0.0%
ALL	265,886	1,232	10,637	11.6%

		<b><u>UNKNOWN</u></b>		
<b><u>POLICY YEARS</u></b>				
1	202,392	228	3,128	7.3%
2	283,435	23	5,530	0.4%
3	266,062	194	7,012	2.8%
4	96,157	171	3,065	5.6%
5	45,455	711	1,904	37.4%
6-10	97,146	1,034	4,777	21.6%
11-15	14,727	118	1,426	8.3%
16+	3,323	23	778	3.0%
ALL	1,008,697	2,503	27,618	9.1%

The A75-80 Mortality Tables provided sex distinct rates on both an age nearest and age last birthday basis, up to the issue age 70 on a 15-year select period basis and up to the attained age 100 on an ultimate age basis. A further extension from ultimate age 100 to age 105 uses the constant difference pattern implicit in the values at age 100 and immediately prior. The A75-80 Extension provides rates for issue ages 71 to 90 with decreasing select periods.

The following steps outline the derivation of the Extension:

#### **STEP 1 - CALCULATE SELECT TO ULTIMATE RATIOS FOR ISSUE AGES 70 AND BELOW**

The basic analysis used to extend the A75-80 Table is the select to ultimate ratio.

$$\text{RATIO} = \frac{\text{Select } q[x]+t}{\text{Ultimate } q_{x+t}}$$

The ratios for issue ages 70 and below were obtained using the A75-80 Male Age Nearest Birthday Table.

#### **STEP 2 - ESTABLISH THE SELECT PERIODS**

Based on expected underwriting experience, the following select periods are used:

- a) A 15 year select period at issue age 70, decreasing by one every year until issue age 78 (7 year select period).
- b) A 6 year select period for issue ages 79 and 80.
- c) A 5 year select period for issue ages 81 and 82.
- d) A 4 year select period for issue ages 83, 84 and 85.
- e) A 3 year select period for issue ages 86 to 90.

### STEP 3 - DEVELOP THE RATIOS FOR ISSUE AGES 71 TO 90

#### Duration 1

The ratios are obtained by linear interpolation between the following expected ratios:

Issue Age	Ratio
70	0.45
83	0.60
88-90	0.85

#### Duration 2

The midpoint between duration 1 and duration 3 is used.

#### Duration 3

An expected ratio of .95 is used for issue ages 88 to 90. Then, a linear interpolation is done between the issue ages 70 and 88.

#### Durations 4-5

The ratios are obtained by linear interpolation from issue age 70 down to the first issue age for that duration that uses the ultimate rate.

#### Durations 6-15

The ratios are obtained by linear interpolation from the attained age 75 diagonal down to the first issue age for that duration that uses the ultimate rate.

Finally, some manual changes are made to smooth the ratios. These ratios can be found in Table A.

When the final ratios are attached to the A75-80 ratios below age 70, the transition is not smooth. A smoother transition can be obtained by changing some of the ratios in the triangle formed by the attained age 75 diagonal and issue age 70. See Table B.

Please note, however, for purposes of the Mortality Study the existing A75-80 tables are used for issue ages 70 and lower.

#### STEP 4 - CALCULATE MORTALITY RATES

To obtain the extended  $q_x$ :

$$q_{[x]+t} = \text{Ratio}_{[x]+t} * \text{Ultimate } q_{x+t}$$

The same ratios are applied to obtain the Male Age Nearest Table (Table C) and the Female Age Nearest Table (Table D).

In the 1990 study, the ultimate attained age is 100. Extension to attained age 105 uses the constant difference pattern implicit in the values at age 100 and immediately prior.

