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CMIR **20** (2001) iii–iv

INTRODUCTION

The Executive Committee of the Continuous Mortality Investigation Bureau of the Faculty and Institute of Actuaries has pleasure in presenting this, the twentieth number of its reports.

This report was first published on the profession's website in August and September 2001 with the printed report being distributed some time afterwards. This has now become the preferred method of communication for C.M.I. Reports as papers can be made available to the profession as soon as they are ready, rather than having to wait until the entire volume is complete. The need for timely and accurate industry experience on longevity has increased greatly in recent years and the Bureau is keen to be the conduit for such information both nationally and internationally. The Bureau has plans to achieve this with the support of interested parties. These will need the cooperation of members in supplying information in a timely and accurate way. We intend to discuss these issues in the near future. Can I thank everyone who has helped to speed up production of the results to date.

The report contains a variety of papers, the first five covering a range of mortality related topics and the final two covering the 1995–98 income protection experience.

The first paper records results of the investigation into mortality according to cause of death over the quadrennia 1987–90 and 1991–94. This investigation was closed in 1995 so this will be the last report to be published by the Bureau on cause of death. The Executive Committee would like to place on record its thanks to the offices that provided the cause of death data over many years, not least for the considerable amount of time and resources it must have taken.

The next paper considers the mortality experience of smokers and non-smokers over the quadrennia 1991–94 and 1995–98 and sets out graduations of the experience by reference to the "92" Series standard tables. This is followed by a report on the mortality of impaired assured lives over the twelve-year period 1987–98.

The fourth paper presents the results of a pilot investigation into the mortality experience of pensioners of self-administered pension schemes, which followed a request from the Pensions Board of the Faculty and Institute of Actuaries to compare such experience with published standard tables. It is not known at this stage whether this will develop into an ongoing investigation.

A short paper then follows that provides some information on the variability of mortality experience between contributing offices. The Bureau is conscious at all times of the need to protect the confidentiality of member offices and so, as a rule, does not provide results on an individual office level. However, it is recognised that it may be helpful to give at least an indication of the differences in experience among the contributing offices.

The report is rounded off with two papers on the income protection (IP) experience of 1995–98. The first of these covers the sickness experience for individual IP policies while the second looks at group IP policies. The use of the description "income protection" for the underlying product brings us into line with the insurance industry where the previously used term "permanent health insurance" (PHI) has generally been superseded.

Since the publication of *C.M.I.R.* **19** the Bureau was saddened to learn of the death of Rodney Barnett. Rodney had been involved with the Bureau for more than forty-five years. In 1955 he became Superintending Actuary of the Mortality Committee, and in 1972 became the Secretary to the Executive Committee. On his retirement in 1990 Rodney left the organisational side of the Bureau and became a full member of the Executive Committee, remaining so until he died.

The actuarial profession is extremely indebted to Rodney. He was the driving force behind the day-to-day work of the Bureau, and undertook much research on its behalf. He will be greatly missed by his friends and colleagues at the Bureau.

The Bureau has also lost another "long server" following the retirement of John McCutcheon. John was a member of the Executive Committee for over twenty years and Chairman of the Mortality Sub-Committee for much of that time. The Bureau and the actuarial profession are vitally dependent on the work of the CMIB committees and John has played a very full part in this. I would like to thank him for his hard work and enthusiasm over the years, and wish him well for the future.

Finally it remains for me to thank all those involved with the work of the Bureau—the member offices that provide the data and financial support, the Secretariat for carrying out the processing and administrative work, and the members of the Executive Committee and Sub-Committees who give so much of their time to the service of the profession.

September 2001

Peter Nowell
Chairman, Executive Committee

CONTENTS

Introduction iii

The Mortality in 1987–90 and 1991–94 of Lives Assured Under Permanent (Whole Life and Endowment) Assurances, According to Cause of Death 1

Mini-graduations of the Mortality Experience of Smokers and Non-Smokers for Assured Lives 75

The Mortality of Impaired Assured Lives, 1987–98 91

A Report on a Pilot Investigation into the Mortality Experience of Pensioners of Self-Administered Pension Schemes 109

Inter-Office Comparisons 141

Sickness Experience 1995–98 for Individual Income Protection Policies 145

Sickness Experience 1995–98 for Group Income Protection Policies 261

Corrigenda 317

CMIR **20** (2001) 1–73

MORTALITY IN 1987–90 AND 1991–94 OF LIVES ASSURED UNDER PERMANENT (WHOLE LIFE AND ENDOWMENT) ASSURANCES, ACCORDING TO CAUSE OF DEATH

Introduction

The last report on the mortality of lives assured under permanent (whole life and endowment) assurances according to cause of death related to the years 1983–86 and appeared in *C.M.I.R.* **13,** 47. The present report relates to the following two quadrennia, 1987–90 and 1991–94.

This will also be the final report on the cause of death experience. During the later years of the investigation there had been a steady decline in the number of offices contributing data, and it was becoming increasingly apparent that many offices were experiencing difficulty in matching their cause of death returns to their main returns; cause of death returns require a copy death certificate, duly completed with additional policyholder information, to be provided for each death recorded in the main return. Without this matching it is virtually impossible to produce the kind of detailed analyses written up hitherto.

Furthermore, the investigation was, compared to others undertaken by the Bureau, expensive to run, both for the Bureau and for the offices who prepared the data. For these reasons, and following consultation with the contributing offices, the Executive Committee decided to close the investigation, with 1995 being the last year for which data was collected.

Cause-specific mortality rates

The cause-specific central rates of mortality were once again calculated for each of the years of experience by reference to the Home Populations and the distribution of deaths by cause in England and Wales from the publication *Mortality Statistics – Cause* (series DH2). These rates were applied to the exposed to risk for the year in question, adjusted to allow for the proportion of cases where the cause was unknown, either because the office was unable to produce copies of the death certificate, or because consular or foreign certificates were produced which did not show the cause of death. The product of the cause-specific rate and the adjusted exposed to risk gave the expected deaths by cause.

Causes were coded according to the *Ninth Revision* of the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* which was also used by the Office of Population Censuses and Surveys (now the Office for National Statistics) over the years in question.

The assured lives experience excludes industrial business, and probably does not include many members of social classes IV and V. Standardization Factors (SF) have been calculated by reference to the OPCS volume *Occupational Mortality: Decennial Supplement, Series DS, 1979–80 and 1982–83*, and these were published in *C.M.I.R.* **9,** 115; for ease of comparison they are repeated in Table 29 of this report. Two sets of factors are shown, one calculated by taking the ratio between the cause-specific mortality rate in social classes I, II and III (Non-Manual) combined, and the corresponding rate in all classes combined, and the other by taking a similar ratio including figures for social class III (Manual) in the numerator. The cause groups from the Occupational Mortality publication differed slightly in some cases from the groupings employed in these reports. The Standardization Factors were based on national figures for ages 20–64 (males) and 20–59 (females) as the social classification becomes blurred at higher ages.

The analysis

Previous reports on the cause of death analysis have presented results split by medical status. However from 1993, rather than being split by medical status, the data was collected split by smoker status. This means that it is not possible to provide results split by medical status for the 1991–94 experience. To enable comparison between quadrennia, we have therefore produced medical, non-medical *and* combined results for 1987–90, and, by necessity, only combined results for 1991–94.

The actual deaths by cause experienced by those offices making cause of death returns, together with the ratios 100A/E, are shown in Tables 1 to 5 (males, 1987–90), Tables 6 to 10 (females, 1987–90), Tables 15 to 19 (males, 1991–94) and Tables 20 to 24 (females, 1991–94). These tables also show, for each cause group, the SF applicable to social classes I, II, III (Non-Manual) and III (Manual) combined, as the 100A/E ratios should be compared with the SF rather than with 100. Readers who prefer to use the SF excluding social class III (Manual) should refer to Table 29. The distribution of assured lives by social class may vary from office to office, but the Bureau collects no information about this distribution.

Commentaries on the results shown in Tables 1 to 10 and Tables 15 to 24 appear in tabular form in Tables 11 (males, 1987–90), 12 (females, 1987–90), 25 (males, 1991–94) and 26 (females, 1991–94). The "high/low" results in these latter four tables are to some degree subjective. Broadly, the difference between 100A/E for the sub-group and 100A/E for all causes combined is deemed significant if it is more than $200 \div \sqrt{A}$, where A is the actual deaths for the sub-group. No comparison is made where the sub-group contains fewer than 10 deaths.

Tables 13 (males, 1987–90), 14 (females, 1987–90), 27 (males, 1991–94) and 28 (females, 1991–94) give an all age summary (separately for durations 0–4 and 5 and over) for each cause group, in each case with all medical and smoker statuses combined.

Summary of tables

Table	Quadrennium	Sex	Description
1	1987–90	Male	Deaths due to neoplasms
2	1987–90	Male	Deaths from diseases of the circulatory system
3	1987–90	Male	Deaths from diseases of the respiratory system
4	1987–90	Male	Deaths due to suicide, accident and violence
5	1987–90	Male	Deaths from miscellaneous causes
6	1987–90	Female	Deaths due to neoplasms
7	1987–90	Female	Deaths from diseases of the circulatory system
8	1987–90	Female	Deaths from diseases of the respiratory system
9	1987–90	Female	Deaths due to suicide, accident and violence
10	1987–90	Female	Deaths from miscellaneous causes
11	1987–90	Male	Tabular commentary of Tables 1 to 5
12	1987–90	Female	Tabular commentary of Tables 6 to 10
13	1987–90	Male	Summary of 100A/Es by cause
14	1987–90	Female	Summary of 100A/Es by cause
15	1991–94	Male	Deaths due to neoplasms
16	1991–94	Male	Deaths from diseases of the circulatory system
17	1991–94	Male	Deaths from diseases of the respiratory system
18	1991–94	Male	Deaths due to suicide, accident and violence
19	1991–94	Male	Deaths from miscellaneous causes
20	1991–94	Female	Deaths due to neoplasms
21	1991–94	Female	Deaths from diseases of the circulatory system
22	1991–94	Female	Deaths from diseases of the respiratory system
23	1991–94	Female	Deaths due to suicide, accident and violence
24	1991–94	Female	Deaths from miscellaneous causes
25	1991–94	Male	Tabular commentary of Tables 15 to 19
26	1991–94	Female	Tabular commentary of Tables 20 to 24
27	1991–94	Male	Summary of 100A/Es by cause
28	1991–94	Female	Summary of 100A/Es by cause
29			Standardization factors

Table 1. Permanent assurances, males, cause of death experience 1987–90: actual deaths due to neoplasms, and comparison with deaths expected from these causes according to national male mortality.

		150–159 (SF 97) Malignant neoplasms of digestive system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	13	46	84	45	97	45
1–2	All ages	48	76	289	75	337	75
3–4	All ages	63	72	352	73	415	73
5 and over	–44	35	88	258	71	293	73
	45–59	502	84	2,381	77	2,883	78
	60–74	737	77	1,932	76	2,669	76
	75–	476	79	296	79	772	79
	All ages	1,750	80	4,867	76	6,617	77

		160–165 (SF 91) Malignant neoplasms of respiratory system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	8	23	66	32	74	31
1–2	All ages	45	58	231	54	276	55
3–4	All ages	47	43	333	61	380	58
5 and over	–44	18	61	135	52	153	53
	45–59	282	44	1,523	47	1,805	46
	60–74	602	47	1,870	55	2,472	53
	75–	399	62	260	63	659	62
	All ages	1,301	50	3,788	52	5,089	51

See notes at the end of the table.

Table 1. (continued)

		170–175 (SF 105) Malignant neoplasms of bone, connective tissue and skin					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(2)	6	26	6	24
1–2	All ages	1	24	27	61	28	58
3–4	All ages	1	21	44	92	45	85
5 and over	–44	11	95	120	102	131	101
	45–59	46	89	269	98	315	96
	60–74	60	141	129	109	189	117
	75–	29	112	11	72	40	97
	All ages	146	111	529	100	675	102

		179–189 (SF 101) Malignant neoplasms of genito-urinary organs					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	8	18	27	19	24
1–2	All ages	20	68	79	59	99	61
3–4	All ages	22	52	110	66	132	63
5 and over	–44	10	95	67	65	77	68
	45–59	136	84	648	79	784	80
	60–74	353	84	816	80	1,169	81
	75–	466	95	259	88	725	93
	All ages	965	89	1,790	80	2,755	83

See notes at the end of the table.

Table 1. (continued)

		190–192 (SF 103) Malignant neoplasms of nervous system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	58	11	32	13	35
1–2	All ages	7	110	58	84	65	86
3–4	All ages	8	103	98	125	106	123
5 and over	–44	27	163	190	119	217	123
	45–59	122	124	546	104	668	107
	60–74	95	120	287	122	382	122
	75–	21	189	18	227	39	205
	All ages	265	129	1,041	112	1,306	115

		140–149 and 193–194 (SF 89) Malignant neoplasms of oral cavity, pharynx and endocrine glands					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	50	2	12	3	16
1–2	All ages	1	24	18	51	19	48
3–4	All ages	0	(5)	12	28	12	25
5 and over	–44	5	91	24	47	29	51
	45–59	32	54	121	39	153	41
	60–74	32	58	80	51	112	53
	75–	26	113	8	57	34	92
	All ages	95	66	233	43	328	48

See notes at the end of the table.

Table 1. (continued)

200–208 (SF 101)
Neoplasms of lymphatic and haematopoietic tissue

Duration	Age group	Medical A	Medical 100A/E	Non-medical A	Non-medical 100A/E	Combined A	Combined 100A/E
0	All ages	1	13	20	30	21	29
1–2	All ages	9	59	69	53	78	54
3–4	All ages	21	106	121	82	142	85
5 and over	–44	27	107	237	92	264	93
	45–59	147	88	793	90	940	90
	60–74	198	102	467	90	665	94
	75–	129	105	77	100	206	103
	All ages	501	99	1,574	91	2,075	93

140–239 (SF 95)
All neoplasms (including ill-defined and unspecified sites not included in the sub-groups)

Duration	Age group	Medical A	Medical 100A/E	Non-medical A	Non-medical 100A/E	Combined A	Combined 100A/E
0	All ages	27	28	226	35	253	34
1–2	All ages	138	63	837	63	975	63
3–4	All ages	177	59	1,150	71	1,327	69
5 and over	–44	142	95	1,106	78	1,248	79
	45–59	1,336	70	6,728	68	8,064	68
	60–74	2,253	69	6,043	70	8,296	70
	75–	1,676	79	1,023	77	2,699	78
	All ages	5,407	73	14,900	70	20,307	71

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 15.

Table 2. Permanent assurances, males, cause of death experience 1987–90: actual deaths from diseases of the circulatory system, and comparison with deaths expected from these causes according to national male mortality.

		410 (SF 98) Acute myocardial infarction					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	28	42	216	50	244	49
1–2	All ages	71	47	499	56	570	54
3–4	All ages	113	53	643	57	756	56
5 and over	–44	55	61	427	53	482	54
	45–59	844	59	4,582	63	5,426	62
	60–74	1,462	65	4,093	69	5,555	68
	75–	1,341	86	745	77	2,086	82
	All ages	3,702	69	9,847	65	13,549	66

		411–414 (SF 96) Other forms of ischaemic heart disease					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	15	41	86	37	101	37
1–2	All ages	39	47	209	43	248	43
3–4	All ages	49	42	236	38	285	39
5 and over	–44	28	54	202	43	230	44
	45–59	315	41	1,923	49	2,238	47
	60–74	630	52	1,714	54	2,344	53
	75–	729	72	388	64	1,117	69
	All ages	1,702	56	4,227	51	5,929	53

See notes at the end of the table.

Table 2. (continued)

		401–405 (SF 87) Hypertensive disease not classified elsewhere					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(2)	7	60	7	52
1–2	All ages	1	24	4	17	5	18
3–4	All ages	4	67	11	37	15	42
5 and over	–44	1	31	14	48	15	47
	45–59	18	54	71	41	89	43
	60–74	27	43	104	64	131	58
	75–	36	75	31	106	67	87
	All ages	82	55	220	56	302	56

		430–438 (SF 91) Cerebrovascular disease					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	6	27	50	43	56	40
1–2	All ages	12	23	120	51	132	46
3–4	All ages	17	23	124	42	141	38
5 and over	–44	16	60	118	47	134	48
	45–59	146	51	788	53	934	53
	60–74	342	51	869	54	1,211	53
	75–	962	84	488	75	1,450	81
	All ages	1,466	69	2,263	57	3,729	61

See notes at the end of the table.

Table 2. (continued)

		390–398 and 420–429 (SF 90) Other diseases of the heart					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	14	24	46	25	42
1–2	All ages	4	25	65	62	69	57
3–4	All ages	10	46	68	55	78	54
5 and over	–44	15	87	90	53	105	56
	45–59	73	54	396	56	469	55
	60–74	120	61	332	65	452	64
	75–	330	98	144	80	474	92
	All ages	538	78	962	61	1,500	67

		415–417 and 440–459 (SF 95) Other circulatory diseases					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	21	24	50	26	45
1–2	All ages	8	35	54	55	62	51
3–4	All ages	15	46	66	54	81	52
5 and over	–44	11	131	37	46	48	54
	45–59	73	66	342	60	415	61
	60–74	204	63	507	65	711	64
	75–	375	91	197	83	572	88
	All ages	663	77	1,083	65	1,746	69

See notes at the end of the table.

Table 2. (continued)

		390–459 (SF 96) All diseases of the circulatory system (combined)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	52	36	407	46	459	44
1–2	All ages	135	41	951	51	1,086	50
3–4	All ages	208	45	1,148	50	1,356	49
5 and over	–44	126	64	888	49	1,014	51
	45–59	1,469	53	8,102	57	9,571	56
	60–74	2,785	59	7,619	62	10,404	61
	75–	3,773	84	1,993	75	5,766	80
	All ages	8,153	67	18,602	60	26,755	62

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 16.

Table 3. Permanent assurances, males, cause of death experience 1987–90: actual deaths from diseases of the respiratory system, and comparison with deaths expected from these causes according to national male mortality.

		480–486 (SF 72) Pneumonia					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(5)	9	31	9	26
1–2	All ages	2	15	27	45	29	40
3–4	All ages	5	28	31	44	36	41
5 and over	–44	9	83	49	45	58	48
	45–59	16	27	112	36	128	34
	60–74	40	31	106	36	146	35
	75–	325	58	159	58	484	58
	All ages	390	51	426	43	816	47

		490–496 (SF 81) Bronchitis					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	12	12	15	14	14
1–2	All ages	7	17	33	20	40	20
3–4	All ages	18	30	55	27	73	27
5 and over	–44	9	93	30	31	39	37
	45–59	39	23	208	25	247	24
	60–74	194	32	490	34	684	34
	75–	342	45	213	47	555	45
	All ages	584	38	941	33	1,525	35

See notes at the end of the table.

Table 3. (continued)

		460–478 and 500–519 (SF 81) Other respiratory diseases					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	44	7	51	8	50
1–2	All ages	3	56	16	59	19	58
3–4	All ages	4	53	18	54	22	54
5 and over	–44	1	32	12	38	13	37
	45–59	28	85	91	53	119	58
	60–74	35	50	107	62	142	59
	75–	88	81	45	73	133	78
	All ages	152	71	255	58	407	62

		460–486 and 490–519 (SF 78) All respiratory diseases (combined)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	3	12	28	23	31	21
1–2	All ages	12	20	76	30	88	28
3–4	All ages	27	31	104	34	131	33
5 and over	–44	19	80	91	38	110	42
	45–59	83	32	411	31	494	31
	60–74	269	34	703	37	972	36
	75–	755	52	417	53	1,172	53
	All ages	1,126	45	1,622	38	2,748	41

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 17.

Table 4. Permanent assurances, males, cause of death experience 1987–90: actual deaths due to suicide, accident and violence, and comparison with deaths expected from these causes according to national male mortality.

		E810–E825 (SF 91) Motor vehicle accidents					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	11	136	108	93	119	96
1–2	All ages	5	47	137	73	142	72
3–4	All ages	7	87	86	55	93	57
5 and over	–44	28	70	248	52	276	53
	45–59	43	51	248	54	291	53
	60–74	30	71	70	57	100	61
	75–	13	54	9	59	22	56
	All ages	114	60	575	53	689	54

		E950–E959 (SF 86) Suicide					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	6	70	43	38	49	40
1–2	All ages	6	50	90	45	96	45
3–4	All ages	9	86	99	52	108	54
5 and over	–44	41	66	285	42	326	44
	45–59	77	57	413	56	490	56
	60–74	41	75	73	45	114	52
	75–	13	72	3	26	16	55
	All ages	172	64	774	48	946	51

See notes at the end of the table.

Table 4. (continued)

		E800–E807, E826–E949 and E960–E999 (SF 71) All other accidental and violent causes					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	7	64	132	95	139	93
1–2	All ages	14	86	204	83	218	83
3–4	All ages	11	73	160	68	171	69
5 and over	–44	64	90	577	74	641	76
	45–59	125	71	687	71	812	71
	60–74	59	67	179	70	238	69
	75–	88	112	39	90	127	104
	All ages	336	81	1,482	73	1,818	74

		E800–E999 (SF 82) All accidental and violent causes					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	24	87	283	77	307	78
1–2	All ages	25	64	431	68	456	68
3–4	All ages	27	81	345	60	372	61
5 and over	–44	133	77	1,110	57	1,243	59
	45–59	245	62	1,348	62	1,593	62
	60–74	130	70	322	60	452	62
	75–	114	94	51	73	165	87
	All ages	622	71	2,381	60	3,453	62

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 18.

Table 5. Permanent assurances, males, cause of death experience 1987–90: actual deaths from miscellaneous causes, and from all causes combined, and comparison with deaths expected from these causes according to national male mortality.

		001–139 and 487 (SF 79) Infective and parasitic diseases, including influenza					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(2)	6	35	6	32
1–2	All ages	5	131	16	48	21	57
3–4	All ages	1	21	21	57	22	53
5 and over	–44	6	71	41	48	47	50
	45–59	18	49	107	55	125	54
	60–74	26	62	48	43	74	48
	75–	40	89	19	73	59	83
	All ages	90	68	215	52	305	56

		250 (SF 92) Diabetes mellitus					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	28	1	4	2	8
1–2	All ages	1	12	7	15	8	15
3–4	All ages	2	18	7	13	9	13
5 and over	–44	2	37	7	13	9	15
	45–59	18	29	86	27	104	27
	60–74	30	28	87	32	117	30
	75–	82	63	46	60	128	62
	All ages	132	43	226	31	358	35

See notes at the end of the table.

Table 5. (continued)

		291, 303, 305 and 571 (SF 93) Cirrhosis of the liver and/or alcoholism					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	24	17	40	18	39
1–2	All ages	2	27	28	33	30	32
3–4	All ages	4	47	25	26	29	28
5 and over	–44	9	36	74	31	83	31
	45–59	48	40	233	36	281	36
	60–74	64	83	105	46	169	56
	75–	20	128	14	133	34	130
	All ages	141	59	426	38	567	42

		520–579 excluding 571 (SF 82) Diseases of the digestive system other than cirrhosis					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	3	49	24	61	27	59
1–2	All ages	7	50	28	35	35	37
3–4	All ages	11	57	59	61	70	61
5 and over	–44	6	48	47	39	53	39
	45–59	39	38	216	40	255	40
	60–74	99	55	256	56	355	56
	75–	184	75	88	63	272	71
	All ages	328	61	607	48	935	52

See notes at the end of the table.

Table 5. (continued)

		580–589 (SF 88) Nephritis					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(1)	1	14	1	11
1–2	All ages	4	124	5	34	9	50
3–4	All ages	5	108	7	39	12	53
5 and over	–44	4	191	3	14	7	30
	45–59	3	19	42	50	45	45
	60–74	31	88	57	67	88	73
	75–	75	71	30	53	105	65
	All ages	113	71	132	53	245	60

		590–676 (SF 78) Other diseases of the genito-urinary system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	97	1	20	2	33
1–2	All ages	0	(3)	2	20	2	16
3–4	All ages	2	55	3	24	5	31
5 and over	–44	0	(1)	6	55	6	50
	45–59	7	70	24	46	31	50
	60–74	19	61	27	37	46	44
	75–	72	92	35	85	107	89
	All ages	98	81	92	52	190	64

See notes at the end of the table.

Table 5. (continued)

		240–389 and 680–779 excluding 250, 291, 303, 305 and 571 (SF 77) All other specified causes					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	7	51	24	21	31	24
1–2	All ages	8	29	49	23	57	23
3–4	All ages	16	45	81	35	97	37
5 and over	–44	19	38	202	38	221	38
	45–59	110	58	473	47	583	48
	60–74	185	66	444	65	629	65
	75–	486	86	226	73	712	81
	All ages	800	74	1,345	53	2,145	59

		All causes (SF 92) (including ill-defined causes not tabulated elsewhere)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	119	36	1,033	45	1,152	44
1–2	All ages	340	48	2,450	54	2,790	53
3–4	All ages	487	50	2,978	55	3,465	54
5 and over	–44	471	72	3,606	55	4,077	57
	45–59	3,407	58	17,884	59	21,291	59
	60–74	5,943	61	15,801	63	21,744	62
	75–	7,343	78	3,974	72	11,317	76
	All ages	17,164	67	41,265	61	58,429	63

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 19.

Table 6. Permanent assurances, females, cause of death experience 1987–90: actual deaths due to neoplasms, and comparison with deaths expected from these causes according to national female mortality.

		150–159 (SF 97) Malignant neoplasms of digestive system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	3	34	31	48	34	47
1–2	All ages	17	87	76	63	93	66
3–4	All ages	24	101	101	82	125	85
5 and over	–44	5	131	30	73	35	78
	45–59	32	117	194	85	226	88
	60–74	65	109	154	87	219	92
	75–	51	90	34	94	85	91
	All ages	153	104	412	85	565	89

		160–165 (SF 88) Malignant neoplasms of respiratory system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	16	21	42	22	39
1–2	All ages	14	104	61	65	75	70
3–4	All ages	13	81	67	68	80	70
5 and over	–44	2	83	18	72	20	73
	45–59	14	65	111	62	125	62
	60–74	35	66	115	69	150	68
	75–	24	103	21	128	45	114
	All ages	75	75	265	68	340	70

See notes at the end of the table.

Table 6. (continued)

		170–175 (SF 103) Malignant neoplasms of bone, connective tissue and skin					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(11)	18	16	18	14
1–2	All ages	11	55	102	48	113	49
3–4	All ages	11	49	121	59	132	58
5 and over	–44	22	166	141	98	163	104
	45–59	64	121	451	101	515	103
	60–74	35	69	133	79	168	77
	75–	28	96	8	43	36	75
	All ages	149	102	733	94	882	96

		179–189 (SF 94) Malignant neoplasms of genito-urinary organs					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	3	44	7	11	10	14
1–2	All ages	9	69	76	63	85	63
3–4	All ages	15	101	94	79	109	82
5 and over	–44	8	114	48	61	56	66
	45–59	25	88	213	89	238	89
	60–74	22	59	86	72	108	69
	75–	26	121	16	112	42	117
	All ages	81	86	363	80	444	81

See notes at the end of the table.

Table 6. (continued)

		190–192 (SF 105) Malignant neoplasms of nervous system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	89	2	15	3	21
1–2	All ages	3	157	16	69	19	76
3–4	All ages	2	98	19	88	21	89
5 and over	–44	3	184	25	135	28	139
	45–59	5	98	44	102	49	101
	60–74	9	167	22	123	31	133
	75–	1	85	2	(1)	3	146
	All ages	18	135	93	115	111	118

		140–149 and 193–194 (SF 93) Malignant neoplasms of oral cavity, pharynx and endocrine glands					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(1)	2	43	2	38
1–2	All ages	1	95	6	70	7	73
3–4	All ages	0	(1)	4	47	4	41
5 and over	–44	1	(0)	3	69	4	84
	45–59	1	49	8	47	9	47
	60–74	2	63	5	50	7	53
	75–	2	93	2	141	4	112
	All ages	6	77	18	55	24	59

See notes at the end of the table.

Table 6. (continued)

		200–208 (SF 100) Neoplasms of lymphatic and haematopoietic tissue					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	38	14	57	15	55
1–2	All ages	2	39	21	47	23	47
3–4	All ages	4	67	28	67	32	67
5 and over	–44	2	78	33	111	35	108
	45–59	1	12	65	89	66	81
	60–74	11	76	34	78	45	78
	75–	13	112	7	93	20	104
	All ages	27	72	139	90	166	87

		140–239 (SF 98) All neoplasms (including ill-defined and unspecified sites not included in the sub-groups)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	10	25	103	29	113	28
1–2	All ages	61	75	388	58	449	60
3–4	All ages	73	77	465	71	538	71
5 and over	–44	47	144	321	90	368	94
	45–59	150	97	1,147	88	1,297	89
	60–74	194	80	593	78	787	78
	75–	158	95	101	93	259	94
	All ages	549	92	2,162	85	2,711	87

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 20.

Table 7. Permanent assurances, females, cause of death experience 1987–90: actual deaths from diseases of the circulatory system, and comparison with deaths expected from these causes according to national female mortality.

		410 (SF 83) Acute myocardial infarction					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	14	30	40	32	36
1–2	All ages	6	17	56	39	62	34
3–4	All ages	20	45	85	56	105	53
5 and over	–44	1	51	10	49	11	49
	45–59	19	76	77	37	96	41
	60–74	53	50	161	55	214	54
	75–	91	65	59	67	150	65
	All ages	164	60	307	51	471	53

		411–414 (SF 81) Other forms of ischaemic heart disease					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	12	9	23	10	21
1–2	All ages	2	10	23	30	25	26
3–4	All ages	8	32	26	32	34	32
5 and over	–44	1	93	4	34	5	39
	45–59	8	61	41	37	49	40
	60–74	16	30	60	41	76	38
	75–	41	45	42	77	83	57
	All ages	66	42	147	45	213	44

See notes at the end of the table.

Table 7. (continued)

		401–405 (SF 82) Hypertensive disease not classified elsewhere					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(1)	1	25	1	21
1–2	All ages	0	(2)	0	(8)	0	(9)
3–4	All ages	1	48	4	51	5	50
5 and over	–44	0	(0)	0	(2)	0	(2)
	45–59	0	(1)	5	41	5	36
	60–74	3	62	9	71	12	68
	75–	2	30	5	122	7	65
	All ages	5	38	19	62	24	55

		430–438 (SF 88) Cerebrovascular disease					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	6	51	28	49	34	49
1–2	All ages	9	30	46	42	55	40
3–4	All ages	18	49	67	61	85	58
5 and over	–44	4	107	32	78	36	80
	45–59	14	80	72	49	86	52
	60–74	22	35	89	55	111	50
	75–	91	58	84	91	175	70
	All ages	131	54	277	63	408	60

See notes at the end of the table.

Table 7. (continued)

		390–398 and 420–429 (SF 81) Other diseases of the heart					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	57	8	42	10	44
1–2	All ages	2	23	11	31	13	29
3–4	All ages	4	38	17	47	21	45
5 and over	–44	0	(1)	2	15	2	14
	45–59	1	15	21	38	22	36
	60–74	10	56	18	37	28	42
	75–	22	46	24	91	46	62
	All ages	33	45	65	45	98	45

		415–417 and 440–459 (SF 85) Other circulatory diseases					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	33	10	64	11	59
1–2	All ages	1	13	14	48	15	41
3–4	All ages	1	11	14	48	15	39
5 and over	–44	1	(1)	6	62	7	66
	45–59	3	67	20	53	23	55
	60–74	6	34	26	56	32	50
	75–	28	73	17	76	45	75
	All ages	38	62	69	60	107	60

See notes at the end of the table.

Table 7. (continued)

		390–459 (SF 84) All diseases of the circulatory system (combined)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	12	29	86	41	98	39
1–2	All ages	20	19	150	37	170	34
3–4	All ages	52	40	213	51	265	49
5 and over	–44	7	78	54	55	61	57
	45–59	45	66	236	42	281	44
	60–74	110	42	363	51	473	49
	75–	275	57	231	80	506	66
	All ages	437	53	884	53	1,321	53

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 21.

Table 8. Permanent assurances, females, cause of death experience 1987–90: actual deaths from diseases of the respiratory system, and comparison with deaths expected from these causes according to national female mortality.

		480–486 (SF 68) Pneumonia					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	35	5	47	6	45
1–2	All ages	1	13	3	14	4	14
3–4	All ages	3	31	9	43	12	39
5 and over	–44	0	(1)	2	26	2	24
	45–59	4	149	11	49	15	59
	60–74	3	27	14	50	17	43
	75–	32	53	16	51	48	52
	All ages	39	52	43	48	82	50

		490–496 (SF 76) Bronchitis					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	47	2	7	4	12
1–2	All ages	1	10	9	17	10	16
3–4	All ages	4	33	11	20	15	22
5 and over	–44	1	90	5	39	6	43
	45–59	1	10	18	21	19	20
	60–74	10	30	38	38	48	36
	75–	16	56	10	54	26	55
	All ages	28	38	71	33	99	34

See notes at the end of the table.

Table 8. (continued)

		460–478 and 500–519 (SF 72) Other respiratory diseases					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(1)	2	42	2	37
1–2	All ages	0	(2)	5	58	5	49
3–4	All ages	1	47	3	36	4	38
5 and over	–44	0	(0)	4	97	4	89
	45–59	0	(1)	3	25	3	22
	60–74	3	76	13	113	16	104
	75–	1	12	7	143	8	60
	All ages	4	28	27	82	31	66

		460–486 and 490–519 (SF 72) All respiratory diseases (combined)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	3	38	9	21	12	23
1–2	All ages	2	10	17	21	19	19
3–4	All ages	8	34	23	27	31	29
5 and over	–44	1	47	11	45	12	45
	45–59	5	35	32	27	37	27
	60–74	16	33	65	47	81	43
	75–	49	50	33	60	82	54
	All ages	71	44	141	42	212	42

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = *Standardization Factor for Social* Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 22.

Table 9. Permanent assurances, females, cause of death experience 1987–90: actual deaths due to suicide, accident and violence, and comparison with deaths expected from these causes according to national female mortality.

		E810–E825 (SF 85) Motor vehicle accidents					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(1)	19	119	19	112
1–2	All ages	1	61	29	116	30	113
3–4	All ages	0	(2)	17	89	17	83
5 and over	–44	2	99	26	99	28	99
	45–59	2	77	24	108	26	105
	60–74	2	79	4	51	6	58
	75–	4	182	1	68	5	136
	All ages	10	107	55	95	65	97

		E950–E959 (SF 77) Suicide					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	84	10	58	11	59
1–2	All ages	1	56	21	72	22	71
3–4	All ages	0	(2)	17	70	17	65
5 and over	–44	3	109	29	86	32	87
	45–59	3	69	24	65	27	65
	60–74	0	(3)	3	34	3	26
	75–	1	(1)	0	(1)	1	62
	All ages	7	66	56	70	63	69

See notes at the end of the table.

Table 9. (continued)

		E800–E807, E826–E949 and E960–E999 (SF 66) All other accidental and violent causes					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	43	17	60	18	59
1–2	All ages	4	100	40	84	44	86
3–4	All ages	0	(4)	27	69	27	62
5 and over	–44	6	139	41	78	47	82
	45–59	5	80	37	69	42	70
	60–74	6	93	9	47	15	58
	75–	13	128	5	85	18	113
	All ages	30	110	92	70	122	77

		E800–E999 (SF 74) All accidental and violent causes					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	43	46	75	48	73
1–2	All ages	6	81	90	89	96	88
3–4	All ages	0	(7)	61	74	61	68
5 and over	–44	11	121	96	85	107	88
	45–59	10	76	85	75	95	75
	60–74	8	69	16	44	24	50
	75–	18	135	6	75	24	113
	All ages	47	100	203	75	250	79

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 23.

Table 10. Permanent assurances, females, cause of death experience 1987–90: actual deaths from miscellaneous causes, and from all causes combined, and comparison with deaths expected from these causes according to national female mortality.

		001–139 and 487 (SF 83) Infective and parasitic diseases, including influenza					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	(1)	1	16	2	29
1–2	All ages	3	206	6	54	9	72
3–4	All ages	1	60	10	98	11	93
5 and over	–44	2	(1)	5	65	7	84
	45–59	1	52	10	61	11	60
	60–74	2	59	8	76	10	72
	75–	3	57	0	(3)	3	37
	All ages	8	71	23	61	31	64

		250 (SF 78) Diabetes mellitus					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(2)	0	(10)	0	(11)
1–2	All ages	1	26	3	17	4	18
3–4	All ages	0	(5)	4	22	4	17
5 and over	–44	2	(1)	0	(6)	2	31
	45–59	0	(3)	5	17	5	16
	60–74	3	29	4	14	7	18
	75–	4	27	0	(9)	4	17
	All ages	9	31	9	12	18	18

See notes at the end of the table.

Table 10. (continued)

		291, 303, 305 and 571 (SF 85) Cirrhosis of the liver and/or alcoholism					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	0	(1)	5	33	5	30
1–2	All ages	1	44	6	22	7	23
3–4	All ages	1	41	10	38	11	39
5 and over	–44	1	46	10	41	11	41
	45–59	3	49	29	55	32	55
	60–74	3	52	13	65	16	62
	75–	0	(2)	1	74	1	31
	All ages	7	44	53	54	60	53

		520–579 excluding 571 (SF 79) *Diseases of the digestive system other than cirrhosis*					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	69	4	24	6	30
1–2	All ages	2	29	13	41	15	39
3–4	All ages	7	83	17	54	24	60
5 and over	–44	0	(1)	4	28	4	25
	45–59	0	(5)	21	46	21	41
	60–74	4	24	25	54	29	46
	75–	20	63	16	86	36	71
	All ages	24	44	66	53	90	50

See notes at the end of the table.

Table 10. (continued)

		580–589 (SF 79) Nephritis					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	(1)	2	70	3	87
1–2	All ages	3	197	1	18	4	58
3–4	All ages	3	160	2	38	5	70
5 and over	–44	0	(0)	2	93	2	86
	45–59	1	(1)	4	57	5	64
	60–74	1	37	9	127	10	102
	75–	6	68	0	(5)	6	43
	All ages	8	64	15	71	23	68

		590–676 (SF 75) Other diseases of the genito-urinary system					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	1	(1)	1	20	2	35
1–2	All ages	0	(1)	1	11	1	10
3–4	All ages	0	(2)	1	13	1	10
5 and over	–44	0	(1)	3	40	3	37
	45–59	1	85	5	50	6	54
	60–74	0	(3)	3	41	3	30
	75–	2	33	2	57	4	42
	All ages	3	28	13	46	16	41

See notes at the end of the table.

Table 10. (continued)

		240–389 and 680–779 excluding 250, 291, 303, 305 and 571 (SF 80) All other specified causes					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	2	29	10	20	12	21
1–2	All ages	5	32	20	22	25	24
3–4	All ages	3	16	28	34	31	30
5 and over	–44	6	121	21	35	27	42
	45–59	11	77	41	34	52	39
	60–74	26	83	53	61	79	67
	75–	48	63	26	60	74	62
	All ages	91	72	141	45	232	53

		All causes (SF 88) (including ill-defined causes not tabulated elsewhere)					
		Medical		Non-medical		Combined	
Duration	Age group	A	100A/E	A	100A/E	A	100A/E
0	All ages	35	32	274	35	309	35
1–2	All ages	105	43	700	48	805	48
3–4	All ages	149	51	842	59	991	58
5 and over	–44	77	122	532	74	609	78
	45–59	227	80	1,626	68	1,853	69
	60–74	370	58	1,158	62	1,528	61
	75–	595	65	419	77	1,014	70
	All ages	1,269	67	3,735	68	5,004	68

Notes: A = Actual deaths, E = Deaths expected according to 1987–90 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). Where A = 0 or E $\leq$ 1 the figure shown in brackets is E calculated to the nearer integer. SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1991–94 experience is shown in Table 24.

Table 11. Permanent assurances, males, cause of death experience 1987–90: tabular commentary on the results shown in Tables 1 to 5 and comparison with the experience for 1983–86.

	Comparison with all causes combined (durations 5 and over)			Apparent duration of initial selection (years)			Comparison with 1983–86 (durations 5 and over)		
Cause group	Medical	Non-med	Combined	Medical	Non-med	Combined	Medical	Non-med	Combined
M.N.* digestive	H	H	H	1	1	1	H	-	-
M.N.* respiratory	L	L	L	1	1	1	-	-	-
M.N.* connec-tissue	H	H	H	-	3	5	-	-	-
M.N.* genito-urinary	H	H	H	1	1	1	-	-	-
M.N.* nervous	H	H	H	1	3	3	L	-	-
M.N.* other	-	L	L	-	1	1	-	-	-
N. lymphatic etc	H	H	H	3	3	3	L	L	L
All neoplasms	**H**	**H**	**H**	**1**	**1**	**1**	**H**	-	-
Acute M.I.**	-	H	H	5	5	5	-	L	L
Other I.H.D.***	L	L	L	1	1	1	-	L	L
Hypertensive	-	-	-	-	-	-	-	-	-
Cerebrovascular	-	-	-	5	5	5	-	-	-
Other H.D.	H	-	-	5	1	1	-	-	-
Other circulatory	H	-	H	5	5	5	-	-	-
All circulatory	-	-	-	**5**	**5**	**5**	-	**L**	**L**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 11. (continued)

Cause group	Comparison with all causes combined (durations 5 and over)			Apparent duration of initial selection (years)			Comparison with 1983–86 (durations 5 and over)		
	Medical	Non-med	Combined	Medical	Non-med	Combined	Medical	Non-med	Combined
Pneumonia	L	L	L	-	1	1	-	-	-
Bronchitis	L	L	L	5	5	5	-	-	-
Other respiratory	-	-	-	-	1	1	-	-	-
All respiratory	**L**	**L**	**L**	**5**	**5**	**5**	-	-	-
M.V.A.[†]	-	-	L	0	0	0	-	L	L
Suicide	-	L	L	0	3	3	-	-	-
Other acc./violence	H	H	H	1	0	0	-	-	-
All acc./violence	-	-	-	**0**	**0**	**0**	-	-	-
Infective/parasitic	-	-	-	-	3	1	-	-	-
Diabetes mellitus	L	L	L	-	5	5	-	-	-
Cirrhosis of the liver	-	L	L	-	0	0	-	-	L
Other digestive	-	L	L	3	0	0	-	-	-
Nephritis/nephrosis	-	-	-	-	5	5	-	-	-
Other genito-urinary	-	-	-	-	5	5	H	-	H
All other diseases	H	L	-	5	5	5	H	-	-
All causes combined	-	-	-	**5**	**5**	**5**	**H**	**L**	**L**

[†] = Motor Vehicle Accidents

Notes: In these columns H or L indicates that the 1987–90 mortality experience for a particular cause group was in general either significantly higher (H) or lower (L) than the criterion indicated in the relevant heading. The difference is deemed to be significant if it is more than $200 \div \sqrt{A}$ where A is the actual deaths for the cause group. If neither of the letters appears the comparison in question indicates no *significant difference.*

In some groups the experience was too small for the effect of initial selection to be measured. For those cases a dash is shown in the relevant column.

The equivalent information for the 1991–94 experience is shown in Table 25.

Table 11. (continued)

Cause group	Comparison with S.F. including Class III (Manual)			Comparison with S.F. excluding Class III (Manual)		
	Medical	Non-med	Combined	Medical	Non-med	Combined
M.N.* digestive	L	L	L	L	L	L
M.N.* respiratory	L	L	L	L	L	L
M.N.* connec-tissue	-	-	-	-	-	-
M.N.* genito-urinary	L	L	L	-	L	L
M.N.* nervous	H	H	H	H	H	H
M.N.* other	L	L	L	-	L	L
N. lymphatic etc	-	L	L	-	L	L
All neoplasms	**L**	**L**	**L**	**L**	**L**	**L**
Acute M.I.**	L	L	L	L	L	L
Other I.H.D.***	L	L	L	L	L	L
Hypertensive	L	L	L	-	L	L
Cerebrovascular	L	L	L	L	L	L
Other H.D.	L	L	L	-	L	L
Other circulatory	L	L	L	L	L	L
All circulatory	**L**	**L**	**L**	**L**	**L**	**L**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 11. (continued)

Cause group	Comparison with S.F. including Class III (Manual)			Comparison with S.F. excluding Class III (Manual)		
	Medical	Non-med	Combined	Medical	Non-med	Combined
Pneumonia	L	L	L	-	L	L
Bronchitis	L	L	L	L	L	L
Other respiratory	-	L	L	-	-	-
All respiratory	**L**	**L**	**L**	**L**	**L**	**L**
M.V.A.†	L	L	L	-	L	L
Suicide	L	L	L	L	L	L
Other acc./violence	-	-	-	H	H	H
All acc./violence	**L**	**L**	**L**	**-**	**L**	**L**
Infective/parasitic	-	L	L	-	L	L
Diabetes mellitus	L	L	L	L	L	L
Cirrhosis of the liver	L	L	L	L	L	L
Other digestive	L	L	L	-	L	L
Nephritis/nephrosis	-	L	L	-	L	L
Other genito-urinary	-	L	-	-	L	-
All other diseases	-	L	L	-	L	L
All causes combined	**L**	**L**	**L**	**L**	**L**	**L**

† = Motor Vehicle Accidents

Notes: In these columns H or L indicates that the 1987–90 mortality experience for a particular cause group was in general either significantly higher (H) or lower (L) than the criterion indicated in the relevant heading. *The difference is deemed to be significant if it is more than* $200 \div \sqrt{A}$ where A is the actual deaths for the cause group. If neither of the letters appears the comparison in question indicates no significant difference.

In some groups the experience was too small for the effect of initial selection to be measured. For those cases a dash is shown in the relevant column.

The equivalent information for the 1991–94 experience is shown in Table 25.

Table 12. Permanent assurances, females, cause of death experience 1987–90: tabular commentary on the results shown in Tables 6 to 10 and comparison with the experience for 1983–86.

Cause group	Comparison with all causes combined (durations 5 and over)			Apparent duration of initial selection (years)			Comparison with 1983–86 (durations 5 and over)		
	Medical	Non-med	Combined	Medical	Non-med	Combined	Medical	Non-med	Combined
M.N.* digestive	H	H	H	3	3	3	H	-	H
M.N.* respiratory	-	-	-	1	1	1	-	-	-
M.N.* connec-tissue	H	H	H	5	5	5	-	-	-
M.N.* genito-urinary	-	H	H	3	3	3	H	-	-
M.N.* nervous	H	H	H	-	5	5	H	-	-
M.N.* other	-	-	-	-	-	-	-	-	-
N. lymphatic etc	-	H	H	-	5	5	-	-	-
All neoplasms	**H**	**H**	**H**	**5**	**5**	**5**	**H**	**-**	**H**
Acute M.I.**	-	L	L	5	3	3	-	-	-
Other I.H.D.***	L	L	L	-	5	5	-	-	-
Hypertensive	-	-	-	-	-	-	-	-	-
Cerebrovascular	-	-	-	0	3	3	-	-	-
Other H.D.	-	-	L	-	0	0	-	-	-
Other circulatory	-	-	-	-	0	0	-	-	-
All circulatory	**L**	**L**	**L**	**5**	**3**	**3**	**-**	**-**	**-**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 12. (continued)

Cause group	Comparison with all causes combined (durations 5 and over)			Apparent duration of initial selection (years)			Comparison with 1983–86 (durations 5 and over)		
	Medical	Non-med	Combined	Medical	Non-med	Combined	Medical	Non-med	Combined
Pneumonia	-	-	-	-	0	0	-	-	-
Bronchitis	-	L	L	-	5	5	-	-	-
Other respiratory	-	-	-	-	-	-	-	-	-
All respiratory	-	**L**	**L**	**5**	**5**	**5**	-	-	-
M.V.A.†	-	H	H	-	0	0	-	-	-
Suicide	-	-	-	-	1	1	-	-	-
Other acc./violence	H	-	-	-	1	1	-	-	-
All acc./violence	**H**	-	-	-	**1**	**1**	-	-	-
Infective/parasitic	-	-	-	-	3	3	-	-	-
Diabetes mellitus	-	-	L	-	-	-	-	-	-
Cirrhosis of the liver	-	-	-	-	5	5	-	-	-
Other digestive	-	-	-	-	3	3	-	-	-
Nephritis/nephrosis	-	-	-	-	-	-	-	-	-
Other genito-urinary	-	-	-	-	-	-	-	-	-
All other diseases	-	L	L	-	5	5	H	-	-
All causes combined	-	-	-	**5**	**5**	**5**	**H**	-	-

† = Motor Vehicle Accidents

Notes: In these columns H or L indicates that the 1987–90 mortality experience for a particular cause group was in general either significantly higher (H) or lower (L) than the criterion indicated in the relevant heading. The difference is deemed to be significant if it is more than $200 \div \sqrt{A}$ where A is the actual deaths for the cause group. If neither of the letters appears the comparison in question indicates no significant difference.

In some groups the experience was too small for the effect of initial selection to be measured. For those cases a dash is shown in the relevant column.

The equivalent information for the 1991–94 experience is shown in Table 26.

