Society of Actuaries

2008 Long Term Disability Experience Study Report

August 14, 2009

Table of Contents

ACKNOWLEDGEMENTS

BACKGROUND

In response to the growing need for a comprehensive update of industry experience, the Society of Actuaries' Group Long Term Disability Experience Study Committee ("LTD Experience Committee" or "Committee") gathered and analyzed historical industry data on claim terminations. This report presents the results and findings of that experience study ("2008 GLTD Study"). The 2008 GLTD Study covers claim termination experience for claim exposures between January 1, 1997 and December 31, 2006, with a valuation date of December 31, 2007 (in order to allow for late reporting of claim terminations and new claims). It is expected that this 2008 GLTD Study will form the basis for a new valuation table to replace the 1987 Commissioner's Group Term Disability Table (1987 CGDT). Next steps with respect to that objective are discussed at the end of this report.

By way of comparison, the 680,000 terminations included are more than 10 times the number underlying the 1987 CGDT, and the 1.2 million claims exposed are more than four times the number underlying Table 95a (the most recent published industry experience table).

1. Data Submissions

Companies were requested to submit data on all fully insured group long term disability ("LTD") claims that were open at any time during the study period, and that also had at least one benefit payment. Specifications for the data request are shown in Appendix 1, attached.

Certain claims were excluded from the study, including full or partial administrative services only ("ASO") claims, claims from reserve buy-outs, international claims, and claims with extended elimination periods (greater than 15 months). Zero-day elimination periods ("EP") claims are excluded from all analyses except those focusing on results by EP. Similarly, claim experience for the first three months of disability is excluded from all analyses except those focusing on results by duration.

A subset of the LTD Experience Committee (the "Data Committee") was organized and oversaw collection of the data. In order to ensure confidentiality of individual company data, an external vendor was utilized to collect and sort the data. The Medical Information Bureau ("MIB") was selected as that vendor.

In the data request, companies were asked to assign claim terminations to one of five categories:

- Recovery

- Death

- Contractual maximum benefit period being reached ("Max-Out")

- Expiration due to internal benefit period limit ("Limit")

- Settlement.

The term recovery refers to any claim termination that is not otherwise identified by the other four categories and thus includes many terminations that are not due strictly to a recovery from the disability. In particular terminations due to the change in definition from own occupation to any occupation are counted as recoveries.

The following audit steps were taken to ensure the integrity of the data:

1.   Members of the Data Committee were assigned to assist participating companies throughout the data submission process by addressing those questions or bringing those them to the attention of the overall Data Committee for resolution, as appropriate

2.   The Data Committee developed self-audit guides and provided these to participating companies; the guides outlined data checks the contributors should perform on their data prior to submission.

3.   Next, MIB used a multi-step process to review the self-audited submitted data:

    a. MIB provided individual companies with File Validation Reports to confirm the accuracy of record counts, distribution of data across key fields, and distribution of claim terminations by category over time.

    b. MIB then prepared Data Validation Reports to document potential data issues it identified with specific data records; e.g., with respect to potential coding (syntax) errors, logic (failure to meet pre-determined audit tests) errors, and duplicate entries. Companies reviewed these and resubmitted data as necessary,

c. MIB then provided reports summarizing the characteristics of each contributor's submitted data for company sign-off as reasonable.

c. Finally, MIB produced summaries of resulting experience (i.e., recovery rates, mortality rates and Actual-to-Expected (A/E) ratios) for contributors to review and sign-off on with respect to reasonableness and consistency with their knowledge of their own experience.

4. The Committee then reviewed a contributor-level variance report to identify potential outliers. The data was presented in a manner which precluded individual company identification. Any potential issues identified by the Committee were addressed through MIB back to the contributing company.

5. Finally, the Committee decided to remap some of the claim terminations initially coded as recoveries by contributors; those claims had termination dates coinciding with the end of the contractual benefit period or an internal benefit period limit (e.g., mental & nervous). These were recoded to an appropriate maximum benefit termination category.

The total audit process took several months; however, as a result, only a limited amount of data had to be excluded from the study. The Committee is comfortable with the integrity of the resulting data.

2. Description of Study Results

The data associated with the largest contributors was dampened to prevent their experience from dominating the study results. Specifically, the exposure for each of the top five companies was reset to represent 12% of the total study exposure. In addition, data for the smallest four companies were combined and treated as one company for purposes of this study. This approach was selected to ensure that the results represent the average terminations of a broad base of companies.

The definitions of exposure and duration of claims used in this report are consistent with the assumptions used to develop an experience table, as opposed to a valuation table. The differences between these two table methods are documented at the end of this report in the Next Steps section. Duration of a claim is defined by benefit month. (See Appendix 2 for

detailed descriptions.) This allows for cleaner treatment of early duration exposure and months of benefit aligned to contract provisions. For our analysis, the first month of benefit of a claim with an EP near ninety days is considered duration (month) four. This month starts on the first day after the EP. Subsequent durational months start on that same day of the month. A claim generates exposure from the later of the benefit start date and the study start date. Exposure ends at the earliest of the claim max-out date, the study end date, or the end of the benefit month in which a claimant recovers, dies, hits an M&N limit or accepts a settlement.

Claims that start and terminate during the study generate integral months of exposure. Claims that were open at the beginning of the study generate fractional exposure in the first month of the study. Claims that were open at the end of the study generate fractional exposure in the last month of the study, while claims that reached the maximum benefit period during the study generate fractional exposure in the month of termination.

The exposures and terminations for each company were adjusted using company dampening factors as described above.

The balance of this report focuses on analysis of A/E termination rates across selected parameters. Raw A/E ratios; i.e., without smoothing or graduation, are presented. Expected terminations are based on Table 95a. There are, in fact, multiple versions of Table 95a; for most of our analyses, the version of Table 95a used includes the extra increases in recoveries for the transition from an own occupation definition ("own occ") to an any occupation ("any occ") definition of disability. However, certain tables and charts in this report; i.e., those that focus on the transition period surrounding a change in definition of disability, use for expected the version of Table 95a that does not include the additional recoveries due to an own occ to any occ change in definition.

In all tables, exposure is determined by the number of months a claim is exposed; e.g., in Table 1.1, one claim persisting for one quarter provides three months of exposure.

The study results are presented across all benefit period variations combined. The Committee does not believe this creates a material distortion, as the vast majority of claims in the study provide benefits to retirement age; i.e., to age 65 or Social Security Normal Retirement Age, (except for certain internal limits; e.g., 24 month limit for M&N claims). This was not

measured directly, but was inferred by noting that the vast majority of terminations due to contractual benefit limits being reached occurred at attained ages 60 and over.

The A/E analyses show experience separately for deaths and recoveries. Terminations due to the maximum contractual benefit period, an internal benefit limit (primarily M&N benefit period limit; not own occ limit), or settlement, are not included in the actual to expected analyses. However, this report does provide analyses of M&N benefit period limits and settlement separately.

A/E analyses are provided for the following parameters:

1. Comparisons to Table 95a

2. Claim Diagnosis

3. Recovery Rates

4. Death Rates

5. Elimination Period

6. Change in Definition of Disability

7. Settlements

8. Mental and Nervous ("M&N") limits

9. Benefit Amount

10. Variance in Results by Company

3. Appendices and/or Pivot Tables

To supplement the analysis provided in this report, an Excel™ pivot table has been made available. The data in the pivot table has been provided to enable readers to evaluate many of the key findings described in this report. Since the pivot table does not provide all of the details reviewed by the Committee, or that will be used to generate experience and valuation tables, it is not intended by this committee to serve as the data source for reserve table construction.

4.   Credibility of Results and Implied Confidence

While the study contains sufficient claims for credible observations of termination results by most key segments, it is important to be aware of the limited credibility of some results. Rather than define a specific credibility to a cell, we have established a simple method for assigning a confidence level. Since the standard deviation of random outcomes given an expected termination rate is equal to the square root of the number of expected claims, the percent standard deviation of an outcome will be one divided by the standard deviation.

This means, for example, that an 85% confidence level will be within plus or minus 1.44 times the standard deviation of the observed outcome. If we have the 100 terminations in a cell the 85% confidence level is within 14.4% of the observed outcome. With 1,000 terminations, this range drops to plus or minus 4.5%

In the interest of simplicity, most tables and charts in this report do not include a confidence level, but this can usually be inferred from the exposure and the termination rates. If our observations include cells that have low number of terminations, these will be specifically cited. In addition, the user of the supplied pivot table should be aware of the implied confidence level of observed outcomes.

STUDY RESULTS

1. Comparisons to Table 95a

Since many of the subsequent sections of this report present actual terminations relative to Table 95a expectations, this section will briefly describe Table 95a and show how the current experience compares to this table by the key variables such as duration, age, gender and EP.

Table 95a was the result of the Society of Actuaries ("SOA") 1995 GLTD Experience Study; it consists of an experience table without margins. The actual study publication was not a physical table, but rather an algorithm that generates expected death and recovery rates given inputs of duration, gender, age at disability, elimination period, claim diagnosis type and the duration of the transition from an own occupation to an any occupation definition of disability. Thus, the results incorporate smoothing, rather than being purely raw data. The algorithm can be downloaded from the SOA web-site using the following link:

http://www.soa.org/research/group-disability/96-group-ltd-study-tables.aspx

Table 95a developed experience separately for four different groups of claim diagnoses:

- M&N
- Maternity
- AIDS/HIV
- All Other.

For the A/E ratios in this report, we only use the expected terminations from three of those four groups. For the 2008 GLTD Study, AIDS/HIV claims are grouped with "All Other", and expected terminations for those use the Table 95a "All Other" expectations.

We also note that the Table 95a algorithm defined the first month of disability as month zero; this report defines first month of disability as month one. For example, this means that if you were comparing the recovery expectation for a 90-day EP claim in the first month of benefit, you would look up month three in the Table 95a algorithm to compare to the month four result for this report. Finally, all comparisons are relative to the Table95a expectations as opposed to the raw experience underlying the 1995 study.

The following tables and charts show the GLTD 2008 A/E ratios for key experience
parameters. Before presenting results, we caution that not all tables include all claims, and
so the information provided in the totals may not be the same from table to table. For
example, Table 1.1 includes all claims other than EP=0 claims, whereas Table 1.2 also
excludes the first quarter of duration. In addition, some other tables also exclude maternity
claims. For reference we have the following exposures and A to E's for the different totals.

Totals	Exposure	Recovery A/E	Death A/E
Exclude EP=0	17,745,556	116.6%	77.7%
Exclude EP=0 and Qtr 1	17,636,989	121.6%	77.8%
Exclude EP=0, Qtr 1, and Maternity	17,537,446	120.6%	77.8%

Table 1.1 shows recovery and death experience by claim duration.

TABLE 1.1

Recovery and Death Experience by Claim Duration

		Recoveries		Deaths	
Duration	Exposure	Count	A/E	Count	A/E
Quarter 1	108,567	34,254	86.1%	284	57.1%
Quarter 2	815,654	90,036	108.9%	5,789	72.4%
Quarter 3	1,261,389	66,089	117.2%	10,117	63.8%
Quarter 4	1,082,125	32,934	118.4%	8,505	70.0%
Quarter 5	980,394	20,138	113.9%	6,671	73.0%
Quarter 6	890,097	13,285	124.7%	5,185	74.4%
Quarter 7	814,446	10,539	168.0%	4,096	75.7%
Quarter 8	757,596	8,225	177.3%	3,304	77.2%
Quarter 9	702,377	9,332	165.2%	2,665	78.8%
Quarter 10	615,375	10,665	173.9%	2,237	85.4%
Quarter 11	526,042	6,734	174.3%	1,945	93.5%
Quarter 12	488,738	3,903	122.8%	1,690	93.4%
Year 4	1,667,466	9,333	141.6%	5,310	93.9%
Year 5	1,312,051	4,170	102.2%	3,610	96.1%
Year 6	1,027,625	2,589	147.4%	2,615	98.3%
Year 7	816,381	1,610	168.6%	2,019	96.3%
Year 8	672,619	1,062	148.0%	1,658	95.3%
Year 9	554,426	767	132.8%	1,270	88.1%
Year 10	458,816	610	130.5%	1,039	86.6%
Year 11+	2,193,373	2,091	112.2%	5,530	85.8%
Total	17,745,556	328,367	116.6%	75,539	77.7%

The current study shows recoveries that are high relative to the Table 95a expectations, especially in the third year of duration and in years six through eight. The death rates are generally lower than Table 95a; much more so in earlier claim durations. We speculate that these differences may be caused by generally less severe disabilities than was observed during the 1995 study, as well as by improvements in claim management.

Tables 1.2.A, 1.2.B and Chart 1.2.C show experience by age at disability and gender.

TABLE 1.2.A

Recovery and Death Experience by Age at Disability – Male

Age at Disability	Exposure	Recoveries		Deaths	
		Count	A/E	Count	A/E
15 to 19	5,110	203	118.2%	9	53.5%
20 to 24	65,973	2,678	121.7%	171	75.5%
25 to 29	199,588	6,066	115.1%	542	76.8%
30 to 34	442,044	10,359	115.5%	1,354	81.9%
35 to 39	776,820	14,461	117.2%	2,333	70.5%
40 to 44	1,125,030	17,690	123.5%	4,028	69.0%
45 to 49	1,433,928	18,299	130.9%	6,236	72.7%
50 to 54	1,754,792	17,163	133.9%	8,776	76.4%
55 to 59	1,622,854	13,501	133.0%	9,660	79.2%
60 to 64	738,850	7,233	143.5%	5,734	82.9%
65 to 69	82,844	1,517	178.8%	1,152	104.2%
70 to 74	20,487	436	184.4%	331	98.2%
Male Total	8,278,181	109,786	127.0%	40,497	77.1%

TABLE 1.2.B

Recovery and Death Experience by Age at Disability – Female

Age at Disability	Exposure	Recoveries		Deaths	
		Count	A/E	Count	A/E
15 to 19	3,478	338	136.2%	3	95.0%
20 to 24	89,197	7,628	137.3%	130	115.9%
25 to 29	330,521	19,429	123.9%	510	99.9%
30 to 34	661,705	26,479	117.6%	1,169	91.2%
35 to 39	1,041,663	26,039	112.7%	2,145	80.1%
40 to 44	1,422,394	25,455	111.6%	3,854	76.4%
45 to 49	1,734,743	26,009	113.7%	5,970	75.8%
50 to 54	1,848,734	24,149	118.3%	7,803	79.2%
55 to 59	1,480,465	17,580	121.4%	7,682	79.5%
60 to 64	640,920	8,754	133.6%	4,300	75.8%
65 to 69	77,704	1,804	189.8%	859	86.5%
70 to 74	18,463	488	225.3%	225	77.3%
Female Total	9,358,807	184,327	118.6%	34,758	78.8%

CHART 1.2.C

Recovery and Death A/E Ratios by Age at Disability and Gender
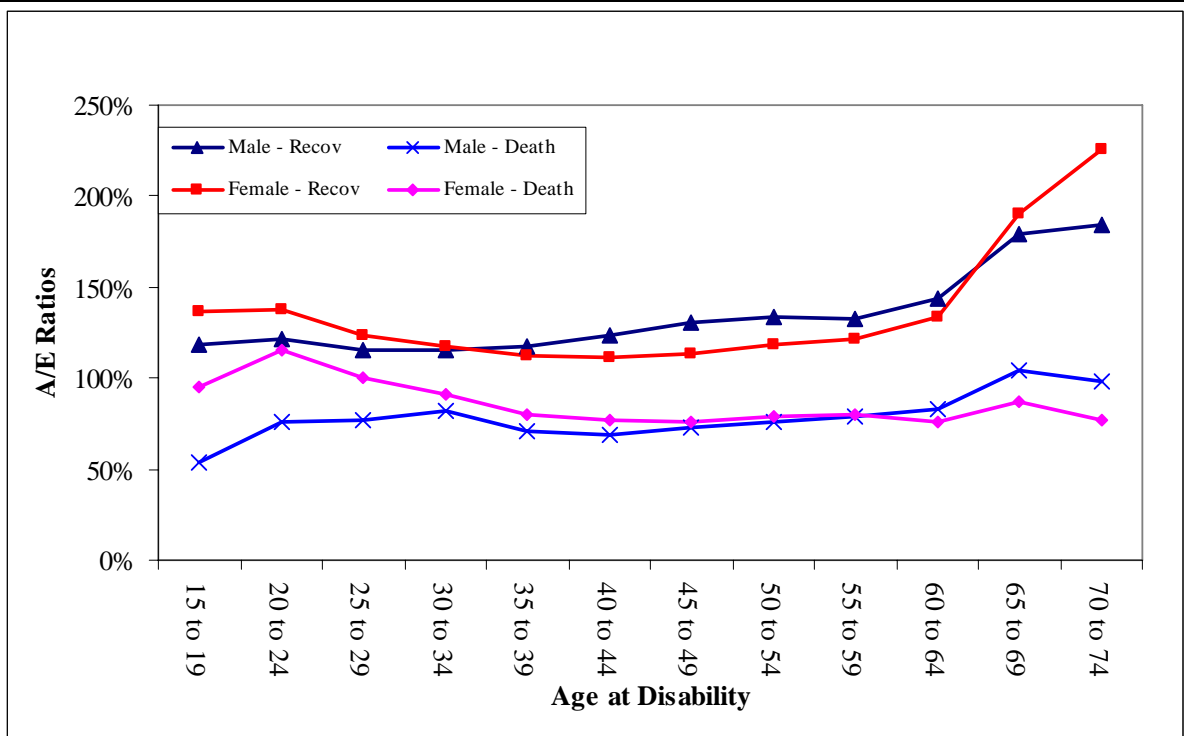
For males, we see the biggest increase in recoveries at older ages. The pattern is less consistent for females, showing increased recoveries at both the very young and very old ages. Death A to E's show some variation by age. Male A to E's increase with age, while female A to E's show a decrease.

Table 1.3 compares recovery and death experience by EP and claim duration.

TABLE 1.3

Recovery and Death Experience by Elimination Period and Claim Duration

	Recovery A/E by EP (Days)				Death A/E by EP (Days)			
Duration	**30**	**90**	**180**	**360**	**30**	**90**	**180**	**360**
Quarter 1	88%				50%			
Quarter 2	72%	118%			40%	76%		
Quarter 3	80%	100%	153%		50%	68%	62%	
Quarter 4	88%	105%	134%		58%	80%	64%	
Quarter 5	115%	106%	116%	146%	66%	80%	68%	62%
Quarter 6	113%	118%	122%	178%	60%	77%	73%	65%
Quarter 7	146%	147%	161%	162%	49%	77%	77%	66%
Quarter 8	159%	168%	174%	248%	55%	77%	77%	74%
Quarter 9	169%	175%	147%	197%	54%	80%	79%	71%
Quarter 10	142%	217%	159%	125%	92%	94%	82%	89%
Quarter 11	83%	107%	239%	96%	107%	93%	94%	73%
Quarter 12	108%	114%	125%	129%	109%	96%	92%	91%
Year 4	134%	134%	142%	192%	81%	101%	93%	80%
Year 5	101%	93%	101%	127%	88%	102%	95%	81%
Year 6	171%	137%	147%	171%	73%	103%	99%	79%
Year 7	156%	151%	171%	198%	96%	103%	95%	79%
Year 8	147%	120%	154%	195%	98%	100%	95%	86%
Year 9	88%	116%	141%	172%	100%	95%	87%	59%
Year 10	120%	108%	142%	164%	100%	87%	90%	62%
Year 11+	85%	84%	125%	136%	77%	88%	87%	81%
Total	85%	116%	144%	161%	60%	81%	76%	76%

Actual versus expected (Table 95a) recovery rates are generally higher the longer the EP.

2. Claim Diagnosis

In this section we review termination differences by claim diagnosis, with several tables that show the relative impact of diagnosis on disability by claim duration. We also review the impact of diagnosis on the select mortality period, highlighting the key difference between cancer claims versus all other diagnoses.

The following thirteen categories were used to assess the impact of claim diagnosis on disability termination experience.

TABLE 2.1

Mapping of ICD-9 Codes to Diagnosis Categories

Diagnosis Category	ICD-9 Codes
Back	720-724, 737, 847
Cancer	140-209, 230-239
Circulatory System	280-289, 390-459
Diabetes	250
Digestive	520-579
Ill-Defined and Miscellaneous Conditions	780-799
Injury other than Back	800-846, 848-979, E800-E999
Maternity	630-677, 760-779, V20-V39
M&N	290-319, V40
Nervous System	320-359
Other Musculoskeletal	710-719, 725-736, 738-739
Respiratory	460-519
Other	001-139, 210-229, 240-249, 251-279, 360-389, 580-629, 680-709, 740-759, 980-999, V1-V19, V41-V86

In Table 2.2 we show the distribution of exposures in the quarter immediately following the end of the elimination period. (The table is restricted to 90- and 180-day EPs). Variations by calendar year are also shown.

TABLE 2.2

Distribution of New Claim Exposure by Diagnosis and Calendar Year

Diagnosis	Calendar Year of Exposure				
	1997-99	**2000-02**	**2003-04**	**2005-06**	**Total**
Diabetes	1.4%	1.3%	1.2%	1.0%	1.2%
Ill-defined and Misc. Conditions	2.2%	2.1%	2.0%	2.2%	2.1%
Digestive	2.4%	2.5%	2.4%	2.4%	2.4%
Respiratory	2.8%	2.6%	2.7%	2.7%	2.7%
Maternity	5.5%	4.8%	4.4%	4.2%	4.7%
Nervous System	6.4%	6.4%	6.6%	6.4%	6.4%
Other	8.3%	8.2%	7.9%	7.9%	8.1%
M & N	9.2%	8.9%	8.1%	7.8%	8.5%
Injury other than Back	9.2%	9.4%	9.6%	9.6%	9.5%
Circulatory	12.4%	11.5%	10.9%	10.5%	11.3%
Other Musculoskeletal	11.9%	12.8%	13.5%	13.8%	13.0%
Back	13.9%	14.8%	15.7%	15.1%	14.9%
Cancer	14.6%	14.8%	15.0%	16.2%	15.1%
Total Exposure (000)	285	401	302	312	1,300

We do not note any significant changes in claim diagnoses over the period covered by the study. M&N and Circulatory diagnoses decline somewhat, while Other Musculoskeletal and Cancer claims show a modest increase.

The following tables and charts show ratios for diagnosis relative to the total for all diagnoses combined, by claim duration. The parameters displayed are: Exposure, Recovery Rate, Death Rate, and Total Death and Recovery Rate. The tables are sorted in ascending rank of exposure share for all durations. Also the total exposure (number of months exposed) is provided.

TABLE 2.3.A

Distribution of Exposure by Diagnosis and Claim Duration

| Diagnosis | Claim Duration | | | | | |
	Qtr 2-4	Yr 2	Yr 3	Yr 4-5	Yr 6+	Total
Maternity	2.8%	0.1%	0.1%	0.1%	0.0%	**0.6%**
Diabetes	1.3%	1.8%	2.1%	2.5%	2.2%	**2.0%**
Digestive	2.4%	2.1%	2.1%	2.2%	2.2%	**2.2%**
Ill-defined and Misc.	2.2%	2.3%	2.4%	2.6%	2.3%	**2.3%**
Respiratory	2.9%	3.6%	4.0%	4.3%	3.0%	**3.5%**
M & N	9.1%	10.0%	6.5%	3.1%	4.7%	**6.5%**
Injury other than Back	8.8%	7.1%	6.6%	6.1%	7.3%	**7.2%**
Cancer	14.8%	10.0%	7.5%	6.0%	3.3%	**7.7%**
Nervous System	7.0%	8.7%	10.1%	11.4%	13.3%	**10.5%**
Other	8.3%	9.1%	10.3%	11.7%	14.4%	**11.3%**
Other Musculoskeletal	13.2%	14.1%	14.7%	14.9%	13.8%	**14.1%**
Circulatory	12.0%	14.4%	16.8%	19.0%	17.4%	**16.0%**
Back	15.3%	16.7%	16.7%	16.0%	16.1%	**16.1%**
Total Exposure (000)	3,159	3,443	2,333	2,980	5,723	17,637

CHART 2.3.B

Distribution of Exposure by Diagnosis and Claim Duration
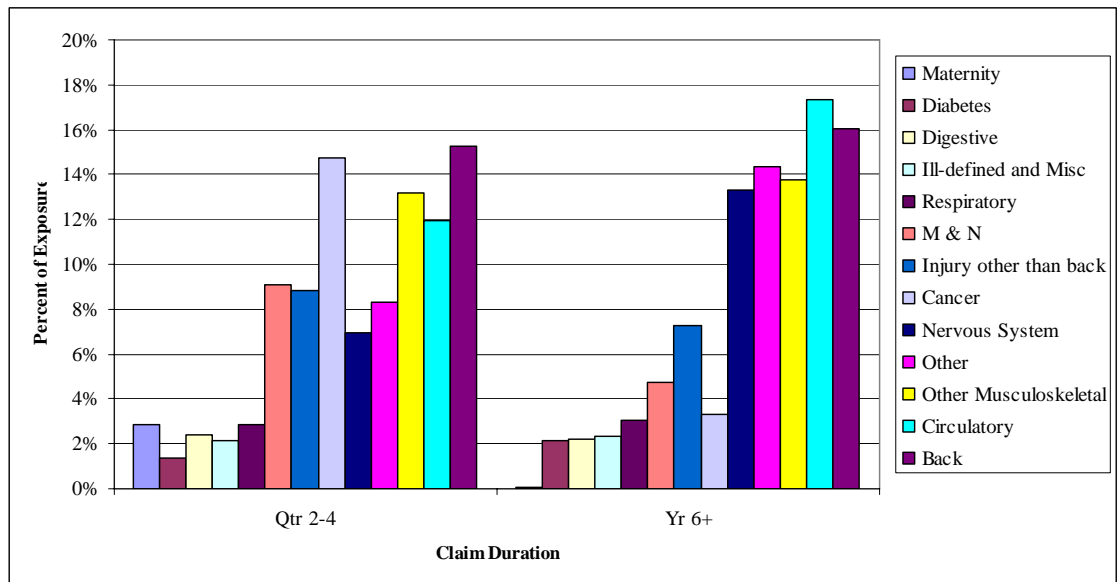
We note that the Table 95a expecteds do not take into account diagnosis, other than for Maternity and M&N. The following analyses use diagnosis-specific expecteds for Maternity and M&N, and Table 95a "All Other" terminations for the other 11 diagnoses.