#### Step 5 - AGE LAST BIRTHDAY

The Age Last Birthday tables are obtained using the following formulas:

Select

$$q_{[x]+t} \text{ last} = \frac{q_{[x]+t} \text{ nearest} + q_{[x+1]+t} \text{ nearest}}{2}$$

Ultimate

$$q_{x+t} \text{ last} = \frac{q_{x+t} \text{ nearest} + q_{x+1+t} \text{ nearest}}{2}$$

For issue age 90:

$$q_{[90]+t} \text{ last} = \frac{q_{[90]+t} \text{ nearest}}{q_{[89]+t} \text{ nearest}} \times q_{[89]+t} \text{ last}$$

The Male Age Last Birthday and Female Age Last Birthday tables can be found in Tables E and F, respectively.

**APPENDIX P**

**A75-80 EXTENSION**

Attached are the A75-80 Mortality Tables used in the Reinsurance Inter-company Mortality Study. The first section is the original paper obtained from the 1986 Transactions of the Society of Actuaries Volume 38 pages 205-227. This basic published table provides up to issue age 70, on a 15-year select period and up to the attained age 100 on an ultimate basis. The second section is the Manulife Reinsurance Extension which provides mortality rates for issue ages 71 to 90 with decreasing select periods and up to the attained age 100 on an ultimate basis. A further extension from ultimate age 100 to age 105 uses the constant difference pattern implicit in the values at age 100 and immediately prior.

TABLE A

Ratio of Select x / Ultimate x - Age Nearest Birthday

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
71	0.27	0.38	0.47	0.55	0.59	0.63	0.70	0.74	0.80	0.83	0.86	0.90	0.93	0.97	1.00	1.00	86
72	0.30	0.40	0.50	0.58	0.62	0.66	0.73	0.78	0.83	0.86	0.90	0.93	0.97	1.00	1.00	1.00	87
73	0.32	0.42	0.53	0.61	0.66	0.70	0.77	0.82	0.86	0.90	0.93	0.97	1.00	1.00	1.00	1.00	88
74	0.35	0.45	0.56	0.64	0.69	0.74	0.81	0.85	0.90	0.93	0.97	1.00	1.00	1.00	1.00	1.00	89
75	0.37	0.48	0.59	0.67	0.73	0.78	0.85	0.89	0.93	0.97	1.00	1.00	1.00	1.00	1.00	1.00	90
76	0.40	0.51	0.62	0.70	0.76	0.81	0.89	0.93	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	91
77	0.42	0.53	0.64	0.73	0.80	0.85	0.92	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	92
78	0.45	0.56	0.67	0.76	0.83	0.89	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	93
79	0.48	0.59	0.70	0.79	0.86	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	94
80	0.51	0.62	0.73	0.82	0.90	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	95
81	0.54	0.65	0.76	0.85	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	96
82	0.57	0.68	0.78	0.88	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	97
83	0.60	0.71	0.81	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	98
84	0.65	0.74	0.84	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	99
85	0.70	0.79	0.87	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100
86	0.75	0.82	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	101
87	0.80	0.86	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	102
88	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	103
89	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	104
90	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	105