Table 12. (continued)

Cause group	Comparison with S.F. including Class III (Manual)			Comparison with S.F. excluding Class III (Manual)		
	Medical	Non-med	Combined	Medical	Non-med	Combined
M.N.* digestive	-	L	-	L	L	L
M.N.* respiratory	-	L	L	-	-	-
M.N.* connec-tissue	-	L	L	-	L	L
M.N.* genito-urinary	-	L	L	-	-	-
M.N.* nervous	-	-	-	-	-	-
M.N.* other	-	-	-	-	-	-
N. lymphatic etc	-	-	-	-	-	-
All neoplasms	-	**L**	**L**	-	**L**	**L**
Acute M.I.**	L	L	L	-	L	-
Other I.H.D.***	L	L	L	-	-	L
Hypertensive	-	-	-	-	-	-
Cerebrovascular	L	L	L	L	-	L
Other H.D.	L	L	L	-	-	L
Other circulatory	-	L	L	-	-	-
All circulatory	**L**	**L**	**L**	**L**	**L**	**L**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 12. (continued)

Cause group	Comparison with S.F. including Class III (Manual)			Comparison with S.F. excluding Class III (Manual)		
	Medical	Non-med	Combined	Medical	Non-med	Combined
Pneumonia	-	-	-	-	-	-
Bronchitis	L	L	L	-	L	L
Other respiratory	-	-	-	-	-	-
All respiratory	**L**	**L**	**L**	-	-	**L**
M.V.A.†	-	-	-	-	-	-
Suicide	-	-	-	-	-	-
Other acc./violence	H	-	-	H	-	-
All acc./violence	-	-	-	-	-	-
Infective/parasitic	-	-	-	-	-	-
Diabetes mellitus	-	-	L	-	-	-
Cirrhosis of the liver	-	L	L	-	L	L
Other digestive	-	L	L	-	-	-
Nephritis/nephrosis	-	-	-	-	-	-
Other genito-urinary	-	-	-	-	-	-
All other diseases	-	L	L	-	L	L
All causes combined	**L**	**L**	**L**	**L**	**L**	**L**

† = Motor Vehicle Accidents

Notes: In these columns H or L indicates that the 1987–90 mortality experience for a particular cause group was in general either significantly higher (H) or lower (L) than the criterion indicated in the relevant heading. The difference is deemed to be significant if it is more than $200 \div \sqrt{A}$ where A is the actual deaths for the cause group. If neither of the letters appears the comparison in question indicates no significant difference.

In some groups the experience was too small for the effect of initial selection to be measured. For those cases a dash is shown in the relevant column.

The equivalent information for the 1991–94 experience is shown in Table 26.

Table 13. Permanent assurances, males, cause of death experience 1987–90, medical and non-medical combined: actual deaths by cause and ratios of actual deaths to those expected from each cause using national male mortality rates for England and Wales.

	Durations 0–4			Durations 5 and over			
Cause group	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
M.N.* digestive	849	69	1.33	6,617	77	1.23	97
M.N.* respiratory	730	52	1.01	5,089	51	0.82	91
M.N.* connec-tissue	79	63	1.20	675	102	1.64	105
M.N.* genito-urinary	250	56	1.07	2,755	83	1.33	101
M.N.* nervous	184	92	1.78	1,306	115	1.84	103
M.N.* other	34	32	0.62	328	48	0.77	89
N. lymphatic etc	241	62	1.20	2,075	93	1.48	101
All neoplasms	**2,555**	**61**	**1.17**	**20,307**	**71**	**1.13**	**95**
Acute M.I.**	1,570	54	1.04	13,549	66	1.06	98
Other I.H.D.***	634	40	0.77	5,929	53	0.84	96
Hypertensive	27	35	0.67	302	56	0.89	87
Cerebrovascular	329	41	0.79	3,729	61	0.98	91
Other H.D.	172	53	1.02	1,500	67	1.06	90
Other circulatory	169	51	0.97	1,746	69	1.10	95
All circulatory	**2,901**	**48**	**0.93**	**26,755**	**62**	**0.99**	**96**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 13. (continued)

Cause group	Durations 0–4			Durations 5 and over			
	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
Pneumonia	74	38	0.73	816	47	0.75	72
Bronchitis	127	22	0.43	1,525	35	0.56	81
Other respiratory	49	55	1.06	407	62	1.00	81
All respiratory	**250**	**29**	**0.56**	**2,748**	**41**	**0.65**	**78**
M.V.A.[†]	354	73	1.40	689	54	0.87	91
Suicide	253	47	0.91	946	51	0.81	86
Other acc./violence	528	80	1.54	1,818	74	1.19	71
All acc./violence	**1,135**	**68**	**1.30**	**3,453**	**62**	**0.99**	**82**
Infective/parasitic	49	50	0.97	305	56	0.89	79
Diabetes mellitus	19	13	0.25	358	35	0.55	92
Cirrhosis of the liver	77	31	0.61	567	42	0.66	93
Other digestive	132	52	1.00	935	52	0.83	82
Nephritis/nephrosis	22	44	0.86	245	60	0.97	88
Other genito-urinary	9	26	0.50	190	64	1.02	78
All other diseases	185	29	0.56	2,145	59	0.95	77
All causes combined	**7,407**	**52**	**1.00**	**58,429**	**63**	**1.00**	**92**

[†] = Motor Vehicle Accidents

The equivalent information for the 1991–94 experience is shown in Table 27.

Table 14. Permanent assurances, females, cause of death experience 1987–90, medical and non-medical combined: actual deaths by cause and ratios of actual deaths to those expected from each cause using national female mortality rates for England and Wales.

	Durations 0–4			Durations 5 and over			
Cause group	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
M.N.* digestive	252	70	1.43	565	89	1.32	97
M.N.* respiratory	177	63	1.30	340	70	1.03	88
M.N.* connec-tissue	263	45	0.92	882	96	1.41	103
M.N.* genito-urinary	204	60	1.22	444	81	1.20	94
M.N.* nervous	43	68	1.40	111	118	1.75	105
M.N.* other	13	53	1.08	24	59	0.87	93
N. lymphatic etc	70	56	1.15	166	87	1.29	100
All neoplasms	**1,100**	**58**	**1.18**	**2,711**	**87**	**1.28**	**98**
Acute M.I.**	199	43	0.87	471	53	0.79	83
Other I.H.D.***	69	28	0.57	213	44	0.65	81
Hypertensive	6	25	0.51	24	55	0.81	82
Cerebrovascular	174	49	1.00	408	60	0.89	88
Other H.D.	44	39	0.79	98	45	0.67	81
Other circulatory	41	44	0.89	107	60	0.89	85
All circulatory	**533**	**41**	**0.84**	**1,321**	**53**	**0.79**	**84**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 14. (continued)

Cause group	Durations 0–4			Durations 5 and over			
	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
Pneumonia	22	30	0.62	82	50	0.74	68
Bronchitis	29	18	0.36	99	34	0.51	76
Other respiratory	11	42	0.86	31	66	0.98	72
All respiratory	**62**	**24**	**0.48**	**212**	**42**	**0.63**	**72**
M.V.A.†	66	103	2.10	65	97	1.43	85
Suicide	50	66	1.35	63	69	1.02	77
Other acc./violence	89	71	1.45	122	77	1.14	66
All acc./violence	**205**	**77**	**1.58**	**250**	**79**	**1.17**	**74**
Infective/parasitic	22	70	1.43	31	64	0.94	83
Diabetes mellitus	8	14	0.29	18	18	0.26	78
Cirrhosis of the liver	23	31	0.63	60	53	0.78	85
Other digestive	45	46	0.93	90	50	0.74	79
Nephritis/nephrosis	12	68	1.40	23	68	1.01	79
Other genito-urinary	4	16	0.32	16	41	0.61	75
All other diseases	68	26	0.53	232	53	0.79	80
All causes combined	**2,105**	**49**	**1.00**	**5,004**	**68**	**1.00**	**88**

† = Motor Vehicle Accidents

The equivalent information for the 1991–94 experience is shown in Table 28.

Table 15. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: actual deaths due to neoplasms, and comparison with deaths expected from these causes according to national male mortality.

		150–159 (SF 97) Malignant neoplasms of digestive system		160–165 (SF 91) Malignant neoplasms of respiratory system	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	81	49	64	36
1–2	All ages	278	74	280	69
3–4	All ages	359	79	289	60
5 and over	–44	160	78	80	58
	45–59	2,029	78	1,161	44
	60–74	2,103	76	1,787	55
	75–	665	78	549	63
	All ages	4,957	77	3,577	52

		170–175 (SF 105) Malignant neoplasms of bone, connective tissue and skin		179–189 (SF 101) Malignant neoplasms of genito-urinary organs	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	7	36	27	41
1–2	All ages	35	83	82	53
3–4	All ages	49	104	168	91
5 and over	–44	85	116	37	61
	45–59	306	114	569	76
	60–74	136	92	1,038	86
	75–	39	97	700	91
	All ages	566	107	2,344	84

See notes at the end of the table.

Table 15. (continued)

Duration	Age group	190–192 (SF 103) Malignant neoplasms of nervous system		140–149 and 193–194 (SF 89) Malignant neoplasms of oral cavity, pharynx and endocrine glands	
		A	100A/E	A	100A/E
0	All ages	8	30	2	14
1–2	All ages	50	87	14	43
3–4	All ages	72	109	13	33
5 and over	–44	132	139	14	42
	45–59	476	110	94	34
	60–74	299	127	88	50
	75–	34	159	24	73
	All ages	941	120	220	42

Duration	Age group	200–208 (SF 101) Neoplasms of lymphatic and haematopoietic tissue		140–239 (SF 95) All neoplasms (including ill-defined and unspecified sites not included in the sub-groups)	
		A	100A/E	A	100A/E
0	All ages	13	24	229	40
1–2	All ages	66	55	892	68
3–4	All ages	100	74	1,133	73
5 and over	–44	144	96	704	85
	45–59	604	82	5,652	67
	60–74	552	93	6,489	70
	75–	165	90	2,361	77
	All ages	1,465	88	15,206	71

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 1.

Table 16. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: actual deaths from diseases of the circulatory system, and comparison with deaths expected from these causes according to national male mortality.

		410 (SF 98) Acute myocardial infarction		411–414 (SF 96) Other forms of ischaemic heart disease	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	151	47	106	51
1–2	All ages	419	58	235	49
3–4	All ages	504	58	267	46
5 and over	–44	193	51	118	47
	45–59	2,729	56	1,492	47
	60–74	3,401	63	1,757	50
	75–	1,512	74	1,090	69
	All ages	7,835	62	4,457	53

		401–405 (SF 87) Hypertensive disease not classified elsewhere		430–438 (SF 91) Cerebrovascular disease	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	7	73	50	49
1–2	All ages	11	51	157	66
3–4	All ages	10	39	162	57
5 and over	–44	6	45	81	56
	45–59	81	59	574	49
	60–74	55	37	889	55
	75–	37	59	1,227	82
	All ages	179	49	2,771	63

See notes at the end of the table.

Table 16. (continued)

		390–398 and 420–429 (SF 90) Other diseases of the heart		415–417 and 440–459 (SF 95) Other circulatory diseases	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	25	57	30	59
1–2	All ages	45	45	85	70
3–4	All ages	60	51	96	67
5 and over	–44	65	65	39	66
	45–59	316	56	279	55
	60–74	349	64	585	61
	75–	429	95	426	73
	All ages	1,159	70	1,329	63

		390–459 (SF 96) All diseases of the circulatory system (combined)	
Duration	Age group	A	100A/E
0	All ages	369	50
1–2	All ages	952	56
3–4	All ages	1,099	55
5 and over	–44	502	53
	45–59	5,471	53
	60–74	7,036	58
	75–	4,721	76
	All ages	17,730	60

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 2.

Table 17. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: actual deaths from diseases of the respiratory system, and comparison with deaths expected from these causes according to national male mortality.

		480–486 (SF 72) Pneumonia		490–496 (SF 81) Bronchitis	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	14	34	20	27
1–2	All ages	35	34	47	28
3–4	All ages	45	36	52	26
5 and over	–44	79	68	15	35
	45–59	149	37	132	21
	60–74	203	40	465	33
	75–	652	59	415	41
	All ages	1,083	51	1,027	33

		460–478 and 500–519 (SF 81) Other respiratory diseases		460–486 and 490–519 (SF 78) All respiratory diseases (combined)	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	2	14	36	28
1–2	All ages	21	64	103	34
3–4	All ages	21	54	118	32
5 and over	–44	14	54	108	58
	45–59	84	54	365	30
	60–74	139	64	807	38
	75–	110	63	1,177	52
	All ages	347	61	2,457	42

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 3.

Table 18. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: actual deaths due to suicide, accident and violence, and comparison with deaths expected from these causes according to national male mortality.

		E810–E825 (SF 91) Motor vehicle accidents		E950–E959 (SF 86) Suicide	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	55	75	52	58
1–2	All ages	88	67	80	45
3–4	All ages	89	74	81	46
5 and over	–44	159	62	137	30
	45–59	202	59	346	50
	60–74	68	63	80	55
	75–	18	63	13	63
	All ages	447	61	576	44

		E800–E807, E826–E949 and E960–E999 (SF 71) All other accidental and violent causes		E800–E999 (SF 82) All accidental and violent causes	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	84	79	191	71
1–2	All ages	169	80	337	65
3–4	All ages	125	59	295	58
5 and over	–44	307	62	603	50
	45–59	553	69	1,101	60
	60–74	199	75	347	67
	75–	89	82	120	76
	All ages	1,148	68	2,171	58

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 4.

Table 19. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: actual deaths from miscellaneous causes, and from all causes combined, and comparison with deaths expected from these causes according to national male mortality.

		001–139 and 487 (SF 79) Infective and parasitic diseases, including influenza		250 (SF 92) Diabetes mellitus	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	8	37	4	20
1–2	All ages	14	27	12	27
3–4	All ages	21	37	9	17
5 and over	–44	35	28	11	35
	45–59	109	46	49	19
	60–74	63	53	115	37
	75–	33	66	78	48
	All ages	240	45	253	33

		291, 303, 305 and 571 (SF 93) Cirrhosis of the liver and/or alcoholism		520–579 excluding 571 (SF 82) Diseases of the digestive system other than cirrhosis	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	13	32	12	33
1–2	All ages	30	34	32	39
3–4	All ages	24	24	39	40
5 and over	–44	49	25	33	40
	45–59	249	37	169	37
	60–74	138	54	242	47
	75–	15	59	242	72
	All ages	451	39	686	50

See notes at the end of the table.

Table 19. (continued)

		580–589 (SF 88) Nephritis		590–676 (SF 78) Other diseases of the genito-urinary system	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	1	19	2	44
1–2	All ages	6	48	7	65
3–4	All ages	6	39	5	39
5 and over	–44	11	113	2	28
	45–59	38	66	23	54
	60–74	54	71	25	37
	75–	90	95	56	55
	All ages	193	81	106	48

		240–389 and 680–779 excluding 250, 291, 303, 305 and 571 (SF 77) All other specified causes		All causes (SF 92) (including ill-defined causes not tabulated elsewhere)	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	12	13	886	46
1–2	All ages	69	35	2,478	57
3–4	All ages	81	38	2,857	57
5 and over	–44	151	45	2,239	56
	45–59	472	54	13,750	56
	60–74	448	67	15,807	61
	75–	506	76	9,488	72
	All ages	1,577	62	41,284	61

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (males) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 5.

Table 20. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: actual deaths due to neoplasms, and comparison with deaths expected from these causes according to national female mortality.

		150–159 (SF 97) Malignant neoplasms of digestive system		160–165 (SF 88) Malignant neoplasms of respiratory system	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	23	29	24	38
1–2	All ages	113	61	99	66
3–4	All ages	154	87	125	86
5 and over	–44	39	103	14	54
	45–59	273	91	153	63
	60–74	255	79	204	69
	75–	109	82	45	69
	All ages	676	85	416	66

		170–175 (SF 103) Malignant neoplasms of bone, connective tissue and skin		179–189 (SF 94) Malignant neoplasms of genito-urinary organs	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	20	16	20	27
1–2	All ages	117	40	117	70
3–4	All ages	174	66	127	83
5 and over	–44	144	99	51	68
	45–59	588	100	256	85
	60–74	226	78	194	92
	75–	65	90	45	83
	All ages	1,023	93	546	85

See notes at the end of the table.

Table 20. (continued)

Duration	Age group	190–192 (SF 105) Malignant neoplasms of nervous system		140–149 and 193–194 (SF 93) Malignant neoplasms of oral cavity, pharynx and endocrine glands	
		A	100A/E	A	100A/E
0	All ages	7	48	3	51
1–2	All ages	25	78	5	38
3–4	All ages	41	145	18	148
5 and over	–44	25	143	3	47
	45–59	72	122	19	84
	60–74	45	143	13	75
	75–	5	138	2	38
	All ages	147	132	37	72

Duration	Age group	200–208 (SF 100) Neoplasms of lymphatic and haematopoietic tissue		140–239 (SF 98) All neoplasms (including ill-defined and unspecified sites not included in the sub-groups)	
		A	100A/E	A	100A/E
0	All ages	5	17	116	27
1–2	All ages	30	46	555	57
3–4	All ages	45	75	726	79
5 and over	–44	33	106	331	92
	45–59	75	76	1,520	88
	60–74	69	82	1,079	78
	75–	31	104	335	80
	All ages	208	85	3,265	84

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 6.

Table 21. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: actual deaths from diseases of the circulatory system, and comparison with deaths expected from these causes according to national female mortality.

		410 (SF 83) Acute myocardial infarction		411–414 (SF 81) Other forms of ischaemic heart disease	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	41	47	12	22
1–2	All ages	98	47	46	35
3–4	All ages	109	52	46	34
5 and over	–44	8	38	5	38
	45–59	80	37	431	31
	60–74	236	50	102	36
	75–	196	63	130	55
	All ages	520	51	280	42

		401–405 (SF 82) Hypertensive disease not classified elsewhere		430–438 (SF 88) Cerebrovascular disease	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	1	23	41	60
1–2	All ages	3	29	81	49
3–4	All ages	1	10	94	57
5 and over	–44	1	70	34	81
	45–59	2	16	105	59
	60–74	15	71	154	56
	75–	6	42	225	66
	All ages	24	48	518	62

See notes at the end of the table.

Table 21. (continued)

Duration	Age group	390–398 and 420–429 (SF 81) Other diseases of the heart		415–417 and 440–459 (SF 85) Other circulatory diseases	
		A	100A/E	A	100A/E
0	All ages	8	35	12	51
1–2	All ages	18	32	30	51
3–4	All ages	24	43	30	51
5 and over	–44	12	74	13	89
	45–59	20	31	32	50
	60–74	47	52	58	56
	75–	71	67	63	67
	All ages	150	54	166	60

Duration	Age group	390–459 (SF 84) All diseases of the circulatory system (combined)	
		A	100A/E
0	All ages	115	44
1–2	All ages	276	44
3–4	All ages	304	48
5 and over	–44	73	67
	45–59	282	42
	60–74	612	49
	75–	691	62
	All ages	1,658	53

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 7.

Table 22. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: actual deaths from diseases of the respiratory system, and comparison with deaths expected from these causes according to national female mortality.

		480–486 (SF 68) Pneumonia		490–496 (SF 76) Bronchitis	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	4	19	9	25
1–2	All ages	19	34	15	17
3–4	All ages	25	40	23	27
5 and over	–44	7	49	4	33
	45–59	25	51	23	24
	60–74	39	45	68	35
	75–	85	43	42	52
	All ages	156	45	137	36

		460–478 and 500–519 (SF 72) Other respiratory diseases		460–486 and 490–519 (SF 72) All respiratory diseases (combined)	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	3	50	16	25
1–2	All ages	5	34	39	25
3–4	All ages	7	48	55	34
5 and over	–44	3	67	14	46
	45–59	10	57	58	35
	60–74	8	34	115	38
	75–	11	46	138	45
	All ages	32	46	325	41

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 8.

Table 23. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: actual deaths due to suicide, accident and violence, and comparison with deaths expected from these causes according to national female mortality.

		E810–E825 (SF 85) Motor vehicle accidents		E950–E959 (SF 77) Suicide	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	14	96	7	43
1–2	All ages	27	96	15	45
3–4	All ages	12	56	14	52
5 and over	–44	12	50	20	61
	45–59	17	66	30	73
	60–74	8	67	7	59
	75–	7	165	2	102
	All ages	44	67	59	67

		E800–E807, E826–E949 and E960–E999 (SF 66) All other accidental and violent causes		E800–E999 (SF 74) All accidental and violent causes	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	30	98	51	83
1–2	All ages	47	73	89	71
3–4	All ages	39	73	65	64
5 and over	–44	44	76	76	66
	45–59	48	64	95	67
	60–74	18	55	33	58
	75–	14	60	23	78
	All ages	124	66	227	66

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 9.

Table 24. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: actual deaths from miscellaneous causes, and from all causes combined, and comparison with deaths expected from these causes according to national female mortality.

		001–139 and 487 (SF 83) Infective and parasitic diseases, including influenza		250 (SF 78) Diabetes mellitus	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	6	76	3	26
1–2	All ages	5	28	2	7
3–4	All ages	6	37	3	12
5 and over	–44	4	31	2	30
	45–59	19	90	4	12
	60–74	8	45	11	22
	75–	7	78	8	26
	All ages	38	63	25	21

		291, 303, 305 and 571 (SF 85) Cirrhosis of the liver and/or alcoholism		520–579 excluding 571 (SF 79) Diseases of the digestive system other than cirrhosis	
Duration	Age group	A	100A/E	A	100A/E
0	All ages	3	16	9	40
1–2	All ages	15	36	25	47
3–4	All ages	14	37	25	47
5 and over	–44	14	47	6	36
	45–59	29	37	38	57
	60–74	18	53	46	51
	75–	2	45	44	59
	All ages	63	43	134	54

See notes at the end of the table.

Table 24. (continued)

Duration	Age group	580–589 (SF 79) Nephritis A	580–589 (SF 79) Nephritis 100A/E	590–676 (SF 75) Other diseases of the genito-urinary system A	590–676 (SF 75) Other diseases of the genito-urinary system 100A/E
0	All ages	1	33	3	56
1–2	All ages	1	14	3	25
3–4	All ages	2	26	2	18
5 and over	–44	2	75	7	99
	45–59	2	25	1	9
	60–74	5	44	2	14
	75–	2	15	12	77
	All ages	11	31	22	45

Duration	Age group	240–389 and 680–779 excluding 250, 291, 303, 305 and 571 (SF 80) All other specified causes A	240–389 and 680–779 excluding 250, 291, 303, 305 and 571 (SF 80) All other specified causes 100A/E	All causes (SF 88) (including ill-defined causes not tabulated elsewhere) A	All causes (SF 88) (including ill-defined causes not tabulated elsewhere) 100A/E
0	All ages	14	25	339	36
1–2	All ages	33	27	1,048	48
3–4	All ages	47	42	1,257	60
5 and over	–44	39	61	576	76
	45–59	65	44	2,120	69
	60–74	55	40	1,989	59
	75–	105	72	1,400	64
	All ages	264	53	6,085	65

Notes: A = Actual deaths, E = Deaths expected according to 1991–94 national experience of England and Wales (females) calculated from figures published by the then Office of Population Censuses and Surveys (now the Office for National Statistics). SF = Standardization Factor for Social Class (including Class III (Manual)).

The equivalent information for the 1987–90 experience is shown in Table 10.

Table 25. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: tabular commentary on the results shown in Tables 15 to 19 and comparison with the experience for 1987–90.

Cause group	Comparison with all causes combined (durations 5 and over)	Apparent duration of initial selection (years)	Comparison with 1987–90 (durations 5 and over)	Comparison with S.F. including Class III (Manual)	Comparison with S.F. excluding Class III (Manual)
M.N.* digestive	H	1	-	L	L
M.N.* respiratory	L	1	-	L	L
M.N.* connec-tissue	H	3	-	-	-
M.N.* genito-urinary	H	3	-	L	L
M.N.* nervous	H	5	-	H	H
M.N.* other	L	1	-	L	L
N. lymphatic etc	H	5	-	L	L
All neoplasms	**H**	**3**	**-**	**L**	**L**
Acute M.I.**	-	1	L	L	L
Other I.H.D.***	L	0	-	L	L
Hypertensive	-	0	-	L	L
Cerebrovascular	-	1	-	L	L
Other H.D.	H	5	-	L	L
Other circulatory	-	1	L	L	L
All circulatory	**-**	**5**	**L**	**L**	**L**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 25. (continued)

Cause group	Comparison with all causes combined (durations 5 and over)	Apparent duration of initial selection (years)	Comparison with 1987–90 (durations 5 and over)	Comparison with S.F. including Class III (Manual)	Comparison with S.F. excluding Class III (Manual)
Pneumonia	L	5	-	L	-
Bronchitis	L	5	-	L	L
Other respiratory	-	1	-	L	-
All respiratory	**L**	**5**	**-**	**L**	**L**
M.V.A.[†]	-	0	-	L	L
Suicide	L	0	-	L	L
Other acc./violence	H	0	-	-	H
All acc./violence	**-**	**0**	**-**	**L**	**L**
Infective/parasitic	L	5	-	L	L
Diabetes mellitus	L	5	-	L	L
Cirrhosis of the liver	L	5	-	L	L
Other digestive	L	5	-	L	L
Nephritis/nephrosis	H	5	H	-	-
Other genito-urinary	-	1	-	L	L
All other diseases	-	5	-	L	L
All causes combined	**-**	**5**	**L**	**L**	**L**

[†] = Motor Vehicle Accidents

Notes: In these columns H or L indicates that the 1991–94 mortality experience for a particular cause group was in general either significantly higher (H) or lower (L) than the criterion indicated in the relevant heading. The difference is deemed to be significant if it is more than $200 \div \sqrt{A}$ where A is the actual deaths for the cause group. If neither of the letters appears the comparison in question indicates no significant difference.

In some groups the experience was too small for the effect of initial selection to be measured. For those cases a dash is shown in the relevant column.

The equivalent information for the 1987–90 experience is shown in Table 11.

Table 26. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: tabular commentary on the results shown in Tables 20 to 24 and comparison with the experience for 1987–90.

Cause group	Comparison with all causes combined (durations 5 and over)	Apparent duration of initial selection (years)	Comparison with 1987-90 (durations 5 and over)	Comparison with S.F. including Class III (Manual)	Comparison with S.F. excluding Class III (Manual)
M.N.* digestive	H	3	-	L	L
M.N.* respiratory	-	3	-	L	-
M.N.* connec-tissue	H	5	-	L	L
M.N.* genito-urinary	H	3	-	L	-
M.N.* nervous	H	3	-	H	H
M.N.* other	-	3	-	-	-
N. lymphatic etc	H	5	-	L	-
All neoplasms	**H**	**5**	**-**	**L**	**L**
Acute M.I.**	L	3	-	L	L
Other I.H.D.***	L	5	-	L	L
Hypertensive	-	-	-	-	-
Cerebrovascular	-	0	-	L	L
Other H.D.	-	5	-	L	-
Other circulatory	-	5	-	L	-
All circulatory	**L**	**5**	**-**	**L**	**L**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 26. (continued)

Cause group	Comparison with all causes combined (durations 5 and over)	Apparent duration of initial selection (years)	Comparison with 1987–90 (durations 5 and over)	Comparison with S.F. including Class III (Manual)	Comparison with S.F. excluding Class III (Manual)
Pneumonia	L	5	-	L	-
Bronchitis	L	5	-	L	L
Other respiratory	-	0	-	-	-
All respiratory	**L**	**5**	-	**L**	**L**
M.V.A.†	-	0	-	-	L
Suicide	-	5	-	-	-
Other acc./violence	-	0	-	-	-
All acc./violence	-	**0**	-	-	**L**
Infective/parasitic	-	0	-	-	-
Diabetes mellitus	L	-	-	L	L
Cirrhosis of the liver	-	5	-	L	L
Other digestive	-	5	-	L	-
Nephritis/nephrosis	-	-	-	-	-
Other genito-urinary	-	-	-	-	-
All other diseases	-	5	-	L	L
All causes combined	-	**5**	**L**	**L**	**L**

† = Motor Vehicle Accidents

Notes: In these columns H or L indicates that the 1991–94 mortality experience for a particular cause group was in general either significantly higher (H) or lower (L) than the criterion indicated in the relevant heading. The difference is deemed to be significant if it is more than $200 \div \sqrt{A}$ where A is the actual deaths for the cause group. If neither of the letters appears the comparison in question indicates no significant difference.

In some groups the experience was too small for the effect of initial selection to be measured. For those cases a dash is shown in the relevant column.

The equivalent information for the 1987–90 experience is shown in Table 12.

Table 27. Permanent assurances, males, cause of death experience 1991–94, medical and non-medical combined: actual deaths by cause and ratios of actual deaths to those expected from each cause using national male mortality rates for England and Wales.

	Durations 0–4			Durations 5 and over			
Cause group	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
M.N.* digestive	718	72	1.31	4,957	77	1.26	97
M.N.* respiratory	633	59	1.07	3,577	52	0.85	91
M.N.* connec-tissue	91	83	1.51	566	107	1.76	105
M.N.* genito-urinary	277	68	1.23	2,344	84	1.38	101
M.N.* nervous	130	87	1.57	941	120	1.97	103
M.N.* other	29	34	0.61	220	42	0.69	89
N. lymphatic etc	179	58	1.05	1,465	88	1.45	101
All neoplasms	**2,254**	**66**	**1.19**	**15,206**	**71**	**1.16**	**95**
Acute M.I.**	1,074	56	1.01	7,835	62	1.02	98
Other I.H.D.***	608	48	0.87	4,457	53	0.86	96
Hypertensive	28	49	0.89	179	49	0.81	87
Cerebrovascular	369	59	1.07	2,771	63	1.03	91
Other H.D.	130	50	0.90	1,159	70	1.15	90
Other circulatory	211	67	1.21	1,329	63	1.04	95
All circulatory	**2,420**	**55**	**0.99**	**17,730**	**60**	**0.98**	**96**

* – Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 27. (continued)

Cause group	Durations 0–4			Durations 5 and over			SF (including Class III (M))
	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	
Pneumonia	94	35	0.63	1,083	51	0.84	72
Bronchitis	119	27	0.48	1,027	33	0.54	81
Other respiratory	44	51	0.93	347	61	1.00	81
All respiratory	**257**	**32**	**0.58**	**2,457**	**42**	**0.70**	**78**
M.V.A.[†]	232	72	1.30	447	61	1.00	91
Suicide	213	48	0.87	576	44	0.73	86
Other acc./violence	378	71	1.29	1,148	68	1.12	71
All acc./violence	**823**	**63**	**1.15**	**2,171**	**58**	**0.96**	**82**
Infective/parasitic	43	33	0.60	240	45	0.74	79
Diabetes mellitus	25	21	0.38	253	33	0.54	92
Cirrhosis of the liver	67	29	0.53	451	39	0.65	93
Other digestive	83	38	0.69	686	50	0.81	82
Nephritis/nephrosis	13	39	0.71	193	81	1.34	88
Other genito-urinary	14	50	0.90	106	48	0.79	78
All other diseases	162	32	0.58	1,577	62	1.02	77
All causes combined	**6,221**	**55**	**1.00**	**41,284**	**61**	**1.00**	**92**

[†] = Motor Vehicle Accidents

The equivalent information for the 1987 90 experience is shown in Table 13.

Table 28. Permanent assurances, females, cause of death experience 1991–94, medical and non-medical combined: actual deaths by cause and ratios of actual deaths to those expected from each cause using national female mortality rates for England and Wales.

	Durations 0–4			Durations 5 and over			
Cause group	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	Actual deaths	100A/E	100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
M.N.* digestive	290	66	1.29	676	85	1.31	97
M.N.* respiratory	248	69	1.35	416	66	1.02	88
M.N.* connec-tissue	311	46	0.90	1,023	93	1.44	103
M.N.* genito-urinary	264	67	1.32	546	85	1.31	94
M.N.* nervous	73	98	1.92	147	132	2.03	105
M.N.* other	26	83	1.63	37	72	1.10	93
N. lymphatic etc	80	52	1.02	208	85	1.31	100
All neoplasms	**1,397**	**60**	**1.18**	**3,265**	**84**	**1.29**	**98**
Acute M.I.**	248	49	0.96	520	51	0.78	83
Other I.H.D.***	104	33	0.64	280	42	0.64	81
Hypertensive	5	20	0.39	24	48	0.74	82
Cerebrovascular	216	54	1.07	518	62	0.95	88
Other H.D.	50	37	0.73	150	54	0.84	81
Other circulatory	72	51	1.00	166	60	0.92	85
All circulatory	**695**	**46**	**0.90**	**1,658**	**53**	**0.81**	**84**

* = Malignant Neoplasm
** = Myocardial Infarction
*** = Ischaemic Heart Disease

Table 28. (continued)

Cause group	Durations 0–4 Actual deaths	Durations 0–4 100A/E	Durations 0–4 100A/E(group) / 100A/E (all causes)	Durations 5 and over Actual deaths	Durations 5 and over 100A/E	Durations 5 and over 100A/E(group) / 100A/E (all causes)	SF (including Class III (M))
Pneumonia	48	34	0.68	156	45	0.69	68
Bronchitis	47	23	0.45	137	36	0.55	76
Other respiratory	15	42	0.83	32	46	0.71	72
All respiratory	**110**	**29**	**0.57**	**325**	**41**	**0.63**	**72**
M.V.A.†	53	82	1.62	44	67	1.03	85
Suicide	36	47	0.93	59	67	1.04	77
Other acc./violence	116	78	1.54	124	66	1.01	66
All acc./violence	**205**	**71**	**1.39**	**227**	**66**	**1.02**	**74**
Infective/parasitic	17	40	0.80	38	63	0.96	83
Diabetes mellitus	8	13	0.25	25	21	0.32	78
Cirrhosis of the liver	32	33	0.64	63	43	0.66	85
Other digestive	59	46	0.90	134	54	0.83	79
Nephritis/nephrosis	4	22	0.44	11	31	0.48	79
Other genito-urinary	8	28	0.55	22	45	0.70	75
All other diseases	94	33	0.64	264	53	0.82	80
All causes combined	**2,644**	**51**	**1.00**	**6,085**	**65**	**1.00**	**88**

† = Motor Vehicle Accidents

The equivalent information for the 1987–90 experience is shown in Table 14.

Table 29. Factors for standardizing national mortality rates (Great Britain 1979–80 and 1982–83) according to social class: 100 × death rate for classes shown ÷ death rate for all classes combined.

Cause group	Classes I, II, III (NM) and III (M) combined males aged 20–64	Classes I, II, III (NM) combined males aged 20 64	Classes I, II, III (NM) and III (M) combined females aged 20–59	Classes I, II, III (NM) combined females aged 20–59
Malignant neoplasms, digestive	97	85	97	191
Malignant neoplasms, respiratory	91	65	88	69
Malignant neoplasms, connective tissue etc	105	108	103	105
Malignant neoplasms, genito-urinary	101	93	94	87
Malignant neoplasms, nervous system	103	104	105	102
Malignant neoplasms, other sites	89	78	93	90
Neoplasms, lymphatic etc	101	98	100	98
All neoplasms, combined	**95**	**80**	**98**	**92**
Acute myocardial infarction	98	88	83	62
Other ischaemic heart disease	96	84	81	61
Hypertensive disease	87	72	82	58
Cerebrovascular disease	91	76	88	74
Other diseases of the heart	90	81	81	66
Other circulatory diseases	95	89	85	72
All circulatory diseases, combined	**96**	**85**	**84**	**66**

Table 29. (continued)

Cause group	Classes I, II, III (NM) and III (M) combined males aged 20 64	Classes I, II, III (NM) combined males aged 20–64	Classes I, II, III (NM) and III (M) combined females aged 20–59	Classes I, II, III (NM) combined females aged 20–59
Pneumonia	72	56	68	55
Bronchitis	81	57	76	58
Other respiratory diseases	81	61	72	56
All respiratory diseases, combined	**78**	**57**	**72**	**57**
Motor vehicle accidents	91	77	85	97
Suicide	86	85	77	89
Other accidents and violence	71	57	66	68
All accidents and violent causes, combined	**82**	**72**	**74**	**82**
Infective and parasitic diseases	79	71	83	71
Diabetes mellitus	92	85	78	63
Cirrhosis of the liver	93	97	85	84
Other digestive diseases	82	71	79	65
Nephritis and nephrosis	88	77	79	70
Other genito-urinary diseases	78	75	75	57
All other diseases	77	72	80	74
All causes combined	**92**	**80**	**88**	**80**

CMIR **20** (2001) 75–89

MINI-GRADUATIONS OF THE MORTALITY EXPERIENCE OF SMOKERS AND NON-SMOKERS FOR ASSURED LIVES

The Committee considers that it may be useful to practitioners to quote linear relationships linking the observed rates of mortality for smokers and non-smokers over the quadrennia 1995–1998 and 1991–1994 to those in the "92" Series standard tables. The mortality experience of smokers and non-smokers was reported on in *C.M.I.R.* **19** for the quadrennium 1995–1998 and in *C.M.I.R.* **16** for the quadrennium 1991–1994.

In each case the function to be graduated is q_x, using the formula

$$q_x = a + (1 - b)q_x^*$$

where q_x^* is the value of q_x from an appropriate "92" Series standard table. The form using $(1 - b)$ is chosen so that the value of b can be compared with zero rather than unity. The values of the parameters, a and b, have been calculated using the graduation methods described by Forfar, McCutcheon and Wilkie (1988), using the method of maximum likelihood.

For both smokers and non-smokers, separate relationships have been derived linking the observed UK mortality experience to that expected according to the "92" Series tables. Separate relationships have been derived for mortality experience at durations 0, 1 and 2 and over for whole life and endowment assurances and at durations 0, 1–4 and 5 and over for temporary assurances.

The following experiences have been graduated:

1. *Male non-smoker lives effecting permanent (whole life and endowment) assurances.*
2. *Male smoker lives effecting permanent (whole life and endowment) assurances.*
3. *Male non-smoker and smoker lives combined, effecting permanent (whole life and endowment) assurances.*
4. *Female non-smoker lives effecting permanent (whole life and endowment) assurances.*
5. *Female smoker lives effecting permanent (whole life and endowment) assurances.*
6. *Female non-smoker and smoker lives combined, effecting permanent (whole life and endowment) assurances.*
7. *Male non-smoker lives effecting temporary assurances.*

8. *Male smoker lives effecting temporary assurances.*
9. *Male non-smoker and smoker lives combined, effecting temporary assurances.*
10. *Female non-smoker lives effecting temporary assurances.*
11. *Female smoker lives effecting temporary assurances.*
12. *Female non-smoker and smoker lives combined, effecting temporary assurances.*

For all the above graduations, data for which the smoker status is not known has been excluded.

A limited commentary is given for each of the above experiences graduated. The results are presented in tabular form showing:

1. The table used as the basis of the graduation.
2. The age range used in the calculations.
3. The number of deaths in the experience for each duration.
4. The ratio 100A/E on the comparison basis before the mini-graduation was attempted.
5. The values for the parameters a and b, together with the corresponding T-ratios, at the optimum point. An absolute value of the T-ratio of less than 2.0 indicates that the parameter is not significantly different from zero.
6. The value of χ^2, together with the degrees of freedom and the probability that the observed value for $\Sigma(A - E)^2$ would be seen if the fit was perfect. This test ensures that the fit does not result in large positive deviations being balanced by large negative deviations.
7. For the signs test, the probability that the number of positive deviations is less than or equal to the number actually seen. This tests that there is not an excessive number of positive (or negative) deviations. A probability of greater than 0.975 or less than 0.025 indicates that the fit is not good.
8. For the runs test, the probability that the number of runs of positive deviations is less than or equal to the number actually seen. This tests for excessive clumping of positive (or negative) deviations. A probability of less than 0.05 indicates that the fit is not good.
9. The Kolmogorov-Smirnov test gives the probability that the actual deaths and the expected deaths belong to the same distribution. A high probability indicates a good fit.

It should be noted that, in this report, the assessment of the goodness of fit of a particular graduation is made on purely statistical grounds. For example, no work has been done to make sure that the resulting graduations are consistent across durations, that male rates exceed the equivalent female rates or that the ends of the tables behave in a reasonable way.

Most of the mini-graduations carried out are not satisfactory, as they do not pass all the statistical tests. This may be due to the mortality curve for smokers and non-smokers having different shapes. **Hence, the results in this report should not be relied on, without further investigation and evidence, to calculate separate mortality rates for smokers and non-smokers by an office.**

REFERENCE

Forfar D. O., McCutcheon J. J. and Wilkie A. D. (1988) On Graduation by Mathematical Formula. *J.I.A.* **115**, 1 and *T.F.A.* **41**, 97.

Table 1. Permanent assurances (non-linked), males, non-smokers, full underwriting: durations 0, 1 and 2 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1	2 and over	0	1	2 and over
Comparison basis	AM92 D0	AM92 D1	AM92 D2+	AM92 D0	AM92 D1	AM92 D2+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	192	282	4,883	282	384	3,385
100A/E on comparison basis	89.950	82.621	72.598	74.867	75.339	77.941
Values of parameters at optimum point:						
a	0.00011168	−0.00005334	0.00006588	0.00012665	0.00011897	0.00011830
T-ratio	1.010	−0.637	2.575	2.095	1.756	3.797
b	0.15278935	0.15467500	0.29029928	0.33332249	0.30330086	0.25804950
T-ratio	1.987	2.672	24.138	6.021	6.346	16.141
χ^2 test:	13.07	31.63	139.07	31.23	58.09	82.12
χ^2 degrees of freedom	21	28	69	33	39	67
$p(\chi^2)$	**0.906**	0.290	0.000	**0.556**	0.025	0.101
Signs test: p(pos)	**0.953**	**0.514**	**0.595**	**0.633**	**0.732**	**0.595**
Runs test: p(runs)	**0.082**	**0.712**	**0.242**	**0.371**	**0.198**	**0.991**
K-S test: p(KS)	**0.998**	**0.937**	0.040	**0.933**	**1.000**	**1.000**
Graduation satisfactory?	Yes	Yes	No	No	Yes	Yes
Comment		1	2	3	1	1

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. The value of χ^2 is large because the numbers of actual deaths are volatile at a few ages.
2. Actual deaths for most ages from 45 to 69 are lower than expected, and for most ages above 70 are higher than expected.
3. Actual deaths for most ages from 43 to 61 are lower than expected, and for most ages above 65 are higher than expected.

Table 2. Permanent assurances (non-linked), males, smokers, full underwriting: durations 0, 1 and 2 and over: statistics for graduations of $q_x = a + (1 - b)\ q_x^*$

	1995–1998			1991–1994		
Duration	0	1	2 and over	0	1	2 and over
Comparison basis	AM92 D0	AM92 D1	AM92 D2+	AM92 D0	AM92 D1	AM92 D2+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	129	171	2,943	192	236	2,348
100A/E on comparison basis	179.826	166.251	137.631	175.444	168.140	136.730
Values of parameters at optimum point:						
a	−0.00017658	−0.00028819	−0.00008054	−0.00011089	−0.00023845	0.00002311
T-ratio	−0.734	−1.234	−1.176	−0.704	−1.347	0.313
b	−0.87774274	−0.75699506	−0.39409668	−0.83187935	−0.79974624	−0.35834922
T-ratio	−4.467	−4.931	−13.063	−4.879	−5.498	−10.350
χ^2 test:	18.79	17.37	69.14	10.82	18.92	98.59
χ^2 degrees of freedom	15	18	60	22	28	62
$p(\chi^2)$	**0.223**	**0.498**	0.196	**0.978**	**0.901**	0.002
Signs test: p(pos)	**0.834**	**0.587**	**0.552**	**0.729**	**0.900**	**0.916**
Runs test: p(runs)	**0.352**	**0.591**	**0.448**	**0.181**	**0.791**	0.041
K-S test: p(KS)	**0.940**	**0.822**	**0.922**	**1.000**	**0.965**	**0.886**
Graduation satisfactory?	Yes	Yes	No	Yes	Yes	No
Comment	1	2	3			4

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. The χ^2 test has a large value due to a volatile number of deaths at age 55.
2. The χ^2 test has a large value due to a volatile number of deaths at age 57.
3. Actual deaths for most ages above 78 are lower than expected.
4. There are a large number of ages where the expected number of deaths exceeds the actual number of deaths by small amounts balanced by a few ages where the actual number of deaths exceeds the expected number by a large amount.

Table 3. Permanent assurances (non-linked), males, non-smokers and smokers combined, full underwriting: durations 0, 1 and 2 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1	2 and over	0	1	2 and over
Comparison basis	AM92 D0	AM92 D1	AM92 D2+	AM92 D0	AM92 D1	AM92 D2+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	321	453	7,826	474	620	5,733
100A/E on comparison basis	112.557	101.987	88.285	97.510	95.376	94.599
Values of parameters at optimum point:						
a	0.00004616	−0.00010645	0.00002845	0.00008918	0.00005819	0.00008042
T-ratio	0.474	1.279	1.135	1.496	0.878	2.697
b	−0.10354729	−0.05667870	0.12408708	0.08360478	0.07456102	0.07927479
T-ratio	−1.364	−0.995	10.631	1.460	1.530	5.252
χ^2 test:	24.48	54.48	92.70	44.75	48.54	95.06
χ^2 degrees of freedom	33	38	69	45	54	69
$p(\chi^2)$	**0.858**	0.041	0.030	**0.483**	**0.532**	0.021
Signs test: p(pos)	**0.912**	**0.681**	**0.595**	**0.614**	**0.663**	**0.883**
Runs test: p(runs)	**0.599**	**0.552**	**0.123**	**0.881**	**0.345**	0.024
K-S test: p(KS)	**1.000**	**0.999**	**0.988**	**0.988**	**0.997**	**0.744**
Graduation satisfactory?	Yes	Yes	Yes	Yes	Yes	No
Comment		1	1			2

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. The value of χ^2 is large because the numbers of actual deaths are volatile at a few ages.
2. The T-ratios for a and b are both greater than 2 indicating that they are significantly different from zero. This is not as surprising as may first be thought. Even though the AM92 tables were constructed from data over the same period, it included lives where the smoker status is unknown. The poor fit may be explained by differences in the ratio of smokers to non-smokers contained in the data used for this graduation and in the data used to construct the AM92 tables.

Table 4. Permanent assurances (non-linked), females, non-smokers, full underwriting: durations 0, 1 and 2 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1	2 and over	0	1	2 and over
Comparison basis	AF92 D0	AF92 D1	AF92 D2+	AF92 D0	AF92 D1	AF92 D2+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	147	209	3,089	181	209	1,657
100A/E on comparison basis	117.466	102.270	75.470	84.711	76.069	74.684
Values of parameters at optimum point:						
a	−0.00007096	−0.00005105	−0.00000629	0.00002402	0.00002207	0.00002977
T-ratio	−1.858	−0.803	−0.301	0.732	0.514	1.146
b	−0.23600998	−0.07915968	0.24183529	0.18299577	0.26006649	0.26679336
T-ratio	−2.184	−0.963	15.366	2.503	4.001	12.378
χ^2 test:	57.42	24.46	155.00	43.49	30.60	48.78
χ^2 degrees of freedom	17	22	64	22	26	62
$p(\chi^2)$	0.000	**0.324**	0.000	0.004	**0.244**	**0.889**
Signs test: p(pos)	**0.967**	**0.729**	**0.867**	**0.846**	**0.826**	**0.811**
Runs test: p(runs)	**0.991**	0.011	0.006	0.013	**0.932**	**0.436**
K-S test: p(KS)	**0.356**	**0.086**	0.006	0.175	**0.976**	**0.991**
Graduation satisfactory?	No	No	No	No	Yes	Yes
Comment	1	2	3	4	5	

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. There are only 147 actual deaths.
2. The actual deaths are below expected for most ages from 32 to 64, and above expected for most ages from 67.
3. Actual deaths are above expected for most ages from 74.
4. The actual deaths are above expected for most ages above age 63.
5. The value of χ^2 is large because the numbers of actual deaths are volatile at a few ages.

Table 5. Permanent assurances (non-linked), females, smokers, full underwriting: durations 0, 1 and 2 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1	2 and over	0	1	2 and over
Comparison basis	AF92 D0	AF92 D1	AF92 D2+	AF92 D0	AF92 D1	AF92 D2+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	87	125	1,593	113	113	857
100A/E on comparison basis	239.572	226.329	159.425	193.285	153.147	142.503
Values of parameters at optimum point:						
a	−0.00157587	−0.00003268	−0.00018136	0.00008708	−0.00018603	−0.00011521
T-ratio	−7.778	−0.199	−3.326	0.843	−2.413	−1.763
b	−2.75623499	−1.28621763	−0.66586564	−0.81383605	−0.71383376	−0.47755988
T-ratio	−6.791	−5.518	−14.316	−3.705	−4.022	−8.125
χ^2 test:	14.79	10.09	69.07	13.19	13.71	73.52
χ^2 degrees of freedom	10	16	56	14	13	51
$p(\chi^2)$	0.140	**0.862**	0.113	**0.512**	**0.395**	0.021
Signs test: p(pos)	**0.808**	**0.951**	**0.552**	**0.773**	**0.849**	**0.606**
Runs test: p(runs)	**0.125**	**0.084**	**0.745**	0.031	**0.201**	**0.142**
K-S test: p(KS)	0.167	**0.882**	**0.491**	**0.958**	**0.991**	**0.567**
Graduation satisfactory?	No	No	No	No	No	No
Comment	1	2			3	4

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. The number of actual deaths is only 78 and below age 40 the graduation results in negative values for q_x.
2. The number of actual deaths is only 125.
3. The χ^2 test has a large value due to a volatile number of deaths at age 51. The number of actual deaths is also low at 113.
4. The actual deaths are below expected for most ages from age 48 to 58.