TABLE 2.4.A

Recovery A/E Ratios by Diagnosis and Claim Duration

| | **Claim Duration** | | | | | |
Diagnosis	**Qtr 2-4**	**Yr 2**	**Yr 3**	**Yr 4-5**	**Yr 6+**	**Total**
Maternity	131%	54%	225%	211%	215%	**129%**
Diabetes	53%	85%	95%	77%	102%	**68%**
Digestive	143%	161%	150%	125%	121%	**145%**
Ill-defined and Misc.	105%	126%	154%	124%	153%	**116%**
Respiratory	56%	85%	107%	101%	105%	**70%**
M & N	116%	135%	152%	120%	149%	**125%**
Injury other than Back	181%	210%	255%	174%	148%	**189%**
Cancer	94%	187%	135%	122%	132%	**110%**
Nervous System	54%	70%	96%	76%	77%	**65%**
Other	106%	113%	111%	91%	149%	**109%**
Other Musculoskeletal	128%	142%	199%	158%	160%	**139%**
Circulatory	91%	104%	129%	100%	104%	**98%**
Back	104%	136%	220%	183%	198%	**128%**
Total	**113%**	**133%**	**163%**	**127%**	**138%**	**122%**

CHART 2.4.B

Recovery A/E Ratios by Diagnosis and Claim Duration
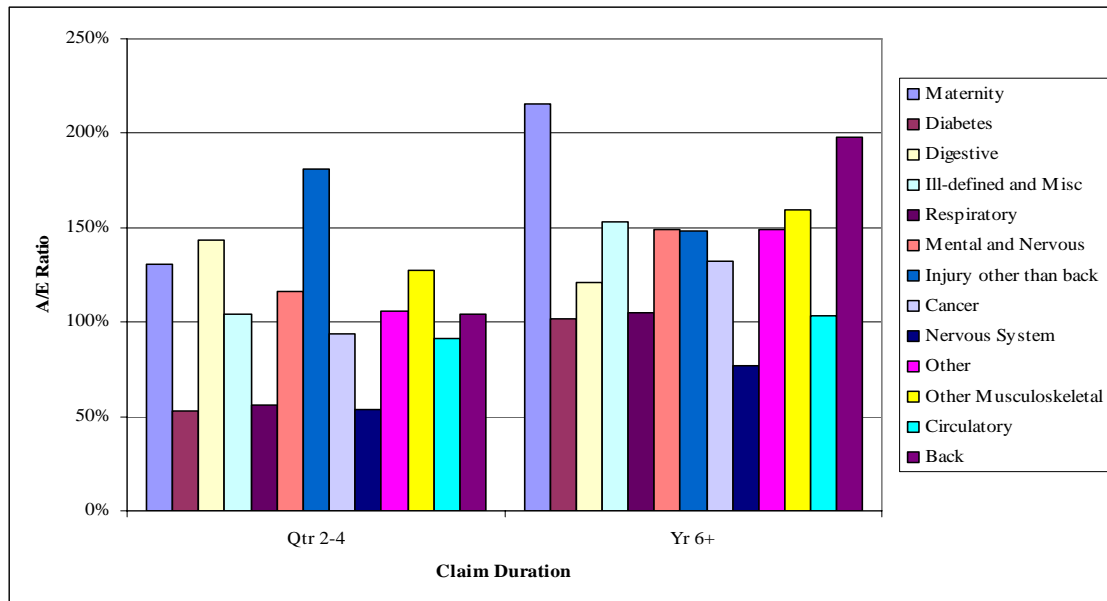
In Table 2.4.A, most diagnoses that have low or high recoveries in one duration group remain low or high at other durations. A notable exception is Back claims, which show low recoveries in the first year, but elevated recoveries at longer durations. Since Maternity and

M&N claims have their own Table95a expected values, the A/E Ratios are not directly comparable for these claims.

TABLE 2.5.A

Death A/E Ratios by Diagnosis and Claim Duration

Diagnosis	Qtr 2-4	Yr 2	Yr 3	Yr 4-5	Yr 6+	Total
			Claim Duration			
Maternity	84%	165%	136%	56%	126%	97%
Diabetes	19%	41%	80%	131%	187%	76%
Digestive	65%	78%	112%	131%	115%	86%
Ill-defined and Misc.	34%	39%	53%	65%	67%	45%
Respiratory	47%	65%	115%	158%	180%	90%
M & N	90%	82%	100%	76%	51%	69%
Injury other than Back	7%	14%	21%	36%	48%	18%
Cancer	300%	427%	513%	471%	277%	358%
Nervous System	18%	28%	49%	62%	87%	43%
Other	37%	50%	82%	112%	123%	71%
Other Musculoskeletal	6%	10%	16%	30%	50%	17%
Circulatory	27%	36%	60%	88%	107%	55%
Back	4%	7%	15%	23%	38%	13%
Total Exposure	68%	75%	86%	95%	91%	78%

CHART 2.5.B

Death A/E Ratios by Diagnosis and Claim Duration
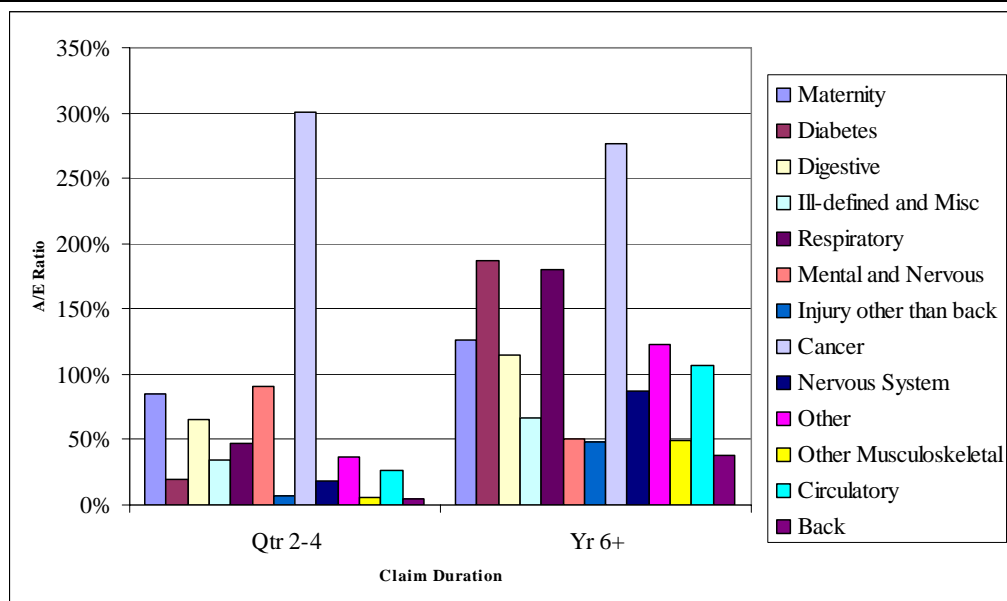
In Table 2.5.A, Cancer claims show much higher death rates than other diagnoses, especially in the early claim durations. Several diagnosis categories (e.g., Injury other than Back, Other Musculoskeletal and Back) show very low A/E ratios for deaths.

TABLE 2.6.A

Total A/E Ratios for Deaths and Recoveries Combined, by Diagnosis and Claim Duration

Diagnosis	Claim Duration					
	Qtr 2-4	Yr 2	Yr 3	Yr 4-5	Yr 6+	Total
Maternity	131%	54%	220%	194%	191%	**129%**
Diabetes	44%	63%	89%	107%	164%	**71%**
Digestive	128%	128%	138%	128%	117%	**128%**
Ill-defined and Misc.	91%	92%	121%	99%	99%	**95%**
Respiratory	53%	74%	110%	135%	162%	**79%**
M & N	115%	131%	148%	109%	77%	**120%**
Injury other than Back	151%	138%	184%	119%	82%	**146%**
Cancer	141%	296%	284%	298%	235%	**182%**
Nervous System	47%	54%	82%	70%	83%	**58%**
Other	92%	87%	101%	100%	131%	**97%**
Other Musculoskeletal	102%	86%	134%	96%	82%	**100%**
Circulatory	73%	68%	97%	92%	106%	**80%**
Back	84%	86%	154%	111%	84%	**93%**
Total	105%	110%	136%	112%	104%	**109%**

CHART 2.6.B

Total A/E Ratios for Deaths and Recoveries Combined, by Diagnosis and Claim Duration
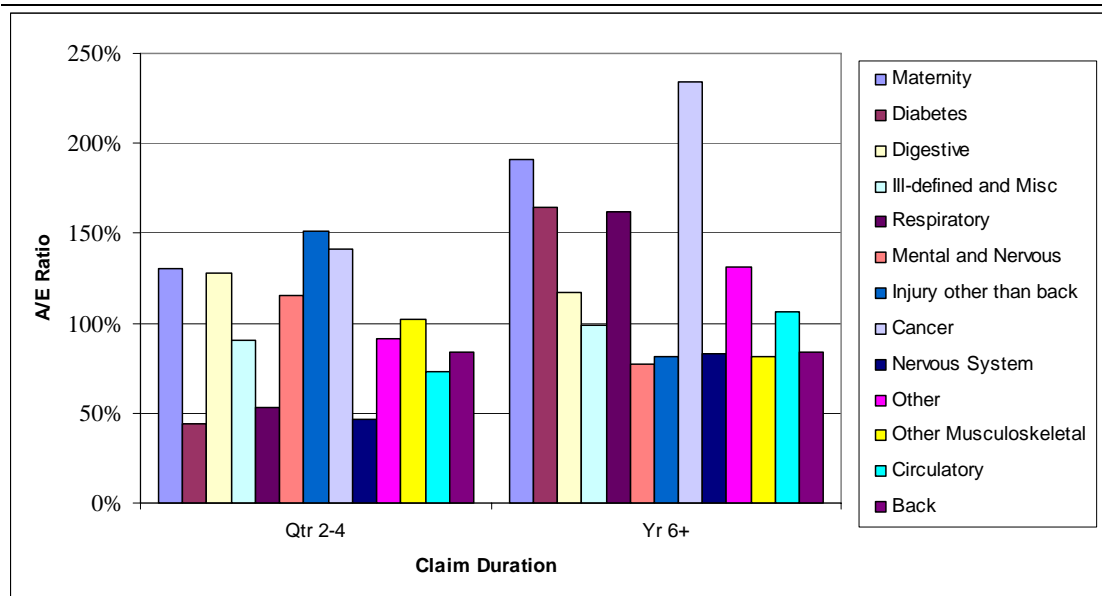
In Table 2.6.A, Cancer claims show the highest terminations for deaths and recoveries combined, in all durations after the first year, primarily due to elevated mortality.

2.1 Diagnosis Impact on Select Mortality Period

Death rates are elevated in the period shortly after disability.

Table 2.7 compares death rates in each of the first four years of claim duration (the "select period") to the aggregate rate for claim durations five and later, for each diagnosis category. The comparisons are presented as ratios, ranked in descending order (of the year one ratios.)

TABLE 2.7

Death Rates for Early Select Period by Diagnosis
Claim Durations 1 through 4 Compared to Aggregate of Years 5+

	Claim Duration (Years)				
Diagnosis	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5 Rate**
Cancer	453%	423%	272%	199%	0.143%
Digestive	270%	212%	161%	145%	0.881%
Ill-defined and Misc.	251%	184%	137%	115%	0.298%
Other	140%	120%	106%	106%	0.166%
Respiratory	128%	111%	109%	110%	0.332%
Circulatory	112%	94%	85%	87%	0.520%
Nervous System	110%	107%	103%	95%	0.347%
Injury other than Back	70%	92%	74%	89%	0.198%
Other Musculoskeletal	62%	68%	59%	84%	0.122%
Back	53%	57%	66%	75%	0.119%
Diabetes	52%	68%	73%	84%	0.097%
M & N	46%	49%	60%	82%	0.515%

The above table shows that Cancer claims have the strongest select period, followed by Digestive and Ill-defined and Misc. Some claim types (e.g., Diabetes and M&N) show increasing ratios by duration, which indicates that the longer one remains disabled, the greater the likelihood of death. For these claims, the increase in relative death rates by year is much higher than one would expect due to simple aging.

The following table shows the ratio of death rates for each of later claim durations (years 5 to 11+) to the aggregate for claim durations five and later, for each diagnosis category.

TABLE 2.8

Death Rates for Later Claim Durations by Diagnosis
Each of Claim Durations 5+ Compared to Aggregate of Years 5+

Diagnosis	Claim Duration (Years)						
	Yr 5	**Yr 6**	**Yr 7**	**Yr 8**	**Yr 9**	**Yr 10**	**Yr 11+**
Cancer	142%	113%	98%	83%	75%	66%	54%
Digestive	115%	107%	96%	115%	97%	87%	89%
Ill-defined and Misc.	122%	102%	83%	78%	124%	114%	88%
Other	99%	102%	93%	102%	84%	85%	108%
Respiratory	104%	107%	113%	109%	98%	95%	80%
Circulatory	97%	93%	94%	102%	98%	98%	109%
Nervous System	86%	90%	90%	86%	88%	103%	121%
Injury other than Back	90%	98%	92%	104%	97%	78%	111%
Other Musculoskeletal	75%	78%	90%	85%	96%	102%	140%
Back	72%	81%	92%	93%	91%	95%	132%
Diabetes	91%	87%	105%	103%	103%	102%	113%
M & N	102%	58%	98%	99%	84%	93%	114%

We can see that Cancer has a much longer select period than any other diagnosis; Cancer shows significant declines in mortality continuing into the 11th year.

Table 2.9 shows the ratio of death rates by attained age versus the total death rate for each diagnosis, including only claim durations greater than four years.

TABLE 2.9

Slope of Ultimate (Duration Years 5+) Death Rates by Attained Age and Diagnosis
Ratios of Death Rates by Attained Age to Aggregate for All Ages

	Attained Age						
Diagnosis	**35 – 39**	**40 – 44**	**45 – 49**	**50 – 54**	**55 – 59**	**60 – 64**	**Slope**
Cancer	99%	101%	174%	101%	102%	98%	-0.4%
Other	86%	77%	126%	89%	105%	106%	0.8%
Circulatory	64%	63%	151%	86%	93%	109%	1.4%
Digestive	65%	70%	136%	99%	108%	121%	2.1%
Diabetes	53%	64%	139%	97%	100%	115%	2.1%
Other Musculoskeletal	57%	53%	110%	81%	101%	119%	2.4%
Injury other than Back	52%	68%	118%	83%	111%	126%	2.7%
Respiratory	57%	43%	96%	76%	98%	123%	2.7%
Nervous System	52%	70%	117%	86%	104%	145%	3.1%
Back	34%	43%	114%	79%	90%	137%	3.5%
Ill-defined and Misc.	39%	59%	97%	93%	115%	145%	3.9%
M & N	36%	49%	104%	58%	83%	163%	4.0%
2006 Life Study*	36%	53%	80%	127%	203%	315%	10.8%

* SOA sponsored 2006 Group Life Experience Study ("2006 Life Study") - aggregate active lives (all durations), excluding ages greater than 65.

This table shows that Cancer claims have death rates that do not rise with attained age. While the other types of claims do show increasing mortality with age, the rate of increase is less than we see from the non-disabled lives from the 2006 Life Study. This implies the additional mortality experienced by disabled lives is not proportional to active life mortality, even at later claim durations.

3.   Recovery Rates

3.1   By Calendar Year

In this section, we review recovery experience by calendar year and illustrate trends that have emerged by both calendar year and claim duration.

TABLE 3.1.A

Recovery A/E Ratios by Calendar Year and Claim Duration

Calendar Year	Claim Duration (Months)					
	4-12	**13-24**	**25-36**	**37-60**	**61-999**	**Total**
1997	98%	95%	106%	89%	85%	**98%**
1998	102%	106%	109%	84%	100%	**102%**
1999	108%	120%	136%	106%	129%	**113%**
2000	111%	132%	154%	131%	147%	**120%**
2001	113%	135%	167%	144%	177%	**123%**
2002	114%	138%	173%	145%	182%	**125%**
2003	115%	139%	174%	138%	140%	**125%**
2004	117%	144%	184%	138%	132%	**128%**
2005	124%	146%	184%	132%	135%	**133%**
2006	121%	150%	192%	135%	132%	**132%**
Total	**113%**	**133%**	**163%**	**127%**	**138%**	**122%**

TABLE 3.1.B

Recovery A/E Ratios by Calendar Year and Claim Duration
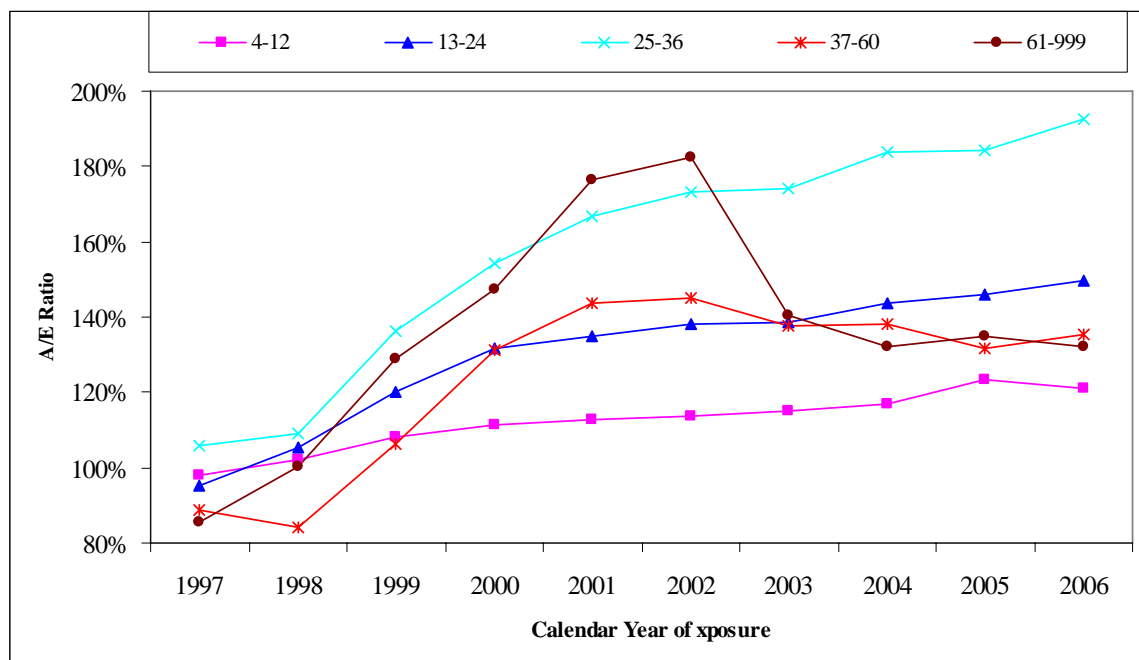
Over the study period, recovery experience has continuously improved for the first three years of disability. The chart below illustrates the historical A/E's relative to the 1997 A/E level; i.e., normalized to a 1997 A/E of 100%.)

CHART 3.2

Recovery A/E By Calendar Year and Claim Duration (1997 Base = 100%)
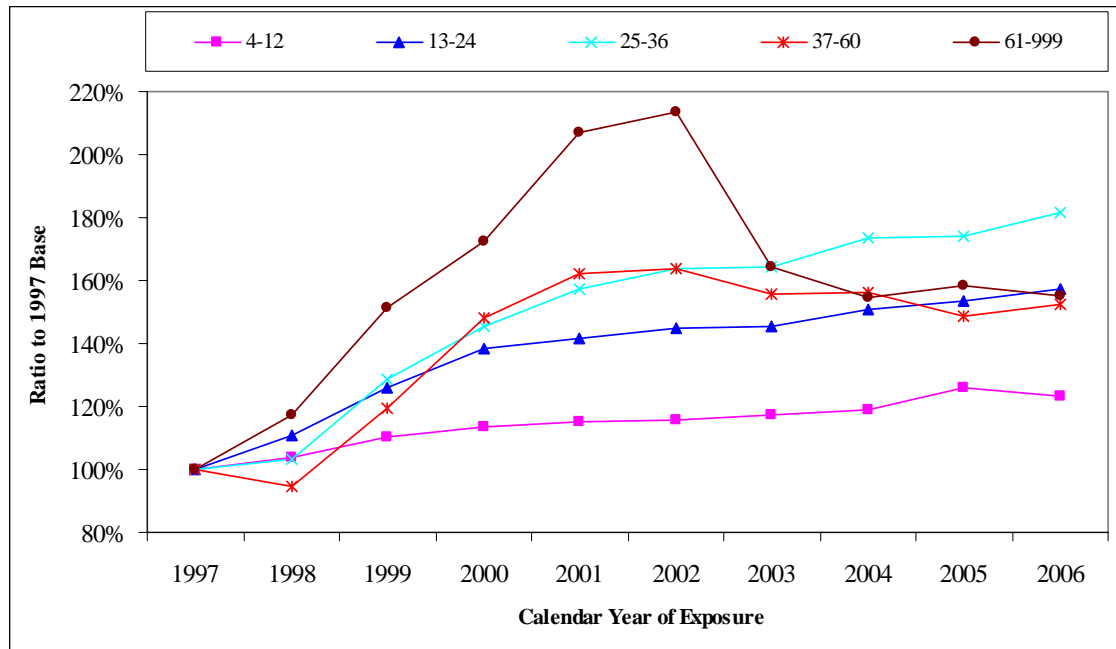
In terms of relative improvement, duration 4 - 12 recoveries have increased by about 20% over the study period. Duration 25 - 36 recoveries show an impressive 80% increase. The other duration groups improved by about 50% by the end of 2006, although each experienced significantly different patterns during the decade.

Table 3.3 shows A/E's for duration 25 - 36 only, but also splits the data between claim-specific durations surrounding the definition of disability transition, versus all other durations within the 25 - 36 month subgroup. "Own Occ Transition Durations" is defined as the last monthly duration of the own occupation definition plus the subsequent month. "No Transition Durations" include all other claim exposure durations within the 25 - 36 month subgroup for that claim.

TABLE 3.3

Recovery A/E's for own Occ Transition Durations vs. No Transition Durations
Within the 25 – 36 Month Duration Subgroup

Calendar Year	Own Occ Transition*	No Transition	Total
1997	148%	89%	106%
1998	147%	93%	109%
1999	187%	113%	136%
2000	201%	133%	154%
2001	227%	138%	167%
2002	232%	144%	173%
2003	236%	143%	174%
2004	261%	144%	184%
2005	270%	140%	184%
2006	278%	148%	192%
Total	228%	131%	163%

* Month of definition change plus subsequent month

In Table 3.4 we re-arranged the data to measure the recovery experience normalized to a 1997 base; it shows an improvement for the Own Occ Transition group that is slightly higher than the No Transition durations. This indicates that the significant recovery increase over the study period is not the sole result of improved management of the definition of disability. Although recovery rates during the own-to-any occ transition durations were already up to five times higher than No Transition rates in the 1995 study, the 2008 study Transition rates showed even greater multiples of the No Transition rates.

TABLE 3.4

Recovery Trends (1997 Base = 100) Split for Own Occ Transition vs. No Transition Durations Within the 25 – 36 Month Duration Subgroup

Calendar Year	Own Occ Transition*	No Transition	Total
1997	100%	100%	100%
1998	99%	106%	103%
1999	127%	128%	129%
2000	136%	150%	146%
2001	154%	156%	157%
2002	157%	163%	164%
2003	160%	162%	165%
2004	177%	163%	174%
2005	183%	158%	174%
2006	188%	167%	182%

*Month of definition change plus subsequent month

We speculate that one cause of the increased Own Occ transition terminations is improved claim management.

To analyze how recovery trends have differed by cause of disability, we reviewed A/E recovery trends for selected diagnosis groups by calendar year (Charts 3.5 and 3.6), normalized to 1997 A/E = 100%.

CHART 3.5

Recovery A/E Trends by Calendar Year and Duration for Cancer Diagnosis (1997 Base = 100%)
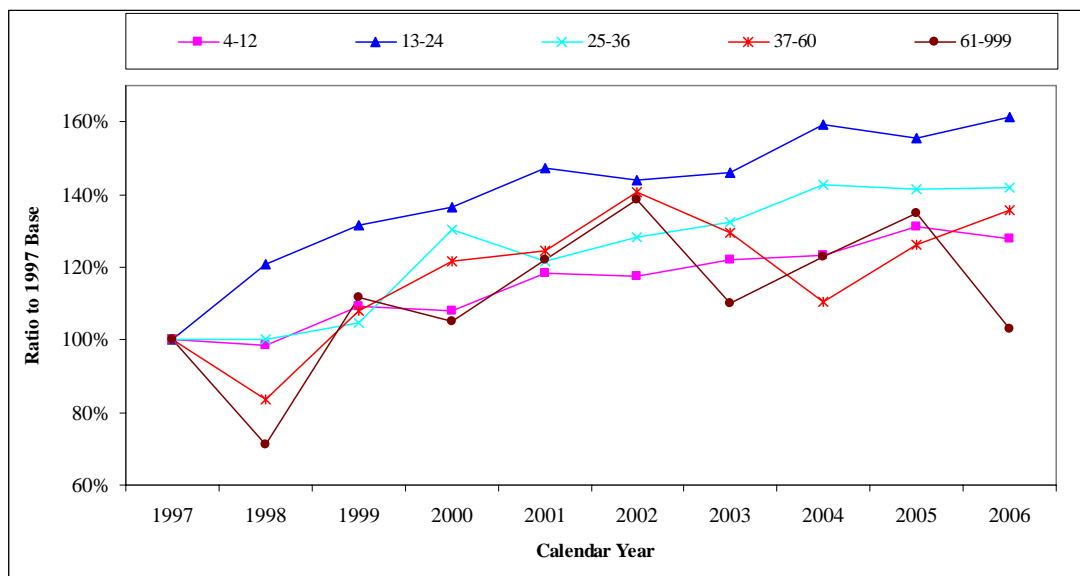
When considering Cancer claims, Chart 3.5 shows that the 25 – 36 month duration group improvement is modest relative to what we observed in Chart 3.2. For durations 13 – 24, Cancer claims show the most significant improvement of all diagnoses; however, there is only minimal improvement at durations 37 – 48.

Chart 3.6 below shows similar data for Other Musculoskeletal claims.