**TABLE B**

**Extension Attached to Existing A75-80**

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
60	0.27	0.35	0.45	0.50	0.55	0.54	0.55	0.57	0.59	0.62	0.67	0.71	0.74	0.75	0.81	1.00	75
61	0.26	0.34	0.45	0.49	0.54	0.54	0.53	0.55	0.56	0.60	0.64	0.67	0.70	0.72	0.78	1.00	76
62	0.24	0.32	0.45	0.48	0.54	0.50	0.51	0.53	0.54	0.57	0.61	0.63	0.66	0.68	0.75	1.00	77
63	0.24	0.33	0.45	0.49	0.50	0.51	0.53	0.54	0.58	0.59	0.62	0.63	0.66	0.69	0.74	1.00	78
64	0.24	0.33	0.45	0.50	0.51	0.53	0.54	0.58	0.59	0.62	0.63	0.66	0.67	0.70	0.74	1.00	79
65	0.25	0.34	0.44	0.50	0.53	0.54	0.58	0.59	0.62	0.63	0.66	0.64	0.67	0.71	0.73	1.00	80
66	0.25	0.34	0.44	0.51	0.54	0.58	0.59	0.62	0.63	0.66	0.63	0.65	0.68	0.72	0.73	1.00	81
67	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.66	0.63	0.64	0.65	0.68	0.73	0.72	1.00	82
68	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.63	0.63	0.64	0.65	0.68	0.72	0.72	1.00	83
69	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.63	0.63	0.64	0.65	0.68	0.72	0.72	1.00	84
70	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.63	0.63	0.64	0.65	0.68	0.72	0.72	1.00	85
71	0.27	0.38	0.47	0.55	0.59	0.63	0.70	0.74	0.80	0.83	0.86	0.90	0.93	0.97	1.00	1.00	86
72	0.30	0.40	0.50	0.58	0.62	0.66	0.73	0.78	0.83	0.86	0.90	0.93	0.97	1.00	1.00	1.00	87
73	0.32	0.42	0.53	0.61	0.66	0.70	0.77	0.82	0.86	0.90	0.93	0.97	1.00	1.00	1.00	1.00	88
74	0.35	0.45	0.56	0.64	0.69	0.74	0.81	0.85	0.90	0.93	0.97	1.00	1.00	1.00	1.00	1.00	89
75	0.37	0.48	0.59	0.67	0.73	0.78	0.85	0.89	0.93	0.97	1.00	1.00	1.00	1.00	1.00	1.00	90
76	0.40	0.51	0.62	0.70	0.76	0.81	0.89	0.93	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	91
77	0.42	0.53	0.64	0.73	0.80	0.85	0.92	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	92
78	0.45	0.56	0.67	0.76	0.83	0.89	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	93
79	0.48	0.59	0.70	0.79	0.86	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	94
80	0.51	0.62	0.73	0.82	0.90	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	95
81	0.54	0.65	0.76	0.85	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	96
82	0.57	0.68	0.78	0.88	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	97
83	0.60	0.71	0.81	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	98
84	0.65	0.74	0.84	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	99
85	0.70	0.79	0.87	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100
86	0.75	0.82	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	101
87	0.80	0.86	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	102
88	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	103
89	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	104
90	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	105

**TABLE B**

**Extension Attached to Modified A75-80**

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
60	0.27	0.35	0.45	0.50	0.55	0.54	0.55	0.57	0.59	0.62	0.67	0.71	0.74	0.75	0.81	1.00	75
61	0.26	0.34	0.45	0.49	0.54	0.54	0.53	0.55	0.56	0.60	0.64	0.67	0.70	0.72	0.78	1.00	76
62	0.24	0.32	0.45	0.48	0.54	0.50	0.51	0.53	0.54	0.57	0.61	0.63	0.66	0.68	0.75	1.00	77
63	0.24	0.33	0.45	0.49	0.50	0.51	0.53	0.54	0.58	0.59	0.62	0.63	0.66	0.69	0.74	1.00	78
64	0.24	0.33	0.45	0.50	0.51	0.53	0.54	0.58	0.59	0.62	0.63	0.66	0.67	0.70	0.74	1.00	79
65	0.25	0.34	0.44	0.50	0.53	0.54	0.58	0.59	0.62	0.63	0.66	0.64	0.70	0.74	0.80	1.00	80
66	0.25	0.34	0.44	0.51	0.54	0.58	0.59	0.62	0.63	0.66	0.63	0.70	0.74	0.80	0.83	1.00	81
67	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.66	0.63	0.70	0.74	0.80	0.83	0.86	1.00	82
68	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.63	0.70	0.74	0.80	0.83	0.86	0.90	1.00	83
69	0.25	0.35	0.44	0.52	0.58	0.59	0.62	0.63	0.70	0.74	0.80	0.83	0.86	0.90	0.93	1.00	84
70	0.25	0.35	0.44	0.52	0.58	0.59	0.63	0.70	0.74	0.80	0.83	0.86	0.90	0.93	0.97	1.00	85
71	0.27	0.38	0.47	0.55	0.59	0.63	0.70	0.74	0.80	0.83	0.86	0.90	0.93	0.97	1.00	1.00	86
72	0.30	0.40	0.50	0.58	0.62	0.66	0.73	0.78	0.83	0.86	0.90	0.93	0.97	1.00	1.00	1.00	87
73	0.32	0.42	0.53	0.61	0.66	0.70	0.77	0.82	0.86	0.90	0.93	0.97	1.00	1.00	1.00	1.00	88
74	0.35	0.45	0.56	0.64	0.69	0.74	0.81	0.85	0.90	0.93	0.97	1.00	1.00	1.00	1.00	1.00	89
75	0.37	0.48	0.59	0.67	0.73	0.78	0.85	0.89	0.93	0.97	1.00	1.00	1.00	1.00	1.00	1.00	90
76	0.40	0.51	0.62	0.70	0.76	0.81	0.89	0.93	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	91
77	0.42	0.53	0.64	0.73	0.80	0.85	0.92	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	92
78	0.45	0.56	0.67	0.76	0.83	0.89	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	93
79	0.48	0.59	0.70	0.79	0.86	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	94
80	0.51	0.62	0.73	0.82	0.90	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	95
81	0.54	0.65	0.76	0.85	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	96
82	0.57	0.68	0.78	0.88	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	97
83	0.60	0.71	0.81	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	98
84	0.65	0.74	0.84	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	99
85	0.70	0.79	0.87	0.97	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100
86	0.75	0.82	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	101
87	0.80	0.86	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	102
88	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	103
89	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	104
90	0.85	0.90	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	105