Table 6. Permanent assurances (non-linked), females, non-smokers and smokers combined, full underwriting: durations 0, 1 and 2 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1	2 and over	0	1	2 and over
Comparison basis	AF92 D0	AF92 D1	AF92 D2+	AF92 D0	AF92 D1	AF92 D2+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	234	334	4,682	294	322	2,514
100A/E on comparison basis	144.929	128.664	91.944	108.036	92.387	89.147
Values of parameters at optimum point:						
a	0.00009362	−0.00012338	−0.00003376	0.00004311	−0.00001837	0.00000622
T-ratio	0.950	−3.008	−1.660	1.245	−0.474	0.249
b	−0.45792181	−0.37015225	0.06620431	−0.02508692	0.05894517	0.11177957
T-ratio	−4.167	−4.616	4.235	−0.339	0.923	5.306
χ^2 test:	52.21	36.99	118.54	51.86	44.28	66.25
χ^2 degrees of freedom	27	32	64	31	32	64
$p(\chi^2)$	0.003	**0.249**	0.000	0.011	0.073	**0.399**
Signs test: p(pos)	**0.969**	**0.805**	**0.805**	**0.637**	**0.884**	**0.644**
Runs test: p(runs)	**0.138**	**0.125**	**0.059**	0.000	**0.142**	**0.648**
K-S test: p(KS)	0.009	**0.281**	**0.271**	**0.234**	**0.874**	**0.748**
Graduation satisfactory?	No	Yes	No	No	No	Yes
Comment			1	2	2	

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. Actual deaths exceed expected deaths for most ages above 70, while below age 47 actual deaths are below expected for most ages.
2. The shape of the mortality curve at these durations seems to be different from the AF92 table. This is not as surprising as may first be thought. Even though the AF92 tables were constructed from data over the same period, it included lives where the smoker status is unknown. This would indicate that the ratio of smokers to non-smokers in the data where the smoker status is unknown changes with age.

Table 7. Temporary assurances (non-linked), males, non-smokers, full underwriting: durations 0, 1 to 4 and 5 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1–4	5 and over	0	1–4	5 and over
Comparison basis	TM92 D0	TM92 D1–4	TM92 D5+	TM92 D0	TM92 D1–4	TM92 D5+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	153	736	1,191	194	780	737
100A/E on comparison basis	59.805	64.740	69.532	78.859	79.866	75.810
Values of parameters at optimum point:						
a	0.00002208	−0.00006365	0.00002704	−0.00007306	0.00007573	0.00006649
T-ratio	0.306	−1.379	0.482	−0.810	1.249	0.930
b	0.41912720	0.31897804	0.31408157	0.15672852	0.24213812	0.26819949
T-ratio	5.731	9.159	11.261	1.732	5.720	6.993
χ^2 test:	21.24	55.03	26.35	33.30	62.83	59.51
χ^2 degrees of freedom	18	46	45	24	44	43
$p(\chi^2)$	**0.268**	0.170	**0.988**	0.098	0.033	0.048
Signs test: p(pos)	**0.869**	**0.944**	**0.811**	**0.915**	**0.770**	**0.813**
Runs test: p(runs)	**0.918**	**0.681**	**0.295**	**0.963**	**0.076**	**0.063**
K-S test: p(KS)	**0.934**	**0.728**	**0.974**	**0.950**	**0.990**	**0.673**
Graduation satisfactory?	No	No	Yes	No	No	No
Comment	1	2		3	4	5

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. There are only 153 deaths and thus the graduation is not wholly satisfactory.
2. Actual deaths are above expected for most ages above 62.
3. The value of χ^2 is large due to a volatile number of deaths at a few ages and there are only 194 actual deaths.
4. The actual number of deaths is below expected for most ages between 49 and 66 and the value of χ^2 is large due to erratic numbers of actual deaths at age 63.
5. The number of actual deaths is below expected for most ages between 50 and 62 and above expected for most ages above age 66. The value of χ^2 is large due to erratic numbers of actual deaths at certain ages.

Table 8. Temporary assurances (non-linked), males, smokers, full underwriting: durations 0, 1 to 4 and 5 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1–4	5 and over	0	1–4	5 and over
Comparison basis	TM92 D0	TM92 D1–4	TM92 D5+	TM92 D0	TM92 D1–4	TM92 D5+
Age range	*17 to 90*	*17 to 90*	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	48	348	455	71	342	354
100A/E on comparison basis	89.060	164.100	141.223	132.655	174.161	179.742
Values of parameters at optimum point:						
a	−0.00014364	−0.00064075	−0.00005859	−0.00019514	−0.00043245	−0.00033555
T-ratio	−0.822	−4.403	−0.364	−0.806	−2.625	−1.615
b	−0.03079859	−1.05025530	−0.43534992	−0.50693013	−1.02390704	−0.94924774
T-ratio	−0.137	−7.425	−4.689	−1.778	−6.731	−6.870
χ^2 *test:*	17.47	51.06	36.69	4.27	28.21	48.38
χ^2 degrees of freedom	6	31	32	9	33	33
$p(\chi^2)$	0.008	0.013	**0.260**	**0.893**	**0.704**	0.041
Signs test: *p*(pos)	**0.855**	**0.758**	**0.805**	**0.726**	**0.633**	**0.752**
Runs test: *p(runs)*	**0.925**	**0.176**	**0.603**	**0.142**	**0.755**	**0.998**
K-S test: *p*(KS)	**0.996**	**0.686**	**0.981**	**1.000**	**1.000**	**0.997**
Graduation satisfactory?	No	Yes	Yes	No	Yes	Yes
Comment	1	1	1	2		1

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. The large value of χ^2 is due to a volatile number of actual deaths at a few ages. Further, there are only 48 actual deaths at duration 0.
2. There are only 71 deaths and thus the graduation is not wholly satisfactory.

Table 9. Temporary assurances (non-linked), males, non-smokers and smokers combined, full underwriting: durations 0, 1 to 4 and 5 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1–4	5 and over	0	1–4	5 and over
Comparison basis	TM92 D0	TM92 D1–4	TM92 D5+	TM92 D0	TM92 D1-4	TM92 D5+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	201	1,084	1,646	265	1,122	1,091
100A/E on comparison basis	64.896	80.360	80.882	88.472	95.651	93.214
Values of parameters at optimum point:						
a	0.00000764	−0.00010901	0.00004689	−0.00006067	0.00003823	0.00004675
T-ratio	0.115	−2.339	0.857	−0.701	0.652	0.661
b	0.35720324	0.13702705	0.20803994	0.06802408	0.06497046	0.08602966
T-ratio	5.058	3.774	7.537	0.770	1.516	2.196
χ^2 test:	31.10	55.83	26.48	19.23	48.90	53.88
χ^2 degrees of freedom	24	51	48	26	49	44
$p(\chi^2)$	0.151	**0.298**	**0.998**	**0.827**	**0.477**	0.146
Signs test: p(pos)	**0.722**	**0.864**	**0.556**	**0.716**	**0.800**	**0.670**
Runs test: p(runs)	**0.739**	**0.966**	**0.334**	**0.291**	**0.528**	**0.242**
K-S test: p(KS)	**0.840**	**0.970**	**1.000**	**0.854**	**0.998**	**0.896**
Graduation satisfactory?	Yes	Yes	Yes	Yes	Yes	Yes
Comment	1					2

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. The χ^2 test has a large value due to a volatile number of deaths at age 62.
2. The large value of χ^2 is due to a volatile number of actual deaths at a few ages.

Table 10. *Temporary assurances (non-linked), females, non-smokers, full underwriting: durations 0, 1 to 4 and 5 and over: statistics for graduations of* $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1–4	5 and over	0	1–4	5 and over
Comparison basis	TF92 D0	TF92 D1–4	TF92 D5+	TF92 D0	TF92 D1–4	TF92 D5+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	45	318	454	42	233	222
100A/E on comparison basis	76.513	69.109	77.777	81.311	74.294	80.404
Values of parameters at optimum point:						
a	−0.00002704	−0.00006020	−0.00003235	−0.00000713	−0.00002707	−0.00002173
T-ratio	−0.525	−1.871	−0.576	−0.128	−0.633	−0.274
b	0.16698583	0.24375789	0.19717107	0.16939009	0.22696241	0.17875948
T-ratio	0.932	4.455	3.422	0.894	3.255	2.058
χ^2 test:	3.19	16.89	33.95	2.48	46.50	26.86
χ^2 degrees of freedom	6	35	37	5	26	25
$p(\chi^2)$	**0.784**	**0.996**	**0.613**	**0.779**	0.008	**0.363**
Signs test: p(pos)	**0.855**	**0.745**	**0.739**	**0.776**	**0.716**	**0.648**
Runs test: p(runs)	**0.417**	**0.386**	**0.755**	**0.524**	**0.587**	0.014
K-S test: p(KS)	**0.950**	**0.999**	**0.992**	**0.999**	**0.973**	**0.895**
Graduation satisfactory?	No	Yes	Yes	No	Yes	No
Comment	1			2	3	4

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. There are only 45 deaths and thus the graduation is not wholly satisfactory.
2. There are only 42 deaths and thus the graduation is not wholly satisfactory.
3. The χ^2 test has a large value due to a volatile number of deaths at age 80.
4. The number of actual deaths is below expected for most ages below 44 and above expected for most ages above age 51.

Table 11. Temporary assurances (non-linked), females, smokers, full underwriting: durations 0, 1 to 4 and 5 and over: statistics for graduations of $q_x = a + (1 - b)\, q_x^*$

	1995–1998			1991–1994		
Duration	0	1–4	5 and over	0	1–4	5 and over
Comparison basis	TF92 D0	TF92 D1 4	TF92 D5+	TF92 D0	TF92 D1–4	TF92 D5+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	23	133	219	21	102	94
100A/E on comparison basis	161.732	129.353	173.081	154.139	135.454	147.152
Values of parameters at optimum point:						
A	0.00006992	−0.00036361	−0.00023920	−0.00045432	−0.00013549	−0.00018893
T-ratio	0.431	−4.067	−1.640	−3.799	−1.462	−1.031
b	−0.42325777	−0.70762818	−0.91484543	−1.75906044	−0.51847216	−0.63179496
T-ratio	−0.790	−4.063	−5.357	−2.743	−2.771	−2.756
χ^2 test:	2.81	16.78	20.71	0.63	19.28	10.98
χ^2 degrees of freedom	2	17	24	2	14	12
$p(\chi^2)$	**0.246**	**0.469**	**0.656**	**0.730**	0.155	**0.531**
Signs test: p(pos)	**0.933**	**0.677**	**0.579**	**0.933**	**0.773**	**0.788**
Runs test: p(runs)	**0.192**	**0.334**	**0.274**	**0.095**	**0.421**	**0.644**
K-S test: p(KS)	**1.000**	**1.000**	**0.928**	**0.967**	**0.988**	**0.979**
Graduation satisfactory?	No	No	Yes	No	No	No
Comment	1	2		3	4	5

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. There are only 23 deaths and thus the graduation is not wholly satisfactory.
2. The graduation is not satisfactory as it results in negative values of q_x at ages below 25. The value of χ^2 is large due to a volatile number of actual deaths at age 56.
3. There are only 21 deaths and thus the graduation is not wholly satisfactory.
4. There are only 102 deaths and thus the graduation is not wholly satisfactory. The χ^2 test has a large value due to a volatile number of deaths at age 50.
5. There are only 94 deaths and thus the graduation is not wholly satisfactory.

Table 12. Temporary assurances (non-linked), females, non-smokers and smokers combined, full underwriting: durations 0, 1 to 4 and 5 and over: statistics for graduations of $q_x = a + (1-b)\,q_x^*$

	1995–1998			1991–1994		
Duration	0	1–4	5 and over	0	1–4	5 and over
Comparison basis	TF92 D0	TF92 D1–4	TF92 D5+	TF92 D0	TF92 D1–4	TF92 D5+
Age range	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90	17 to 90
Number of deaths	68	451	673	63	335	316
100A/E on comparison basis	93.107	80.112	94.755	96.511	86.136	92.945
Values of parameters at optimum point:						
a	0.00000000	−0.00010700	−0.00007475	−0.00006760	−0.00004444	−0.00005549
T-ratio	0.000	−3.596	−1.418	−1.351	−1.137	−0.764
b	0.06945655	0.08191495	−0.00545079	−0.13733332	0.08840419	0.02492122
T-ratio	0.392	1.523	−0.0967	−0.723	1.326	0.302
χ^2 test:	18.18	31.03	33.50	4.51	44.58	35.21
χ^2 degrees of freedom	9	42	41	8	34	30
$p(\chi^2)$	0.033	**0.894**	**0.791**	**0.808**	0.106	**0.235**
Signs test: p(pos)	**0.887**	**0.855**	**0.618**	**0.626**	**0.568**	**0.702**
Runs test: p(runs)	**0.610**	0.018	**0.732**	**0.633**	**0.695**	**0.189**
K-S test: p(KS)	**0.937**	**0.997**	**0.982**	**0.985**	**0.991**	**0.703**
Graduation satisfactory?	No	No	Yes	No	Yes	Yes
Comment	1			2	3	

The values of fitting statistics which are considered reasonable are highlighted in bold.

1. There are only 68 deaths and thus the graduation is not wholly satisfactory.
2. There are only 63 deaths and thus the graduation is not wholly satisfactory.
3. The large value of χ^2 is due to a volatile number of actual deaths at a few ages.

CMIR **20** (2001) 91–107

THE MORTALITY OF IMPAIRED ASSURED LIVES, 1987–98

The investigation into the mortality of impaired assured lives was started on 1 January 1982 and includes only policies written on or after that date. The previous report (*C.M.I.R.* **16**, 95) covered the period 1983–94, giving a twelve-year span. The Committee believes that this period maximises the number of deaths available for investigation while still being short enough to preclude secular changes in mortality from having too big an influence on the results. On this occasion data for the years 1987–98 is covered.

The sections that follow cover the data build up, the results in general, and comments on a number of impairments with sufficient data to allow more detailed study. The tables relating to the text are placed together at the end of the report on pp 96 to 107.

1. THE DATA

Tables IMP 1a and IMP 1b show, for males and females respectively, the exposed to risk and the deaths in the same impairment groups as were shown in the last report. The only impairment group for which changes have been made over the period is that for tumours. Since 1991 the group that included tumours of the breast and uterine fibroids has been divided and extended. There are now categories covering all malignant tumours except cervical tumours and rodent ulcers. Benign tumours of the breast and uterine fibroids have their own groups.

The investigation covers policies, separately coded, from each of the major categories of life assurance business investigated by the Bureau. These are single life permanent (whole life and endowment), both linked and non-linked, and temporary, plus joint life first death. However, again in order to maximise the data, all classes are combined for the purposes of this report. The number of offices participating in the investigation has reduced since the last report. Further, the volume of new business reported under this investigation by these offices has also been reducing. This may be due to existing products sold by these offices being replaced by new ones which are not included in the returns to the Bureau for this investigation, or that their new products do not include benefits that require underwriting and hence rating. This may also be due to reducing market shares of the contributing offices.

2. THE RESULTS – GENERAL COMMENTS

The results are presented in Tables IMP 2a and IMP 2b. These show, for broad impairment groups, the exposed to risk, the actual deaths and the percentage ratios of the actual deaths to those which would have been expected using the AM80 table for males, and the AF80 table for females. An index showing the additional mortality per 1000 exposed to risk is also given. Although the mortality for unrated lives has moved away from that represented by AM/AF 80 select, previous reports used the "80" Series as a comparison basis and so they have been used again in this report to enable trends to be identified.

Tables IMP 8a and IMP 8b show the same comparisons but use the AM92 table for males and the AF92 table for females. In future reports, all comparisons will be against the mortality represented by AM/AF 92 select.

The median point for the impaired lives data probably lies somewhere around the middle of 1993. At this point the level of mortality of unrated lives against AM/AF 80 select for all durations was approximately 72% for males and 78% for females. Against AM/AF 92 the level of mortality for unrated lives was approximately 99% for both males and females.

While for many impairment groups there is only enough data to give results for all durations combined, for some groups an analysis by duration is possible. The results are shown in Tables IMP 3a and IMP 3b. Previous reports put forward the view that the additional risk for impaired lives is heavily front loaded apart from early onset diabetes where it is more evenly spread. The results in this report indicate that the additional risk for male impaired lives is more evenly spread for hypertension and late onset diabetes while there is some front loading of additional risk for early onset diabetes. However, care needs to be taken with these results, as the number of deaths is small at duration 0 for hypertension and diabetes.

Table IMP 4 shows, for male lives, the experience of the same groups compared against the ultimate rates of the AM80 table. The different pattern with regard to duration of the rated lives as compared to the unrated lives can clearly be seen. This report does not contain a Table IMP 5.

Tables IMP 6a, 6b and 7 show the same analysis by duration, but use the "92" Series mortality tables as a comparison basis.

It should always be kept in mind that the results in most impairment groups are based on a limited number of deaths, and that there are wide variations between the sub-groups in each category.

3. THE RESULTS BY IMPAIRMENT

The following paragraphs cover only those groups of impairment where there are sufficient data to provide significant results. The results considered in this section are based on the "80" Series mortality tables to allow comparisons to be drawn with previous reports.

In general, the results of this investigation support the conclusions drawn in previous reports on impaired lives. However, at durations 2 and over, the additional risk shown is higher than reported previously for early onset diabetes mellitus and where the insured is more than 20% overweight. The higher than previously reported additional risk may be due to the data maturing, indicating that these impairments may have selection periods longer than 2 years.

3.1 *Hypertension*

For all age groups it is clear that hypertension is a significant extra risk both for males and females. As in the last report on impaired lives (*C.M.I.R.* **16**) the lower the age at entry, the higher the additional risk for both sexes. For males, the additional risk within age groups increases with the severity of the hypertension. For females, the data are too few to allow a full analysis by severity of the hypertension.

3.2 *Ischaemic heart disease without surgery*

The additional risk is very heavy among males entering at ages below 50. There is not enough data for females entering at ages below 50 to reach any conclusions. At ages over 50, the additional risk for males falls and that for females rises, converging at a point for both sexes about twice the mortality recorded for standard lives.

3.3 *Ischaemic heart disease with surgery*

There are a significant number of deaths among the males and the additional mortality recorded is certainly severe. A similar, albeit slightly lower, additional mortality is recorded among the females, with the caution that the number of deaths on which this conclusion is based is small.

3.4 *Nervous disorders*

As in the last report on impaired lives (*C.M.I.R.* **16**) there is a distinct difference, for both males and females, between those whose disorder is defined as mild or moderate and those whose disorder is severe. For both sexes those with a mild or moderate diagnosis experience a level of mortality similar to that experienced by standard lives. Those with a severe diagnosis suffer a significant additional risk. For females, the additional risk is higher than for males, particularly in the case where the disorder is severe.

3.5 *Peptic ulcer*

For males, where the data allow a distinction between cases with or without surgery, it appears that for the without surgery cases there is virtually no extra risk. There is some extra risk for cases with surgery; logic would suggest that these are the more serious cases. As the business has matured, the additional risk for males who have had surgery has increased compared to the previous investigation.

3.6 *Disseminated sclerosis*

There were not enough deaths in previous investigations to comment on this disorder. Since the last report, the number of deaths recorded has increased and the additional risk appears severe, particularly for females.

3.7 *Epilepsy*

For males, the recorded additional risk is severe. The number of female deaths is small, but the indications are of severe additional risk. Since most epileptics whose symptoms are well controlled are accepted on standard terms, the implication must be that only the rated cases are being submitted in the statistics supplied by offices.

3.8 *Diabetes mellitus*

Among males there is a clear distinction between the mortality experience of early onset and late onset cases, that of early onset being much the heavier. As the business has matured, the additional risk for males aged above 50 with early onset diabetes has increased compared to the previous investigation. For females under 50 at outset, a similar, but more pronounced, effect can be seen, though the number of deaths is small.

3.9 *Respiratory disorders*

There is some additional risk for males suffering bronchial asthma. Where this degenerates to chronic bronchitis the risk is heavier. However, the really defining extra risk factor is the presence of emphysema where the additional mortality recorded is extremely high. For females overall, a fairly heavy additional risk is indicated.

3.10 *Tumours*

For females, the additional risk for malignant tumours appears to be extremely high. Where the tumours are non-malignant there appears to be no additional risk. The number of male deaths is small, but the indications are of severe additional risk.

3.11 *Overweight*

Unlike the previous report, which noted significant additional risk for females more than 40% overweight only, there also appears to be significant additional risk where the insured is less than 40% but more than 20% overweight. There is insufficient data to give a breakdown by entry age. For males more than 30% overweight, the additional risk appears to be higher at ages 30 to 49 than for ages 50 and over. The average duration of the business has increased since the last report and so may indicate that the additional risk where the insured is more than 20% overweight may have a longer selection period than previously thought.

4. CONCLUSIONS

The exposed to risk is reducing, particularly at durations 0 and 1, due to fewer offices contributing data. Volumes of new business reported by the remaining offices under this investigation are also falling.

For early onset diabetes mellitus and where the insured is more than 20% overweight, the 100A/E has worsened for durations 2 and over as the business has matured. Over the same period, the 100A/E for non-rated lives has reduced. This indicates that the additional risk for these groups may be higher than thought in previous reports.

While the investigation is yielding what the Executive Committee believes to be useful results, their credibility would be greatly enhanced if more offices were to join the investigation.

It remains to thank those offices that have faithfully contributed data over the years. Others could show their appreciation by offering to join them in this enterprise. The Bureau would be pleased to discuss this with anyone interested.

Table IMP 1a. Impaired lives 1987–98, males: deaths and exposed to risk in impairment groups, by curtate duration.

	Duration 0		Duration 1		Durations 2 and over		All durations	
Impairment	Deaths	Exposed to risk	Deaths	Exposed to risk	Deaths	Exposed to risk	Deaths	Exposed to risk
Hypertension	13	3,510	21	3,843	501	37,597	535	44,949
IHD without surgery	72	4,049	75	4,253	844	28,871	991	37,172
IHD with surgery	11	1,016	11	971	110	4,264	132	6,250
Cerebrovascular disease	8	450	4	456	67	2,769	79	3,674
Nervous disorders	0	3,649	6	3,613	100	27,067	116	34,328
Disseminated sclerosis	2	386	1	422	27	2,941	30	3,748
Peptic ulcer	4	1,181	3	1,437	113	18,337	120	20,954
Ulcerative colitis	0	926	5	987	22	6,523	27	8,435
Crohn's disease	0	622	2	667	12	4,177	14	5,466
Epilepsy	2	890	5	980	43	8,472	50	10,341
Diabetes mellitus	22	5,724	36	6,098	341	34,816	399	46,638
Respiratory disorders	28	8,211	34	8,185	270	46,956	332	63,352
Urinary disorders	1	320	3	419	37	5,189	41	5,928
Malignant tumour*	3	170	2	127	2	361	7	657
Overweight	15	12,394	25	11,329	242	65,369	282	89,092
All impairments in investigation	191	43,498	233	43,787	2,731	293,709	3,155	380,984

* Breast only to 1990, all sites from 1991.

Table IMP 1b. Impaired lives 1987–98, females: deaths and exposed to risk in impairment groups, by curtate duration.

Impairment	Duration 0		Duration 1		Durations 2 and over		All durations	
	Deaths	Exposed to risk	Deaths	Exposed to risk	Deaths	Exposed to risk	Deaths	Exposed to risk
Hypertension	8	1,718	11	1,972	260	19,183	279	22,872
IHD without surgery	14	1,010	13	1,103	140	7,143	167	9,255
IHD with surgery	2	137	1	141	11	618	14	896
Cerebrovascular disease	2	253	1	261	30	1,648	33	2,162
Nervous disorders	13	6,064	14	5,824	117	37,366	144	49,253
Disseminated sclerosis	0	546	2	611	39	3,817	41	4,974
Peptic ulcer	2	378	2	412	19	3,489	23	4,279
Ulcerative colitis	1	662	1	715	8	4,121	10	5,497
Crohn's disease	1	699	2	721	6	3,708	9	5,127
Epilepsy	1	880	3	921	16	6,463	20	8,264
Diabetes mellitus	10	2,772	21	2,999	109	16,880	140	22,651
Respiratory disorders	14	8,852	15	8,324	131	37,176	160	54,351
Urinary disorders	0	231	1	265	9	2,587	10	3,082
Malignant tumour*	6	945	8	972	104	6,410	118	8,326
Overweight	24	25,562	26	23,072	221	105,296	271	153,929
All impairments in investigation	98	50,709	121	48,313	1,220	255,905	1,439	354,918

* Breast tumours and uterine fibroids to 1990: all malignant tumours, except cervical, plus non-malignant breast tumours and uterine fibroids from 1991.

Table IMP 2a. Impaired lives, 1987–98, males, all investigations and all durations combined: exposed to risk, actual deaths, percentage ratios of actual deaths to those expected using the AM80 select table (100A/E) and excess deaths per 1000 exposed to risk (A–E ‰).

Impairment			Exposed to risk	Actual deaths	100 A/E	A–E ‰
Hypertension						
Entry ages	SAP	DAP				
Under 40	all	all	9,702	25	136	0.7
40-59	155 & over	under 95	7,649	72	116	1.3
40-59	155 & over	95-105	11,151	88	100	0.0
40-59	under 155	95 & over	5,349	38	97	–
40-59	155 & over	over 105	4,456	50	128	2.5
40-59	all	all	28,603	248	109	0.7
60 & over	160 & over	under 100	3,470	124	88	–
60 & over	160 & over	100-110	2,741	110	107	2.6
60 & over	under 160	100 & over				
60 & over	160 & over	over 110	434	28	151	21.9
60 & over	all	all	6,645	262	100	–
Ischaemic heart disease (without surgery)						
Entry ages	Onset					
Under 50	within 4 years		5,341	63	323	8.1
Under 50	4 years & over		4,377	56	297	8.5
50 & over	within 2 years		6,604	171	147	8.2
50 & over	2-4 years		5,732	180	171	13.1
50 & over	4-6 years		4,915	143	162	11.1
50 & over	6 years & over		10,204	378	164	14.4
Ischaemic heart disease (with surgery)			6,250	132	196	10.4
Cerebrovascular disorders			3,674	79	172	9.0
Nervous disorders						
Mild or moderate			23,652	73	61	–
Severe (including schizophrenia & attempted suicide)			10,676	43	87	–
Disseminated sclerosis			3,748	30	190	3.8
Peptic ulcer						
Without surgery			16,011	71	63	–
With surgery			4,944	49	108	0.8
Ulcerative colitis			8,435	27	88	–
Crohn's disease			5,466	14	102	0.1
Epilepsy			10,341	50	136	1.3

Table IMP 2a. (Continued).

Impairment		Exposed to risk	Actual deaths	100 A/E	A–E ‰
Diabetes mellitus					
Entry ages	Years since diagnosis				
Under 50	all	34,710	121	202	1.8
50 & over	under 10	7,479	146	114	2.4
50 & over	10 or more	4,450	132	207	15.3
Respiratory disorders					
Bronchial asthma		59,064	215	104	0.1
Chronic bronchitis without emphysema		2,704	54	140	5.7
Chronic bronchitis with emphysema		1,137	47	190	19.5
Emphysema without bronchitis		447	16	301	23.9
Urinary disorders		5,928	41	117	1.0
Tumours					
Breast, malignant		657	7	179	4.7
Overweight					
Entry ages	Overweight %				
Under 30	20-30	20,876	8	58	–
Under 30	over 30	10,691	2	26	–
30-49	20-30	26,230	55	99	–
30-49	over 30	19,586	61	133	0.8
50 & over	20-30	7,380	109	100	0.0
50 & over	over 30	4,330	47	76	–
Unrated lives 1993				72	

Table IMP 2b. Impaired lives, 1987–98, females, all investigations and all durations combined: exposed to risk, actual deaths, percentage ratios of actual deaths to those expected using the AF80 select table (100A/E) and excess deaths per 1000 exposed to risk (A–E ‰).

Impairment			Exposed to risk	Actual deaths	100 A/E	A–E ‰
Hypertension						
Entry ages	SAP	DAP				
Under 40	all	all	3,387	10	233	1.7
40-59	all	all	12,684	68	114	0.6
60 & over	all	all	6,802	201	100	–
all	all	all	22,872	279	105	0.6
Ischaemic heart disease (without surgery)						
Entry ages	Onset					
Under 50	all durations		1,678	2	51	–
50 & over	within 4 years		3,460	75	163	8.4
50 & over	4 years & over		4,118	90	131	5.1
Ischaemic heart disease (with surgery)			896	14	187	7.3
Cerebrovascular disorders			2,162	33	193	7.4
Nervous Disorders						
Mild or moderate			34,514	81	88	–
Severe (including schizophrenia & attempted suicide)			14,739	63	169	1.7
Disseminated sclerosis			4,974	41	336	5.8
Peptic ulcer						
With or without surgery			4,279	23	106	0.3
Ulcerative colitis			5,497	10	111	0.2
Crohn's disease			5,127	9	142	0.5
Epilepsy			8,264	20	142	0.7
Diabetes mellitus						
Entry ages	Years since diagnosis					
Under 50	all		18,001	40	240	1.3
50 & over	under 10		2,618	60	207	11.9
50 & over	10 or more		2,032	40	201	9.9
Respiratory disorders			54,351	160	146	0.9
Urinary disorders			3,082	10	162	1.2
Tumours						
All malignant excluding cervical			6,124	114	305	12.5
Breast, non malignant, and uterine fibroids			2,203	4	65	–

Table IMP 2b. (Continued).

Impairment		Exposed to risk	Actual deaths	100 A/E	A–E ‰
Overweight					
Entry ages	Overweight %				
all	20-40	113,334	196	94	–
all	Over 40	40,595	75	96	–
all	all	153,929	271	94	–
Unrated lives 1993				78	

Table IMP 3a. Males: percentage ratios of actual deaths to those expected using the AM80 select table, by duration in force, for significant impairments.

	Duration			
Impairment	0	1	2 and over	All
Hypertension	114	118	104	105
IHD without surgery	319	227	161	171
Diabetes mellitus - early onset	242	222	200	204
- late onset	103	182	110	114
Respiratory disorders	210	186	111	121
Unrated lives 1993	94	90	77	72

Table IMP 3b. Females: percentage ratios of actual deaths to those expected using the AF80 select table, by duration in force, for significant impairments.

	Duration			
Impairment	0	1	2 and over	All
Hypertension	181	104	104	105
IHD without surgery	365	153	132	141
Unrated lives 1993	75	77	79	78

Table IMP 4. Males: percentage ratios of actual deaths to those expected using the AM80 ultimate table, by duration in force, for significant impairments.

	Duration			
Impairment	0	1	2 and over	All
Hypertension	62	80	104	102
IHD without surgery	162	144	161	160
Diabetes mellitus - early onset	146	166	200	193
- late onset	51	116	110	106
Respiratory disorders	119	131	111	113
Unrated lives 1993	54	65	71	71

Table IMP 6a. Males: percentage ratios of actual deaths to those expected using the AM92 select table, by duration in force, for significant impairments.

	Duration			
Impairment	0	1	2 and over	All
Hypertension	121	121	143	141
IHD without surgery	321	216	219	224
Diabetes mellitus - early onset	258	236	278	273
- late onset	106	175	150	149
Respiratory disorders	217	188	151	158
Unrated lives 1993	99	94	99	99

Table IMP 6b. Females: percentage ratios of actual deaths to those expected using the AF92 select table, by duration in force, for significant impairments.

	Duration			
Impairment	0	1	2 and over	All
Hypertension	191	158	131	133
IHD without surgery	384	234	167	180
Unrated lives 1993	87	111	98	99

Table IMP 7. Males: percentage ratios of actual deaths to those expected using the AM92 ultimate table, by duration in force, for significant impairments.

Impairment	Duration			
	0	1	2 and over	All
Hypertension	89	114	143	140
IHD without surgery	228	201	219	218
Diabetes mellitus - early onset	198	225	278	266
- late onset	73	163	150	144
Respiratory disorders	161	178	151	154
Unrated lives 1993	74	89	99	99

Table IMP 8a. Impaired lives, 1987–98, males, all investigations and all durations combined: exposed to risk, actual deaths, percentage ratios of actual deaths to those expected using the AM92 select table (100A/E) and excess deaths per 1000 exposed to risk (A–E ‰).

Impairment			Exposed to risk	Actual deaths	100 A/E	A–E ‰
Hypertension						
Entry ages	SAP	DAP				
Under 40	all	all	9,702	25	181	1.2
40-59	155 & over	under 95	7,649	72	168	3.8
40-59	155 & over	95-105	11,151	88	146	2.5
40-59	under 155	95 & over	5,349	38	142	2.1
40-59	155 & over	over 105	4,456	50	186	5.2
40-59	all	all	28,603	248	158	3.2
60 & over	160 & over	under 100	3,470	124	111	3.4
60 & over 60 & over	160 & over under 160	100-110 100 & over	2,741	110	136	10.5
60 & over	160 & over	over 110	434	28	190	30.7
60 & over	all	all	6,645	262	126	8.1
Ischaemic heart disease (without surgery)						
Entry ages	Onset					
Under 50	within 4 years		5,341	63	477	9.3
Under 50	4 years & over		4,377	56	439	9.9
50 & over	within 2 years		6,604	171	192	12.4
50 & over	2-4 years		5,732	180	225	17.4
50 & over	4-6 years		4,915	143	213	15.4
50 & over	6 years & over		10,204	378	210	19.4
Ischaemic heart disease (with surgery)			6,250	132	258	12.9
Cerebrovascular disorders			3,674	79	222	11.8
Nervous disorders						
Mild or moderate			23,652	73	83	–
Severe (including schizophrenia & attempted suicide)			10,676	43	119	0.6
Disseminated sclerosis			3,748	30	264	5.0
Peptic ulcer						
Without surgery			16,011	71	87	–
With surgery			4,944	49	148	3.2
Ulcerative colitis			8,435	27	119	0.5

Table IMP 8a. (Continued).

Impairment		Exposed to risk	Actual deaths	100 A/E	A–E ‰
Crohn's disease		5,466	14	138	0.7
Epilepsy		10,341	50	184	2.2
Diabetes mellitus					
Entry ages	Years since diagnosis				
Under 50	all	34,710	121	271	2.2
50 & over	under 10	7,479	146	149	6.4
50 & over	10 or more	4,450	132	274	18.9
Respiratory disorders					
Bronchial asthma		59,064	215	137	1.0
Chronic bronchitis without emphysema		2,704	54	182	9.0
Chronic bronchitis with emphysema		1,137	47	244	24.4
Emphysema without bronchitis		447	16	392	26.7
Urinary disorders		5,928	41	162	2.7
Tumours					
Breast, malignant		657	7	224	5.9
Overweight					
Entry ages	Overweight %				
Under 30	20-30	20,876	8	64	–
Under 30	over 30	10,691	2	29	–
30-49	20-30	26,230	55	137	0.6
30-49	over 30	19,586	61	187	1.4
50 & over	20-30	7,380	109	132	3.5
50 & over	over 30	4,330	47	102	0.2
Unrated lives 1993				99	

Table IMP 8b. Impaired lives, 1987–98, females, all investigations and all durations combined: exposed to risk, actual deaths, percentage ratios of actual deaths to those expected using the AF92 select table (100A/E) and excess deaths per 1000 exposed to risk (A–E ‰).

Impairment			Exposed to risk	Actual deaths	100 A/E	A–E ‰
Hypertension						
Entry ages	SAP	DAP				
Under 40	all	all	3,387	10	282	1.9
40-59	all	all	12,684	68	145	1.7
60 & over	all	all	6,802	201	127	6.2
all	all	all	22,872	279	133	3.1
Ischaemic heart disease (without surgery)						
Entry ages	Onset					
Under 50	all durations		1,678	2	64	–
50 & over	within 4 years		3,460	75	209	11.3
50 & over	4 years & over		4,118	90	167	8.8
Ischaemic heart disease (with surgery)			896	14	239	9.1
Cerebrovascular disorders			2,162	33	246	9.1
Nervous Disorders						
Mild or moderate			34,514	81	110	0.2
Severe (including schizophrenia & attempted suicide)			14,739	63	212	2.3
Disseminated sclerosis			4,974	41	422	6.3
Peptic ulcer						
With or without surgery			4,279	23	134	1.4
Ulcerative colitis			5,497	10	137	0.5
Crohn's disease			5,127	9	174	0.7
Epilepsy			8,264	20	177	1.1
Diabetes mellitus						
Entry ages	Years since diagnosis					
Under 50	all		18,001	40	290	1.5
50 & over	under 10		2,618	60	266	14.3
50 & over	10 or more		2,032	40	258	12.0
Respiratory disorders			54,351	160	183	1.3
Urinary disorders			3,082	10	201	1.6

Table IMP 8b. (Continued).

Impairment		Exposed to risk	Actual deaths	100 A/E	A–E ‰
Tumours					
All malignant excluding cervical		6,124	114	391	13.8
Breast, non malignant, and uterine fibroids		2,203	4	82	–
Overweight					
Entry ages	Overweight %				
all	20-40	113,334	196	118	0.3
all	Over 40	40,595	75	120	0.3
all	All	153,929	271	118	0.3
Unrated lives 1993				99	

CMIR **20** (2001) 109–140

A REPORT ON A PILOT INVESTIGATION INTO THE MORTALITY EXPERIENCE OF PENSIONERS OF SELF-ADMINISTERED PENSION SCHEMES

1. INTRODUCTION

1.1 In 1997 the Technical Support and Research Committee of the Pensions Board began discussions with the CMIB about the possibility of conducting an investigation into the mortality experience of self-administered occupational pension schemes. In the light of these discussions it was agreed to run a pilot investigation.

1.2 The brief given to the Secretariat of the CMIB was to compare the mortality experience of the schemes in the pilot investigation with published standard tables of mortality based on other similar experiences.

1.3 A data specification was drawn up (Appendix 1) and circulated to the consultancies who had agreed to contribute data. In order to encourage data contributions the CMIB was willing to accept data in other formats should that be easier to produce. For the same reason, it was also decided not to specify the period to which the data should relate. It was hoped that each scheme experience would cover a three-year period and that data would be contributed quickly. In this way it was expected that there would be considerable overlap in the experience periods for which data was to be collected. In the event this proved not to be the case. Data was collected by the CMIB over a two year period between June 1998 and October 2000 with the three year periods straddling the calendar years 1993 to 1999.

1.4 Data was collected for males and females on both 'lives' and 'amounts' bases. Although requested in the data submission instructions no consistently usable information was supplied concerning industrial sector or the type of scheme membership (e.g. works or staff) and therefore no analysis allowing for this information was possible. There was also insufficient data to enable a longitudinal study to monitor trends in mortality.

1.5 This report has been produced during the month of November 2000 by the Secretariat of the CMIB. The intention is to provide information as quickly as possible to aid the current consultation allowed under the MFR review. This report has not been peer reviewed by the members of any CMIB committee.

2. CONCLUSIONS

- The experience is heavier than that predicted by the pensioner tables contained in the CMIB's "92" Series of tables but for males it is lighter than that predicted by the equivalent "80" Series tables. The female experience is heavier than both of these tables and heavier than PA(90) –2.
- A mini-graduation of the experience is provided in this report. A statistically sound graduation may be impossible given the data; it was certainly not possible given the one month timescale applied to this report. Using the mini-graduation and the mortality improvement factors underlying the CMIB's "92" Series of mortality tables, the male annuity rate in the year 2000 at age 65 (at 3% p.a.) is 5% higher than that produced using PA(90) –4. In the year 2020 this percentage increases to 11%. However, at higher ages the picture is different, where the equivalent annuity value for a male aged 85 in the year 2000 is 89% of the annuity value produced using PA(90) –4. In 2020 this percentage becomes 98%. (See sections 7 and 8.)
- Variations between the results of schemes in the investigation are not as wide as might have been expected and most schemes seem to have a similar mortality experience.
- Whilst the average amounts of pension seen in this investigation are quite different to those seen in the CMIB investigations the difference between the overall mortality measured on an amounts and on a lives basis is similar to the differences seen in the CMIB investigations. However, this is not the case when looked at age by age.
- Thanks are due to the organisations that contributed data but, clearly, the data could have been better. If the results of this investigation need to be confirmed it would be necessary to repeat this exercise with more coherent data and with a better understanding of the differences the data contains

3. THE DATA

3.1 Data was received from

- The Government Actuary's Department
- Mercers
- Aon
- Bacon & Woodrow
- The Prudential staff scheme
- Punter Southall
- Watson Wyatt

3.2 Most organisations contributed data for more than one scheme. Data was submitted in a wide variety of formats, most of which required manipulation before they could be entered into the CMIB database. Once this was done the experience of each scheme was analysed and returned to the contributing organisation. This was done in order to allow each organisation to examine their results and notify the CMIB if they felt that errors or misinterpretation had occurred.

3.3 Data from 13 schemes was collected. One of these proved to be unusable and was discarded. Tables 1 and 2 describe the features of remaining schemes. When looking at these tables the reader needs to be aware that the period chosen for the investigation was 1995–99 even though data was supplied for years prior to 1995. In particular Table 2 contains columns headed 'In' and 'Out'. These show the amount of data included or excluded from the investigation because it fell 'in' or 'out' of this period.

3.4 Table 3 shows summary details of the combined experience in each calendar year together with ratios of actual to expected deaths (100A/E ratios) calculated by reference to the PA(90) table of mortality rated down by two years. When considering these results the following points must be borne in mind.

a. The number of schemes in each year varies between 1 and 7. No scheme was included for more than 4 years.

b. Many schemes did not produce data year by year but instead produced an aggregate return for a period of several years. To allow the experience of these schemes to be combined, their data has been split into annual returns by assuming that the data is evenly spread over the period.

c. The types of data received varied between individual member records together with a list of pension review dates and schedules showing deaths and exposed to risk for the chosen period. In one of these latter cases the data combined the experience of active members and pensioners.

d. Given that none of the schemes reporting data for 1999 reported data for years prior to 1995 it may be that the experience of 1991–94 cannot be compared with that of 1995–99. Looking only at the experience of 1995–99 excludes one of the smallest schemes from the investigation.

e. Data was often provided for, say, tax years rather than calendar years. This data has been assumed to relate to the year in which the majority of the exposure occurred.

f. No analysis on the effect on the mortality experience was conducted by duration since retirement.

3.5 For a description of the 1995–98 experience of the CMIB investigation into the mortality of pensioners of insured group pension schemes see *C.M.I.R.* **19**, 73, which is also available on the actuarial profession's web site. Most of the information in that report relates to retirements at or after normal retirement age. It may be thought that the experience examined in this report is more comparable with a combination of the results of the CMIB's investigations into 'early' and 'normal' retirements. In the time available, a full comparison between the experience of this pilot investigation and the 'combined' CMIB experience was not possible. However, a brief examination of this type of comparison seems to indicate that this report's conclusions would not be altered by such a comparison.

3.6 On a lives basis the 1995–98 male and female experience in this pilot investigation is less than half the size of the CMIB pensioner investigation. Average amounts of pension are three to four times as big as the average pension in the CMIB pensioner experience.

3.7 Having reviewed this information it was decided to combine the experience for the years of 1995 to 1999 for the purposes of this investigation. This period only excludes one scheme.

4. THE COMBINED 1995–99 EXPERIENCE

4.1 *Males, amounts*
Table 4 shows several interesting features.

a. The mortality experience at ages below 51 is heavier than all the reference tables, which may indicate that ill-health retirements may have been included in some of the data. Ignoring the data below age 56 has little effect in the overall 100A/Es.

b. The 'combined' CMIB experience for 1995–98 gives an all ages 100A/E of 100 using PMA92(C = 1997). On the same basis the CMIB 1995–98 'normal' experience gives a 100A/E of 98.

c. When looking at the 100A/E ratios calculated on either PA(90) –2 or PA(90) –4 it appears that the shape of either of those tables and the shape of the mortality experience of this investigation are different. At the younger ages the number of deaths recorded in the experience is lower than predicted by each table but the reverse is true above age 80 for PA(90) –2 and above age 70 for PA(90) –4.

d. Apart from one age group in the range 51 to 100 the experience is lighter than the PMA80(C = 1997) table. The experience is also heavier than the PMA92(C = 1997) table at every age and it seems that the mortality experience of the investigation lies between these two tables.

e. The average amount of pension does not vary as much by age as it does in the CMIB pensioner investigations (see *C.M.I.R.* **16**, 75 Table PEN 1.5a). At young ages the average pension is about twice the size of the CMIB average whilst at older ages it is ten times the size.

4.2 *Females, amounts*
The features shown by Table 5 include:

a. In each case, the mortality experience of the investigation is heavier than that of the reference tables, with the biggest differences being seen at the youngest and the oldest ages. This implies that none of the tables are the correct shape to 'fit' the data.

b. As for the male amounts data, the mortality experience at young ages is much higher than that of the tables used for comparison and this may indicate the inclusion of ill-health retirements in the data. However, as for males, disregarding data below age 56 has little impact on the overall 100A/E ratios.

c. Similar features are seen in the distribution of average pension amounts in each age group as are noted above for male pensions.

4.3 *Males, lives*
Table 6 shows similar information to that contained in Table 4 but on a 'lives' basis. This shows:

a. Again the experience lies between that of the "80" Series and the "92" Series tables.

b. Again, the results at younger ages indicate that ill-heath data has been included.

c. Looking at the 100A/E ratios on the "80" Series and on the "92" Series and comparing these with the results from Table 4 it seems that the difference between the 'lives' and 'amounts' mortality seen in this investigation is similar to the difference seen in the CMIB pensioner investigations. Given that the average amount of pension payable in this investigation is several times larger than that in the CMIB investigations this result is, perhaps, surprising. However, it should be noted that the distribution of average pension amounts by age is quite different to that seen in the CMIB investigation with the largest discrepancies being at the oldest ages. This makes it difficult to draw any firm conclusions.

4.4 *Females, lives*
Again the experience exhibits mortality rates higher than the reference tables. Table 7 shows:

a. When looking at the all age 100A/E, there appears to be a modest difference between the results on the "80" Series and the "92" Series table, although the shapes are different. This may echo the results seen in the CMIB investigation where the "80" Series table proved to be a reasonably good predictor of mortality up to 1994 and if only females had been considered then new tables would not have been issued.

b. As was the case for the males experience, the difference between the mortality experience measured by 'lives' and 'amounts' is similar to that underlying the CMIB investigations.

5. VARIABILITY OF RESULTS BY SCHEME

5.1 Tables 8 and 9 show, on an amounts basis, by scheme, the 'all age' 100A/E ratios on the same four comparison bases as previously used. This shows the range of 100A/E ratios observed.

5.2 It can be seen that, for males, the mortality experience of most schemes, when measured in this way, lies between the experience as predicted by the "80" Series and "92" Series of mortality tables. For females, the mortality experience of most schemes is heavier than all the reference tables. Broadly, for both males and females, most schemes seem to exhibit similar levels of mortality.

5.3 Appendix 2 contains graphs that show, pictorially, for each scheme and on an amounts basis, the spread of the 100A/E ratios calculated for five-year age groups. This was done by

a. expressing the scheme age group 100A/E ratios as a percentage of the all scheme 100A/E ratio for the same age group, and then

b. multiplying the answer by the factor needed to make the all scheme 100A/E ratio, for that age group, equal to 100.

The results for each scheme are shown in the graphs as columns with schemes arranged in the order of the amount of exposure (as measured by the values shown in the 'In' columns of Table 2) with the largest scheme first.

6. FUTURE MORTALITY IMPROVEMENTS

6.1 This investigation has looked at the mortality experience of the data for the period 1995 to 1999. It has not been possible to examine mortality trends in this experience. However, given the trend of improving mortality observed in both the national data and the long running CMIB pensioner investigations it seems reasonable to expect that those same trends will affect the mortality of pensioners of self administered pension schemes. If the reader of this report wishes to develop a basis for valuing pension scheme liabilities then some allowance must be included for this feature.

6.2 One way of doing this is to use the improvement basis underlying the "92" Series, although this is not the only method. The following section describes a graduation by reference to the P??92 (C = 1997) tables. (In this notation the first "?" represents either M or F and the second either L or A.) The result is a set of adjustments to q_x that allows programs which use the CMIB's "92" Series of mortality tables (e.g. the CMIB's Standard Tables Program version 3.0) to easily generate annuity values or other actuarial monetary functions based on this graduation and the "92" Series improvement factors.

7. A GRADUATION BY REFERENCE TO THE "92" SERIES

7.1 A mini-graduation of the mortality experience of occupational scheme pensioners for the period 1995–1999 was performed. The graduation tried to find a linear relationship linking the observed rates of mortality for the pensioners to the P??92 (C = 1997) tables.

7.2 In each case the function to be graduated is q_x, using the formula

$$q_x = a + (1 - b)\, q_x^*$$

where q_x^* is the value of q_x from the appropriate standard table. The form $(1 - b)$ is chosen so that the value of b can be compared with zero rather than unity. The values of the parameters, a and b, have been calculated using the graduation methods described by Forfar, McCutcheon and Wilkie (1988), using the method of maximum likelihood.

7.3 It should be noted that the assessment of the goodness of fit of a particular graduation is made on purely statistical grounds.

7.4 Full details of these graduations are given in Tables 10 and 11 and in Appendix 3.

7.5 *Males*
For the amounts investigation, the T-ratios for a and b indicate that both a and b are significantly different from zero. The graduation is not satisfactory as the value of χ^2 is large even though all the other tests are within reasonable bounds. For the lives investigation, the T-ratios for a and b again indicate that both a and b are significantly different from zero. Also again the graduation is not satisfactory due to the value of χ^2 being large. The fit is not good for both investigations due to erratic numbers of actual deaths at a few ages. This may be due to data problems.

7.6 *Females*
For the amounts investigation, the T-ratios for a and b indicate that both a and b are significantly different from zero. The graduation is not satisfactory as the value of χ^2 is large even though all the other tests are within reasonable bounds. For the lives investigation, the T-ratios for a and b again indicate that both a and b are significantly different from zero. Again, the graduation is not satisfactory as the value of χ^2 is large. The fit is not good for both investigations due to the number of actual deaths being above that expected for most ages above 89, as well as erratic numbers of actual deaths at a few ages.

7.7 This graduation was repeated by fitting the data to the combined 'early' and 'late' pensioner table published in *C.M.I.R.* **19**. The fit was not improved over the graduation just described.