CHART 3.6

Recovery A/E Trends by Calendar Year and Claim Duration for Other Musculoskeletal Diagnosis (1997 base = 100%)
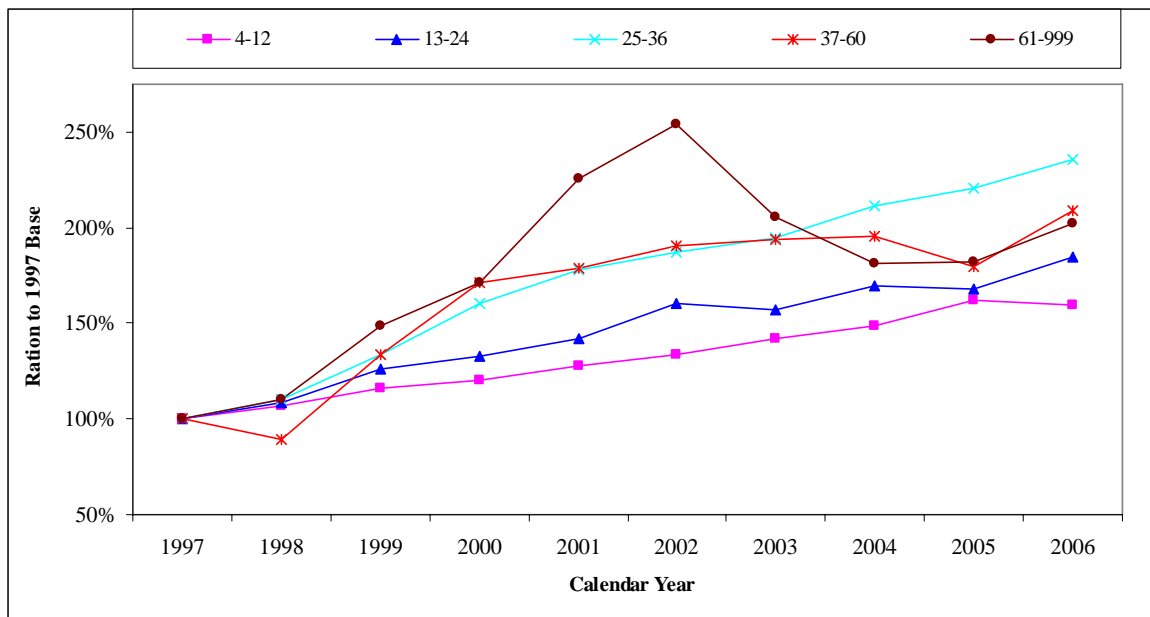
For Other Musculoskeletal claims, the recovery experience improved by at least 60% for all duration subgroups. The 25 - 36 month duration subgroup improved by over 130%.

We can only speculate on why recovery experience has improved significantly over the 10-year study period. Increased usage of clinical resources, general improvement in claim management practices and increase in proportion of less severe claims may have all contributed to the phenomenon.

3.2   By Attained Age and Age at Disability

The raw recovery rates by age at disability show, as expected from a large study, smoothly decreasing patterns with increasing age and duration.

TABLE 3.7

Raw Recovery Rates by Age at Disability and Claim Duration

	Claim Duration (Months)					
Age at Incurral	**4-12**	**13-24**	**25-36**	**37-60**	**61-999**	**Total**
<25	18.91%	4.32%	3.84%	1.53%	0.30%	6.62%
25 – 29	15.85%	3.28%	3.21%	1.31%	0.34%	4.81%
30 – 34	12.06%	2.79%	2.62%	1.11%	0.29%	3.34%
35 – 39	8.16%	2.32%	2.23%	0.87%	0.23%	2.23%
40 – 44	6.06%	1.93%	1.86%	0.65%	0.16%	1.69%
45 – 49	5.17%	1.61%	1.41%	0.49%	0.12%	1.40%
50 – 54	4.37%	1.25%	1.08%	0.33%	0.09%	1.15%
55 – 59	3.60%	0.90%	0.73%	0.20%	0.06%	1.00%
60 – 64	3.17%	0.77%	0.54%	0.17%	0.06%	1.16%
64+	3.63%	0.78%	0.26%	0.15%	0.17%	2.11%
Total	5.98%	1.52%	1.31%	0.45%	0.15%	1.67%

The experience in Table 3.8 indicates that the duration effect is significant for at least the first 60 months of disability.

TABLE 3.8

Raw Recovery Rates by Attained Age and Claim Duration

	Claim Duration (Months)					
Attained Age	**4-12**	**13-24**	**25-36**	**37-60**	**61-999**	**Total**
<25	19.73%	4.46%	3.81%	1.63%	1.18%	14.00%
25 – 29	16.36%	3.57%	3.50%	1.58%	0.70%	9.46%
30 – 34	12.57%	2.94%	2.94%	1.29%	0.57%	5.99%
35 – 39	8.51%	2.44%	2.40%	1.08%	0.45%	3.55%
40 – 44	6.23%	2.04%	2.04%	0.83%	0.34%	2.39%
45 – 49	5.25%	1.71%	1.64%	0.62%	0.24%	1.81%
50 – 54	4.49%	1.36%	1.22%	0.45%	0.17%	1.36%
55 – 59	3.68%	0.98%	0.91%	0.29%	0.11%	0.93%
60 – 64	3.06%	0.75%	0.59%	0.17%	0.06%	0.54%
64+	3.57%	0.78%	0.44%	0.18%	0.03%	0.90%
Total	5.98%	1.52%	1.31%	0.45%	0.15%	1.67%

4.   Death Rates

4.1   Death Rate Experience

This section analyzes death rates for the 2008 GLTD Study. LTD claim costs have
similarities to an immediate annuity, in that higher death rates decrease claim costs and
reserves. This section examines mortality improvement over the study period and compares
study death rates to other SOA LTD and Group Life mortality studies, as well as population
mortality data.

4.2   Death A/E Ratios by Calendar Year and Mortality Improvement

The aggregate death A/E ratio for the study is 78%. The A/E ratio over the study period has
ranged from 82% to 74% by calendar year, with a generally reducing pattern over the study
period. Chart 4.1 also includes a linear trend line of A/E's by calendar year.

CHART 4.1

Death A/E Ratios by Calendar Year (Expected = Table 95a)
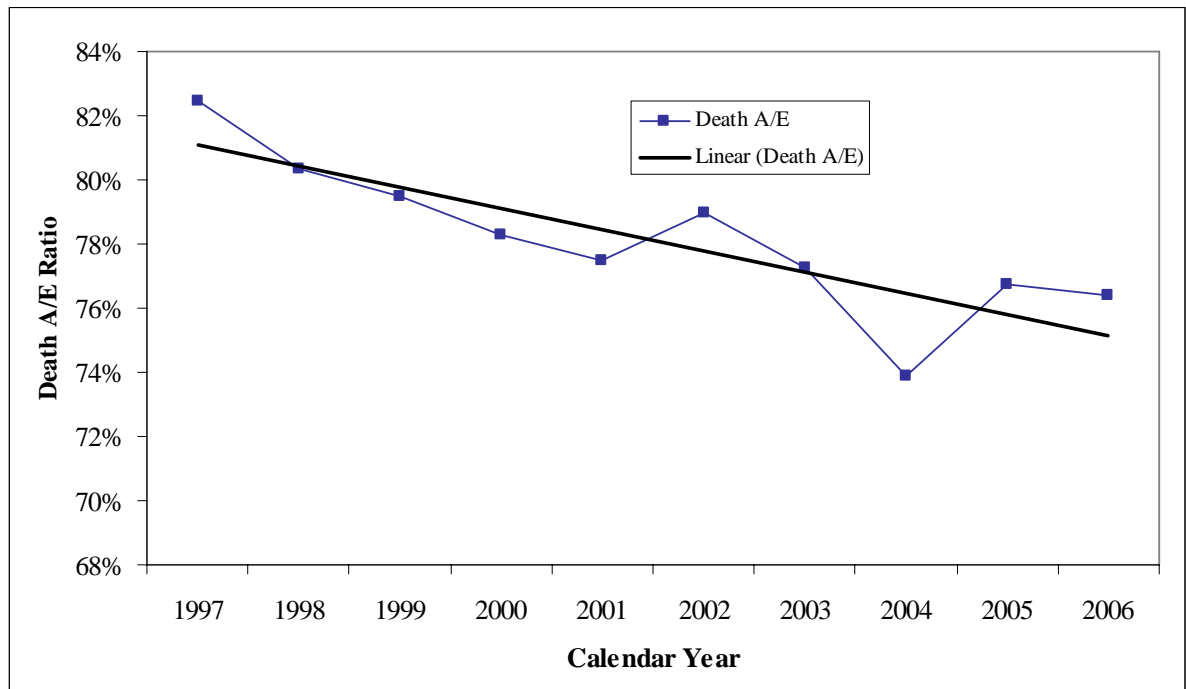
The aggregate A/E ratio of 78% implies that the overall LTD mortality levels have changed
materially since the Table 95a study period. There are many possible reasons for this low
A/E ratio.

Our review looks at mortality improvement over the study period; however, it also is important to note that we have not attempted to normalize for potential changes in mix of exposure by diagnosis, age, gender and other parameters.

For additional background on mortality improvement, see Appendix 3, where mortality improvement in the 2008 GLTD Study is compared to mortality improvement in the general population. The U.S. Centers for Disease Control ("CDC") reported mortality improvement in the general population of 1.0% on an annualized basis[1] between 1999 and 2005.

TABLE 4.2.A

Raw Death Rates and A/E Ratios by Claim Duration

Duration	Death A/E	Raw Death Rate
Year 1	67.7%	0.76%
Year 2	74.6%	0.56%
Year 3	86.3%	0.37%
Year 4	93.9%	0.32%
Year 5	96.1%	0.28%
Year 6	98.3%	0.25%
Year 7	96.3%	0.25%
Year 8	95.3%	0.25%
Year 9	88.1%	0.23%
Year 10	86.6%	0.23%
Year 11+	85.9%	0.25%

Chart 4.2.B shows raw mortality rates that exhibit a modest mortality improvement by calendar year.

---

[1] http://www.cdc.gov/nchs/datawh/statab/unpubd/mortabs.htm

CHART 4.2.B

Raw Death Rates by Calendar Year
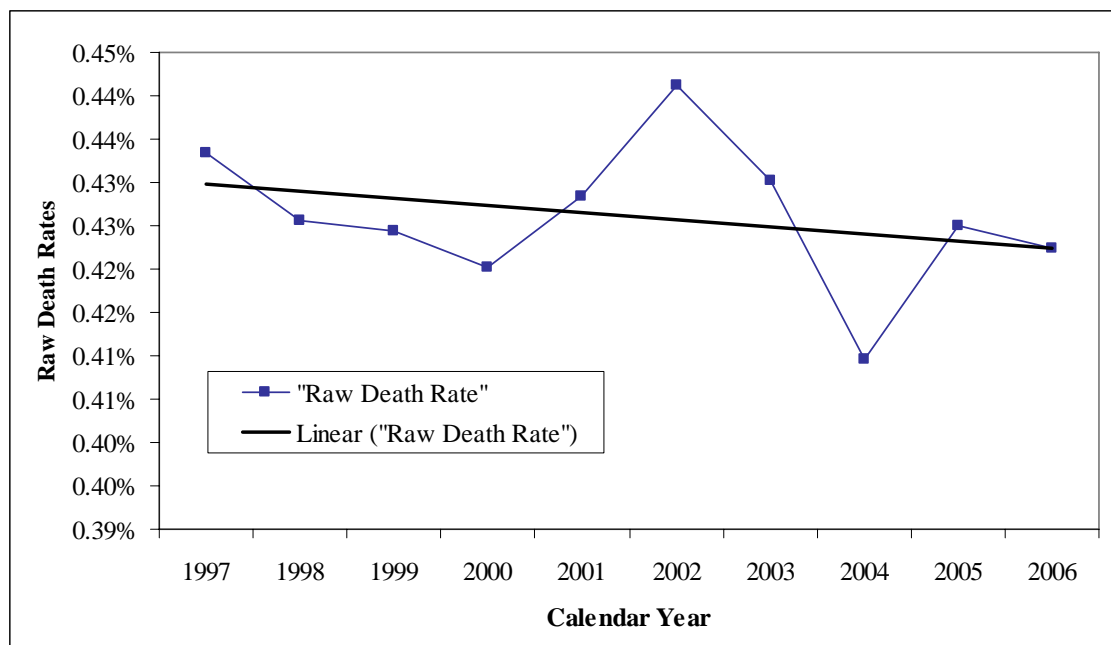
4.3   Death A/E Ratios by Duration

Table 4.3 shows A/E ratios and raw mortality rates by claim duration. A/E ratios by claim duration imply that the Table 95a over-estimated deaths in early claim years.

TABLE 4.3

Experience Study Death Rates - A/E and Raw

Duration	Death A/E	Raw Death Rate	Exposure (Dampened)
Year 1	67.8%	0.773%	3,159,167
Year 2	74.6%	0.559%	3,442,533
Year 3	86.3%	0.366%	2,332,532
Year 4	93.9%	0.318%	1,667,466
Year 5	96.1%	0.275%	1,312,051
Year 6	98.3%	0.254%	1,027,625
Year 7	96.3%	0.247%	816,381
Year 8	95.3%	0.247%	672,619
Year 9	88.1%	0.229%	554,426
Year 10	86.6%	0.226%	458,816
Year 11+	85.8%	0.252%	2,193,373

4.4   Raw Death Rates by Attained Age

Table 4.4.A compares 2008 LTD Study experience by attained age to the SOA 2006 Group
Term Life Experience Study, as well as population mortality data.

Table 4.4.A
Comparison of 2008 LTD Study Raw Death Rate to other Mortality Studies
Raw Annual Death Rates

Attained Age	2008 LTD Study (2002)* First 4 Claim Durations Only	2008 LTD Study (2002)* 5+ Claim Durations Only	2002 CDC Population Mortality (2002)*	2006 SOA Group Term Life Mortality Study (2000)*	2005 SOA Group Term Life Waiver Study (1999)* First 4 Claim Durations Only
25 – 29	2.64%	2.09%	0.09%	0.04%	5.43%
30 – 34	3.14%	1.73%	0.11%	0.05%	4.70%
35 – 39	3.64%	1.93%	0.16%	0.06%	4.84%
40 – 44	4.45%	1.95%	0.24%	0.09%	5.68%
45 – 49	5.61%	2.25%	0.36%	0.14%	6.19%
50 – 54	6.75%	2.52%	0.51%	0.22%	6.76%
55 – 59	7.39%	3.00%	0.77%	0.35%	7.09%
60 – 64	7.87%	3.63%	1.19%	0.54%	7.79%

* Average year of exposure on an "exposure-weighted" basis

The first two columns in Table 4.4.A show results from the 2008 GLTD Study; the second
column includes only data during the first four years of disability, in order to measure
mortality during the "select period". It should be noted that each study heading also provides
the exposure-weighted average experience year in parentheses; e.g., the mid year of exposure
for the 2008 GLTD Study was 2002.

Table 4.4.B
Comparison of 2008 LTD Study Raw Death Rate to other Mortality Studies
Raw Annual Death Rates
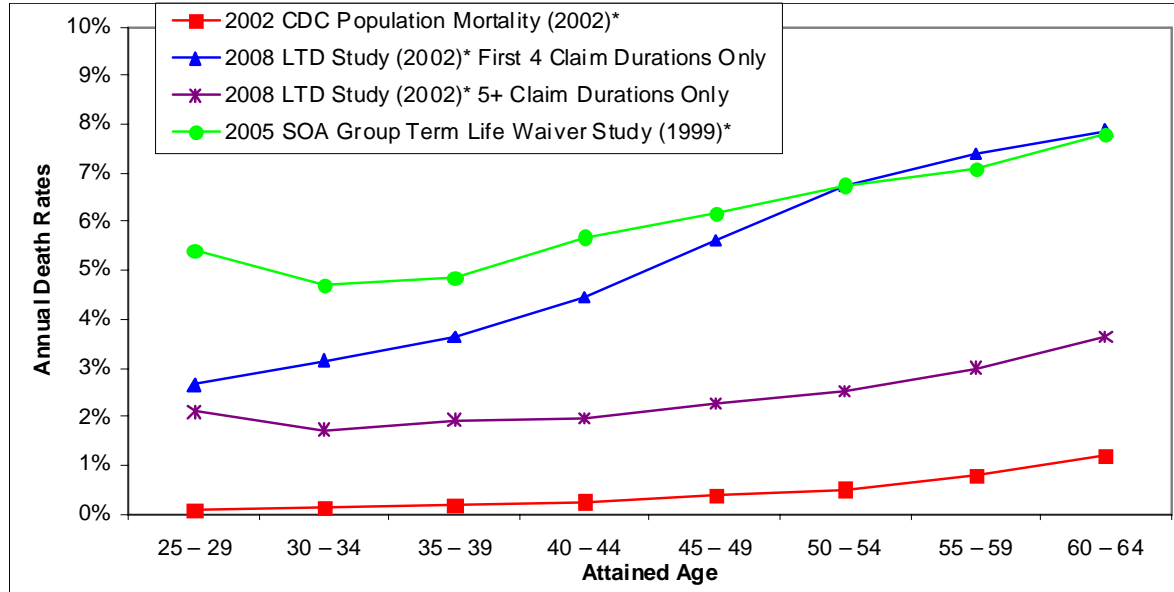
* Average year of exposure on an "exposure-weighted" basis

The death rates of GLTD claimants fall above the general population, but below Group Life waiver. This is consistent with expectations. Group Term Life mortality falls well below all of the studies, which is also consistent with expectations given that it is a working population.

4.5   Raw Death Rates for Other Significant Parameters

The remainder of this section examines other key drivers of mortality experience in the 2008 GLTD Study, including:

■ Diagnosis – cancer claims have high mortality rates and account for roughly half of the deaths in the 2008 GLTD Study

■ Duration – select and ultimate effect for 2008 LTD Study claims causes higher mortality rates in the early durations of a claim

■ Gender – males have higher mortality rates than females.

CHART 4.5

Raw Death Rates by Attained Age and Gender
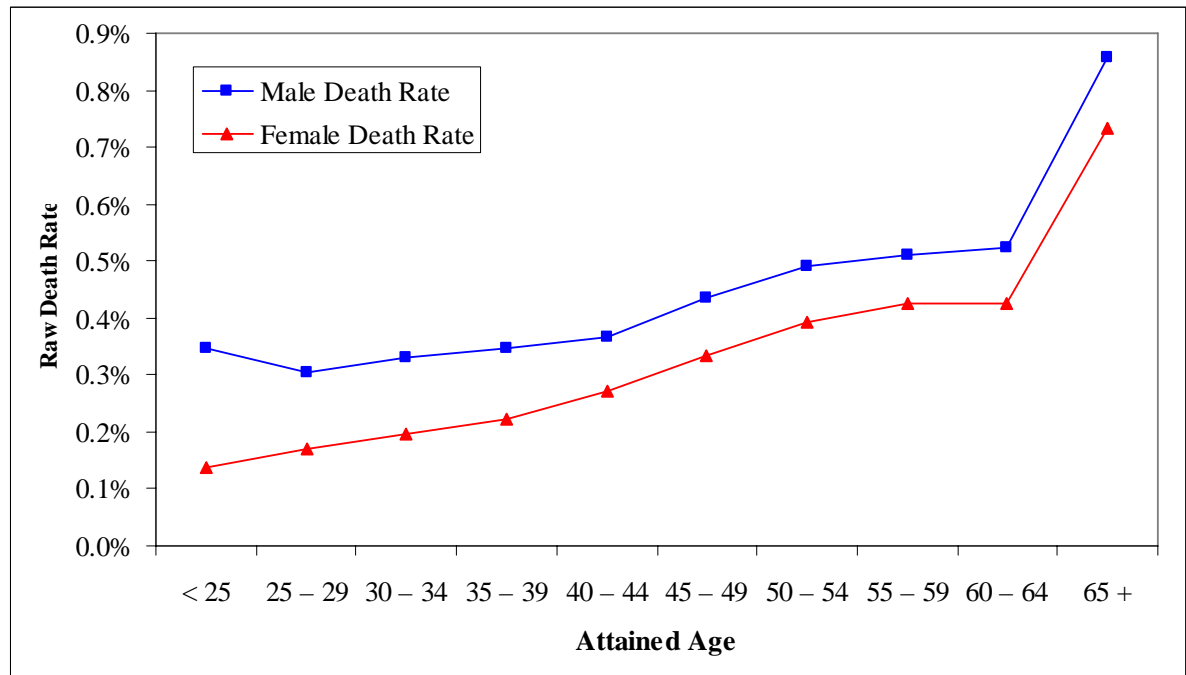
Notwithstanding the lack of smoothing and graduation, the death rates by age and gender exhibit characteristics common to most mortality studies; i.e.:

■ Male death rates have a small dip at ages 25 - 29. This is common in mortality studies due to higher accidental deaths for males younger than age 25. Mortality slope increases with attained age

■ Male mortality is greater than female mortality, but the gap between male and female mortality rates decreases at the higher attained ages.

However, the overall shape of the mortality curve does not line up well with other mortality studies. The curve is actually concave between the ages 40 and 60. We believe this is due to a select and ultimate pattern inherent in disabled life mortality that is the opposite of that for life insurance.

2008 LTD mortality rates are heavily influenced by claim duration. As mentioned above, early duration disability claims exhibit higher mortality rates than later duration claims. This effect applies to all attained ages, but appears to be greatest at the older ages. When

analyzing 2008 GLTD claims by diagnosis, the biggest influence is Cancer claims, which make up half of the deaths in the Study. Cancer claims versus All Other (non-cancer) claims tend to exhibit different mortality patterns by age and duration, as shown in the following tables and charts.

TABLE 4.6.A

Raw Death Rates for Cancer vs. Non Cancer Diagnoses by Attained Age

Attained Age	Death Rates (Cancer Only)	Death Rates (Non Cancer)
< 25	2.59%	0.07%
25 – 29	2.39%	0.08%
30 – 34	2.42%	0.10%
35 – 39	2.54%	0.12%
40 – 44	2.69%	0.14%
45 – 49	2.97%	0.17%
50 – 54	3.14%	0.20%
55 – 59	3.03%	0.23%
60 – 64	2.75%	0.29%
64+	3.63%	0.46%

CHART 4.6.B

Slope of Death Rates for Cancer vs. Non Cancer Diagnoses by Attained Age
Ratios to Raw Death Rates to Age < 25 Rate (i.e., Ages <25 = 100%)
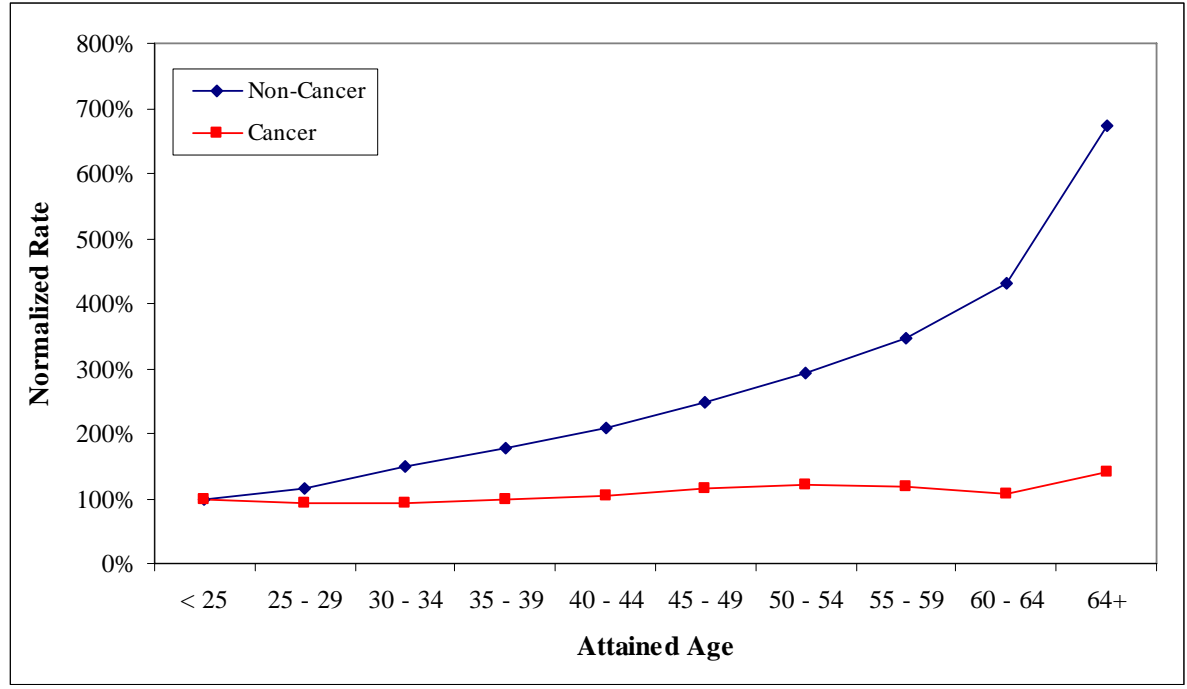
TABLE 4.7.A

Death Rates for Cancer vs. Non Cancer Diagnoses by Claim Duration

Duration	Death Rates (Cancer Only)	Death Rate (Non Cancer)
Year 1	3.99%	0.21%
Year 2	3.73%	0.21%
Year 3	2.40%	0.20%
Year 4	1.75%	0.22%
Year 5	1.25%	0.22%
Year 6	0.99%	0.22%
Year 7	0.86%	0.22%
Year 8	0.73%	0.23%
Year 9	0.66%	0.21%
Year 10	0.59%	0.22%
Year 11+	0.48%	0.25%

Cancer claims influence mortality improvement patterns, as referenced in Section 4.2. Cancer claims have also exhibited more mortality improvement over the study period, as shown in Table 4.8.