TABLE C

Mortality Rates - Male Age Nearest Birthday

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
71	9.53	14.60	19.60	24.97	29.44	34.32	41.78	48.80	57.45	65.58	74.61	84.52	95.47	107.84	121.31	132.05	86
72	11.40	16.64	22.87	28.77	34.15	39.89	48.34	56.16	65.58	74.61	84.52	95.39	107.67	121.31	132.05	143.63	87
73	13.52	19.13	26.61	33.20	39.52	46.21	55.72	64.40	74.61	84.52	95.39	107.62	121.31	132.05	143.63	156.05	88
74	15.94	22.46	30.70	38.25	45.60	53.35	64.01	73.58	84.52	95.39	107.62	121.31	132.05	143.63	156.05	169.12	89
75	18.71	26.26	35.35	43.95	52.45	61.35	73.23	83.67	95.39	107.62	121.31	132.05	143.63	156.05	169.12	182.61	90
76	21.88	30.62	40.61	50.35	60.12	70.26	83.39	94.78	107.62	121.31	132.05	143.63	156.05	169.12	182.61	196.52	91
77	25.51	34.90	46.52	57.51	68.66	80.09	94.57	107.29	121.31	132.05	143.63	156.05	169.12	182.61	196.52	210.85	92
78	29.63	40.42	53.12	65.47	78.04	90.90	107.18	121.31	132.05	143.63	156.05	169.12	182.61	196.52	210.85	225.60	93
79	34.65	46.62	60.45	74.20	88.36	103.10	121.31	132.05	143.63	156.05	169.12	182.61	196.52	210.85	225.60	240.77	94
80	40.30	53.54	68.50	83.78	99.99	116.79	132.05	143.63	156.05	169.12	182.61	196.52	210.85	225.60	240.77	256.36	95
81	46.63	61.18	77.33	94.56	113.02	132.05	143.63	156.05	169.12	182.61	196.52	210.85	225.60	240.77	256.36	272.37	96
82	53.65	69.60	87.27	106.64	127.54	143.63	156.05	169.12	182.61	196.52	210.85	225.60	240.77	256.36	272.37	288.80	97
83	61.41	79.10	98.40	120.07	143.63	156.05	169.12	182.61	196.52	210.85	225.60	240.77	256.36	272.37	288.80	305.65	98
84	72.42	89.77	110.78	134.94	156.05	169.12	182.61	196.52	210.85	225.60	240.77	256.36	272.37	288.80	305.65	322.92	99
85	84.92	104.32	124.48	151.33	169.12	182.61	196.52	210.85	225.60	240.77	256.36	272.37	288.80	305.65	322.92	340.61	100
86	99.04	117.78	139.58	169.12	182.61	196.52	210.85	225.60	240.77	256.36	272.37	288.80	305.65	322.92	340.61	358.72	101
87	114.90	134.20	155.97	182.61	196.52	210.85	225.60	240.77	256.36	272.37	288.80	305.65	322.92	340.61	358.72	377.25	102
88	132.64	152.21	173.48	196.52	210.85	225.60	240.77	256.36	272.37	288.80	305.65	322.92	340.61	358.72	377.25	396.20	103
89	143.75	164.35	186.69	210.85	225.60	240.77	256.36	272.37	288.80	305.65	322.92	340.61	358.72	377.25	396.20	415.57	104
90	155.22	176.87	200.31	225.60	240.77	256.36	272.37	288.80	305.65	322.92	340.61	358.72	377.25	396.20	415.57	435.36	105

