



ACTUARIAL SOCIETY  
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Report on

Hong Kong Assured Lives  
Mortality and Critical Illness

Experience Study

2002 – 2006

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Actuarial Society of Hong Kong

Experience Committee

## Table of Contents

1. Introduction .....	3
2. Data.....	4
2.1 Overview of Data Gathered .....	4
2.2 Results Table Format .....	6
2.3 Analysis of In-Force.....	6
2.4 Analysis of Claims .....	7
2.5 Analysis of Sum Assured .....	8
3. Mortality Experience .....	9
3.1 Actual versus Expected (Based on HKA01 mortality rates).....	9
3.2 Selection Effect.....	10
3.3 Smoking Differentials.....	12
3.4 Underwriting Methods .....	16
3.5 Impact of Acceleration Rider Benefits .....	18
3.6 Breakdown by Sum Assured.....	19
3.7 Claim Lag .....	19
3.8 Trend in Mortality.....	20
4. Critical Illness Experience.....	21
4.1 Claim Rates.....	21
4.2 Selection Effect.....	25
4.3 Smoking Differentials.....	27
4.4 Underwriting Methods .....	30
4.5 Breakdown by Sum Assured.....	33
4.6 Claim Lag .....	34
4.7 Trend in Incidence of Critical Illness .....	35
5. Cause of Claim Study .....	36
5.1 Cause of Death Breakdown.....	36
5.2 Cause of Critical Illness Breakdown .....	40
6. Lapse/Surrender Experience .....	43
6.1 Rates by Duration and Policy Type .....	43
7. Use of this Report .....	44
7.1 Considerations.....	44
7.2 Disclaimer.....	45
8. Appendices.....	46
Appendix 8.1: Data for policies with life only benefits.....	46
Appendix 8.2: Data for policies with life and accelerated critical illness benefits .....	48
Appendix 8.3: Data for all life benefits .....	50
Appendix 8.4: Data for all critical illness benefits .....	52
Appendix 8.5: Participating Companies.....	54

## 1. Introduction

This report provides an overview of the assured lives experience in Hong Kong for the period 2002 to 2006. It is based on data collected from twenty-three Hong Kong life insurance companies that were representative of the industry average. This report only examines the mortality and critical illness experience under standard individually underwritten life insurance. It excludes group policies and substandard cases. The SOA Experience Study tool was used to perform this study.

For the first time, this report has included experience by sum assured and experience for policies with simplified underwriting. Unfortunately, there was insufficient data to provide credible experience for policies with simplified underwriting. This is an area for future analysis.

No new mortality table has been produced as a result of this study. Overall, the shape of the mortality curve is comparable to HKA01 mortality but again it is difficult to give a clear picture for older age groups as the data is scattered and the credibility of the old age data is low. This is another area for further analysis.

This report will be available in electronic format from the Actuarial Society of Hong Kong's website, [www.actuaries.org.hk](http://www.actuaries.org.hk). Should there be any questions or queries on the study of this report, please contact the Chairperson of the Experience Committee at the Actuarial Society of Hong Kong by email: [actsoff@netvigator.com](mailto:actsoff@netvigator.com).

Finally, this experience study could not have been completed without the contribution from the participating companies and the hard work from individuals primarily on the Experience Committee of the Actuarial Society of Hong Kong who had involved in collating and analyzing the data. Their contribution has been very much appreciated.

Tony Cheng – Chairperson of Experience Committee  
December 2010

## 2. Data

The study of this report covers a 5 year period from 1/1/2002 to 31/12/2006 (Hereinafter “ASHK08”) as compared to the 4 year period of the previous Mortality and Critical Illness Experience Study from 2000 to 2003 (Hereinafter “ASHK03”).

The data was collected in 2008 in order to capture as many claims as possible.

### 2.1 Overview of Data Gathered

#### 2.1.1 Market coverage of this Study

Data requests were sent to the forty companies who responded to a survey in 2008 offering their support for an industry mortality and critical illness study. Twenty-three of these companies (the “participating companies”) responded with comprehensive data for this study. According to the statistics reported to the Office of the Commissioner of Insurance, the participating companies for this study represented 75% of the individual life policies in-force in Hong Kong at the end of 2006.

#### 2.1.2 Data Requested

Data was requested on both a per lives/per policies and per amounts basis for the following parameters:

- Policy type: life only, life plus accelerated critical illness, critical illness only
- Age – 0 to 100 (Age last birthday)
- Gender – Male, female, unknown
- Smoking status – non-smoker, smoker, aggregate/unknown
- Duration – 0, 1 and 2+
- Non-medical, medical, simplified, unknown

The data was restricted to individually underwritten underwriting and simplified issue policies (i.e. excluding group policies and individual policies where the life cover is nominal) issued at standard rates.

The data used in this report was standardized, as far as possible, to:

- An age definition of age last at previous policy anniversary
- A duration definition of curtate duration since inception
- Per lives and per amounts

#### 2.1.3 Data Provided

The majority of the participating companies provided data for the full period in the detailed format requested. This has allowed a large proportion of the data provided to be used as the basis for this report. However, not all the companies could provide the cause of claims for their data and those with missing cause of claims were categorized as Unknown.

### 2.1.4 Data Validation

The collected data was gathered and consolidated. Any data different from the requested data format was reformatted to ease comparison between companies. A number of checks were carried out on the original data to obtain a degree of confidence in the accuracy of the data supplied.

Overall, the data was fairly reliable. However, since some companies provided the 2006 data at the end of 2006, it is likely that the 2006 claims experience would not have allowed for the Incurred But Not Reported claims. As a result, the 2006 claims experience has been underreported.

### 2.1.5 Comparison of data with ASHK 2000 – 2003 (“ASHK03”)

The table below compares the volume of mortality and critical illness data underlying this study. The ASHK08 study numbers represent an increase in volume of data for all life policies and critical illness policies reflecting the five year period of this study compared to the four year period for the ASHK03 study.

All Life		Volume of Data			
Gender	Duration	Inforce Exposures		Deaths	
		ASHK08	ASHK03	ASHK08	ASHK03
Male	0	1,297,547	1,019,443	609	459
	1	1,209,911	853,122	865	619
	2+	8,832,149	4,774,583	12,084	6,861
	Subtotal	11,339,608	6,647,148	13,558	7,939
Female	0	1,560,072	1,125,587	363	211
	1	1,459,937	955,643	563	359
	2+	8,525,120	4,311,502	6,831	3,436
	Subtotal	11,545,129	6,392,732	7,757	4,006
Total		22,884,737	13,039,880	21,315	11,945

Table 2.1.5a – Volume of data for all life policies

All CI		Volume of Data			
Gender	Duration	Inforce Exposures		CI Claims	
		ASHK08	ASHK03	ASHK08	ASHK03
Male	0	337,327	350,384	245	241
	1	309,466	303,937	287	271
	2+	1,842,734	1,138,973	2,318	1,353
	Subtotal	2,489,527	1,793,295	2,850	1,865
Female	0	433,481	423,587	389	366
	1	402,384	388,437	537	448
	2+	2,352,321	1,374,547	3,914	1,988
	Subtotal	3,188,186	2,186,571	4,840	2,802
Total		5,677,714	3,979,866	7,690	4,667

Table 2.1.5b – Volume of data for all CI policies

## 2.2 Results Table Format

The results will be categorized into the following groupings which is consistent with the ASHK03 study:

Life Only	Refers to policies with only life benefits.
Life + CI	Refers to policies with only life plus accelerated critical illness benefits.
CI Only	Refers to policies with only additional critical illness benefits.
All Life	Refers to policies with only life benefits plus the life component of policies with only life plus accelerated critical illness benefits.
All CI	Refers to policies with only critical illness benefits plus the critical illness component of policies with only life plus accelerated critical illness benefits.

## 2.3 Analysis of In-Force

The table below shows the split by age and gender for lives in-force.

	All Life			All CI		
	Inforce Exposures			Inforce Exposures		
Age Last	Male	Female	% Male	Male	Female	% Male
0-4	343,443	309,009	53%	62,536	58,063	52%
5-9	537,401	471,770	53%	73,989	66,223	53%
10-14	521,566	450,567	54%	59,449	52,022	53%
15-19	465,272	394,650	54%	63,902	59,713	52%
20-24	693,596	729,157	49%	168,678	226,366	43%
25-29	1,050,974	1,270,021	45%	344,128	499,867	41%
30-34	1,311,750	1,621,101	45%	430,759	614,432	41%
35-39	1,588,725	1,756,996	47%	448,387	580,465	44%
40-44	1,800,895	1,711,104	51%	409,334	480,150	46%
45-49	1,400,756	1,256,049	53%	249,814	300,552	45%
50-54	884,556	818,654	52%	122,086	166,649	42%
55-59	428,576	416,117	51%	45,491	67,506	40%
60-64	159,248	151,550	51%	9,385	13,969	40%
65-69	87,049	94,642	48%	1,475	2,069	42%
70-74	44,282	59,178	43%	114	131	47%
75-79	17,000	27,182	38%	-	8	0%
80-84	3,847	6,512	37%	-	-	0%
85+	670	870	44%	-	-	0%
All Ages	11,339,608	11,545,129	50%	2,489,527	3,188,186	44%

Table 2.3 – Inforce exposures for all life and all CI policies by age and gender

Compared to the life policies, we see a greater proportion of females under the critical illness policies. The average gender mix is about 44% male and 56% female for critical illness policies.

## 2.4 Analysis of Claims

The table below shows the split by age and gender for claims numbers.

	All Life			All CI		
	Actual Claims			Actual CI Claims		
Age Last	Male	Female	% Male	Male	Female	% Male
0-4	34	20	63%	17	3	85%
5-9	36	16	69%	9	6	60%
10-14	65	37	64%	7	3	70%
15-19	87	39	69%	16	11	59%
20-24	203	100	67%	29	58	33%
25-29	344	235	59%	130	259	33%
30-34	504	408	55%	228	530	30%
35-39	843	605	58%	410	908	31%
40-44	1,582	904	64%	603	1,115	35%
45-49	2,021	1,058	66%	600	904	40%
50-54	2,158	1,074	67%	438	641	41%
55-59	1,763	776	69%	265	300	47%
60-64	1,174	504	70%	77	84	48%
65-69	965	540	64%	18	18	50%
70-74	916	652	58%	3	-	100%
75-79	597	493	55%	-	-	0%
80-84	196	227	46%	-	-	0%
85+	70	69	50%	-	-	0%
All Ages	13,558	7,757	64%	2,850	4,840	37%

Table 2.4 – Actual claims for all life and all CI policies by age and gender

Compared to the previous table, we see a greater proportion of life claims being from male lives and a greater proportion of critical illness claims being from female lives. This is consistent with the ASHK03 study.

## 2.5 Analysis of Sum Assured

The following table indicates the average sum assured per policy in Hong Kong dollars split by age and gender.

	All Life		All CI	
	Average Sum Assured		Average Sum Assured	
Age Last	Male	Female	Male	Female
0-4	303,879	306,959	235,337	241,950
5-9	276,408	277,423	218,178	224,588
10-14	257,687	260,169	220,145	226,184
15-19	276,221	277,702	242,885	246,244
20-24	325,614	313,365	295,244	280,683
25-29	406,057	370,087	349,532	313,284
30-34	472,550	395,860	372,306	321,961
35-39	492,376	384,577	367,881	311,717
40-44	473,268	352,622	337,287	280,868
45-49	436,568	305,558	290,390	234,750
50-54	395,954	266,112	241,291	196,997
55-59	362,644	235,683	207,922	169,378
60-64	301,125	207,296	183,818	156,486
65-69	266,987	192,219	167,145	153,704
70-74	223,884	171,470	194,546	128,932
75-79	201,291	153,896	-	142,609
80-84	214,443	172,113	-	-
85+	171,303	274,869	-	-
All Ages	407,907	332,338	323,916	284,329

Table 2.5 -Average sum assured for all life and all CI policies by age and gender

The average sum assured varies materially across age groups, and may influence any summary comparison of experience on a lives and amounts basis.



### 3. Mortality Experience

For this study, most companies were able to provide separate data on both exposures and claims on a lives and amounts basis for policies with only life benefits and for the life component of those providing life plus accelerated critical illness benefits.

The results in this section are based on data provided by the participating companies for the years 2002 to 2006. Most of these tables show experience for policies providing only life benefits, with the significance of this being the removal of the influence of accelerated critical illness riders on mortality experience. This is similar to the ASHK03 study.

#### 3.1 Actual versus Expected (Based on HKA01 mortality rates)

The following table shows duration 2+ experience for policies with only life benefits and compares with the expected claim ratios on a lives and amounts basis under HKA01. This represents the best estimate of ultimate mortality experience for Hong Kong assured lives.

Life Only	Experience for Male Lives, Duration 2+					Experience for Female Lives, Duration 2+				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
0-4	146,595	15	21	71%	72%	130,301	9	12	77%	102%
5-9	388,280	29	41	71%	80%	338,062	16	30	54%	55%
10-14	397,196	45	54	84%	101%	341,305	33	41	80%	89%
15-19	323,655	61	108	56%	56%	267,087	27	46	59%	52%
20-24	356,416	120	187	64%	67%	325,387	57	67	85%	85%
25-29	525,190	192	245	78%	71%	593,282	132	151	87%	88%
30-34	719,969	329	403	82%	74%	838,197	265	295	90%	78%
35-39	976,592	578	839	69%	59%	991,659	419	531	79%	86%
40-44	1,224,147	1,216	1,667	73%	65%	1,024,385	688	850	81%	78%
45-49	1,021,963	1,670	2,160	77%	65%	765,180	825	979	84%	82%
50-54	675,519	1,817	2,293	79%	77%	507,608	842	985	86%	83%
55-59	338,207	1,527	1,882	81%	87%	273,022	635	784	81%	92%
60-64	132,761	1,050	1,261	83%	67%	111,869	433	508	85%	72%
65-69	76,091	889	1,182	75%	54%	79,177	492	672	73%	66%
70-74	40,181	857	1,079	79%	64%	53,152	620	867	71%	64%
75-79	15,975	579	745	78%	53%	25,419	462	743	62%	54%
80-84	3,637	187	295	63%	40%	6,202	225	323	70%	71%
85+	637	69	107	65%	66%	836	69	84	83%	79%
All Ages	7,363,011	11,230	14,569	77%	69%	6,672,130	6,249	7,966	78%	78%

Table 3.1 – Experience for life only policies for duration 2+ by age and gender

We can also see that the experience on an amounts basis is slightly better than a per lives basis for males but the impact is much less pronounced for females.

### 3.2 Selection Effect

Consistent with the previous study, the following tables show duration 0 and duration 1 experience for policies with only life benefits and compares with the expected claims under HKA01. The resulting A/E ratios are then compared with those for duration 2+ to give an indication of the impact of underwriting selection.