CHART 4.8.B

Death Rates for Cancer vs. Non Cancer by Year of Disability (Normalized to Year 1)
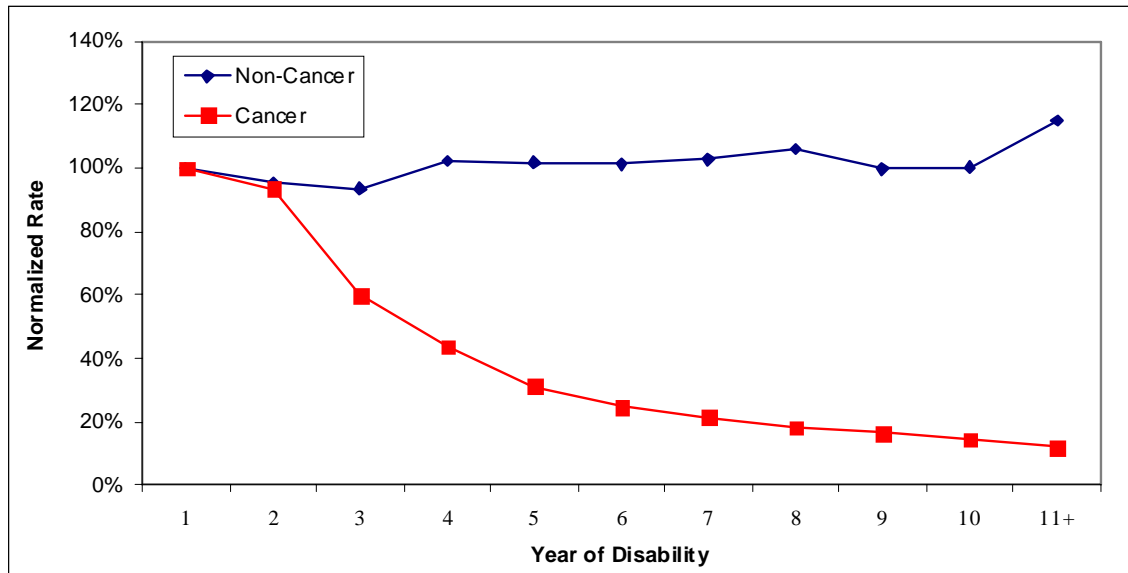
Cancer claims have high death rates in the early durations. When looking at Cancer claims by attained age (Chart 4.6.B), mortality is flat during the working ages. This is due to a "select" effect. It appears that the normal increase in mortality with age is offset by the decrease in mortality by duration. This confirms a well known fact that the longer a cancer victim survives, the less likely they are to die from cancer.

TABLE 4.8

A/E Ratios for Cancer vs. Non-Cancer Diagnoses – Calendar Year

Calendar Year	Cancer Only	Non Cancer
1997	407%	45.2%
1998	399%	43.2%
1999	373%	43.5%
2000	359%	42.5%
2001	359%	40.7%
2002	364%	41.4%
2003	360%	40.8%
2004	338%	38.9%
2005	339%	40.5%
2006	339%	39.6%
Annualized Slope	-2.00%	-1.5%

4.6   Conclusion

This report has analyzed death rates for LTD claims by comparing raw death rates to the SOA 2006 Group Life mortality study, as well as population data. 2008 LTD Study raw mortality rates exhibit patterns that are expected of LTD mortality. Mortality improvement is inconsistent over the study period. With an overall A/E ratio of 78%, it appears that Table 95a mortality rates are likely out of date.

5. Elimination Period

In this section we review the impact of EP on death and recovery rates. To avoid distortion of the results, Maternity claims have been excluded from the tables in this section. Most of the study exposure is for three-month or six-month EPs, and analysis in this section will focus on those two EPs.

Table 5.1.A shows that recovery A/E ratios generally increase with longer EPs. Death A/Es are flat, except at the shortest EPs. These results did not differ by gender (not shown).

TABLE 5.1.A

Death and Recovery Experience by Elimination Period - All Durations Combined

Elimination Period	Exposure	Recovery A/E	Death A/E
Month 0	277,756	94.6%	54.1%
Month 1	503,270	83.2%	61.5%
Month 2	510,450	90.8%	75.6%
Month 3	6,445,633	113.1%	81.3%
Month 4	390,685	118.1%	77.3%
Month 5	353,491	125.1%	75.3%
Month 6	7,995,291	141.8%	76.5%
Month 7	513,660	217.2%	74.8%
Month 8 - 11	202,759	170.5%	75.8%
Months 12+	622,207	161.3%	76.4%
Grand Total	17,815,202	119.5%	77.4%

Chart 5.1.B
Death and Recovery Experience by Elimination Period - All Durations Combined

TABLE 5.2.A

Death and Recovery Experience by Elimination Period and Duration

Duration	Exposure	Recovery Rate	Recovery A/E	Death Rate	Death A/E
3 Month EP					
Year 1	1,531,091	6.02%	107%	0.84%	74%
Year 2	1,250,440	1.55%	124%	0.59%	78%
Year 3	815,448	1.33%	160%	0.39%	89%
Year 4	587,659	0.55%	133%	0.34%	101%
Year 5	458,747	0.30%	93%	0.28%	102%
Year 6	352,725	0.25%	137%	0.26%	103%
Year 7	278,686	0.18%	151%	0.26%	103%
Year 8	226,606	0.13%	120%	0.25%	100%
Year 9	184,188	0.13%	116%	0.24%	95%
Year 10	149,387	0.11%	108%	0.22%	87%
Year 11+	610,654	0.08%	84%	0.23%	88%
3 Month EP Total	**6,445,633**	**2.01%**	**113%**	**0.48%**	**81%**
6 Month EP					
Year 1	1,121,211	3.25%	141%	0.77%	63%
Year 2	1,649,890	1.35%	133%	0.54%	73%
Year 3	1,153,906	1.33%	167%	0.35%	85%
Year 4	810,667	0.55%	142%	0.32%	93%
Year 5	632,183	0.31%	101%	0.28%	95%
Year 6	493,216	0.25%	147%	0.27%	99%
Year 7	384,683	0.20%	171%	0.25%	95%
Year 8	313,455	0.16%	154%	0.25%	95%
Year 9	258,021	0.14%	141%	0.23%	87%
Year 10	212,686	0.14%	142%	0.24%	90%
Year 11+	965,370	0.11%	125%	0.25%	87%
6 Month EP Total	**7,995,291**	**1.06%**	**142%**	**0.41%**	**76%**
Total	**14,440,924**	**1.48%**	**123%**	**0.44%**	**79%**

Analysis of the impact of EP by duration suggests that the effects of EP on recovery rate wear off after two years. The recovery rates in years three to six are virtually identical for three-month and six-month EPs. For years seven and later, recovery rates are actually slightly lower for three-month EPs.

Death rate differences by EP are relatively small across all durations.

Table 5.2.B
Death and Recovery Rates by Elimination Period and Duration

Breaking the impact by duration down to quarters within the first three years (Table 5.3.A) shows that the impact of EP on the recovery rate appears to wear off immediately after the end of the "own occupation" recovery spike. In fact, the recovery ratios within the own occupation spikes look very similar for three-month and six-month EPs (the comparable quarters are nine to ten for the three-month EP, and ten to eleven for the six-month EP).

The three-month EP A/E recovery ratios are generally lower than the six-month EP A/E recovery.
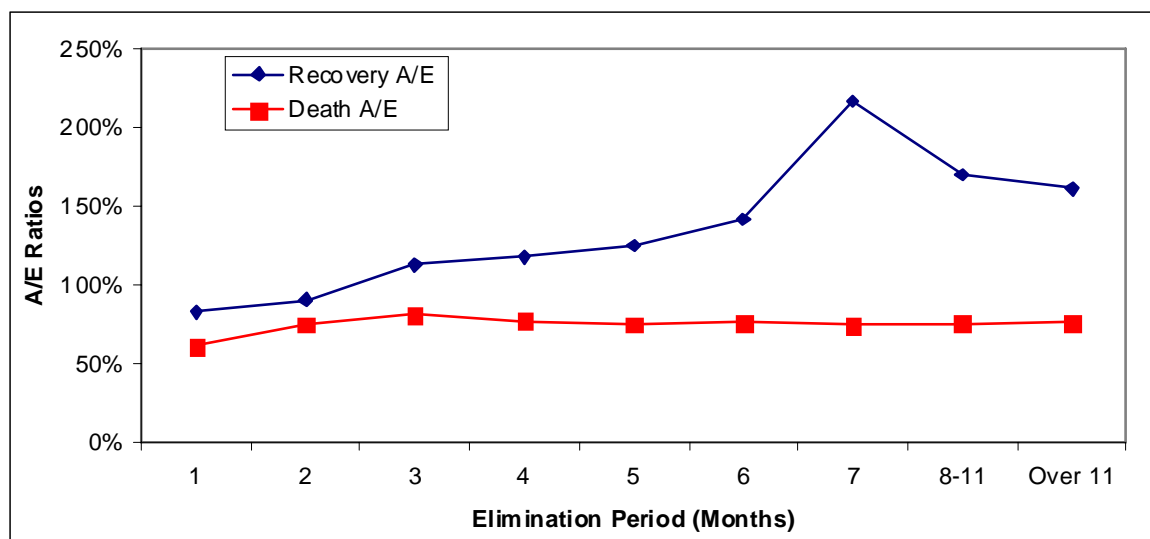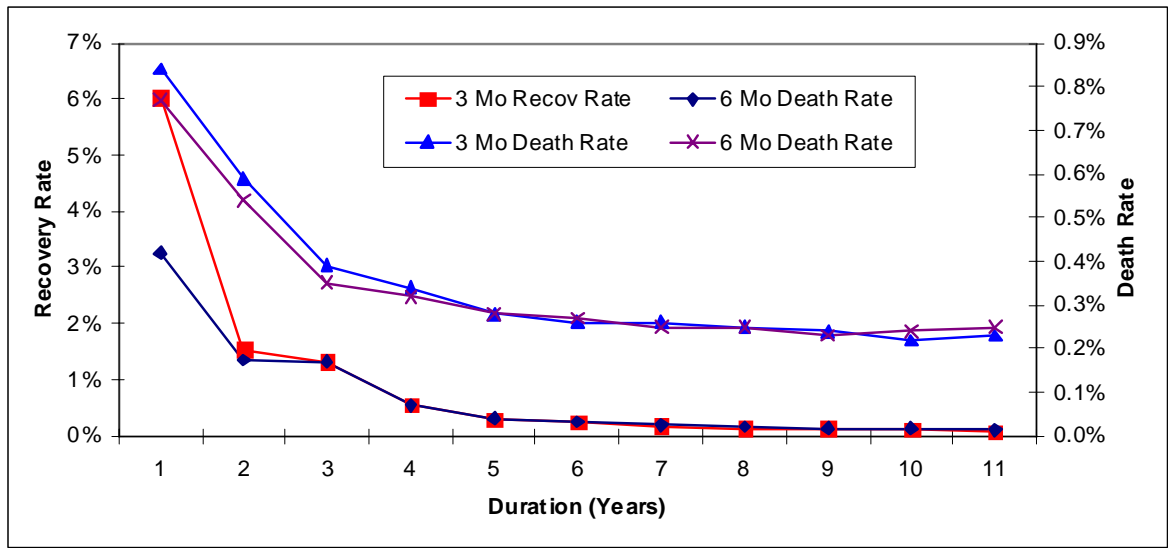
TABLE 5.3.A

Death and Recovery Experience by Elimination Period and Duration

Duration	Exposure	Recovery Rate	Recovery A/E	Death Rate	Death A/E
3 Month EP					
Quarter 2	637,847	8.68%	112%	0.78%	76%
Quarter 3	485,102	5.01%	97%	0.90%	68%
Quarter 4	408,141	3.06%	107%	0.85%	80%
Quarter 5	360,681	2.18%	108%	0.71%	80%
Quarter 6	320,413	1.55%	119%	0.61%	77%
Quarter 7	295,207	1.21%	147%	0.53%	77%
Quarter 8	274,139	1.09%	168%	0.46%	77%
Quarter 9	**255,826**	**1.85%**	**175%**	**0.40%**	**80%**
Quarter 10	**201,230**	**1.64%**	**216%**	**0.42%**	**94%**
Quarter 11	185,285	0.80%	107%	0.37%	93%
Quarter 12	173,108	0.77%	114%	0.35%	96%
3 Month EP Total	3,596,979	3.40%	113%	0.65%	77%
6 Month EP					
Quarter 2					
Quarter 3	600,554	3.81%	144%	0.78%	62%
Quarter 4	520,658	2.61%	137%	0.76%	64%
Quarter 5	465,876	1.81%	118%	0.66%	68%
Quarter 6	428,581	1.34%	123%	0.56%	73%
Quarter 7	390,463	1.13%	162%	0.49%	77%
Quarter 8	364,970	1.00%	174%	0.42%	77%
Quarter 9	**340,477**	**0.92%**	**147%**	**0.37%**	**79%**
Quarter 10	**320,495**	**1.89%**	**159%**	**0.33%**	**82%**
Quarter 11	256,092	1.69%	239%	0.37%	94%
Quarter 12	236,843	0.78%	125%	0.34%	92%
6 Month EP Total	3,925,008	1.89%	143%	0.55%	70%
Total	7,521,987	2.61%	123%	0.60%	74%

6.   Change in Definition of Disability

In this section, we review death and recovery rates at the transition from an Own Occupation to an Any Occupation definition of disability. This analysis looks at a seven-month window around the change in definition – the month in which the change occurs, plus the three months preceding and the three months following. We refer to exposures within this window as "Transition" claims and all other exposures as "Non Transition" claims.

The experience underlying Table 95a showed an increase in recoveries at the change in definition. In Table 95a, all of the excess recoveries due to the change in definition were estimated and re-allocated to a single month. In effect, two tables were constructed; an Any Occ table, which excluded the excess recoveries, and a separate recovery multiplier, which was intended to be used in the month of definition change (at the individual claim level) to generate Own Occ recoveries. For the tables and charts in this report, the Table 95a "Own Occupation" multipliers have generally been used to generate extra expected recoveries. For certain tables/charts, expected recoveries exclude the multipliers; these are specifically noted. Actual recoveries in the current study have not been reallocated to different durations; this means that, for the following exhibits, actual recoveries remain spread across the transition period.

Table 6.1.A and Chart 6.1.B show a spike in recovery rates in both the month of the change in definition and the month immediately following the change. Death rates do not appear to be affected by the change in definition.

TABLE 6.1.A

Recovery and Death Rates by Transition Month

Transition Month	Exposure	Recovery Rate	Death Rate
Minus 3 Months	214,477	1.23%	0.381%
Minus 2 Months	208,945	1.16%	0.352%
Minus 1 Month	204,422	1.09%	0.355%
Month of Change	199,801	5.27%	0.346%
Plus 1 Month	168,331	4.07%	0.362%
Plus 2 Months	157,006	1.50%	0.389%
Plus 3 Months	152,237	1.24%	0.394%
Subtotal	1,305,218	2.22%	0.367%
Non Transition	16,331,771	1.62%	0.431%
Total	17,636,989	1.67%	0.427%

CHART 6.1.B

Recovery and Death Rates by Own Occupation Transition Month
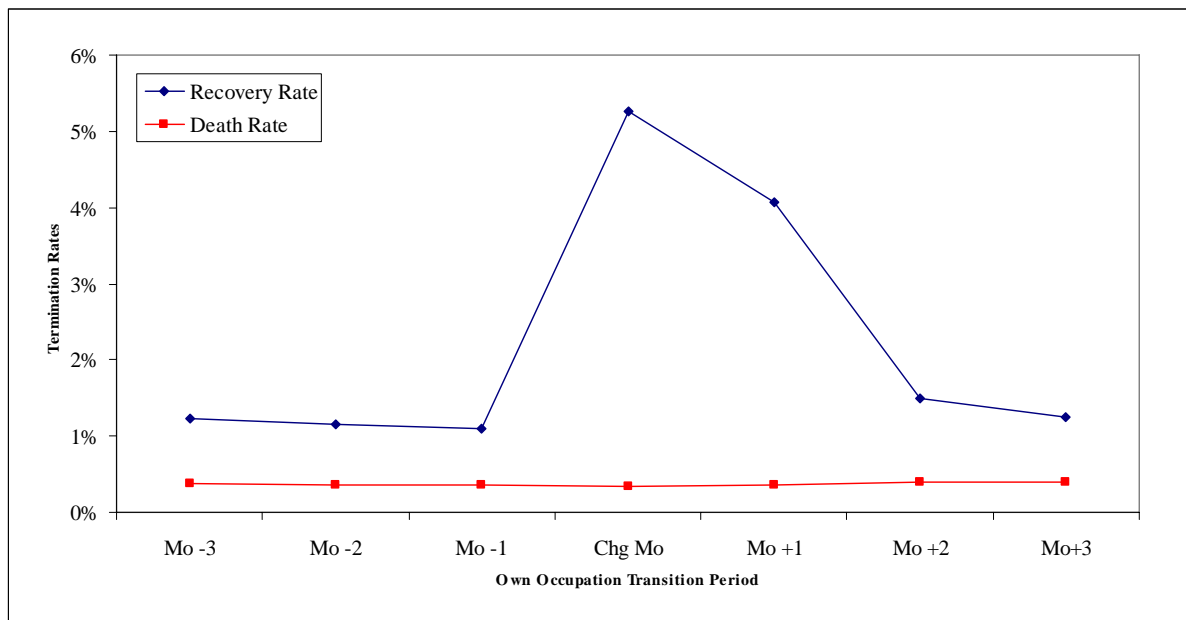
Table 6.2.A and Chart 6.2.B show closure A/E ratios during Transition. The recovery A/E ratio exceeds the overall study ratio in each month of Transition.

The A/E ratio is highest in the month immediately following the change instead of the month of the change because excess expected recoveries are concentrated in the month of the change, while actual recoveries are spread throughout the period.

Death A/E ratios are below 100% for all months during Transition. There is no significant difference in A/E deaths for Transition vs. Non Transition claims. Death A/E rises slightly in the months following the change in definition.

TABLE 6.2.A

Recovery and Death A/E Ratios by Own Occupation Transition Month

Transition Window	Exposure	Recovery A/E	Death A/E
Minus 3 Months	214,477	151.9%	71.7%
Minus 2 Months	208,945	146.9%	69.9%
Minus 1 Month	204,422	142.4%	74.0%
Month of Change	199,801	194.4%	75.5%
Plus 1 Month	168,331	567.5%	79.2%
Plus 2 Months	157,006	217.2%	87.9%
Plus 3 Months	152,237	186.3%	92.2%
Subtotal, Transition	1,305,218	211.5%	77.2%
Subtotal, No Transition	16,331,771	116.2%	77.9%
Total	17,636,989	121.6%	77.8%

CHART 6.2B

Recovery and Death A/E Ratios by Own Occupation Transition Month
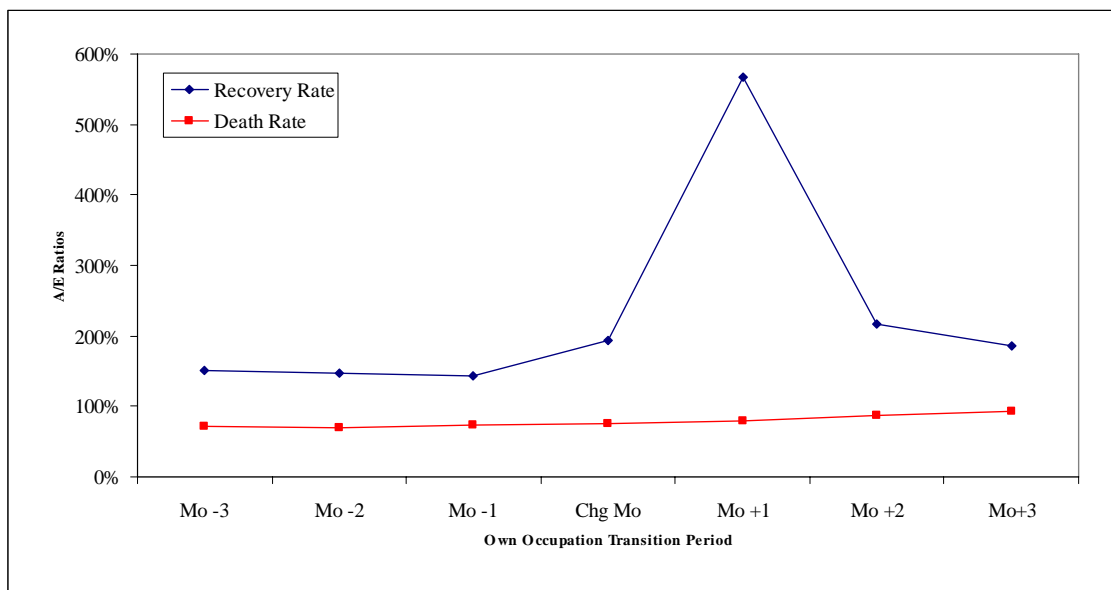
The most common own occupation definition period is for two years of benefits. Tacking on the elimination period, most transitions from Own Occ to Any Occ occur in disability duration quarters eight through twelve. As noted in Section 1, overall study recovery rates and A/E ratios both vary materially by duration. To control for potential distortions caused by duration, the remainder of this section limits analysis to claim durations of quarters eight through twelve inclusive.

Table 6.3 compares the recovery rates and A/E ratios for claims in quarters eight through twelve. Both the recovery rates and recovery A/E ratios are significantly higher for Transition claims than for Non Transition claims (Table 6.4).

TABLE 6.3

Recovery Rates and A/E Ratios by Own Occupation Transition Month
Claims in Duration Quarters 8 Through 12 Inclusive

Transition Window	Exposure	Raw Rate	A/E Ratio
Minus 3 Months	173,266	0.99%	149%
Minus 2 Months	173,142	0.96%	140%
Minus 1 Month	169,497	0.98%	138%
Month of Change	163,860	5.10%	196%
Plus 1 Month	126,818	3.67%	507%
Plus 2 Months	118,220	1.44%	200%
Plus 3 Months	118,395	1.24%	176%
Subtotal, Transition	1,043,197	2.03%	204%
No Transition	2,046,931	0.86%	135%
Total	3,090,128	1.26%	166%

Tables 6.4 and 6.5 compare recoveries for Transition and Non Transition claims by duration. Both recovery rates and A/E ratios are significantly higher in all quarters for Transition claims.

Tables 6.4 and 6.5 show results using two different definitions for the Transition period. The first definition is the same as that used for Tables 6.1 through 6.3; i.e., in Transition is defined as within three months either side of the change in definition month. The second definition includes only the month of transition and the following month; i.e., the same definition as was used in Section 3.1. These are the two months when most of the transitions are observed to occur (see Chart 6.1.).

The expected rates in Table 6.5 do not include the change in definition "bump" in recoveries that is included in the Own Occ version of Table95a.

TABLE 6.4

Recovery Rates by Duration and Own Occupation Transition Status
Claims in Duration Quarters 8 through 12 Inclusive

	Transition Definition [A]			Transition Definition [B]	
Claim Duration	**Recovery Rate - Non Transition Claims**	**Recovery Rate - Transition Claims**	**Ratio of Transition to Non Transition**	**Recovery Rate - Transition Claims**	**Ratio of Transition to Non Transition**
Quarter 8	0.99%	1.65%	167%	6.34%	642%
Quarter 9	0.90%	1.90%	211%	4.55%	505%
Quarter 10	0.84%	2.28%	272%	4.68%	557%
Quarter 11	0.79%	2.07%	263%	3.80%	483%
Quarter 12	0.71%	1.60%	225%	4.43%	624%

(A) Transition includes three months prior to, month of, and three months following, own occupation transition
(B) Transition includes month of own occupation transition plus one month following

---

TABLE 6.5

Recovery A/E Ratios by Duration and Own Occupation Transition Status
Expected Claims from Table 95a excluding Own Occ Bump
Claims in Duration Quarters 8 through 12 Inclusive

	Transition Definition [A]			Transition Definition [B]	
Claim Duration	**Recovery A/E Ratios - Non Transition Claims**	**Recovery A/E Ratios - Transition Claims**	**Ratio of Transition to Non Transition**	**Recovery A/E Ratios - Transition Claims**	**Ratio of Transition to Non Transition**
Quarter 8	168%	258%	154%	1092%	651%
Quarter 9	145%	279%	193%	634%	438%
Quarter 10	115%	307%	267%	623%	542%
Quarter 11	108%	291%	270%	517%	479%
Quarter 12	117%	248%	212%	728%	623%

(A) Transition includes three months before and after the transition month
(B) Transition includes the transition month plus the next month

Table 6.6 shows the impact of the change in definition of disability on recovery rates by diagnosis and duration. It presents ratios of Transition recovery rates to Non Transition recovery rates. A ratio of 100% would indicate that the recovery rate is the same regardless of the change in definition. A high ratio indicates that the change in definition has a relatively greater impact on recovery rates. M&N claims are excluded because the change in definition frequently coincides with an internal contractual limit on benefit duration. Maternity claims are excluded because of low exposure.

TABLE 6.6

Ratio of Transition to Non Transition Recovery Rates by Diagnosis
Claims in Duration Quarters 8 through 12 Inclusive
Excluding Maternity and Mental & Nervous Claims

Diagnosis	Q8 (A)	Q9 (A)	Q10 (A)	Q11 (A)	Q12 (A)	Total (A)	Total (B)
Back	188%	246%	304%	281%	221%	268%	618%
Other Musculoskeletal	166%	229%	311%	293%	259%	268%	643%
Injury other than Back	181%	259%	308%	281%	252%	262%	616%
Nervous System	175%	233%	274%	253%	254%	250%	550%
Respiratory	268%	218%	236%	256%	150%	246%	545%
Circulatory	168%	230%	297%	253%	215%	246%	524%
Diabetes	200%	246%	239%	246%	185%	240%	532%
Ill-defined and Misc.	159%	186%	231%	227%	214%	212%	453%
Other	172%	203%	223%	215%	176%	207%	419%
Digestive	129%	170%	169%	214%	167%	177%	334%
Cancer	132%	174%	187%	192%	198%	170%	299%
Total	174%	231%	284%	266%	233%	249%	557%

(A) Transition includes three months before and after the transition month
(B) Transition includes the transition month plus the next month

As would be expected, the change in definition results in higher recovery rates for all diagnoses and durations. The change in definition has the greatest relative impact on recoveries for Other Musculoskeletal, Injury other than Back, and Back claims. The change in definition has relatively less impact on Cancer and Digestive claims.

Table 6.7 compares Transition and Non Transition recovery A/E ratios by age at disability. Recovery A/E ratios improve with increasing age for both Transition and Non Transition claims. The improvement is greater for Transition claims, suggesting that the change in definition is more effective in closing claims at older ages. The expected basis for Table 6.7 does not include the Table95a change in definition "bump".

TABLE 6.7

Recovery A/E Ratios by Age at Disability and Transition Status
Duration Quarters 8 through 12 Inclusive

	Transition Definition (A)			Transition Definition (B)	
Age at Disability	Recovery A/E Ratios - Non Transition Claims	Recovery A/E Ratios - Transition Claims	Ratio of Transition to Non Transition	Recovery A/E Ratios - Transition Claims	Ratio of Transition to Non Transition
Under 30	117%	239%	204%	514%	440%
30 - 34	116%	230%	199%	468%	404%
35 - 39	119%	252%	212%	531%	447%
40 - 44	129%	275%	214%	590%	458%
45 - 49	135%	294%	218%	637%	472%
50 - 54	152%	333%	219%	724%	476%
55 - 59	162%	372%	230%	792%	490%
60+	209%	429%	206%	858%	411%
Total	135%	289%	214%	615%	455%

(A) Transition includes three months before and after the transition month
(B) Transition includes the transition month plus the next month

Table 6.8 compares Non Transition and Transition recovery A/E ratios by benefit amount. Recovery A/E ratios decline with increasing benefit amount for both Transition and Non transition claims. The decline is more pronounced for Transition claims.