TABLE D

Mortality Rates - Female - Age Nearest Birthday

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
71	5.01	7.70	10.44	13.52	16.24	19.36	24.15	28.95	35.02	41.07	47.96	55.76	64.57	74.44	85.13	93.91	86
72	6.01	8.87	12.38	15.87	19.26	23.05	28.68	34.23	41.07	47.96	55.76	64.51	74.32	85.13	93.91	103.24	87
73	7.20	10.35	14.68	18.73	22.84	27.42	33.97	40.33	47.96	55.76	64.51	74.28	85.13	93.91	103.24	113.12	88
74	8.63	12.39	17.32	22.10	27.06	32.52	40.08	47.30	55.76	64.51	74.28	85.13	93.91	103.24	113.12	123.55	89
75	10.32	14.81	20.43	26.07	31.97	38.41	47.07	55.20	64.51	74.28	85.13	93.91	103.24	113.12	123.55	134.53	90
76	12.34	17.69	24.09	30.69	37.65	45.16	55.01	64.10	74.28	85.13	93.91	103.24	113.12	123.55	134.53	146.06	91
77	14.74	20.71	28.36	36.01	44.13	52.83	63.96	74.06	85.13	93.91	103.24	113.12	123.55	134.53	146.06	158.14	92
78	17.58	24.64	33.26	42.08	51.48	61.48	73.98	85.13	93.91	103.24	113.12	123.55	134.53	146.06	158.14	170.77	93
79	21.12	29.19	38.86	48.95	59.76	71.17	85.13	93.91	103.24	113.12	123.55	134.53	146.06	158.14	170.77	183.95	94
80	25.23	34.42	45.19	56.66	69.02	81.96	93.91	103.24	113.12	123.55	134.53	146.06	158.14	170.77	183.95	197.68	95
81	29.98	40.36	52.30	65.27	79.31	93.91	103.24	113.12	123.55	134.53	146.06	158.14	170.77	183.95	197.68	211.96	96
82	35.39	47.07	60.24	74.83	90.70	103.24	113.12	123.55	134.53	146.06	158.14	170.77	183.95	197.68	211.96	226.79	97
83	41.53	54.60	69.05	85.39	103.24	113.12	123.55	134.53	146.06	158.14	170.77	183.95	197.68	211.96	226.79	242.17	98
84	49.99	63.00	78.78	97.00	113.12	123.55	134.53	146.06	158.14	170.77	183.95	197.68	211.96	226.79	242.17	258.10	99
85	59.59	74.19	89.47	109.70	123.55	134.53	146.06	158.14	170.77	183.95	197.68	211.96	226.79	242.17	258.10	274.58	100
86	70.43	84.66	101.18	123.55	134.53	146.06	158.14	170.77	183.95	197.68	211.96	226.79	242.17	258.10	274.58	291.61	101
87	82.59	97.28	113.94	134.53	146.06	158.14	170.77	183.95	197.68	211.96	226.79	242.17	258.10	274.58	291.61	309.19	102
88	96.15	111.20	127.80	146.06	158.14	170.77	183.95	197.68	211.96	226.79	242.17	258.10	274.58	291.61	309.19	327.32	103
89	105.02	121.08	138.76	158.14	170.77	183.95	197.68	211.96	226.79	242.17	258.10	274.58	291.61	309.19	327.32	346.00	104
90	114.35	131.45	150.23	170.77	183.95	197.68	211.96	226.79	242.17	258.10	274.58	291.61	309.19	327.32	346.00	365.23	105