Life Only	Experience for Male Lives, Duration 0					Experience for Female Lives, Duration 0				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Dur 0/2+ Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Dur 0/2+ Lives
0-4	87,775	14	49	29%	41%	78,840	4	43	9%	12%
5-9	54,472	4	6	69%	97%	48,344	-	4	0%	0%
10-14	44,696	3	6	50%	60%	38,855	2	5	43%	54%
15-19	55,157	5	20	25%	44%	49,750	3	9	35%	58%
20-24	115,582	19	61	31%	49%	132,141	14	27	51%	60%
25-29	131,760	26	62	42%	54%	152,083	28	38	73%	84%
30-34	124,658	46	69	66%	81%	154,718	27	54	50%	56%
35-39	126,855	44	108	41%	59%	158,214	34	85	40%	51%
40-44	122,850	56	166	34%	46%	156,870	42	130	32%	40%
45-49	88,952	79	188	42%	54%	128,617	40	165	24%	29%
50-54	54,975	82	187	44%	55%	89,395	45	174	26%	30%
55-59	26,548	65	148	44%	54%	44,420	29	127	23%	28%
60-64	9,315	39	88	44%	53%	13,890	17	62	27%	32%
65-69	4,802	26	74	35%	47%	6,817	14	57	24%	33%
70-74	1,944	19	51	37%	47%	2,752	15	44	34%	48%
75-79	510	9	24	37%	48%	788	10	23	44%	70%
80-84	103	7	8	83%	130%	141	2	7	28%	40%
85+	15	-	3	0%	0%	16	-	2	0%	0%
All Ages	1,050,969	543	1,317	41%	53%	1,256,652	326	1,056	31%	39%

Table 3.2a – Experience for life only policies for duration 0 by age and gender

Life Only	Experience for Male Lives, Duration 1					Experience for Female Lives, Duration 1				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Dur 1/2+ Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Dur 1/2+ Lives
0-4	74,897	4	15	26%	37%	67,251	6	15	41%	54%
5-9	53,971	2	6	35%	49%	47,529	-	4	0%	0%
10-14	44,729	13	6	216%	258%	39,340	1	5	21%	26%
15-19	43,895	17	16	109%	193%	37,790	5	7	76%	129%
20-24	91,174	24	48	50%	78%	104,012	10	21	47%	55%
25-29	118,843	49	56	88%	113%	140,895	28	35	79%	90%
30-34	118,391	44	66	67%	82%	147,648	30	52	58%	65%
35-39	122,624	65	104	62%	90%	152,579	49	82	60%	76%
40-44	123,651	111	167	66%	91%	154,235	72	128	56%	70%
45-49	88,345	112	186	60%	78%	123,699	86	159	54%	64%
50-54	54,635	118	185	64%	81%	86,825	73	168	43%	51%
55-59	26,540	75	147	51%	63%	43,504	48	124	39%	48%
60-64	9,535	54	89	61%	73%	14,277	36	63	57%	67%
65-69	4,872	40	75	53%	71%	6,882	26	57	45%	62%
70-74	2,042	34	53	64%	80%	3,145	16	49	32%	45%
75-79	514	9	24	38%	49%	967	21	28	76%	122%
80-84	107	2	8	24%	38%	168	-	8	0%	0%
85+	19	1	4	28%	44%	18	-	2	0%	0%
All Ages	978,782	774	1,253	62%	80%	1,170,765	507	1,006	50%	64%

Table 3.2b – Experience for life only policies for duration 1 by age and gender

Duration 0 experience is significantly better than duration 2+, overall around 54% lower for males and females combined.

Duration 1 experience is also significantly better than duration 2+, overall around 28% lower for males and females combined.

By comparison, the selection effect in the ASHK03 study showed duration 0 at 58% lower than duration 2+ and duration 1 at 28% lower.

### 3.3 Smoking Differentials

The following table shows the experience for non-smokers and smokers, with actual claims compared to expected claims under HKA01. In addition, we also compare the A/E ratio for non-smokers and smokers with the average A/E ratio for non-smokers and smokers combined in order to look at the relative mortality. Around 54% of the data provided was broken down by smoker status. However, there are still some policies that are sold on an aggregate basis.

Life Only	Experience for Non-Smokers, All Durations					Experience for Smokers, All Durations				
	Lives Exposed	Actual Claims	Expected Claims	A/E	NSm/ Avg Lives	Lives Exposed	Actual Claims	Expected Claims	A/E	SM/ Avg Lives
Age Last										
15-19	246,040	37	65	57%	90%	78,731	17	21	82%	130%
20-24	490,742	78	173	45%	88%	108,987	33	43	76%	149%
25-29	779,658	169	267	63%	90%	155,817	61	61	99%	142%
30-34	990,656	291	428	68%	94%	176,780	82	88	93%	129%
35-39	1,200,645	429	801	54%	88%	175,936	144	138	104%	171%
40-44	1,339,360	870	1,425	61%	93%	166,403	209	211	99%	150%
45-49	1,062,012	976	1,757	56%	93%	126,882	227	253	90%	150%
50-54	712,121	1,046	1,829	57%	88%	80,339	309	258	120%	184%
55-59	366,919	853	1,457	59%	90%	41,372	235	218	108%	166%
60-64	131,095	528	862	61%	88%	18,456	188	163	116%	165%
65-69	80,994	523	917	57%	88%	12,921	190	182	105%	161%
70-74	46,139	526	923	57%	85%	7,569	212	178	119%	177%
75-79	18,296	400	634	63%	91%	3,426	134	136	98%	142%
80-84	4,571	175	280	62%	89%	1,069	69	69	100%	144%
85+	664	50	80	63%	91%	143	17	17	98%	141%
Age 15+	7,469,913	6,951	11,898	58%	90%	1,154,833	2,127	2,038	104%	160%

Table 3.3 – Experience for life only policies for all durations by age and smoking status

Non-smokers have lower than average mortality for all ages. Over all lives, smoker experience is 179% of that of non-smokers. This is similar to the smoker differential of 176% as reported in ASHK03.

#### 3.3.1 Gender Mix

The following two tables show the results for males and females separately. Notably, the proportion of smokers in the assured population has reduced slightly from an average of 24% for males and 7% for females in ASHK03 to an average of 21% for males and 6% for females in ASHK08.

Life Only	Experience for Male Non-Smokers, All Durations					Experience for Female Non-Smokers, All Durations				
	Lives	Actual	Expected	A/E	NSm/Avg	Lives	Actual	Expected	A/E	NSm/Avg
Age Last	Exposed	Claims	Claims	Lives	Lives	Exposed	Claims	Claims	Lives	Lives
15-19	131,041	25	46	55%	90%	114,999	12	20	61%	92%
20-24	226,503	47	118	40%	87%	264,239	31	55	57%	88%
25-29	323,205	82	151	54%	85%	456,453	87	116	75%	94%
30-34	386,768	135	216	62%	91%	603,888	156	212	74%	96%
35-39	489,910	204	420	49%	83%	710,735	225	381	59%	92%
40-44	590,226	434	803	54%	87%	749,134	436	622	70%	98%
45-49	476,335	545	1,006	54%	90%	585,678	431	751	57%	97%
50-54	307,431	564	1,043	54%	81%	404,689	482	786	61%	99%
55-59	151,134	476	839	57%	85%	215,785	377	618	61%	99%
60-64	54,959	313	520	60%	84%	76,136	215	342	63%	96%
65-69	32,586	265	507	52%	83%	48,408	258	410	63%	93%
70-74	16,703	234	446	52%	77%	29,437	292	477	61%	93%
75-79	5,810	190	270	70%	89%	12,486	210	364	58%	95%
80-84	1,431	79	116	68%	95%	3,141	96	164	59%	85%
85+	229	16	36	44%	84%	435	34	43	78%	95%
Age 15+	3,194,271	3,609	6,538	55%	85%	4,275,642	3,342	5,360	62%	96%

Table 3.3.1a – Experience for life only policies for non-smokers for all durations by age and gender

Life Only	Experience for Male Smokers, All Durations					Experience for Female Smokers, All Durations				
	Lives	Actual	Expected	A/E	Sm/Avg	Lives	Actual	Expected	A/E	Sm/Avg
Age Last	Exposed	Claims	Claims	Lives	Lives	Exposed	Claims	Claims	Lives	Lives
15-19	43,515	12	15	81%	132%	35,217	5	6	83%	127%
20-24	65,871	23	34	67%	146%	43,117	10	9	113%	175%
25-29	103,014	45	48	94%	147%	52,803	16	13	120%	151%
30-34	127,788	62	71	87%	127%	48,992	20	17	118%	153%
35-39	139,554	113	119	95%	162%	36,382	31	19	162%	252%
40-44	140,039	184	190	97%	156%	26,364	25	22	115%	161%
45-49	109,186	202	231	88%	145%	17,696	25	23	111%	188%
50-54	70,481	294	239	123%	184%	9,858	15	19	79%	128%
55-59	36,478	221	204	108%	162%	4,894	14	14	99%	161%
60-64	15,813	170	150	113%	157%	2,643	18	12	147%	224%
65-69	10,055	155	157	99%	156%	2,866	35	25	141%	210%
70-74	5,274	165	141	117%	172%	2,295	47	38	125%	190%
75-79	2,038	98	95	104%	131%	1,389	36	42	87%	143%
80-84	450	30	36	83%	116%	618	39	33	120%	174%
85+	45	7	7	95%	180%	98	10	10	99%	121%
Age 15+	869,601	1,781	1,737	103%	157%	285,232	346	301	115%	177%

Table 3.3.1b – Experience for life only policies for smokers for all durations by age and gender

### 3.3.2 Duration

The following tables examine the smoking differentials by duration.

Life Only	Experience for Non-Smokers, Duration 0					Experience for Smokers, Duration 0				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	NSm/Avg Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	SM/Avg Lives
15-19	61,321	3	17	18%	58%	7,992	3	3	115%	370%
20-24	141,935	14	49	29%	74%	31,133	10	13	79%	202%
25-29	159,504	23	54	42%	80%	39,351	14	16	89%	169%
30-34	163,889	36	70	51%	89%	35,785	15	18	84%	145%
35-39	177,284	36	116	31%	98%	29,147	8	23	35%	111%
40-44	184,706	44	189	23%	88%	22,946	14	29	48%	181%
45-49	151,269	50	237	21%	83%	15,233	18	30	59%	233%
50-54	104,779	63	252	25%	82%	8,506	22	27	80%	264%
55-59	52,873	40	197	20%	78%	3,929	17	21	81%	310%
60-64	16,970	31	104	30%	89%	1,371	8	12	66%	197%
65-69	7,974	16	87	18%	99%	718	2	10	20%	106%
70-74	2,958	12	58	21%	67%	265	8	6	126%	405%
75-79	697	8	24	33%	82%	75	3	3	99%	246%
80-84	132	4	8	48%	103%	4	-	0	0%	0%
85+	28	-	4	0%	0%	-	-	-	0%	0%
Age 15+	1,226,318	380	1,467	26%	83%	196,454	142	211	67%	216%

Table 3.3.2a – Experience for life only policies for duration 0 by age and smoking status

Life Only	Experience for Non-Smokers, Duration 1					Experience for Smokers, Duration 1				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	NSm/Avg Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	SM/Avg Lives
15-19	43,231	12	12	102%	103%	4,750	1	1	74%	74%
20-24	108,512	20	38	53%	105%	19,704	3	8	38%	75%
25-29	140,448	35	48	73%	95%	30,151	11	12	92%	120%
30-34	145,949	34	62	54%	88%	29,957	14	15	94%	152%
35-39	159,124	51	104	49%	89%	24,854	17	19	88%	159%
40-44	171,413	90	175	51%	85%	20,499	32	26	124%	204%
45-49	139,038	109	217	50%	100%	13,700	14	27	51%	102%
50-54	97,421	104	233	45%	84%	7,984	34	26	133%	250%
55-59	49,908	68	183	37%	98%	3,794	9	20	45%	119%
60-64	16,479	47	99	47%	95%	1,446	9	13	71%	143%
65-69	7,683	26	84	31%	82%	757	10	11	93%	243%
70-74	3,220	21	62	34%	86%	294	6	7	87%	223%
75-79	857	16	29	56%	95%	87	3	4	85%	145%
80-84	174	2	11	19%	107%	11	-	1	0%	0%
85+	32	1	5	19%	100%	-	-	-	0%	0%
Age 15+	1,083,489	636	1,362	47%	91%	157,989	163	189	86%	168%

Table 3.3.2b – Experience for life only policies for duration 1 by age and smoking status

Life Only	Experience for Non-Smokers, Duration 2+				Experience for Smokers, Duration 2+			
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives
15-19	141,487	22	37	59%	65,990	13	17	77%
20-24	240,295	44	87	51%	58,150	20	23	88%
25-29	479,706	111	165	67%	86,314	36	34	106%
30-34	680,818	221	296	75%	111,039	53	56	95%
35-39	864,238	342	581	59%	121,936	119	96	124%
40-44	983,240	736	1,061	69%	122,958	163	156	104%
45-49	771,706	817	1,302	63%	97,949	195	196	100%
50-54	509,920	879	1,343	65%	63,848	253	205	123%
55-59	264,138	745	1,077	69%	33,650	209	177	118%
60-64	97,646	450	659	68%	15,639	171	138	124%
65-69	65,338	481	746	64%	11,447	178	161	111%
70-74	39,962	493	804	61%	7,010	198	165	120%
75-79	16,742	376	580	65%	3,264	128	130	99%
80-84	4,265	169	261	65%	1,053	69	68	102%
85+	604	49	70	70%	143	17	17	98%
Age 15+	5,160,105	5,935	9,069	65%	800,389	1,822	1,638	111%

Table 3.3.2c – Experience for life only policies for duration 2+ by age and smoking status

From the tables above, it appears that the smoker differential is larger at earlier durations.

### 3.4 Underwriting Methods

Medical underwriting is required under common practice when policy applications with large sum assured or on lives where non-medical assessment are not acceptable. Subject to the medical underwriting, a range of medical tests will be performed before policy issue. The following table provides this split and compares the A/E ratio for each against the combined average A/E ratio. In addition, we also compare the A/E ratio for medical and non-medical with the average A/E ratio for medical and non-medical combined in order to look at the relative mortality.

Life Only	Experience for Medical, All Durations					Experience for Non-Medical, All Durations				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Med/Avg Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Non-Med/Avg Lives
0-4	15,127	2	4	52%	149%	490,883	45	131	34%	99%
5-9	26,401	1	3	39%	75%	784,135	40	76	53%	101%
10-14	28,339	3	4	82%	98%	759,903	81	97	83%	100%
15-19	27,828	-	7	0%	0%	648,187	96	171	56%	104%
20-24	50,472	15	18	84%	135%	923,925	206	339	61%	98%
25-29	101,014	23	35	66%	89%	1,352,760	357	480	74%	101%
30-34	162,596	59	73	80%	103%	1,697,300	589	758	78%	100%
35-39	245,142	122	175	70%	105%	2,001,393	920	1,384	66%	99%
40-44	333,499	267	383	70%	100%	2,141,440	1,653	2,371	70%	100%
45-49	333,689	449	604	74%	100%	1,594,788	2,039	2,758	74%	100%
50-54	288,192	578	822	70%	93%	970,529	2,036	2,630	77%	102%
55-59	192,531	575	862	67%	88%	438,019	1,481	1,863	79%	105%
60-64	114,969	608	847	72%	90%	128,765	790	908	87%	109%
65-69	86,607	636	1,036	61%	88%	65,411	630	774	81%	116%
70-74	45,182	613	939	65%	92%	44,410	716	931	77%	108%
75-79	18,512	436	671	65%	96%	20,955	532	752	71%	104%
80-84	5,441	213	350	61%	91%	4,031	183	244	75%	112%
85+	1,106	109	150	73%	99%	302	23	30	76%	104%
All Ages	2,076,647	4,709	6,982	67%	93%	14,067,138	12,417	16,699	74%	103%

Table 3.4a – Experience for life only policies for all durations for medical and non-medical underwriting

Overall, the medical experience is better than non-medical, although the benefit is only really obvious for older ages. For the 30-39 age band, the medical experience is actually worse than non-medical. However, if the above analysis of A/E ratios is performed on an amounts basis, the medical experience across all ages is 91% of the average and non-medical is 106% and the age 30-39 medical experience is better than non-medical.

For the first time, data for simplified underwriting were collected. As expected, the A/E ratio for simplified underwriting is high. However, the total number of claims is relatively small and the results might not be accurately reflecting the true experience. Majority of the claims were from one particular company and therefore, results might be distorted. Readers must be cautious when referencing these figures. In addition, there are about 10% of claims with unknown underwriting method with average A/E ratio of 63%.



Life Only	Experience for Simplified Issue, All Durations				Experience for Unknown, All Durations			
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	Lives Exposed	Actual Claims	Expected Claims	A/E Lives
0-4	407	-	-	0%	79,242	5	20	25%
5-9	359	-	-	0%	119,763	10	12	86%
10-14	905	-	-	0%	116,975	13	15	86%
15-19	1,262	4	0	1158%	100,057	18	26	69%
20-24	3,190	6	1	522%	147,124	17	53	32%
25-29	4,814	8	2	476%	203,465	67	71	95%
30-34	6,673	10	3	337%	237,012	83	104	80%
35-39	10,143	30	7	426%	271,845	117	184	64%
40-44	14,521	38	16	235%	316,679	227	338	67%
45-49	14,849	61	26	236%	273,430	263	450	58%
50-54	12,362	62	34	185%	197,873	301	505	60%
55-59	8,532	61	36	167%	113,158	262	451	58%
60-64	4,730	58	34	171%	43,182	173	281	62%
65-69	3,576	66	43	153%	23,047	155	264	59%
70-74	2,030	56	42	135%	11,594	176	233	76%
75-79	646	20	22	92%	4,060	102	141	72%
80-84	66	2	4	50%	820	25	51	49%
85+	3	1	-	0%	129	6	19	31%
All Ages	89,068	483	270	179%	2,259,457	2,020	3,217	63%

Table 3.4b – Experience for life only policies for all durations for simplified and unknown underwriting

### 3.5 Impact of Acceleration Rider Benefits

The following table compares the experience for policies providing only life benefits with all policies providing life benefits.

