

**Report**  
**of the**  
**Society of Actuaries**  
**Group Life Insurance**  
**Experience Committee**

August 2006



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# **Group Life Insurance Mortality and Morbidity Study**

## **Abstract**

This report presents the results of the 2006 Group Term Life Experience Study (“2006 Study”), conducted by the Society of Actuaries’ (“SOA”) Group Life Experience Study Committee (“the Committee” or “we”). Data were solicited from insurers regarding Group Term Life Insurance policies in force anytime during the study period of 1999 to 2001. Claims information was captured for Death, Disability Waiver of Premium (“Waiver”), and Accidental Death and Dismemberment (“AD&D”) benefits. For the first time, information is presented separately for Individually Billed (list billed) versus Self Administered (census maintained by the employer). In addition, the 2006 Study includes two Microsoft® Excel pivot tables—one for Life & Waiver, the other for AD&D—which will enable companies to perform their own analysis to supplement the findings of this report.

## **Introduction**

The Group Life Experience Study Committee of the Society of Actuaries (“SOA”) is pleased to present the results of the most recent Group Term Life Experience Study, which includes experience from 1999 through 2001. The prior version of this study was published in 1996 based on data from 1985 through 1989 (“1996 Study”).

The Committee redesigned the data request from the prior study in an effort to include additional detail regarding certain characteristics. We designed a more flexible file format to increase the volume of Self-Administered data. The request for the data was issue in late 2002, and data were collected from 2003 through 2005. During this time the Committee worked with the contributors and an outside data vendor to analyze and validate the data received. In some cases, contributors were able to address the concerns or resubmit the data; in cases where data problems could not be resolved, that portion of the submission was eliminated. For example, to eliminate waiver data for certain codes, the related exposure and death claims also needed to be eliminated.

## **Definitions of Excluded Business**

The following were expressly excluded from the 2006 Study:

- Group Universal Life (“GUL”) and Group Variable Universal Life (“GVUL”)
- Groups for which all insureds are fully medically underwritten (e.g., under 10 lives)
- Conversions
- Buyouts of Waiver reserves
- Paid up, including coverage on retiree lives
- Experience under Continuation of Coverage or portability
- Dependent coverage
- Mass marketed business
- Stand-alone AD&D
- Assumed reinsurance

## Notes on the Study and Differences from the Prior Studies

While the basic information contained in the 2006 Study is similar to the previous study, there are some important differences.

Disability/Waiver Benefits: Data were coded to reflect several disability waiver of premium provisions, including:

- Disabled prior to age 60/65, payable lifetime: the disability had to be incurred prior to either age 60 or 65, benefits for lifetime
- Disabled prior to age 60/65, payable to 65/70: the disability had to be incurred prior to age 60 with benefits payable until age 65 or disability occurs prior to age 65 with benefits payable until age 70
- Disableds payable as active employees or one-year extended death benefit
- Mixed, more than one definition applies
- Other

We analyzed data by the various waiver provisions. Based on this analysis, we determined that experience could be reported separately only for plans with one of two insured Waiver benefit provisions. For business sold with other waiver provisions, either there was an insufficient amount of data or the data represented only one carrier and therefore could not be displayed separately. When the waiver data were eliminated, the exposure and related death claims data were also eliminated.

The Waiver provisions included in the 2006 Study are:

1. Disabled prior to age 60/65 with benefits payable for the lifetime of the claimant.
2. Disabled prior to age 60/65 with benefits payable to age 65/70.

Definition of Waiver Rate: The 2006 Study includes data on waiver incidence rates, i.e., the probability that a claim will occur. In March 2006, the Committee released its report on the 2005 Group Term Life Waiver Reserve Table, which is available on the SOA's web site, [www.soa.org](http://www.soa.org). The information presented in that report can be used to assess the cost of a Waiver claim, given that a claim has occurred.

Previous group term life experience studies attempted to reflect the cost of the Waiver claim by adjusting the Waiver incidence rates by a factor of 75%, which is considered to be conservative. The Committee felt that it was more appropriate to display the full, unadjusted Waiver incidence rate and allow companies to assign their own cost to the Waiver benefit. Companies should **not** simply add the Waiver rate and the death rate to develop a total rate, which would materially overstate the cost. To determine a total rate, the Waiver rate needs to be adjusted to reflect the present value of the claim.