8. A COMPARISON OF ANNUITY RATES

8.1 Although the graduation fits obtained in the previous section were not good as measured by statistical tests they do provide an easy way of estimating annuity values on the basis of the mortality improvements underlying the "92" Series of tables. Assuming that these improvement factors are applicable, these annuity values are probably good enough to obtain a feel for the financial effects of adopting a mortality table based on a more detailed graduation of the experience.

8.2 Table 12 shows continuous annuity values using 3% p.a. calculated using the mortality basis described (i.e. on a year of use basis) and which would be applicable in the years 2000 and 2020.

8.3 Using these annuity values, a comparison with similar annuity values based on PA(90) –2 and PA(90) –4 can be made. This is shown in Table 13.

8.4 The effect on the annuity values of the different 'shape' of the graduated table and the PA(90) table can clearly be seen. This feature makes it difficult to predict the effect of moving the basis used to calculate a pension scheme's liabilities from PA(90) to the graduated table.

Table 1. Details, by scheme, of years for which data was provided.

	Calendar year to which data was allocated								
Scheme	1991	1992	1993	1994	1995	1996	1997	1998	1999
A+	■	■	■	■					
B						■	■		
C			■	■	■				
D						←	→		
E			←	– – –	→				
F					■	■	■		
G					■	■	■		
H						←	– – –	→	
I									■
J							←	– – –	→
K							←	→	
L								←	→

■ = data provided for each year separately.
←→ = Combined data provided for the period.
‾ = Only lives data supplied.

Table 2. Details of the data provided by each scheme.

	Relative amount of exposure provided by each scheme[1]					
	Males		Females		Average pension £ p.a.	
Scheme	In	Out	In	Out	Males	Females
A	–	1.4	–	8.3	N/A	N/A
B	1.0	–	1.0	–	8,500	3,500
C	1.0	1.9	1.5	2.9	4,000	1,500
D	1.2	–	2.2	–	2,500	1,500
E	2.2	4.4	1.5	3.0	13,500	9,000
F	4.1	–	10.7	–	11,000	6,500
G	9.9	–	30.2	–	4,500	1,500
H	10.7	–	24.9	–	3,000	1,500
I	12.5	–	21.1	–	8,500	3,500
J	14.8	–	9.2	–	7,000	2,500
K	17.2	–	7.2	–	4,000	2,000
L	21.2	–	15.2	–	5,000	2,500
Total	95.8	7.7	124.8	14.2		

[1]Calculated as the ratio of the exposed to risk for each scheme, on a lives basis, to the exposed to risk of the smallest scheme included in the 1995–99 period. 'In' shows the amount of this measure, for each scheme, included in the 1995–99 period. 'Out' shows, on the same basis, the amount of each scheme's data that does not fall in the 1995–99 period. Note that the ratios for the males and females are not comparable.

Table 3. Pilot investigation into self-administered occupational pension schemes: summary details of the experience together with 100A/E ratios calculated by reference to the PA(90) table of mortality rated down by two years with similar statistics shown for the CMIB pensioner experience for retirements at or after NRA.

Year	Exposed to risk[1]	Deaths[1]	100A/E	CMIB pensioner experience 100A/E
Males, Amounts				
1993	214,591	4,815	71	80
1994	230,026	4,849	65	80
1995	449,337	13,894	87	86
1996	323,501	10,031	87	80
1997	797,638	26,691	89	75
1998	898,162	32,259	92	78
1999	1,344,536	37,113	83	n/a
Males, Lives				
1991	2,213	74	98	112
1992	2,328	62	79	110
1993	23,467	639	86	109
1994	24,441	629	79	104
1995	55,293	2,122	100	102
1996	64,362	2,730	105	97
1997	157,818	7,503	108	92
1998	191,435	9,146	107	94
1999	193,747	7,009	95	n/a
Females, Amounts				
1993	29,720	429	78	93
1994	31,851	623	111	100
1995	110,554	3,580	102	92
1996	113,207	4,068	105	93
1997	147,355	4,997	104	83
1998	97,349	3,272	105	99
1999	216,444	5,569	101	n/a
Females, Lives				
1991	4,046	106	96	126
1992	4,244	118	103	125
1993	10,347	259	103	109
1994	10,698	267	107	107
1995	34,557	1,311	117	111
1996	49,144	1,911	121	105
1997	63,257	2,372	117	99
1998	47,023	1,763	120	106
1999	66,261	1,986	107	n/a

[1]Exposed to risk and deaths shown per £000 for amounts.

Table 4. Pilot investigation into self-administered occupational pension schemes: Males, Amounts, 1995–99.

	Exposed to risk			100A/E ratios calculated by reference to			
Age group	Total £000	Average pension (£pa)	Deaths £000	PA(90)−2 (males)	PA(90)−4 (males)	PMA80 (C=1997)	PMA92 (C=1997)
36–40	1,246	5,192	19	1,785	2,129	2,298	4,615
41–45	3,345	5,757	26	544	673	651	1,627
46–50	21,098	7,650	178	287	375	350	896
51–55	293,431	8,713	1,132	73	97	98	224
56–60	520,994	8,202	3,767	69	91	109	201
61–65	753,338	6,974	7,725	60	72	88	137
66–70	726,574	5,530	13,837	73	86	91	124
71–75	644,699	4,809	22,299	86	102	94	117
76–80	463,481	4,450	26,612	94	111	93	109
81–85	251,059	4,564	23,647	102	120	95	106
86–90	106,893	4,588	15,006	105	122	95	103
91–95	22,775	4,488	4,636	105	122	97	103
96–100	3,638	4,812	1,034	106	121	100	107
101–105	180	5,455	68	109	123	104	116
56–105	3,493,629	5,587	118,632	88	105	94	113
All Ages	3,812,750	5,755	119,987	88	105	94	114

Table 5. Pilot investigation into self-administered occupational pension schemes: Females, Amounts, 1995–99.

Age group	Exposed to risk		Deaths	100A/E ratios calculated by reference to			
	Total £000	Average pension (£pa)	Deaths £000	PA(90) –2 (females)	PA(90) 4 (females)	PFA80 (C = 1997)	PFA92 (C = 1997)
36–40	1,333	3,480	11	1,607	1,998	1,564	3,021
41–45	2,415	3,096	7	353	439	365	707
46 50	6,017	3,259	38	405	503	440	744
51–55	36,671	4,002	145	152	188	171	246
56–60	66,945	3,487	333	112	139	130	158
61–65	101,737	2,759	696	92	114	108	113
66–70	110,964	2,443	1,424	100	124	117	111
71–75	119,876	2,341	2,848	109	135	119	112
76–80	107,371	2,387	3,818	98	121	95	98
81–85	72,537	2,549	4,648	105	129	95	107
86 90	40,194	2,646	4,158	105	128	95	111
91–95	15,057	2,779	2,519	107	129	107	123
96–100	2,739	2,654	687	106	126	124	132
101–105	340	3,178	122	106	124	138	144
56–105	637,760	2,573	21,253	104	127	102	110
All Ages	684,196	2,631	21,454	104	128	103	111

Table 6. Pilot investigation into self-administered occupational pension schemes: Males, Lives, 1995–99.

Age group	Exposed to risk	Deaths	100A/E ratios calculated by reference to PA(90) −2 (males)	PA(90) −4 (males)	PML80 (C = 1997)	PML92 (C = 1997)
36–40	240	2				
41–45	581	10				
46–50	2,758	27	436	565	416	684
51–55	33,678	169	95	126	100	155
56–60	63,518	580	87	114	107	146
61–65	108,027	1,384	75	90	86	109
66–70	131,384	3,193	92	110	93	112
71–75	134,047	5,668	104	124	96	111
76–80	104,145	6,829	107	127	93	105
81–85	55,003	5,752	113	134	96	105
86–90	23,298	3,570	114	133	99	105
91–95	5,075	1,092	112	129	102	106
96–100	756	221	109	124	101	108
101–105	33	11	98	110	92	103
56–105	625,285	28,300	104	124	95	108
All Ages	662,542	28,508	104	124	95	108

Table 7. Pilot investigation into self-administered occupational pension schemes: Females, Lives, 1995–99.

Age group	Exposed to risk	Deaths	100A/E ratios calculated by reference to			
			PA(90) –2 (females)	PA(90) –4 (females)	PFL80 (C = 1997)	PFL92 (C = 1997)
36–40	383	3				
41–45	780	3				
46–50	1,846	10				
51–55	9,164	43	224	278	213	304
56–60	19,199	111	129	160	128	153
61–65	36,870	289	105	130	105	111
66–70	45,425	699	120	149	120	115
71–75	51,217	1,328	119	147	114	107
76–80	44,977	1,835	113	139	100	100
81–85	28,458	2,009	116	142	98	103
86–90	15,191	1,714	114	139	96	106
91–95	5,418	977	115	139	101	114
96–100	1,032	267	110	130	108	117
101–105	107	53	146	170	162	168
56–105	247,894	9,282	115	141	103	107
All Ages	260,067	9,341	116	142	103	107

Table 8. Male Amounts 1995–99.

	100A/E ratios calculated by reference to			
Scheme	PA(90) –2 (males)	PA(90) –4 (males)	PMA80 (C = 1997)	PMA92 (C = 1997)
B	86	104	101	132
C	112	133	119	144
D	115	137	126	155
E	75	90	83	103
F	92	110	98	118
G	89	106	93	110
H	73	87	79	97
I	78	92	84	104
J	84	99	89	109
K	104	124	110	132
L	94	112	99	118
All	88	105	94	114

Table 9. Female Amounts 1995–99.

	100A/E ratios calculated by reference to			
Scheme	PA(90) –2 (females)	PA(90) –4 (females)	PFA80 (C = 1997)	PFA92 (C = 1997)
B	113	140	122	127
C	106	129	106	115
D	117	144	120	126
E	95	117	99	101
F	107	133	107	116
G	98	119	94	104
H	102	125	101	108
I	104	122	99	104
J	99	122	99	106
K	121	149	123	128
L	113	138	113	123
All	104	128	103	111

Table 10. Males, graduation results.

Investigation	Amounts	Lives
Duration	All	All
Comparison basis	PMA92(C = 1997)	PML92(C = 1997)
Age range	56 to 100	56 to 100
Average pension amount	£5,587	N/A
100A/E on graduated basis	100.05	99.99
Values of parameters at optimum point:		
a	0.00317585	0.00174273
T-ratio	16.003	6.746
b	−0.02586617	−0.03589628
T-ratio	−2.799	−4.302
χ^2 test:	78.63	76.37
χ^2 degrees of freedom	42	43
$p(\chi^2)$	0.001	0.001

Table 11. Females, graduation results.

Investigation	Amounts	Lives
Duration	All	All
Comparison basis	PFA92(C = 1997)	PFL92(C = 1997)
Age range	56 to 100	56 to 100
Average pension amount	£2,572	N/A
100A/E on graduated basis	99.77	99.85
Values of parameters at optimum point:		
a	0.00081555	0.00109837
T-ratio	2.999	3.436
b	−0.07603077	−0.03642266
T-ratio	−5.290	−2.680
χ^2test:	193.70	87.12
χ^2 degrees of freedom	42	43
$p(\chi^2)$	0.000	0.000

Table 12. Annuity values at 3% on P?A92' (U = Year) (i.e. the adjusted P?A92 tables).

	Males		Females	
Age	2000	2020	2000	2020
60	15.808	16.608	17.409	18.181
65	13.408	14.273	15.066	15.894
70	10.968	11.825	12.660	13.483
75	8.659	9.428	10.322	11.074
80	6.637	7.261	8.184	8.813
85	4.995	5.454	6.347	6.824
90	3.749	4.056	4.857	5.185
95	2.853	3.039	3.706	3.908
100	2.236	2.333	2.853	2.958

Table 13. Ratios of annuity values shown in Table 12 to similar annuity values calculated using the mortality basis shown.

	PA(90) −2				PA(90) −4			
	Males		Females		Males		Females	
Age	2000	2020	2000	2020	2000	2020	2000	2020
60	113%	118%	105%	109%	106%	112%	100%	104%
65	112%	119%	104%	110%	105%	111%	98%	104%
70	109%	118%	103%	110%	101%	109%	96%	103%
75	106%	115%	103%	110%	97%	106%	95%	102%
80	102%	112%	103%	111%	93%	102%	94%	101%
85	99%	108%	105%	113%	89%	98%	94%	101%
90	98%	106%	109%	116%	88%	95%	96%	103%
95	100%	106%	116%	122%	89%	95%	101%	107%
100	105%	109%	126%	131%	93%	97%	110%	114%

APPENDIX 1

THE SUBMISSION OF OCCUPATIONAL PENSION SCHEME PENSIONERS' DATA TO THE CMIB

1. All data should be sent in on a DOS format floppy disk with files in ASCII format regardless of type of data submitted. The different methods of submission are census, exposed-to-risk and raw data.
2. The disks should be sent to the following address:
   CMI Bureau
   Bow Bells House
   Bread Street
   London
   EC4M 9HN
3. Data should be submitted as and when it becomes available. This should help the Bureau to deal with any queries with regard to the data as quickly as possible. If possible, submission of data should be delayed to allow for the late notification of deaths. A contact name will be required in respect of each disk submitted.
4. It is very important that there is consistency between the in-force and the deaths. For example if at a previous census date a pensioner had been recorded as undifferentiated between an executive and a staff member, but on death it was clear he was an executive then he should still be recorded as undifferentiated in the death submission.
5. The definition of staff, works and executives is left to the discretion of each firm. Executives in top-up schemes should only be included in the main scheme, i.e. top-up schemes are excluded from the investigation. Bridging pensions are also to be excluded from the investigation.
6. If possible data should be classified according to industry in accordance with the FT-All Share Index Groupings. Please note that the groupings will be extended to allow for categories not currently included.
7. The investigation is restricted to UK pensioners of UK pension schemes only. However, schemes that include a small number of overseas members, who cannot be separated, will be accepted.
8. If 'amounts' data is not available then data should be submitted for the 'lives' only with zeros recorded in the amounts fields.
9. The first record in each file will be a header identifying the consultancy submitting the data, the scheme and the date of the investigation. There will be a sub-header for the various types of data, e.g. age or ill-health retirement, and this will be followed by the data at each age.

Census data
Header record for each file

Field No	Field Contents	Position	Comment
1	Data indicator	1	C for census data.
2	Office number	2–4	Number allocated to each consultancy by the Bureau (number is right justified).
3	Scheme code	5–8	Identification code for each scheme as allocated by the consultancy (code is alphanumeric).
4	Months since previous census	9–10	Recorded as MM 00 if data being sent for first time.
5	Date of census	11–18	31/12/92 as 31121992 i.e. DDMMYYYY.
6	Industry classification	19–20	02 for Building Materials 03 for Contracting, Construction 04 for Electricals i.e. numbered in line with FT-All Share Index Groupings. *Note that this field is not mandatory and can be left blank if desired.*
7	Age definition	21	1 for age last at date of census/death. 2 for age nearest at date of census/death. 3 for age next at date of census/death.

Sub-header records

Field No	Field Contents	Position	Comment
1	Method of retirement	1	A for age retirement including late retirements, and early retirements other than ill-health. I for ill-health retirement. U in undifferentiated between A and I. W for widow/widower.
2	Sex	2	M for males. F for females. For widow(er)s record sex of widow(er), not that of the deceased.
3	Category of member	3	E for executives - do not include top-up schemes. S for staff or if staff and executives are undifferentiated. W for works. C if undifferentiated between S and W. U if undifferentiated between E, S and W.

Census data
Records which make up the Schedule

Field No	Field Contents	Position	Comment
1	Age	1–3	Data is right justified e.g. if the age is 64 record 0 in column 1, 6 in column 2, and 4 in column 3. TOT for total line.
2	Data field for number of lives at Age in columns 1–3	4–12	Data is right justified e.g. if there are 246 lives at a particular age record 2 in column 10, 4 in column 11 and 6 in column 12.
3	Data field for amount of in-force pension at Age in columns 1–3	13–22	Data is right justified and is rounded to the nearest £.
4	Data field for number of deaths since previous census at Age in columns 1–3	23–31	Data is right justified.
5	Data field for amount of pension at date of death at Age in columns 1–3	32–41	Data is right justified and is rounded to the nearest £. If the pension recorded is not that at date of death please state in covering letter what pension has been recorded. If there is no data for a particular age then that age should be left out completely to save on floppy disk space. A totals line should always be included and should be the total of the data recorded. For amounts data this is the total of the rounded individual age amounts.

Census data
Example of data to be submitted

C014BW781205041993061

AMS				
065	164	55465	5	521
066	85	10584	4	400
080	10	5000	0	0
TOT	259	71049	9	921
AFS				
059	23	9000	2	500
060	96	29000	2	1000
TOT	119	38000	4	1500

Census data is being submitted
Office number is 14
Scheme code is BW78
12 months since previous census
Date of census is 5/4/93
Industry classification is 06
Age definition is age last

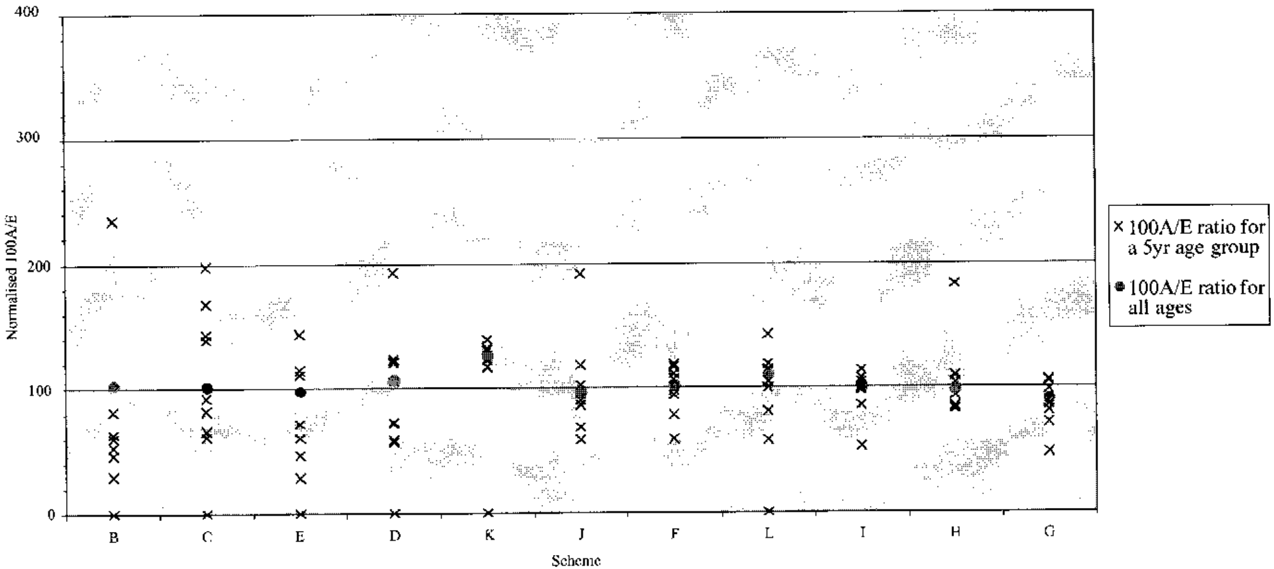
The first group of data represents male staff age retirement pensioners, and the second represents female staff age retirement pensioners.

APPENDIX 2

THE VARIATION, BY SCHEME, IN NORMALISED 100A/E RATIOS FOR FIVE YEAR AGE GROUPS BETWEEN 56 AND 100

Female Amounts, 1995–99.

The schemes are ordered by size, with the smallest being the leftmost column on the graph.

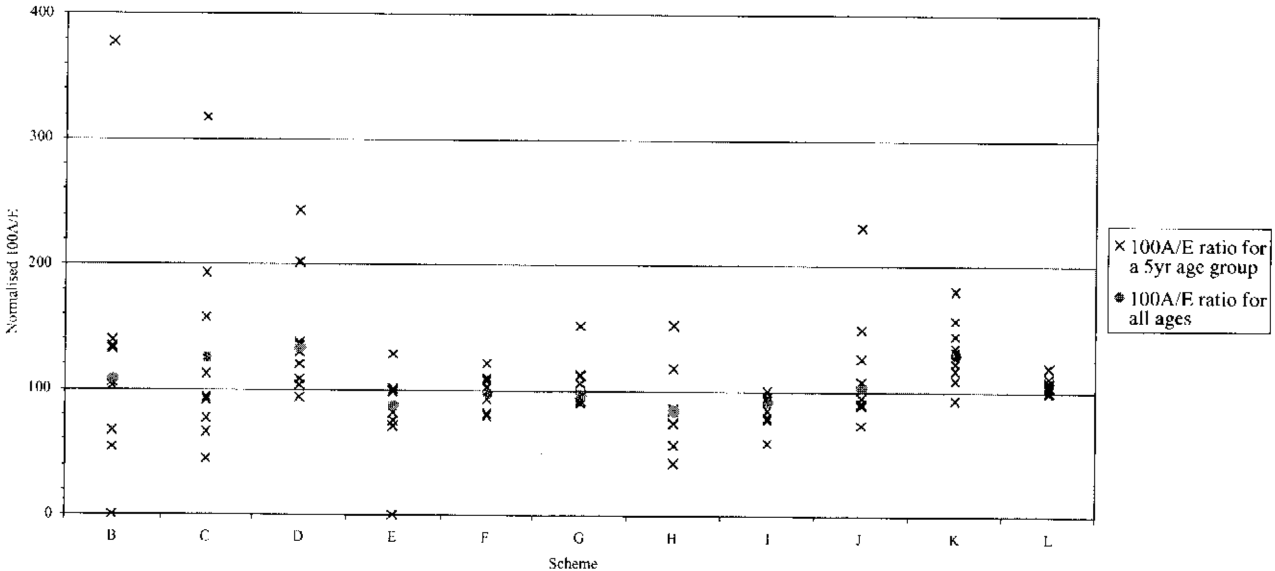


APPENDIX 2

THE VARIATION, BY SCHEME, IN NORMALISED 100A/E RATIOS FOR FIVE YEAR AGE GROUPS BETWEEN 56 AND 100

Male Amounts, 1995–99.

The schemes are ordered by size, with the smallest being the leftmost column on the graph.



APPENDIX 3

Male Amounts graduated against PMA92(C = 1997).

Age	Exposed to risk*	q_x PMA92 (C = 1997)	q_x graduated	Actual deaths*	Expected deaths*	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
56	15,564.08	0.002519	0.005760	68.58	89.65	−21.07	−21.070	9.4410	−2.2320	4.9818	76
57	16,633.58	0.002935	0.006187	113.34	102.91	10.44	−10.640	10.1129	1.0320	1.0650	110
58	17,866.21	0.003418	0.006682	115.71	119.39	−3.68	−14.310	10.8899	−0.3376	0.1140	97
59	19,638.15	0.003977	0.007256	163.02	142.49	20.53	6.220	11.8935	1.7263	2.9802	114
60	23,544.78	0.004624	0.007919	213.65	186.46	27.18	33.400	13.6009	1.9988	3.9950	115
61	26,722.61	0.005401	0.008717	203.33	232.93	−29.60	3.800	15.1954	−1.9481	3.7950	87
62	27,219.54	0.006299	0.009638	270.11	262.34	7.77	11.570	16.1186	0.4820	0.2323	103
63	27,280.65	0.007331	0.010696	270.95	291.81	−20.85	−9.280	16.9908	−1.2273	1.5063	93
64	26,754.49	0.008516	0.011912	293.32	318.70	−25.38	−34.660	17.7456	−1.4304	2.0459	92
65	26,854.11	0.009872	0.013303	344.84	357.25	−12.41	−47.070	18.7748	−0.6608	0.4366	97
66	27,020.68	0.011419	0.014890	413.31	402.34	10.97	−36.100	19.9086	0.5509	0.3035	103
67	26,512.91	0.013175	0.016692	439.12	442.54	−3.43	−39.530	20.8604	−0.1642	0.0270	99
68	26,010.96	0.015165	0.018733	470.06	487.27	−17.21	−56.730	21.8664	−0.7869	0.6192	96
69	25,491.88	0.017412	0.021038	510.84	536.30	−25.46	−82.200	22.9133	−1.1113	1.2349	95
70	25,004.69	0.019942	0.023634	643.21	590.95	52.25	−29.950	24.0205	2.1753	4.7321	109
71	24,673.49	0.022777	0.026542	673.16	654.88	18.28	−11.670	25.2488	0.7239	0.5240	103
72	24,286.43	0.025948	0.029795	746.59	723.61	22.97	11.300	26.4963	0.8670	0.7518	103
73	23,433.55	0.029480	0.033418	861.56	783.11	78.45	89.760	27.5126	2.8515	8.1309	110
74	22,132.42	0.033400	0.037440	814.15	828.63	−14.48	75.270	28.2420	−0.5128	0.2630	98
75	20,861.43	0.037738	0.041890	895.54	873.88	21.66	96.930	28.9358	0.7485	0.5602	102
76	19,470.08	0.042518	0.046794	935.46	911.08	24.38	121.310	29.4694	0.8273	0.6844	103
77	18,024.25	0.047768	0.052179	934.91	940.50	−5.59	115.730	29.8567	−0.1871	0.0350	99
78	16,919.48	0.053513	0.058073	979.95	982.57	−2.62	113.110	30.4221	−0.0860	0.0074	100
79	15,562.33	0.059776	0.064498	1,022.25	1,003.74	18.51	131.610	30.6431	0.6039	0.3647	102
80	12,976.97	0.066577	0.071475	890.36	927.53	−37.17	94.450	29.3468	−1.2665	1.6041	96

Male Amounts graduated against PMA92(C = 1997) (continued).

Age	Exposed to risk*	q_x PMA92 (C = 1997)	q_x graduated	Actual deaths*	Expected deaths*	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
81	10,729.05	0.073936	0.079024	845.00	847.86	−2.85	91.590	27.9438	−0.1021	0.0104	100
82	9,795.52	0.081866	0.087159	843.03	853.77	−10.74	80.850	27.9170	−0.3849	0.1481	99
83	9,157.06	0.090378	0.095892	879.32	878.08	1.24	82.090	28.1759	0.0439	0.0019	100
84	8,218.82	0.099479	0.105228	850.63	864.85	−14.22	67.870	27.8181	−0.5111	0.2612	98
85	7,033.69	0.109170	0.115170	814.38	810.07	4.32	72.180	26.7726	0.1612	0.0260	101
86	5,803.55	0.119448	0.125714	692.93	729.59	−36.65	35.530	25.2560	−1.4512	2.1061	95
87	4,721.42	0.130302	0.136848	677.85	646.12	31.73	67.260	23.6156	1.3436	1.8053	105
88	3,714.10	0.141716	0.148558	505.37	551.76	−46.39	20.870	21.6746	−2.1403	4.5810	92
89	2,863.97	0.153670	0.160821	499.67	460.59	39.08	59.960	19.6600	1.9880	3.9523	108
90	2,028.48	0.166134	0.173607	309.96	352.16	−42.20	17.750	17.0594	−2.4739	6.1200	88
91	1,372.45	0.179074	0.186882	264.69	256.49	8.20	25.960	14.4414	0.5680	0.3226	103
92	977.71	0.192449	0.200603	188.77	196.13	−7.36	18.590	12.5215	−0.5881	0.3458	96
93	753.92	0.206215	0.214725	171.06	161.89	9.17	27.770	11.2750	0.8136	0.6619	106
94	572.57	0.220319	0.229194	121.63	131.23	−9.60	18.170	10.0574	−0.9542	0.9105	93
95	399.54	0.234704	0.243951	83.61	97.47	−13.86	4.310	8.5844	−1.6140	2.6050	86
96	270.52	0.249309	0.258934	88.01	70.05	17.96	22.270	7.2048	2.4926	6.2130	126
97	174.65	0.264071	0.274077	40.89	47.87	−6.98	15.300	5.8948	−1.1838	1.4014	85
98	102.38	0.278922	0.289313	34.37	29.62	4.75	20.050	4.5881	1.0359	1.0732	116
99	63.83	0.293792	0.304567	14.15	19.44	−5.30	14.750	3.6770	−1.4404	2.0747	73
100	39.65	0.308612	0.319770	7.58	12.68	−5.10	9.650	2.9369	−1.7366	3.0159	60
Tot	625,252.64			21,220.21	21,210.55	9.65			−3.4972	78.6304	100

*All these columns are divided by £5,587, the average amount of pension payable.

Female Amounts graduated against PFA92 (C = 1997).

Age	Exposed to risk*	q_x PFA92 (C = 1997)	q_x graduated	Actual deaths*	Expected deaths*	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
56	4,164.63	0.002277	0.003266	15.39	13.60	1.79	1.790	3.6818	0.4859	0.2361	113
57	4,556.10	0.002611	0.003625	15.27	16.52	−1.24	0.550	4.0566	−0.3067	0.0940	92
58	4,976.71	0.002991	0.004034	38.14	20.08	18.06	18.610	4.4716	4.0397	16.3193	190
59	5,541.65	0.003423	0.004499	28.76	24.93	3.83	22.440	4.9818	0.7695	0.5921	115
60	6,784.72	0.003915	0.005028	31.75	34.11	−2.37	20.080	5.8261	−0.4059	0.1648	93
61	7,665.11	0.004497	0.005654	52.10	43.34	8.75	28.830	6.5648	1.3334	1.7780	120
62	7,767.29	0.005160	0.006368	55.18	49.46	5.72	34.550	7.0104	0.8164	0.6665	112
63	7,879.51	0.005911	0.007176	48.29	56.54	−8.25	26.310	7.4925	−1.1009	1.2120	85
64	8,036.23	0.006760	0.008090	52.66	65.01	−12.35	13.960	8.0302	−1.5376	2.3641	81
65	8,200.47	0.007718	0.009120	62.39	74.79	−12.40	1.560	8.6087	−1.4404	2.0747	83
66	8,322.53	0.008797	0.010281	98.57	85.57	13.00	14.560	9.2026	1.4128	1.9961	115
67	8,405.77	0.010009	0.011586	99.73	97.39	2.35	16.910	9.8111	0.2390	0.0571	102
68	8,551.43	0.011367	0.013047	112.16	111.57	0.60	17.500	10.4935	0.0567	0.0032	101
69	8,827.40	0.012885	0.014680	105.10	129.59	−24.49	−6.990	11.2998	−2.1671	4.6965	81
70	9,028.36	0.014577	0.016501	138.03	148.98	−10.95	−17.940	12.1044	−0.9045	0.8182	93
71	9,093.45	0.016461	0.018528	163.86	168.48	−4.63	−22.560	12.8593	−0.3600	0.1296	97
72	9,186.14	0.018552	0.020778	169.03	190.87	−21.84	−44.400	13.6713	−1.5974	2.5516	89
73	9,284.02	0.020867	0.023269	240.90	216.03	24.87	−19.530	14.5260	1.7122	2.9318	112
74	9,454.06	0.023425	0.026022	275.35	246.01	29.34	9.810	15.4793	1.8957	3.5937	112
75	9,582.35	0.026243	0.029054	257.88	278.40	−20.53	−10.720	16.4413	−1.2486	1.5590	93
76	9,424.23	0.029340	0.032386	323.82	305.22	18.60	7.890	17.1852	1.0825	1.1719	106
77	8,930.40	0.032736	0.036040	243.20	321.86	−78.66	−70.770	17.6141	−4.4657	19.9424	76
78	8,412.34	0.036448	0.040035	366.34	336.79	29.56	−41.210	17.9806	1.6438	2.7021	109
79	7,922.11	0.040499	0.044394	283.27	351.69	−68.42	−109.640	18.3325	−3.7323	13.9300	81
80	7,049.75	0.044905	0.049135	267.63	346.39	−78.75	−188.390	18.1485	−4.3395	18.8309	77

Female Amounts graduated against PFA92 (C = 1997) (continued).

Age	Exposed to risk*	q_x PFA92 (C = 1997)	q_x graduated	Actual deaths*	Expected deaths*	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
81	6,340.70	0.049686	0.054279	321.94	344.17	−22.23	−210.620	18.0413	−1.2320	1.5179	94
82	6,132.61	0.054859	0.059846	386.58	367.01	19.57	−191.040	18.5754	1.0538	1.1105	105
83	5,759.95	0.060440	0.065851	386.31	379.30	7.01	−184.030	18.8234	0.3725	0.1387	102
84	5,273.84	0.066447	0.072315	385.04	381.38	3.67	−180.370	18.8095	0.1949	0.0380	101
85	4,690.57	0.072894	0.079252	326.98	371.74	−44.76	−225.120	18.5007	−2.4193	5.8531	88
86	4,183.10	0.079793	0.086675	384.82	362.57	22.25	−202.870	18.1974	1.2228	1.4952	106
87	3,617.74	0.087154	0.094596	335.16	342.22	−7.07	−209.940	17.6026	−0.4015	0.1612	98
88	3,040.37	0.094986	0.103023	292.24	313.23	−20.99	−230.930	16.7618	−1.2521	1.5678	93
89	2,583.57	0.103296	0.111965	315.77	289.27	26.50	−204.430	16.0275	1.6535	2.7342	109
90	2,199.94	0.112084	0.121421	288.20	267.12	21.09	−183.340	15.3195	1.3764	1.8944	108
91	1,805.61	0.121352	0.131394	229.94	237.25	−7.30	−190.640	14.3553	−0.5088	0.2588	97
92	1,444.14	0.131096	0.141879	259.60	204.89	54.71	−135.940	13.2598	4.1257	17.0218	127
93	1,149.03	0.141309	0.152868	218.47	175.65	42.82	−93.110	12.1983	3.5107	12.3249	124
94	856.29	0.151981	0.164352	173.55	140.73	32.81	−60.300	10.8445	3.0258	9.1552	123
95	598.01	0.163095	0.176311	97.59	105.44	−7.85	−68.150	9.3191	−0.8419	0.7088	93
96	411.47	0.174636	0.188729	120.99	77.66	43.33	−24.810	7.9373	5.4593	29.8037	156
97	285.60	0.186581	0.201582	59.95	57.57	2.37	−22.440	6.7799	0.3500	0.1225	104
98	177.14	0.198905	0.214843	32.51	38.06	−5.55	−27.990	5.4664	−1.0146	1.0293	85
99	111.58	0.211579	0.228481	36.41	25.49	10.92	−17.070	4.4351	2.4612	6.0576	143
100	79.08	0.224568	0.242458	17.13	19.17	−2.04	−19.110	3.8112	−0.5354	0.2867	89
Tot	247,787.12			8,214.01	8,233.12	−19.11			8.4823	193.6960	100

*All these columns are divided by £2,572, the average amount of pension payable.

Male Lives graduated against PML92 (C = 1997).

Age	Exposed to risk	q_x PML92 (C = 1997)	q_x graduated	Actual deaths	Expected deaths	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
56	10,190.54	0.004557	0.006463	59	65.86	−6.86	−6.860	8.0894	−0.8486	0.7201	90
57	11,099.98	0.005205	0.007135	94	79.19	14.81	7.940	8.8673	1.6698	2.7881	119
58	12,053.12	0.005939	0.007895	107	95.16	11.84	19.780	9.7163	1.2187	1.4853	112
59	13,225.05	0.006770	0.008756	133	115.80	17.21	37.000	10.7136	1.6068	2.5818	115
60	16,948.80	0.007706	0.009725	187	164.83	22.17	59.160	12.7761	1.7350	3.0103	113
61	20,339.84	0.008812	0.010871	202	221.12	−19.12	40.050	14.7889	−1.2926	1.6707	91
62	20,966.05	0.010060	0.012164	231	255.03	−24.04	16.010	15.8722	−1.5145	2.2936	91
63	21,386.36	0.011464	0.013618	263	291.24	−28.25	−12.240	16.9493	−1.6670	2.7790	90
64	21,674.17	0.013039	0.015250	294	330.53	−36.54	−48.780	18.0412	−2.0252	4.1013	89
65	23,660.63	0.014802	0.017076	394	404.03	−10.03	−58.810	19.9282	−0.5033	0.2534	98
66	25,676.70	0.016770	0.019115	467	490.80	−23.80	−82.610	21.9413	−1.0848	1.1769	95
67	26,085.49	0.018962	0.021385	542	557.85	−15.85	−98.460	23.3649	−0.6783	0.4601	97
68	26,367.85	0.021396	0.023907	628	630.37	−2.37	−100.830	24.8052	−0.0956	0.0091	100
69	26,533.35	0.024091	0.026699	725	708.40	16.59	−84.240	26.2581	0.6318	0.3991	102
70	26,720.78	0.027069	0.029783	831	795.84	35.15	−49.090	27.7873	1.2651	1.6005	104
71	27,130.36	0.030349	0.033181	943	900.22	42.78	−6.310	29.5016	1.4502	2.1031	105
72	27,511.41	0.033955	0.036917	1,046	1,015.63	30.37	24.070	31.2751	0.9711	0.9431	103
73	27,286.19	0.037905	0.041008	1,148	1,118.96	29.05	53.110	32.7578	0.8867	0.7863	103
74	26,512.45	0.042222	0.045480	1,175	1,205.80	−30.80	22.320	33.9257	−0.9077	0.8240	97
75	25,606.42	0.046926	0.050353	1,356	1,289.36	66.65	88.960	34.9920	1.9046	3.6274	105
76	24,497.91	0.052039	0.055650	1,407	1,363.30	43.70	132.660	35.8808	1.2179	1.4832	103
77	23,140.44	0.057578	0.061388	1,414	1,420.54	−6.55	126.120	36.5148	−0.1793	0.0321	100
78	21,588.13	0.063562	0.067586	1,477	1,459.06	17.94	144.050	36.8843	0.4863	0.2365	101
79	19,159.19	0.070009	0.074265	1,375	1,422.85	−47.84	96.210	36.2930	−1.3183	1.7378	97
80	15,759.06	0.076934	0.081438	1,156	1,283.39	−127.39	−31.180	34.3347	−3.7103	13.7663	90

Male Lives graduated against PML92 (C = 1997) (continued).

Age	Exposed to risk	q_x PML92 (C = 1997)	q_x graduated	Actual deaths	Expected deaths	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
81	13,261.72	0.084349	0.089120	1,160	1,181.88	−21.89	−53.070	32.8108	−0.6671	0.4450	98
82	12,145.37	0.092267	0.097322	1,190	1,182.01	8.00	−45.070	32.6646	0.2449	0.0600	101
83	11,225.62	0.100693	0.106050	1,218	1,190.48	27.53	−17.540	32.6225	0.8439	0.7122	102
84	9,925.45	0.109634	0.115312	1,122	1,144.53	−22.52	−40.060	31.8206	−0.7076	0.5007	98
85	8,445.07	0.119090	0.125108	1,062	1,056.54	5.47	−34.590	30.4033	0.1798	0.0323	101
86	6,992.67	0.129061	0.135437	911	947.06	−36.07	−70.660	28.6146	−1.2607	1.5892	96
87	5,698.74	0.139539	0.146291	839	833.67	5.34	−65.330	26.6780	0.2000	0.0400	101
88	4,497.88	0.150516	0.157662	704	709.14	−5.14	−70.470	24.4405	−0.2105	0.0443	99
89	3,513.12	0.161976	0.169533	651	595.59	55.41	−15.060	22.2400	2.4914	6.2072	109
90	2,595.49	0.173903	0.181888	465	472.09	−7.10	−22.160	19.6525	−0.3613	0.1305	98
91	1,819.45	0.186272	0.194701	359	354.25	4.74	−17.420	16.8901	0.2806	0.0788	101
92	1,274.26	0.199059	0.207947	279	264.98	14.03	−3.390	14.4872	0.9685	0.9379	105
93	903.54	0.212230	0.221591	192	200.22	−8.23	−11.620	12.4840	−0.6590	0.4343	96
94	643.95	0.225753	0.235599	158	151.71	6.30	−5.320	10.7690	0.5846	0.3418	104
95	434.14	0.239588	0.249931	104	108.51	−4.51	−9.830	9.0214	−0.4994	0.2494	96
96	299.06	0.253694	0.264543	85	79.11	5.89	−3.940	7.6279	0.7716	0.5954	107
97	205.23	0.268024	0.279388	64	57.34	6.66	2.720	6.4280	1.0363	1.0739	112
98	124.96	0.282534	0.294419	46	36.79	9.21	11.930	5.0951	1.8072	3.2661	125
99	78.87	0.297171	0.309581	19	24.42	−5.42	6.510	4.1059	−1.3196	1.7413	78
100	48.01	0.311887	0.324825	7	15.59	−8.59	−2.090	3.2449	−2.6487	7.0158	45
Tot	625,252.98			28,289	28,291.09	−2.09			0.2937	76.3653	100

Female Lives graduated against PFL92 (C = 1997).

Age	Exposed to risk	q_x PFL92 (C = 1997)	q_x graduated	Actual deaths	Expected deaths	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
56	2,805.70	0.002733	0.003931	15	11.03	3.98	3.980	3.3145	1.2011	1.4427	136
57	3,183.29	0.003120	0.004332	16	13.79	2.21	6.190	3.7054	0.5964	0.3557	116
58	3,595.43	0.003559	0.004787	24	17.21	6.79	12.980	4.1387	1.6403	2.6905	139
59	4,046.52	0.004057	0.005303	20	21.46	−1.47	11.510	4.6201	−0.3180	0.1011	93
60	5,568.48	0.004620	0.005887	36	32.78	3.21	14.720	5.7085	0.5624	0.3163	110
61	6,878.75	0.005288	0.006579	48	45.26	2.75	17.480	6.7050	0.4109	0.1688	106
62	7,077.59	0.006044	0.007363	50	52.11	−2.12	15.360	7.1920	−0.2946	0.0868	96
63	7,346.89	0.006901	0.008251	56	60.62	−4.62	10.740	7.7535	−0.5955	0.3546	92
64	7,616.37	0.007866	0.009251	63	70.46	−7.46	3.280	8.3550	−0.8926	0.7968	89
65	7,950.79	0.008954	0.010378	72	82.52	−10.51	−7.230	9.0366	−1.1627	1.3520	87
66	8,345.78	0.010176	0.011645	99	97.19	1.82	−5.400	9.8008	0.1860	0.0346	102
67	8,729.40	0.011546	0.013065	109	114.05	−5.05	−10.450	10.6094	−0.4759	0.2265	96
68	9,094.28	0.013080	0.014655	138	133.27	4.73	−5.730	11.4596	0.4123	0.1700	104
69	9,486.31	0.014794	0.016431	157	155.87	1.13	−4.600	12.3819	0.0911	0.0083	101
70	9,769.39	0.016702	0.018409	196	179.84	16.16	11.560	13.2865	1.2161	1.4790	109
71	9,877.95	0.018827	0.020611	203	203.60	−0.60	10.970	14.1209	−0.0422	0.0018	100
72	9,980.55	0.021183	0.023053	222	230.08	−8.09	2.870	14.9926	−0.5396	0.2912	96
73	10,211.21	0.023793	0.025758	277	263.02	13.97	16.840	16.0077	0.8727	0.7616	105
74	10,490.65	0.026676	0.028746	299	301.56	−2.57	14.270	17.1142	−0.1504	0.0226	99
75	10,656.75	0.029856	0.032042	327	341.46	−14.47	−0.200	18.1802	−0.7960	0.6336	96
76	10,512.58	0.033353	0.035666	408	374.94	33.07	32.870	19.0150	1.7390	3.0240	109
77	9,921.62	0.037192	0.039645	351	393.34	−42.33	−9.470	19.4357	−2.1781	4.7440	89
78	9,128.38	0.041395	0.044001	406	401.66	4.35	−5.120	19.5955	0.2221	0.0493	101
79	8,242.26	0.045986	0.048759	335	401.89	−66.89	−72.000	19.5523	−3.4209	11.7028	83
80	7,172.02	0.050990	0.053946	335	386.90	−51.90	−123.900	19.1318	−2.7127	7.3587	87

Female Lives graduated against PFL92 (C = 1997) (continued).

Age	Exposed to risk	q_x PFL92 (C – 1997)	q_x graduated	Actual deaths	Expected deaths	Devn	Sum of Devn	STD Devn	Z	Z^2	100 A/E
81	6,464.53	0.056432	0.059586	386	385.19	0.80	−123.110	19.0327	0.0418	0.0017	100
82	6,174.35	0.062333	0.065702	448	405.67	42.33	−80.770	19.4682	2.1745	4.7286	110
83	5,778.33	0.068717	0.072318	399	417.88	−18.87	−99.640	19.6890	−0.9583	0.9184	95
84	5,291.35	0.075607	0.079459	411	420.45	−9.46	−109.100	19.6733	−0.4807	0.2310	98
85	4,749.70	0.083023	0.087145	365	413.91	−48.90	−158.000	19.4382	−2.5159	6.3297	88
86	4,177.59	0.090986	0.095398	411	398.54	12.47	−145.530	18.9873	0.6570	0.4316	103
87	3,519.38	0.099512	0.104235	357	366.84	−9.84	−155.370	18.1275	−0.5430	0.2948	97
88	2,940.43	0.108617	0.113671	323	334.24	−11.25	−166.620	17.2119	−0.6538	0.4275	97
89	2,481.32	0.118312	0.123720	328	306.99	21.00	−145.620	16.4015	1.2805	1.6396	107
90	2,071.88	0.128610	0.134393	295	278.45	16.55	−129.070	15.5250	1.0663	1.1369	106
91	1,658.73	0.139516	0.145696	246	241.67	4.34	−124.730	14.3687	0.3020	0.0912	102
92	1,317.01	0.151032	0.157631	229	207.60	21.41	−103.320	13.2241	1.6189	2.6207	110
93	1,061.63	0.163159	0.170200	220	180.69	39.30	−64.020	12.2448	3.2096	10.3013	122
94	809.01	0.175889	0.183394	167	148.37	18.62	−45.400	11.0072	1.6918	2.8621	113
95	571.14	0.189215	0.197205	115	112.63	2.37	−43.030	9.5090	0.2491	0.0620	102
96	396.66	0.203120	0.211617	111	83.94	27.06	−15.970	8.1349	3.3264	11.0651	132
97	273.81	0.217588	0.226612	68	62.05	5.95	−10.020	6.9274	0.8590	0.7378	110
98	177.01	0.232592	0.242162	46	42.87	3.13	−6.880	5.6995	0.5500	0.3025	107
99	110.25	0.248107	0.258242	30	28.47	1.53	−5.360	4.5956	0.3324	0.1105	105
100	73.80	0.264096	0.274813	12	20.28	−8.27	−13.630	3.8351	−2.1567	4.6515	59
Tot	247,786.97			9,229	9,242.63	−13.63			5.6218	87.1181	100

CMIR **20** (2001) 141–144

INTER-OFFICE COMPARISONS

A question frequently asked of the Bureau is whether any information can be provided on the variation of mortality experience between individual offices. In order to protect the confidentiality of the contributing offices, which the Bureau takes extremely seriously, requests of this nature have to be turned down. An individual office's results are provided only to the office itself – not even the Executive Committee has access to this information.

Nevertheless, the Committee recognises that it may be helpful, from time to time, to bring into the public domain some indication of the variability in mortality experience between individual offices. The Bureau has previously produced three such reports. The first appeared in *J.I.A.* **68**, 54 and *T.F.A.* **15**, 315 and was based on the statistics underlying the A1924–29 table. The second investigation was carried out with the publication of the A1949–52 table, and the results published in *J.I.A.* **85**, 57 and *T.F.A.* **26**, 122. The last such report appeared in *C.M.I.R.* **13**, 117 (1993) after publication of the "80" Series tables, and covered the three years 1987, 1988 and 1989. Readers are referred to those earlier reports for further results and commentaries.

With the publication of the "92" Series of standard mortality tables the Committee has decided that an updated investigation is now appropriate. This study, presented below, follows the same format as the previous (*C.M.I.R.* **13**) report, but covers the years 1996, 1997 and 1998. As with that previous report, more detailed calculations are carried out for the middle year, 1997. Figures. for 1996 and 1998 are also provided to highlight not only the variation between offices in a given year, but also the variation for a particular office over a series of years.

The investigation looks at the experience of male permanent (whole life and endowment) assurance policyholders at durations 2 and over. The comparison basis is AM92. There are 23 offices in the study. The previous investigation contained 34 offices. The fall in the number of offices is due to a number of reasons, including recent mergers in the insurance market and some offices no longer contributing data, however the Bureau believes that there is still a sufficient number of offices to make this exercise worthwhile.

The offices have been allocated to groups according to the number of expected deaths in 1997, as it was thought that the size of the office might be a factor in the variation. Group A contains offices with more than 700 expected deaths in 1997, Group B contains offices with between 400 and 700 expected deaths, and Group C contains offices with less than 400 expected deaths.

The results are shown in Tables 1 and 2. Table 1 shows the statistic 100A/E (all ages) for each office for each year of the study. Also shown for each office is the statistic (100A/E office ÷ 100A/E all offices combined). This shows at a glance whether an office is heavy or light compared to all offices combined. Within each group (A, B or C) offices are ranked in descending order of 100A/E in 1997; this is intended to obviate any possibility of identification of an office by reference to its position in the table. A plus (+) or minus (–) by the 100A/E for 1997 indicates that the difference (positive or negative) between the 100A/E office and 100A/E all offices combined is significant. The criterion is that the difference is more than twice the standard deviation (calculated as $100 \div \sqrt{}$expected deaths) of the observed office value.

Table 2 ranks the offices by the percentage variation of the experience of individual offices from that of all offices combined for the year 1997. Also shown are comparative figures for the CMI 1988 and 1924–29 experiences. (When the CMI 1949–52 experience was being studied, although offices were grouped according to whether their experience was heavy or light, unfortunately no individual office comparisons were published.)