Age Last	Experience for Life Only, Duration 2+					Experience for All Life, Duration 2+				
	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
0-4	276,896	24	33	73%	83%	307,935	24	37	65%	73%
5-9	726,342	45	70	64%	70%	786,351	46	76	60%	64%
10-14	738,501	78	95	82%	96%	785,141	82	101	81%	94%
15-19	590,742	88	154	57%	55%	636,588	94	166	57%	53%
20-24	681,802	177	254	70%	72%	832,679	213	306	70%	72%
25-29	1,118,472	324	396	82%	77%	1,563,792	418	549	76%	74%
30-34	1,558,166	594	698	85%	75%	2,199,853	738	978	75%	66%
35-39	1,968,251	997	1,371	73%	68%	2,625,189	1,204	1,813	66%	63%
40-44	2,248,532	1,904	2,518	76%	68%	2,827,675	2,162	3,137	69%	63%
45-49	1,787,143	2,495	3,139	79%	70%	2,151,985	2,732	3,742	73%	65%
50-54	1,183,127	2,659	3,277	81%	78%	1,380,715	2,890	3,780	76%	74%
55-59	611,229	2,162	2,666	81%	88%	692,385	2,309	2,984	77%	85%
60-64	244,630	1,483	1,768	84%	68%	262,480	1,529	1,880	81%	66%
65-69	155,269	1,381	1,854	74%	57%	158,223	1,399	1,886	74%	59%
70-74	93,334	1,477	1,946	76%	64%	93,564	1,484	1,951	76%	64%
75-79	41,393	1,041	1,487	70%	54%	41,402	1,041	1,488	70%	54%
80-84	9,839	412	618	67%	54%	9,839	412	618	67%	54%
85+	1,473	138	190	73%	73%	1,473	138	190	73%	73%
All Ages	14,035,142	17,479	22,535	78%	71%	17,357,269	18,915	25,681	74%	68%

Table 3.5 – Experience for life only policies and all life policies for Duration 2+

As expected, life policies with acceleration rider benefits results in lower mortality on both a lives and amounts basis.

### 3.6 Breakdown by Sum Assured

For the first time, this report has included experience by sum assured. The following tables show the A/E ratio breakdown by Sum Assured band.

All Life	Experience by Sum Assured, All Durations				
SA Band	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
0 - 100k	4,607,867	6,566	8,828	74%	74%
100k - 250k	8,250,480	8,187	11,735	70%	69%
250k - 500k	5,880,864	3,994	6,147	65%	65%
500k +	4,145,526	2,568	4,349	59%	56%
All SA	22,884,737	21,315	31,058	69%	62%

Table 3.6 – Experience for all life policies by sum assured

### 3.7 Claim Lag

The following table shows the lag time between the actual date of claim and the reported date of claim for the first 12 months for year 2002 to 2005. Actual claims in 2006 were not included as some of the 2006 claims were extracted at the end of the year. As a result, it will not reflect the true reporting lag in 2006.

All Life	2002 - 2005	
Lag in Months	Actual Claims	Cumulative % Reported
0	9,759	58%
1	4,697	86%
2	1,020	92%
3	359	94%
4	189	95%
5	155	96%
6	132	97%
7	105	98%
8	91	98%
9	52	98%
10	51	99%
11	35	99%
12	36	99%
Over 12 months	148	100%
Total	16,829	
Unknown	132	

Table 3.7 – Lag time in reporting death claim for all life policies

About 58% of the total claims reported to the insurance companies within the first month. Over 99% of the claims had been reported within the first 12 months after the date of claim.

### 3.8 Trend in Mortality

The following table shows the overall A/E ratio by year. Although the A/E in 2006 appears to have improved, the results in 2006 do not reflect the Incurred But Not Reported claims. While this would usually be small for mortality business, some companies provided the 2006 data at the end of 2006 rather than at a later point in time.

	Experience for Life Only, Duration 2+					Experience for All Life, Duration 2+				
Year	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
2002	2,416,846	2,930	3,482	84%	78%	2,984,243	3,185	3,966	80%	74%
2003	2,546,617	3,469	3,876	89%	80%	3,172,910	3,792	4,435	86%	78%
2004	2,756,419	3,419	4,382	78%	73%	3,430,427	3,709	5,013	74%	69%
2005	2,998,099	3,895	4,969	78%	77%	3,705,249	4,197	5,665	74%	72%
2006	3,317,161	3,766	5,826	65%	57%	4,064,440	4,032	6,602	61%	54%
2002-2006	14,035,142	17,479	22,535	78%	71%	17,357,269	18,915	25,681	74%	68%

Table 3.8a – Experience for life only and all life policies for duration 2+ by year

The results by year and gender are shown below.

Life Only	Experience for Male Lives, Duration 2+					Experience for Female Lives, Duration 2+				
Year	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
2002	1,333,383	1,969	2,351	84%	72%	1,083,462	961	1,131	85%	95%
2003	1,376,158	2,283	2,570	89%	77%	1,170,459	1,186	1,306	91%	89%
2004	1,452,923	2,236	2,849	78%	74%	1,303,496	1,183	1,533	77%	70%
2005	1,538,931	2,453	3,163	78%	77%	1,459,168	1,442	1,806	80%	76%
2006	1,661,617	2,289	3,636	63%	51%	1,655,545	1,477	2,190	67%	71%
2002-2006	7,363,011	11,230	14,569	77%	69%	6,672,130	6,249	7,966	78%	78%

Table 3.8b – Experience for life only policies for duration 2+ by year and gender

## 4. Critical Illness Experience

In this study, most companies submitted data on exposures and claims on a lives and amounts basis for policies providing only critical illness benefits separate from policies providing life cover with accelerated critical illness benefits. The life and critical illness components were identified separately, with any residual life benefit remaining after a critical illness claim being recorded as a policy with only life benefits.

The results in this section are based on data provided by the participating companies for the years 2002 to 2006. Even though the study is based on data collected on average one year after the end of the last year, there is evidence of a lengthier claims delay for critical illness compared to life claims. This should be noted when viewing the results in this section.

### 4.1 Claim Rates

#### 4.1.1 Life plus Critical Illness

The following table shows the claim rate for life and critical illness claims combined under policies providing life cover with accelerated critical illness benefits. This provides an estimate of the overall claim rate under these policies.

Life + CI	Experience for Male Lives, Duration 2+					Experience for Female Lives, Duration 2+				
Age Last	Lives Exposed	Life Claims	CI Claims	Rate % Lives	Rate % Amounts	Lives Exposed	Life Claims	CI Claims	Rate % Lives	Rate % Amounts
0-4	15,895	-	4	0.25	0.23	15,146	-	-	-	-
5-9	31,003	1	4	0.16	0.22	29,011	-	3	0.10	0.10
10-14	24,699	3	1	0.16	0.15	21,940	1	1	0.09	0.14
15-19	24,461	3	5	0.33	0.28	21,389	3	4	0.33	0.39
20-24	68,229	22	7	0.43	0.49	82,645	14	23	0.45	0.56
25-29	182,127	61	72	0.73	0.86	263,250	33	120	0.58	0.59
30-34	265,213	68	122	0.72	0.70	376,606	76	310	1.02	1.05
35-39	290,048	128	270	1.37	1.49	367,205	79	564	1.75	1.77
40-44	272,337	170	393	2.07	2.38	307,224	88	688	2.53	2.57
45-49	168,983	137	417	3.28	3.60	196,245	100	587	3.50	3.89
50-54	85,128	128	301	5.04	5.40	112,701	103	437	4.79	5.45
55-59	33,000	88	190	8.42	8.86	48,287	59	197	5.30	6.92
60-64	7,149	29	56	11.89	15.01	10,737	17	60	7.17	7.01
65-69	1,252	10	17	21.56	32.41	1,706	8	12	11.72	25.37
70-74	106	6	3	85.14	149.44	121	1	-	8.24	4.99
75-79	-	-	-	-	-	8	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-
85+	-	-	-	-	-	-	-	-	-	-
All Ages	1,469,630	854	1,862	1.85	1.86	1,854,222	582	3,006	1.94	1.87

Table 4.1.1a – Claim rates for life plus accelerated CI policies for duration 2+ by age and gender

As expected, the above table shows a rate of claim that increases with age with the female claim rates being higher than the male claim rates from 30-49.

In addition, the above table shows that for male policies, 31% of all claims were a result of death whereas for female policies, the proportion is only 16%. This observation is consistent with the findings from the previous study.

To allow better interpretation of the above results, the following table provides a comparison to expected. As there is no published critical illness table, the expected claims have been calculated using the HKA01 mortality table.

Life + CI	Experience for Male Lives, Duration 2+					Experience for Female Lives, Duration 2+				
Age Last	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
0-4	15,895	4	2	173%	157%	15,146	-	1	0%	0%
5-9	31,003	5	3	152%	206%	29,011	3	3	118%	115%
10-14	24,699	4	3	120%	115%	21,940	2	3	76%	115%
15-19	24,461	8	8	95%	79%	21,389	7	4	191%	226%
20-24	68,229	29	35	82%	94%	82,645	37	17	215%	267%
25-29	182,127	133	85	156%	184%	263,250	153	67	227%	231%
30-34	265,213	190	148	128%	124%	376,606	386	132	293%	300%
35-39	290,048	398	247	161%	175%	367,205	643	195	329%	333%
40-44	272,337	563	367	154%	178%	307,224	776	253	306%	313%
45-49	168,983	554	354	157%	173%	196,245	687	250	275%	308%
50-54	85,128	429	286	150%	162%	112,701	540	218	248%	284%
55-59	33,000	278	181	154%	162%	48,287	256	137	187%	244%
60-64	7,149	85	66	130%	165%	10,737	77	47	164%	161%
65-69	1,252	27	19	146%	219%	1,706	20	13	152%	331%
70-74	106	9	3	345%	597%	121	1	2	57%	34%
75-79	-	-	-	-	-	8	-	-	-	-
80-84	-	-	-	-	-	-	-	-	-	-
85+	-	-	-	-	-	-	-	-	-	-
All Ages	1,469,630	2,716	1,807	150%	167%	1,854,222	3,588	1,342	267%	295%

Table 4.1.1b - Experience for life plus accelerated CI policies for duration 2+ by age and gender

The A/E ratio for critical illness is higher than pure mortality, especially for female critical illness policies. This is observed under the lives basis and the amounts basis.

#### 4.1.2 Critical Illness Component only

The table below shows the claim rate for critical illness claims under policies providing accelerated critical illness benefits together with policies providing critical illness benefits only. This provides an estimate of the critical illness incidence rates. These incidence rates have not been adjusted for any claims delays.

All CI	Experience for Male Lives, Duration 2+				Experience for Female Lives, Duration 2+			
Age Last	Lives Exposed	CI Claims	Rate % Lives	Rate % Amounts	Lives Exposed	CI Claims	Rate % Lives	Rate % Amounts
0-4	29,223	7	0.24	0.27	27,210	1	0.04	0.05
5-9	57,020	7	0.12	0.17	51,096	5	0.10	0.11
10-14	43,023	4	0.09	0.06	37,694	2	0.05	0.04
15-19	38,220	7	0.18	0.24	32,978	5	0.15	0.22
20-24	86,027	18	0.21	0.17	106,728	30	0.28	0.30
25-29	221,601	89	0.40	0.40	331,237	176	0.53	0.50
30-34	320,399	163	0.51	0.50	468,292	406	0.87	0.87
35-39	352,975	336	0.95	0.92	458,027	737	1.61	1.61
40-44	333,287	496	1.49	1.51	385,188	895	2.32	2.36
45-49	207,099	497	2.40	2.31	242,911	757	3.12	3.37
50-54	103,594	370	3.57	3.48	137,382	537	3.91	4.15
55-59	39,953	231	5.78	5.51	58,482	267	4.57	5.02
60-64	8,766	72	8.21	10.24	12,958	79	6.10	5.88
65-69	1,440	18	12.50	12.91	2,006	17	8.47	7.50
70-74	107	3	27.96	55.78	124	-	-	-
75-79	-	-	-	-	8	-	-	-
80-84	-	-	-	-	-	-	-	-
85+	-	-	-	-	-	-	-	-
All Ages	1,842,734	2,318	1.26	1.16	2,352,321	3,914	1.66	1.59

Table 4.1.2a – Claim rates for all CI policies for duration 2+ by age and gender

As expected, the rate of claim increases as the age increases. For females, claim rates are higher than the male claims rates from 20-54.

Similar to the approach used earlier, the actual claims are compared against expected based on the HKA01 mortality table. The results are shown in the following table.

All CI	Experience for Male Lives, Duration 2+					Experience for Female Lives, Duration 2+				
Age Last	Lives Exposed	CI Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	CI Claims	Expected Claims	A/E Lives	A/E Amounts
0-4	29,223	7	4	164%	183%	27,210	1	2	41%	55%
5-9	57,020	7	6	116%	161%	51,096	5	4	112%	126%
10-14	43,023	4	6	69%	43%	37,694	2	5	44%	32%
15-19	38,220	7	13	54%	69%	32,978	5	6	89%	125%
20-24	86,027	18	45	40%	34%	106,728	30	22	135%	145%
25-29	221,601	89	103	86%	85%	331,237	176	85	208%	195%
30-34	320,399	163	179	91%	89%	468,292	406	164	248%	248%
35-39	352,975	336	300	112%	108%	458,027	737	244	302%	303%
40-44	333,287	496	449	110%	113%	385,188	895	318	282%	288%
45-49	207,099	497	433	115%	111%	242,911	757	309	245%	267%
50-54	103,594	370	348	106%	105%	137,382	537	265	203%	216%
55-59	39,953	231	219	105%	101%	58,482	267	166	161%	177%
60-64	8,766	72	80	90%	112%	12,958	79	57	140%	135%
65-69	1,440	18	21	85%	88%	2,006	17	15	111%	98%
70-74	107	3	3	113%	223%	124	-	2	0%	0%
75-79	-	-	-	0%	0%	8	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
All Ages	1,842,734	2,318	2,210	105%	104%	2,352,321	3,914	1,663	235%	252%

Table 4.1.2b - Experience for all CI policies for duration 2+ by age and gender



## 4.2 Selection Effect

The following tables show duration 0 and duration 1 actual claim rates for the critical illness component of all policies with critical illness benefits and compares them with the expected claim rate under HKA01. The resulting A/E ratio are then compared with those for duration 2+ to give an indication of the impact of underwriting selection and any waiting period.

All CI	Experience for Male Lives, Duration 0					Experience for Female Lives, Duration 0				
Age Last	Lives Exposed	CI Claims	Rate ‰	A/E	Dur 0/2+	Lives Exposed	CI Claims	Rate ‰	A/E	Dur 0/2+
0-4	18,190	3	0.16	26%	16%	16,778	-	-	0%	0%
5-9	8,642	2	0.23	219%	189%	7,704	-	-	0%	0%
10-14	8,666	1	0.12	84%	122%	7,543	1	0.13	109%	247%
15-19	14,942	6	0.40	106%	198%	16,148	2	0.12	70%	79%
20-24	47,143	7	0.15	28%	71%	68,288	9	0.13	64%	47%
25-29	64,533	23	0.36	76%	89%	87,177	31	0.36	141%	68%
30-34	56,208	25	0.44	80%	88%	73,869	57	0.77	222%	90%
35-39	47,955	35	0.73	86%	77%	61,270	66	1.08	203%	67%
40-44	37,981	43	1.13	85%	76%	47,151	99	2.10	255%	90%
45-49	21,158	50	2.36	113%	99%	28,624	63	2.20	173%	71%
50-54	9,059	32	3.53	105%	99%	14,280	47	3.29	171%	84%
55-59	2,595	16	6.17	113%	107%	4,253	12	2.82	100%	62%
60-64	238	2	8.40	97%	108%	369	2	5.42	131%	94%
65-69	17	-	-	0%	0%	26	-	-	0%	0%
70-74	3	-	-	0%	0%	2	-	-	0%	0%
75-79	-	-	-	0%	0%	-	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
All Ages	337,327	245	0.73	85%	81%	433,481	389	0.90	172%	73%

Table 4.2a - Experience for all CI policies for duration 0 by age and gender

Duration 0 experience is clearly better than duration 2+, overall around 23% lower for males and females combined. However, it should be noted that the majority of critical illness policies sold in Hong Kong apply a waiting period from policy commencement of up to 90 days, and the inability to claim during this period has not been allowed for in the above analysis.