Table 1 shown below is based on the 2005 Group Term Life Waiver Study and contains estimated Waiver cost, i.e., actuarial present value of waiver death benefits, as a percentage of face amount.

<b>Table 1</b>				
<b>Present Value of Waiver Benefits at Time of Incurral as a Percentage of Face Amount</b>				
<b>Age at Disability</b>	<b>Waiver to Age 65</b>		<b>Lifetime Benefits</b>	
	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>
22	20%	10%	20%	11%
27	24%	14%	25%	15%
32	27%	16%	29%	18%
37	29%	19%	32%	22%
42	31%	22%	36%	27%
47	33%	26%	42%	35%
52	32%	26%	47%	40%
57	29%	25%	52%	46%

The above percentages represent the present value of future benefits. Therefore, the differential between “to age 65” versus “lifetime” increases with age at disability. In addition, a nine-month elimination period is assumed.

Self-Administered Versus Individually Billed: For the 2006 Study, we were able to separate Self-Administered and Individually Billed data, and we consider this a key advantage. As we expected, companies reported that it was difficult to obtain Self-Administered exposure data.

Definition of Actual-to-Expected (“A/E”) Ratios

Results by experience variable are reported in this study in the form of actual-to-expected (“A/E”) ratios. In general, the ratio of actual-to-expected claims is calculated as:

$$A/E = \frac{ActualClaim}{Exposure \times ExpectedClaimRate}$$

In the 1996 Study, the expected claim rates were taken from the 1980 study; however, for the 2006 Study, we developed expected values based on the 2006 results. The expected claim rates vary by age and gender, by lives and amounts, but not industry. The pivot tables also calculate expected claims and display A/E results on this basis.

For example, Table 5, A/E Results by Industry Category, shows the variation between industry normalized for the underlying age and gender distribution. By definition, the A/E for the aggregate of all industries is 100%.

Industry Classification: The Committee used the Standard Industrial Classification (“SIC”) codes as published by the United States Bureau of the Budget *Standard Industrial Classification Manual* (revised 1987), which was also used by the prior study.

9/11 Claims: The original data included a significant number of 9/11 claims, which had been flagged so that we could assess their impact. Because the results were concentrated within a few companies and did not truly reflect the impact to the entire industry, the Committee decided to eliminate these claims rather than show them separately in the report or the pivot tables.

Coverage Type: Although prior studies are thought to have included primarily Basic Life exposure and claims, they did not differentiate between Basic Life and employee-paid coverages, e.g., Supplemental Life (employee paid but attached to an underlying Basic Life contract), and Optional Life (employee paid with no underlying Basic Life contract). We had requested data by coverage type in the hope of assessing the degree of anti-selection in the employee-paid coverages; however, the relatively small amount of data that was submitted for Supplemental and Optional Life did not appear to be statistically credible, and it was not included.

Group Type: The previous study had included data by group type, i.e., single employer, union, association, and multiple employer trust. The vast majority of information that we received was for single employers, so we eliminated group type as a study parameter.

Study Year: The Committee found that the study results were inconsistent from year-to-year. We believe that this was due to fluctuations in experience and changes in the underlying mix of business and not due to a trend.

Retiree Indicator: It was generally felt that retirees experience higher mortality than active employees of the same age. In an attempt to quantify this difference, the Committee requested a retiree indicator. Since few companies were able to provide this data, we did not use retiree indicator as a study parameter.

### **Summary Results**

The following tables provide the summary results of the 2006 Study. Consistent with prior studies, results based on amounts are generally more favorable than for lives.

Companies are strongly encouraged to use the two pivot tables (Life/Waiver and AD&D), which have been provided, to supplement this analysis.