TABLE 6.8

Recovery A/E Ratios by Benefit Amount and Transition Status
Duration Quarters 8 Through 12 Inclusive

Gross Monthly Benefit Amount	Transition Definition (A)			Transition Definition (B)	
	Recovery A/E Ratios - Non Transition Claims	Recovery A/E Ratios - Transition Claims	Ratio of Transition to Non Transition	Recovery A/E Ratios - Transition Claims	Ratio of Transition to Non Transition
Under $1,000	150%	319%	213%	686%	457%
$ 1,000 - $1,499	143%	319%	224%	696%	488%
$ 1,500 - $1,999	133%	288%	217%	613%	463%
$ 2,000 - $2,499	124%	254%	205%	526%	423%
$ 2,500 - $2,999	124%	231%	187%	473%	383%
$ 3,000 - $3,499	117%	223%	190%	436%	372%
$ 3,500 - $3,999	106%	188%	177%	366%	346%
$ 4,000 - $4,999	113%	180%	159%	324%	286%
$5,000 And Over	101%	147%	145%	260%	256%
Total	135%	289%	214%	615%	455%

(A) Transition includes three months before and after the transition month
(B) Transition includes the transition month plus the next month

In order to compare 2008 Study results more directly to the Table 95a results by using a consistent approach, the following chart shows the change in definition impact with all of the extra recoveries from months zero, plus one, and plus two concentrated into a multiplier of the month zero rate; i.e., the way Table 95a handled it. The change in definition "bump" is the indicated multiplicative factor that would need to be applied to the estimated recovery rate for any occ recoveries, for the month of change, in order to produce the extra own occ recoveries for the next three months, all concentrated to the change in definition month.

TABLE 6.9

Comparison of 2008 GLTD Study to Table 95a Recoveries
Change in Definition Estimated "Bump" Reallocated to the Change in Definition Month

Calendar Year	2008 GLTD Study	Table 95a
1997	8.3	3.6
1998	7.5	3.6
1999	8.1	3.6
2000	7.6	3.5
2001	8.1	3.6
2002	7.9	3.6
2003	8.2	3.6
2004	9.1	3.6
2005	9.0	3.6

Finally, we reviewed late duration recovery patterns for "Unlimited" vs. "Limited" own occupation benefit definitions. Tables 6.10 and 6.11 compare experience for unlimited duration own occupation ("Unlimited Own Occ") claims for claim durations following the change in definition. Exposures include only claims with a 90-day or 180-day EP, and durations more than three months beyond any change in own occ definition. Inclusion of Limited Own Occ claims in the analysis is restricted to transitions between 19 and 30 months of benefit.

TABLE 6.10

Differences between Recovery A/E Ratios for Unlimited vs. Limited Own Occupation Claims, after the Change in Definition

Duration	Limited Own Occ	Unlimited Own Occ	Ratio
Quarter 12	129%	68%	189%
Year 4	128%	87%	147%
Year 5	101%	71%	142%
Year 6	137%	103%	133%
Year 7	176%	109%	162%
Year 8	159%	82%	193%
Year 9	141%	103%	138%
Year 10	149%	81%	186%
Year 11+	122%	81%	150%
Total	127%	84%	152%

This table shows significantly higher recoveries for Limited Own Occupation claims at all durations, a difference that was not addressed by the Table 95a study.

The following table shows the same selection of claims for the death A/E.

TABLE 6.11

Differences between Death A/E Ratios for Unlimited vs. Limited Own Occupation Claims, after any Change in Definition

Duration	Limited Own Occ	Unlimited Own Occ	Ratio
Quarter 12	94.4%	106.1%	89%
Year 4	96.3%	97.1%	99%
Year 5	97.8%	92.2%	106%
Year 6	102.9%	89.0%	116%
Year 7	102.1%	89.9%	114%
Year 8	98.6%	88.0%	112%
Year 9	90.4%	86.5%	105%
Year 10	87.5%	84.6%	103%
Year 11+	89.2%	82.1%	109%
Total	95.5%	90.3%	106%

The difference is less striking, but we do observe a somewhat different pattern. We have not tried to assess how much of this difference could be accounted for by other factors, such as age or diagnosis.

7.   Settlements

In this section we review settlement activity within the experience data.

Table 7.1 shows the frequency of settlement activity by duration. Overall, settlements represent only about 4.8% of deaths, recoveries, and settlements combined; i.e., "all closure activity". After the first six quarters, raw settlement rates are relatively level (0.09% to 0.15% per month). However, for long duration claims (years five and beyond), these raw settlement rates represent approximately 20% to 25% of all closure activity.

TABLE 7.1

Closure Experience by Duration of Disability

Duration	Exposure	Recovery Rate	Death Rate	Settlement Rate	Settlements as % of Death & Recovery
Quarter 2	758,207	9.01%	0.76%	0.02%	0.3%
Quarter 3	1,233,115	4.45%	0.82%	0.03%	0.5%
Quarter 4	1,077,912	2.89%	0.79%	0.03%	0.9%
Quarter 5	978,890	2.04%	0.68%	0.05%	1.7%
Quarter 6	889,082	1.48%	0.58%	0.07%	3.3%
Quarter 7	813,681	1.29%	0.50%	0.09%	5.0%
Quarter 8	756,928	1.08%	0.44%	0.10%	6.3%
Quarter 9	701,808	1.33%	0.38%	0.10%	5.9%
Quarter 10	614,954	1.73%	0.36%	0.13%	6.1%
Quarter 11	525,717	1.28%	0.37%	0.15%	9.0%
Quarter 12	488,448	0.80%	0.35%	0.14%	12.5%
Year 4	1,666,603	0.56%	0.32%	0.14%	15.6%
Year 5	1,311,385	0.32%	0.28%	0.12%	20.9%
Year 6	1,027,103	0.25%	0.25%	0.12%	23.9%
Year 7	815,957	0.20%	0.25%	0.12%	26.3%
Year 8	672,275	0.16%	0.25%	0.11%	26.5%
Year 9	554,143	0.14%	0.23%	0.10%	26.8%
Year 10	458,611	0.13%	0.23%	0.09%	25.4%
Year 10+	2,192,625	0.10%	0.25%	0.09%	25.3%
Total	**17,815,202**	**1.48%**	**0.43%**	**0.09%**	**4.8%**

Settlements increase by duration, and appear to hit their peak shortly after the end of the own occupation period, before gradually declining again.

Nervous System, Other Musculoskeletal and Back claims are the diagnoses most frequently settled. Cancer claims are the diagnosis least frequently settled.

TABLE 7.2

Closure Experience by Claim Diagnosis

Diagnosis	Exposure	Recovery Rate	Death Rate	Settlement Rate	Settlements as % of Death & Recovery
Cancer	1,357,791	2.17%	2.94%	0.02%	0.39%
Circulatory	2,827,142	0.78%	0.34%	0.06%	4.96%
Diabetes	350,672	0.55%	0.43%	0.06%	6.32%
Mental and Nervous	1,149,516	1.84%	0.09%	0.06%	2.96%
Digestive	392,864	2.12%	0.49%	0.07%	2.80%
Nervous System	1,856,371	0.66%	0.20%	0.07%	8.10%
Respiratory	609,613	0.61%	0.57%	0.07%	5.66%
Other	1,985,641	1.14%	0.36%	0.08%	5.48%
Ill-defined and Misc. Conditions	411,550	1.49%	0.24%	0.09%	5.38%
Injury other than Back	1,275,211	3.29%	0.11%	0.13%	3.77%
Other Musculoskeletal	2,478,814	1.69%	0.09%	0.14%	7.93%
Back	2,842,262	1.66%	0.07%	0.15%	8.52%
Total	**17,537,446**	**1.48%**	**0.43%**	**0.09%**	**4.81%**

The diagnoses have been sorted in order of increasing settlement rate.

There is not a significant difference in settlement rates by benefit amount, but very low benefit claims and very high benefit claims appear to be somewhat more likely to be settled.

TABLE 7.3

Settlement Experience by Gross Monthly Benefit Amount

Monthly Benefit Amount	Exposure	Settlement Rate
$ 1 - $49	22,315	0.10%
$ 50 - $499	2,651	0.45%
$ 500 - $999	382,116	0.11%
$ 1000 - $1,499	3,531,366	0.11%
$ 1,500 - $1,999	5,055,359	0.10%
$ 2,000 - $2,499	3,483,551	0.09%
$ 2,500 - $2,999	2,053,710	0.08%
$ 3,000 - $3,499	1,085,242	0.07%
$ 3,500 - $3,999	628,756	0.07%
$ 4,000 - $4,499	351,173	0.07%
$ 4,500 - $4,999	233,404	0.06%
$ 5,000 - $9,999	137,231	0.06%
$ 10,000 - $19,999	465,297	0.08%
$ 20,000+	97,824	0.11%
Unknown	7,450	0.11%
Total	17,537,446	0.09%

Settlements during 1997-2001 were between 0.06% and 0.08%, while settlements during the 2002 - 2006 period have been between 0.10% and 0.12%

TABLE 7.4

Settlement Experience by Calendar Year

Calendar Year	Exposure	Settlement Rate
1997	1,249,182	0.07%
1998	1,311,116	0.07%
1999	1,438,558	0.07%
2000	1,544,558	0.05%
2001	1,720,274	0.06%
2002	1,846,758	0.10%
2003	1,996,038	0.11%
2004	2,081,905	0.12%
2005	2,173,017	0.12%
2006	2,176,040	0.11%
Total	17,537,446	0.09%

Settlement activity is not highly correlated with attained age, although the rates drop significantly at higher attained ages.

TABLE 7.5

Settlement Experience by Attained Age

Attained Age	Exposure	Settlement Rate
<25	49,595	0.08%
25 – 29	210,190	0.09%
30 – 34	530,153	0.09%
35 – 39	1,043,773	0.10%
40 – 44	1,753,736	0.10%
45 – 49	2,452,593	0.10%
50 – 54	3,163,270	0.10%
55 – 59	3,764,442	0.10%
60 – 64	3,854,325	0.07%
65 – 69	531,331	0.05%
70 – 74	89,999	0.03%
75 – 79	57,243	0.01%
80+	36,796	0.01%
Total	**17,537,446**	**0.09%**

8. Mental and Nervous Limits

In this section we review termination rates for M&N claims as they transition across the shorter contractual limit commonly included in LTD contracts for this diagnosis. This study examines a seven month transition window around the contractual M&N limit – the month in which the limit occurs, plus the three months preceding and the three months following.

Terminations in the 2008 GLTD Study were classified as Recovery, Death, Max-Out, Limit or Settlement. Max-Outs are intended to be claims which have reached the maximum duration of benefits (for example, age 65). Limits are intended to be claims which have been closed as a result of an earlier limit for M&N claims, usually after two years of benefits. Limits do not include closures due to an Own Occupation definition change, which should have been recorded as Recoveries. Settlements are claims that were closed with the payment of a negotiated settlement.

Table 8.1 shows termination rates by classification for claims during the M&N transition period. We note that exposure is low because Table 8.1 includes only M&N diagnosis claims that also have a M&N limit.

TABLE 8.1

M&N Limit Transition Claims - Termination Rates by Transition Month

Transition Window	Exposure	Recovery Rate	Death Rate	Limit Rate	Max-Out Rate	Settlement Rate	Total Termination Rate
Minus 3 Months	18,489	1.57%	0.07%	0.25%	0.15%	0.11%	2.14%
Minus 2 Months	18,021	1.69%	0.07%	0.27%	0.06%	0.08%	2.16%
Minus 1 Month	17,548	2.76%	0.05%	0.40%	0.27%	0.08%	3.55%
Month of Limit	16,858	0.00%	0.08%	45.36%	19.11%	0.08%	64.63%
Plus 1 Month	5,900	0.00%	0.11%	45.08%	0.45%	0.17%	45.81%
Plus 2 Months	3,188	2.69%	0.23%	2.22%	1.76%	0.13%	7.04%
Plus 3 Months	2,955	2.95%	0.28%	1.16%	1.71%	0.11%	6.21%
Total	82,960	1.51%	0.08%	12.75%	4.15%	0.09%	18.58%

The Committee noted inconsistencies in how carriers coded M&N transition terminations by classification. Therefore, any M&N claim originally submitted as a Recovery in the month that the M&N limit occurred, or in the month immediately following, were reclassified as Limit terminations. This process is described in more detail below.

Initial submissions showed an apparent inconsistency in the coding of Limit vs. Max-Out terminations. There were a large number of Max-Outs coded in the transition period, particularly in the month of the limit. Table 8.2 shows Max-Out rates that are relatively high for all attained ages. This is unexpected, as plans with a maximum duration of two years for all diagnoses are uncommon. It appears that some Limit terminations were incorrectly coded as Max-Outs.

TABLE 8.2

Selected Termination Rates in the Month in which the M&N Limit Occurs - by Attained Age

Attained Age	Limit Rate	Max-Out Rate
Under 40	50.87%	18.23%
40 -- 44	45.95%	19.78%
45 -- 49	46.83%	19.14%
50 -- 54	43.09%	19.13%
55 -- 59	42.42%	18.40%
60 & Above	37.83%	20.92%

Since we did not specifically ask for the contractual benefit period, it is possible that some of the results coded as Max-Outs may have actually been legitimate short benefit period Max-Outs, rather miscoded M&N Limits. One way to assess the potential impact was to look specifically for limited duration Max-Outs for non M&N claims. We chose to look for two-year limits since that is the most common M&N limit. We isolated terminations in either the ninth quarter of disability for 90-day EP claims or the tenth quarter of disability for 180-day EP claims. This subset of claims shows the following for selected termination causes.

TABLE 8.3

Closure Rates by M&N Limit in the Quarter that Contains the 24th Month of Benefit

	Limit Rate	Max-Out rate	Max-Out + Limit	Exposure
24 Month Limit	14.7%	6.0%	20.7%	41,212
Non 24 Month Limit	1.9%	12.1%	14.0%	15,622
Total M&N	11.2%	7.7%	18.9%	56,834
Non M&N Claims	0.3%	1.4%	1.6%	519,938

Since we have no reason to think that the M&N claims have a different percentage of limited duration plans than non M&N claims, we estimate the true contractual Max-Out rate to be about 1.6%. If the true contractual Max-Out rate is 1.6% for M&N claims with a 24 month M&N limit, then the true limit rate would be 19.1%. Secondly, the high level of Max-Outs

for non 24-month-limit M&N claims suggests that the duration of the M&N limit was not properly coded for a material number of claims.

Tables 8.4 and 8.5 include only claims specifically identified as having a M&N limit. Most Limit/Max-Out closures occur in either the month of the limit or the following month. There are a small number that terminate earlier or later, probably due to inconsistent application of the M&N limit date. In the month in which the limit occurs, 65% of M&N claims close due to the limit. Of those that do not close, 46% will close due to the limit in the following month, for a total of 81% of the original claims reaching the limit month.

Table 8.4 shows the survival rate of claims through the entire M&N limit transition window (i.e., the month in which the limit occurs, plus the three months preceding and the three months following), for all termination classifications, including death. At the end of the transition period, 15.4% of M&N claims entering the period remain open. This suggests the presence of co-morbid conditions; i.e., that some M&N claimants have multiple conditions that affect their ability to work, allowing certain claims to continue beyond the M&N limit. In addition, there will be certain M&N diagnoses that are organic in nature, or that require hospitalization, that will not be subject to the limit. Carriers should recognize this phenomenon in their reserving and pricing. It would understate reserves and claim costs to assume that all coded M&N claims will close at the M&N limit.

TABLE 8.4

M&N Limit Transition Claims – Total Termination Rates by Transition Month

M&N Transition Window	Total Termination Rate	Survival Rate	Cumulative Survival Rate
Minus 3 Months	2.14%	97.86%	97.86%
Minus 2 Months	2.16%	97.84%	95.75%
Minus 1 Month	3.55%	96.45%	92.34%
Month of Limit	64.63%	35.37%	32.66%
Plus 1 Month	45.81%	54.19%	17.70%
Plus 2 Months	7.04%	92.96%	16.45%
Plus 3 Months	6.21%	93.79%	15.43%

Table 8.5 compares total termination rates, excluding deaths, by attained age and gender during the M&N transition window. Non-death termination rates are lower at older ages. This suggests that older claimants, especially males, are more likely to have co-morbid conditions present.

TABLE 8.5

M&N Limit Transition Claims - Total Termination Rates, excluding Deaths

	Male		Female		Combined	
Attained Age	**Month of Limit**	**Plus 1 Month**	**Month of Limit**	**Plus 1 Month**	**Month of Limit**	**Plus 1 Month**
Under 40	66.5%	57.3%	70.2%	57.9%	69.2%	57.7%
40 – 44	66.3%	48.5%	65.5%	50.4%	65.8%	49.8%
45 – 49	67.9%	44.4%	65.2%	51.1%	66.0%	49.1%
50 – 54	63.3%	37.2%	61.8%	43.1%	62.3%	41.0%
55 – 59	60.8%	32.6%	60.9%	41.9%	60.8%	38.3%
60+	56.2%	28.9%	61.1%	37.1%	58.9%	33.2%

9.   Benefit Amount

In this section we review experience by benefit amount.

The following table shows that recovery A/E ratios generally decrease with increasing benefit amount, and decrease sharply above the $5,000 benefit amount. Death A/E ratios increase somewhat with increasing benefit amount, before also declining above the $5,000 benefit amount.

TABLE 9.1.A

Recovery Rates and A/E Ratios by Gross Monthly Benefit Amount

Benefit Amount	Exposure	Recovery Rate	Recovery A/E	85% Confidence
$1 - $49	2,671	3.43%	242.8%	+-36.5%
$50 - $499	383,275	0.95%	132.6%	+-3.2%
$500 - $999	3,551,388	1.53%	127.2%	+-0.8%
$1000 - $1,499	5,086,682	1.83%	125.4%	+-0.6%
$1,500 - $1,999	3,503,131	1.73%	121.9%	+-0.7%
$2,000 - $2,499	2,064,835	1.70%	119.0%	+-0.9%
$2,500 - $2,999	1,091,292	1.68%	116.2%	+-1.2%
$3,000 - $3,499	632,289	1.64%	111.3%	+-1.6%
$3,500 - $3,999	353,179	1.59%	109.2%	+-2.1%
$4,000 - $4,499	234,972	1.56%	108.2%	+-2.6%
$4,500 - $4,999	138,081	1.66%	111.0%	+-3.3%
$5,000 - $9,999	467,344	1.21%	95.0%	+-1.8%
$10,000 - $19,999	97,981	0.74%	75.2%	+-4.0%
$20,000+	7,454	0.37%	57.6%	+-15.8%
Unknown	22,413	2.16%	212.1%	+-13.9%
Total	17,636,989	1.67%	121.6%	+-0.3%

This is an instance in which there are potential credibility issues with some of the cells, and so we include the 85% confidence level for the observed A to E. This means, for example, that for the cell with benefit amounts greater than $20,000 per month, we have observed an actual to expected ratio of 57.6%, and given the potential for random variation, an 85% confidence that the true expectation will fall between 41.8% and 73.4%

TABLE 9.2.A

Death Rates and A/E Ratios by Gross Monthly Benefit Amount

Benefit Amount	Exposure	Death Rate	Death A/E	85% Confidence
$1 - $49	2,671	0.43%	88.8%	+-37.7%
$50 - $499	383,275	0.36%	86.6%	+-3.3%
$500 - $999	3,551,388	0.37%	76.9%	+-1.0%
$1000 - $1,499	5,086,682	0.40%	74.4%	+-0.7%
$1,500 - $1,999	3,503,131	0.42%	75.5%	+-0.9%
$2,000 - $2,499	2,064,835	0.45%	76.8%	+-1.1%
$2,500 - $2,999	1,091,292	0.48%	79.8%	+-1.6%
$3,000 - $3,499	632,289	0.54%	86.8%	+-2.1%
$3,500 - $3,999	353,179	0.56%	88.7%	+-2.9%
$4,000 - $4,499	234,972	0.59%	94.1%	+-3.6%
$4,500 - $4,999	138,081	0.60%	93.4%	+-4.7%
$5,000 - $9,999	467,344	0.56%	89.4%	+-2.5%
$10,000 - $19,999	97,981	0.43%	69.9%	+-4.9%
$20,000+	7,454	0.44%	78.3%	+-19.7%
Unknown	22,413	1.08%	234.7%	+-21.7%
Total	17,636,989	0.43%	77.8%	+-0.4%

Chart 9.2.B
Death Rates and A/E Ratios by Gross Monthly Benefit Amount
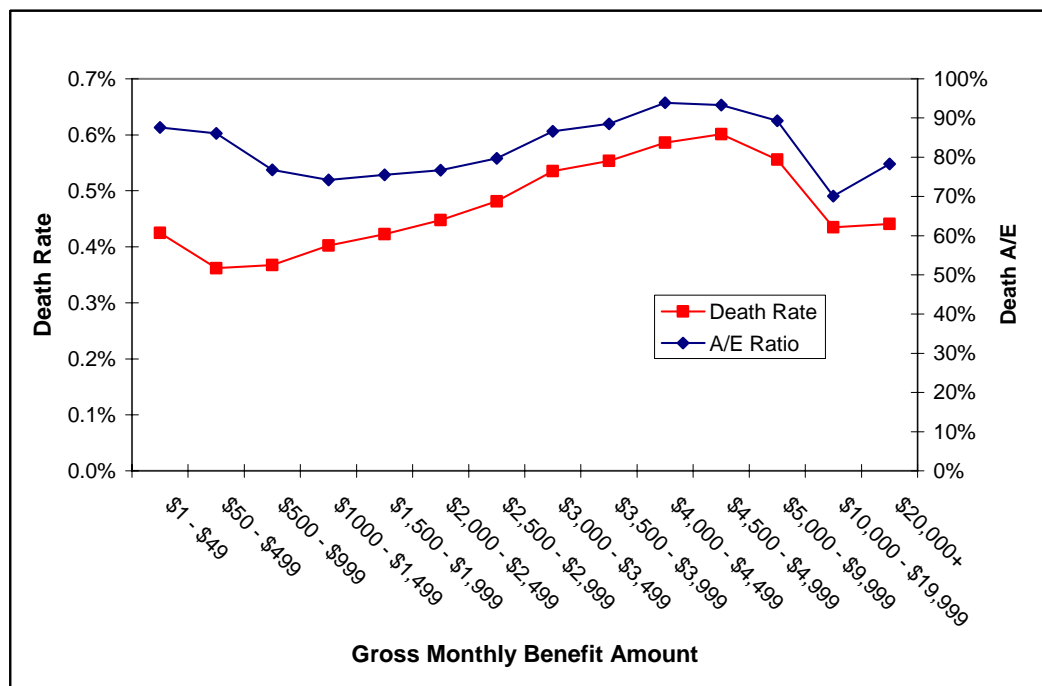
For purposes of our further analysis, we segmented benefit amounts into three major categories: $1 - $2,999; $3,000 - $4,999; and over $5,000 of gross monthly benefit.

In order to better understand the relationship of benefit amount to claim termination rates, we believe it is important to also note how benefit amount is correlated with age and diagnosis.

Table 9.3 shows the distribution of claim exposures across the three different benefit amount ranges, for experience in the first three quarters of claim duration.

TABLE 9.3

Distribution of Exposures by Claim Diagnosis as Benefit Amount Changes
for Claims in Durations Quarter 1 to Quarter 3

	Gross Monthly Benefit		
Diagnosis	**<$3,000**	**$3,000-4,999**	**$5,000+**
Back	15.1%	11.8%	9.3%
Cancer	14.2%	19.5%	22.3%
Circulatory	11.1%	11.6%	13.1%
Diabetes	1.3%	1.0%	0.9%
Digestive	2.5%	2.7%	2.8%
Ill-defined and Misc. Conditions	2.1%	1.9%	2.1%
Injury other than Back	9.8%	7.4%	5.8%
Maternity	5.4%	5.0%	3.2%
M&N	8.2%	11.2%	12.7%
Nervous System	6.1%	7.9%	9.9%
Other	8.1%	8.5%	9.0%
Other Musculoskeletal	13.5%	9.5%	7.2%
Respiratory	2.7%	2.1%	1.7%
Total	100.0%	100.0%	100.0%

Table 9.3 illustrates how the distribution of claims by diagnosis changes by benefit amount. Back, Injury other than Back, and Other Musculoskeletal claims become less frequent as benefit amounts increase. Cancer, Circulatory, Mental & Nervous, and Nervous System claims become more frequent as benefit amounts increase.

Table 9.4 shows the distribution of claim exposure in the first three quarters of duration, by age at disability and benefit amount. Not surprisingly, benefit amount is positively correlated with age.

TABLE 9.4

Distribution of Claim Exposure by Age at Disability as Benefit Amount Changes for Claims in Durations Quarter 1 to Quarter 3

	Gross Monthly Benefit		
Age at Disability	**<$3,000**	**$3,000-4,999**	**$5,000+**
< 20	0.1%	0.0%	0.0%
20 – 24	1.9%	0.1%	0.0%
25 – 29	5.2%	2.0%	0.8%
30 – 34	8.0%	6.4%	4.3%
35 – 39	10.1%	9.5%	9.0%
40 – 44	13.0%	12.6%	13.0%
45 – 49	15.4%	16.3%	16.4%
50 – 54	17.0%	20.0%	19.8%
55 – 59	16.1%	18.7%	20.0%
60 – 64	10.0%	11.1%	12.0%
65 – 69	2.1%	2.4%	3.3%
70 – 74	0.7%	0.6%	1.1%
75 – 79	0.3%	0.2%	0.3%
80+	0.1%	0.0%	0.1%
Total	100.0%	100.0%	100.0%

By rolling up the age categories, it is easier to see how claim exposure below age 35 migrates to claim exposure over age 50 as benefit amount increases.