This compares with experience for policies with only life benefits where the claims experience in duration 0 was 54% lower than duration 2+.

All CI	Experience for Male Lives, Duration 1					Experience for Female Lives, Duration 1				
Age Last	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	Dur 1/2+ Lives	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	Dur 1/2+ Lives
0-4	15,123	7	0.46	216%	131%	14,075	2	0.14	60%	146%
5-9	8,327	-	-	0%	0%	7,423	1	0.13	154%	138%
10-14	7,760	2	0.26	188%	272%	6,785	-	-	0%	0%
15-19	10,741	3	0.28	75%	140%	10,587	4	0.38	215%	243%
20-24	35,508	4	0.11	22%	54%	51,350	19	0.37	178%	132%
25-29	57,994	18	0.31	66%	77%	81,453	52	0.64	254%	122%
30-34	54,153	40	0.74	134%	147%	72,271	67	0.93	267%	108%
35-39	47,457	39	0.82	97%	87%	61,169	105	1.72	323%	107%
40-44	38,066	64	1.68	125%	114%	47,811	121	2.53	307%	109%
45-49	21,557	53	2.46	118%	103%	29,017	84	2.89	228%	93%
50-54	9,433	36	3.82	115%	108%	14,987	57	3.80	198%	98%
55-59	2,943	18	6.12	114%	108%	4,771	21	4.40	158%	98%
60-64	381	3	7.88	92%	103%	642	3	4.67	115%	82%
65-69	18	-	-	0%	0%	37	1	27.20	382%	345%
70-74	4	-	-	0%	0%	5	-	-	0%	0%
75-79	-	-	-	0%	0%	-	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
All Ages	309,466	287	0.93	106%	101%	402,384	537	1.33	248%	105%

Table 4.2b- Experience for all CI policies for duration 1 by age and gender

Duration 1 experience is around 3% higher for duration 2+ for males and females combined. This compares with experience for policies with only life benefits where the claims experience in duration 1 was 28% lower than duration 2+. For comparison, the ASHK03 study showed that duration 1 experience was about 4% lower than duration 2+ experience.

### 4.3 Smoking Differentials

The following tables show the experience by smoker status for all durations. Around 68% of the lives with critical illness benefits in this study had a smoker status identified.

All CI	Experience for Non-Smokers, All Durations					Experience for Smokers, All Durations				
Age Last	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	NSm/Avg Lives	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	Sm/Avg Lives
15-19	58,649	13	0.22	82%	88%	8,203	4	0.49	163%	175%
20-24	256,630	64	0.25	75%	105%	50,818	11	0.22	57%	79%
25-29	554,809	236	0.43	128%	96%	109,077	67	0.61	160%	120%
30-34	671,117	513	0.76	180%	102%	119,891	92	0.77	157%	89%
35-39	652,856	823	1.26	193%	102%	96,828	120	1.24	162%	86%
40-44	556,542	1,040	1.87	181%	99%	67,720	163	2.41	195%	107%
45-49	337,762	888	2.63	165%	98%	36,741	143	3.89	200%	118%
50-54	176,586	636	3.60	148%	97%	17,267	100	5.79	185%	122%
55-59	70,078	330	4.71	127%	98%	6,444	49	7.60	153%	118%
60-64	13,467	87	6.46	109%	95%	1,132	15	13.25	164%	143%
65-69	1,516	9	5.94	60%	109%	114	-	-	0%	0%
70-74	66	1	15.24	80%	105%	3	-	-	0%	0%
75-79	8	-	-	0%	0%	-	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
Age 15+	3,350,086	4,640	1.39	160%	99%	514,238	764	1.49	171%	106%

Table 4.3 – Experience for all CI policies by smoking differentials for all durations

### 4.3.1 Gender Mix

The following tables show the experience by gender for smoker status. Similar to life only policies, the proportion of smokers is 22% and 7% for males and females respectively.

All CI	Experience for Male Non-Smokers, All Durations					Experience for Female Non-Smokers, All Durations				
Age Last	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	NSm/Avg Lives	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	NSm/Avg Lives
15-19	29,094	10	0.34	94%	90%	29,555	3	0.10	58%	84%
20-24	101,542	20	0.20	38%	98%	155,087	44	0.28	137%	103%
25-29	204,350	61	0.30	64%	90%	350,460	175	0.50	197%	92%
30-34	242,648	128	0.53	95%	97%	428,469	385	0.90	257%	98%
35-39	248,271	203	0.82	96%	94%	404,584	620	1.53	288%	99%
40-44	224,031	281	1.25	93%	84%	332,511	759	2.28	277%	100%
45-49	132,805	273	2.06	98%	86%	204,957	615	3.00	236%	99%
50-54	62,729	207	3.30	98%	88%	113,857	429	3.77	195%	99%
55-59	23,236	117	5.04	92%	90%	46,842	213	4.55	161%	99%
60-64	4,539	34	7.49	83%	85%	8,929	53	5.94	138%	101%
65-69	526	1	1.90	13%	115%	990	8	8.08	107%	104%
70-74	29	1	34.46	140%	106%	37	-	-	0%	0%
75-79	-	-	-	0%	0%	8	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
Age 15+	1,273,799	1,336	1.05	91%	89%	2,076,286	3,304	1.59	232%	99%

Table 4.3.1a - Experience for all CI policies for non-smokers for all durations by age and gender

All CI	Experience for Male Smokers, All Durations					Experience for Female Smokers, All Durations				
Age Last	Lives Exposed	CI Claims	Rate % Lives	A/E Lives	SM/Avg Lives	Lives Exposed	CI Claims	Rate % Lives	A/E Lives	SM/Avg Lives
15-19	4,649	3	0.65	164%	157%	3,554	1	0.28	160%	231%
20-24	28,418	6	0.21	41%	106%	22,400	5	0.22	108%	81%
25-29	66,812	29	0.43	93%	131%	42,265	38	0.90	356%	167%
30-34	81,596	48	0.59	106%	109%	38,295	44	1.15	333%	126%
35-39	72,512	77	1.06	126%	122%	24,316	43	1.77	338%	116%
40-44	54,747	135	2.47	184%	166%	12,973	28	2.16	265%	96%
45-49	30,272	116	3.83	184%	161%	6,468	27	4.17	331%	139%
50-54	14,447	84	5.81	173%	154%	2,821	16	5.67	295%	149%
55-59	5,304	42	7.92	145%	143%	1,141	7	6.14	216%	134%
60-64	901	14	15.54	172%	177%	231	1	4.33	100%	73%
65-69	79	-	-	0%	0%	35	-	-	0%	0%
70-74	2	-	-	0%	0%	1	-	-	0%	0%
75-79	-	-	-	0%	0%	-	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
Age 15+	359,737	554	1.54	147%	144%	154,501	210	1.36	298%	127%

Table 4.3.1b - Experience for all CI policies for smokers for all durations by age and gender

## 4.4 Underwriting Methods

As with life only policies, medical underwriting is required under common practice when policy applications with large sum assured or on lives where non-medical assessment are not acceptable. Subject to the medical underwriting, a range of medical tests will be performed before policy issue.

The following table provides this split and compares the A/E ratio for each against the combined average A/E ratio.

All CI	Experience for Male Medical, All Durations					Experience for Female Medical, All Durations				
Age Last	Lives Exposed	CI Claims	Rate % Lives	A/E Lives	Med/Avg Lives	Lives Exposed	CI Claims	Rate % Lives	A/E Lives	Med/Avg Lives
0-4	1,647	2	1.21	410%	452%	1,192	-	-	0%	0%
5-9	1,856	-	-	0%	0%	1,487	-	-	0%	0%
10-14	1,626	1	0.62	455%	479%	1,402	-	-	0%	0%
15-19	2,048	-	-	0%	0%	1,944	-	-	0%	0%
20-24	5,973	1	0.17	32%	91%	10,842	-	-	0%	0%
25-29	15,030	4	0.27	57%	70%	28,509	17	0.60	234%	128%
30-34	26,130	14	0.54	95%	103%	40,612	31	0.76	217%	93%
35-39	38,743	45	1.16	135%	125%	45,280	71	1.57	293%	99%
40-44	46,955	70	1.49	109%	100%	47,238	99	2.10	252%	89%
45-49	40,731	92	2.26	107%	92%	40,019	118	2.95	229%	97%
50-54	27,759	93	3.35	99%	91%	32,224	129	4.00	205%	98%
55-59	14,403	78	5.42	97%	91%	18,682	97	5.19	181%	117%
60-64	4,614	41	8.89	96%	109%	6,694	48	7.17	162%	109%
65-69	957	17	17.76	120%	126%	1,336	14	10.48	136%	111%
70-74	90	3	33.35	134%	119%	107	-	-	0%	0%
75-79	-	-	-	0%	0%	8	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
All Ages	228,562	461	2.02	104%	100%	277,577	624	2.25	209%	91%

Table 4.4a – Experience for all CI policies for all durations with medical underwriting method by gender

All CI	Experience for Male Non-Medical, All Durations					Experience for Female Non-Medical, All Durations				
Age Last	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	Non-Med/Avg Lives	Lives Exposed	CI Claims	Rate ‰ Lives	A/E Lives	Non-Med/Avg Lives
0-4	55,716	14	0.25	82%	90%	52,142	2	0.04	13%	102%
5-9	66,346	9	0.14	128%	103%	59,534	6	0.10	115%	103%
10-14	52,933	6	0.11	84%	88%	46,075	3	0.07	54%	103%
15-19	55,519	12	0.22	61%	104%	51,270	11	0.21	124%	104%
20-24	140,716	26	0.18	35%	100%	183,391	50	0.27	131%	106%
25-29	286,884	111	0.39	83%	102%	405,548	185	0.46	179%	98%
30-34	355,457	183	0.51	92%	100%	498,884	408	0.82	234%	101%
35-39	360,450	323	0.90	106%	97%	466,199	734	1.57	296%	100%
40-44	317,842	469	1.48	110%	100%	374,789	889	2.37	288%	101%
45-49	182,733	452	2.47	119%	102%	224,050	678	3.03	238%	101%
50-54	81,742	306	3.74	112%	103%	114,323	461	4.03	210%	101%
55-59	26,444	160	6.05	111%	105%	40,844	163	3.99	142%	92%
60-64	3,855	27	7.00	78%	89%	5,633	32	5.68	134%	89%
65-69	333	1	3.00	21%	22%	475	3	6.31	84%	69%
70-74	18	-	-	0%	0%	16	-	-	0%	0%
75-79	-	-	-	0%	0%	-	-	-	0%	0%
80-84	-	-	-	0%	0%	-	-	-	0%	0%
85+	-	-	-	0%	0%	-	-	-	0%	0%
All Ages	1,986,987	2,099	1.06	104%	100%	2,523,173	3,625	1.44	233%	102%

Table 4.4b – Experience for all CI policies for all durations with non-medical underwriting method by gender

All CI	Experience for Male Simplified Issues, All Durations					Experience for Female Simplified Issues, All Durations				
Age Last	Lives Exposed	CI Claims	Expected Claims	Rate % Lives	A/E Lives	Lives Exposed	CI Claims	Expected Claims	Rate % Lives	A/E Lives
0-4	11	-	-	-	0%	-	-	-	-	0%
5-9	3	-	-	-	0%	2	-	-	-	0%
10-14	8	-	-	-	0%	2	-	-	-	0%
15-19	11	-	-	-	0%	6	-	-	-	0%
20-24	64	-	-	-	0%	86	-	-	-	0%
25-29	230	-	-	-	0%	257	-	-	-	0%
30-34	958	-	1	-	0%	1,268	1	-	0.79	218%
35-39	2,429	-	2	-	0%	2,924	5	2	1.71	317%
40-44	3,278	10	4	3.05	224%	2,703	3	2	1.11	135%
45-49	2,516	3	5	1.19	57%	1,771	4	2	2.26	177%
50-54	1,543	6	5	3.89	115%	1,129	1	2	0.89	46%
55-59	741	4	4	5.40	97%	646	1	2	1.55	53%
60-64	283	1	3	3.53	37%	302	2	1	6.62	147%
65-69	107	-	2	-	0%	126	-	1	-	0%
70-74	2	-	-	-	0%	4	-	-	-	0%
75-79	-	-	-	-	0%	-	-	-	-	0%
80-84	-	-	-	-	0%	-	-	-	-	0%
85+	-	-	-	-	0%	-	-	-	-	0%
All Ages	12,184	24	26	1.97	92%	11,225	17	13	1.51	130%

Table 4.4c – Experience for all CI policies for all durations with simplified underwriting method by gender

Overall, there does not appear to any difference between medical experience and non-medical experience.

As in section 3.4, policies with simplified underwriting were also identified. Unfortunately, the number of policies is too small to draw any conclusions. Readers must be cautious when referencing these figures.



All CI	Experience for Male Unknown, All Durations					Experience for Female Unknown, All Durations				
Age Last	Lives Exposed	CI Claims	Expected Claims	Rate ‰ Lives	A/E Lives	Lives Exposed	CI Claims	Expected Claims	Rate ‰ Lives	A/E Lives
0-4	5,162	1	1	0.19	71%	4,729	1	1	0.21	85%
5-9	5,784	-	1	-	0%	5,200	-	-	-	0%
10-14	4,881	-	1	-	0%	4,543	-	1	-	0%
15-19	6,324	4	2	0.63	173%	6,493	-	1	-	0%
20-24	21,925	2	11	0.09	18%	32,047	8	7	0.25	120%
25-29	41,984	15	20	0.36	76%	65,553	57	17	0.87	343%
30-34	48,215	31	27	0.64	116%	73,668	90	26	1.22	351%
35-39	46,765	42	40	0.90	106%	66,062	98	35	1.48	279%
40-44	41,260	54	55	1.31	97%	55,420	124	46	2.24	271%
45-49	23,834	53	50	2.22	107%	34,712	104	44	3.00	236%
50-54	11,041	33	37	2.99	89%	18,973	50	37	2.64	137%
55-59	3,903	23	21	5.89	109%	7,334	39	21	5.32	189%
60-64	633	8	6	12.64	139%	1,340	2	6	1.49	34%
65-69	78	-	1	-	0%	132	1	1	7.55	103%
70-74	5	-	-	-	0%	4	-	-	-	0%
75-79	-	-	-	-	0%	-	-	-	-	0%
80-84	-	-	-	-	0%	-	-	-	-	0%
85+	-	-	-	-	0%	-	-	-	-	0%
All Ages	261,794	266	273	1.02	98%	376,212	574	242	1.53	238%

Table 4.4d – Experience for all CI policies for all durations with unknown underwriting method by gender

## 4.5 Breakdown by Sum Assured

The following table shows the A/E ratio breakdown by Sum Assured band.

All CI	Experience by Sum Assured, All Durations				
SA Band	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
0 - 100k	766,272	1,268	878	144%	143%
100k - 250k	2,440,933	3,470	2,162	160%	162%
250k - 500k	1,869,941	2,292	1,375	167%	165%
500k+	600,568	660	459	144%	142%
All SA	5,677,714	7,690	4,875	158%	157%

Table 4.5 – Experience for All CI policies by sum assured

## 4.6 Claim Lag

The following table shows the lag time between the actual date of claim and the reported date of claim for the first 12 months for year 2002 to 2005. Actual claims in 2006 were not included as some of the data was extracted at the end of the year. As a result, it will not reflect the true reporting lag in 2006. Compared to the table in Section 3.7, the claim lag for critical illness is longer than for mortality.