Table 2A provides exposure, monthly mortality rates per thousand lives, and the ratio of the 2006 Study rates versus the 1996 Study. As in prior studies, we continue to see mortality improvements of over 1% per year; however, the rate varies by age and gender. These results have not been adjusted for changes in the underlying mix of industries or any other factors. The ratios of the 2006 death rates to 1996 death rates by lives for males is relatively stable, but for females it is much more variable. The progression of female mortality rates is relatively smooth by age in the 2006 Study. The prior study contained some anomalous results for female mortality at certain ages that could not be resolved. When the 1996 Study was released, the report noted that there were data problems, but the decision was made to include as much data as possible rather than eliminate data with possible problems.

**Table 2A**  
**Exposure, Mortality Rates by Central Age**  
**Based on Lives**

Central Age	Exposure (Lives)		Monthly Mortality Rates Per Thousand (Lives)		Mortality Rates as a Percentage of 1996 Study	
	Male	Female	Male	Female	Male	Female
17	38,589	30,031	0.181	0.050	289%	166%
22	528,549	486,904	0.055	0.019	66%	55%
27	1,238,204	1,071,297	0.049	0.017	63%	36%
32	1,478,613	1,138,591	0.051	0.024	66%	34%
37	1,596,163	1,182,346	0.063	0.037	58%	65%
42	1,570,768	1,211,833	0.095	0.052	63%	76%
47	1,351,461	1,104,950	0.143	0.083	66%	64%
52	1,070,074	923,639	0.225	0.134	73%	95%
57	737,877	606,430	0.366	0.205	54%	82%
62	438,585	326,377	0.549	0.326	70%	84%
67	157,502	101,554	0.931	0.507	77%	64%
72	69,780	38,573	1.794	1.022	74%	90%
77	34,292	17,183	3.315	2.148	76%	103%
82	14,215	7,510	6.302	3.895	60%	99%
87	5,004	2,882	10.975	7.951	87%	91%
<b>Total</b>	<b>10,329,676</b>	<b>8,250,098</b>	<b>0.184</b>	<b>0.096</b>	<b>-</b>	<b>-</b>

Table 2B provides similar information based on volume, i.e., amount of insurance. The comparison is against the mortality rates based on lives for the 2006 Study.

<b>Table 2B</b>						
<b>Exposure, Mortality Rates by Central Age</b>						
<b>Based on Amount in Millions (\$)</b>						
<b>Central Age</b>	<b>Exposure (Amount)</b>		<b>Monthly Mortality Rates Per Thousand (Amount)</b>		<b>2006 Study Mortality Rates Amounts Versus Lives</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
17	728	578	0.193	0.043	107%	87%
22	13,728	12,749	0.049	0.018	89%	98%
27	42,021	34,324	0.042	0.016	85%	91%
32	60,015	41,484	0.043	0.020	83%	87%
37	71,215	44,088	0.051	0.032	81%	85%
42	72,762	44,687	0.076	0.047	80%	91%
47	63,401	39,932	0.117	0.078	82%	94%
52	52,109	32,612	0.186	0.124	82%	93%
57	35,468	20,395	0.304	0.184	83%	90%
62	19,263	10,161	0.439	0.285	80%	88%
67	5,700	2,490	0.755	0.457	81%	90%
72	1,647	619	1.233	0.783	69%	77%
77	583	205	2.402	1.460	72%	68%
82	210	68	4.290	3.108	68%	80%
87	52	20	9.152	5.822	83%	73%
<b>Total</b>	<b>438,902</b>	<b>284,413</b>	<b>0.136</b>	<b>0.075</b>	<b>-</b>	<b>-</b>

Table 3 uses the same exposure as Table 2A, but shows monthly waiver incidence rates per thousand lives.

<b>Table 3</b>				
<b>Exposure, Waiver Incidence Rates by Central Age Based on Lives</b>				
<b>Central Age</b>	<b>Exposure (Lives)</b>		<b>Monthly Waiver Incidence Rates (Lives)</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
17	38,589	30,031	0.015	0.003
22	528,549	486,904	0.007	0.007
27	1,238,204	1,071,297	0.007	0.011
32	1,478,613	1,138,591	0.010	0.019
37	1,596,163	1,182,346	0.018	0.029
42	1,570,768	1,211,833	0.029	0.041
47	1,351,461	1,104,950	0.046	0.055
52	1,070,074	923,639	0.077	0.079
57	737,877	606,430	0.132	0.122
62	438,585	326,377	0.062	0.056
67	157,502	101,554	-	-
72	69,780	38,573	-	-
77	34,292	17,183	-	-
82	14,215	7,510	-	-
87	5,004	2,882	-	-
<b>Total</b>	<b>10,329,676</b>	<b>8,250,098</b>	-	-

The waiver incidence rate at central age 62 drops due to some plans providing waiver to age 60 and others to age 65.