The two tables show a similar pattern of results to those previously observed for 1988, which reinforces the main conclusion drawn then that there was, and still is, a very wide variation between the mortality experiences of the contributing offices.

The comments made on the 1988 experience are also relevant to the 1997 experience. From Table 1 it can be seen that in 1997 the mortality suffered in the experience of the heaviest office was slightly more than double that of the lightest office. Furthermore, using the 2 standard deviation test, in 1997 about half the variations were significant. Taking the table as whole, there remains no evidence that the size of offices has any bearing on the variation in experience, and there does still appear to be a fair degree of consistency from year to year in individual offices.

Table 1. Permanent assurances, males, durations 2 and over: ratios of actual deaths to those expected using the AM92 table for individual offices for the years 1996, 1997 and 1998: also shown are ratios showing the individual office experience as a proportion of the 'All Offices' experience.

Office Ranking	100A/E using AM92 Ult			100A/E Office ÷ 100A/E 'All Offices'		
	1996	1997	1998	1996	1997	1998
Group A						
1	102	99(+)	99	1.13	1.11	1.11
2	93	89	96	1.03	1.00	1.08
3	82	88	71	0.91	0.99	0.80
4	64	83	72	0.71	0.93	0.81
5	86	80(–)	78	0.95	0.90	0.88
6	79	75(–)	78	0.88	0.84	0.88
All Group A	90	90	88	1.00	1.01	0.99
Group B						
1	100	88	82	1.11	0.99	0.92
2	84	84	85	0.93	0.94	0.96
3	93	82	87	1.03	0.92	0.98
4	85	80(–)	108	0.94	0.90	1.22
All Group B	90	83(–)	91	1.00	0.93	1.02
Group C						
1	110	130	82	1.22	1.46	0.92
2	130	112(+)	99	1.44	1.25	1.11
3	100	106(+)	96	1.11	1.19	1.08
4	115	105	111	1.28	1.18	1.25
5	89	102(+)	107	0.99	1.14	1.20
6	99	102(+)	105	1.10	1.14	1.18
7	89	95	90	0.99	1.06	1.01
8	83	84	77	0.92	0.94	0.87
9	81	80	84	0.90	0.90	0.95
10	82	77(–)	83	0.91	0.86	0.93
11	75	73	65	0.83	0.82	0.73
12	63	62	58	0.70	0.69	0.65
13	69	61(–)	60	0.77	0.68	0.68
All Group C	89	91	90	0.99	1.02	1.01
'All Offices'	90	89	89	1.00	1.00	1.00

Note: a (+) or (–) by the ratio for 1997 indicates that the difference between the 100A/E for the individual office and the 100A/E for 'All Offices' is more than twice the standard deviation of the individual office value.

Table 2. Permanent assurances, males, durations 2 and over: distribution of offices by percentage variation (positive or negative) from the experience of all offices combined, together with comparative figures for other experiences.

Percentage variation from all offices experience d	CMI 1997		CMI 1988	CMI 1924–29
	Number of offices	Proportion of total exposure	Number of offices	Number of offices
$0 \leq d < 5$	3	14%	7	22
$5 \leq d < 10$	5	17%	3	17
$10 \leq d < 15$	7	54%	9	13
$15 \leq d < 20$	4	14%	7	2
$20 \leq d < 25$	0	0%	0	0
$d \geq 25$	4	1%	8	0
Total	23	100%	34	54

CMIR **20** (2001) 145–260

SICKNESS EXPERIENCE 1995–98 FOR INDIVIDUAL INCOME PROTECTION POLICIES

KEYWORDS

Individual Income Protection; PHI; Inceptions; Terminations; Occupational class

EXECUTIVE SUMMARY

This report reflects the re-naming of the underlying product from Permanent Health Insurance (PHI) to Income Protection (IP) in line with the industry norm. It presents the results of an analysis of the claims experience for individual IP policies for the quadrennium 1995–98.

The analysis is based on the mathematical model for the analysis of IP data described in *C.M.I.R.* **12** (1991). The methods of analysis used for claim inceptions and claim terminations are those described in two reports in *C.M.I.R.* **15** (1996).

The key points arising from the analysis are described below.

- Volumes of data submitted to the investigation increased from the levels of the previous quadrennium due to new contributors joining or re-joining the investigation towards the end of the quadrennium.

- This was the second quadrennium for which offices had supplied data identified by occupational class. There was considerably more data sub-divided in this way and, in particular, for occupational classes other than Class 1.

- The main experience analysed was the Standard* data set, sub-divided by occupational class. The experience of 1995–98 is compared with that of 1991–94.

- The male inception experience is generally lighter than the previous quadrennium for the shorter deferred periods, DP1, DP4 and DP13. The male inception experience is heavier than the previous quadrennium for the longer deferred periods.

- The female inception experience remains significantly heavier than the male for all deferred periods.

- There was a strong trend in the 1991–94 experience for inception rates to increase from occupational Class 1 to Class 4. The same feature was present in the 1995–98 experience but less marked in some sections of the data.
- Generally, recovery rates have reduced since the last quadrennium, but not for all sections of the data.
- There is little evidence of a pattern for recovery rates to vary by occupational class.
- There is a very large variation in the experience of the various offices within the overall data. This applies to both inceptions and recoveries. This, combined with a changing mix of offices, can distort any analysis of trends based on the overall data.
- An analysis of the experience over the period 1987–98 was carried out on the subset of offices who contributed throughout this period, based on the Standard experience.
- This showed a declining trend over the three quadrennia for male inceptions for the shorter deferred periods, DP1, DP4 and DP13 and an increasing trend for the longer deferred periods, DP26 and DP52.
- For all deferred periods except DP1, there is a strong declining trend in male recovery rates over the three quadrennia for this group of offices.

1. INTRODUCTION

Firstly, it should be noted that the name of the investigation has been changed to reflect a re-naming of the underlying product that has been adopted almost universally throughout the insurance industry and the actuarial profession. The Permanent Health Insurance (PHI) investigation is now known as the Income Protection (IP) investigation and the Sub-Committee that governs the investigation has been similarly re-named.

It may take some time to reflect this change in all the various computer systems that collect, validate and analyse the data, so we ask the forgiveness of our members if the old and new name appear for a while on output that they receive.

A number of reports have been published to date covering the sickness experience for individual IP policies.

The first report, published in *C.M.I.R.* **2**, 1 (1976) described the experience of 1972 and 1973 and compared actual weeks of sickness with those expected on the basis of the Manchester Unity A. H. J. table. Inception rates for quinquennial age groups were also tabulated. The report also described the data coding system and computer processes.

The second report, *C.M.I.R.* **4**, 1 (1979) described the experience of 1972–75 and a graduated Manchester Unity-type table and inception rate table based on that experience.

The third report, *C.M.I.R.* **7**, 1 (1984) described the experience of 1975–78 and a graduated Manchester Unity-type table and inception rate table based on that experience. It also introduced the concept of Standard data, which is an elite subset of the overall Aggregate data.

The fourth report, *C.M.I.R.* **11**, 113 (1991) described the experience of 1979–82 using the 1975–78 graduated rates as the comparison basis.

The above reports all relied on the traditional Manchester Unity approach to analysing IP data. Most practical IP pricing has for many years been based around an inception/disability annuity approach. Although some analysis of inception rates had been carried out in these reports, they contained no analysis of termination rates. *C.M.I.R.* **12** introduced a multiple state model for IP that reconciled the two approaches. The individual male Standard data for 1975–78 were used to develop graduated transition intensities between healthy and sick, sick and healthy and sick and dead.

Two subsequent reports used the model to compare the experience of subsequent data sets with the graduated rates based on individual Standard data for 1975–78.

One report, *C.M.I.R.* **15**, 1 (1996) compared actual and expected inceptions for, *inter alia*, the quadrennia 1975–78, 1979–82, 1983–86 and 1987–90 in respect of individual IP data. The report described the methodology that has been used to analyse inceptions in this report.

A second report, *C.M.I.R.* **15**, 51 (1996) compared actual and expected recoveries and deaths of those sick and claiming under IP policies for, *inter alia*, individual IP business in 1975–78, 1979–82, 1983–86 and 1987–90. The report described the methodology that has been used to analyse claim terminations in this report.

With effect from 1991, the investigation started to collect data sub-divided by occupational class.

The first report analysing experience by occupational class, *C.M.I.R.* **18**, 1 (2000) reported on the experience of individual IP business in 1991–94. It described the Standard experience of that quadrennium, which is not sub-divided by occupational class, to enable comparison with previous quadrennia. It also introduced a new elite subset of the data, the Standard* data, which broke the experience down into four broad occupational classes and a fifth class for data where the occupational class was unknown.

It is clear from the above that the delay between the end of the period to which the experience relates and the date of publication was unacceptably large. A reduction in this timescale has been the key objective of the IP Sub-Committee in recent years.

It became clear that the rigidly defined coding requirements, which required the submission of data in a text format with items of data assigned to particular columns, were causing problems for some current and potential contributors. In recent years, life offices have faced demands on resources from such issues as the pensions review, combined with increasing pressure to control costs. This has meant that, whatever the good intentions held towards a C.M.I. investigation, the contribution of data has not always been assigned the priority that the Bureau would like to see. In order to address this issue it was decided that offices would be allowed to submit data in their own preferred format (spreadsheet, database file, etc.) and the necessary conversion of the submitted data to the standard format required for analysis would be carried out within the Bureau. In some cases this meant that offices could submit their own claims files and in force files with little processing on their part. A more pragmatic approach was taken to the data items themselves in that offices that were having difficulty supplying all the items previously required by the Bureau were allowed to submit data so long as the key items were present. This approach is not without its drawbacks but it was believed that a more user-friendly approach had to be taken to ensure the continued viability of the investigation.

It is pleasing, therefore, to report that the approach has borne fruit in two respects. Firstly, the data collection and analysis is much more up to date. The results in respect of the 1995–98 quadrennium for individual IP were distributed to C.M.I. members in September 2000 with this report following on from that. It is intended that this timescale should be further reduced for future years and quadrennia.

Secondly, the volume of data, measured by in force records, being collected has risen by 44% between the beginning and end of the quadrennium. This is largely a reflection of new contributors recruited in the later part of the period.

Clearly, much still remains to be done by way of research using the data. This report represents only a start.

2. THE DATA

2.1. *Description of the data*

The data received by the C.M.I. Bureau is detailed and consists of a record for each in force policy in respect of each year-end. Each claim that is in force during an investigation year will also generate one or more records for that year, thus one claim that spans several years will generate at least one separate record in each investigation year. All records contain fields describing the attributes of each policy and claims records contain additional fields relating to the duration and other features of the claim. A full description of the format of the data was given in *C.M.I.R.* **2**, 3–10 although a few amendments have been made subsequently. The most significant amendment is the addition of a field to record the office's own occupational class.

2.2. *Occupational class data*

The C.M.I. Bureau's approach to occupational class data is described in *C.M.I.R.* **18**, 3. In essence, this involves converting the office's own internal class code to one of the four standard classes used by the Bureau. The classes can broadly be described as follows:

Class 1 Professional, managerial, executive, administrative and clerical classes not engaged in manual labour.

Class 2 Master craftsmen and tradesmen engaged in management and supervision; skilled operatives engaged in light manual work in non-hazardous occupations.

Class 3 Skilled operatives engaged in manual work in non-hazardous occupations.

Class 4 Skilled and semi-skilled operatives engaged in heavy manual work or subject to special hazard.

2.3. *The Aggregate, Standard and Standard* subsets*

The various data subsets used by the Bureau to analyse the data have been described before, in particular in *C.M.I.R.* **18**, 3. Nonetheless, it is worth reiterating the definitions here.

The total data is referred to as the ***Aggregate*** data.

The main analysis since the 1975–78 quadrennium has been carried out on an elite subset of the Aggregate data known as the ***Standard***. This consists of UK policies with no special benefit types (e.g. lump sums), no identifiable underwriting exclusions and no occupational rating. The occupational rating field within the data has been used from the start of the investigation and has two values, "rated" or "not rated".

With effect from 1991, the investigation started to collect information on specific occupational class as described above. The existing two-value occupational rating field was retained alongside the new occupational class field in order to see how the two corresponded for various offices. It is apparent from an examination of the data that some offices had interpreted occupationally rated as "not Class 1" and others had adopted a different definition.

To make use of the occupational information a new subset of the Aggregate data has been defined and named the ***Standard****. This uses the same criteria as the Standard data but ignores the contents of the "occupational rating" field. It therefore represents a larger subset than the Standard data (the Standard data is itself a subset of the Standard* data), and consists of UK policies with no special benefit types and no identifiable underwriting exclusions.

The inception and termination experience is analysed for the Standard experience by deferred period, sex and age. The Standard* experience is subdivided further by occupational class.

Not all offices, however, could provide a complete breakdown of all their data by occupational class. This might arise for a number of reasons:

- None of the data can be coded by occupational class.
- Coding by occupational class is not possible for all years.
- Only part of the portfolio can be coded by occupational class.
- Claims data can be coded by occupational class but in force data cannot.

This requires a fifth subset of the Standard* data, "Class Unknown", to be analysed. This presents no special problems with the analysis of terminations. The analysis of inceptions requires consistent coding by occupational class for three sets of data, in force at both the beginning and end of a year and claims during the year.

Where there are clear inconsistencies (e.g. claims and year end in force data is coded by occupational class and year beginning data is not) all inception experience is analysed under "Class Unknown". This approach has also been adopted where there appears to be some inconsistency e.g. the proportion of business coded as having unknown occupational class differs markedly between the beginning and end of year in force or between in force and claims. Some offices could only code claims data by occupational class but not in force data so the proportion of "Class Unknown" business is significantly lower for the termination analysis than for the inception analysis. It is expected that the proportion of "Class Unknown" will reduce in future years.

The relationship between Aggregate, Standard* and Standard data is illustrated in Figure 1 below.

The intention is that the Standard* data set will be used in future. In the short term the Standard data set is of use in cases where comparison or aggregation with quadrennia prior to 1991 is required.

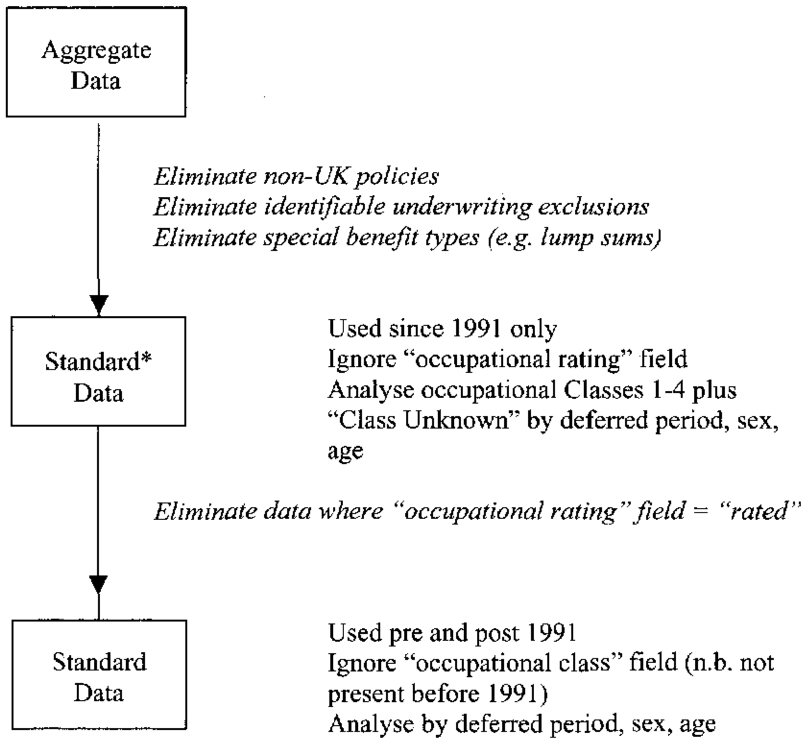


Figure 1. Aggregate, Standard* and Standard data. Definition and analysis.

2.4. *Features of the data*

A detailed breakdown of the data analysed by attribute is given in Table A1 of the Appendix. It shows for the Aggregate data, together with the Standard* subset, the number of policies in force at the beginning and end of each investigation year summed across all four years in the period. It also shows the number of claims records similarly summed across the four year period.

The following features emerge from this table and an examination of similar tables in respect of earlier quadrennia.

Figure 2 below shows the comparison of the volume of Aggregate in force and claims records submitted for individual IP business with the previous four quadrennia. The in force volumes are calculated as the average of the in force number of policies at the beginning and end of each year and therefore represent a broad measure of exposure by "policy years in force". The claims volumes are measured by the total number of claims records received.

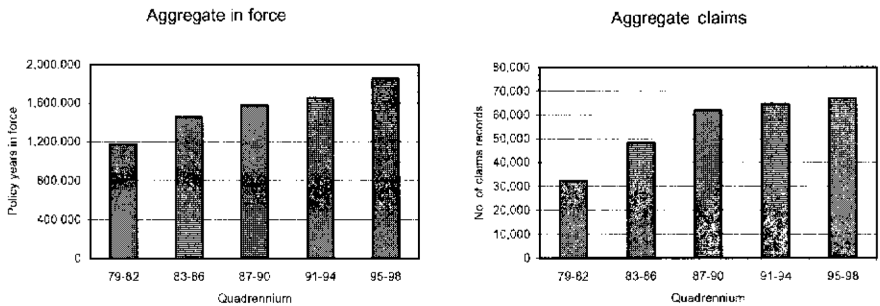


Figure 2. Comparison of volumes of Aggregate data for individual IP business in 1979–82, 1983–86, 1987–90, 1991–94, and 1995–98.

The volume of data for 1995–98 has increased from the amount collected in the previous quadrennium. The increase is more marked for in force data than for claims data, which reflects, in part, the "new data" being weighted towards the longer deferred periods. The effect of recruiting new offices to the investigation, and getting lapsed contributors to rejoin, is seen more markedly when looking at the volume of data contributed in each of the four years of the quadrennium as shown in Figure 3 below. Assuming that the 1998 contributors will remain,

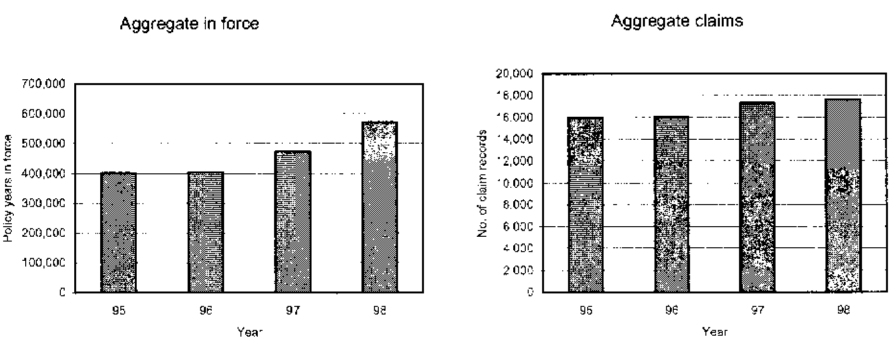


Figure 3. Comparison of volumes of Aggregate data for individual IP business in 1995, 1996, 1997 and 1998.

the effect on quadrennial data volumes will be more noticeable in 1999–2002. The IP Sub-Committee is keen to ensure that the investigation has access to the largest possible volume of industry data and any new contributors are always welcome.

The Standard* data represents about 96% of the Aggregate in force data and some 92% of the Aggregate claims data.

The breakdown of the Aggregate data and Standard* subset by deferred period is shown in Table 1 below. The table shows that the proportion of in force data at the longer deferred periods, and DP52 in particular, has increased since the previous quadrennium and the proportion for the two shorter deferred periods has reduced. For claims data, a similar effect is observed but a significant increase in the proportion of DP26 and, to a lesser extent, DP13 is also present.

The breakdown of the two data sets by sex is shown is Table 2 below. The main feature from Table 2 is the significant increase in the proportion of females from the previous quadrennium. The proportion of females has been continuously increasing throughout the investigation and it is interesting to note that at the beginning of 1975 the proportion was only some 4%.

It is encouraging to note the contents of Table 3 below. This shows the breakdown of Aggregate and Standard* data by C.M.I.-allocated occupational class. This shows that the proportion of in force data coded as "Class Unknown" has halved since the previous quadrennium. In 1991–94 the amount of data for occupational classes other than Class 1 was fairly sparse and it is therefore pleasing that the proportion of data in these classes has doubled in the 1995–98 quadrennium. The volume of data for Class 4 in particular still remains low at only some 4% of the total in force data.

Table 1. Individual IP 1995–98 and 1991–94. In force and claims. Percentage of data by deferred period.

	In force records (%)				Claims records (%)			
	Aggregate		Standard*		Aggregate		Standard*	
Deferred period	95–98	91–94	95–98	91–94	95–98	91–94	95–98	91–94
1 week	5	7	5	7	33	38	31	37
4 weeks	16	20	15	20	21	25	20	24
13 weeks	30	30	30	30	20	18	21	18
26 weeks	30	29	31	29	18	14	19	15
52 weeks	19	14	19	14	8	5	9	6
	100	100	100	100	100	100	100	100

Table 2. Individual IP 1995–98 and 1991–94. In force and claims. Aggregate and Standard* data. Percentage of data by sex.

	In force records (%)				Claims records (%)			
	Aggregate		Standard*		Aggregate		Standard*	
Sex	95–98	91–94	95–98	91–94	95–98	91–94	95–98	91–94
Male	81	86	81	86	86	88	86	88
Female	19	14	19	14	14	12	14	12
	100	100	100	100	100	100	100	100

Table 3. Individual IP 1995–98 and 1991–94. In force and claims. Aggregate and Standard* data. Percentage of data by occupational class.

	In force records (%)				Claims records (%)			
	Aggregate		Standard*		Aggregate		Standard*	
C.M.I.-allocated occupational class	95–98	91–94	95–98	91–94	95–98	91–94	95–98	91–94
Class 1	58	47	57	46	67	63	66	62
Class 2	10	5	10	5	7	4	7	4
Class 3	7	3	7	3	6	3	7	3
Class 4	4	2	4	2	5	3	5	3
Class Unknown	21	43	22	44	15	27	15	28
	100	100	100	100	100	100	100	100

This proportion of data allocated to "Class Unknown" is lower for claims data than for in force. This reflects the fact that some offices could only submit claims data split by occupational class but could not provide this information for in force. We are continuing to encourage offices to provide occupational data and we expect that the proportion of "Class Unknown" business will decline further in the 1999–2002 quadrennium. Only a very small proportion of the data relates to non-UK policies. The amount involved is less than 1% and relates mainly to the Republic of Ireland.

A second, perhaps more informative, way of looking at volumes of data is by the number of significant 'events' – claim inceptions and claims terminations by recovery and death. A breakdown of the Standard* experience by analysed events for occupational class within deferred period is shown in Table 4 below.

Table 4. Individual IP 1995–98 and 1991–94. Volumes of data by number of analysed events. Standard* data by occupational class within deferred period.

Occupational class	No. of inceptions				No. of recoveries				No. of deaths			
	95–98	%	91–94	%	95–98	%	91–94	%	95–98	%	91–94	%
DP1												
Class 1	10,620	*99*	13,171	*99*	4,276	*100*	5,497	*99*	49	*98*	67	*95*
Class 2	8	*0*	1	*0*	8	*0*	21	*1*	1	*2*	1	*1*
Class 3	3	*0*	0	*0*	12	*0*	3	*0*	0	*0*	2	*3*
Class 4	0	*0*	2	*0*	3	*0*	2	*0*	0	*0*	1	*1*
Class Unknown	56	*1*	199	*1*	0	*0*	11	*0*	0	*0*	0	*0*
	10,687		13,373		4,299		5,534		50		71	
DP4												
Class 1	2,080	*47*	2,185	*34*	1,250	*46*	1,718	*38*	83	*55*	88	*50*
Class 2	363	*8*	365	*6*	396	*15*	562	*13*	23	*15*	23	*13*
Class 3	505	*12*	463	*7*	567	*21*	1,195	*26*	24	*16*	24	*14*
Class 4	389	*9*	443	*7*	414	*15*	772	*17*	13	*9*	17	*10*
Class Unknown	1,048	*24*	2,978	*46*	70	*3*	260	*6*	8	*5*	23	*13*
	4,385		6,434		2,697		4,507		151		175	
DP13												
Class 1	1,129	*39*	848	*27*	517	*41*	472	*29*	104	*51*	104	*46*
Class 2	330	*11*	161	*5*	250	*20*	198	*12*	37	*18*	19	*8*
Class 3	278	*10*	105	*4*	217	*17*	231	*14*	31	*15*	24	*11*
Class 4	203	*7*	120	*4*	189	*15*	237	*15*	19	*9*	19	*8*
Class Unknown	971	*33*	1,877	*60*	94	*7*	477	*30*	15	*7*	60	*27*
	2,911		3,111		1,267		1,615		206		226	
DP26												
Class 1	1,226	*57*	788	*44*	320	*61*	208	*47*	105	*68*	88	*57*
Class 2	193	*9*	73	*4*	75	*14*	44	*10*	16	*11*	10	*7*
Class 3	140	*7*	49	*3*	56	*11*	28	*7*	19	*12*	9	*6*
Class 4	79	*4*	41	*2*	43	*8*	31	*7*	6	*4*	2	*1*
Class Unknown	492	*23*	829	*47*	32	*6*	129	*29*	8	*5*	45	*29*
	2,130		1,780		526		440		154		154	
DP52												
Class 1	617	*60*	302	*46*	75	*69*	34	*38*	41	*77*	36	*64*
Class 2	88	*9*	18	*3*	11	*10*	6	*7*	6	*11*	1	*2*
Class 3	64	*6*	24	*4*	12	*11*	7	*8*	1	*2*	3	*5*
Class 4	33	*3*	4	*0*	4	*4*	5	*5*	3	*6*	0	*0*
Class Unknown	230	*22*	307	*47*	7	*6*	38	*42*	2	*4*	16	*29*
	1,032		655		109		90		53		56	

Key features of this table are as follows:

- DP1 business remains virtually all Class 1 but the amount of data as measured by inceptions has dropped markedly since the previous quadrennium. The greater part of this reduction appears to relate to lower volumes of business.
- It should be borne in mind when comparing the number of inceptions with the number of recoveries and deaths for a particular deferred period that the inceptions do not have suspected duplicate policies eliminated whereas the terminations do. This is particularly important for DP1 policies.
- Additionally, some offices could not submit in force data coded by occupational class but could submit claims data so coded. In such cases, and cases where it was suspected that occupational class had been coded inconsistently between claims and in force, inceptions were analysed under "Class Unknown" and claims under the coded occupational class.
- Numbers of DP4 events have reduced from the previous quadrennium. This is due only in a minor part to a reduction in the in force data. For terminations the reduction is evident for all occupational classes, whereas numbers of inceptions are at similar levels for Classes 1–4 but much less for Class Unknown.
- Numbers of DP13 events have reduced, both for inceptions and terminations. This cannot be explained by a change in the in force data volumes which have increased. The proportion of events coded by occupational class has increased markedly, both for inceptions and terminations.
- Numbers of events have increased for both DP26 and DP52 business, particularly for DP52 inceptions. The proportion of data coded by occupational class has also increased substantially for both these deferred periods.

3. OCCUPATIONAL CLAIMS EXPERIENCE – STANDARD* DATA

3.1. *Inceptions*

The methodology for analysing the claim inception experience of IP business was set out in *C.M.I.R.* **15**, 1. The same methodology and table layout is used in this report. The basic approach is to compare actual inceptions with those expected on the basis of the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

The tables are presented in the same format as in *C.M.I.R.* **15**, but the volume of information increases by a factor of six. This results from the tabulations for each sex and deferred period requiring a further sub-division into tables for Classes 1 to 4, Class Unknown and all business combined.

The results are summarised in Table A2 of the Appendix, which is split into sub-tables for each deferred period and sex. The sub-tables show, for each occupational class and for each of the quadrennia 1991–94 and 1995–98, values of 100A/E and a confidence interval of ± 2 standard deviations. The tables also show the number of actual inceptions. Figures A1.1–A1.5 show the information graphically for each deferred period. No value of 100A/E or confidence interval is shown where the number of actual inceptions is less than 10.

Tables A3.1–A3.10 show a statistical analysis of actual claim inceptions, labelled AINC, against expected, labelled EINC, and against adjusted expected, labelled EINC*, where σ_x has been multiplied by a factor required to make the total number of expected inceptions equal to the total actual number (the factor being the percentage at the foot of the $100 \times A/E$ column).

Tables A3.1–A3.5 relate to males for deferred periods 1, 4, 13, 26 and 52 weeks respectively. Tables A3.6–A3.10 relate to females for the five deferred periods. Each table is then further sub-divided into six elements labelled (a)–(f) where (a)–(d) relate to occupational Classes 1–4 respectively, (e) relates to Class Unknown and (f) relates to all classes (including Class Unknown) combined.

The statistical tests described in Section 3 of the report in *C.M.I.R.* **15** incorporate a variance ratio to allow for the presence of duplicate policies in the data. In *C.M.I.R.* **18**, 12 it was commented that the variance ratio, which had been derived from an analysis of 1975–78 Aggregate data, may be too low or, put another way, the extent of duplicate policies in the data had probably increased significantly since the 1975–78 quadrennium. This is again the case for the 1995–98 quadrennium, but a thorough treatment would require a separate analysis for the various rates for each section of the data (by sex, occupational class, time period, etc.). For practical reasons the original variance ratio has been retained.

The tables are voluminous and the data available for occupational Classes 2–4 for some deferred periods, and for females in particular, is sparse. When the number of actual inceptions for any of the subsections (a)–(f) is less than 10, that subsection of the tables has been omitted.

The key features emerging from the experience are as follows:

- The all office experience is generally significantly lighter than the previous quadrennium for both males and females for the shorter deferred periods DP1, DP4 and DP13. The exception is female DP1 policies where a slightly heavier experience was observed. The differences are most marked for other than male occupational Class 1 policies.

- For the longer deferred periods, DP26 and DP52, overall male inception rates are significantly heavier than in 1991–94, due mostly to increases in the rates for Class 1 and "Class Unknown" business. The position is less clear for other occupational classes where some rates have decreased.
- For female DP26 policies, inception rates have fallen significantly, whereas DP52 inception rates have shown a small increase.
- The female experience remains significantly heavier than the male experience for all deferred periods.
- The observation in 1991–94, the first quadrennial analysis by occupation, was that there was a strong tendency for inception rates to increase from Class 1 to Class 4 for all business apart from DP1 where there was little data other than Class 1. The same feature was apparent in the 1995–98 results but less marked in some sections of the data. In particular, Class 2 rates were less than Class 1 rates for DP26 males.
- Readers should exercise caution when attempting to draw conclusions about underlying trends from these results. As will be discussed later in this report, there is considerable variation of experience between offices and the combined results can be influenced by changes in the mix of offices contributing from year to year. The latter two years of the quadrennium were particularly subject to changing office mix. Other factors may also mask any trends in the underlying morbidity, for example changes to underwriting practices and claims control procedures.

3.2. *Terminations*

The methodology for analysing claim termination experience for IP business was set out in *C.M.I.R.* **15**, 51. The same methodology is used in this report. Actual deaths and recoveries are compared with those expected on the basis of the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Tables A4.1 and A4.2 of the Appendix contain a comparison of the values of 100A/E, for all ages and durations combined, with those applying to the previous quadrennium. Values based on fewer than 30 events are shown in *italic*; values where the value of either $p(+/-)$ or $p(B)$ is less than 0.025 for adjusted E are shown in **bold**. No results are shown where the number of actual events is less than 10. The results are presented using the basic format introduced in *C.M.I.R.* **15**, 51. The experience for each sex and deferred period is sub-divided into six elements for Classes 1–4, Class Unknown and all business combined.

The results in Tables A4.1–A4.2 are also shown graphically in Figures A2.1–A2.6 and A3.1–A3.6 in the Appendix. In addition to the 100A/E results shown in the tables, the figures also illustrate a confidence interval, the lower limit being $100 \times (A-2\sqrt{E})/E$ and the upper limit being $100 \times (A+2\sqrt{E})/E$. As with Tables A4.1–A4.2, no results are shown when the number of actual events is less than 10.

The detailed results by duration of sickness and age group together with the results of the various statistical tests are shown in Tables A5–A8 of the Appendix. These deal with male recoveries, male deaths, female recoveries and female deaths respectively. Each table is further sub-divided into six sections by occupational class. For example, Table A5 is sub-divided as follows:

Table A5.1	Class 1
Table A5.2	Class 2
Table A5.3	Class 3
Table A5.4	Class 4
Table A5.5	Class Unknown
Table A5.6	All business

Readers are referred to the report in *C.M.I.R.* **15** for a full description of the tables and the statistical tests used. Where the volume of data is sparse, less than 10 actual results, the sub-division of the table is omitted for the relevant occupational class.

Note that the statistical analysis is carried out on two bases for expected events. Firstly, they are based on "*E*", the expected events on the basis of the males, individual policies, Standard experience for 1975–78. Secondly, they are based on "adjusted *E*", which is equal to the expected number of events multiplied by the overall ratio of actual to expected events for that combination of sex, deferred period and type of event. The purpose of this dual statistical analysis is to indicate whether any lack of fit relates only to the level of the comparison basis rather than the "shape".

The following features are apparent:

- Overall recovery rates for all deferred periods combined are lower than the previous quadrennium. This holds true for both males and females and all occupational classes.

- When looked at by deferred period the movement in recovery rates since the previous quadrennium is something of a mixed bag.

- For DP1 business, which is virtually all Class 1, all occupations male rates have increased slightly and female rates have decreased.
- For DP4 business, male Class 1 rates have dropped with only a small overlap of confidence intervals but the movement for females and other classes is less clear.
- For DP13 business, the rates have generally dropped for both males and females for all occupational classes, but the volume of female data is small.
- For DP26 business, male recovery rates have reduced overall but not for Classes 3 and 4. There is little sign of a trend in the female experience where confidence intervals are large.
- For DP52 business, data is sparse and confidence intervals are wide but overall recovery rates have reduced since the previous quadrennium for both males and females.

• Although overall female recovery rates for all deferred periods combined are lower than male rates, this is heavily influenced by the DP1 Class 1 business. The position for other deferred periods and classes is less clear and confidence intervals for females are wide due to sparse data.

• As in the previous quadrennium, there seems little sign of a clear pattern for recovery rates to vary by occupational class. The "all deferred periods" comparison is distorted by the large amount of Class 1 data in the DP1 business which is heavily weighted with short duration claims.

Examination of the overall male recovery results by duration of sickness shows a tendency for 100A/E to be high in the first 4 weeks of sickness (all DP1 data) and then to even out at a lower level. An examination of the overall recovery rates by age shows that the 100A/E values rise with age reaching a peak at ages 35–39 and then declining. This is heavily influenced by DP1 claims and the pattern is less clear for other deferred periods.

There is evidence that overall death rates have dropped since the previous quadrennium, though sparse data, particularly for females and non-Class 1 occupations, makes further comment difficult. There is some tendency, over both quadrennia, for male death rates to reduce with "increasing" occupational class i.e. going from Class 1 to Class 4. Data, though, is sparse and the overlap of confidence intervals is large.

Again, readers are cautioned about the effect of changing office mix and other factors when comparing the experience of different time periods.

3.3. *Variation between offices*

It is interesting to note the variation in experience between the various offices. In the past, the C.M.I. Bureau has been very cautious when addressing this issue for fear of compromising the confidentiality of the investigation. This is particularly so for sections of the data dominated by a small number of offices. Problems may also arise when, as might be otherwise desirable, an indication is given (directly or indirectly) as to the volume of data underlying an A/E figure.

Two papers by Korabinski and Waters, "An Analysis of the PHI Experience of Individual Companies in the United Kingdom: Claim Inception Rates" *C.M.I.R.* **18**, 109 (2000) and "An Analysis of the PHI Experience of Individual Companies in the United Kingdom II: Claim Termination Rates" *C.M.I.R.* **18**, 151 (2000), used both a Generalised Linear Model and a Credibility Model to explore the features of the 1987–1994 individual IP data. These papers provided more information on variation between offices than had previously been published.

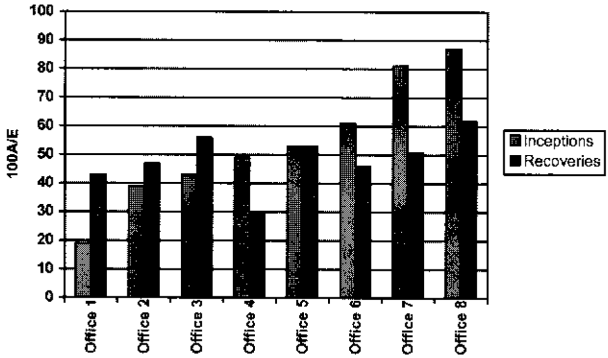
It is not the intention of this paper to repeat the rigorous analysis of those two papers using the 1995–98 data but a more simplistic approach has been pursued. 100A/E figures for inceptions and terminations by recovery have been presented for each office on an anonymous basis. The analysis has been confined to occupational Class 1 males, there being much less data for females and other occupational classes. Furthermore, offices with smaller volumes of data have been omitted. The purpose is to illustrate the size of variation between offices and to give a broad indication of whether high inception rates tend to be associated with high recovery rates, or *vice versa*.

Figures 4(a)–4(c) below have been compiled for DP4, DP13 and DP26 business. DP1 business has some special features that might compromise confidentiality if information were given. DP52 business has few offices with significant volumes of data if taken in isolation.

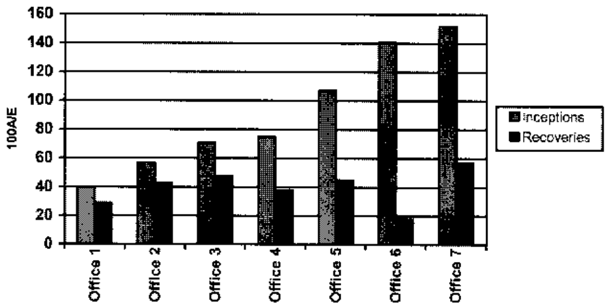
Each figure shows, for each office where there are 30 or more expected inceptions and 30 or more expected recoveries, the value of 100A/E in respect of inceptions (all ages) and recoveries (all ages and durations).

The offices have been arranged in ascending order of inception rates from left to right, the left hand bar indicating inception rates and the right hand bar indicating recovery rates. Office numbering is not therefore consistent for the three deferred periods (e.g. Office 1 may be a different office for the three deferred periods).

(a) Deferred period 4 weeks



(b) Deferred period 13 weeks



(c) Deferred period 26 weeks

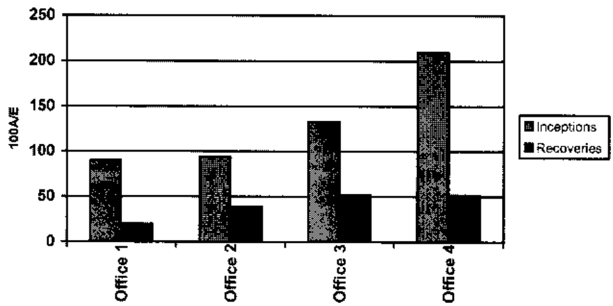


Figure 4. Variation of claim inception and recovery rates by office. 100A/E for those offices having $E \geq 30$ for both inceptions and recoveries. Arranged in ascending order of inception rates. Males, Occupational Class 1. Deferred periods 4 weeks, 13 weeks and 26 weeks.

The following general observations can be made.

- There are large variations in both inception rates and recovery rates between offices. The ranges of 100A/E observed for the offices shown are:

	Range of 100A/E	
	Inceptions	Recoveries
DP4	19 to 87	30 to 62
DP13	40 to 152	18 to 57
DP26	90 to 210	20 to 52

- For DP26 there is a clear pattern for recovery rates to be high when inception rates are high, although the number of offices with sufficient credible data is only four.

- For DP4 and DP13 there is little evidence on the basis of this crude analysis that inception rates and recovery rates are similarly correlated. Indeed the DP13 office with the lowest recovery rates has the second highest inception rates.

For confidentiality reasons the above figures do not indicate credibility and random variations will inevitably contribute to the variation in results. It is clear, though, that the experience of different offices' Income Protection portfolios can differ enormously. This reinforces the point that great care must be taken when using the results derived from an industry investigation for pricing and valuation purposes.

The wide variations in experience also, as already discussed, lead to problems in discerning trends when offices join or leave the investigation from year to year.

4. FURTHER INVESTIGATION OF TRENDS

4.1. *Introduction*

It has already been commented that the volume of data increased markedly over the course of the quadrennium, due principally to new offices joining the investigation and offices who had dropped out prior to the start of the quadrennium coming back in.

The C.M.I. Bureau is actively seeking to recruit further contributors to the investigation and it is anticipated that there may be further significant changes to the composition of the investigation during the 1999–2002 quadrennium. The occupational investigation has been subject to further instability as a result of offices not being able to provide data split by occupational class from the beginning of the occupational investigation (1991), but being able to do so from a subsequent year.

The changes should be regarded as positive, the investigation is collecting a greater and more representative volume of UK IP data and more of it is being sub-divided by occupational class.

However, the flip side of this is that any trends in the underlying morbidity experience may be being distorted by changes in the composition of the data. The wide variation in experience between offices has already been commented on above. The danger is that any underlying trends are distorted when comparing all office results from one period to the next by offices joining (or leaving) the investigation.

Although warnings of possible distortions can be (and have been) given, this is not particularly useful in itself.

The approach taken in this report is to look at the combined experience of offices that have contributed throughout the 12-year period 1987–1998. This enables us to get some idea of the trends in claims experience over an extended period. The data is analysed in three quadrennia, 1987–90, 1991–94 and 1995–98. Occupational class data was not submitted until 1991 so, in order to compare like with like, the analysis is carried out on the Standard subset i.e. UK policies with no special benefit types, no identifiable underwriting exclusions and where the "occupational rating" field has been coded as "not rated". The Standard data has been used in past reports to compare experience between quadrennia, though on an "all office" basis rather than deliberately following through a specific group of offices.

It should be noted that some distortions to trends still remain. For example, proportions of data contributed by each office will change over time.

4.2. *Inceptions*

The inception results are set out in Tables A9.1 and A9.2 of the Appendix. The tables show, for each age group and for the three quadrennia, the actual number of inceptions and the values of 100A/E.

The overall results for all ages combined are also presented graphically in Figures A4.1 and A4.2. They show 100A/E with confidence intervals of ±2 standard deviations, and summarise the experience of the three quadrennia for each deferred period.

The main features observed are:

- A declining trend in male inception rates for the shorter deferred periods, DP1 and DP4. Male inception rates for DP13 declined significantly in the latest quadrennium after rising in 1991–94 from the levels of the 1987–90. For the two longer deferred periods, DP26 and DP52, the male inception rates rose significantly in 1995–98.

- Female inception rates show a significant declining trend over the three quadrennia for DP4 and DP13. For DP1, female inception rates showed a small increase in 1995–98 from the levels of the previous quadrennium after a significant decrease in 1991–94 from the levels of 1987–90. For DP26, female inception rates decreased significantly in 1995–98, following an increase in 1991–94. For DP52, female data is sparse but 1995–98 rates were higher than the previous quadrennium.

- Female inception rates were significantly higher than male rates for all deferred periods.

- The above observations on the direction of movement of inception rates between 1991–94 and 1995–98 are consistent with the observations for occupational Class 1 data in the All Office Standard* results described earlier.

4.3. *Terminations*

The results for termination by recovery are set out in Tables A10.1–A10.5 and those for termination by death in Tables A11.1–A11.5. Each table covers a deferred period and shows, for males and females, the breakdown of 100A/E by sickness duration and by age group. The information in each column and statistical analysis are as developed in *C.M.I.R.* **15**.

The overall results, for all sickness durations and age groups combined, are shown graphically in Tables A5.1–A5.4. This also shows a confidence interval for each experience.

The main features observed are:

- For all deferred periods except DP1 there is a strong declining trend in male recovery rates over the three quadrennia. For DP1, rates increased in 1991–94 and stayed at similar levels for 1995–98.
- For females, the recovery data is more sparse and there is considerable overlap of confidence intervals with no particular strong trend emerging in any section of the data.
- For male death rates, although confidence intervals are wide, there is evidence of a trend for rates to decline over the three quadrennia for all deferred periods.
- Data on female deaths is too sparse to make worthwhile comment.
- The above observations on the direction of movement of inception rates are broadly consistent with the observations for occupational Class 1 data in the All Office Standard* results described earlier.

5. CONTRIBUTING OFFICES

The Executive Committee and the IP Sub-Committee wish to thank the following offices that have contributed data to this investigation. The office names given are, generally, those applying at the time of submission.

AXA Equity & Law	Lloyds TSB
BUPA	Medical Sickness
Commercial Union	Norwich Union
Eagle Star	Permanent
Friends Provident	Standard Life
General Accident	Sun Alliance
Guardian	UNUM
Legal & General	Zurich Life

APPENDIX

Table A1. Individual IP policies, 1995–98. Aggregate and Standard* data. Number of policies in force at the beginning and end of each investigation year and number of claims records summed across the four year period.

	Attribute	Aggregate data: In force at start of year	Aggregate data: In force at end of year	Aggregate data: Claim records	Standard* data: In force at start of year	Standard* data: In force at end of year	Standard* data: Claim records
Sex	Male	1,499,243	1,509,349	57,429	1,435,198	1,445,220	52,818
	Female	338,726	358,671	9,547	323,915	343,011	8,823
Country	UK	1,834,069	1,864,187	66,764	1,759,113	1,788,231	61,641
	Republic of Ireland	2,550	2,457	189	0	0	0
	Isle of Man	748	794	12	0	0	0
	Channel Islands	575	582	11	0	0	0
Occupational Rating	Not rated	1,476,014	1,499,201	53,333	1,416,430	1,438,883	48,891
	Rated	361,751	368,615	13,643	342,479	349,144	12,750
	Unknown	0	0	0	0	0	0
Benefit Type	Level	704,615	693,487	37,976	676,964	666,001	35,025
	Increasing	1,124,256	1,166,015	27,848	1,075,819	1,116,517	25,580
	Decreasing	6,695	6,041	1,136	6,330	5,713	1,036
	Waiver	2,403	2,477	16	0	0	0
	Other	0	0	0	0	0	0
Medical Evidence	Medical	209,349	210,116	11,558	193,234	195,141	9,762
	Non-medical	757,272	767,329	31,508	717,337	726,727	28,386
	Non-selection	355	335	32	351	331	32
	Unknown	870,456	889,758	23,875	847,658	865,554	23,458
	Paramedic	537	482	3	533	478	3

Table A1. continued

	Attribute	Aggregate data: In force at start of year	Aggregate data: In force at end of year	Aggregate data: Claim records	Standard* data: In force at start of year	Standard* data: In force at end of year	Standard* data: Claim records
Premium Type	Level annual	1,138,063	1,135,147	49,304	1,083,792	1,080,000	45,550
	Recurrent single	1,546	1,558	6	1,537	1,550	6
	Increasing annual	698,360	731,315	17,666	673,784	706,681	16,085
	Other	0	0	0	0	0	0
Underwriting Impairment	No extra risk	1,313,060	1,324,983	52,421	1,307,068	1,318,997	52,210
	Hypertension	806	832	74	0	0	0
	Neurosis	10,742	10,754	836	0	0	0
	Exclusion possible	452,079	469,265	9,432	452,045	469,234	9,431
	Other	61,282	62,186	4,213	0	0	0
CMI Occupational Class	C.M.I. 1	1,059,693	1,077,408	44,789	1,003,801	1,020,537	40,539
	C.M.I. 2	190,335	197,988	4,538	180,774	188,161	4,246
	C.M.I. 3	128,080	130,443	4,437	121,282	123,633	4,196
	C.M.I. 4	70,042	70,936	3,399	65,821	66,870	3,061
	C.M.I. unknown	389,819	391,245	9,813	387,435	389,030	9,599
Investigation Year	1995	401,980	403,318	15,968	387,157	388,845	14,557
	1996	403,318	407,110	16,055	388,845	392,026	14,645
	1997	468,339	478,268	17,329	444,313	453,852	15,956
	1998	564,332	579,324	17,624	538,798	553,508	16,483
	Total records	1,837,969	1,868,020	66,976	1,759,113	1,788,231	61,641

Table A2. Individual policies, Standard* experience for the quadrennia 1991–94 and 1995–98. Males and females. Occupational class 1, 2, 3, 4, unknown and all combined. Deferred periods 1, 4, 13, 26 and 52 weeks. Ratios of actual claim inceptions to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78. Also shown are 100 × A/E plus/minus two standard deviations.