All CI	2002-2005	
Lag in Months	Actual Claims	Cumulative % Reported
0	2,289	39%
1	1,503	64%
2	748	77%
3	382	84%
4	234	88%
5	157	90%
6	104	92%
7	57	93%
8	51	94%
9	60	95%
10	41	96%
11	30	96%
12	33	97%
Over 12 months	200	100%
Total	5,889	
Unknown	66	

Table 4.6 - Lag time in reporting CI claim for all CI policies

## 4.7 Trend in Incidence of Critical Illness

The following table looks at the A/E ratio by year for critical illness claims with expected claims based on HKA01 mortality table.

All CI	Experience for Male Lives, Duration 2+					Experience for Female Lives, Duration 2+				
Year	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts	Lives Exposed	Actual Claims	Expected Claims	A/E Lives	A/E Amounts
2002	311,947	392	339	116%	113%	382,033	616	242	255%	284%
2003	344,774	378	390	97%	96%	432,314	660	288	229%	252%
2004	372,476	504	441	114%	110%	476,114	824	333	248%	251%
2005	393,349	516	489	105%	106%	509,058	887	374	237%	254%
2006	420,188	528	550	96%	99%	552,802	927	427	217%	232%
2002-2006	1,842,734	2,318	2,210	105%	104%	2,352,321	3,914	1,663	235%	252%

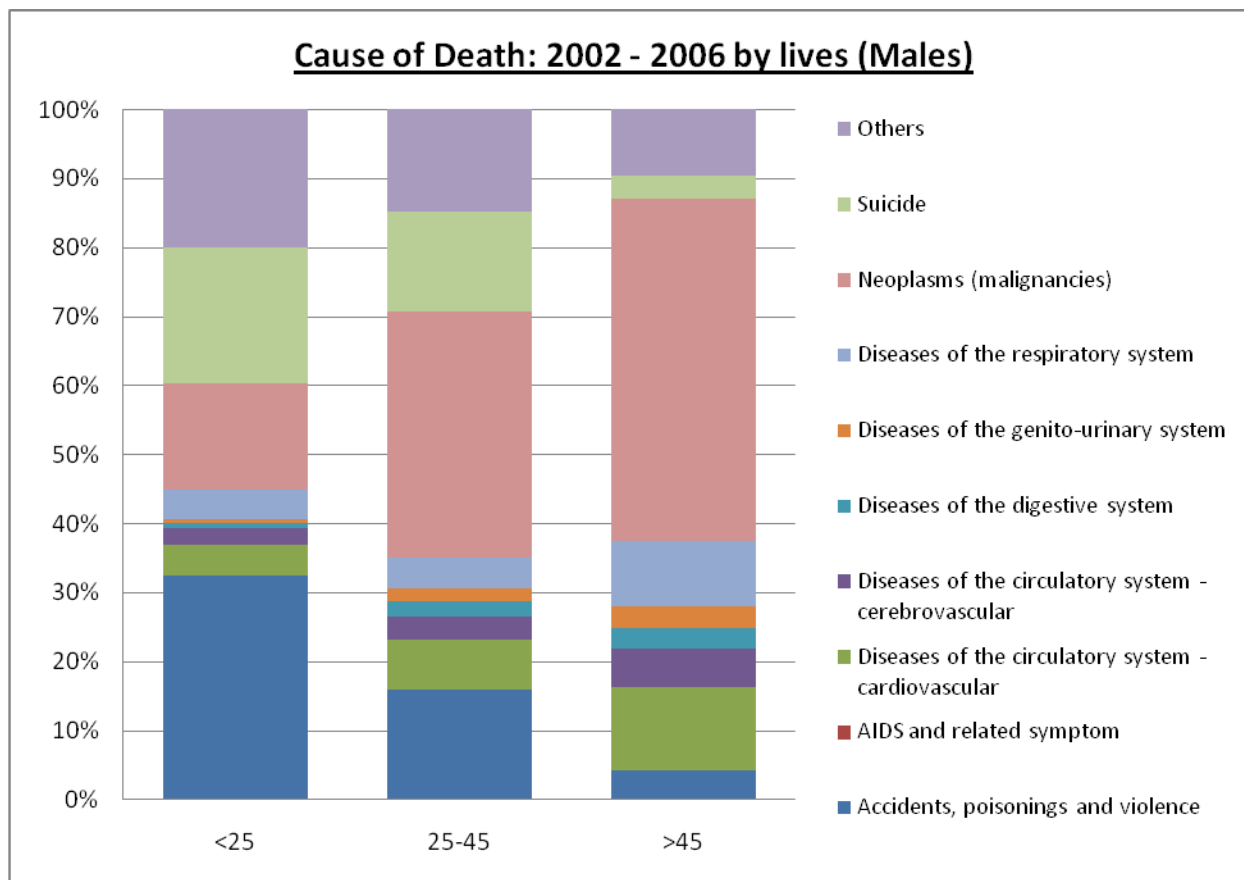
Table 4.7 – Experience for all CI policies for duration 2+ by year and gender

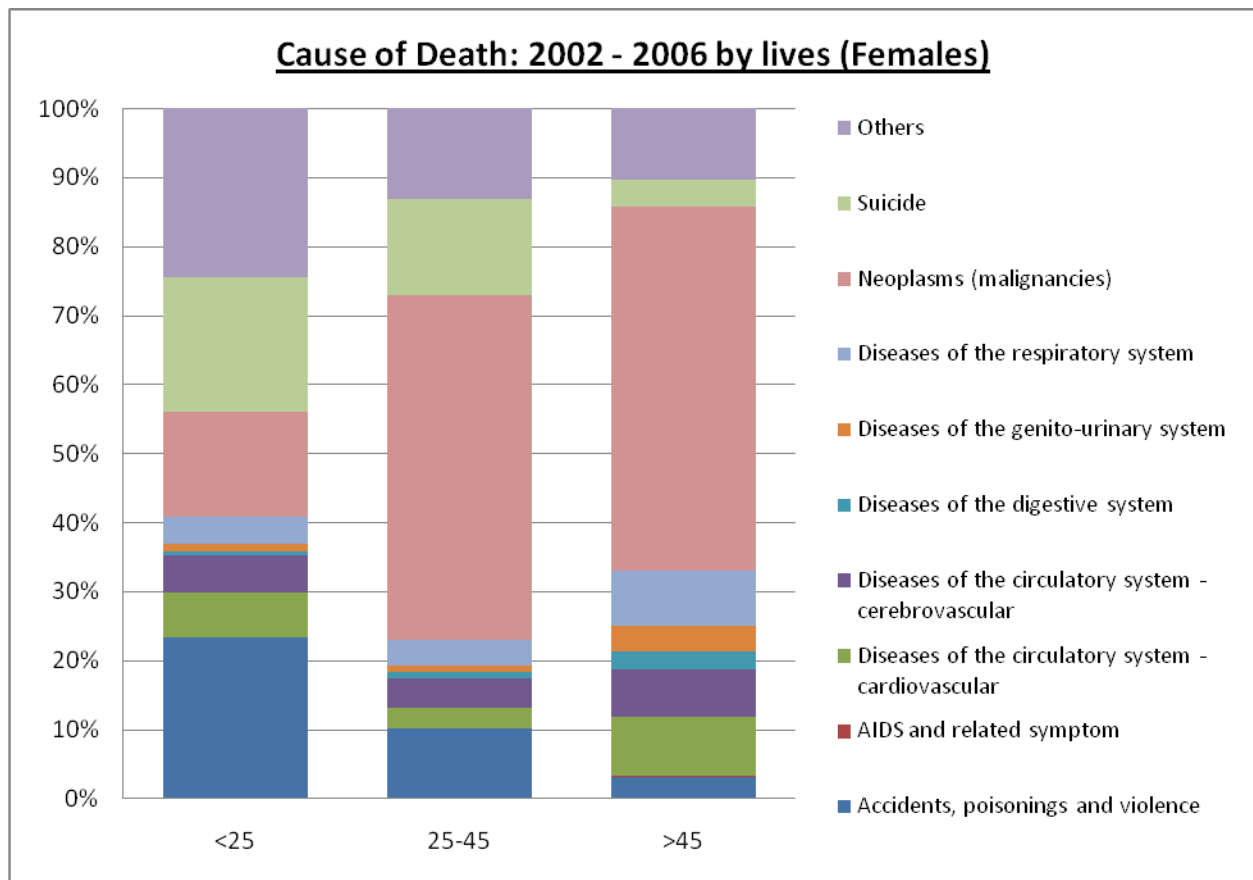
From the table above, there does not appear to be an obvious year on year trend but overall, the A/Es in later years were lower than 2002. However, we note that the 2006 numbers are likely to be understated due to incurred but not reported claims. The extent of this is shown in Section 4.6.

## 5. Cause of Claim Study

In the ASHK03 study, the cause of claim study focused only on cause of death. In this study, the cause of critical illness was also collected and analyzed.

### 5.1 Cause of Death Breakdown





Accidental death under age 25 is 33% for males and 23% females respectively which is the highest among all age bands. This percentage drops significantly as age increases. Neoplasms (malignancies) are still the major cause of claims for the older age bands. These findings are consistent with the ASHK03 study.

### 5.1.1 Comparison with Previous Studies

All Life	Males under 25 years old					Females under 25 years old				
Cause of Death	HKA97	HKA01	ASHK03	ASHK08	Claim #	HKA97	HKA01	ASHK03	ASHK08	Claim #
Accidents, Poisonings and Violence	42%	38%	36%	33%	120	29%	38%	18%	23%	43
AIDS and related Symptom	0%	0%	0%	0%	-	0%	0%	0%	0%	-
Diseases of the Circulatory System – Cardiovascular	7%	7%	8%	4%	16	12%	7%	9%	7%	12
Diseases of the Circulatory System – Cerebrovascular		2%	4%	2%	9		2%	3%	5%	10
Diseases of the Digestive System	2%	2%	0%	1%	3	2%	2%	2%	1%	1
Diseases of the Genito-Urinary System	1%	0%	0%	1%	2	1%	0%	2%	1%	2
Diseases of the Respiratory System	5%	6%	6%	4%	16	5%	6%	5%	4%	7
Neoplasms (Malignancies)	10%	15%	17%	15%	57	12%	15%	21%	15%	28
Suicide	8%	9%	15%	20%	72	13%	9%	22%	20%	36
Others	27%	22%	13%	20%	74	28%	22%	18%	24%	45
Unknown					20					11

Table 5.1.1a – Cause of death claims by percentage for age under 25 by gender

All Life	Males between 25-45 years old					Females between 25-45 years old				
Cause of Death	HKA97	HKA01	ASHK03	ASHK08	Claim #	HKA97	HKA01	ASHK03	ASHK08	Claim #
Accidents, Poisonings and Violence	20%	18%	15%	16%	525	12%	10%	7%	10%	216
AIDS and related Symptom	0%	0%	0%	0%	3	0%	0%	0%	0%	-
Diseases of the Circulatory System – Cardiovascular	9%	8%	8%	7%	235	10%	6%	3%	3%	62
Diseases of the Circulatory System – Cerebrovascular		4%	4%	3%	112		3%	3%	4%	91
Diseases of the Digestive System	6%	4%	2%	2%	76	3%	2%	1%	1%	20
Diseases of the Genito-Urinary System	1%	1%	1%	2%	59	3%	1%	1%	1%	19
Diseases of the Respiratory System	7%	3%	3%	4%	148	6%	4%	4%	4%	81
Neoplasms (Malignancies)	29%	41%	42%	36%	1,175	37%	47%	59%	50%	1,057
Suicide	7%	8%	15%	14%	474	12%	13%	15%	14%	295
Others	21%	14%	9%	15%	490	18%	14%	9%	13%	279
Unknown					185					122

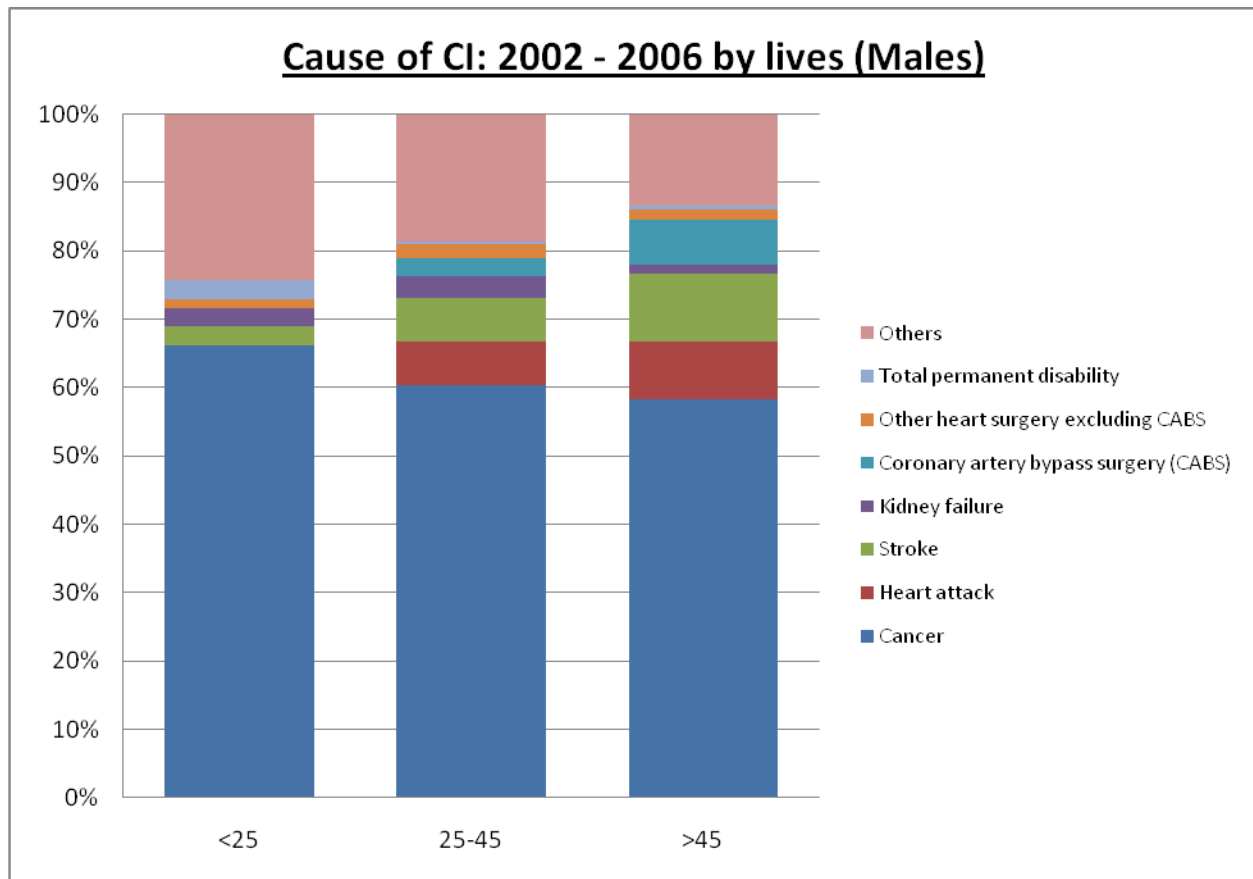
Table 5.1.1b – Cause of death claims by percentage for age 25 to 45 by gender

All Life	Males over 45 years old					Females over 45 years old				
Cause of Death	HKA97	HKA01	ASHK03	ASHK08	Claim #	HKA97	HKA01	ASHK03	ASHK08	Claim #
Accidents, Poisonings and Violence	4%	5%	3%	4%	384	3%	2%	3%	3%	162
AIDS and related Symptom	0%	0%	0%	0%	4	0%	0%	0%	0%	5
Diseases of the Circulatory System – Cardiovascular	20%	14%	13%	12%	1,113	18%	12%	9%	9%	433
Diseases of the Circulatory System – Cerebrovascular		5%	5%	5%	503		7%	8%	7%	342
Diseases of the Digestive System	7%	4%	4%	3%	279	5%	3%	2%	3%	127
Diseases of the Genito-Urinary System	2%	1%	2%	3%	279	4%	3%	3%	4%	193
Diseases of the Respiratory System	11%	9%	7%	10%	882	13%	8%	7%	8%	399
Neoplasms (Malignancies)	39%	53%	53%	49%	4,535	42%	55%	57%	53%	2,653
Suicide	2%	3%	3%	3%	317	1%	3%	4%	4%	201
Others	15%	7%	8%	10%	871	13%	8%	7%	10%	515
Unknown					520					290