TABLE E

Mortality Rates - Male Age Last Birthday

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
71	10.47	15.62	21.23	26.87	31.79	37.10	45.06	52.48	61.52	70.10	79.56	89.95	101.57	114.58	126.68	137.84	86
72	12.46	17.88	24.74	30.99	36.83	43.05	52.03	60.28	70.10	79.56	89.95	101.50	114.49	126.68	137.84	149.84	87
73	14.73	20.79	28.66	35.72	42.56	49.78	59.87	68.99	79.56	89.95	101.50	114.47	126.68	137.84	149.84	162.59	88
74	17.32	24.36	33.02	41.10	49.03	57.35	68.62	78.63	89.95	101.50	114.47	126.68	137.84	149.84	162.59	175.87	89
75	20.30	28.44	37.98	47.15	56.29	65.81	78.31	89.23	101.50	114.47	126.68	137.84	149.84	162.59	175.87	189.57	90
76	23.70	32.76	43.56	53.93	64.39	75.18	88.98	101.03	114.47	126.68	137.84	149.84	162.59	175.87	189.57	203.69	91
77	27.57	37.66	49.82	61.49	73.35	85.50	100.87	114.30	126.68	137.84	149.84	162.59	175.87	189.57	203.69	218.23	92
78	32.14	43.52	56.79	69.83	83.20	97.00	114.24	126.68	137.84	149.84	162.59	175.87	189.57	203.69	218.23	233.19	93
79	37.47	50.08	64.48	78.99	94.18	109.95	126.68	137.84	149.84	162.59	175.87	189.57	203.69	218.23	233.19	248.57	94
80	43.47	57.36	72.91	89.17	106.51	124.42	137.84	149.84	162.59	175.87	189.57	203.69	218.23	233.19	248.57	264.37	95
81	50.14	65.39	82.30	100.60	120.28	137.84	149.84	162.59	175.87	189.57	203.69	218.23	233.19	248.57	264.37	280.59	96
82	57.53	74.35	92.83	113.35	135.58	149.84	162.59	175.87	189.57	203.69	218.23	233.19	248.57	264.37	280.59	297.23	97
83	66.91	84.44	104.59	127.51	149.84	162.59	175.87	189.57	203.69	218.23	233.19	248.57	264.37	280.59	297.23	314.29	98
84	78.67	97.04	117.63	143.14	162.59	175.87	189.57	203.69	218.23	233.19	248.57	264.37	280.59	297.23	314.29	331.77	99
85	91.98	111.05	132.03	160.23	175.87	189.57	203.69	218.23	233.19	248.57	264.37	280.59	297.23	314.29	331.77	349.67	100
86	106.97	125.99	147.77	175.87	189.57	203.69	218.23	233.19	248.57	264.37	280.59	297.23	314.29	331.77	349.67	367.99	101
87	123.77	143.21	164.72	189.57	203.69	218.23	233.19	248.57	264.37	280.59	297.23	314.29	331.77	349.67	367.99	386.73	102
88	138.20	158.28	180.09	203.69	218.23	233.19	248.57	264.37	280.59	297.23	314.29	331.77	349.67	367.99	386.73	405.89	103
89	149.49	170.61	193.50	218.23	233.19	248.57	264.37	280.59	297.23	314.29	331.77	349.67	367.99	386.73	405.89	425.47	104
90	161.41	183.60	207.61	233.19	248.57	264.37	280.59	297.23	314.29	331.77	349.67	367.99	386.73	405.89	425.47	445.47	105