Table A2.1a: Males, DP1

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100 × A/E	100×(A/E +2×SD)
Class 1	1991–94	11,905	95.2	97.9	100.7
	1995–98	9,551	89.0	92.0	94.9
Class 2	1991–94	0	–	–	–
	1995–98	7	–	–	–
Class 3	1991–94	0	–	–	–
	1995–98	3	–	–	–
Class 4	1991–94	2	–	–	–
	1995–98	0		–	–
Class Unknown	1991–94	191	23.8	37.1	50.4
	1995–98	56	5.0	25.5	45.9
All business	1991–94	12,098	92.7	95.4	98.1
	1995–98	9,617	87.1	90.0	93.0

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.1b: Females, DP1

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	1,266	111.5	120.9	130.2
	1995–98	1,069	116.0	126.4	136.8
Class 2	1991–94	1	–	–	–
	1995–98	1	–	–	–
Class 3	1991–94	0	–	–	–
	1995–98	0	–	–	–
Class 4	1991–94	0	–	–	–
	1995–98	0	–	–	–
Class Unknown	1991–94	8	–	–	–
	1995–98	0	–	–	–
All business	1991–94	1,275	111.5	120.8	130.1
	1995–98	1,070	115.6	126.0	136.4

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.2a: Males, DP4

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	1,694	67.0	72.4	77.8
	1995–98	1,674	63.4	68.7	73.9
Class 2	1991–94	290	96.3	112.4	128.5
	1995–98	288	59.9	72.9	86.0
Class 3	1991–94	436	145.2	160.9	176.6
	1995–98	487	71.4	82.0	92.7
Class 4	1991–94	442	214.2	233.0	251.8
	1995–98	389	137.9	154.2	170.6
Class Unknown	1991–94	2,751	105.6	110.8	116.0
	1995–98	938	53.2	59.7	66.3
All business	1991–94	5,613	97.8	101.3	104.8
	1995–98	3,776	68.4	71.9	75.5

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.2b: Females, DP4

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	491	127.0	140.9	154.8
	1995–98	406	91.0	104.1	117.3
Class 2	1991–94	75	151.6	193.2	234.8
	1995–98	75	73.5	104.0	134.6
Class 3	1991–94	27	244.3	336.0	427.7
	1995–98	18	76.9	152.0	227.1
Class 4	1991–94	1	–	–	–
	1995–98	0	–	–	–
Class Unknown	1991–94	227	119.1	139.4	159.7
	1995–98	110	71.0	95.1	119.2
All business	1991–94	821	135.9	146.9	157.9
	1995–98	609	92.4	103.1	113.8

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.3a: Males, DP13

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	676	89.1	97.3	105.5
	1995–98	902	79.5	86.2	92.8
Class 2	1991–94	126	126.0	149.6	173.2
	1995–98	255	87.0	100.6	114.2
Class 3	1991–94	100	178.7	210.1	241.5
	1995–98	260	130.9	147.2	163.5
Class 4	1991–94	120	252.3	285.7	319.1
	1995–98	200	154.0	174.2	194.4
Class Unknown	1991–94	1,699	130.9	137.0	143.1
	1995–98	831	115.2	123.6	131.9
All business	1991–94	2,721	124.4	129.1	133.8
	1995–98	2,448	103.6	108.1	112.7

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.3b: Females, DP13

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	172	177.0	200.4	223.8
	1995–98	227	120.0	136.7	153.3
Class 2	1991–94	35	241.9	306.0	370.1
	1995–98	75	163.8	199.0	234.2
Class 3	1991–94	5	–	–	–
	1995–98	18	129.5	202.0	274.5
Class 4	1991–94	0	–	–	–
	1995–98	3	–	–	–
Class Unknown	1991–94	178	161.2	183.1	205.0
	1995–98	140	167.0	192.3	217.7
All business	1991–94	390	183.0	198.4	213.8
	1995–98	463	148.7	161.4	174.2

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.4a: Males, DP26

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	623	130.3	141.0	151.7
	1995–98	954	142.6	151.6	160.5
Class 2	1991–94	52	114.4	152.9	191.4
	1995–98	134	111.1	133.5	155.9
Class 3	1991–94	46	161.2	209.1	257.0
	1995–98	115	194.1	225.5	256.9
Class 4	1991–94	39	260.2	325.0	389.8
	1995–98	75	230.8	273.7	316.6
Class Unknown	1991–94	655	135.7	146.3	156.9
	1995–98	391	171.6	187.2	202.7
All business	1991–94	1,415	140.4	147.7	155.0
	1995–98	1,669	157.1	164.1	171.1

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.4b: Females, DP26

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	165	333.9	367.4	400.9
	1995–98	272	278.2	301.9	325.5
Class 2	1991–94	21	550.5	678.0	805.5
	1995–98	59	360.2	420.0	479.8
Class 3	1991–94	3	–	–	–
	1995–98	25	466.0	573.0	680.0
Class 4	1991–94	2	–	–	–
	1995–98	4	–	–	–
Class Unknown	1991–94	174	440.8	478.0	515.2
	1995–98	101	344.4	388.5	432.5
All business	1991–94	365	405.5	429.9	454.3
	1995–98	461	322.7	342.0	361.3

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.5a: Males, DP52

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	246	252.6	276.4	300.2
	1995–98	452	302.3	321.3	340.2
Class 2	1991–94	12	252.5	378.0	503.5
	1995–98	55	395.9	461.0	526.1
Class 3	1991–94	20	766.6	918.0	1,069.4
	1995–98	43	471.6	552.0	632.4
Class 4	1991–94	3	–	–	–
	1995–98	33	770.3	887.0	1,003.7
Class Unknown	1991–94	254	247.6	270.8	294.0
	1995–98	175	291.3	321.7	352.1
All business	1991–94	535	265.7	282.0	298.3
	1995–98	758	331.6	346.8	361.9

Note: 100 × A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A2.5b: Females, DP52

C.M.I. Occupational Class	Quadrennium	Inceptions	100×(A/E −2×SD)	100×A/E	100×(A/E +2×SD)
Class 1	1991–94	56	522.8	596.0	669.2
	1995–98	165	574.5	618.0	661.4
Class 2	1991–94	6	–	–	–
	1995–98	33	652.8	761.0	869.3
Class 3	1991–94	4	–	–	–
	1995–98	21	1,093.8	1,266.0	1,438.2
Class 4	1991–94	1	–	–	–
	1995–98	0	–	–	–
Class Unknown	1991–94	53	591.1	671.0	750.9
	1995–98	55	765.2	854.0	942.7
All business	1991–94	120	615.9	669.0	722.1
	1995–98	274	664.1	700.0	735.9

Note: 100×A/E figures and confidence intervals are omitted from the above table if the number of actual inceptions is less than 10.

Table A3.1. Males, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 1 week. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.1a: Males, DP1, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	6.0	9.9	61	−0.82	9.1	66	−0.68
25–29	66.0	134.7	49	−3.91	123.9	53	−3.44
30–34	275.0	288.1	95	−0.51	265.0	104	0.41
35–39	917.0	871.9	105	1.01	802.0	114	2.68
40–44	1,449.0	1,468.1	99	−0.33	1,350.3	107	1.77
45–49	2,125.0	2,355.3	90	−3.14	2,166.4	98	−0.59
50–54	2,275.0	2,430.1	94	−2.08	2,235.2	102	0.56
55–59	1,671.0	1,740.2	96	−1.10	1,600.7	104	1.16
60–64	767.0	1,085.5	71	−6.39	998.4	77	−4.84
18–64	9,551.0	10,383.8	92		9,551.0	100	
Total chi-squared				73.5			48.2
Degrees of freedom				9			8
Probability value				0.0000			0.0000

Table A3.1e: Males, DP1, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.0	↓	↓
25–29	0.0	0.0	↓	↓	0.0	↓	↓
30–34	0.0	0.0	↓	↓	0.0	↓	↓
35–39	0.0	0.0	↓	↓	0.0	↓	↓
40–44	1.0	0.5	↓	↓	0.1	↓	↓
45–49	4.0	16.1	30	−1.89	4.1	↓	↓
50–54	9.0	51.7	17	−3.92	13.2	80	−0.54
55–59	23.0	80.3	29	−4.22	20.4	113	0.38
60–64	19.0	71.4	27	−4.10	18.2	105	0.13
18–64	56.0	220.0	25		56.0	100	
Total chi-squared				53.6			0.4
Degrees of freedom				4			2
Probability value				0.0000			0.80

Table A3.1f: Males, DP1, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	6.0	9.9	61	−0.82	8.9	67	−0.64
25–29	66.0	134.7	49	−3.91	121.3	54	−3.32
30–34	275.0	288.2	95	−0.52	259.5	106	0.64
35–39	917.0	874.3	105	0.95	787.2	116	3.06
40–44	1,452.0	1,477.9	98	−0.45	1,330.6	109	2.20
45–49	2,130.0	2,391.8	89	−3.54	2,153.3	99	−0.33
50–54	2,286.0	2,505.8	91	−2.90	2,256.0	101	0.42
55–59	1,697.0	1,835.8	92	−2.14	1,652.8	103	0.72
60–64	788.0	1,163.5	68	−7.27	1,047.5	75	−5.30
18–64	9,617.0	10,682.0	90		9,617.0	100	
Total chi-squared				95.8			54.9
Degrees of freedom				9			8
Probability value				0.0000			0.0000

Note: Tables A3.1b, A3.1c and A3.1d were omitted due to low data volumes (actual inceptions being less than 10).

Table A3.2. Males, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 4 week. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.2a: Males, DP4, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	5.0	19.4	26	–2.52	13.3	38	–1.76
25–29	35.0	77.7	45	–3.73	53.3	66	–1.94
30–34	60.0	109.9	55	3.67	75.4	80	–1.37
35–39	119.0	188.7	63	–3.92	129.6	92	–0.72
40–44	218.0	277.9	78	–2.77	190.8	114	1.52
45–49	296.0	422.4	70	–4.74	290.0	102	0.27
50–54	370.0	487.6	76	–4.11	334.8	111	1.49
55–59	366.0	446.7	82	–2.95	306.7	119	2.61
60–64	205.0	408.0	50	–7.75	280.1	73	–3.46
18–64	1,674.0	2,438.2	69		1,674.0	100	
Total chi-squared				165.0			32.6
Degrees of freedom				9			8
Probability value				0.0000			0.0001

Table A3.2b: Males, DP4, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	3.0	3.8	↓	↓	2.8	↓	↓
25–29	12.0	16.2	75	–0.86	11.8	103	0.09
30–34	32.0	32.8	98	–0.10	23.9	134	1.28
35–39	41.0	46.7	88	–0.64	34.0	120	0.92
40–44	49.0	58.8	83	–0.99	42.9	114	0.72
45–49	44.0	73.6	60	–2.66	53.7	82	–1.02
50–54	45.0	77.7	58	–2.86	56.7	79	–1.20
55–59	43.0	54.4	79	–1.19	39.7	108	0.40
60–64	19.0	30.9	62	–1.65	22.5	84	–0.57
18–64	288.0	394.8	73		288.0	100	
Total chi-squared				21.5			6.0
Degrees of freedom				8			7
Probability value				0.0058			0.54

Table A3.2c: Males, DP4, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	4.0	3.1	↓	↓	2.5	↓	↓
25–29	22.0	19.6	115	0.54	16.1	140	1.32
30–34	49.0	48.4	101	0.07	39.7	123	1.14
35–39	66.0	71.8	92	–0.53	58.9	112	0.71
40–44	77.0	85.6	90	–0.72	70.3	110	0.62
45–49	96.0	114.6	84	–1.34	94.0	102	0.16
50–54	89.0	124.5	72	–2.45	102.1	87	–1.00
55–59	70.0	90.6	77	–1.67	74.3	94	–0.39
60–64	14.0	35.5	39	–2.78	29.1	48	–2.16
18–64	487.0	593.7	82		487.0	100	
Total chi-squared				19.4			9.8
Degrees of freedom				8			7
Probability value				0.0127			0.20

Table A3.2d: Males, DP4, C.M.I. Class 4

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	6.0	0.8	↓	↓	1.2	↓	↓
25–29	21.0	9.3	266	4.09	14.4	173	2.22
30–34	43.0	24.6	174	2.85	38.0	113	0.62
35–39	47.0	33.4	141	1.82	51.4	91	–0.48
40–44	69.0	37.8	182	3.91	58.3	118	1.08
45–49	80.0	50.9	157	3.14	78.6	102	0.12
50–54	70.0	49.5	141	2.24	76.4	92	–0.57
55–59	42.0	34.0	124	1.07	52.4	80	–1.10
60–64	11.0	11.8	93	–0.19	18.2	60	–1.31
18–64	389.0	252.2	154		389.0	100	
Total chi-squared				59.5			10.0
Degrees of freedom				8			7
Probability value				0.0000			0.19

Table A3.2e: Males, DP4, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	8.0	3.8	↓	↓	2.3	↓	↓
25–29	39.0	26.3	156	2.38	15.7	262	5.29
30–34	51.0	59.7	85	–0.87	35.7	143	1.98
35–39	65.0	95.2	68	–2.39	56.9	114	0.83
40–44	111.0	150.3	74	–2.48	89.8	124	1.73
45–49	153.0	276.4	55	–5.73	165.1	93	–0.73
50–54	234.0	369.5	63	–5.44	220.7	106	0.69
55–59	175.0	345.1	51	–7.06	206.1	85	–1.67
60–64	102.0	243.9	42	–7.01	145.7	70	–2.79
18–64	938.0	1,570.2	60		938.0	100	
Total chi-squared				179.7			47.1
Degrees of freedom				8			7
Probability value				0.0000			0.0000

Table A3.2f: Males, DP4, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	26.0	30.8	84	−0.67	22.2	117	0.63
25–29	129.0	149.1	87	−1.27	107.2	120	1.62
30–34	235.0	275.4	85	−1.88	198.1	119	2.02
35–39	338.0	435.8	78	−3.61	313.5	108	1.07
40–44	524.0	610.5	86	−2.70	439.2	119	3.12
45–49	669.0	937.8	71	−6.77	674.6	99	−0.17
50–54	808.0	1,108.7	73	−6.97	797.6	101	0.28
55–59	696.0	970.8	72	−6.80	698.3	100	−0.07
60–64	351.0	730.1	48	−10.82	525.2	67	−5.86
18–64	3,776.0	5,249.1	72		3,776.0	100	
Total chi-squared				283.8			52.5
Degrees of freedom				9			8
Probability value				0.0000			0.0000

Table A3.3. Males, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 13 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.3a: Males, DP13, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	1.2	↓	↓	1.0	↓	↓
25–29	8.0	15.1	55	−1.67	13.0	64	−1.24
30–34	24.0	38.4	63	−2.14	33.1	73	−1.46
35–39	60.0	68.8	87	−0.98	59.3	101	0.08
40–44	87.0	109.0	80	−1.95	93.9	93	−0.66
45–49	133.0	184.5	72	−3.51	159.0	84	−1.90
50–54	230.0	232.1	99	−0.13	200.0	115	1.96
55–59	222.0	216.5	103	0.35	186.5	119	2.40
60–64	137.0	181.3	76	−3.04	156.2	88	1.42
18–64	902.0	1,047.0	86		902.0	100	
Total chi-squared				33.9			19.4
Degrees of freedom				8			7
Probability value				0.0000			0.0071

Table A3.3b: Males, DP13, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.8	↓	↓	0.8	↓	↓
25–29	8.0	5.6	125	0.59	5.6	125	0.58
30–34	14.0	13.9	101	0.03	14.0	100	0.01
35–39	29.0	21.2	137	1.57	21.3	136	1.54
40–44	37.0	30.4	122	1.10	30.6	121	1.06
45–49	35.0	47.6	74	–1.69	47.9	73	–1.72
50–54	58.0	58.5	99	–0.06	58.9	99	–0.10
55–59	55.0	49.8	110	0.68	50.1	110	0.64
60–64	19.0	25.6	74	–1.21	25.8	74	–1.24
18–64	255.0	253.4	101		255.0	100	
Total chi-squared				8.8			8.7
Degrees of freedom				8			7
Probability value				0.36			0.27

Table A3.3c Males, DP13, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	4.0	0.9	↓	↓	1.3	↓	↓
25–29	13.0	5.8	253	3.66	8.6	172	2.08
30–34	27.0	12.2	221	3.90	18.0	150	1.96
35–39	38.0	17.2	220	4.62	25.4	150	2.32
40–44	36.0	22.8	158	2.56	33.5	107	0.39
45–49	39.0	33.5	116	0.87	49.4	79	–1.36
50–54	44.0	39.8	110	0.61	58.6	75	–1.76
55–59	40.0	30.2	132	1.64	44.5	90	–0.63
60–64	19.0	14.0	135	1.22	20.7	92	–0.34
18–64	260.0	176.6	147		260.0	100	
Total chi-squared				61.8			19.2
Degrees of freedom				8			7
Probability value				0.0000			0.0076

Table A3.3d: Males, DP13, C.M.I. Class 4

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	4.0	1.0	↓	↓	1.7	↓	↓
25–29	12.0	5.2	259	3.65	9.0	148	1.47
30–34	20.0	9.6	207	3.08	16.8	119	0.72
35–39	26.0	11.8	220	3.81	20.6	126	1.10
40–44	22.0	13.5	163	2.15	23.5	94	−0.28
45–49	41.0	20.6	199	4.14	36.0	114	0.78
50–54	35.0	23.5	149	2.20	40.9	86	−0.85
55–59	26.0	20.8	125	1.05	36.3	72	−1.58
60–64	14.0	8.7	160	1.65	15.2	92	−0.29
18–64	200.0	114.8	174		200.0	100	
Total chi-squared				67.8			7.9
Degrees of freedom				8			7
Probability value				0.0000			0.34

Table A3.3e: Males, DP13, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	5.0	1.6	↓	↓	2.0	↓	↓
25–29	40.0	14.6	278	6.62	18.0	225	5.17
30–34	52.0	32.1	162	3.25	39.7	131	1.81
35–39	74.0	46.3	160	3.77	57.2	129	2.06
40–44	71.0	68.4	104	0.29	84.6	84	−1.37
45–49	129.0	114.9	112	1.22	142.0	91	−1.01
50–54	191.0	157.1	122	2.50	194.1	98	−0.20
55–59	162.0	137.7	118	1.92	170.1	95	−0.58
60–64	107.0	99.9	107	0.66	123.4	87	−1.37
18–64	831.0	672.5	124		831.0	100	
Total chi-squared				80.6			39.4
Degrees of freedom				8			7
Probability value				0.0000			0.0000

Table A3.3f: Males, DP13, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	14.0	5.5	255	3.36	5.9	236	3.06
25–29	81.0	46.3	175	4.72	50.0	162	4.05
30–34	137.0	106.2	129	2.76	114.9	119	1.91
35–39	227.0	165.3	137	4.43	178.7	127	3.34
40–44	253.0	244.2	104	0.52	264.0	96	–0.62
45–49	377.0	401.2	94	–1.12	433.7	87	–2.52
50–54	558.0	511.0	109	1.92	552.4	101	0.22
55–59	505.0	455.1	111	2.16	492.0	103	0.54
60–64	296.0	329.6	90	–1.71	356.4	83	–2.96
18–64	2,448.0	2,264.3	108		2,448.0	100	
Total chi-squared				73.7			56.4
Degrees of freedom				9			8
Probability value				0.0000			0.0000

Table A3.4. Males, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 26 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.4a: Males, DP26, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.2	↓	↓	0.2	↓	↓
25–29	3.0	4.1	↓	↓	6.3	46	–1.23
30–34	15.0	11.3	116	0.55	17.1	88	–0.45
35–39	40.0	23.1	173	3.12	35.1	114	0.74
40–44	72.0	43.5	165	3.84	66.0	109	0.66
45–49	142.0	91.5	155	4.71	138.6	102	0.26
50–54	267.0	144.6	185	9.07	219.1	122	2.88
55–59	275.0	160.9	171	8.02	243.9	113	1.78
60–64	140.0	150.3	93	–0.75	227.8	61	–5.18
18–64	954.0	629.4	152		954.0	100	
Total chi-squared				194.1			41.1
Degrees of freedom				7			7
Probability value				0.0000			0.0000

Table A3.4b: Males, DP26, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.1	↓	↓	0.1	↓	↓
25–29	0.0	0.8	↓	↓	1.1	↓	↓
30–34	6.0	2.4	↓	↓	3.2	↓	↓
35–39	13.0	4.5	245	3.60	6.0	183	2.39
40–44	19.0	8.3	228	3.29	11.1	171	2.10
45–49	27.0	18.7	144	1.70	25.0	108	0.35
50–54	38.0	26.7	142	1.94	35.7	106	0.34
55–59	23.0	23.6	97	–0.12	31.6	73	–1.36
60–64	8.0	15.2	53	–1.64	20.3	39	–2.43
18–64	134.0	100.4	133		134.0	100	
Total chi-squared				33.1			18.1
Degrees of freedom				6			5
Probability value				0.0000			0.0028

Table A3.4c: Males, DP26, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.1	↓	↓	0.2	↓	↓
25–29	0.0	0.6	↓	↓	1.3	↓	↓
30–34	9.0	1.3	↓	↓	2.9	↓	↓
35–39	6.0	2.4	↓	↓	5.5	151	1.44
40–44	23.0	4.5	429	8.72	10.1	229	3.64
45–49	19.0	10.0	190	2.55	22.5	84	–0.66
50–54	28.0	14.0	199	3.32	31.6	88	–0.58
55–59	17.0	11.7	145	1.38	26.4	65	–1.62
60–64	13.0	6.4	202	2.30	14.5	89	–0.36
18–64	115.0	51.0	225		115.0	100	
Total chi-squared				100.7			18.8
Degrees of freedom				5			5
Probability value				0.0000			0.0021

Table A3.4d: Males, DP26, C.M.I. Class 4

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.1	↓	↓	0.2	↓	↓
25–29	3.0	0.4	↓	↓	1.1	↓	↓
30–34	8.0	1.0	↓	↓	2.7	↓	↓
35–39	5.0	1.6	↓	↓	4.3	194	2.41
40–44	7.0	2.5	415	6.61	7.0	101	0.02
45–49	15.0	5.2	290	3.85	14.2	106	0.20
50–54	15.0	7.2	207	2.57	19.9	76	–0.97
55–59	18.0	5.8	234	3.66	15.8	114	0.48
60–64	4.0	3.6	↑	↑	9.9	40	–1.68
18–64	75.0	27.4	274		75.0	100	
Total chi-squared				78.5			9.8
Degrees of freedom				4			5
Probability value				0.0000			0.0803

Table A3.4e: Males, DP26, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.1	↓	↓	0.2	↓	↓
25–29	5.0	1.6	↓	↓	3.0	↓	↓
30–34	11.0	4.4	279	3.93	8.2	149	1.47
35–39	23.0	7.6	304	4.99	14.2	162	2.09
40–44	44.0	13.6	324	7.36	25.4	173	3.29
45–49	63.0	26.3	239	6.37	49.2	128	1.75
50–54	109.0	47.6	229	7.93	89.1	122	1.88
55–59	80.0	58.5	137	2.51	109.4	73	–2.51
60–64	55.0	49.3	112	0.72	92.3	60	–3.46
18–64	391.0	208.9	187		391.0	100	
Total chi-squared				204.9			42.2
Degrees of freedom				7			6
Probability value				0.0000			0.0000

Table A3.4f: Males, DP26, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.5	↓	↓	0.8	↓	↓
25–29	11.0	7.6	149	1.24	12.4	91	–0.30
30–34	49.0	20.3	241	5.67	33.3	147	2.42
35–39	87.0	39.2	222	6.81	64.3	135	2.52
40–44	165.0	72.4	228	9.69	118.8	139	3.77
45–49	266.0	151.6	175	8.27	248.8	107	0.97
50–54	457.0	240.2	190	12.46	394.1	116	2.82
55–59	413.0	260.5	159	8.42	427.4	97	–0.62
60–64	220.0	224.8	98	–0.29	368.9	60	–6.91
18–64	1,669.0	1,017.1	164		1,669.0	100	
Total chi-squared				468.7			83.5
Degrees of freedom				8			7
Probability value				0.0000			0.0000

Table A3.5. Males, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 52 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.5a: Males, DP52, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.0	↓	↓
25–29	1.0	0.4	↓	↓	1.2	↓	↓
30–34	6.0	2.7	↓	↓	8.6	71	–0.80
35–39	26.0	6.5	344	6.73	21.0	124	0.97
40–44	31.0	10.8	286	5.45	34.8	89	–0.58
45–49	96.0	20.4	471	14.93	65.4	147	3.37
50–54	138.0	31.9	433	16.75	102.4	135	3.14
55–59	97.0	35.5	273	9.19	114.1	85	–1.43
60–64	57.0	32.5	175	3.83	104.4	55	–4.13
18–64	452.0	140.7	321		452.0	100	
Total chi-squared				677.6			42.2
Degrees of freedom				6			6
Probability value				0.0000			0.0000

Table A3.5b: Males, DP52, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.0	↓	↓
25–29	0.0	0.1	↓	↓	0.6	↓	↓
30–34	2.0	0.4	↓	↓	1.8	↓	↓
35–39	4.0	0.7	↓	↓	3.3	105	0.11
40–44	6.0	1.2	↓	↓	5.6	107	0.14
45–49	11.0	2.3	↓	↓	10.4	106	0.17
50–54	16.0	3.1	461	11.11	14.1	114	0.46
55–59	13.0	2.8	↑	↑	12.7	102	0.07
60–64	3.0	1.4	↑	↑	6.5	46	–1.22
18–64	55.0	11.9	461		55.0	100	
Total chi-squared				123.4			1.8
Degrees of freedom				1			5
Probability value				0.0000			0.88

Table A3.5c: Males, DP52, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.0	↓	↓	0.1	↓	↓
25–29	0.0	0.1	↓	↓	0.7	↓	↓
30–34	0.0	0.3	↓	↓	1.5	↓	↓
35–39	3.0	0.4	↓	↓	2.5	↓	↓
40–44	11.0	0.7	↓	↓	4.0	171	1.88
45–49	12.0	1.4	↓	↓	7.8	154	1.33
50–54	11.0	2.0	552	11.23	11.0	100	–0.01
55–59	1.0	1.7	↑	↑	9.3	11	–2.42
60–64	4.0	1.1	↑	↑	6.1	66	–0.76
18–64	43.0	7.8	552		43.0	100	
Total chi-squared				126.2			11.8
Degrees of freedom				1			4
Probability value				0.0000			0.0192

Table A3.5d: Males, DP52, C.M.I. Class 4

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.0	↓	↓	0.1	↓	↓
25–29	1.0	0.1	↓	↓	0.7	↓	↓
30–34	2.0	0.1	↓	↓	1.2	↓	↓
35–39	1.0	0.2	↓	↓	2.2	↓	↓
40–44	4.0	0.4	↓	↓	3.1	123	0.55
45–49	6.0	0.6	↓	↓	5.5	108	0.18
50–54	14.0	0.8	↓	↓	7.4	188	2.14
55–59	4.0	0.9	↓	↓	8.1	32	−2.17
60–64	0.0	0.5	887	13.53	4.6	↑	↑
18–64	33.0	3.7	887		33.0	100	
Total chi-squared				183.0			9.6
Degrees of freedom				1			3
Probability value				0.0000			0.0219

Table A3.5e: Males, DP52, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.0	↓	↓
25–29	0.0	0.2	↓	↓	0.6	↓	↓
30–34	2.0	0.6	↓	↓	1.8	↓	↓
35–39	2.0	1.3	↓	↓	4.2	60	−0.91
40–44	17.0	2.8	↓	↓	8.9	190	2.41
45–49	30.0	5.9	473	10.92	19.1	157	2.23
50–54	60.0	11.8	508	12.50	38.0	158	3.18
55–59	44.0	16.5	267	6.05	52.9	83	−1.09
60–64	20.0	15.4	130	1.05	49.5	40	−3.73
18–64	175.0	54.4	322		175.0	100	
Total chi-squared				313.1			36.9
Degrees of freedom				4			5
Probability value				0.0000			0.0000

Table A3.5f: Males, DP52, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	2.0	0.1	↓	↓	0.2	↓	↓
25–29	2.0	0.9	↓	↓	3.1	↓	↓
30–34	12.0	4.0	321	4.39	14.0	92	–0.28
35–39	36.0	9.2	389	7.84	32.1	112	0.62
40–44	69.0	15.9	433	11.85	55.2	125	1.65
45–49	155.0	30.6	507	20.04	106.1	146	4.23
50–54	239.0	49.6	482	23.97	171.9	139	4.56
55–59	159.0	57.3	277	11.96	198.8	80	–2.52
60–64	84.0	50.9	165	4.13	176.6	48	–6.21
18–64	758.0	218.6	347		758.0	100	
Total chi-squared				1,357.6			86.8
Degrees of freedom				7			6
Probability value				0.0000			0.0000

Table A3.6. Females, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 1 week. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.6a: Females, DP1, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	2.0	5.0	40	–0.88	6.3	32	–1.13
25–29	50.0	86.5	58	–2.59	109.3	46	–3.75
30–34	59.0	79.3	74	–1.50	100.2	59	–2.72
35–39	137.0	105.1	130	2.06	132.8	103	0.24
40–44	201.0	172.6	116	1.43	218.2	92	–0.77
45–49	220.0	162.2	136	3.00	205.0	107	0.69
50–54	233.0	125.8	185	6.32	159.0	147	3.88
55–59	142.0	89.3	159	3.68	112.9	126	1.81
60–64	25.0	20.1	124	0.72	25.5	98	–0.06
18–64	1,069.0	845.9	126		1,069.0	100	
Total chi-squared				79.0			42.2
Degrees of freedom				9			8
Probability value				0.0000			0.0000

Table A3.6f: Females, DP1, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	2.0	5.0	40	−0.88	6.3	32	−1.13
25–29	50.0	86.7	58	−2.60	109.2	46	−3.75
30–34	59.0	79.3	74	−1.50	99.9	59	−2.70
35–39	137.0	105.1	130	2.06	132.4	103	0.26
40–44	202.0	173.1	117	1.45	218.2	93	−0.73
45–49	220.0	162.9	135	2.96	205.3	107	0.68
50–54	233.0	126.6	184	6.25	159.6	146	3.84
55–59	142.0	90.2	157	3.60	113.7	125	1.75
60–64	25.0	20.1	124	0.72	25.4	98	−0.05
18–64	1,070.0	849.0	126		1,070.0	100	
Total chi-squared				77.5			41.5
Degrees of freedom				9			8
Probability value				0.0000			0.0000

Note: Tables A3.6b, A3.6c, A3.6d and A3.6e were omitted due to low data volumes (actual inceptions being less than 10).

Table A3.7. Females, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 4 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.7a: Females, DP4, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	12.0	21.9	55	−1.63	22.8	53	−1.74
25–29	30.0	57.8	52	−2.82	60.2	50	−3.01
30–34	31.0	36.7	84	−0.73	38.3	81	−0.91
35–39	59.0	44.5	132	1.67	46.4	127	1.43
40–44	59.0	60.8	97	−0.18	63.4	93	−0.42
45–49	81.0	63.8	127	1.66	66.4	122	1.38
50–54	70.0	57.5	122	1.27	59.9	117	1.01
55–59	58.0	36.6	158	2.73	38.1	152	2.48
60–64	6.0	10.1	60	−0.99	10.5	57	−1.07
18–64	406.0	389.9	104		406.0	100	
Total chi-squared				26.8			25.3
Degrees of freedom				9			8
Probability value				0.0015			0.0014

Table A3.7b: Females, DP4, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	5.0	2.9	↓	↓	3.0	↓	↓
25–29	10.0	9.0	126	0.69	9.4	121	0.57
30–34	3.0	11.0	27	−1.86	11.4	26	−1.92
35–39	14.0	10.5	133	0.83	10.9	128	0.72
40–44	15.0	10.2	146	1.15	10.7	141	1.03
45–49	12.0	11.4	105	0.13	11.9	101	0.02
50–54	10.0	9.6	104	0.10	10.0	100	0.01
55–59	6.0	6.8	81	−0.40	7.1	78	−0.48
60–64	0.0	0.6	↑	↑	0.6	↑	↑
18–64	75.0	72.1	104		75.0	100	
Total chi-squared				6.1			5.8
Degrees of freedom				7			6
Probability value				0.52			0.44

Table A3.7c: Females, DP4, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.4	↓	↓	0.7	↓	↓
25–29	3.0	1.1	↓	↓	1.7	↓	↓
30–34	2.0	1.5	↓	↓	2.2	↓	↓
35–39	4.0	1.7	↓	↓	2.6	125	0.52
40–44	4.0	1.7	202	2.00	2.6	↓	↓
45–49	2.0	2.1	↓	↓	3.1	105	0.09
50–54	2.0	1.9	↓	↓	2.9	↓	↓
55–59	1.0	1.3	92	−0.14	2.0	↓	↓
60–64	0.0	0.2	↑	↑	0.3	59	−0.72
18–64	18.0	11.9	152		18.0	100	
Total chi-squared				4.0			0.8
Degrees of freedom				2			2
Probability value				0.13			0.67

Table A3.7e: Females, DP4, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	7.0	2.1	↓	↓	2.0	↓	↓
25–29	5.0	10.0	100	−0.01	9.5	105	0.13
30–34	27.0	13.2	205	2.94	12.5	216	3.16
35–39	14.0	14.8	94	−0.17	14.1	99	−0.02
40–44	18.0	19.8	91	−0.31	18.8	96	−0.15
45–49	24.0	25.4	95	−0.21	24.1	99	−0.02
50–54	12.0	19.8	61	−1.35	18.8	64	−1.21
55–59	3.0	9.7	28	−1.81	9.2	30	−1.73
60–64	0.0	1.0	↑	↑	1.0	↑	↑
18–64	110.0	115.7	95		110.0	100	
Total chi-squared				14.0			14.5
Degrees of freedom				7			6
Probability value				0.0519			0.0245

Table A3.7f: Females, DP4, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	24.0	27.3	88	−0.48	28.1	85	−0.60
25–29	48.0	78.1	61	−2.63	80.6	60	−2.80
30–34	63.0	62.5	101	0.05	64.5	98	−0.14
35–39	91.0	71.7	127	1.76	73.9	123	1.53
40–44	96.0	92.6	104	0.27	95.5	101	0.04
45–49	119.0	103.0	116	1.21	106.2	112	0.96
50–54	94.0	89.1	106	0.40	91.8	102	0.17
55–59	68.0	54.4	125	1.42	56.1	121	1.22
60–64	6.0	11.8	51	−1.31	12.2	49	−1.37
18–64	609.0	590.6	103		609.0	100	
Total chi-squared				15.7			14.9
Degrees of freedom				9			8
Probability value				0.0736			0.0614

Note: Table A3.7d was omitted due to low data volumes (actual inceptions being less than 10).

Table A3.8. Females, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 13 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.8a: Females, DP13, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	4.0	1.5	↓	↓	2.1	↓	↓
25–29	18.0	10.1	189	2.81	13.8	138	1.42
30–34	18.0	17.0	106	0.23	23.2	78	−1.00
35–39	31.0	21.2	147	1.98	28.9	107	0.35
40–44	46.0	26.4	174	3.53	36.1	127	1.52
45–49	52.0	33.6	155	2.94	45.9	113	0.83
50–54	34.0	30.4	112	0.59	41.6	82	−1.10
55–59	23.0	21.4	93	−0.33	29.2	79	−1.06
60–64	1.0	4.5	↑	↑	6.1	16	−1.91
18–64	227.0	166.0	137		227.0	100	
Total chi-squared				33.5			12.1
Degrees of freedom				7			7
Probability value				0.0000			0.0970

Table A3.8b: Females, DP13, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.6	↓	↓	1.3	↓	↓
25–29	9.0	3.0	↓	↓	6.0	137	0.93
30–34	6.0	4.4	199	2.59	8.7	69	−0.85
35–39	21.0	4.8	↓	↓	9.6	219	3.41
40–44	12.0	5.6	317	6.47	11.1	108	0.25
45–49	12.0	7.0	171	1.74	13.9	86	−0.48
50–54	9.0	6.8	132	0.77	13.6	66	−1.15
55–59	4.0	4.7	↓	↓	9.4	46	−1.63
60–64	1.0	0.7	92	−0.17	1.4	↑	↑
18–64	75.0	37.8	199		75.0	100	
Total chi-squared				52.2			17.5
Degrees of freedom				5			6
Probability value				0.0000			0.0077

Table A3.8c: Females, DP13, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.2	↓	↓	0.3	↓	↓
25–29	2.0	0.5	↓	↓	1.1	↓	↓
30–34	3.0	0.9	↓	↓	1.8	↓	↓
35–39	2.0	0.9	↓	↓	1.9	159	1.22
40–44	6.0	1.2	↓	↓	2.4	↓	↓
45–49	3.0	1.6	202	2.82	3.2	160	1.32
50–54	1.0	1.7	↑	↑	3.4	↓	↓
55–59	0.0	1.7	↑	↑	3.5	14	−2.16
60–64	0.0	0.2	↑	↑	0.5	↑	↑
18–64	18.0	8.9	202		18.0	100	
Total chi-squared				7.9			7.9
Degrees of freedom				1			2
Probability value				0.0048			0.0193

Table A3.8e: Females, DP13, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	2.0	0.9	↓	↓	1.7	↓	↓
25–29	16.0	5.4	285	4.30	10.5	148	1.56
30–34	16.0	8.1	198	2.57	15.6	103	0.10
35–39	19.0	8.6	222	3.30	16.5	115	0.58
40–44	24.0	10.8	222	3.70	20.8	115	0.65
45–49	27.0	14.0	193	3.22	26.9	100	0.02
50–54	27.0	15.8	171	2.62	30.3	89	–0.55
55–59	9.0	7.9	97	–0.09	15.1	50	–1.94
60–64	0.0	1.4	↑	↑	2.8	↑	↑
18–64	140.0	72.8	192		140.0	100	
Total chi-squared				66.9			7.3
Degrees of freedom				7			6
Probability value				0.0000			0.30

Table A3.8f: Females, DP13, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	8.0	3.2	↓	↓	5.2	153	1.11
25–29	45.0	19.2	236	5.95	31.0	145	2.32
30–34	45.0	30.5	148	2.43	49.2	91	–0.56
35–39	73.0	35.7	205	5.78	57.6	127	1.88
40–44	88.0	44.2	199	6.09	71.4	123	1.82
45–49	95.0	56.4	169	4.76	91.0	104	0.39
50–54	71.0	55.0	129	1.99	88.8	80	–1.75
55–59	36.0	35.8	101	0.04	57.7	62	–2.64
60–64	2.0	6.8	29	–1.71	11.0	18	–2.51
18–64	463.0	286.8	161		463.0	100	
Total chi-squared				141.4			30.3
Degrees of freedom				8			8
Probability value				0.0000			0.0002

Note: Table A3.8d was omitted due to low data volumes (actual inceptions being less than 10).

Table A3.9. Females, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 26 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.9a: Females, DP26, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.2	↓	↓	0.6	↓	↓
25–29	18.0	3.7	↓	↓	11.1	162	1.89
30–34	24.0	6.7	408	8.91	20.1	119	0.77
35–39	31.0	9.2	337	6.40	27.8	112	0.54
40–44	55.0	13.3	414	10.20	40.1	137	2.09
45–49	67.0	18.3	367	10.16	55.2	121	1.42
50–54	51.0	19.6	260	6.30	59.3	86	−0.96
55–59	22.0	14.8	131	1.20	44.6	49	−3.02
60–64	3.0	4.4	↑	↑	13.2	23	−2.50
18–64	272.0	90.1	302		272.0	100	
Total chi-squared				368.7			27.7
Degrees of freedom				6			7
Probability value				0.0000			0.0003

Table A3.9b: Females, DP26, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.1	↓	↓	0.3	↓	↓
25–29	3.0	0.6	↓	↓	2.4	↓	↓
30–34	5.0	1.1	↓	↓	4.7	109	0.21
35–39	7.0	1.4	↓	↓	5.9	118	0.40
40–44	10.0	2.0	484	7.77	8.4	119	0.49
45–49	17.0	3.0	↓	↓	12.5	136	1.12
50–54	9.0	3.3	382	7.50	13.7	66	−1.14
55–59	7.0	2.1	↑	↑	9.0	72	−0.82
60–64	1.0	0.5	↑	↑	2.1	↑	↑
18–64	59.0	14.1	420		59.0	100	
Total chi-squared				116.6			3.7
Degrees of freedom				2			5
Probability value				0.0000			0.60

Table A3.9c: Females, DP26, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.2	↓	↓
25–29	1.0	0.2	↓	↓	1.0	↓	↓
30–34	2.0	0.2	↓	↓	1.4	↓	↓
35–39	2.0	0.3	↓	↓	1.6	↓	↓
40–44	3.0	0.5	↓	↓	2.8	117	0.39
45–49	10.0	0.9	↓	↓	5.0	201	2.00
50–54	6.0	1.3	↓	↓	7.3	82	−0.44
55–59	1.0	0.9	↓	↓	5.2	17	−1.79
60–64	0.0	0.1	573	8.80	0.7	↑	↑
18–64	25.0	4.4	573		25.0	100	
Total chi-squared				77.5			7.5
Degrees of freedom				1			3
Probability value				0.0000			0.0565

Table A3.9e: Females, DP26, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.1	↓	↓	0.4	↓	↓
25–29	6.0	0.9	↓	↓	3.5	↓	↓
30–34	6.0	1.8	↓	↓	6.9	121	0.61
35–39	8.0	2.4	408	6.23	9.2	87	−0.36
40–44	14.0	3.4	↓	↓	13.2	106	0.20
45–49	28.0	5.1	495	10.26	19.8	141	1.64
50–54	26.0	6.1	427	7.19	23.7	110	0.42
55–59	11.0	4.7	↓	↓	18.4	60	−1.54
60–64	1.0	1.5	192	2.05	5.9	17	−1.79
18–64	101.0	26.0	389		101.0	100	
Total chi-squared				199.9			9.0
Degrees of freedom				4			6
Probability value				0.0000			0.17

Table A3.9f: Females, DP26, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	2.0	0.4	↓	↓	1.3	↓	↓
25–29	29.0	5.4	540	9.39	18.3	158	2.28
30–34	37.0	9.8	377	7.74	33.5	110	0.53
35–39	48.0	13.3	361	8.48	45.5	106	0.33
40–44	82.0	19.2	427	12.78	65.6	125	1.80
45–49	123.0	27.3	451	16.32	93.3	132	2.74
50–54	92.0	30.4	303	9.96	103.9	89	−1.04
55–59	43.0	22.6	190	3.81	77.4	56	−3.49
60–64	5.0	6.5	77	−0.52	22.1	23	−3.24
18–64	461.0	134.8	342		461.0	100	
Total chi-squared				763.6			40.1
Degrees of freedom				8			7
Probability value				0.0000			0.0000

Note: Table A3.9d was omitted due to low data volumes (actual inceptions being less than 10).

Table A3.10. Females, individual policies, Standard* experience for the quadrennium 1995–98. Deferred period 52 weeks. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A3.10a: Females, DP52, C.M.I. Class 1

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.0	↓	↓	0.2	↓	↓
25–29	4.0	0.4	↓	↓	2.5	↓	↓
30–34	13.0	1.8	↓	↓	11.2	130	1.01
35–39	29.0	2.8	931	16.63	17.4	167	2.48
40–44	31.0	4.1	↓	↓	25.2	123	1.03
45–49	33.0	5.7	653	15.43	35.3	93	−0.35
50–54	37.0	6.3	588	10.91	38.9	95	−0.27
55–59	16.0	4.1	↓	↓	25.6	62	−1.70
60–64	1.0	1.4	306	4.32	8.7	11	−2.33
18–64	165.0	26.7	618		165.0	100	
Total chi-squared				652.2			16.7
Degrees of freedom				4			6
Probability value				0.0000			0.0105

Table A3.10b: Females, DP52, C.M.I. Class 2

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.1	↓	↓
25–29	5.0	0.2	↓	↓	1.2	↓	↓
30–34	2.0	0.3	↓	↓	2.3	↓	↓
35–39	4.0	0.4	↓	↓	3.3	159	1.38
40–44	5.0	0.7	↓	↓	5.3	94	–0.12
45–49	7.0	1.0	↓	↓	8.0	88	–0.30
50–54	6.0	1.0	↓	↓	7.7	78	–0.54
55–59	4.0	0.6	↓	↓	4.5	↓	↓
60–64	0.0	0.1	761	12.26	0.7	78	–0.45
18–64	33.0	4.3	761		33.0	100	
Total chi-squared				150.3			2.5
Degrees of freedom				1			4
Probability value				0.0000			0.64

Table A3.10c: Females, DP52, C.M.I. Class 3

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.1	↓	↓
25–29	0.0	0.1	↓	↓	0.7	↓	↓
30–34	1.0	0.1	↓	↓	1.1	↓	↓
35–39	3.0	0.1	↓	↓	1.3	↓	↓
40–44	0.0	0.2	↓	↓	2.4	71	–0.61
45–49	10.0	0.4	↓	↓	4.9	↓	↓
50–54	4.0	0.4	↓	↓	5.2	138	1.09
55–59	3.0	0.3	↓	↓	4.4	↓	↓
60–64	0.0	0.1	1,266	13.38	0.9	57	–0.88
18–64	21.0	1.7	1,266		21.0	100	
Total chi-squared				179.0			2.3
Degrees of freedom				1			2
Probability value				0.0000			0.31

Table A3.10e: Females, DP52, C.M.I. Class Unknown

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	0.0	0.0	↓	↓	0.1	↓	↓
25–29	3.0	0.1	↓	↓	1.2	↓	↓
30–34	2.0	0.3	↓	↓	2.7	↓	↓
35–39	2.0	0.5	↓	↓	4.1	87	–0.33
40–44	12.0	0.8	↓	↓	6.5	184	1.90
45–49	16.0	1.4	↓	↓	11.9	135	1.07
50–54	10.0	1.8	↓	↓	15.1	66	–1.16
55–59	10.0	1.1	854	17.05	9.4	74	–0.84
60–64	0.0	0.5	↑	↑	4.1	↑	↑
18–64	55.0	6.4	854		55.0	100	
Total chi-squared				290.8			7.0
Degrees of freedom				1			4
Probability value				0.0000			0.14

Table A3.10f: Females, DP52, All business

AGE GROUP	AINC	EINC	100×A/E	Z	EINC*	100×A/E*	Z*
18–24	1.0	0.1	↓	↓	0.4	↓	↓
25–29	12.0	0.8	↓	↓	5.3	227	2.71
30–34	18.0	2.5	↓	↓	17.6	102	0.08
35–39	38.0	3.8	963	20.57	26.9	141	1.91
40–44	48.0	5.7	837	15.72	40.2	120	1.10
45–49	66.0	8.5	773	17.52	59.8	110	0.71
50–54	57.0	9.5	602	13.75	66.4	86	–1.02
55–59	33.0	6.2	414	8.02	43.2	76	–1.38
60–64	1.0	2.0	↑	↑	14.3	7	–3.13
18–64	274.0	39.1	700		274.0	100	
Total chi-squared				1,230.9			25.5
Degrees of freedom				5			7
Probability value				0.0000			0.0006

Note: Table A3.10d was omitted due to low data volumes (actual inceptions being less than 10).

Table A4.1. Summary of termination experience for individual IP claims 1991–94 and 1995–98. Standard* experience. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual recoveries to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

		DP 1	DP 4	DP 13	DP 26	DP 52	All DP
(a) Males, recoveries							
Class 1	1991–94	**100**	61	49	43	*31*	**82**
	1995–98	**101**	53	44	41	29	**76**
Class 2	1991–94	*48*	53	55	48	–	53
	1995–98	–	52	54	35	–	49
Class 3	1991–94	36	**54**	55	*36*	–	53
	1995–98	*56*	53	48	42	*36*	51
Class 4	1991–94	–	**55**	52	57	–	**54**
	1995–98	–	57	46	65	–	53
Class Unknown	1991–94	–	58	**68**	59	103	**64**
	1995–98	–	54	48	*51*	–	48
All business	1991–94	**98**	**56**	56	**48**	49	**69**
	1995–98	**100**	54	**47**	43	30	**66**
(b) Females, recoveries							
Class 1	1991–94	96	59	50	40	–	**72**
	1995–98	**90**	56	46	47	34	**65**
Class 2	1991–94	–	48	43	*45*	–	46
	1995–98	–	51	43	45	–	45
Class 3	1991–94	–	56	–	–	–	52
	1995–98	–	29	47	–	–	33
Class 4	1991–94	–	–	–	–	–	–
	1995–98	–	–	–	–	–	–
Class Unknown	1991–94	–	*59*	68	*65*	–	67
	1995–98	–	–	*42*	*39*	–	43
All business	1991–94	95	57	**52**	44	*42*	**67**
	1995–98	**90**	53	45	45	29	**59**

Note: *Italic* if actual numbers of recoveries or deaths is less than 30. Not shown if actual numbers of recoveries or deaths is less than 10. **Bold** if either $p(+/-)$ or $p(B) < 0.025$ for adjusted E.

Table A4.2. Summary of termination experience for individual IP claims 1991–94 and 1995–98. Standard* experience. Occupational class 1, 2, 3, 4, unknown and all combined. Comparison of actual deaths to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

		DP 1	DP 4	DP 13	DP 26	DP 52	All DP
(a) Males, deaths							
Class 1	1991–94	48	58	80	61	86	63
	1995–98	36	51	62	57	50	52
Class 2	1991–94	–	*57*	*52*	–	–	50
	1995–98	–	*58*	57	*38*	–	52
Class 3	1991–94	–	*25*	*50*	–	–	36
	1995–98	–	*33*	*47*	*60*	–	41
Class 4	1991–94	–	*31*	*41*	–	–	34
	1995–98	–	*29*	*32*	–	–	33
Class Unknown	1991–94	–	*73*	64	75	*89*	70
	1995–98	–	–	*56*	–	–	*53*
All business	1991–94	48	47	63	59	76	56
	1995–98	36	44	53	53	46	48
(b) Females, deaths							
Class 1	1991–94	–	–	*50*	*65*	–	44
	1995–98	–	*42*	–	*23*	–	27
Class 2	1991–94	–	–	–	–	–	–
	1995–98	–	–	–	–	–	*32*
Class 3	1991–94	–	–	–	–	–	–
	1995–98	–	–	–	–	–	–
Class 4	1991–94	–	–	–	–	–	–
	1995–98	–	–	–	–	–	–
Class Unknown	1991–94	–	–	–	–	–	*68*
	1995–98	–	–	–	–	–	–
All business	1991–94	–	*27*	*45*	*65*	–	44
	1995–98	–	34	33	26	–	29

Note: *Italic* if actual numbers of recoveries or deaths is less than 30. Not shown if actual numbers of recoveries or deaths is less than 10. **Bold** if either $p(+/-)$ or $p(B) < 0.025$ for adjusted E.