Table 5.1.1c – Cause of death claims by percentage for age over 45 by gender

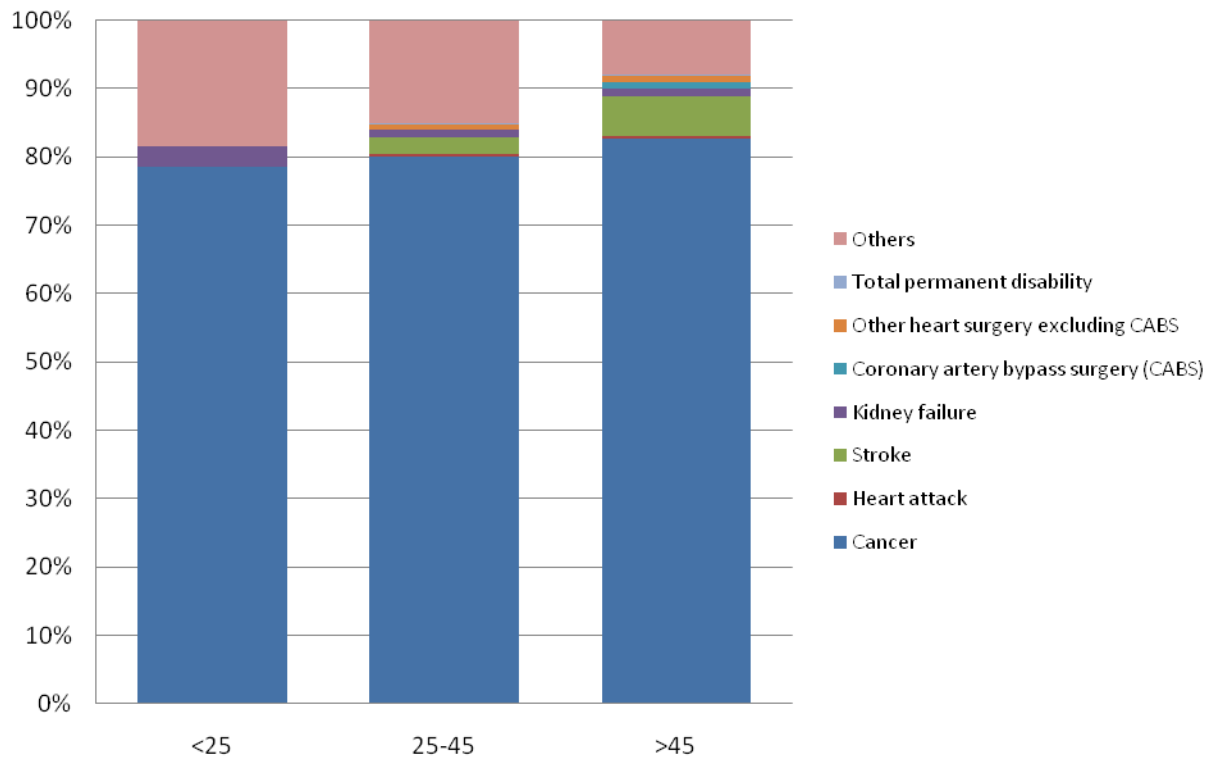
The dominant cause of claims is still Neoplasms (Malignancies) for the older age groups and Accidents, Poisonings and Violence for the youngest age group. As noted in the ASHK03 study, there has been a decrease in the proportion of deaths from accidents, poisonings and violence for males <25. However, this trend is not clear for females or older ages. Other trends that could be observed from the above table include an increase in the proportion of deaths due to suicide and cancer especially up to ASHK03.

## 5.2 Cause of Critical Illness Breakdown





### Cause of CI: 2002 - 2006 by lives (Female)



### 5.2.1 Summary of Results

All CI	Males under 25 years old		Females under 25 years old	
Cause of CI	ASHK08	Claim #	ASHK08	Claim #
Cancer	66%	49	78%	51
Heart Attack	0%	-	0%	-
Stroke	3%	2	0%	-
Kidney Failure	3%	2	3%	2
Coronary Artery Bypass Surgery (CABS)	0%	-	0%	-
Other Heart Surgery excluding CABS	1%	1	0%	-
Total Permanent Disability	3%	2	0%	-
Others	24%	18	18%	12
Unknown		1		3

Table 5.2.1a – Cause of CI claims by percentage for age under 25 by gender

All CI	Males between 25-45 years old		Females between 25-45 years old	
Cause of CI	ASHK08	Claim #	ASHK08	Claim #
Cancer	60%	820	80%	2,212
Heart Attack	6%	87	0%	9
Stroke	6%	85	3%	70
Kidney Failure	3%	45	1%	29
Coronary Artery Bypass Surgery (CABS)	2%	35	0%	2
Other Heart Surgery excluding CABS	2%	27	1%	21
Total Permanent Disability	1%	7	0%	3
Others	19%	252	15%	418
Unknown		73		147

Table 5.2.1b – Cause of CI claims by percentage for age 25-45 by gender

All CI	Males over 45 years old		Females over 45 years old	
Cause of CI	ASHK08	Claim #	ASHK08	Claim #
Cancer	58%	744	79%	1,463
Heart Attack	8%	106	0%	8
Stroke	10%	127	6%	103
Kidney Failure	1%	18	1%	19
Coronary Artery Bypass Surgery (CABS)	6%	82	1%	16
Other Heart Surgery excluding CABS	2%	20	1%	17
Total Permanent Disability	1%	7	0%	3
Others	13%	171	8%	142
Unknown		69		90

Table 5.2.1c – Cause of CI claims by percentage for age over 45 by gender

The cause of claim for Critical Illness was not covered in the ASHK03 study. For both sexes and across all age groups, cancer is the major cause of claim. For males, the cardiovascular related claims (Heart Attack, Stroke, CABS) forms a larger proportion of claims compared to females. This trend is apparent particularly in the oldest age group (>45), where the total percentage exceeds 20% for males and is below 10% for females.

## 6. Lapse/Surrender Experience

### 6.1 Rates by Duration and Policy Type

The following tables calculate the implied rate of exit for the policies on a lives and amount basis by year and by policy type for duration 0 and duration 1+. The implied rate of exit is calculated by comparing the trend in exposures from year to year over the study period and then estimating the annual rate of exit that applied and assuming that half of exits occur evenly over the policy year and half at the end of the policy year.

Life Only	Duration 0		Duration 1		Duration 2+		Implied Rate of Exit			
	Lives Exposed	Amounts \$m Exposed	Lives Exposed	Amounts \$m Exposed	Lives Exposed	Amounts \$m Exposed	Lives Dur 0	Amounts Dur 0	Lives Dur 1+	Amounts Dur 1+
2002	482,017	192,061	416,283	150,661	2,416,845	815,047				
2003	488,125	192,681	422,910	169,070	2,546,616	881,951	14%	14%	10%	9%
2004	540,028	218,778	439,543	171,077	2,756,419	980,032	11%	13%	7%	7%
2005	407,679	162,346	497,788	199,921	2,998,099	1,082,157	8%	9%	6%	6%
2006	389,773	153,929	373,023	147,180	3,317,162	1,216,758	9%	10%	5%	5%
2002-2006	2,307,621	919,796	2,149,547	837,909	14,035,142	4,975,945	11%	12%	7%	7%

Table 6.1a – Implied rate of exit for life only policies by year and duration

Life + CI	Duration 0		Duration 1		Duration 2+		Implied Rate of Exit			
	Lives Exposed	Amounts \$m Exposed	Lives Exposed	Amounts \$m Exposed	Lives Exposed	Amounts \$m Exposed	Lives Dur 0	Amounts Dur 0	Lives Dur 1+	Amounts Dur 1+
2002	134,999	43,092	136,348	40,112	567,660	155,883				
2003	103,149	34,381	115,469	36,670	626,553	174,699	17%	17%	11%	11%
2004	99,878	33,919	89,435	29,803	674,394	192,319	15%	15%	9%	9%
2005	101,070	35,262	88,789	30,030	707,549	206,030	12%	13%	7%	7%
2006	111,350	40,446	90,726	31,747	747,696	221,879	11%	11%	6%	6%
2002-2006	550,445	187,101	520,767	168,363	3,323,851	950,810	14%	14%	8%	8%

Table 6.1b – Implied rate of exit for life plus accelerated CI policies by year and duration

## 7. Use of this Report

### 7.1 Considerations

As with previous studies, the data supporting this study has a number of deficiencies, and these should be taken into account when interpreting or using the result tables in this report.

General data issues include:

- The study is based on a large number of data points, and with such a volume of data from such a variety of sources, validity of all data cannot be ensured.
- Whilst data has been collected some months after the end of the exposure period, claim reporting and claim administration systems imply an element of under-reporting of the true number of claim events.
- The study only covers five years of exposure, and whilst it covers a large proportion of the policies in-force over this time, there remain a number of areas where data is relatively sparse.
- The study pools experience data from a number of companies and considerable variations in experience between companies have been observed.
- Even though the study sought to separate out the life component of critical illness policies, not all companies were able to supply data in this format, therefore some influence of acceleration benefits remains in the mortality data
- Duration in-force clearly influences the expected claim rate, however, this effect has only been investigated, and allowed for for durations 0 and 1.
- Critical illness cover does not provide a standard benefit like life cover, therefore the data is an amalgam of different benefits, but having said this, all have a common set of illnesses covered and this core is expected to constitute by far the majority of claims.

The definition of Hong Kong long term insurance business from the Insurance Companies Ordinance should be noted, as it is these policies that have been reported. The relevant parts of the ordinance read as follows:

Hong Kong long term insurance business means any direct business, being long term business, in relation to which the risk is underwritten in Hong Kong, that is to say-

- i. The policy is issued in Hong Kong;
- ii. The proposal form, application form or any other form of a similar nature is signed in Hong Kong;
- iii. The proposal form, application form or any other form of a similar nature is submitted or received in Hong Kong;
- iv. The proposal form, application form or any other form of a similar nature is accepted in Hong Kong; or
- v. The risk is accepted in Hong Kong

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## 8. Appendices

### Appendix 8.1: Data for policies with life only benefits

Life Only	Experience for Male Lives, Duration 2+					
	Age	Lives	Actual	Expected	Claim	A/E
	Last	Exposed	Claims	Claims	Rate	HKA01
0		-	-	-	-	1.00
1		-	-	-	-	0.26
2		37,761	8	6	0.21	0.16
3		50,027	6	7	0.12	0.15
4		58,807	1	8	0.02	0.13
5		66,489	4	8	0.06	0.12
6		72,698	12	8	0.17	0.11
7		79,219	5	8	0.06	0.10
8		83,856	4	8	0.05	0.10
9		86,019	4	8	0.05	0.10
10		84,992	12	9	0.14	0.10
11		81,887	8	9	0.10	0.11
12		79,350	9	10	0.11	0.13
13		77,359	9	12	0.12	0.15
14		73,609	7	14	0.10	0.18
15		70,517	9	16	0.13	0.22
16		67,714	11	18	0.16	0.27
17		64,370	15	21	0.23	0.33
18		61,023	15	24	0.25	0.40
19		60,031	11	29	0.18	0.48
20		62,655	22	33	0.35	0.53
21		66,053	22	36	0.33	0.55
22		70,598	29	38	0.41	0.54
23		75,415	14	39	0.19	0.52
24		81,694	33	40	0.40	0.49
25		89,006	23	42	0.26	0.48
26		96,775	53	45	0.55	0.46
27		105,099	38	48	0.36	0.46
28		112,949	52	52	0.46	0.46
29		121,361	26	57	0.21	0.47
30		129,332	57	63	0.44	0.49
31		137,412	59	71	0.43	0.52
32		143,821	73	79	0.51	0.55
33		150,723	63	89	0.42	0.59
34		158,680	77	101	0.49	0.64
35		167,685	88	117	0.52	0.70
36		179,322	99	137	0.55	0.76
37		193,587	92	162	0.48	0.84
38		209,951	138	194	0.66	0.92
39		226,047	161	230	0.71	1.02
40		238,845	197	267	0.82	1.12
41		247,714	233	305	0.94	1.23
42		250,384	235	339	0.94	1.35
43		247,077	261	367	1.06	1.48
44		240,127	290	390	1.21	1.63
45		232,011	321	412	1.38	1.78
46		220,032	324	427	1.47	1.94
47		206,919	353	439	1.71	2.12
48		189,744	340	441	1.79	2.32
49		173,257	332	441	1.92	2.55

Life Only	Experience for Male Lives, Duration 2+					
	Age	Lives	Actual	Expected	Claim	A/E
	Last	Exposed	Claims	Claims	Rate	HKA01
50		159,679	346	448	2.17	2.80
51		147,017	379	454	2.58	3.09
52		135,244	372	462	2.75	3.42
53		122,969	376	465	3.06	3.78
54		110,610	344	464	3.11	4.19
55		96,247	392	448	4.07	4.66
56		80,716	316	417	3.91	5.17
57		66,306	319	381	4.81	5.75
58		53,337	263	340	4.93	6.38
59		41,602	237	295	5.70	7.09
60		33,455	229	263	6.85	7.86
61		29,442	230	256	7.81	8.71
62		25,900	191	250	7.37	9.64
63		23,001	180	245	7.83	10.65
64		20,964	220	246	10.49	11.75
65		18,815	177	244	9.41	12.95
66		17,047	172	243	10.09	14.24
67		15,150	181	237	11.95	15.67
68		13,350	174	232	13.03	17.34
69		11,729	185	227	15.77	19.34
70		10,250	194	223	18.93	21.75
71		9,153	181	223	19.78	24.40
72		8,137	169	223	20.77	27.38
73		6,867	157	211	22.86	30.71
74		5,776	156	199	27.01	34.46
75		4,808	138	186	28.70	38.66
76		3,899	143	169	36.67	43.37
77		3,137	122	153	38.89	48.65
78		2,367	91	129	38.44	54.58
79		1,764	85	108	48.19	61.23
80		1,281	62	88	48.39	68.70
81		936	48	72	51.29	77.07
82		650	32	56	49.26	86.46
83		457	24	44	52.50	97.00
84		313	21	34	67.02	108.82
85		230	34	28	148.12	122.09
86		138	9	19	65.41	136.96
87		88	8	14	90.45	153.66
88		53	2	9	37.64	172.38
89		31	3	6	97.87	193.39
90		22	2	5	90.06	216.96
91		15	2	4	134.57	243.40
92		14	-	4	-	273.07
93		14	1	4	71.38	306.35
94		12	1	4	80.67	343.68
95		9	4	3	444.44	385.57
96		6	2	3	342.60	432.56
97		2	1	1	540.11	485.28
98		-	-	-	-	544.42
99		-	-	-	-	610.77
100		-	-	-	-	685.21

## Appendix 8.1: Data for policies with only life benefits

Life Only	Experience for Female Lives, Duration 2+					
	Age Last	Lives Exposed	Actual Claims	Expected Claims	Claim Rate	A/E
	0	-	-	-	1.00	0%
	1	-	-	-	0.33	0%
	2	33,919	3	3	0.09	95%
	3	44,290	1	4	0.02	25%
	4	52,092	5	5	0.10	109%
	5	58,599	3	5	0.05	60%
	6	63,668	1	5	0.02	18%
	7	68,914	4	6	0.06	68%
	8	72,449	3	6	0.04	47%
	9	74,432	5	7	0.07	73%
	10	73,514	6	7	0.08	83%
	11	70,500	3	8	0.04	39%
	12	68,456	10	8	0.15	121%
	13	66,300	9	9	0.14	101%
	14	62,535	5	9	0.08	55%
	15	59,298	3	9	0.05	32%
	16	56,519	5	9	0.09	54%
	17	52,954	8	9	0.15	88%
	18	49,515	6	9	0.12	68%
	19	48,801	5	9	0.10	55%
	20	51,518	12	10	0.23	122%
	21	56,144	10	11	0.18	90%
	22	63,230	8	13	0.13	62%
	23	71,873	13	15	0.18	86%
	24	82,623	14	18	0.17	78%
	25	95,000	18	22	0.19	83%
	26	106,801	19	25	0.18	75%
	27	119,286	21	30	0.18	70%
	28	130,354	37	34	0.28	108%
	29	141,841	37	40	0.26	93%
	30	152,984	33	46	0.22	72%
	31	162,479	46	52	0.28	88%
	32	169,184	62	59	0.37	106%
	33	174,696	55	65	0.31	84%
	34	178,854	69	73	0.39	95%
	35	183,779	71	81	0.39	87%
	36	190,758	66	92	0.35	72%
	37	198,727	90	105	0.45	86%
	38	206,218	101	119	0.49	85%
	39	212,176	91	134	0.43	68%
	40	216,165	134	150	0.62	90%
	41	215,359	134	163	0.62	82%
	42	209,304	129	174	0.62	74%
	43	197,662	139	179	0.70	77%
	44	185,895	152	184	0.82	82%
	45	175,305	145	190	0.83	76%
	46	164,257	174	194	1.06	90%
	47	153,961	189	198	1.23	95%
	48	141,441	166	198	1.17	84%
	49	130,215	151	198	1.16	76%