TABLE 9.5

Distribution of Claim Exposure by Age at Disability as Benefit Amount Changes for Claims in Durations Quarter 1 to Quarter 3

	Gross Monthly Benefit		
Age at Disability	**<$3,000**	**$3,000-4999**	**$5,000+**
<35	15.2%	8.5%	5.2%
35 -49	38.6%	38.4%	38.4%
50+	46.3%	53.1%	56.5%
Grand Total	100.0%	100.0%	100.0%

Table 9.1 showed that recovery A/E's decreased at benefit amounts over $5,000. Table 9.6 summarizes recovery A/E ratios by age at disability and benefit amount. Here we see that the pattern of A/E ratios for those amounts is consistent across all ages at disability.

TABLE 9.6

Recovery Rate A/E Ratios and Relative A/E Ratios by Gross Monthly Benefit - Not Normalized for Diagnosis

Age at Disability	Total	A/E Ratios by Monthly Benefit			A/E Ratios by Monthly Benefit Relative to Total A/E		
		<$3,000	$3,000-4,999	$5,000+	<$3,000	$3,000-4,999	$5,000+
20 – 24	121.6%	121.7%	106.1%	74.3%	100.1%	87.2%	61.1%
25 – 29	115.8%	116.5%	102.0%	67.4%	100.6%	88.1%	58.2%
30 – 34	114.0%	114.9%	104.3%	90.0%	100.8%	91.5%	79.0%
35 – 39	112.3%	114.0%	99.6%	87.5%	101.5%	88.6%	77.8%
40 – 44	115.8%	118.1%	102.9%	83.5%	102.0%	88.9%	72.1%
45 – 49	120.3%	122.5%	111.7%	85.5%	101.8%	92.8%	71.0%
50 – 54	124.5%	127.4%	111.8%	88.4%	102.3%	89.8%	71.0%
55 – 59	126.3%	129.2%	112.2%	95.1%	102.3%	88.8%	75.2%
60 – 64	138.2%	143.0%	112.3%	89.9%	103.5%	81.3%	65.0%
65 – 69	184.9%	191.2%	159.6%	127.4%	103.4%	86.3%	68.9%
70 – 74	205.9%	212.8%	186.6%	113.4%	103.3%	90.6%	55.1%

Table 9.7 shows that death A/E ratios are highest for the $3,000 to $4,999 benefit amount range, for all ages at disability greater than 25.

TABLE 9.7

Death Rate A/E Ratios and Relative A/E Ratios by Gross Monthly Benefit - Not Normalized for Diagnosis

Age at Disability	Total	A/E Ratios by Monthly Benefit			A/E Ratios by Monthly Benefit Relative to Total A/E		
		<$3,000	$3,000-4,999	$5,000+	<$3000	$3,000-4,999	$5,000+
20 – 24	89.3%	90.1%	8.5%	0.0%	100.9%	9.6%	0.0%
25 – 29	86.7%	85.6%	114.7%	95.8%	98.7%	132.3%	110.4%
30 – 34	85.9%	84.0%	107.6%	124.7%	97.8%	125.2%	145.1%
35 – 39	74.7%	71.5%	102.0%	108.5%	95.6%	136.5%	145.2%
40 – 44	72.4%	70.2%	88.9%	90.3%	96.8%	122.7%	124.7%
45 – 49	74.1%	72.8%	83.0%	78.8%	98.2%	112.0%	106.2%
50 – 54	77.7%	76.2%	88.3%	80.9%	98.1%	113.7%	104.1%
55 – 59	79.3%	78.3%	85.1%	83.5%	98.7%	107.3%	105.3%
60 – 64	79.7%	77.4%	94.3%	90.5%	97.1%	118.3%	113.6%
65 – 69	95.8%	94.5%	104.3%	100.7%	98.6%	108.9%	105.1%
70 – 74	88.5%	85.0%	124.2%	92.2%	96.1%	140.4%	104.2%

We noted in Table 9.3 that Cancer plays a significant role in death A/E ratios. Since Cancer is a relatively more common disability at higher benefit amounts, we should consider normalizing for diagnosis and age at disability in order to determine if there are true differences in termination rates by benefit amount.

Table 9.8 shows that normalizing for the different disability category mix of higher benefit amounts does not explain the bulk of the difference in recovery rates by benefit amount.

TABLE 9.8

Impact of Normalizing Recovery A/E Ratios for Diagnosis

Age at Disability	A/E Ratios Not Normalized for Diagnosis			A/E Ratios Normalized for Diagnosis		
	<$3,000	$3,000-4,999	$5,000+	<$3,000	$3,000-4,999	$5,000+
20 – 24	99.9%	89.0%	61.2%	99.9%	91.7%	70.8%
25 – 29	100.5%	89.1%	58.6%	100.4%	90.7%	61.3%
30 – 34	100.4%	91.7%	79.3%	100.3%	92.9%	82.0%
35 – 39	101.0%	88.8%	77.9%	100.7%	90.9%	80.7%
40 – 44	100.9%	88.9%	72.6%	100.5%	90.4%	76.5%
45 – 49	100.2%	92.7%	72.1%	99.8%	93.8%	75.1%
50 – 54	100.3%	90.0%	71.9%	99.7%	92.1%	74.7%
55 – 59	100.7%	88.8%	77.1%	100.0%	91.1%	81.1%
60 – 64	102.6%	81.6%	65.9%	101.6%	84.5%	70.9%
65 – 69	102.6%	86.1%	70.4%	101.5%	90.8%	76.6%
70 – 74	102.2%	89.0%	55.1%	100.6%	96.4%	62.3%

However, normalizing for diagnosis mix does substantially account for the higher death A/E ratios for higher benefit amounts (Table 9.9). After normalizing for diagnosis, the death A/E ratios are actually lower at the higher benefit amounts.

TABLE 9.9

Impact of Normalizing Death A/E Ratios for Diagnosis

Age at Disability	A/E Ratios Not Normalized for Diagnosis			A/E Ratios Normalized for Diagnosis		
	<$3,000	$3,000-4,999	$5,000+	<$3,000	$3,000-4,999	$5,000+
20 – 24	100.7%			100.8%		
25 – 29	98.9%	132.6%	110.7%	101.2%	84.1%	64.3%
30 – 34	98.0%	125.4%	145.4%	101.2%	87.4%	91.0%
35 – 39	96.0%	137.1%	145.8%	100.9%	95.1%	91.1%
40 – 44	97.1%	123.0%	125.1%	101.4%	97.2%	82.3%
45 – 49	98.5%	112.3%	106.5%	101.7%	92.6%	84.9%
50 – 54	98.3%	113.9%	104.3%	101.0%	99.3%	85.0%
55 – 59	98.9%	107.5%	105.5%	101.3%	95.8%	88.8%
60 – 64	97.3%	118.5%	113.8%	99.2%	107.4%	97.2%
65 – 69	98.6%	108.9%	105.0%	100.7%	97.3%	95.8%
70 – 74	96.3%	140.7%	104.4%	98.2%	125.7%	88.6%

10.   Variance in Results by Company

The purpose of this section is to consider the variance in the experience across the individual carriers. In the interest of confidentiality, we do not provide results by each contributing carrier, but instead bucket the carriers into four groups based on similar patterns of death and recovery A/E results.

Beginning with twenty-one carriers, we first grouped the four carriers with the smallest contribution into a single effective carrier, leaving a total of 18 distinct carriers. These are then each assigned to one of four groups. Two of these groups contain five carriers, while the other two contain four. The following results are all based on the aggregate results for each of these specific groups.

We note that there will be some carrier to carrier variance within each of the groups. Therefore the spread of results across individual carriers is larger than what is evidenced in these reports.

The following results are presented only for claims with EP equal to 90-days or 180-days. Where provided, "Std Dev" represents the standard deviation of the four observed A/E's, divided by the average A/E for the parameters being analyzed. It is a statistic intended to quantify the difference in observed A/E termination ratios across the carrier groups.

TABLE 10.1.A

A/E Recovery Ratios by Company Group and Duration

Duration	Group 1	Group 2	Group 3	Group 4	Std Dev
Quarter 2	138%	124%	95%	108%	16%
Quarter 3	143%	120%	102%	105%	16%
Quarter 4	137%	114%	112%	101%	13%
Quarter 5	130%	106%	106%	90%	15%
Quarter 6	132%	115%	129%	95%	14%
Quarter 7	178%	132%	170%	127%	17%
Quarter 8	199%	156%	182%	133%	17%
Quarter 9	225%	141%	163%	95%	35%
Quarter 10	247%	129%	199%	80%	45%
Quarter 11	243%	105%	271%	89%	53%
Quarter 12	138%	105%	153%	72%	31%
Year 4	184%	94%	188%	77%	43%
Year 5	145%	55%	132%	67%	46%
Year 6	212%	76%	222%	84%	53%
Year 7	264%	82%	243%	107%	53%
Year 8	232%	71%	225%	78%	59%
Year 9	226%	57%	215%	88%	59%
Year 10	244%	55%	209%	69%	67%
Year 11+	196%	50%	172%	70%	60%
Total	151%	117%	119%	102%	17%

Group 1 has relatively high recovery A/E ratios in all durations, while Group 3 has relatively low A/E ratios in the early durations and high A/Es in the later durations. Groups 2 and 4 have generally lower recovery A/Es at all durations, although Group 4 is lower than Group 2 for durations less than five years and higher than Group 2 for durations greater than or equal to five years.

Since the observed differences in actual-to-expected recovery results were significant, we decided to examine two potential causes for the differences. First, we examined the role of normal random (statistical) variation in the observed results; i.e., even though our sample of claims is large, by the time it is segmented by carrier group and other segment variables, we may have a fairly small sample of claims in any one cell.

Second, since A/E results vary significantly by claim diagnosis, differences in claim diagnosis mix by carrier could potentially affect group-level results.

To assess the potential impact of random variation within each group, we estimated the expected standard deviation of the observed outcomes and visually compared those to the observed variation. The expected number of terminated claims (deaths or recoveries) is found by multiplying the exposure by the expected termination rate. In any given period, we may observe more or less terminations than expected due to random fluctuations. The standard deviation of the observed outcomes divided by the expected outcomes (percent standard deviation) is given by the formula:

Percent Standard Deviation = $\dfrac{\sqrt{N}}{N}$ where *N* is the number of expected claims.

Chart 10.1.B shows the A/E results with error bars that represent plus or minus one standard deviation. Please note that this error-bar standard deviation measures the expected random variance of the observations within that grouping for each duration in each cell, and should be distinguished from the standard deviation column in Table 10.1.A, which represents the variation across the four carrier groups.

Chart 10.1.B

A to E Recoveries by Company Group and Duration with error bars
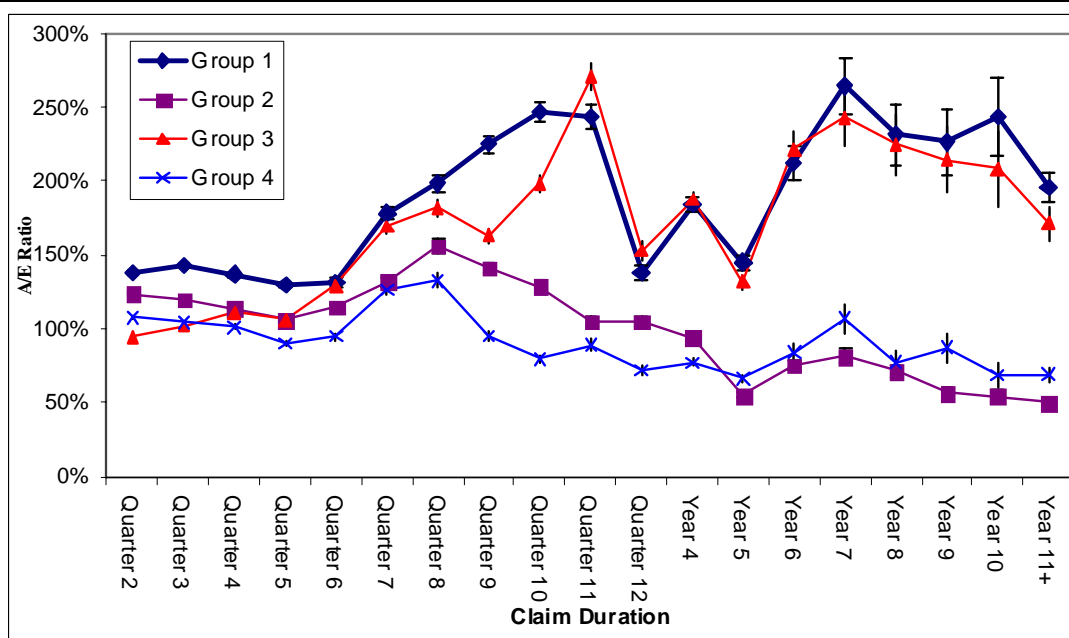
We see that the differences between Group 1 and Group 3 in the latter durations may be explained by random variance; i.e., they overlap, but the other differences all appear to be statistically real.

Table 10.2 compares the distribution of exposure by diagnosis for each group; it evidences only minor differences in diagnosis mix.

TABLE 10.2

Distribution of Exposure by Claim Diagnosis for each Group of Contributors

Diagnosis	Group 1	Group 2	Group 3	Group 4
Back	13.9%	16.0%	17.4%	18.5%
Cancer	8.3%	7.6%	8.2%	7.9%
Circulatory	15.7%	16.9%	16.3%	15.0%
Diabetes	1.7%	2.1%	2.4%	1.7%
Digestive	2.1%	2.3%	2.0%	2.7%
Ill-defined and Misc.	2.5%	2.8%	2.1%	1.4%
Injury other than Back	6.5%	8.5%	6.9%	7.6%
Maternity	0.6%	0.5%	0.5%	0.6%
Mental and Nervous	7.5%	5.1%	5.8%	6.7%
Nervous System	9.6%	10.6%	10.9%	11.7%
Other	13.3%	10.9%	10.0%	9.1%
Other Musculoskeletal	14.9%	13.4%	13.9%	13.6%
Respiratory	3.6%	3.3%	3.6%	3.6%
Total	100%	100%	100%	100%

To assess the potential impact of claim mix, we created "recovery expectation adjustment factors" by claim diagnosis and across three duration groups, such that multiplying these factors times raw recovery rates would produce flat A/Es by diagnosis and duration group (only claims with a 90-day or 180-day EP included.)

TABLE 10.3

Recovery Expectation Adjustment Factors by Diagnosis and Claim Duration

Diagnosis	Claim Duration Year 1 – 2	Claim Duration Year 3 – 4	Claim Duration Year 5+
Back	0.895	1.370	1.442
Cancer	0.850	0.857	0.952
Circulatory	0.791	0.790	0.769
Diabetes	0.531	0.587	0.699
Digestive	1.168	0.935	0.916
Ill-defined and Misc.	0.866	0.939	1.092
Injury other than Back	1.382	1.543	1.127
Maternity	1.252	1.508	1.379
Mental and Nervous	1.051	0.928	1.131
Nervous System	0.502	0.585	0.585
Other	0.969	0.700	0.965
Other Musculoskeletal	1.030	1.225	1.180
Respiratory	0.582	0.684	0.797

Using these expectation adjustments, we developed Table 10.4.A and Chart 10.4.B.

TABLE 10.4.A

**Recovery A/E Ratios by Company Group and by Duration - Normalized for Diagnosis Mix**

Duration	Group 1	Group 2	Group 3	Group 4	Std Dev
Quarter 2	136%	123%	95%	108%	16%
Quarter 3	147%	124%	106%	108%	15%
Quarter 4	144%	121%	118%	107%	13%
Quarter 5	139%	114%	115%	97%	15%
Quarter 6	142%	125%	141%	103%	14%
Quarter 7	193%	143%	185%	138%	17%
Quarter 8	215%	169%	198%	144%	17%
Quarter 9	225%	140%	160%	93%	36%
Quarter 10	246%	127%	195%	78%	46%
Quarter 11	248%	105%	269%	89%	53%
Quarter 12	141%	105%	153%	73%	31%
Year 4	190%	95%	190%	79%	43%
Year 5	146%	55%	131%	66%	46%
Year 6	215%	76%	222%	84%	54%
Year 7	269%	82%	245%	107%	54%
Year 8	235%	72%	228%	77%	59%
Year 9	229%	57%	218%	87%	60%
Year 10	245%	55%	212%	69%	67%
Year 11+	194%	50%	177%	68%	60%
Total	**154%**	**119%**	**122%**	**104%**	**17%**

Chart 10.4 .B
A to E Recoveries by Company Group and Duration: adjusted by diagnosis
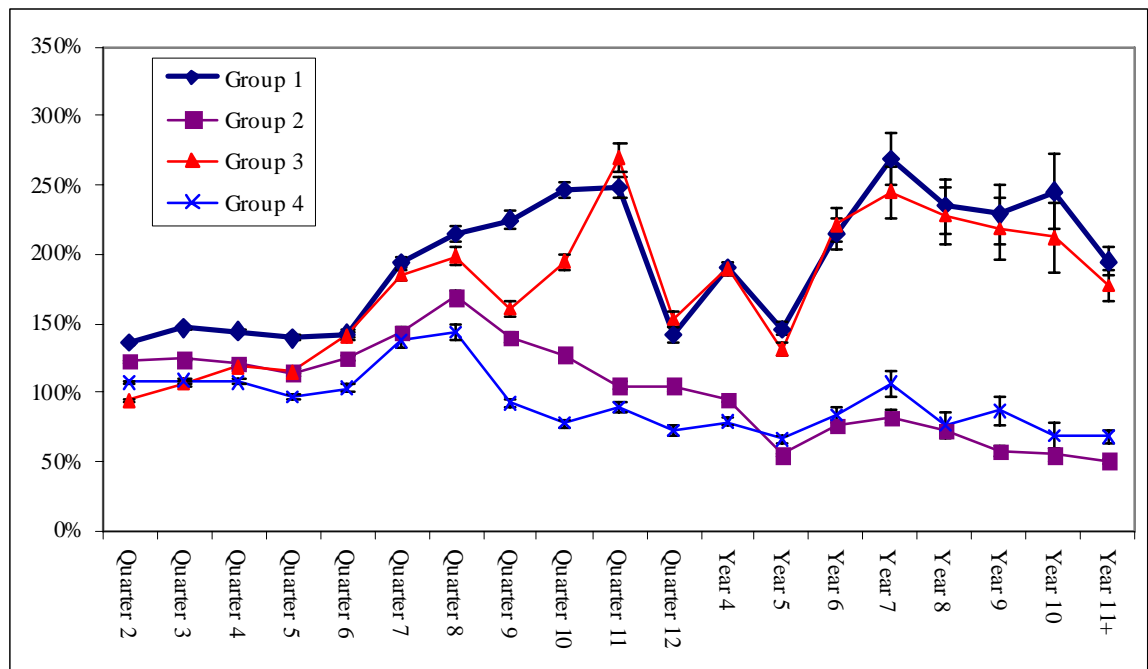
We saw very little difference between the raw results and the diagnosis-adjusted results, indicating that diagnosis mix does not explain the observed differences between carrier groups.

We followed a similar approach for death experience.

TABLE 10.5.A

Death A/E Ratios by Company Group and Duration

Duration	Group 1	Group 2	Group 3	Group 4	Std Dev
Quarter 2	83%	77%	66%	79%	10%
Quarter 3	67%	69%	57%	63%	9%
Quarter 4	72%	74%	66%	69%	5%
Quarter 5	75%	76%	72%	65%	7%
Quarter 6	81%	76%	71%	65%	10%
Quarter 7	81%	80%	72%	69%	8%
Quarter 8	86%	79%	72%	65%	12%
Quarter 9	83%	82%	78%	71%	7%
Quarter 10	95%	86%	80%	82%	8%
Quarter 11	100%	97%	90%	81%	10%
Quarter 12	97%	94%	86%	95%	5%
Year 4	103%	94%	90%	96%	6%
Year 5	105%	97%	91%	94%	6%
Year 6	106%	100%	105%	88%	8%
Year 7	112%	95%	92%	91%	10%
Year 8	116%	91%	89%	91%	13%
Year 9	108%	84%	82%	86%	13%
Year 10	103%	85%	85%	80%	12%
Year 11+	98%	83%	89%	71%	13%
Total	84%	81%	73%	73%	7%

Chart 10.5.B
A to E Deaths by Company Group and Duration with error bars
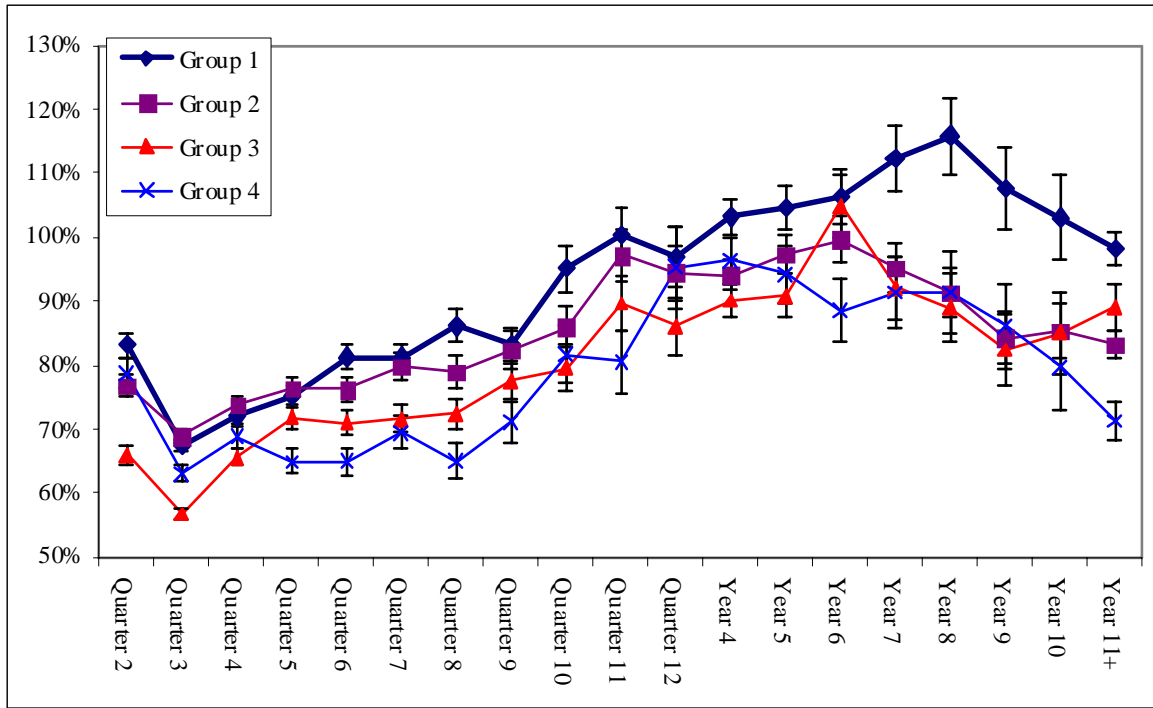
While the differences between carrier groups are not as large as with the recoveries, we still do observe significant differences. Carrier group 1 shows high deaths outside the margin of error, particularly in the later durations. The following Table 10.6.A and Chart 10.6.B show A/Es that have been normalized for diagnosis.

TABLE 10.6.A

Death A/E Ratios by Company Group and Duration - Normalized for Diagnosis

Duration	Group 1	Group 2	Group 3	Group 4	Std Dev
Quarter 2	73%	66%	61%	71%	8%
Quarter 3	61%	62%	54%	60%	7%
Quarter 4	70%	72%	66%	70%	3%
Quarter 5	64%	65%	63%	57%	5%
Quarter 6	74%	69%	67%	61%	8%
Quarter 7	78%	76%	71%	69%	6%
Quarter 8	86%	79%	75%	68%	10%
Quarter 9	79%	78%	76%	70%	5%
Quarter 10	91%	83%	79%	80%	7%
Quarter 11	96%	95%	90%	78%	10%
Quarter 12	95%	95%	87%	94%	4%
Year 4	107%	100%	95%	101%	5%
Year 5	119%	115%	108%	113%	4%
Year 6	128%	126%	133%	114%	6%
Year 7	144%	128%	125%	127%	7%
Year 8	154%	130%	125%	135%	9%
Year 9	148%	125%	121%	135%	9%
Year 10	145%	131%	128%	129%	6%
Year 11+	134%	139%	140%	129%	4%
Total	**82%**	**82%**	**74%**	**75%**	**5%**

Chart 10.6.B

A to E Deaths by Company Group and Duration adjusted by Diagnosis
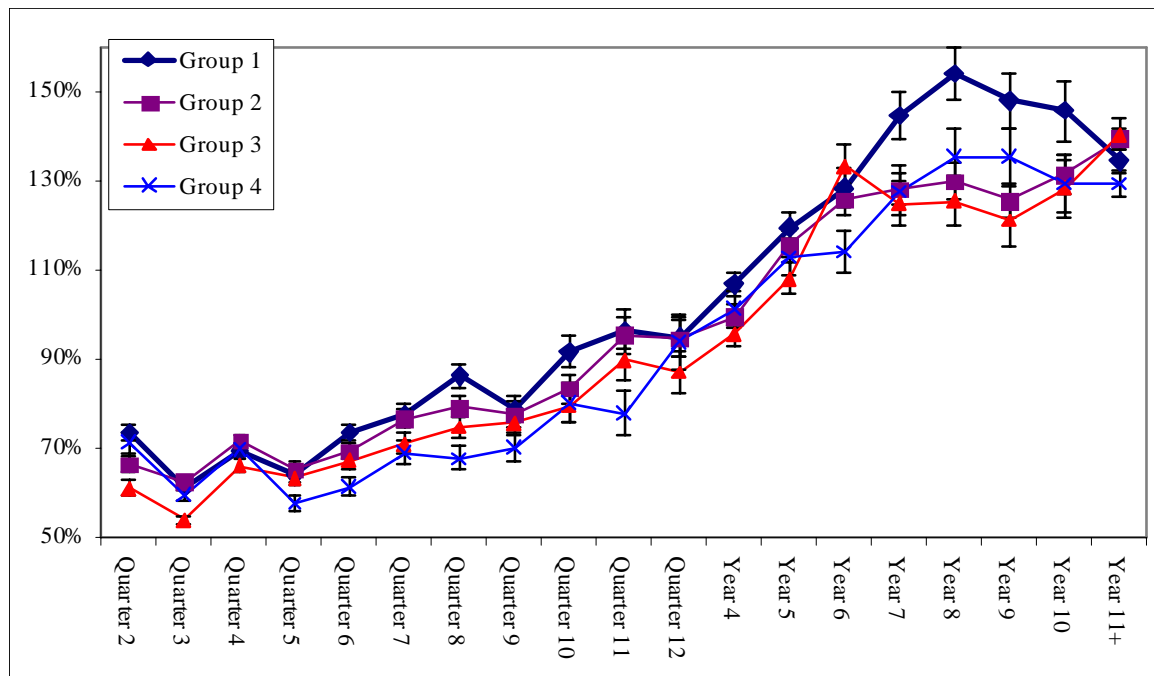
Unlike with recoveries, the diagnosis adjustment for deaths does tighten up the results some; however, significant residual variation remains.