TABLE F

Mortality Rates - Female Age Last Birthday

Issue Age	Duration																Attained Age
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
71	5.51	8.28	11.41	14.70	17.75	21.20	26.41	31.59	38.04	44.51	51.86	60.13	69.44	79.78	89.52	98.58	86
72	6.61	9.61	13.53	17.30	21.05	25.24	31.32	37.28	44.51	51.86	60.13	69.40	79.72	89.52	98.58	108.18	87
73	7.92	11.37	16.00	20.42	24.95	29.97	37.02	43.81	51.86	60.13	69.40	79.71	89.52	98.58	108.18	118.34	88
74	9.47	13.60	18.87	24.09	29.51	35.47	43.58	51.25	60.13	69.40	79.71	89.52	98.58	108.18	118.34	129.04	89
75	11.33	16.25	22.26	28.38	34.81	41.79	51.04	59.65	69.40	79.71	89.52	98.58	108.18	118.34	129.04	140.30	90
76	13.54	19.20	26.22	33.35	40.89	49.00	59.49	69.08	79.71	89.52	98.58	108.18	118.34	129.04	140.30	152.10	91
77	16.16	22.67	30.81	39.05	47.81	57.16	68.97	79.59	89.52	98.58	108.18	118.34	129.04	140.30	152.10	164.46	92
78	19.35	26.92	36.06	45.51	55.62	66.32	79.55	89.52	98.58	108.18	118.34	129.04	140.30	152.10	164.46	177.36	93
79	23.18	31.80	42.02	52.80	64.39	76.56	89.52	98.58	108.18	118.34	129.04	140.30	152.10	164.46	177.36	190.82	94
80	27.61	37.39	48.74	60.97	74.17	87.93	98.58	108.18	118.34	129.04	140.30	152.10	164.46	177.36	190.82	204.82	95
81	32.68	43.71	56.27	70.05	85.01	98.58	108.18	118.34	129.04	140.30	152.10	164.46	177.36	190.82	204.82	219.38	96
82	38.46	50.83	64.64	80.11	96.97	108.18	118.34	129.04	140.30	152.10	164.46	177.36	190.82	204.82	219.38	234.48	97
83	45.76	58.80	73.91	91.19	108.18	118.34	129.04	140.30	152.10	164.46	177.36	190.82	204.82	219.38	234.48	250.14	98
84	54.79	68.59	84.13	103.35	118.34	129.04	140.30	152.10	164.46	177.36	190.82	204.82	219.38	234.48	250.14	266.34	99
85	65.01	79.42	95.33	116.62	129.04	140.30	152.10	164.46	177.36	190.82	204.82	219.38	234.48	250.14	266.34	283.10	100
86	76.51	90.97	107.56	129.04	140.30	152.10	164.46	177.36	190.82	204.82	219.38	234.48	250.14	266.34	283.10	300.40	101
87	89.37	104.24	120.87	140.30	152.10	164.46	177.36	190.82	204.82	219.38	234.48	250.14	266.34	283.10	300.40	318.26	102
88	100.58	116.14	133.28	152.10	164.46	177.36	190.82	204.82	219.38	234.48	250.14	266.34	283.10	300.40	318.26	336.66	103
89	109.68	126.27	144.50	164.46	177.36	190.82	204.82	219.38	234.48	250.14	266.34	283.10	300.40	318.26	336.66	355.62	104
90	119.43	137.09	156.45	177.36	190.82	204.82	219.38	234.48	250.14	266.34	283.10	300.40	318.26	336.66	355.62	375.12	105