Life Only	Experience for Female Lives, Duration 2+					
	Age Last	Lives Exposed	Actual Claims	Expected Claims	Claim Rate	A/E
	50	119,509	137	198	1.15	69%
	51	110,765	187	199	1.69	94%
	52	101,488	188	199	1.85	95%
	53	92,170	176	196	1.91	90%
	54	83,676	154	193	1.84	80%
	55	74,417	143	186	1.92	77%
	56	65,010	138	176	2.12	78%
	57	55,211	123	162	2.23	76%
	58	44,087	121	141	2.74	86%
	59	34,297	110	118	3.21	93%
	60	27,530	60	103	2.18	58%
	61	24,333	102	100	4.19	102%
	62	21,721	83	99	3.82	84%
	63	19,565	97	99	4.96	98%
	64	18,720	91	107	4.86	85%
	65	17,802	83	115	4.66	72%
	66	16,911	101	125	5.97	81%
	67	16,005	95	135	5.94	70%
	68	14,789	95	144	6.42	66%
	69	13,671	118	153	8.63	77%
	70	12,614	135	163	10.70	83%
	71	11,852	128	173	10.80	74%
	72	10,812	115	178	10.64	65%
	73	9,519	127	177	13.34	72%
	74	8,355	115	176	13.76	65%
	75	7,291	117	173	16.05	67%
	76	6,137	102	165	16.62	62%
	77	5,063	100	154	19.75	65%
	78	3,942	70	135	17.76	52%
	79	2,985	73	116	24.46	63%
	80	2,203	65	96	29.50	67%
	81	1,596	66	79	41.36	84%
	82	1,124	38	63	33.81	61%
	83	771	29	49	37.64	60%
	84	509	27	36	53.09	74%
	85	328	18	26	54.95	68%
	86	203	17	18	83.67	92%
	87	123	17	13	137.94	134%
	88	67	4	8	59.50	51%
	89	46	1	6	21.96	17%
	90	29	6	4	209.21	141%
	91	17	2	3	119.84	72%
	92	12	3	2	257.04	136%
	93	5	-	1	-	0%
	94	3	-	1	-	0%
	95	3	1	1	319.76	117%
	96	1	-	-	-	0%
	97	-	-	-	-	0%
	98	-	-	-	-	0%
	99	-	-	-	-	0%
	100	-	-	-	-	0%

## Appendix 8.2: Data for policies with life and accelerated critical illness benefits

Life + CI							Life + CI						
Experience for Male Lives, Duration 2+							Experience for Male Lives, Duration 2+						
Age	Lives	Life	CI	Life	CI	Claim	Age	Lives	Life	CI	Life	CI	Claim
Last	Exposed	Claims	Claims	Rate	Rate	Rate	Last	Exposed	Claims	Claims	Rate	Rate	Rate
0	-	-	-	-	-	-	50	22,051	39	67	1.77	3.04	4.81
1	-	-	-	-	-	-	51	19,290	29	65	1.50	3.37	4.87
2	4,622	-	1	-	0.22	0.22	52	16,835	23	52	1.37	3.09	4.45
3	5,390	-	-	-	-	-	53	14,536	16	54	1.10	3.71	4.82
4	5,884	-	3	-	0.51	0.51	54	12,417	21	63	1.69	5.07	6.77
5	6,212	-	2	-	0.32	0.32	55	10,331	20	56	1.94	5.42	7.36
6	6,288	-	2	-	0.32	0.32	56	8,290	22	42	2.65	5.07	7.72
7	6,324	-	-	-	-	-	57	6,418	15	35	2.34	5.45	7.79
8	6,207	1	-	0.16	-	0.16	58	4,710	15	29	3.18	6.16	9.34
9	5,972	-	-	-	-	-	59	3,251	16	28	4.92	8.61	13.54
10	5,545	-	-	-	-	-	60	2,340	7	20	2.99	8.55	11.54
11	5,042	-	-	-	-	-	61	1,813	7	11	3.86	6.07	9.93
12	4,824	-	1	-	0.21	0.21	62	1,326	2	11	1.51	8.29	9.80
13	4,704	-	-	-	-	-	63	975	5	7	5.13	7.18	12.30
14	4,583	3	-	0.65	-	0.65	64	694	8	7	11.52	10.08	21.60
15	4,608	-	1	-	0.22	0.22	65	454	-	7	-	15.43	15.43
16	4,713	-	-	-	-	-	66	324	4	5	12.36	15.45	27.81
17	4,712	-	-	-	-	-	67	228	3	1	13.14	4.38	17.52
18	4,910	1	2	0.20	0.41	0.61	68	150	2	2	13.31	13.31	26.62
19	5,518	2	2	0.36	0.36	0.72	69	96	1	2	10.39	20.78	31.17
20	7,521	6	-	0.80	-	0.80	70	47	2	2	42.19	42.19	84.39
21	9,955	4	2	0.40	0.20	0.60	71	27	3	-	110.32	-	110.32
22	13,088	4	-	0.31	-	0.31	72	17	-	1	-	58.77	58.77
23	16,536	-	3	-	0.18	0.18	73	10	-	-	-	-	-
24	21,128	8	2	0.38	0.09	0.47	74	4	1	-	241.61	-	241.61
25	26,317	5	8	0.19	0.30	0.49	75	0	-	-	-	-	-
26	31,495	13	6	0.41	0.19	0.60	76	-	-	-	-	-	-
27	36,743	17	15	0.46	0.41	0.87	77	-	-	-	-	-	-
28	41,636	17	16	0.41	0.38	0.79	78	-	-	-	-	-	-
29	45,937	9	27	0.20	0.59	0.78	79	-	-	-	-	-	-
30	49,298	8	21	0.16	0.43	0.59	80	-	-	-	-	-	-
31	52,216	22	22	0.42	0.42	0.84							
32	53,804	12	27	0.22	0.50	0.72							
33	54,615	8	30	0.15	0.55	0.70							
34	55,280	18	22	0.33	0.40	0.72							
35	55,723	17	42	0.31	0.75	1.06							
36	56,685	19	42	0.34	0.74	1.08							
37	58,123	32	58	0.55	1.00	1.55							
38	59,473	32	68	0.54	1.14	1.68							
39	60,043	28	60	0.47	1.00	1.47							
40	59,966	23	72	0.38	1.20	1.58							
41	58,421	33	73	0.56	1.25	1.81							
42	55,384	35	79	0.63	1.43	2.06							
43	51,403	40	84	0.78	1.63	2.41							
44	47,162	39	85	0.83	1.80	2.63							
45	42,696	21	91	0.49	2.13	2.62							
46	38,009	29	87	0.76	2.29	3.05							
47	33,593	31	75	0.92	2.23	3.16							
48	29,290	29	83	0.99	2.83	3.82							
49	25,396	27	81	1.06	3.19	4.25							



## Appendix 8.2: Data for policies for life and accelerated critical illness benefits

Life + CI		Experience for Female Lives, Duration 2+					
Age	Lives	Life	CI	Life	CI	Claim	
Last	Exposed	Claims	Claims	Rate	Rate	Rate	
0	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-
2	4,388	-	-	-	-	-	-
3	5,180	-	-	-	-	-	-
4	5,578	-	-	-	-	-	-
5	5,920	-	-	-	-	-	-
6	5,972	-	-	-	-	-	-
7	5,936	-	2	-	0.34	0.34	-
8	5,761	-	1	-	0.17	0.17	-
9	5,422	-	-	-	-	-	-
10	4,935	-	-	-	-	-	-
11	4,441	-	-	-	-	-	-
12	4,273	-	-	-	-	-	-
13	4,214	-	-	-	-	-	-
14	4,077	1	1	0.25	0.25	0.49	-
15	4,048	1	1	0.25	0.25	0.49	-
16	4,155	-	1	-	0.24	0.24	-
17	4,141	-	1	-	0.24	0.24	-
18	4,251	-	-	-	-	-	-
19	4,794	2	1	0.42	0.21	0.63	-
20	7,259	2	1	0.28	0.14	0.41	-
21	10,533	1	1	0.09	0.09	0.19	-
22	15,205	2	3	0.13	0.20	0.33	-
23	21,050	5	7	0.24	0.33	0.57	-
24	28,597	4	11	0.14	0.38	0.52	-
25	36,875	2	15	0.05	0.41	0.46	-
26	45,215	8	19	0.18	0.42	0.60	-
27	53,427	6	22	0.11	0.41	0.52	-
28	60,674	9	21	0.15	0.35	0.49	-
29	67,059	8	43	0.12	0.64	0.76	-
30	72,075	15	37	0.21	0.51	0.72	-
31	75,669	21	63	0.28	0.83	1.11	-
32	76,494	13	56	0.17	0.73	0.90	-
33	76,689	14	75	0.18	0.98	1.16	-
34	75,680	13	79	0.17	1.04	1.22	-
35	74,337	14	86	0.19	1.16	1.35	-
36	73,890	15	94	0.20	1.27	1.48	-
37	73,519	16	119	0.22	1.62	1.84	-
38	73,330	18	132	0.25	1.80	2.05	-
39	72,129	16	133	0.22	1.84	2.07	-
40	70,147	12	158	0.17	2.25	2.42	-
41	66,711	18	112	0.27	1.68	1.95	-
42	61,961	23	152	0.37	2.45	2.82	-
43	56,578	20	140	0.35	2.47	2.83	-
44	51,827	15	126	0.29	2.43	2.72	-
45	47,464	20	110	0.42	2.32	2.74	-
46	42,963	24	121	0.56	2.82	3.38	-
47	39,268	20	131	0.51	3.34	3.85	-
48	35,124	14	111	0.40	3.16	3.56	-
49	31,425	22	114	0.70	3.63	4.33	-

Life + CI		Experience for Female Lives, Duration 2+					
Age	Lives	Life	CI	Life	CI	Claim	
Last	Exposed	Claims	Claims	Rate	Rate	Rate	
50	28,108	23	107	0.82	3.81	4.63	-
51	25,115	33	100	1.31	3.98	5.30	-
52	22,390	14	78	0.63	3.48	4.11	-
53	19,763	21	81	1.06	4.10	5.16	-
54	17,325	12	71	0.69	4.10	4.79	-
55	14,687	12	60	0.82	4.09	4.90	-
56	12,028	15	53	1.25	4.41	5.65	-
57	9,485	10	37	1.05	3.90	4.96	-
58	7,156	10	30	1.40	4.19	5.59	-
59	4,930	12	17	2.43	3.45	5.88	-
60	3,472	2	13	0.58	3.74	4.32	-
61	2,689	1	18	0.37	6.69	7.07	-
62	2,043	7	8	3.43	3.91	7.34	-
63	1,488	6	13	4.03	8.74	12.77	-
64	1,044	1	8	0.96	7.66	8.62	-
65	664	2	6	3.01	9.04	12.05	-
66	461	2	-	4.34	-	4.34	-
67	296	2	4	6.76	13.52	20.28	-
68	181	2	-	11.06	-	11.06	-
69	105	-	2	-	19.04	19.04	-
70	57	1	-	17.63	-	17.63	-
71	34	-	-	-	-	-	-
72	21	-	-	-	-	-	-
73	8	-	-	-	-	-	-
74	2	-	-	-	-	-	-
75	2	-	-	-	-	-	-
76	2	-	-	-	-	-	-
77	2	-	-	-	-	-	-
78	2	-	-	-	-	-	-
79	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-

## Appendix 8.3: Data for all life benefits

All Life	Experience for Male Lives, Duration 2+					
Age Last	Lives Exposed	Actual Claims	Expected Claims	Claim Rate	HKA01	A/E Lives
0	-	-	-	-	1.00	0%
1	-	-	-	-	0.26	0%
2	42,383	8	7	0.19	0.16	117%
3	55,416	6	8	0.11	0.15	74%
4	64,689	1	9	0.02	0.13	12%
5	72,700	4	9	0.06	0.12	46%
6	78,984	12	9	0.15	0.11	138%
7	85,543	5	9	0.06	0.10	57%
8	90,063	5	9	0.06	0.10	57%
9	91,991	4	9	0.04	0.10	44%
10	90,537	12	9	0.13	0.10	129%
11	86,929	8	10	0.09	0.11	81%
12	84,174	9	11	0.11	0.13	82%
13	82,063	9	13	0.11	0.15	72%
14	78,192	10	14	0.13	0.18	69%
15	75,124	9	17	0.12	0.22	54%
16	72,427	11	20	0.15	0.27	56%
17	69,083	15	23	0.22	0.33	66%
18	65,933	16	26	0.24	0.40	61%
19	65,548	13	31	0.20	0.48	42%
20	70,181	28	37	0.40	0.53	76%
21	76,011	26	41	0.34	0.55	63%
22	83,688	33	45	0.39	0.54	73%
23	91,950	14	48	0.15	0.52	29%
24	102,824	41	51	0.40	0.49	81%
25	115,321	28	55	0.24	0.48	51%
26	128,274	66	60	0.51	0.46	111%
27	141,843	55	65	0.39	0.46	84%
28	154,585	69	72	0.45	0.46	96%
29	167,288	35	79	0.21	0.47	44%
30	178,628	65	88	0.36	0.49	74%
31	189,630	81	98	0.43	0.52	83%
32	197,617	85	108	0.43	0.55	78%
33	205,326	71	121	0.35	0.59	59%
34	213,958	95	137	0.44	0.64	69%
35	223,398	105	156	0.47	0.70	67%
36	236,002	118	180	0.50	0.76	66%
37	251,692	124	211	0.49	0.84	59%
38	269,405	170	249	0.63	0.92	68%
39	286,076	189	291	0.66	1.02	65%
40	298,790	220	334	0.74	1.12	66%
41	306,113	266	377	0.87	1.23	71%
42	305,749	270	413	0.88	1.35	65%
43	298,457	301	443	1.01	1.48	68%
44	287,265	329	467	1.15	1.63	70%
45	274,676	342	488	1.25	1.78	70%
46	258,012	353	501	1.37	1.94	70%
47	240,487	384	510	1.60	2.12	75%
48	219,004	369	509	1.68	2.32	73%
49	198,627	359	506	1.81	2.55	71%