Our conclusion is that most of the differences in recovery rates cannot be explained by different mixes of diagnoses, while at least some of the death rate differences can be attributed to the diagnosis mix.

We note that the diagnosis adjustments address only one potential source of claim mix differences between the carrier groups. There are also differences in expecteds by gender, age, elimination period and other parameters. Since the carrier groups have different compositions of claims across these parameters, some of the difference in A/E results would be attributable to claim mix for these parameters. A complete termination experience table that is developed based on 2008 GLTD experience would be the best way to correct for the remaining claim mix differences. Once that work is complete (see Next Steps), it will be interesting to observe the remaining morbidity and mortality differences between the carrier groups.

In the remainder of this section, we document carrier group differences in experience, segmented by a number of parameters. We note that the Table 95a expecteds do not take into account diagnosis, other than for Maternity and M&N. The analyses in all sections use diagnosis-specific expecteds for Maternity and M&N, and Table 95a "All Other" terminations for the other 11 diagnoses.

TABLE 10.7.A

Recovery A/E Ratios by Diagnosis (for Claims within the First 2 Years of Duration)

Diagnosis	Group 1	Group 2	Group 3	Group 4	Std Dev
Back	140%	115%	102%	97%	17%
Cancer	129%	106%	102%	99%	12%
Circulatory	109%	97%	85%	80%	14%
Diabetes	73%	62%	54%	49%	18%
Digestive	175%	148%	144%	130%	12%
Ill-defined and Misc.	144%	103%	110%	65%	31%
Injury other than back	218%	192%	179%	170%	11%
Maternity	154%	145%	123%	131%	10%
Mental and Nervous	151%	130%	88%	110%	22%
Nervous System	71%	56%	50%	54%	15%
Other	131%	108%	96%	86%	18%
Other Musculoskeletal	155%	131%	119%	114%	14%
Respiratory	71%	61%	57%	58%	10%
Total	**141%**	**121%**	**107%**	**105%**	**14%**

Table 10.7.B
A to E Recoveries for claims within the first 2 years of Duration by Diagnosis
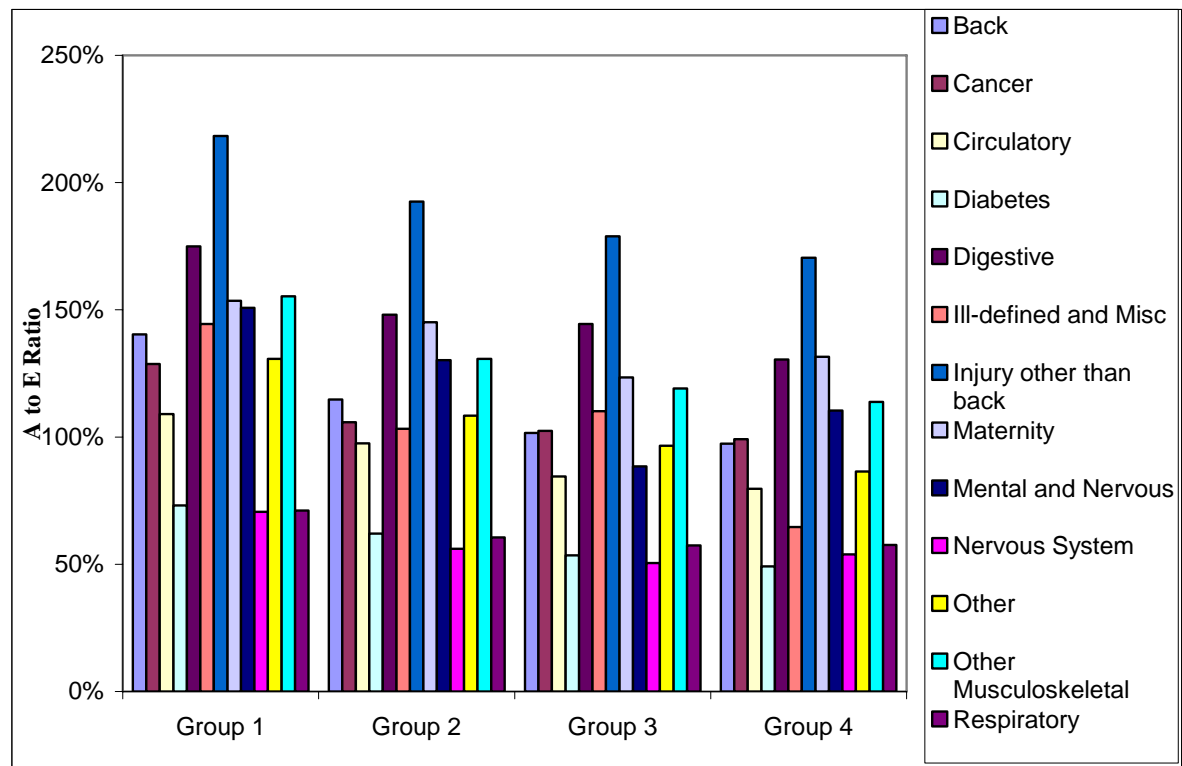
TABLE 10.8.A

Recovery A/E Ratios for Claims by Diagnosis (for Claims within Years 3 - 4 of Duration)

Diagnosis	Group 1	Group 2	Group 3	Group 4	Std Dev
Back	302%	159%	267%	106%	44%
Cancer	165%	98%	163%	103%	28%
Circulatory	182%	77%	155%	70%	46%
Diabetes	142%	60%	118%	25%	62%
Digestive	196%	117%	175%	98%	32%
Ill-defined and Misc.	209%	113%	166%	80%	40%
Injury other than back	318%	185%	333%	116%	44%
Mental and Nervous	221%	138%	95%	74%	49%
Nervous System	128%	64%	109%	56%	39%
Other	145%	75%	135%	61%	41%
Other Musculoskeletal	260%	138%	242%	91%	45%
Respiratory	146%	68%	142%	59%	45%
Total	**214%**	**115%**	**193%**	**84%**	**41%**

Table 10.8.B
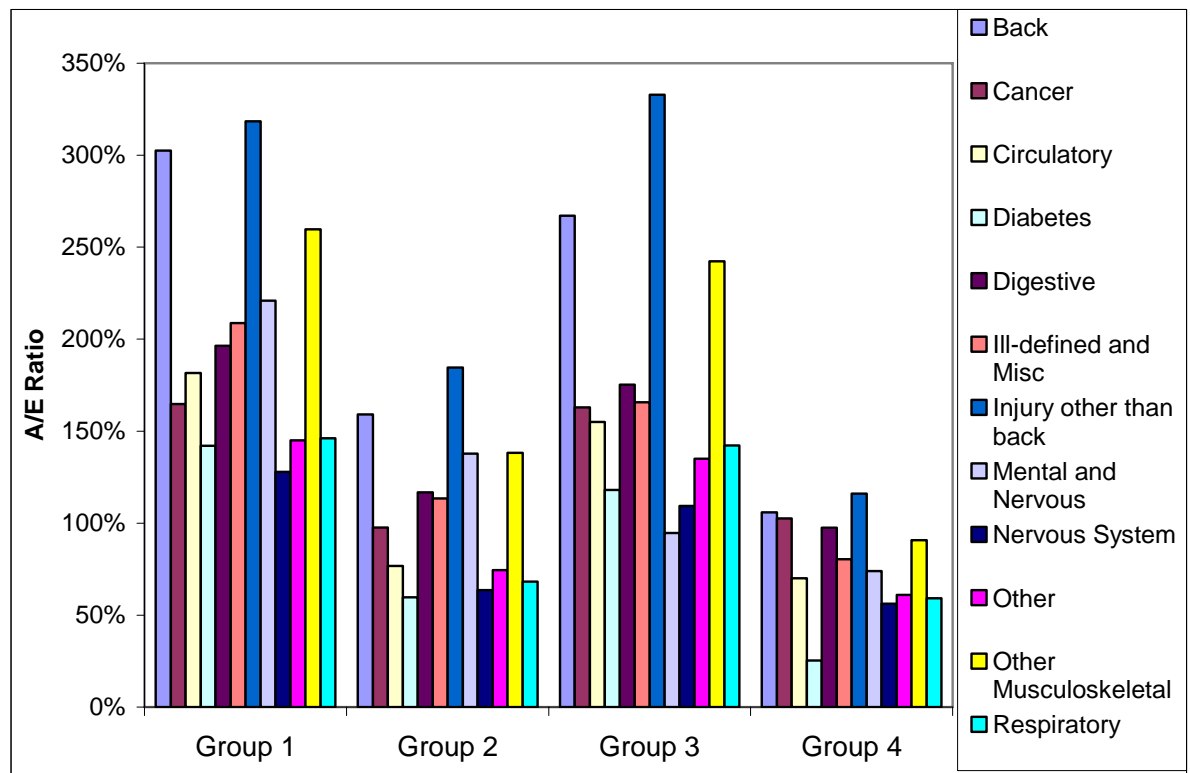**A to E Recoveries for claims within years 3-4 of Duration by Diagnosis**

TABLE 10.9.A

Recovery A/E Ratios by Diagnosis (for Claims after 4 Years of Duration)

Diagnosis	Group 1	Group 2	Group 3	Group 4	Std Dev
Back	269%	82%	286%	116%	55%
Cancer	152%	66%	155%	102%	36%
Circulatory	134%	45%	145%	56%	54%
Diabetes	136%	35%	96%	64%	52%
Digestive	198%	56%	161%	105%	48%
Ill-defined and Misc.	220%	65%	183%	75%	57%
Injury other than back	228%	82%	222%	88%	52%
Mental and Nervous	206%	84%	150%	77%	47%
Nervous System	119%	37%	97%	49%	52%
Other	194%	57%	132%	59%	60%
Other Musculoskeletal	214%	69%	223%	73%	59%
Respiratory	147%	48%	145%	61%	53%
Total	**189%**	**61%**	**177%**	**76%**	**53%**

Table 10.9.B
A to E Recoveries for claims after 4 years of Duration by Diagnosis
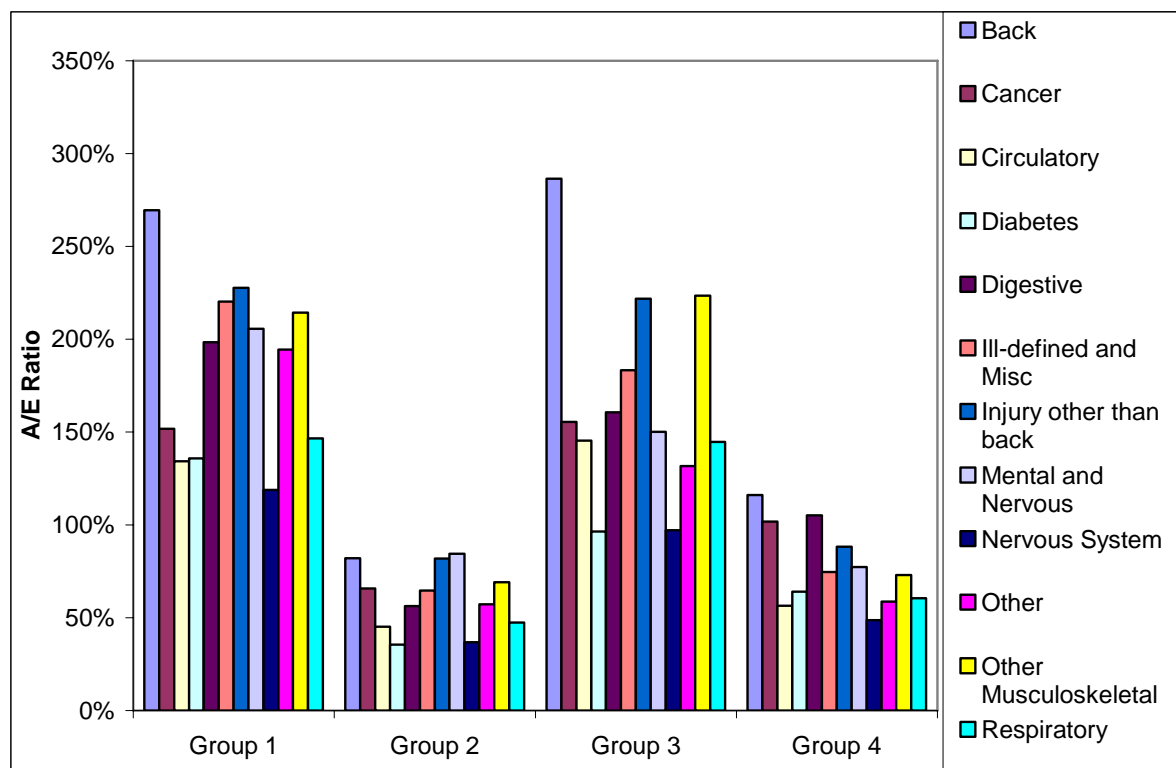
TABLE 10.10.A

Death A/E Ratios by Diagnosis (for all Claim Durations)

Diagnosis	Group 1	Group 2	Group 3	Group 4	Std Dev
Back	13%	14%	11%	12%	12%
Cancer	369%	368%	343%	350%	4%
Circulatory	56%	58%	50%	50%	8%
Diabetes	75%	89%	62%	77%	15%
Digestive	89%	88%	92%	80%	6%
Ill-defined and Misc.	54%	45%	40%	35%	19%
Injury other than back	20%	18%	18%	18%	6%
Maternity	189%	86%	104%	17%	72%
Mental and Nervous	74%	74%	79%	79%	4%
Nervous System	46%	46%	38%	40%	9%
Other	76%	71%	66%	61%	10%
Other Musculoskeletal	18%	18%	13%	16%	14%
Respiratory	94%	94%	86%	84%	6%
Total	**84%**	**81%**	**73%**	**73%**	**7%**

Table 10.10.B
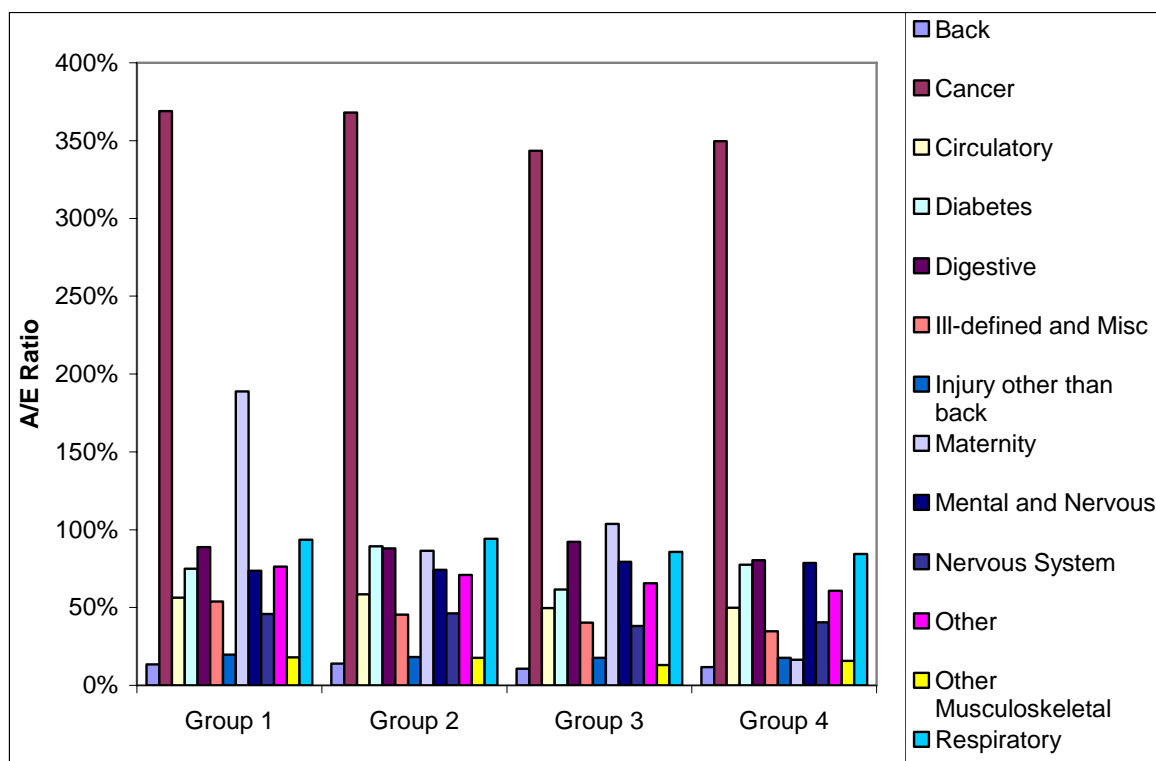**A to E Deaths for claims by Diagnosis**

TABLE 10.11.A

Recovery A/E Ratios by Attained Age (for Claims after 4 Years of Duration)

Attained Age	Group 1	Group 2	Group 3	Group 4	Std Dev
20 to 24	63%	40%	51%	43%	21%
25 to 29	84%	67%	122%	63%	32%
30 to 34	150%	58%	109%	64%	45%
35 to 39	151%	60%	131%	77%	41%
40 to 44	169%	51%	132%	73%	51%
45 to 49	181%	60%	156%	66%	53%
50 to 54	224%	64%	199%	80%	57%
55 to 59	256%	69%	289%	97%	62%
60 to 64	173%	72%	273%	82%	62%
65 to 69	353%	146%	314%	196%	38%
Total	189%	61%	177%	76%	53%

Table 10.11.B
A to E Recoveries after four years of duration by attained age
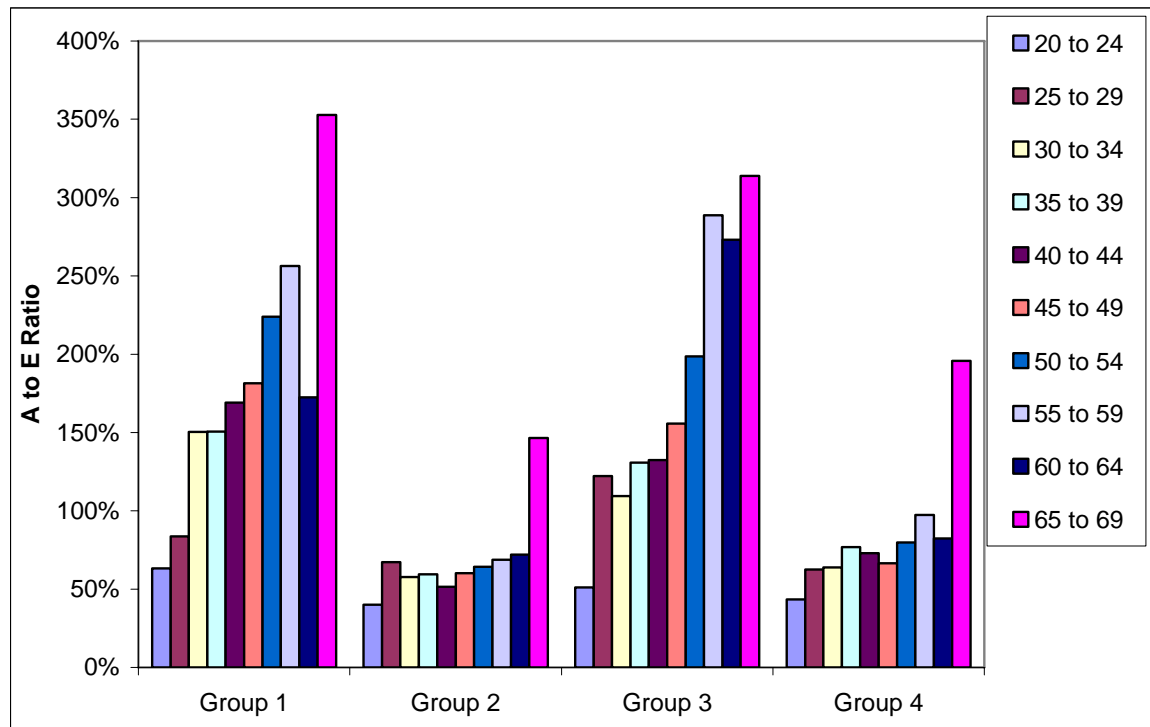
TABLE 10.12.A

Death A/E Ratios by Attained Age (excluding the first quarter of duration)

Attained Age	Group 1	Group 2	Group 3	Group 4	Std Dev
20 to 24	80%	79%	78%	91%	7%
25 to 29	78%	75%	68%	69%	7%
30 to 34	73%	83%	71%	73%	7%
35 to 39	78%	79%	67%	66%	10%
40 to 44	74%	76%	67%	60%	10%
45 to 49	78%	74%	65%	67%	8%
50 to 54	85%	79%	70%	72%	9%
55 to 59	85%	81%	74%	76%	6%
60 to 64	86%	84%	79%	78%	5%
65 to 69	91%	96%	92%	97%	3%
70 to 74	97%	89%	88%	91%	4%
74 to 79	99%	90%	80%	82%	10%
80+	127%	95%	97%	61%	28%
Total	**84%**	**81%**	**73%**	**73%**	**7%**

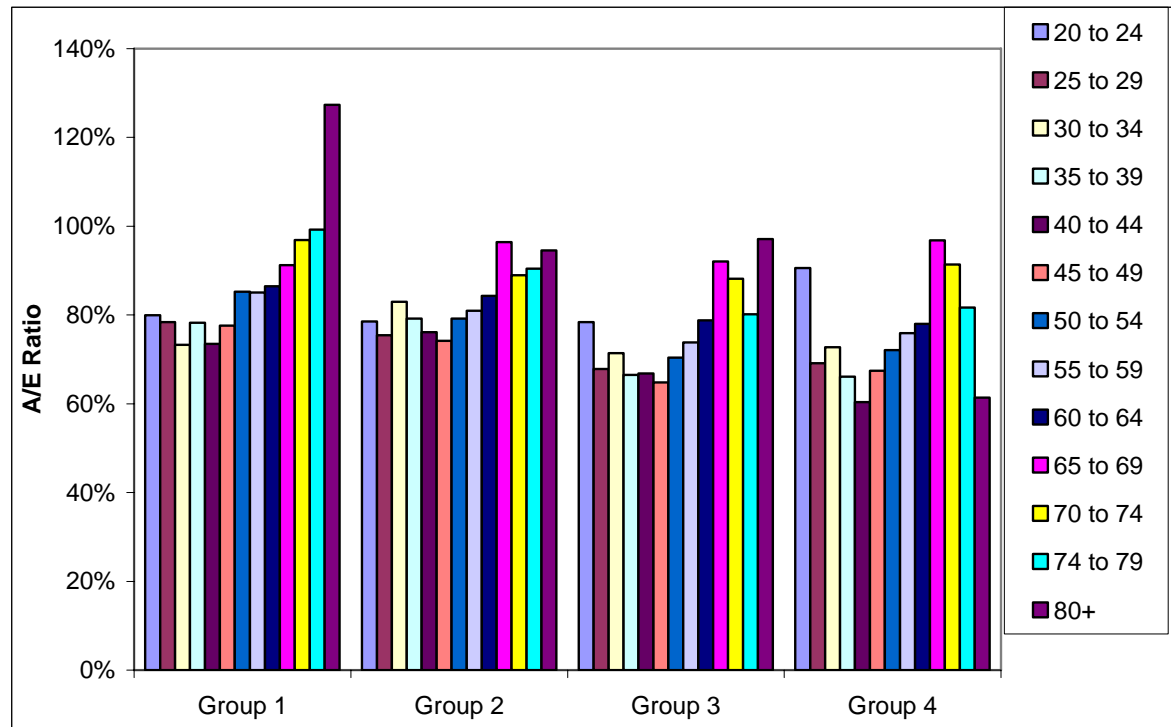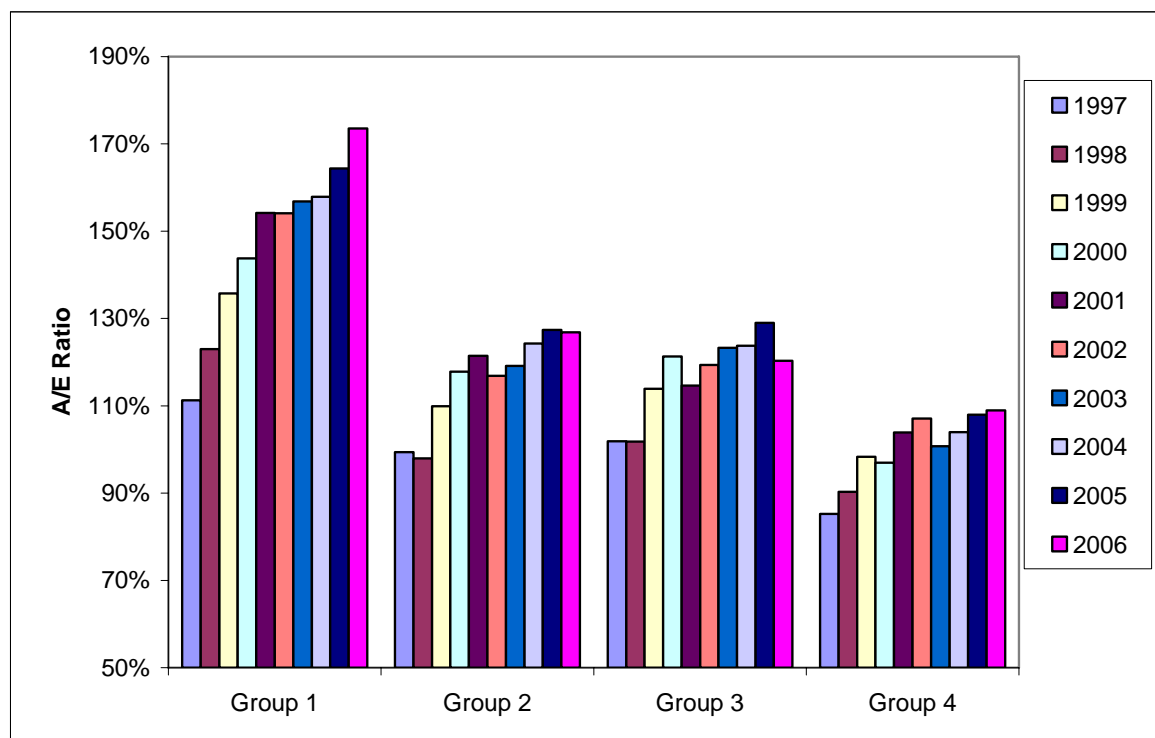**Table 10.12.B**
A to E Deaths by attained age