Table A5.1. Males, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	3,632	922	359	209	45	5,167
E	3,598.5	1,736.2	819.6	504.6	153.5	6,812.4
$100A/E$						
Durations:						
1–2 weeks	137	–	–	–	–	137
2–3 weeks	128	–	–	–	–	128
3–4 weeks	93	–	–	–	–	93
4–8 weeks	68	46	–	–	–	58
8–13 weeks	57	50	–	–	–	52
13–17 weeks	67	57	35	–	–	54
17–26 weeks	29	60	32	–	–	41
26–30 weeks	*52*	*54*	*44*	*48*	–	49
30–39 weeks	*34*	65	48	29	–	43
39 wks–1 yr	*38*	66	62	37	–	50
1–2 years	*44*	59	53	47	*20*	45
2–5 years	*48*	61	53	47	↓	49
5–11 years	*69*	*84*	*97*	*55*	*41*	74
Ages:						
19–24	↓	*47*	↓	↓	–	*39*
25–29	84	52	*48*	↓	↓	69
30–34	112	55	*50*	*64*	↓	83
35–39	122	58	47	*46*	*55*	92
40–44	116	51	47	42	*37*	82
45–49	106	53	41	42	*19*	77
50–54	90	52	34	41	*29*	68
55–59	86	50	46	36	↓	68
60–64	101	↓	66	*28*	*21*	↓
65–65	–	60	–	–	–	83
All cells	101	53	44	41	29	76
Using E						
Σz^2	545.73	392.57	270.91	169.09	74.93	1,416.47
df	68	58	43	25	10	96
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	15/53	1/57	2/41	0/25	0/10	16/80
$p(+/-)$	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0020**	**0.0000**
$p(B)$	**0.000**	0.437	0.075	1.0	1.0	**0.000**
Using adjusted E						
Σz^2	540.04	43.04	33.52	13.20	5.13	1,359.14
df	67	42	24	15	2	93
$p(\chi^2)$	**0.0000**	0.43	0.0936	0.59	0.0770	**0.0000**
#(+/–)	15/53	22/21	15/10	8/8	1/2	28/66
$p(+/-)$	**0.0000**	1.0	0.42	1.0	1.0	**0.0001**
$p(B)$	**0.000**	0.395	0.113	0.675	0.748	**0.000**

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.2. Males, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	7	293	191	44	8	543
E	20.6	566.8	356.1	125.8	31.4	1,100.7
$100A/E$						
Durations:						
1–8 weeks	↓	59	–	–	–	56
8–13 weeks	↓	43	–	–	–	43
13–17 weeks	↓	49	*48*	–	–	48
17–26 weeks	↓	60	39	–	–	47
26–30 weeks	↓	*36*	*58*	↓	–	*47*
30–39 weeks	↓	*47*	*39*	*26*	–	36
39 wks–1 yr	↓	*36*	*95*	*42*	–	63
1–2 years	↓	*73*	*61*	*33*	↓	49
2–5 years	↓	↓	↓	↓	↓	56
5–11 years	*34*	*45*	79	*45*	*25*	*61*
Ages:						
19–29	–	*51*	*60*	↓	↓	52
30–34	–	61	*63*	↓	↓	62
35–39	–	54	*43*	*46*	↓	48
40–44	↓	55	51	*36*	↓	50
45–49	↓	57	57	*33*	↓	54
50–54	↓	37	50	↓	↓	39
55–59	↓	54	↓	↓	↓	49
60–64	*34*	↓	59	*27*	*25*	↓
65–65	–	*47*	–	–	–	*47*
All cells	*34*	52	54	35	*25*	49
Using E						
Σz^2	8.33	139.22	92.89	49.62	16.72	291.44
df	1	36	28	10	1	61
$p(\chi^2)$	**0.0039**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	0/1	1/35	4/24	0/10	0/1	2/59
$p(+/-)$	1.0	**0.0000**	**0.0002**	**0.0020**	1.0	**0.0000**
$p(B)$	1.0	1.0	0.372	1.0	1.0	0.723
Using adjusted E						
Σz^2	–	19.63	33.81	1.04	–	45.43
df	–	21	16	3	–	41
$p(\chi^2)$	–	0.54	**0.0058**	0.79	–	0.29
#(+/–)	–	7/15	8/9	2/2	–	21/21
$p(+/-)$	–	0.13	1.0	1.0	–	1.0
$p(B)$	–	0.302	0.323	0.857	–	0.528

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.3. Males, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	12	551	201	48	10	822
E	21.4	1,036.6	416.4	112.9	28.0	1,615.3
Durations:						
1–8 weeks	↓	54	–	–	–	54
8–13 weeks	↓	50	–	–	–	50
13–17 weeks	↓	53	53	–	–	54
17–26 weeks	↓	55	38	–	–	47
26–30 weeks	↓	*55*	*51*	↓	–	50
30–39 weeks	↓	*52*	*47*	*35*	–	46
39 wks–1 yr	↓	*62*	*61*	*42*	–	57
1–2 years	↓	*52*	*51*	*41*	↓	47
2–5 years	↓	↓	↓	↓	↓	60
5–11 years	*56*	58	*59*	*55*	*36*	*42*
Ages:						
19–24	–	*34*	↓	↓	↓	*24*
25–29	–	49	*35*	↓	↓	46
30–34	–	47	*38*	*59*	↓	46
35–39	–	52	54	↓	↓	51
40–44	↓	62	54	*41*	↓	57
45–49	↓	67	54	*42*	↓	62
50–54	↓	55	*43*	↓	↓	51
55–59	↓	39	*63*	↓	↓	44
60–64	*56*	*36*	*43*	↓	*36*	↓
65–65	–	–	–	*35*	–	41
All cells	*56*	53	48	42	*36*	51
Using E						
Σz^2	3.71	231.00	115.39	36.35	10.92	392.56
df	1	48	31	8	1	68
$p(\chi^2)$	0.0542	**0.0000**	**0.0000**	**0.0000**	**0.0010**	**0.0000**
#(+/–)	0/1	0/48	0/31	0/8	0/1	0/68
$p(-/-)$	1.0	**0.0000**	**0.0000**	**0.0078**	1.0	**0.0000**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	33.93	17.77	0.92	–	49.87
df	–	35	16	3	–	51
$p(\chi^2)$	–	0.52	0.34	0.82	–	0.52
#(+/–)	–	17/19	8/9	3/1	–	24/28
$p(-/-)$	–	0.87	1.0	0.63	–	0.68
$p(B)$	–	0.785	0.516	0.883	–	0.765

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.4. Males, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 4.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	3	414	187	39	4	647
E	11.7	722.1	404.1	60.4	16.7	1,215.0
100*A*/*E*						
Durations:						
1–8 weeks	↓	39	–	–	–	39
8–13 weeks	↓	65	–	–	–	65
13–17 weeks	↓	62	*42*	–	–	54
17–26 weeks	↓	56	36	–		44
26–30 weeks	↓	*71*	*61*	↓	–	69
30–39 weeks	↓	*60*	*41*	↓	–	47
39 wks–1 yr	↓	*70*	*73*	*59*	–	69
1–2 years	↓	*72*	67	*60*	↓	64
2–5 years	↓	↓	↓	↓	↓	57
5–11 years	*26*	*81*	*35*	*79*	*24*	*49*
Ages:						
18–24	–	↓	↓	–	↓	*64*
25–29	–	73	*38*	↓	↓	50
30–34	–	49	46	↓	↓	51
35–39	–	58	57	*57*	↓	55
40–44	–	62	*57*	↓	↓	58
45–49	–	58	56	*78*	↓	61
50–54	↓	50	*34*	↓	↓	46
55–59	*26*	↓	*34*	↓	↓	49
60–64	–	64	↓	*58*	*24*	↓
65–65	–	–	*32*	–	–	*47*
All cells	*26*	57	46	65	*24*	53
Using *E*						
Σz^2	5.74	155.42	128.02	6.46	8.88	290.02
df	1	38	29	5	1	58
$p(\chi^2)$	**0.0166**	**0.0000**	**0.0000**	0.26	**0.0029**	**0.0000**
#(+/–)	0/1	2/36	1/28	0/5	0/1	3/55
p(+/–)	1.0	**0.0000**	**0.0000**	0.0625	1.0	**0.0000**
p(*B*)	1.0	0.069	1.0	1.0	1.0	0.358
Using adjusted *E*						
Σz^2	–	47.60	17.96	5.68	–	79.28
df	–	26	15	3	–	44
$p(\chi^2)$	–	**0.0060**	0.26	0.13	–	**0.0009**
#(+/–)	–	15/12	5/11	2/2	–	21/24
p(+/–)	–	0.70	0.21	1.0	–	0.77
p(*B*)	–	0.236	0.116	1.0	–	0.564

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.5. Males, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class Unknown.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	66	81	21	5	173
E	17.1	122.9	169.1	41.0	11.4	361.6
$100A/E$						
Durations:						
1–8 weeks	↓	*27*	–	–	–	*21*
8–13 weeks	↓	↓	–	–	–	*62*
13–17 weeks	↓	*61*	*42*	–	–	*42*
17–26 weeks	↓	↓	↓	–	–	55
26–30 weeks	↓	↓	44	↓	–	*39*
30–39 weeks	↓	↓	↓	↓	–	*49*
39 wks–1 yr	↓	*82*	*52*	*64*	–	*69*
1–2 years	↓	↓	*66*	↓	↓	*46*
2–11 years	–	*39*	*44*	*39*	*44*	*48*
Ages:						
20–29	↓	↓	*78*	↓	↓	*75*
30–34	↓	↓	*35*	↓	↓	*30*
35–39	↓	↓	*48*	↓	↓	*42*
40–44	↓	↓	*34*	*44*	↓	*51*
45–49	↓	62	*65*	↓	↓	55
50–54	↓	62	*47*	↓	↓	52
55–59	↓	↓	↓	↓	↓	*34*
60–64	–	*42*	*35*	*57*	*44*	*54*
All cells	–	54	48	*51*	*44*	48
Using E						
Σz^2	16.16	32.23	41.28	9.74	3.08	98.60
df	1	8	14	4	1	28
$p(\chi^2)$	**0.0001**	**0.0001**	**0.0002**	**0.0450**	0.0792	**0.0000**
$\#(+/-)$	0/1	1/7	0/14	0/4	0/1	2/26
$p(+/-)$	1.0	0.0703	**0.0001**	0.13	1.0	**0.0000**
$p(B)$	1.0	0.251	1.0	1.0	1.0	0.471
Using adjusted E						
Σz^2	–	7.45	1.04	–	–	9.69
df	–	4	5	–	–	14
$p(\chi^2)$	–	0.11	0.96	–	–	0.78
$\#(+/-)$	–	3/2	3/3	–	–	8/7
$p(+/-)$	–	1.0	1.0	–	–	1.0
$p(B)$	–	0.879	0.299	–	–	0.597

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.6. Males, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = All business.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	3,654	2,246	1,019	361	72	7,352
E	3,669.3	4,184.6	2,165.3	844.9	241.0	11,105.0
100*A*/*E*						
Durations:						
1–2 weeks	136	–	–	–	–	136
2–3 weeks	126	–	–	–	–	126
3–4 weeks	91	–	–	–	–	91
4–8 weeks	67	48	–	–	–	55
8–13 weeks	57	52	–	–	–	53
13–17 weeks	67	56	43	–	–	52
17–26 weeks	30	59	36	–	–	44
26–30 weeks	*51*	54	51	47	–	51
30–39 weeks	*33*	59	45	31	–	43
39 wks–1 yr	*37*	61	69	42	–	56
1–2 years	*43*	60	58	45	*21*	48
2–5 years	*46*	63	57	48	36	53
5–11 years	*67*	*65*	*58*	*61*	*73*	63
Ages:						
18–24	↓	*51*	*42*	↓	↓	44
25–29	84	54	47	*52*	↓	57
30–34	112	52	47	63	*54*	63
35–39	122	56	50	39	*33*	73
40–44	115	57	49	43	*28*	71
45–49	105	58	50	45	*33*	71
50–54	89	51	39	42	*25*	61
55–59	84	48	48	34	↓	62
60–64	99	↓	↓	↓	*17*	↓
65–65	–	54	54	*33*	–	74
All cells	100	54	47	43	30	66
Using *E*						
Σz^2	547.94	919.82	629.54	278.93	116.82	2,421.29
df	68	71	60	34	12	108
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	15/53	0/71	1/59	0/34	0/12	14/94
p(+/–)	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0005**	**0.0000**
p(*B*)	**0.000**	1.0	1.0	1.0	1.0	**0.000**
Using adjusted *E*						
Σz^2	550.33	80.04	92.08	24.68	9.03	1,770.21
df	67	63	49	23	5	101
$p(\chi^2)$	**0.0000**	0.0724	**0.0002**	0.37	0.11	**0.0000**
#(+/–)	15/53	33/31	28/22	14/10	3/3	30/72
p(+/–)	**0.0000**	0.90	0.48	0.54	1.0	**0.0000**
p(*B*)	**0.000**	**0.045**	**0.000**	0.197	0.510	**0.000**

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and *p*(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. *p*(*B*) is shown as **bold** if less than 0.050.

Table A6.1. Males, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	47	70	96	94	33	340
E	130.2	138.2	154.2	164.3	65.9	652.9
100*A*/*E*						
Durations:						
1–8 weeks	↓	↓	–	–	–	*26*
8–13 weeks	*36*	↓	–	–	–	*50*
13–17 weeks	↓	*43*	↓	–	–	*47*
17–26 weeks	↓	↓	↓	–	–	*55*
26–30 weeks	*41*	*30*	*66*	↓	–	*37*
30–39 weeks	↓	↓	↓	*57*	–	*63*
39 wks–1 yr	*44*	*46*	*64*	*65*	–	*55*
1–2 years	*47*	*83*	*88*	*61*	*67*	70
2–5 years	*8*	*53*	*46*	*49*	*42*	42
5–11 years	*48*	*51*	*50*	*61*	*39*	51
Ages:						
19–39	↓	↓	↓	↓	↓	*48*
40–44	↓	*62*	*71*	*74*	↓	79
45–49	*35*	*39*	*64*	*48*	*43*	43
50–54	*35*	*40*	*57*	*49*	*48*	46
55–59	*38*	*56*	67	63	↓	57
60–64	*38*	↓	*47*	*57*	*60*	↓
65–65	–	*59*	·	–	–	50
All cells	36	51	62	57	50	52
Using *E*						
Σz^2	51.73	34.35	24.54	31.46	14.85	158.08
df	11	11	13	13	5	33
$p(\chi^2)$	**0.0000**	**0.0003**	**0.0265**	**0.0029**	**0.0110**	**0.0000**
#(−/−)	0/11	1/10	1/12	0/13	0/5	1/32
$p(+/-)$	**0.0010**	**0.0117**	**0.0034**	**0.0002**	0.0625	**0.0000**
$p(B)$	1.0	0.731	0.924	1.0	1.0	0.278
Using adjusted *E*						
Σz^2	1.43	5.44	4.57	1.12	–	31.11
df	2	4	6	6	–	22
$p(\chi^2)$	0.49	0.24	0.60	0.98	–	0.0939
#(−/−)	2/1	2/3	3/4	4/3	–	10/13
$p(+/-)$	1.0	1.0	1.0	1.0	–	0.68
$p(B)$	0.738	0.880	0.249	0.515	–	0.209

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.2. Males, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	1	21	31	12	5	70
E	0.9	35.9	54.8	31.6	10.1	133.4
$100A/E$						
Durations:						
1–30 weeks	↓	↓	↓	↓	–	*65*
30 wks–1 yr	↓	*62*	↓	↓	–	*46*
1–2 years	↓	↓	*58*	*43*	↓	*51*
2–5 years	↓	↓	↓	↓	↓	*52*
5–11 years	*110*	*55*	*55*	*32*	*49*	*44*
Ages:						
19–39	–	↓	↓	↓	↓	*46*
40–44	↓	↓	↓	↓	↓	*59*
45–49	↓	*46*	*64*	↓	↓	*48*
50–54	↓	↓	↓	↓	↓	*56*
55–64	*110*	↓	*50*	*38*	*49*	↓
65–65	–	*70*	–	–	–	*52*
All cells	*110*	*58*	57	*38*	*49*	52
Using E						
Σz^2	0.00	5.30	9.12	11.08	2.11	26.69
df	1	4	4	2	1	12
$p(\chi^2)$	**0.0000**	0.26	0.0582	**0.0039**	0.15	**0.0086**
#(+/–)	1/0	0/4	0/4	0/2	0/1	0/12
$p(-/-)$	1.0	0.13	0.13	0.50	1.0	**0.0005**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	1.42
df	–	–	–	–	–	2
$p(\chi^2)$	–	–	–	–	–	0.49
#(+/–)	–	–	–	–	–	1/2
$p(+/-)$	–	–	–	–	–	1.0
$p(B)$	–	–	–	–	–	0.766

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.3. Males, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	24	28	18	1	71
E	1.7	73.8	59.8	29.9	9.9	175.1
$100A/E$						
Durations:						
1–17 weeks	↓	*38*	↓	–	–	*54*
17–30 weeks	↓	↓	↓	↓	–	*58*
30–39 weeks	↓	*53*	*66*	↓	–	↓
39 wks–1 yr	↓	↓	↓	↓	–	*53*
1–2 years	↓	*25*	*44*	↓	↓	*25*
2–5 years	↓	↓	↓	↓	↓	*32*
5–11 years	–	*23*	*33*	*60*	*10*	*36*
Ages:						
19–34	–	↓	↓	↓	↓	*19*
35–44	↓	*12*	*21*	↓	↓	*19*
45–49	↓	↓	↓	↓	↓	*35*
50–54	↓	*48*	*49*	↓	↓	*55*
55–59	↓	↓	↓	↓	↓	*59*
60–64	–	*34*	*71*	↓	*10*	↓
65–65	–	–	–	*60*	–	*53*
All cells	–	*33*	*47*	*60*	*10*	41
Using E						
Σz^2	0.85	31.30	16.62	4.36	7.10	61.43
df	1	5	3	1	1	16
$p(\chi^2)$	0.36	**0.0000**	**0.0008**	**0.0368**	**0.0077**	**0.0000**
$\#(+/-)$	0/1	0/5	0/3	0/1	0/1	0/16
$p(+/-)$	1.0	0.0625	0.25	1.0	1.0	**0.0000**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	4.37
df	–	–	–	–	–	3
$p(\chi^2)$	–	–	–	–	–	0.22
$\#(+/-)$	–	–	–	–	–	1/3
$p(+/-)$	–	–	–	–	–	0.63
$p(B)$	–	–	–	–	–	0.507

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.4. Males, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 4.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	13	19	6	3	41
E	0.7	44.2	59.0	16.8	5.0	125.7
$100A/E$						
Durations:						
1–30 weeks	↓	↓	↓	↓	–	*25*
30–39 weeks	↓	↓	*33*	↓	–	↓
39 wks – 1 yr	↓	↓	↓	↓	–	*22*
1–2 years	↓	*28*	*27*	↓	↓	*33*
2–5 years	↓	↓	↓	↓	↓	*45*
5–11 years	–	*32*	*35*	*36*	*60*	*35*
Ages:						
18–39	–	↓	↓	↓	↓	*24*
40–44	–	*19*	*11*	↓	↓	*6*
45–49	–	↓	↓	↓	↓	*41*
50–54	↓	↓	*45*	↓	↓	*45*
55–64	–	*36*	↓	*36*	*60*	↓
65–65	–	–	*37*	–	–	*34*
All cells	–	*29*	*32*	*36*	*60*	33
Using E						
Σz^2	0.04	20.38	25.14	6.31	0.46	51.85
df	1	3	3	1	1	11
$p(\chi^2)$	0.83	**0.0001**	**0.0000**	**0.0120**	0.50	**0.0000**
#(+/–)	0/1	0/3	0/3	0/1	0/1	0/11
$p(+/-)$	1.0	0.25	0.25	1.0	1.0	**0.0010**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	2.94
df	–	–	–	–	–	3
$p(\chi^2)$	–	–	–	–	–	0.40
#(+/–)	–	–	–	–	–	3/1
$p(+/-)$	–	–	–	–	–	0.63
$p(B)$	–	–	–	–	–	0.863

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.5. Males, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class Unknown.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	8	13	6	2	29
E	*0.8*	*14.7*	*23.1*	*11.6*	*5.0*	*55.1*
$100A/E$						
Durations:						
1 wk–2 yrs	↓	↓	↓	↓	↓	*70*
2–11 years	–	*54*	*56*	*52*	*40*	*32*
Ages:						
20-49	↓	↓	↓	↓	↓	*42*
50-64	–	*54*	*56*	*52*	*40*	*59*
All cells	–	*54*	*56*	*52*	*40*	*53*
Using E						
Σz^2	0.08	2.62	3.99	2.22	1.27	13.18
df	1	1	1	1	1	4
$p(\chi^2)$	0.77	0.11	**0.0458**	0.14	0.26	**0.0104**
$\#(+/-)$	0/1	0/1	0/1	0/1	0/1	0/4
$p(+/-)$	1.0	1.0	1.0	1.0	1.0	0.13
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	–
df	–	–	–	–	–	–
$p(\chi^2)$	–	–	–	–	–	–
$\#(+/-)$	–	–	–	–	–	–
$p(+/-)$	–	–	–	–	–	–
$p(B)$	–	–	–	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than *0.050*.

Table A6.6. Males, individual policies, 1995–98, Standard* experience, deaths. Occupational class = All business.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	48	136	187	136	44	551
E	134.3	306.9	350.9	254.3	95.9	1,142.2
100*A*/*E*						
Durations:						
1–8 weeks	↓	*22*	–	–	–	*27*
8–13 weeks	*35*	*52*	–	–	–	*49*
13–17 weeks	↓	*48*	*72*	–	–	*58*
17–26 weeks	↓	↓	*62*	–	–	52
26–30 weeks	*45*	*39*	*31*	↓	–	*36*
30–39 weeks	↓	*44*	*68*	*56*	–	61
39 wks–1 yr	*43*	*45*	*48*	*50*	–	46
1–2 years	*47*	66	65	57	*49*	59
2–5 years	*7*	*36*	47	49	*44*	41
5–11 years	*46*	*43*	*36*	*56*	*45*	45
Ages:						
18–29	↓	↓	↓	↓	↓	*46*
30–34	↓	*23*	*43*	↓	↓	*33*
35–39	↓	*27*	*29*	*42*	↓	*32*
40–44	*46*	*46*	*60*	*65*	*44*	54
45–49	*25*	*41*	48	*46*	*28*	41
50–54	*37*	45	57	47	*56*	49
55–59	*36*	49	65	67	↓	56
60–64	*36*	↓	↓	↓	*50*	↓
65–65	–	*67*	*40*	*47*	–	47
All cells	36	44	53	53	46	48
Using *E*						
Σz^2	54.46	93.92	79.62	54.86	25.45	310.71
df	12	21	23	18	8	49
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0013**	**0.0000**
#(+/–)	0/12	0/21	0/23	0/18	0/8	0/49
p(+/–)	**0.0005**	**0.0000**	**0.0000**	**0.0000**	**0.0078**	**0.0000**
p(*B*)	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted *E*						
Σz^2	2.03	5.94	9.99	1.83	1.24	36.19
df	2	9	13	10	1	30
$p(\chi^2)$	0.36	0.75	0.69	1.00	0.26	0.20
#(+/–)	2/1	4/6	8/6	5/6	1/1	15/16
p(+/–)	1.0	0.75	0.79	1.0	1.0	1.0
p(*B*)	0.735	0.619	0.419	0.982	1.0	0.098

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and *p*(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. *p*(*B*) is shown as **bold** if less than 0.050.

Table A7.1. Females, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	644	328	158	111	30	1,271
E	714.4	583.1	345.3	236.3	89.1	1,968.2
$100A/E$						
Durations:						
1–2 weeks	102	–	–	–	–	102
2–3 weeks	108	–	–	–	–	108
3–4 weeks	82	–	–	–	–	82
4–8 weeks	72	49	–	–	–	59
8–13 weeks	68	53	–	–	–	57
13–17 weeks	*91*	68	*36*	–	–	60
17–26 weeks	↓	50	37	–	–	44
26–30 weeks	↓	*65*	*49*	*44*	–	52
30–39 weeks	*58*	*50*	*47*	*40*	–	46
39 wks–1 yr	↓	*105*	*59*	*70*		70
1–2 years	↓	*60*	*54*	*41*	*27*	44
2–5 years	↓	↓	↓	↓	↓	52
5–11 years	*69*	*68*	*59*	*45*	*44*	*68*
Ages:						
21–24	↓	*51*	↓	↓	↓	*49*
25–29	85	58	*44*	*59*	↓	64
30–34	84	42	*37*	*66*	*69*	56
35–39	84	52	*46*	*57*	↓	61
40–44	*96*	49	*40*	*57*	*36*	*62*
45–49	85	68	58	*36*	*22*	66
50–54	85	70	*48*	↓	↓	64
55–59	110	↓	↓	↓	↓	83
60–64	*130*	62	*45*	*24*	*5*	*129*
All cells	90	*56*	46	47	34	65
Using E						
Σz^2	38.84	125.00	96.38	68.48	38.42	367.28
df	35	37	25	21	6	81
$p(\chi^2)$	0.30	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$\#(+/-)$	13/22	1/36	0/25	0/21	0/6	13/68
$p(+/-)$	0.18	**0.0000**	**0.0000**	**0.0000**	**0.0313**	**0.0000**
$p(B)$	**0.000**	0.636	1.0	1.0	1.0	**0.000**
Using adjusted E						
Σz^2	32.93	32.78	9.24	14.54	–	198.27
df	31	26	12	7	–	71
$p(\chi^2)$	0.37	0.17	0.68	**0.0423**	–	**0.0000**
$\#(+/-)$	14/18	15/12	6/7	3/5	–	33/39
$p(+/-)$	0.60	0.70	1.0	0.73	–	0.56
$p(B)$	**0.002**	**0.032**	0.477	0.651	–	**0.000**

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.2. Females, individual policies, 1995-98, Standard* experience, recoveries. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	1	103	59	31	3	197
E	1.1	202.0	137.9	69.2	24.2	434.4
100*A*/*E*						
Durations:						
1–8 weeks	↓	*28*	–	–	–	*30*
8–13 weeks	↓	55	–	–	–	55
13–17 weeks	↓	*63*	*41*	–	–	*52*
17–26 weeks	↓	↓	↓	–	–	43
26–30 weeks	↓	*66*	*45*	↓	–	*82*
30–39 weeks	↓	↓	↓	↓	–	*60*
39 wks–1 yr	↓	*39*	*44*	*57*	–	*33*
1–2 years	↓	↓	↓	↓	↓	*38*
2–11 years	*95*	*76*	*40*	*32*	*12*	*36*
Ages:						
19–24	–	*39*	↓	↓	↓	*37*
25–29	–	*49*	*33*	↓	↓	*42*
30–34	–	*54*	*16*	*32*	↓	*31*
35–39	↓	*43*	*52*	↓	↓	44
40–44	*95*	*40*	*42*	*57*	↓	47
45–49	–	*67*	*65*	↓	↓	59
50–54	–	↓	↓	↓	↓	*54*
55–59	–	*64*	↓	↓	*12*	↓
60–64	–	–	*55*	*46*	–	*45*
All cells	*95*	51	43	45	*12*	45
Using *E*						
Σz^2	0.00	50.45	44.55	20.03	17.74	132.35
df	1	18	11	6	1	37
$p(\chi^2)$	**0.0000**	**0.0001**	**0.0000**	**0.0027**	**0.0000**	**0.0000**
#(+/–)	0/1	1/17	0/11	0/6	0/1	1/36
$p(+/-)$	1.0	**0.0001**	**0.0010**	**0.0313**	1.0	**0.0000**
$p(B)$	1.0	0.427	1.0	1.0	1.0	0.214
Using adjusted *E*						
Σz^2	–	10.21	5.71	1.96	–	20.46
df	–	6	3	1	–	16
$p(\chi^2)$	–	0.12	0.13	0.16	–	0.20
#(+/–)	–	4/3	2/2	1/1	–	5/12
$p(+/-)$	–	1.0	1.0	1.0	–	0.14
$p(B)$	–	0.500	0.867	1.0	–	0.337

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.3. Females, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	–	16	16	8	2	42
E	–	55.9	34.2	24.1	12.0	126.2
$100A/E$						
Durations:						
1–17 weeks	–	*24*	↓	–	–	*28*
17–26 weeks	–	↓	*34*	–	–	↓
26–30 weeks	–	↓	↓	↓	–	*18*
30 wks–1 yr	–	↓	↓	↓	–	*73*
1–2 years	–	↓	↓	↓	↓	*32*
2–11 years	–	*38*	*60*	*33*	*17*	*24*
Ages:						
21–29	–	↓	↓	↓	↓	*35*
30–34	–	*16*	↓	↓	↓	*9*
35–39	–	↓	↓	↓	↓	*54*
40–44	–	↓	↓	↓	↓	*22*
45–58	–	*38*	*47*	*33*	*17*	*41*
All cells	–	*29*	*47*	*33*	*17*	33
Using E						
Σz^2	–	26.80	9.24	10.10	7.51	53.60
df	–	4	2	1	1	12
$p(\chi^2)$	–	**0.0000**	**0.0098**	**0.0015**	**0.0061**	**0.0000**
#(+/–)	–	0/4	0/2	0/1	0/1	0/12
$p(+/-)$	–	0.13	0.50	1.0	1.0	**0.0005**
$p(B)$	–	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	4.78
df	–	–	–	–	–	2
$p(\chi^2)$	–	–	–	–	–	0.0916
#(+/–)	–	–	–	–	–	1/2
$p(+/-)$	–	–	–	–	–	1.0
$p(B)$	–	–	–	–	–	0.746

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.5. Females, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class Unknown.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	4	13	11	2	30
E	0.3	5.7	31.0	28.5	4.1	69.5
100*A*/*E*						
Durations:						
1–30 weeks	↓	↓	*44*	↓	–	*48*
30 wks–1 yr	↓	↓	↓	↓	–	*42*
1–11 years	–	*71*	*39*	*39*	*49*	*40*
Ages:						
21–34	↓	↓	↓	↓	↓	*48*
35–44	–	↓	↓	↓	↓	*38*
45–59	–	*71*	*42*	*39*	*49*	*44*
All cells	–	*71*	*42*	*39*	*49*	43
Using *E*						
Σz^2	0.00	0.24	9.34	10.12	0.61	19.99
df	1	1	2	1	1	5
$p(\chi^2)$	**0.0000**	0.62	**0.0094**	**0.0015**	0.44	**0.0013**
#(+/–)	0/1	0/1	0/2	0/1	0/1	0/5
$p(+/-)$	1.0	1.0	0.50	1.0	1.0	0.0625
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted *E*						
Σz^2	–	–	–	–	–	–
df	–	–	–	–	–	–
$p(\chi^2)$	–	–	–	–	–	–
#(+/–)	–	–	–	–	–	–
$p(+/-)$	–	–	–	–	–	–
$p(B)$	–	–	–	–	–	–

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.6. Females, individual policies, 1995–98, Standard* experience, recoveries. Occupational class = All business.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	645	451	248	165	37	1,546
E	715.8	851.0	554.2	363.8	129.7	2,614.4
$100A/E$						
Durations:						
1–2 weeks	102	–	–	–	–	102
2–3 weeks	109	–	–	–	–	109
3–4 weeks	82	–	–	–	–	82
4–8 weeks	72	42	–	–	–	52
8–13 weeks	68	52	–	–	–	55
13–17 weeks	*91*	67	39	–	–	58
17–26 weeks	↓	49	37	–	–	42
26–30 weeks	↓	*72*	*54*	*41*	–	55
30–39 weeks	*58*	*48*	53	44	–	49
39 wks–1 yr	↓	*88*	*51*	63	–	62
1–2 years	↓	*57*	54	41	*25*	43
2–5 years	↓	↓	↓	↓	↓	45
5–11 years	*68*	*70*	*44*	41	*34*	*52*
Ages:						
19–24	↓	*43*	*40*	↓	↓	43
25–29	85	53	47	*54*	↓	57
30–34	84	40	*29*	*46*	*48*	47
35–39	84	48	49	58	*33*	57
40–44	96	47	38	53	*28*	56
45–49	85	66	56	44	*24*	64
50–54	85	69	*50*	↓	↓	62
55–59	110	↓	↓	↓	↓	78
60–64	*130*	61	*50*	*24*	*8*	*127*
All cells	90	53	45	45	29	59
Using E						
Σz^2	39.98	205.71	165.58	109.48	64.44	566.85
df	36	42	38	25	9	86
$p(\chi^2)$	0.30	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$\#(+/-)$	13/23	1/41	0/38	0/25	0/9	11/75
$p(+/-)$	0.13	**0.0000**	**0.0000**	**0.0000**	**0.0039**	**0.0000**
$p(B)$	**0.002**	0.645	1.0	1.0	1.0	**0.000**
Using adjusted E						
Σz^2	33.00	40.87	12.71	16.39	1.68	247.49
df	31	31	20	13	2	75
$p(\chi^2)$	0.37	0.11	0.89	0.23	0.43	**0.0000**
$\#(+/-)$	14/18	18/14	11/10	7/7	2/1	34/42
$p(+/-)$	0.60	0.60	1.0	1.0	1.0	0.42
$p(B)$	**0.005**	0.062	0.372	0.784	0.756	**0.000**

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.4 was omitted due to low data volumes (actual recoveries being less than 10).

Table A8.1. Females, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	2	13	8	11	8	42
E	13.1	31.3	37.8	47.7	23.3	153.2
$100A/E$						
Durations:						
1–17 weeks	↓	↓	↓	–	–	*20*
17–30 weeks	↓	↓	↓	↓	–	*18*
30 wks–1 yr	↓	↓	–	↓	–	*21*
1–2 years	↓	↓	↓	*37*	↓	*50*
2–5 years	↓	↓	↓	↓	↓	*27*
5–11 years	*15*	*42*	*39*	*9*	*34*	*13*
Ages:						
21–34	↓	↓	↓	↓	↓	*35*
35–39	↓	↓	↓	↓	↓	*18*
40–44	↓	↓	*23*	*29*	↓	*28*
45–49	↓	↓	↓	↓	↓	*35*
50–54	↓	↓	↓	↓	↓	*18*
55–64	*15*	*42*	*20*	*20*	*34*	*31*
All cells	*15*	*42*	*21*	*23*	*34*	27
Using E						
Σz^2	8.54	10.12	22.78	27.57	9.42	77.09
df	1	1	3	3	1	11
$p(\chi^2)$	**0.0035**	**0.0015**	**0.0000**	**0.0000**	**0.0021**	**0.0000**
$\#(+/-)$	0/1	0/1	0/3	0/3	0/1	0/11
$p(+/-)$	1.0	1.0	0.25	0.25	1.0	**0.0010**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	0.74
df	–	–	–	–	–	2
$p(\chi^2)$	–	–	–	–	–	0.69
$\#(+/-)$	–	–	–	–	–	2/1
$p(+/-)$	–	–	–	–	–	1.0
$p(B)$	–	–	–	–	–	0.758

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.2. Females, individual policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	2	6	4	1	13
E	0.1	9.6	13.4	12.4	5.8	41.2
$100A/E$						
Durations:						
1 wk–2 yrs	↓	↓	↓	↓	↓	*40*
2–11 years	–	*21*	*45*	*32*	*17*	*19*
Ages:						
19–44	–	↓	↓	↓	↓	*41*
45–59	–	*21*	↓	↓	*17*	↓
60–64	–	–	*45*	*32*	–	*23*
All cells	–	*21*	*45*	*32*	*17*	*32*
Using E						
Σz^2	0.00	5.24	3.52	4.99	3.23	17.93
df	1	1	1	1	1	3
$p(\chi^2)$	**0.0000**	**0.0220**	0.0607	**0.0255**	0.0724	**0.0005**
#(+/–)	0/1	0/1	0/1	0/1	0/1	0/3
$p(+/-)$	1.0	1.0	1.0	1.0	1.0	0.25
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	–
df	–	–	–	–	–	–
$p(\chi^2)$	–	–	–	–	–	–
#(+/–)	–	–	–	–	–	–
$p(+/-)$	–	–	–	–	–	–
$p(B)$	–	–	–	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.6. Females, individual policies, 1995–98, Standard* experience, deaths. Occupational class = All business.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	2	15	19	18	9	63
E	13.2	44.3	58.0	70.3	33.5	219.3
$100A/E$						
Durations:						
1–17 weeks	↓	↓	↓	–	–	*15*
17–30 weeks	↓	↓	↓	↓	–	*21*
30–39 weeks	↓	↓	*14*	↓	–	*24*
39 wks–1 yr	↓	*29*	↓	*15*	–	*27*
1–2 years	↓	↓	*60*	*68*	↓	*54*
2–5 years	↓	↓	↓	↓	↓	*24*
5–11 years	*15*	*39*	*30*	*9*	*27*	*15*
Ages:						
19–34	↓	↓	↓	↓	↓	*32*
35–39	↓	↓	*33*	*26*	↓	*29*
40–44	↓	*27*	↓	↓	↓	*33*
45–49	↓	↓	*31*	*27*	↓	*27*
50–54	↓	↓	↓	↓	↓	*22*
55–64	*15*	*40*	*36*	*24*	*27*	*36*
All cells	*15*	*34*	*33*	*26*	*27*	29
Using E						
Σz^2	8.69	17.41	26.21	40.47	17.19	106.29
df	1	4	3	4	1	18
$p(\chi^2)$	**0.0032**	**0.0016**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$\#(+/-)$	0/1	0/4	0/3	0/4	0/1	0/18
$p(+/-)$	1.0	0.13	0.25	0.13	1.0	**0.0000**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	10.14
df	–	–	–	–	–	3
$p(\chi^2)$	–	–	–	–	–	**0.0174**
$\#(+/-)$	–	–	–	–	–	1/3
$p(+/-)$	–	–	–	–	–	0.63
$p(B)$	–	–	–	–	–	0.878

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Tables A8.3, A8.4 and A8.5 were omitted due to low data volumes (actual deaths being less than 10).

Table A9.1. Offices contributing throughout 1987–98 – Males, individual policies, Standard experience for the quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A9.1a: Deferred Period 1 Week

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	72.0	56	19.0	43	6.0	61
25–29	700.0	93	234.0	67	66.0	49
30–34	1,821.0	136	858.0	104	275.0	96
35–39	2,495.0	119	1,545.0	110	917.0	106
40–44	3,134.0	118	2,310.0	104	1,448.0	99
45–49	2,246.0	110	2,575.0	101	2,123.0	91
50–54	1,948.0	108	2,028.0	102	2,275.0	93
55–59	1,752.0	102	1,484.0	88	1,681.0	96
60–64	1,164.0	77	914.0	71	778.0	70
18–64	15,332.0	109	11,967.0	97	9,569.0	92

Table A9.1b: Deferred Period 4 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	61.0	176	19.0	132	4.0	25
25–29	100.0	78	97.0	89	26.0	42
30–34	139.0	86	115.0	89	46.0	58
35–39	266.0	98	160.0	73	108.0	71
40–44	304.0	75	269.0	75	204.0	79
45–49	307.0	80	388.0	81	291.0	69
50–54	353.0	80	355.0	79	390.0	74
55–59	447.0	84	412.0	74	416.0	80
60–64	287.0	58	257.0	48	234.0	47
18–64	2,264.0	79	2,072.0	73	1,719.0	68

Table A9.1c: Deferred Period 13 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	5.0	↓	3.0	↓	2.0	↓
25–29	28.0	168	13.0	82	10.0	70
30–34	57.0	101	45.0	88	18.0	43
35–39	123.0	104	101.0	96	63.0	82
40–44	200.0	93	182.0	94	84.0	64
45–49	204.0	93	311.0	104	173.0	73
50–54	264.0	109	355.0	123	342.0	106
55–59	254.0	97	369.0	115	321.0	106
60–64	162.0	79	216.0	83	217.0	85
18–64	1,297.0	97	1,595.0	104	1,230.0	89

Table A9.1d: Deferred Period 26 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	0.0	↓	3.0	↓	0.0	↓
25–29	7.0	↓	7.0	↓	4.0	↓
30–34	21.0	208	19.0	202	13.0	125
35–39	45.0	145	32.0	126	28.0	138
40–44	103.0	135	88.0	137	85.0	196
45–49	142.0	140	193.0	148	175.0	170
50–54	201.0	139	260.0	159	334.0	188
55–59	308.0	166	319.0	144	344.0	164
60–64	168.0	101	215.0	105	196.0	100
18–64	995.0	138	1,136.0	138	1,179.0	154

Table A9.1e: Deferred Period 52 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	0.0	↓	1.0	↓	0.0	↓
25–29	1.0	↓	3.0	↓	0.0	↓
30–34	3.0	↓	3.0	↓	2.0	↓
35–39	4.0	148	8.0	244	12.0	202
40–44	30.0	293	24.0	246	25.0	271
45–49	35.0	211	83.0	379	91.0	451
50–54	63.0	239	99.0	310	174.0	471
55–59	90.0	239	119.0	256	129.0	272
60–64	64.0	193	89.0	193	73.0	162
18–64	290.0	224	429.0	264	506.0	305

Table A9.2. Offices contributing throughout 1987–98 – Females, individual policies, Standard experience for the quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Comparison of actual claim inceptions by quinquennial age group to those expected using the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A9.2a: Deferred Period 1 Week

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	65.0	83	21.0	78	2.0	40
25–29	199.0	96	122.0	66	50.0	58
30–34	215.0	120	131.0	98	59.0	74
35–39	325.0	168	178.0	107	137.0	130
40–44	273.0	190	234.0	132	201.0	117
45–49	214.0	180	239.0	167	218.0	136
50–54	154.0	172	191.0	173	233.0	186
55–59	114.0	181	109.0	139	142.0	161
60–64	15.0	43	40.0	151	25.0	125
18–64	1,574.0	142	1,265.0	121	1,067.0	127

Table A9.2b: Deferred Period 4 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	37.0	133	26.0	210	10.0	52
25–29	94.0	139	77.0	97	23.0	46
30–34	83.0	203	77.0	188	29.0	108
35–39	98.0	210	62.0	120	58.0	158
40–44	76.0	153	81.0	143	58.0	106
45–49	89.0	212	87.0	156	73.0	122
50–54	46.0	154	63.0	156	63.0	118
55–59	34.0	134	46.0	173	57.0	169
60–64	6.0	65	5.0	40	6.0	66
18–64	563.0	166	524.0	139	377.0	110

Table A9.2c: Deferred Period 13 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	4.0	↓	3.0	↓	1.0	↓
25–29	7.0	175	19.0	246	6.0	82
30–34	31.0	276	34.0	246	16.0	117
35–39	41.0	252	27.0	139	26.0	139
40–44	49.0	234	46.0	171	45.0	174
45–49	33.0	186	43.0	139	48.0	140
50–54	31.0	195	34.0	143	44.0	127
55–59	20.0	126	34.0	192	23.0	103
60–64	1.0	↑	3.0	57	1.0	20
18–64	217.0	206	243.0	166	210.0	129

Table A9.2d: Deferred Period 26 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	0.0	↓	1.0	↓	0.0	↓
25–29	2.0	↓	10.0	↓	16.0	↓
30–34	9.0	↓	21.0	510	16.0	405
35–39	18.0	412	34.0	615	24.0	351
40–44	21.0	329	43.0	488	41.0	394
45–49	37.0	466	36.0	283	81.0	530
50–54	34.0	329	59.0	440	51.0	293
55–59	40.0	282	46.0	337	24.0	164
60–64	3.0	↑	9.0	141	3.0	56
18–64	164.0	350	259.0	388	256.0	329

Table A9.2e: Deferred Period 52 Weeks

	1987–90		1991–94		1995–98	
AGE GROUP	AINC	100×A/E	AINC	100×A/E	AINC	100×A/E
18–24	0.0	↓	1.0	↓	1.0	↓
25–29	2.0	↓	0.0	↓	1.0	↓
30–34	1.0	↓	3.0	↓	11.0	↓
35–39	5.0	↓	9.0	↓	16.0	↓
40–44	10.0	↓	6.0	↓	25.0	876
45–49	7.0	↓	16.0	551	36.0	↓
50–54	12.0	618	22.0	↓	29.0	667
55–59	13.0	↑	23.0	643	20.0	↓
60–64	0.0	↑	3.0	↑	1.0	403
18–64	50.0	618	83.0	601	140.0	663

Table A10.1. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, recoveries. Deferred period 1 week.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	5,763	4,617	3,618	997	832	642
E	6,004.5	4,590.5	3,590.1	1,078.6	866.6	712.9
100*A*/*E*						
Duration:						
1–2 weeks	114	129	138	92	102	103
2–3 weeks	109	117	128	101	106	107
3–4 weeks	90	91	92	79	97	82
4–8 weeks	80	78	67	90	79	72
8–13 weeks	80	71	57	98	88	68
13–17 weeks	50	53	66	111	75	*91*
17–26 weeks	49	41	30	↓	↓	↓
26–30 weeks	*51*	56	*52*	93	↓	↓
30–39 weeks	*41*	*41*	*32*	↓	*80*	*58*
39 wks–1 yr	*53*	*44*	*38*	↓	↓	↓
1–2 years	*25*	48	*44*	↓	↓	↓
2–5 years	↓	↓	*46*	↓	↓	↓
5–11 years	*51*	58	*70*	59	*90*	*69*
100*A*/*E* by age						
19–24	89	*113*	↓	95	*66*	↓
25–29	100	87	84	97	76	85
30–34	117	120	115	92	93	84
35–39	106	127	122	81	100	84
40–44	103	115	115	98	94	96
45–49	95	97	106	97	110	84
50–54	92	94	90	101	101	85
55–59	71	75	85	88	99	110
60–64	↓	↓	102	45	*142*	*130*
65–65	89	96	–	–	–	–
All cells	96	101	101	92	96	90
Using *E*						
Σz^2	363.04	472.72	557.05	47.34	42.01	38.65
df	75	75	68	41	42	35
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	0.23	0.47	0.31
#(+/–)	14/61	19/56	16/52	13/28	19/23	13/22
p(+/–)	**0.0000**	**0.0000**	**0.0000**	**0.0275**	0.64	0.18
p(*B*)	**0.000**	**0.000**	**0.000**	0.846	0.183	**0.001**
Using adjusted *E*						
Σz^2	369.96	469.63	552.27	41.09	42.43	32.62
df	73	74	67	39	41	31
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	0.38	0.41	0.39
#(+/–)	21/53	18/57	16/52	21/19	20/22	14/18
p(+/–)	**0.0003**	**0.0000**	**0.0000**	0.87	0.88	0.60
p(*B*)	**0.000**	**0.000**	**0.000**	0.664	0.327	**0.003**

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and *p*(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. *p*(*B*) is shown as **bold** if less than 0.050.

Table A10.2. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, recoveries. Deferred period 4 weeks.