All Life	Experience for Male Lives, Duration 2+					
Age Last	Lives Exposed	Actual Claims	Expected Claims	Claim Rate	HKA01	A/E Lives
50	181,721	385	509	2.12	2.80	76%
51	166,292	408	514	2.45	3.09	79%
52	152,069	395	519	2.60	3.42	76%
53	137,485	392	520	2.85	3.78	75%
54	123,009	365	516	2.97	4.19	71%
55	106,558	412	496	3.87	4.66	83%
56	88,995	338	460	3.80	5.17	73%
57	72,714	334	418	4.59	5.75	80%
58	58,035	278	370	4.79	6.38	75%
59	44,843	253	318	5.64	7.09	80%
60	35,791	236	281	6.59	7.86	84%
61	31,252	237	272	7.58	8.71	87%
62	27,220	193	262	7.09	9.64	74%
63	23,976	185	255	7.72	10.65	72%
64	21,656	228	255	10.53	11.75	90%
65	19,264	177	249	9.19	12.95	71%
66	17,372	176	247	10.13	14.24	71%
67	15,380	184	241	11.96	15.67	76%
68	13,500	176	234	13.04	17.34	75%
69	11,824	186	229	15.73	19.34	81%
70	10,297	196	224	19.03	21.75	88%
71	9,182	184	224	20.04	24.40	82%
72	8,153	169	223	20.73	27.38	76%
73	6,877	157	211	22.83	30.71	74%
74	5,781	157	199	27.16	34.46	79%
75	4,808	138	186	28.70	38.66	74%
76	3,899	143	169	36.67	43.37	85%
77	3,137	122	153	38.89	48.65	80%
78	2,367	91	129	38.44	54.58	70%
79	1,764	85	108	48.19	61.23	79%
80	1,281	62	88	48.39	68.70	70%
81	936	48	72	51.29	77.07	67%
82	650	32	56	49.26	86.46	57%
83	457	24	44	52.50	97.00	54%
84	313	21	34	67.02	108.82	62%
85	230	34	28	148.12	122.09	121%
86	138	9	19	65.41	136.96	48%
87	88	8	14	90.45	153.66	59%
88	53	2	9	37.64	172.38	22%
89	31	3	6	97.87	193.39	51%
90	22	2	5	90.06	216.96	42%
91	15	2	4	134.57	243.40	55%
92	14	-	4	-	273.07	0%
93	14	1	4	71.38	306.35	23%
94	12	1	4	80.67	343.68	23%
95	9	4	3	444.44	385.57	115%
96	6	2	3	342.60	432.56	79%
97	2	1	1	540.11	485.28	111%
98	-	-	-	-	544.42	0%
99	-	-	-	-	610.77	0%
100	-	-	-	-	685.21	0%

## Appendix 8.3: Data for all life benefits

All Life	Experience for Female Lives, Duration 2+					
Age Last	Lives Exposed	Actual Claims	Expected Claims	Claim Rate	HKA01	A/E Lives
0	-	-	-	-	1.00	0%
1	-	-	-	-	0.33	0%
2	38,307	3	4	0.08	0.09	84%
3	49,470	1	4	0.02	0.09	22%
4	57,671	5	5	0.09	0.09	99%
5	64,519	3	6	0.05	0.09	54%
6	69,640	1	6	0.01	0.09	17%
7	74,848	4	6	0.05	0.09	62%
8	78,209	3	7	0.04	0.09	44%
9	79,854	5	7	0.06	0.09	68%
10	78,449	6	8	0.08	0.10	77%
11	74,941	3	8	0.04	0.11	37%
12	72,729	10	9	0.14	0.12	114%
13	70,514	9	9	0.13	0.13	95%
14	66,611	6	10	0.09	0.15	62%
15	63,346	4	10	0.06	0.16	41%
16	60,673	5	10	0.08	0.16	50%
17	57,094	8	10	0.14	0.17	81%
18	53,766	6	10	0.11	0.18	62%
19	53,595	7	10	0.13	0.19	71%
20	58,777	14	11	0.24	0.19	125%
21	66,676	11	13	0.16	0.20	84%
22	78,434	10	16	0.13	0.20	63%
23	92,923	18	20	0.19	0.21	92%
24	111,215	18	24	0.16	0.22	74%
25	131,866	20	30	0.15	0.23	67%
26	152,010	27	36	0.18	0.24	75%
27	172,702	27	43	0.16	0.25	63%
28	191,022	46	50	0.24	0.26	91%
29	208,880	45	59	0.22	0.28	77%
30	225,049	48	67	0.21	0.30	71%
31	238,132	67	76	0.28	0.32	88%
32	245,660	75	85	0.31	0.35	88%
33	251,352	69	94	0.27	0.37	73%
34	254,503	82	103	0.32	0.41	79%
35	258,080	85	114	0.33	0.44	74%
36	264,610	81	128	0.31	0.48	63%
37	272,192	106	144	0.39	0.53	74%
38	279,490	119	161	0.43	0.58	74%
39	284,243	107	180	0.38	0.63	60%
40	286,239	146	198	0.51	0.69	74%
41	282,022	152	214	0.54	0.76	71%
42	271,198	152	225	0.56	0.83	68%
43	254,178	159	231	0.63	0.91	69%
44	237,663	167	236	0.70	0.99	71%
45	222,727	165	241	0.74	1.08	68%
46	207,173	198	245	0.96	1.18	81%
47	193,170	209	249	1.08	1.29	84%
48	176,515	180	247	1.02	1.40	73%
49	161,593	173	246	1.07	1.52	70%

All Life	Experience for Female Lives, Duration 2+					
Age Last	Lives Exposed	Actual Claims	Expected Claims	Claim Rate	HKA01	A/E Lives
50	147,575	160	245	1.08	1.66	65%
51	135,846	220	245	1.62	1.80	90%
52	123,846	202	242	1.63	1.96	83%
53	111,900	197	238	1.76	2.12	83%
54	100,972	166	233	1.64	2.31	71%
55	89,083	155	223	1.74	2.50	70%
56	77,018	153	209	1.99	2.71	73%
57	64,679	133	190	2.06	2.94	70%
58	51,235	131	163	2.56	3.19	80%
59	39,225	122	135	3.11	3.45	90%
60	30,996	62	116	2.00	3.75	53%
61	27,015	103	111	3.81	4.11	93%
62	23,763	90	108	3.79	4.54	83%
63	21,050	103	107	4.89	5.06	97%
64	19,761	92	113	4.66	5.69	82%
65	18,464	85	119	4.60	6.46	71%
66	17,373	103	128	5.93	7.37	80%
67	16,300	97	138	5.95	8.46	70%
68	14,971	97	146	6.48	9.73	67%
69	13,776	118	154	8.57	11.21	76%
70	12,672	136	164	10.73	12.92	83%
71	11,886	128	173	10.77	14.59	74%
72	10,833	115	179	10.62	16.49	64%
73	9,527	127	177	13.33	18.63	72%
74	8,357	115	176	13.76	21.04	65%
75	7,293	117	173	16.04	23.77	67%
76	6,139	102	165	16.61	26.86	62%
77	5,065	100	154	19.74	30.34	65%
78	3,943	70	135	17.75	34.28	52%
79	2,986	73	116	24.45	38.73	63%
80	2,203	65	96	29.50	43.75	67%
81	1,596	66	79	41.36	49.43	84%
82	1,124	38	63	33.81	55.84	61%
83	771	29	49	37.64	63.09	60%
84	509	27	36	53.09	71.27	74%
85	328	18	26	54.95	80.52	68%
86	203	17	18	83.67	90.97	92%
87	123	17	13	137.94	102.77	134%
88	67	4	8	59.50	116.11	51%
89	46	1	6	21.96	131.18	17%
90	29	6	4	209.21	148.20	141%
91	17	2	3	119.84	167.43	72%
92	12	3	2	257.04	189.15	136%
93	5	-	1	-	213.69	0%
94	3	-	1	-	241.42	0%
95	3	1	1	319.76	272.75	117%
96	1	-	-	-	308.14	0%
97	-	-	-	-	348.12	0%
98	-	-	-	-	393.29	0%
99	-	-	-	-	444.32	0%
100	-	-	-	-	501.97	0%

## Appendix 8.4: Data for all critical illness benefits

All CI	Experience for Male Lives, Duration 2+					
Age Last	Lives Exposed	Life Claims	CI Claims	Life Rate	CI Rate	Claim Rate
0	-	-	-	-	-	-
1	-	-	-	-	-	-
2	8,367	-	2	-	0.24	0.24
3	9,961	-	1	-	0.10	0.10
4	10,895	-	4	-	0.37	0.37
5	11,643	-	4	-	0.34	0.34
6	11,752	-	3	-	0.26	0.26
7	11,616	-	-	-	-	-
8	11,286	-	-	-	-	-
9	10,723	-	-	-	-	-
10	9,789	-	1	-	0.10	0.10
11	8,895	-	1	-	0.11	0.11
12	8,405	-	1	-	0.12	0.12
13	8,114	-	-	-	-	-
14	7,820	-	1	-	0.13	0.13
15	7,678	-	1	-	0.13	0.13
16	7,623	-	-	-	-	-
17	7,483	-	1	-	0.13	0.13
18	7,452	-	3	-	0.40	0.40
19	7,984	-	2	-	0.25	0.25
20	10,202	-	1	-	0.10	0.10
21	12,905	-	5	-	0.39	0.39
22	16,439	-	2	-	0.12	0.12
23	20,475	-	5	-	0.24	0.24
24	26,006	-	5	-	0.19	0.19
25	32,264	-	9	-	0.28	0.28
26	38,553	-	9	-	0.23	0.23
27	44,802	-	16	-	0.36	0.36
28	50,506	-	21	-	0.42	0.42
29	55,475	-	34	-	0.61	0.61
30	59,435	-	24	-	0.40	0.40
31	62,966	-	29	-	0.46	0.46
32	64,955	-	36	-	0.55	0.55
33	66,070	-	40	-	0.61	0.61
34	66,973	-	34	-	0.51	0.51
35	67,697	-	52	-	0.77	0.77
36	68,853	-	46	-	0.67	0.67
37	70,586	-	75	-	1.06	1.06
38	72,488	-	84	-	1.16	1.16
39	73,351	-	79	-	1.08	1.08
40	73,287	-	86	-	1.17	1.17
41	71,381	-	92	-	1.29	1.29
42	67,835	-	95	-	1.40	1.40
43	63,005	-	104	-	1.65	1.65
44	57,778	-	119	-	2.06	2.06
45	52,327	-	108	-	2.06	2.06
46	46,691	-	107	-	2.29	2.29
47	41,259	-	92	-	2.23	2.23
48	35,816	-	98	-	2.74	2.74
49	31,006	-	92	-	2.97	2.97

All CI	Experience for Male Lives, Duration 2+					
Age Last	Lives Exposed	Life Claims	CI Claims	Life Rate	CI Rate	Claim Rate
50	26,926	-	85	-	3.16	3.16
51	23,495	-	81	-	3.45	3.45
52	20,475	-	69	-	3.37	3.37
53	17,659	-	64	-	3.62	3.62
54	15,038	-	71	-	4.72	4.72
55	12,488	-	68	-	5.45	5.45
56	10,032	-	50	-	4.98	4.98
57	7,766	-	47	-	6.05	6.05
58	5,709	-	35	-	6.13	6.13
59	3,958	-	31	-	7.83	7.83
60	2,858	-	23	-	8.05	8.05
61	2,226	-	14	-	6.29	6.29
62	1,643	-	16	-	9.74	9.74
63	1,195	-	10	-	8.37	8.37
64	844	-	9	-	10.67	10.67
65	545	-	7	-	12.83	12.83
66	378	-	6	-	15.86	15.86
67	255	-	1	-	3.92	3.92
68	160	-	2	-	12.47	12.47
69	101	-	2	-	19.85	19.85
70	49	-	2	-	40.84	40.84
71	27	-	-	-	-	-
72	17	-	1	-	58.77	58.77
73	10	-	-	-	-	-
74	4	-	-	-	-	-
75	-	-	-	-	-	-
76	-	-	-	-	-	-
77	-	-	-	-	-	-
78	-	-	-	-	-	-
79	-	-	-	-	-	-
80	-	-	-	-	-	-

## Appendix 8.4: Data for all critical illness benefits

All CI	Experience for Female Lives, Duration 2+					
Age Last	Lives Exposed	Life Claims	CI Claims	Life Rate	CI Rate	Claim Rate
0	-	-	-	-	-	-
1	-	-	-	-	-	-
2	7,841	-	1	-	0.13	0.13
3	9,306	-	-	-	-	-
4	10,062	-	-	-	-	-
5	10,603	-	1	-	0.09	0.09
6	10,544	-	-	-	-	-
7	10,343	-	2	-	0.19	0.19
8	10,086	-	1	-	0.10	0.10
9	9,520	-	1	-	0.11	0.11
10	8,615	-	-	-	-	-
11	7,790	-	-	-	-	-
12	7,383	-	1	-	0.14	0.14
13	7,100	-	-	-	-	-
14	6,808	-	1	-	0.15	0.15
15	6,648	-	1	-	0.15	0.15
16	6,612	-	2	-	0.30	0.30
17	6,432	-	1	-	0.16	0.16
18	6,363	-	-	-	-	-
19	6,922	-	1	-	0.14	0.14
20	9,862	-	1	-	0.10	0.10
21	13,841	-	3	-	0.22	0.22
22	19,642	-	4	-	0.20	0.20
23	27,003	-	9	-	0.33	0.33
24	36,379	-	13	-	0.36	0.36
25	46,888	-	22	-	0.47	0.47
26	57,313	-	26	-	0.45	0.45
27	67,366	-	33	-	0.49	0.49
28	76,022	-	40	-	0.53	0.53
29	83,648	-	55	-	0.66	0.66
30	89,773	-	51	-	0.57	0.57
31	94,097	-	80	-	0.85	0.85
32	95,092	-	77	-	0.81	0.81
33	95,244	-	91	-	0.96	0.96
34	94,085	-	107	-	1.14	1.14
35	92,456	-	108	-	1.17	1.17
36	92,083	-	119	-	1.29	1.29
37	91,719	-	148	-	1.61	1.61
38	91,585	-	178	-	1.94	1.94
39	90,184	-	184	-	2.04	2.04
40	87,953	-	201	-	2.29	2.29
41	83,650	-	145	-	1.73	1.73
42	77,775	-	197	-	2.53	2.53
43	70,979	-	184	-	2.59	2.59
44	64,831	-	168	-	2.59	2.59
45	59,204	-	154	-	2.60	2.60
46	53,382	-	159	-	2.98	2.98
47	48,538	-	162	-	3.34	3.34
48	43,238	-	144	-	3.33	3.33
49	38,550	-	138	-	3.58	3.58

All CI	Experience for Female Lives, Duration 2+					
Age Last	Lives Exposed	Life Claims	CI Claims	Life Rate	CI Rate	Claim Rate
50	34,403	-	141	-	4.10	4.10
51	30,671	-	113	-	3.68	3.68
52	27,283	-	97	-	3.56	3.56
53	24,022	-	98	-	4.08	4.08
54	21,003	-	88	-	4.19	4.19
55	17,812	-	76	-	4.27	4.27
56	14,595	-	70	-	4.80	4.80
57	11,504	-	56	-	4.87	4.87
58	8,620	-	41	-	4.76	4.76
59	5,951	-	24	-	4.03	4.03
60	4,183	-	22	-	5.26	5.26
61	3,242	-	22	-	6.79	6.79
62	2,478	-	12	-	4.84	4.84
63	1,800	-	15	-	8.33	8.33
64	1,254	-	8	-	6.38	6.38
65	805	-	9	-	11.18	11.18
66	550	-	1	-	1.82	1.82
67	338	-	4	-	11.83	11.83
68	199	-	-	-	-	-
69	114	-	3	-	26.21	26.21
70	60	-	-	-	-	-
71	34	-	-	-	-	-
72	21	-	-	-	-	-
73	8	-	-	-	-	-
74	2	-	-	-	-	-
75	2	-	-	-	-	-
76	2	-	-	-	-	-
77	2	-	-	-	-	-
78	2	-	-	-	-	-
79	-	-	-	-	-	-
80	-	-	-	-	-	-

## Appendix 8.5: Participating Companies

Data for this study has been provided by the following companies:

- 1 American International Assurance Co Ltd
- 2 Assicurazioni Generali S.p.A.
- 3 Aviva Life Insurance Co Ltd
- 4 Blue Cross (Asia-Pacific) Insurance Ltd
- 5 BOC Group Life Assurance Co Ltd
- 6 CIGNA Worldwide Life Insurance Co Ltd
- 7 China Life Insurance (Overseas) Company Ltd
- 8 Dah Sing Life Assurance Co Ltd
- 9 Fortis Insurance Company (Asia) Ltd
- 10 Hang Seng Insurance Co Ltd
- 11 Hong Kong Life Insurance Ltd
- 12 HSBC Life (International) Ltd
- 13 ING Life Insurance Co (Bermuda) Ltd
- 14 Manulife (International) Ltd
- 15 MassMutual Asia Ltd
- 16 Metropolitan Life Insurance Company of Hong Kong Ltd
- 17 New York Life Insurance Worldwide Ltd
- 18 Principal Insurance Co (HK) Ltd
- 19 Prudential Assurance Co Ltd
- 20 Standard Life (Asia) Ltd
- 21 Sun Life Hong Kong Ltd
- 22 Transamerica Life Insurance Co
- 23 Zurich Life Insurance Company Limited