TABLE 10.13.A

Recovery A/E Ratios by Calendar Year (excluding the first quarter of duration)

Calendar Year	Group 1	Group 2	Group 3	Group 4	Std Dev
1997	111%	99%	102%	85%	11%
1998	123%	98%	102%	90%	14%
1999	136%	110%	114%	98%	14%
2000	144%	118%	121%	97%	16%
2001	154%	121%	115%	104%	18%
2002	154%	117%	119%	107%	17%
2003	157%	119%	123%	101%	19%
2004	158%	124%	124%	104%	18%
2005	164%	127%	129%	108%	18%
2006	174%	127%	120%	109%	21%
Slope	6%	3%	2%	2%	

Table 10.13.B
A to E Recoveries by Calendar Year

We see that carrier Group 1 had a greater improvement in recoveries during the course of the study than did the other carriers.
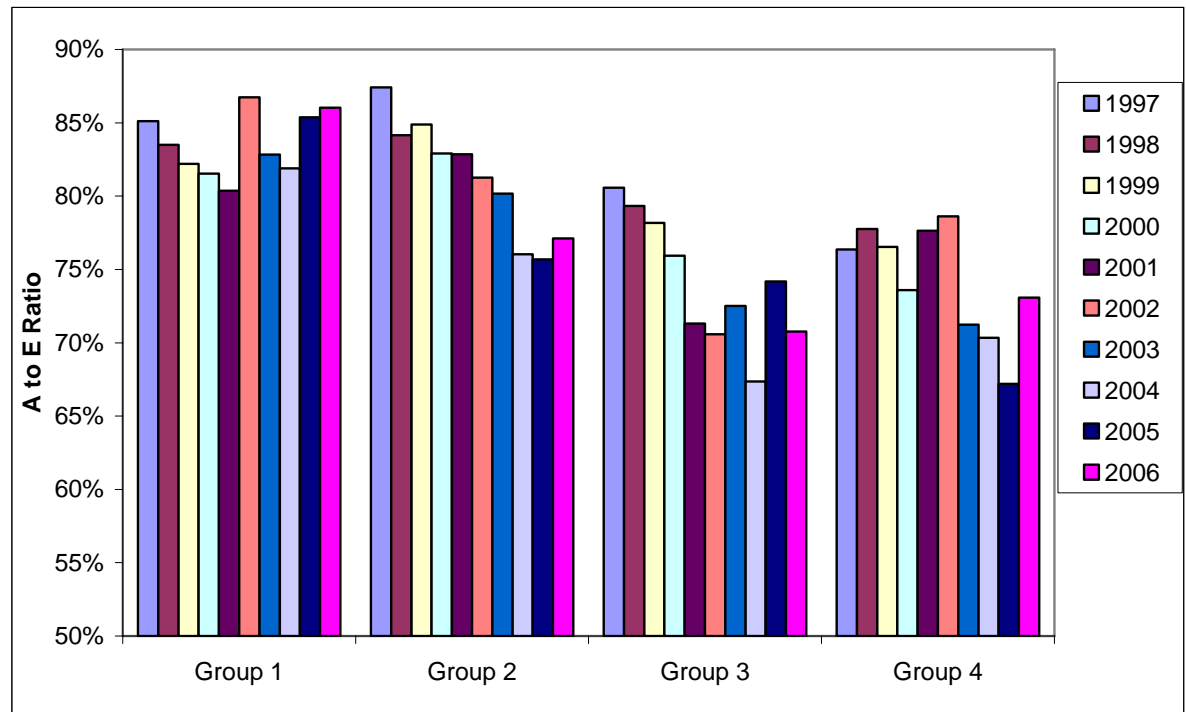
TABLE 10.14.A

Death A/E Ratios by Calendar Year (excluding the first quarter of duration)

Calendar Year	Group 1	Group 2	Group 3	Group 4	Std Dev
1997	85%	87%	81%	76%	6%
1998	84%	84%	79%	78%	4%
1999	82%	85%	78%	77%	5%
2000	82%	83%	76%	74%	6%
2001	80%	83%	71%	78%	6%
2002	87%	81%	71%	79%	8%
2003	83%	80%	73%	71%	7%
2004	82%	76%	67%	70%	9%
2005	85%	76%	74%	67%	10%
2006	86%	77%	71%	73%	9%
Slope	0%	-1%	-1%	-1%	

Table10.14.A
A to E Deaths by Calendar Year

Carrier Group 1 showed no average mortality improvement, while the other groups all show about 1% improvement per year.

Table 10.15.A shows the total rate of terminations that are neither a recovery nor a death. This includes the categories of settlements, max-outs and limits reached, as described in Section 8. This table includes only claim durations greater than 12 months.

TABLE 10.15.A

Termination Rates by Cause, excluding Deaths and Recoveries, by Carrier Group
(Rate per 1000 Months Exposed - for Claim Durations > 12 Months)

Type	Group 1	Group 2	Group 3	Group 4	Std Dev
Settled	97%	141%	123%	50%	39%
Max-Out	511%	468%	530%	910%	34%
Limits	172%	112%	74%	15%	70%
Total Non-Recov/Death	**779%**	**721%**	**727%**	**975%**	**15%**

Table10.15.B
Rate of Non-Death and Non-Recovery Terminations per 1,000 months exposed (Duration >
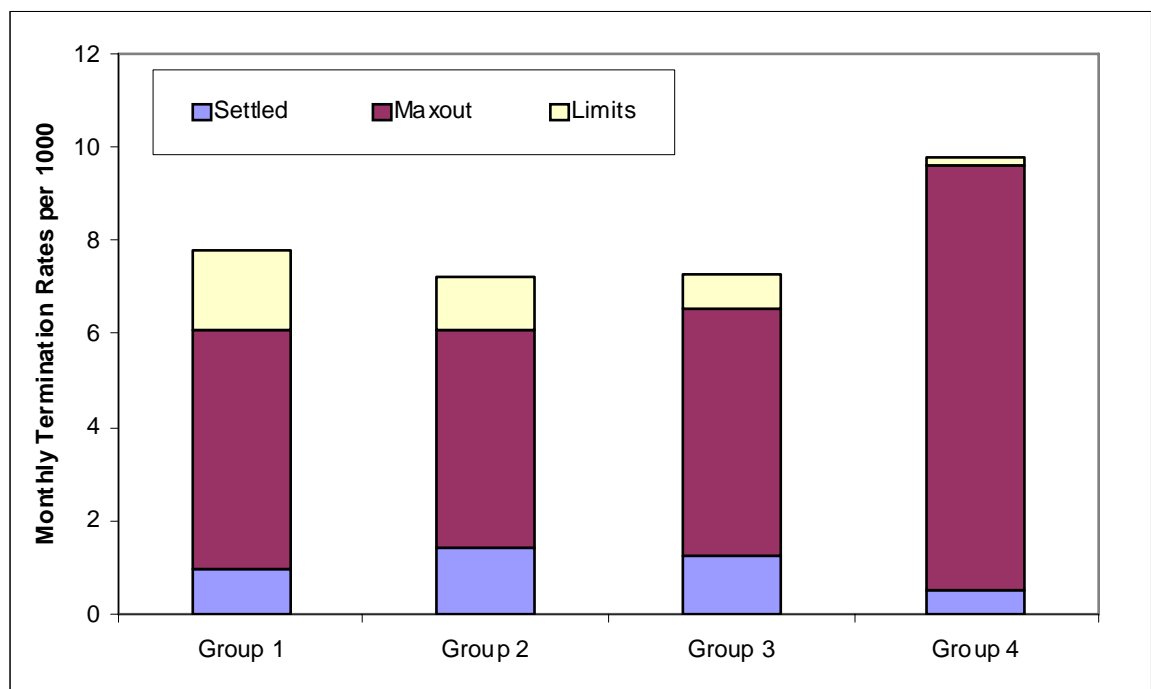
It is not surprising that carrier Group 4 shows a higher rate of max-outs, since it generally has lower recoveries and deaths. It is somewhat surprising that carrier Group 1 does not show a lower rate of max-outs than Groups 2 and 3 since the recoveries and deaths are generally higher for this group.

NEXT STEPS

Our project objectives were to complete an experience study, develop a pricing or experience table, and develop the information needed to create a valuation table. At this point we have tabulated results and reported on significant observations, but have not yet converted the observed results into an Experience Table. This section of the report will briefly describe some of the elements that will be considered in Experience Table construction.

1.   Experience Table Construction

The next step in the process will be the construction of an Experience or pricing table based on the collected data. The Experience Table will contain average termination rates for all claims approved for payment; it can be combined with paid-claim incidence expectations to generate total expected claim cost for a specified net benefit. At this point the table will not address provisions for future Social Security and other offset awards.

The key decisions in the table construction will pertain to the structure of the table itself. The following are expected to be some potential decision-points.

We assume that the table will contain the following key parameters: age at disability, gender, duration, diagnosis, and elimination period. However, some specific decisions will need to be made about how to handle those and other parameters.

1. Should we use five-year age groups for aggregating experience, or generate rates that vary by individual ages? Should we use a select and ultimate age table, and, if so, for what durations? Should we generate monthly rates for early durations, and should these rates transition to annual rates at some later duration?

2. How should claim diagnosis be captured? We anticipate a minimum segmentation that would address Cancer, M&N, Maternity, and Other, but may choose to provide additional break-outs within the "Other" category. We will also decide whether the diagnosis subgroups warrant separate tables or factor adjustments to a common underlying table.

3. How should we handle differences by EP? When do EP effects fully wear-off, so that we should move to a combined table that is independent of EP?

4. How should we handle the change in Own-Occupation definition? Are the change-in-definition terminations handled as a separate decrement, or as an increase in the normal recoveries? Over how many months would this increase apply? What additional segment variables should be used in determining the impact? Do we address the difference in expected terminations for own-occ versus any-occ claims after the change in definition?

5. How are the M&N limit terminations handled? Do we count this these as a separate decrement on or near the limit-change date?

6. How are claim settlements handled? Do we use a separate decrement, incorporate the financial impact of the settlements in to the expected recovery rates, or exclude them altogether?

Moving beyond table structure are additional considerations:

1. Should all of the available calendar years of exposure be used in the table construction? The experience study shows significantly different experience in more recent years compared to the late 1990's, and so the later subset may be a better representation of anticipated experience. On the other hand, the full experience period may provide a more credible predictor of experience including fluctuations, since it is a longer-term average.

2. Do we recommend including an assumption regarding future mortality improvement?

3. Do we provide a single experience table that uses the data from all of the contributing carriers, or do we provide separate tables that capture groups of carriers with materially different termination results? Is there a better way to handle carrier-to-carrier variance?

4. What is the appropriate degree of table graduation and what graduation method(s) should be selected? The observed terminations show considerable lumpiness and we will need to decide how much of this should be left in or smoothed in the Experience Table.

2.   Valuation Table versus Experience Table

Once the Experience Table is developed, we will consider the modifications that will be necessary to produce a recommended Valuation Table.

There are two key differences between an experience table and a valuation table that are discussed below; definition of exposure and valuation margin

2.1   Definition of Exposure

An Experience Table is designed to address terminations for any claims with payments, regardless of when the insurance company is notified of the claim; i.e., experience from the claimant's perspective. A valuation table is designed to address termination expectations for only the claims that are known at the time of valuation; i.e., from the insurance company's perspective.

For an experience table, the exposure to termination begins when the claim is eligible for benefits at the end of the elimination period. For a valuation table, exposure begins on the earliest month-end where the following conditions are met:

- the claim is open (that is, the system close date is later than that month-end)
- the claim's first payment date is earlier than that month-end (which guarantees that the claim was approved)

In other words, only claims that have been part of a claim reserve inventory can expose under the valuation table.

As an example, some claims are effectively closed when they are first reported, and would not be used at all for a valuation table. This situation can occur, for example, if a claimant qualifies for a month or two of benefits before returning to work and delays reporting the claim until after the period of disability is over. This claimant would be included for experience table construction, but not for valuation table construction. These are the most important differences in the exposure definition.

2.2   Valuation Margin

When constructing the recommended Valuation Table, we will need to decide on the appropriate level of margin and also on the method for adding this margin. One important consideration is whether the margin will be added to establish a specified confidence level for the aggregate morbidity or whether the margin will be added to establish a confidence level by company. For example, the SOA-sponsored "Report of the Individual Sub-Committee of the Task Force to Recommend Statutory Morbidity Standards for Individual and Group Benefits" recommended that margins be established so that the valuation table would prove sufficient for 85% of the contributing carriers.

The wide carrier-to-carrier variance observed in this study would pose a challenge to establishing margins that meet a similar threshold. One approach, adopted by the recent NAIC valuation standard for the Group Life premium waiver valuation table, is to establish a conservative table that would be sufficient for most participating carriers (i.e., a "safe harbor"), but also include recommended guidelines to allow modification of the valuation table to reflect a carrier's experience (to the extent credible).

APPENDICES

Appendix 1   Data Request to Participating Companies

Appendix 2   Exposure Definition

Appendix 3   Mortality Trend

Appendix 4   Summary Data Pivot Tables

Appendix 1
Data Request to Participating Companies

APPENDIX A.1.1

Data Request to Participating Companies

Field	Description	Requirement
Carrier Code	Assigned by Vendor	All Claims
Claim Number	A unique identifier for the claim. The format is specific to each participating company.	All Claims
Claim Status	The most recent status code for the claim. Value values include: - Open - Closed	All Claims
Termination Code	The reason that the claim was terminated. Valid values include: - Death - Maximum contractual duration (e.g. age 65) reached (this does not include claims reaching internal limits such as M&N) - Termination due to expiration of benefits subject to internal limits such as M&N - Recovery - Settlement (considered a settlement if the amount paid is in excess of 6 months of monthly benefit)	Required on closed claims
Date of Birth	The claimants date of birth	All Claims
Date of Disability	The date that the claimant became disabled	All Claims
Benefit Commencement Date	The effective date of the first payment	All Claims
First Paid Date	The date the first disability payment was made (check cutting date)	All Claims
Liability Termination Date	The date specifying the end of the liability (not the calendar date of the action)	Required on closed claims
System Close Date	The date the claim was closed on the system. Last date a reserve was held, or last date a benefit payment was made, are also acceptable.	Required on closed claims
Claim Maximum Date	The date that the contractual maximum duration was, or will be, reached not including any internal limits (i.e., M&N, Self-reported, etc.)	All Claims
Gender	Valid values include: - Male - Female - Unknown Companies should make every attempt to determine gender for each claim.	All Claims
Diagnosis Code	The original primary ICD9 code of the sickness or accident that caused the disability. If not available, current diagnosis code is acceptable.	All Claims
Gross Benefit Amount	The base contractual amount of the monthly gross benefit that the claimant is entitled to. If only the current gross benefit amount, including COLA impact, is available, that is acceptable.	All Claims

APPENDIX A.1.1

Data Request to Participating Companies

Field	Description	Requirement
COLA Benefit Indicator	Indication as to whether a claim has a COLA benefit of any kind. Valid values include: - Yes - No - Unknown	All Claims
Claimant Elimination Period	The elimination period for the claim expressed in days.	All Claims
Limited Own Occ Claim Indicator	Indication as to whether claim is subject to limited own occ period (includes SS definition). Valid values include: - Yes - No - Unknown	All Claims
Length of Own Occupation Period	The length of time expressed in months that the claimant is entitled to receive benefits while being unable to perform their own occupation, as specified in the plan.	Required if Limited Own Claim ="Yes"
M&N Benefit Limit Indicator	Indication as to whether the policy for this claim contains a M&N benefit period limit. Valid values include: - Yes - No - Unknown	All Claims
M&N Benefit Period Limit	The length of time expressed in months that the claimant is entitled to receive benefits with a M&N diagnosis	Required if M&N Benefit Limit Indicator="Yes"
Other Diagnoses Benefit Limit Indicator	Indication as to whether the policy for this claim contains a benefit period limit for diagnoses other than M&N. Valid values include: - Yes - No - Unknown	All Claims
Other Diagnoses Benefit Period Limit	The length of time expressed in months that the claimant is entitled to receive benefits subject to benefit period limit for diagnoses other than M&N	Required if Other Diagnoses Benefit Limit Indicator="Yes"
Social Security or STRS/PERS Status	The status of the social security application for the claimant. Valid values include: - Approved - Not approved - Ineligible - Unknown	All Claims
Award Notification Date	The date the Social Security or STRS/PERS award first became known	Required if Social Security or STRS/PERS Status= "Approved"
Settlement Amount	Dollar amount paid for a claim settlement	Required on closed claims with termination code= "Settlement"

Appendix 2
Exposure Definition

2.1   Monthly duration calculations

Throughout the study, the elimination period is based on the benefit commencement date minus the date of disability. This means that an effective elimination period was used instead of the contractual elimination period. For example, they can differ due to a temporary return to work during the elimination period. The elimination period is converted to months by dividing by 30 and rounding to the nearest integer.

To parse the lifespan of a claim into monthly durations, we need to define an initial duration and a pivot where new durations start. The following rules were used:

1. the initial duration starts on the benefit commencement date and is equal to the elimination period in months + 1

2. the 2 digit day of the month representation of the benefit commencement date is the pivot day on which every new duration starts

3. if the last day of a month is smaller than the pivot day then that last day is used as the pivot day for that month

Some examples:

1. a claimant disabled on 7/2/2004, with a benefit commencement date of 10/10/2004:

    a. benefit commencement date minus disability date = 100 days; this corresponds to a 3 month EP

    b. pivot day is on the 10th of every month

    c. claimant is exposing at duration 4 between 10/10/2004 and 11/09/04; duration 5 between 11/10/04 and 12/09/04; etc…

    d. if the termination date is between 10/10/2004 and 11/09/04, the claim is exposing only at duration 4 and the termination is deemed to occur at that same duration

e. if the termination date is between 11/10/2004 and 12/09/04, the claim is exposing at duration 4 and 5 and the termination is deemed to occur at that duration 5.

2. a claimant disabled on 7/28/2004, with a benefit commencement date of 10/31/2004:

   a. benefit commencement date minus disability date = 95 days; this corresponds to a 3 month EP

   b. pivot day is on the last day of the month

   c. claimant is exposing at duration 4 between 10/31/2004 and 11/29/04; duration 5 between 11/30/04 and 12/30/04; etc…

2.2   Exposure

Each claim generates monthly exposures to termination based on the following rules:

1. The exposure begins with later of the benefit commencement date or the study begin-date (January 1, 1997).

2. The exposure ends with the earlier of the claim termination date or the end of the study period. If a claim is open as of the study valuation date (December 31, 2007), or has a termination date after then study-end date, (December 31, 2006), then it is exposed to the study end-date.

3. All claims are given a full month of exposure for each month in which they are at least partially exposed, except for the following specific exceptions:

   a. Claims that are receiving benefits when the study begins may get a fractional month exposure in the first month of the study.

   b. Claims that are receiving benefits when the study ends may get a fractional month exposure in the last month of the study.

   c. Claims that last until the end of the contractual benefit period may get a fractional month exposure in the last month of benefits.

   d. Fractional exposures are determined by dividing the number of days exposed by 30 and capping at 100%.

e. Claims that terminate during any month are given a full month of exposure within each month regardless of when in the month the claim terminates

We note that these exposure definitions are appropriate for a "pricing" or "experience" basis, which estimates the total months of benefit paid for each claim incurred, as opposed to a "valuation" basis, which applies only to reported or "known" claims.

The primary difference between an experience table and a valuation table is that, for a valuation table, claims would not be exposed to termination before they have been reported. In addition, claims that close within the study period, but were not known to be closed as of the end of the study period, would be counted as open when determining an appropriate valuation table.

The exposures provided by this study correspond to claim-months-exposed, using company dampening factors as described in the report. All termination rates presented in the study are monthly rates (terminations per month exposed).

Appendix 3
Mortality Trend Data

TABLE A.3.1

General Population Mortality Improvement – CDC Raw Death Rates per 1000 Lives[A]

Year	All	25-34	35-44	45-54	55-64
2005	825.9	104.4	193.3	432	906.9
2004	816.5	102.1	193.5	427	910.3
2003	841.9	103.6	201.6	433.2	940.9
2002	847.3	103.6	202.9	430.1	952.4
2001	848.5	105.2	203.6	428.9	964.6
2000	873.1	108.1	200	431.6	1004.6
1999	877.0	108.3	199.2	427.3	1021.8

Year	All	25-34	35-44	45-54	55-64
2004 - 2005	-1.2%	-2.3%	0.1%	-1.2%	0.4%
2003 - 2004	3.0%	1.4%	4.0%	1.4%	3.3%
2002 - 2003	0.6%	0.0%	0.6%	-0.7%	1.2%
2001 - 2002	0.1%	1.5%	0.3%	-0.3%	1.3%
2000 - 2001	2.8%	2.7%	-1.8%	0.6%	4.0%
1999 - 2000	0.4%	0.2%	-0.4%	-1.0%	1.7%
Total	1.00%	0.61%	0.50%	-0.18%	1.97%

(A) This information can be found at the Centers for Disease Control and Prevention ("CDC") website>
http://www.cdc.gov/nchs/datawh/statab/unpubd/mortabs.htm

TABLE A.3.2

2008 GLTD Study Mortality Improvement

Raw Mortality Rates

Year	All	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
2006	0.423%	0.218%	0.238%	0.261%	0.296%	0.352%	0.407%	0.463%	0.484%
2005	0.426%	0.210%	0.211%	0.239%	0.310%	0.366%	0.424%	0.467%	0.471%
2004	0.411%	0.216%	0.218%	0.250%	0.293%	0.349%	0.414%	0.453%	0.466%
2003	0.431%	0.191%	0.233%	0.261%	0.308%	0.378%	0.436%	0.472%	0.497%
2002	0.443%	0.212%	0.270%	0.275%	0.332%	0.402%	0.470%	0.477%	0.488%
2001	0.429%	0.210%	0.219%	0.272%	0.316%	0.399%	0.444%	0.475%	0.482%
2000	0.421%	0.270%	0.271%	0.275%	0.292%	0.382%	0.443%	0.473%	0.457%
1999	0.426%	0.237%	0.270%	0.303%	0.318%	0.387%	0.455%	0.457%	0.465%
1998	0.427%	0.240%	0.288%	0.287%	0.332%	0.379%	0.437%	0.470%	0.472%
1997	0.434%	0.209%	0.277%	0.318%	0.340%	0.399%	0.458%	0.458%	0.491%

Year-to-Year Change in Rates

	All	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
2005 - 2006	0.6%	-3.6%	-11.6%	-8.3%	4.7%	3.8%	4.1%	0.9%	-2.7%
2004 - 2005	-3.6%	2.8%	3.3%	4.5%	-5.6%	-4.6%	-2.4%	-3.1%	-1.1%
2003 - 2004	5.0%	-11.6%	7.0%	4.6%	5.4%	8.4%	5.3%	4.2%	6.6%
2002 - 2003	2.7%	11.0%	16.0%	5.0%	7.6%	6.4%	7.9%	1.1%	-1.7%
2001 - 2002	-3.0%	-0.8%	-18.9%	-0.8%	-4.9%	-0.9%	-5.5%	-0.3%	-1.3%
2000 - 2001	-2.0%	28.4%	23.4%	0.9%	-7.5%	-4.1%	-0.4%	-0.5%	-5.2%
1999 - 2000	1.2%	-12.4%	-0.2%	10.2%	9.0%	1.3%	2.8%	-3.5%	1.6%
1998 - 1999	0.2%	1.3%	6.6%	-5.0%	4.4%	-2.0%	-3.9%	2.9%	1.6%
1997 - 1998	1.6%	-12.6%	-3.9%	10.6%	2.5%	5.2%	4.8%	-2.5%	3.9%
Annualized Rate of Change	0.26%	-0.44%	1.67%	2.22%	1.56%	1.39%	1.31%	0.13%	0.15%

APPENDIX 4
Summary Data Pivot Table

To supplement the analysis provided in this report, an Excel™ pivot table has been made available. The data in the pivot table has been provided to enable readers to evaluate many of the key findings described in this report. The data summary does not provide all of the details reviewed by the Committee. A description of the pivot table structure and contents follows:

4.1 Pivot Table Variables

Appendix A.4.1.A

Pivot Table Segment Variables

Variable	Values
Gender	M or F
Age at Disability	15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, …
Attained Age	15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, …
Duration	Quarterly for 1st 3 years of disability, Annually for years 4 to 10 of disability, years 11+ combined
Elimination Period	By number of months: 1, 2, 3, 4, 5, 6, 7, 8-11 or Over 11
Broad Diagnosis	Cancer, M&N, Maternity, All Other (see diagnosis codes below)
Calendar Year	1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006

Appendix A.4.1.B

Broad Diagnosis Code Mapping

Broad Diagnosis Category	ICD-9 Codes
Cancer	140-209, 230-239
Maternity	630-677, 760-779, V20-V39
M&N	290-319, V40
All Other	All other

4.2   Pivot Table Data Fields

A description of the data fields provided with the pivot tables is provided below. Note that the pivot table exposure and A/E results have been dampened to limit the impact of any single company on results. Specifically, the exposure from the largest five participating companies was reduced to limit each of their exposure to 12% of the total study exposure.

Appendix A.4.2

Pivot Table Data Fields

Data Field	Description
Recovery A/E with Bump	Actual to Expected Recovery Rate Ratio with Table 95a as the expected basis. Includes Table 95a Own Occupation Transition Recovery Rate "Bump". Dampened as described above.
Recovery A/E No Bump	Actual to Expected Recovery Rate Ratio with Table 95a as the expected basis. Excludes Table 95a Own Occupation Transition Recovery Rate "Bump". Dampened as described above.
Death A/E	Actual to Expected Death Rate Ratio with Table 95a as the expected basis. Dampened as described above.
Recovery Rate	Actual Monthly Recovery Rate. Dampened as described above.
Death Rate	Actual Monthly Death Rate. Dampened as described above.
Limit Rate	Actual Monthly Rate of claims that terminate due to reaching Mental / Nervous benefit limitation. Dampened as described above.
Max-Out Rate	Actual Monthly Rate of claims that terminate due to reaching the maximum benefit limitation. Dampened as described above.
Settlement Rate	Actual Monthly Rate of claims that terminate due to settlement. Dampened as described above.
Dampened Exposure	Monthly exposure, dampened as described above.