Table 4 shows Actual-to-Expected mortality rates by Industry Category. Industry category is based on the 1987 SIC code table.

<b>Table 4</b> <b>Actual-to-Expected Mortality by Industry Category</b> <b>Expected equals the Aggregate Rates by Age/Gender</b> <b>Based on Lives</b>		
<b>Industry Category</b>	<b>Percentage of Exposure (Lives)</b>	<b>A/E Mortality (Lives)</b>
Agriculture, Forestry and Fishing	0.6%	104%
Mining	0.4%	156%
Construction	4.1%	113%
Manufacturing	20.8%	111%
Transportation, Communication, and Public Utilities	4.1%	117%
Wholesale Trade	8.5%	93%
Retail Trade	7.9%	97%
Finance, Insurance and Real Estate	8.5%	86%
Services	41.2%	86%
Public Administration	3.2%	116%
Non-classifiable Industries	0.6%	89%
<b>Total</b>	<b>100.0%</b>	<b>100%</b>

Table 5 shows the variations by company for the A/E ratios. It should be noted that the expected values reflect age/gender, but are not adjusted for industry.

<b>Table 5</b>						
<b>Actual-to-Expected Ratios by Company</b>						
<b>Company</b>	<b>Mortality Rate</b>		<b>Waiver Incidence Rate</b>		<b>AD&amp;D Rate</b>	
	<b>By Lives</b>	<b>By Amounts</b>	<b>By Lives</b>	<b>By Amounts</b>	<b>By Lives</b>	<b>By Amounts</b>
A	102%	112%	69%	67%	169%	144%
B	114%	128%	139%	195%	81%	58%
C	88%	91%	85%	90%	78%	71%
D	88%	80%	133%	113%	70%	65%
E	91%	90%	53%	49%	132%	129%
F	102%	113%	94%	93%	88%	144%
G	81%	86%	199%	184%	109%	93%
All Others	128%	116%	73%	79%	169%	144%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

“All Others” is an aggregate of the other smaller submissions.

### **Participating Companies**

The Committee wishes to thank the following companies that contributed data that was used in the 2006 Study.

- Assurant
- American United Life Insurance Company
- CNA
- CUNA Mutual
- Florida Combined Life Insurance Company
- Guardian Life Insurance Company of America
- Hartford Life
- Jefferson Pilot
- Lafayette Life
- Metropolitan Life
- Minnesota Life
- UnumProvident Life Insurance Company

The Committee also wishes to thank the other contributors, whose data we were unable to include.

- Beneficial Life
- CIGNA
- Humana
- Mutual of Omaha
- Principal Life
- Prudential Life
- Reliance Standard
- Safeco

## **Conclusions**

As with all experience studies, users should be aware of several caveats:

- The results represent raw data and have not been smoothed or adjusted in any way.
- The smaller the exposure, the less credible the results for that cell – this is particularly important to remember in reviewing the pivot table results.
- Despite the Committee’s best efforts to validate data and the cooperation of the contributing companies to investigate and correct their submissions, it is likely that some data errors were not discovered and are, therefore, included in the results.
- Experience will vary from company to company and from year to year for a number of factors that we were not able to study. Care should be exercised in applying the results of this study for pricing or other purposes.

The SOA has posted a copy of this paper, as well the Excel pivot tables and the Excel workbook with the tables, on its website, ([www.soa.org](http://www.soa.org)).

Companies may also obtain further information by contacting Jack Luff, SOA Experience Studies Actuary, at 847-706-3571 or [jluff@soa.org](mailto:jluff@soa.org).

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