	Males			Females		
	1987–90	*1991–94*	*1995–98*	*1987–90*	*1991–94*	*1995–98*
A	1,244	1,186	819	410	421	265
E	1,872.0	1,926.3	1,472.0	631.0	685.5	443
100*A*/*E*						
Duration:						
1–2 weeks	–	–	–	–	–	–
2–3 weeks	–	–	–	–	–	–
3–4 weeks	–	–	–	–	–	–
4–8 weeks	76	60	50	58	50	54
8–13 weeks	61	59	52	74	58	56
13–17 weeks	68	69	65	82	65	73
17–26 weeks	57	65	57	*42*	75	↓
26–30 weeks	*44*	80	*62*	*56*	*67*	55
30–39 weeks	63	55	61	*54*	*53*	↓
39 wks–1 yr	*57*	*47*	*65*	*121*	*88*	*80*
1–2 years	86	59	62	↓	↓	*60*
2–5 years	↓	↓	↓	↓	↓	↓
5–11 years	*65*	72	62	*56*	97	*77*
100*A*/*E* by age						
19–24	83	*55*	↓	71	*71*	↓
25–29	60	62	*61*	64	53	*64*
30–34	73	67	67	51	53	*45*
35–39	68	63	65	72	59	64
40–44	82	62	58	65	68	46
45–49	72	65	55	78	68	73
50–54	60	56	54	*70*	68	72
55–59	48	55	47	↓	↓	↓
60–64	75	74	↓	*51*	73	*60*
65–65	–	–	60	–	–	–
All cells	66	62	56	65	61	60
Using *E*						
Σz^2	248.87	301.86	300.09	104.95	111.83	78.80
df	54	59	51	32	35	28
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	4/50	4/55	2/49	3/29	2/33	0/28
p(+/–)	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
p(*B*)	**0.011**	0.087	0.810	0.742	0.303	1.0
Using adjusted *E*						
Σz^2	73.28	40.01	33.81	44.67	22.21	21.68
df	47	47	37	24	26	21
$p(\chi^2)$	**0.0084**	0.76	0.62	**0.0064**	0.68	0.42
#(+/–)	22/26	26/22	23/15	10/15	15/12	10/12
p(+/–)	0.67	0.67	0.26	0.42	0.70	0.83
p(*B*)	0.191	0.584	**0.048**	0.430	0.255	0.345

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A10.3. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, recoveries. Deferred period 13 weeks.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	724	710	376	129	143	109
E	1,012.4	1,212.5	800.8	194.1	257.1	194.7
$100A/E$						
Duration:						
1–2 weeks	–	–	–		–	–
2–3 weeks	–	–	–	–	–	–
3–4 weeks	–	–	–	–	–	–
4–8 weeks	–	–	–	–	–	–
8–13 weeks	–	–	–	–	–	–
13–17 weeks	58	62	46	*83*	*30*	*53*
17–26 weeks	62	45	33	52	50	↓
26–30 weeks	70	56	49	*39*	*50*	51
30–39 weeks	72	62	49	*61*	*69*	*50*
39 wks–1 yr	69	64	70	*80*	*61*	*62*
1–2 years	77	74	49	↓	*74*	*72*
2–5 years	↓	66	55	↓	↓	↓
5–11 years	141	*132*	*93*	*95*	*82*	*60*
$100A/E$ by age						
19–24	↓	↓	↓	↓	↓	↓
25–29	76	*77*	*30*	*78*	*27*	↓
30–34	69	49	*56*	*50*	*42*	*51*
35–39	68	66	61	*62*	*58*	*57*
40–44	80	58	55	*64*	80	*51*
45–49	79	61	47	*64*	74	73
50–54	79	60	38	*101*	*60*	↓
55–59	47	49	48	*59*	↓	↓
60–64	73	↓	56	–	*35*	*49*
65–65	–	65	–	–	–	–
All cells	72	59	47	66	56	56
Using E						
Σz^2	138.02	232.39	239.28	30.07	53.69	36.16
df	46	44	38	15	22	15
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	**0.0117**	**0.0002**	**0.0017**
$\#(+/-)$	8/38	2/42	2/36	2/13	0/22	0/15
$p(+/-)$	**0.0000**	**0.0000**	**0.0000**	**0.0074**	**0.0000**	**0.0001**
$p(B)$	**0.000**	**0.019**	0.244	0.553	1.0	1.0
Using adjusted E						
Σz^2	85.02	47.94	32.42	13.87	19.68	3.60
df	42	38	25	10	12	9
$p(\chi^2)$	**0.0001**	0.13	0.15	0.18	0.0734	0.94
$\#(+/-)$	20/23	24/15	15/11	4/7	6/7	5/5
$p(+/-)$	0.76	0.20	0.56	0.55	1.0	1.0
$p(B)$	**0.024**	0.054	0.054	0.519	0.394	0.844

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A10.4. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, recoveries. Deferred period 26 weeks.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	253	258	204	50	74	80
E	444.7	514.5	473.5	93.7	161.2	157.7
100*A*/*E*						
Duration:						
1–2 weeks	–	–	–	–	–	–
2–3 weeks	–	–	–	–	–	–
3–4 weeks	–	–	–	–	–	–
4–8 weeks	–	–	–	–	–	–
8–13 weeks	–	–	–	–	–	–
13–17 weeks	–	–	–	–	–	–
17–26 weeks	–	–	–	–	–	–
26–30 weeks	*47*	75	*58*	↓	*26*	↓
30–39 weeks	46	35	32	*29*	*37*	*44*
39 wks–1 yr	46	43	*35*	*71*	*48*	*89*
1–2 years	54	49	47	*41*	*36*	*42*
2–5 years	74	59	47	↓	↓	↓
5–11 years	*159*	*96*	*59*	*105*	*81*	*41*
100*A*/*E* by age						
19–24	↓	↓	↓	–	↓	↓
25–29	↓	↓	↓	↓	*43*	↓
30–34	*50*	*54*	*62*	↓	*51*	*61*
35–39	80	*52*	*54*	*50*	*64*	*65*
40–44	68	59	*42*	*47*	*68*	*71*
45–49	53	52	47	*80*	*35*	*41*
50–54	52	52	43	↓	*17*	↓
55–59	48	35	37	↓	↓	↓
60–64	*62*	↓	↓	*43*	*33*	*27*
65–65	–	65	*28*	–	–	–
All cells	57	50	43	53	46	51
Using *E*						
Σz^2	103.60	133.64	151.09	26.24	51.63	41.20
df	28	27	26	8	13	14
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	**0.0010**	**0.0000**	**0.0002**
#(+/–)	1/27	1/26	0/26	1/7	0/13	1/13
$p(+/-)$	**0.0000**	**0.0000**	**0.0000**	0.0703	**0.0002**	**0.0018**
$p(B)$	**0.027**	0.337	1.0	0.235	1.0	0.062
Using adjusted *E*						
Σz^2	32.57	24.00	10.64	2.23	9.96	9.96
df	20	17	15	3	4	7
$p(\chi^2)$	**0.0376**	0.12	0.78	0.53	**0.0411**	0.19
#(+/–)	9/12	8/10	9/7	2/2	2/3	3/5
$p(+/-)$	0.66	0.81	0.80	1.0	1.0	0.73
$p(B)$	0.158	0.202	0.208	0.869	0.882	0.466

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A10.5. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, recoveries. Deferred period 52 weeks.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	55	54	39	6	15	17
E	80.8	105.9	121.8	17.6	33.5	52.9
$100A/E$						
Duration:						
1–2 weeks	–	–	–	–	–	–
2–3 weeks	–	–	–	–	–	–
3–4 weeks	–	–	–	–	–	–
4–8 weeks	–	–	–	–	–	–
8–13 weeks	–	–	–	–	–	–
13–17 weeks	–	–	–	–	–	–
17–26 weeks	–	–	–	–	–	–
26–30 weeks	–	–	–	–	–	–
30–39 weeks	–	–	–	–	–	–
39 wks–1 yr	–	–	–	–	–	–
1–2 years	*41*	47	*21*	↓	↓	*26*
2–5 years	↓	↓	↓	↓	↓	↓
5–11 years	104	*57*	*45*	*34*	*45*	*40*
$100A/E$ by age						
19–24	↓	↓	–	–	↓	↓
25–29	↓	↓	↓	↓	↓	↓
30–34	↓	↓	↓	↓	↓	↓
35–39	↓	↓	↓	↓	↓	*56*
40–44	*64*	*54*	*71*	↓	↓	↓
45–49	↓	*51*	*28*	↓	↓	↓
50–54	*67*	*50*	*20*	↓	↓	↓
55–59	↓	↓	↓	*34*	↓	↓
60–64	*74*	*49*	*22*	–	*45*	*20*
65–65	–	–	–	–	–	–
All cells	68	51	32	*34*	*45*	*32*
Using E						
Σz^2	20.94	23.10	57.86	6.97	9.71	22.81
df	6	8	8	1	1	3
$p(\chi^2)$	**0.0019**	**0.0032**	**0.0000**	**0.0083**	**0.0018**	**0.0000**
$\#(+/-)$	1/5	0/8	0/8	0/1	0/1	0/3
$p(+/-)$	0.22	**0.0078**	**0.0078**	1.0	1.0	0.25
$p(B)$	0.687	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	12.40	1.44	10.51	–	–	–
df	3	3	3	–	–	–
$p(\chi^2)$	**0.0061**	0.70	**0.0147**	–		–
$\#(+/-)$	1/3	2/2	1/3	–	–	–
$p(+/-)$	0.63	1.0	0.63	–	–	–
$p(B)$	0.514	1.0	0.851	–		–

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A11.1. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, deaths. Deferred period 1 week.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	74	63	47	1	3	2
E	133.8	132.8	130.1	10.0	11.8	13.1
$100A/E$						
Duration:						
1–8 weeks	*31*	*39*	↓	↓	↓	↓
8–13 weeks	↓	↓	*36*	↓	↓	↓
13–17 weeks	*38*	*40*	↓	↓	↓	↓
17–26 weeks	↓	↓	↓	↓	↓	↓
26–30 weeks	*53*	*56*	*41*	↓	↓	↓
30–39 weeks	↓	↓	↓	↓	↓	↓
39 wks–1 yr	*25*	*51*	*44*	↓	↓	↓
1–2 years	*45*	*39*	*48*	↓	↓	↓
2–5 years	↓	*53*	*8*	↓	↓	↓
5–11 years	115	*56*	*48*	*10*	*25*	*15*
$100A/E$ by age						
19–39	↓	↓	↓	↓	↓	↓
40–44	*27*	*48*	↓	↓	↓	↓
45–49	↓	*26*	*35*	↓	↓	↓
50–54	*55*	*24*	*35*	↓	↓	↓
55–59	67	*61*	*37*	↓	↓	↓
60–64	↓	↓	*38*	*10*	*25*	*15*
65–65	*60*	*72*	–	–	–	–
All cells	55	47	36	*10*	*25*	*15*
Using E						
Σz^2	39.00	35.22	51.58	7.22	5.81	8.53
df	9	11	11	1	1	1
$p(\chi^2)$	**0.0000**	**0.0002**	**0.0000**	**0.0072**	**0.0160**	**0.0035**
$\#(+/-)$	1/8	0/11	0/11	0/1	0/1	0/1
$p(+/-)$	**0.0391**	**0.0010**	**0.0010**	1.0	1.0	1.0
$p(B)$	0.880	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	23.62	1.12	1.41	–	–	–
df	4	3	2	–	–	–
$p(\chi^2)$	**0.0001**	0.77	0.49	–	–	–
$\#(+/-)$	1/4	2/2	2/1	–	–	–
$p(-/-)$	0.38	1.0	1.0	–	–	–
$p(B)$	0.285	1.0	0.748	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A11.2. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, deaths. Deferred period 4 weeks.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	86	81	69	9	7	13
E	113.7	131.7	126.8	21.2	26.5	24.3
$100A/E$						
Duration:						
1–8 weeks	↓	↓	↓	↓	↓	↓
8–13 weeks	↓	↓	↓	↓	↓	↓
13–17 weeks	*80*	*41*	*44*	↓	↓	↓
17–26 weeks	↓	↓	↓	↓	↓	↓
26–30 weeks	*61*	*70*	*39*	↓	↓	↓
30–39 weeks	↓	↓	↓	↓	↓	↓
39 wks–1 yr	*79*	51	*39*	↓	↓	↓
1–2 years	*65*	*79*	*91*	↓	↓	↓
2–5 years	↓	↓	*56*	↓	↓	↓
5–11 years	*86*	*71*	*59*	*42*	*26*	*53*
$100A/E$ by age						
19–39	*66*	↓	↓	↓	↓	↓
40–44	↓	*47*	*84*	↓	↓	↓
45–49	*80*	*44*	*52*	↓	↓	↓
50–54	*76*	*73*	*34*	↓	↓	↓
55–59	80	*67*	*51*	↓	↓	↓
60–64	*69*	*68*	↓	*42*	*26*	*53*
65–65	–	–	*72*	–	–	–
All cells	76	62	54	*42*	*26*	*53*
Using E						
Σz^2	7.68	20.94	29.93	6.45	13.66	4.81
df	9	12	11	1	1	1
$p(\chi^2)$	0.57	0.0512	**0.0016**	**0.0111**	**0.0002**	**0.0283**
$\#(+/-)$	0/9	0/12	1/10	0/1	0/1	0/1
$p(+/-)$	**0.0039**	**0.0005**	**0.0117**	1.0	1.0	1.0
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	2.33	6.44	5.91	–	–	–
df	7	7	4	–	–	–
$p(\chi^2)$	0.94	0.49	0.21	–	–	–
$\#(+/-)$	4/4	3/5	2/3	–	–	–
$p(+/-)$	1.0	0.73	1.0	–	–	–
$p(B)$	0.677	0.991	0.671	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A11.3. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, deaths. Deferred period 13 weeks.

	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	119	135	105	9	14	8
E	152.7	195.8	168.5	19.2	27.4	25.3
$100A/E$						
Duration:						
1–8 weeks	–	–	–	↓	↓	↓
8–13 weeks	–	–	–	↓	↓	↓
13–17 weeks	↓	↓	↓	↓	↓	↓
17–26 weeks	91	↓	↓	↓	↓	↓
26–30 weeks	↓	75	*71*	↓	↓	↓
30–39 weeks	*113*	*51*	↓	↓	↓	↓
39 wks–1 yr	*63*	*98*	*69*	↓	↓	↓
1–2 years	100	*72*	*65*	↓	↓	↓
2–5 years	*54*	*57*	*56*	↓	↓	↓
5–11 years	*24*	*58*	*51*	*47*	*51*	*32*
$100A/E$ by age						
19–39	*78*	*72*	↓	↓	↓	↓
40–44	*47*	*65*	*73*	↓	↓	↓
45–49	*83*	*83*	*60*	↓	↓	↓
50–54	*78*	79	*60*	↓	↓	↓
55–59	85	62	69	*47*	↓	↓
60–64	*83*	↓	*45*	–	*51*	*32*
65–65	–	*49*	–	–	–	–
All cells	78	69	62	*47*	*51*	*32*
Using E						
Σz^2	21.98	23.14	21.53	4.87	6.11	11.14
df	11	17	12	1	1	1
$p(\chi^2)$	**0.0245**	0.14	**0.0431**	**0.0273**	**0.0134**	**0.0008**
$\#(+/-)$	3/8	3/14	0/12	0/1	0/1	0/1
$p(+/-)$	0.23	**0.0127**	**0.0005**	1.0	1.0	1.0
$p(B)$	1.0	0.335	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	15.35	5.45	1.28	–	–	–
df	9	8	7	–	–	–
$p(\chi^2)$	0.0817	0.71	0.99	–	–	–
$\#(+/-)$	5/5	6/3	4/4	–	–	–
$p(+/-)$	1.0	0.51	1.0	–	–	–
$p(B)$	0.101	0.375	0.266	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A11.4. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, deaths. Deferred period 26 weeks.

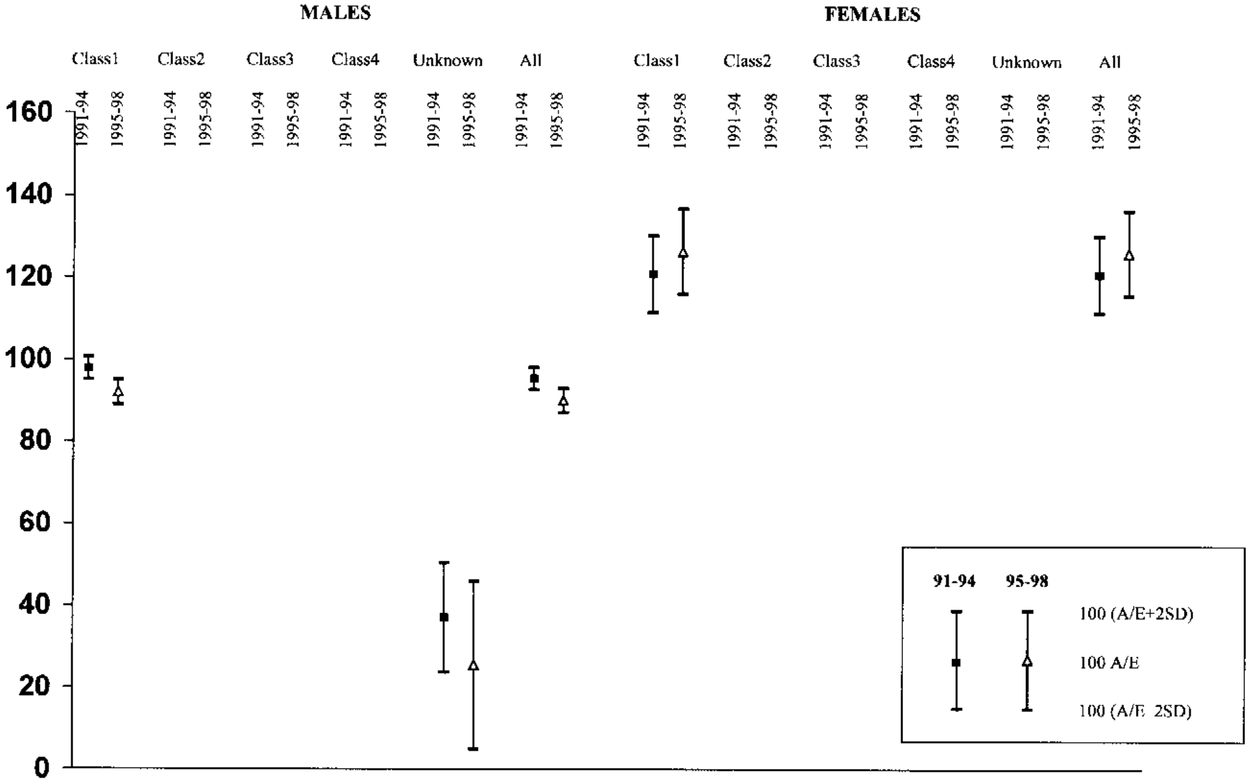
	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	119	106	96	14	24	14
E	145.7	167.7	167.9	20.4	32.5	35.2
$100A/E$						
Duration:						
1–8 weeks	–	–	–	–	↓	↓
8–13 weeks	–	–	–	–	↓	↓
13–17 weeks	–	–	–	–	↓	↓
17–26 weeks	–	–	–	↓	↓	↓
26–30 weeks	↓	↓	↓	↓	↓	↓
30–39 weeks	122	*55*	*45*	↓	↓	↓
39 wks–1 yr	*100*	*77*	*55*	↓	↓	↓
1–2 years	82	89	*59*	↓	↓	*73*
2–5 years	*53*	*37*	*52*	↓	↓	↓
5–11 years	*77*	*68*	*73*	*69*	*74*	*11*
$100A/E$ by age						
19–39	↓	↓	↓	↓	↓	↓
40–44	*62*	*54*	*76*	↓	↓	↓
45–49	*100*	*63*	*55*	↓	*77*	↓
50–54	*80*	84	*44*	↓	↓	↓
55–59	80	*48*	66	↓	↓	↓
60–64	*90*	↓	↓	*69*	*70*	*40*
65–65	–	*75*	*51*	–	–	–
All cells	82	63	57	*69*	*74*	*40*
Using E						
Σz^2	15.88	31.30	33.07	1.69	1.75	14.97
df	11	12	13	1	2	2
$p(\chi^2)$	0.15	**0.0018**	**0.0017**	0.19	0.42	**0.0006**
$\#(+/-)$	2/9	2/10	1/12	0/1	0/2	0/2
$p(+/-)$	0.0654	**0.0386**	**0.0034**	1.0	0.50	0.50
$p(B)$	0.170	0.969	0.531	1.0	1.0	1.0
Using adjusted E						
Σz^2	11.57	9.71	2.56	–	–	–
df	7	6	7	–	–	–
$p(\chi^2)$	0.12	0.14	0.92	–	–	–
$\#(+/-)$	3/5	4/3	4/4	–	–	–
$p(+/-)$	0.73	1.0	1.0	–	–	–
$p(B)$	0.280	0.749	0.813	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A11.5. Offices contributing throughout 1987–98. Individual policies, males and females for the quadrennia 1987–90, 1991–94 and 1995–98. Standard experience, deaths. Deferred period 52 weeks.

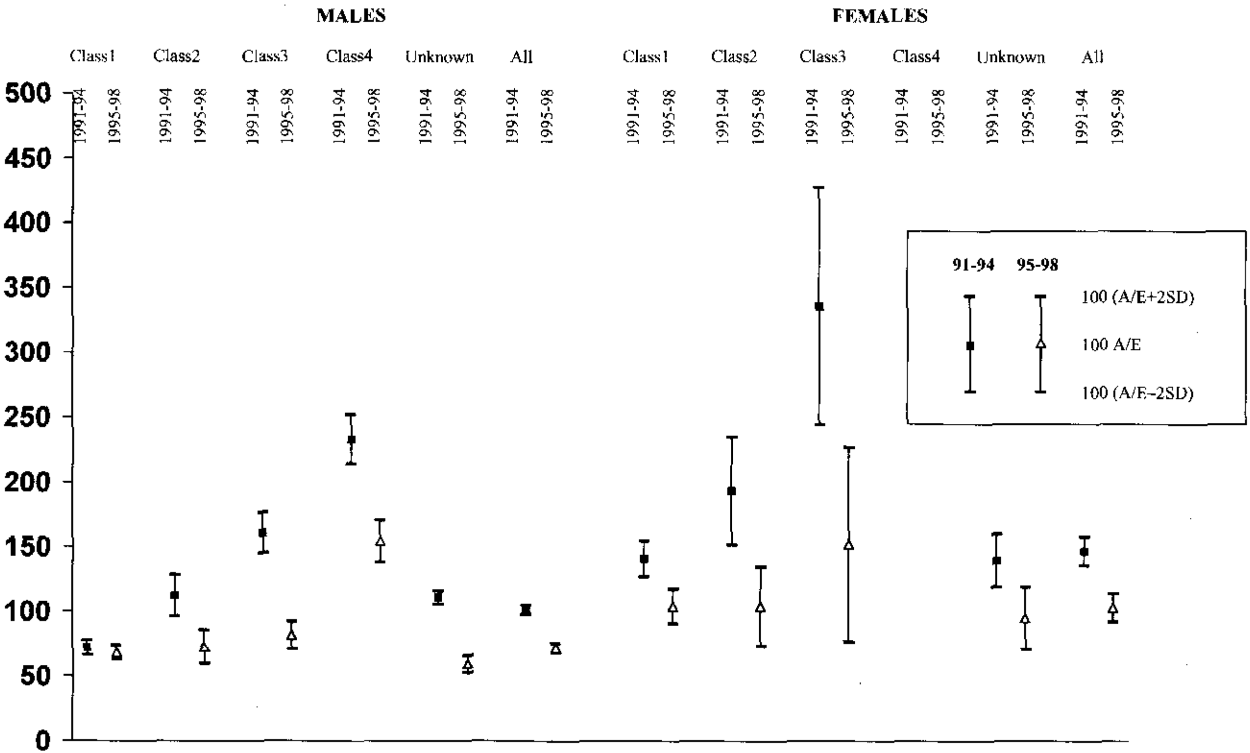
	Males			Females		
	1987–90	1991–94	1995–98	1987–90	1991–94	1995–98
A	33	39	31	1	5	4
E	41.8	50.1	60.7	6.6	11.1	15.8
100*A*/*E*						
Duration:						
1–8 weeks	–	–	–	–	–	–
8–13 weeks	–	–	–	–	–	–
13–17 weeks	–	–	–	–	–	–
17–26 weeks	–	–	–	–	–	–
26–30 weeks	–	–	–	–	–	–
30–39 weeks	–	–	–	–	–	–
39 wks–1 yr	–	–	–	↓	–	–
1–2 years	↓	*108*	*68*	↓	↓	↓
2–5 years	↓	↓	*39*	↓	↓	↓
5–11 years	79	*60*	*51*	*15*	*45*	*25*
100*A*/*E* by age						
19–39	↓	↓	↓	↓	↓	↓
40–44	↓	↓	↓	↓	↓	↓
45–49	↓	↓	*45*	↓	↓	↓
50–54	*61*	*75*	*48*	↓	↓	↓
55–59	↓	↓	↓	↓	↓	↓
60–64	*97*	*82*	*59*	*15*	*45*	*25*
65–65	–	–	–	–	–	–
All cells	79	78	51	*15*	*45*	*25*
Using *E*						
Σz^2	2.78	4.70	13.52	3.93	2.82	8.06
df	2	4	4	1	1	1
$p(\chi^2)$	0.25	0.32	**0.0090**	**0.0475**	0.0929	**0.0045**
#(+/–)	0/2	1/3	0/4	0/1	0/1	0/1
$p(+/-)$	0.50	0.63	**0.13**	1.0	1.0	1.0
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted *E*						
Σz^2	1.26	0.02	–	–	–	–
df	1	1	–	–	–	–
$p(\chi^2)$	0.26	0.89	–	–	–	–
#(+/–)	1/1	1/1	–	–	–	–
$p(+/-)$	1.0	1.0	–	–	–	–
$p(B)$	1.0	1.0	–	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.



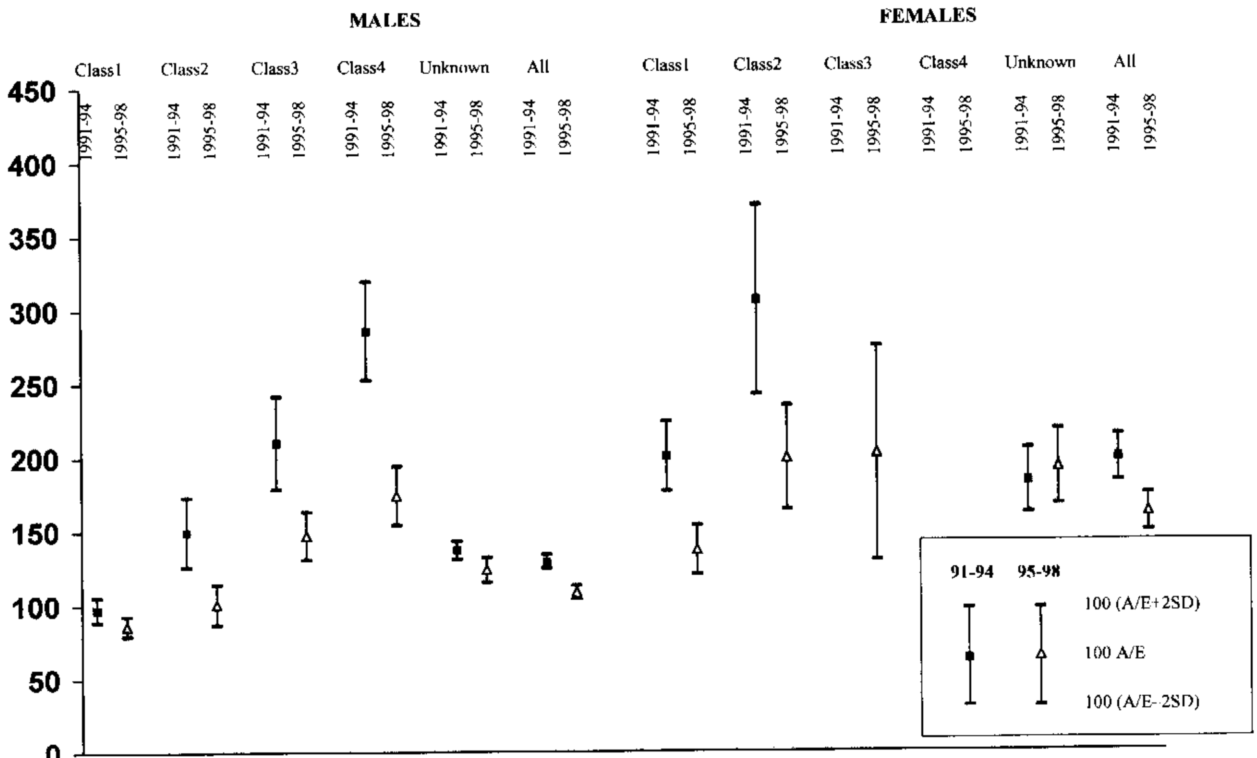
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A1.1. Males and females, individual policies. Standard* inception experience by occupational class for the quadrennia 1991–94 and 1995–98. Deferred period 1 week. Graphical presentation of Table A2.1(a) and Table A2.1(b).



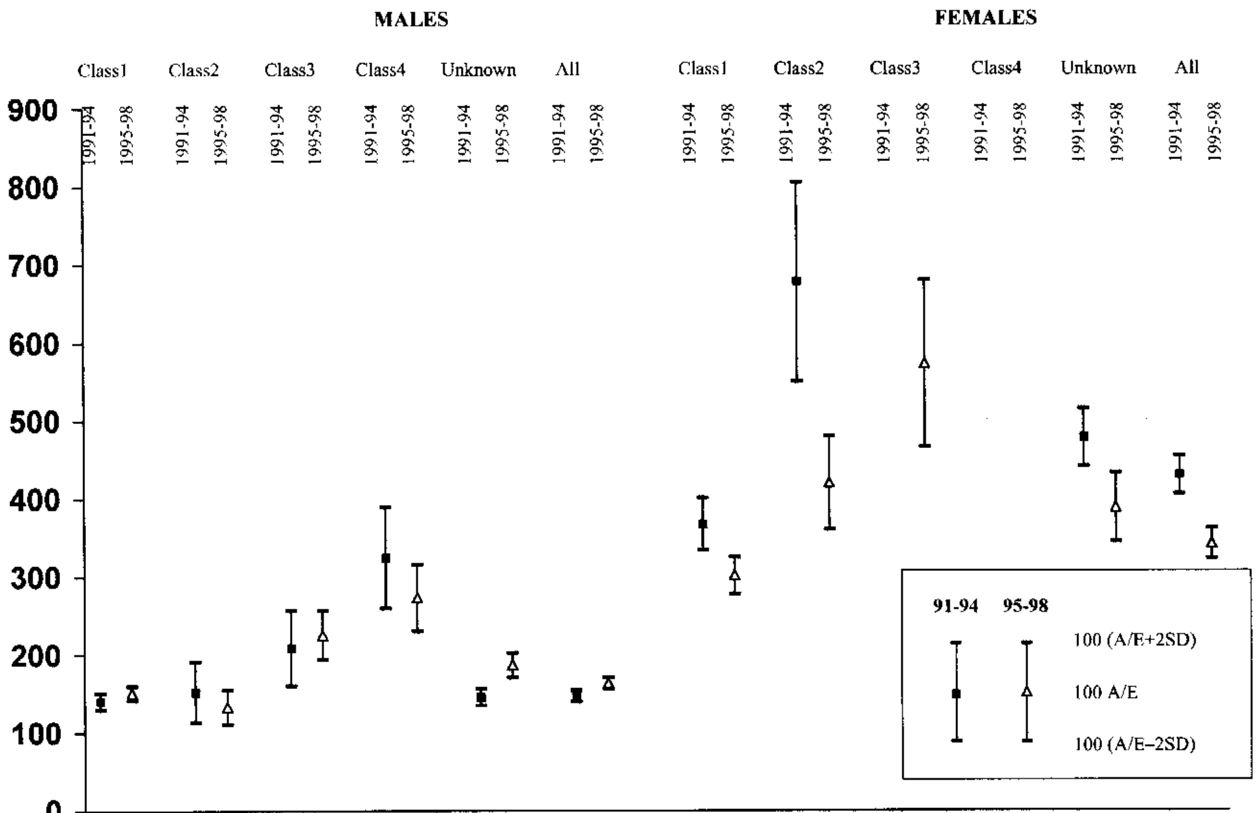
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A1.2. Males and females, individual policies. Standard* inception experience by occupational class for the quadrennia 1991–94 and 1995–98. Deferred period 4 weeks. Graphical presentation of Table A2.2(a) and Table A2.2(b).



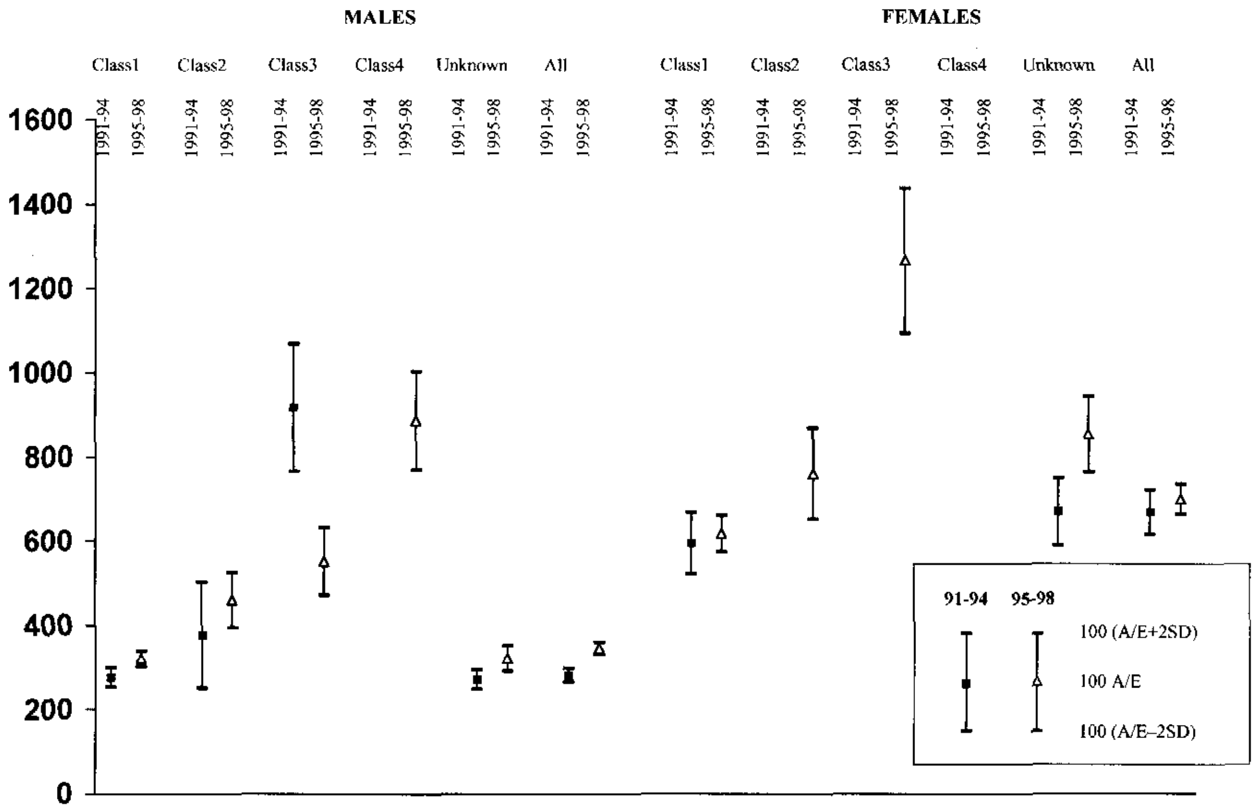
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A1.3. Males and females, individual policies. Standard* inception experience by occupational class for the quadrennia 1991–94 and 1995–98. Deferred period 13 weeks. Graphical presentation of Table A2.3(a) and Table A2.3(b).



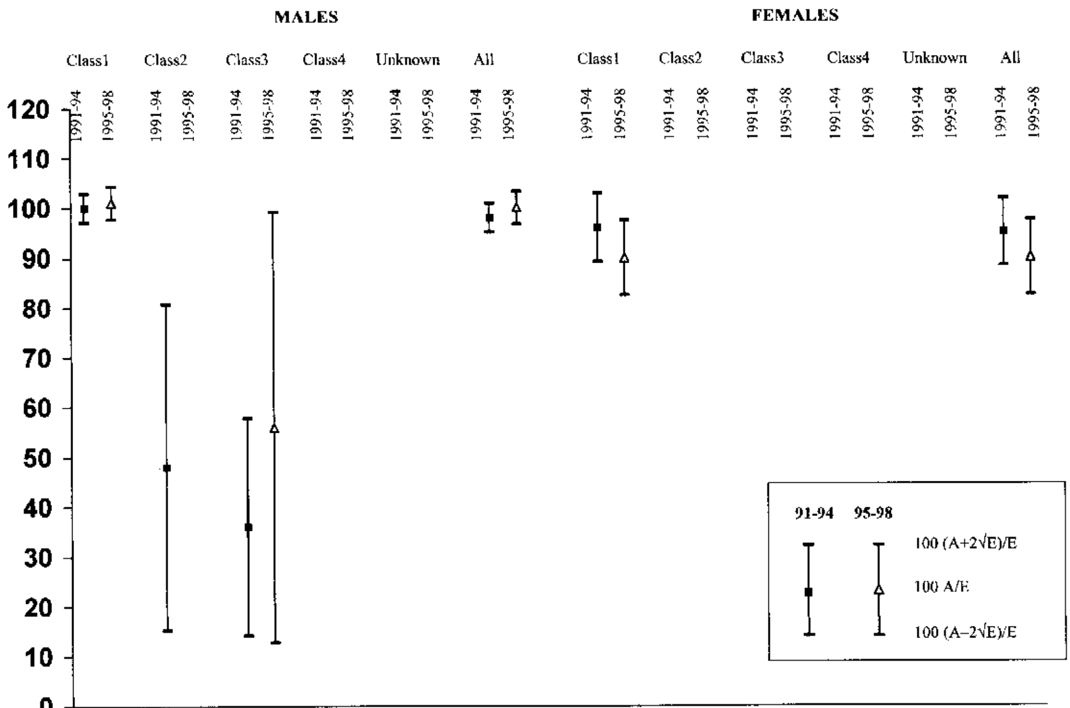
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A1.4. Males and females, individual policies. Standard* inception experience by occupational class for the quadrennia 1991–94 and 1995–98. Deferred period 26 weeks. Graphical presentation of Table A2.4(a) and Table A2.4(b).



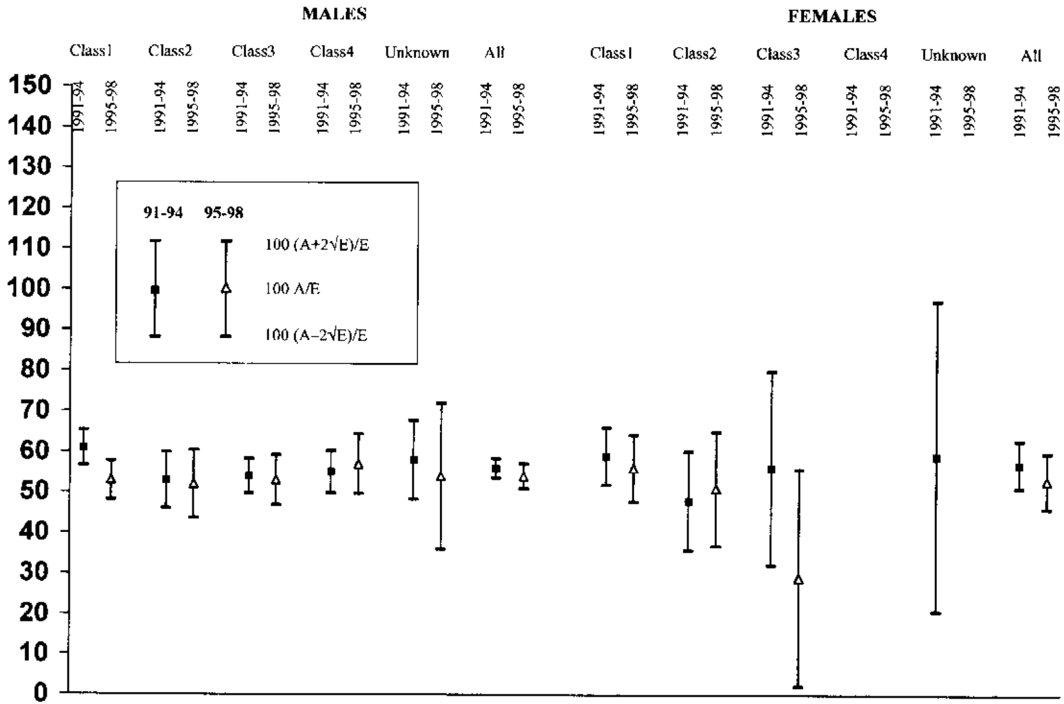
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A1.5. Males and females, individual policies. Standard* inception experience by occupational class for the quadrennia 1991–94 and 1995–98. Deferred period 52 weeks. Graphical presentation of Table A2.5(a) and Table A2.5(b).



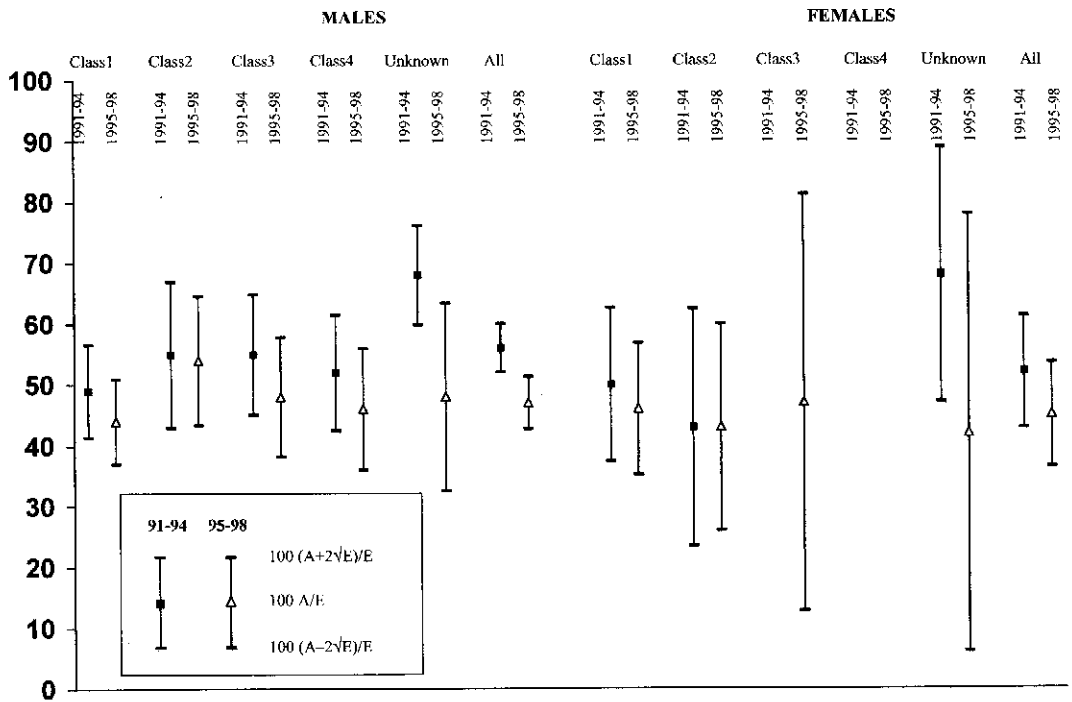
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.1. Males and females, individual policies, recoveries, quadrennia 1991–94 and 1995–98. Deferred period 1 week. Compare with Table A4.1.



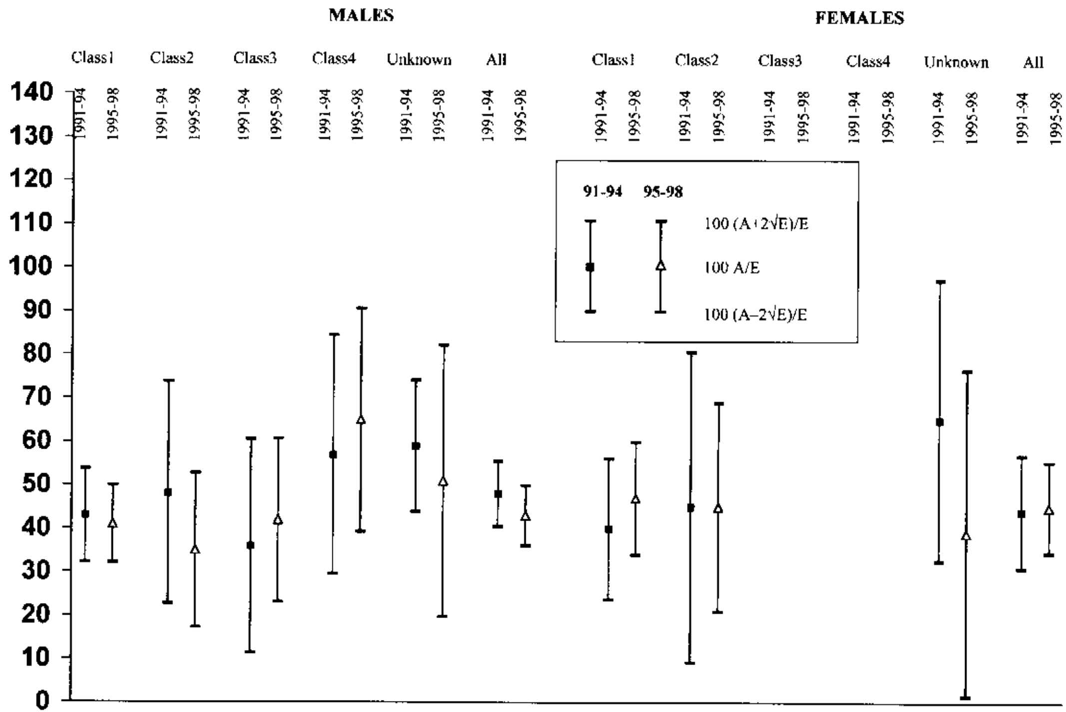
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.2. Males and females, individual policies, recoveries, quadrennia 1991–94 and 1995–98. Deferred period 4 weeks. Compare with Table A4.1.



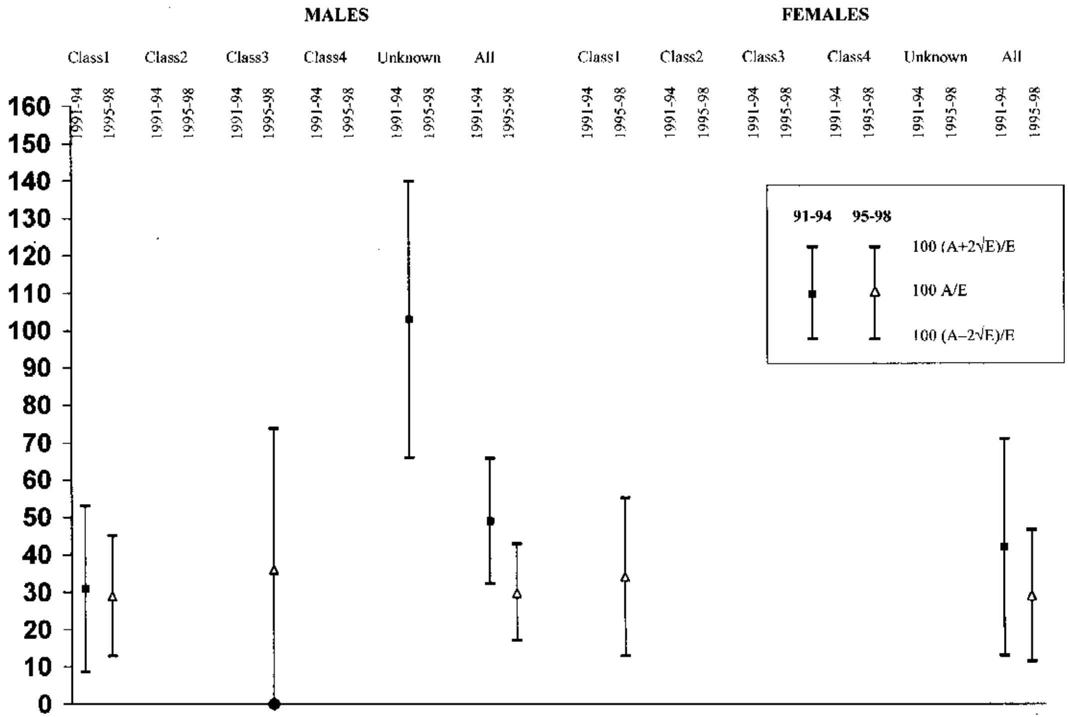
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.3. Males and females, individual policies, recoveries, quadrennia 1991–94 and 1995–98. Deferred period 13 weeks. Compare with Table A4.1.



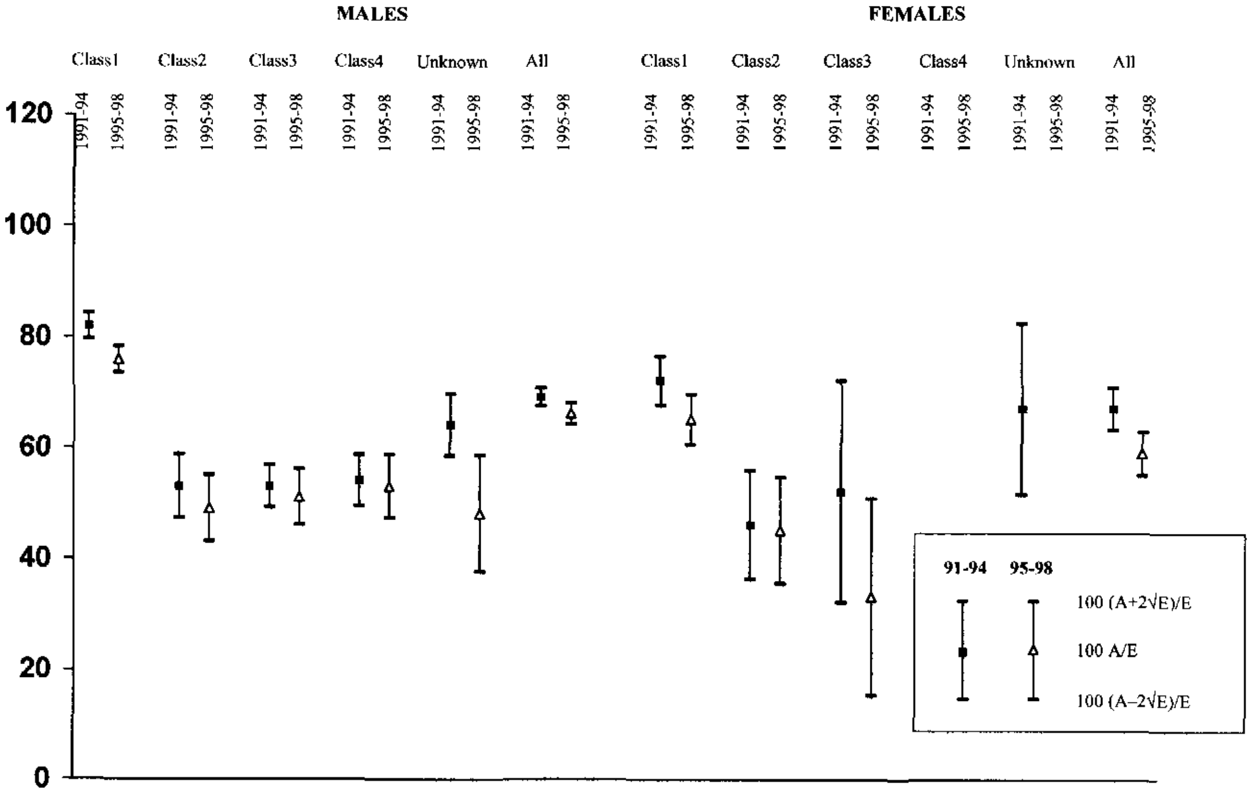
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.4. Males and females, individual policies, recoveries, quadrennia 1991–94 and 1995–98. Deferred period 26 weeks. Compare with Table A4.1.



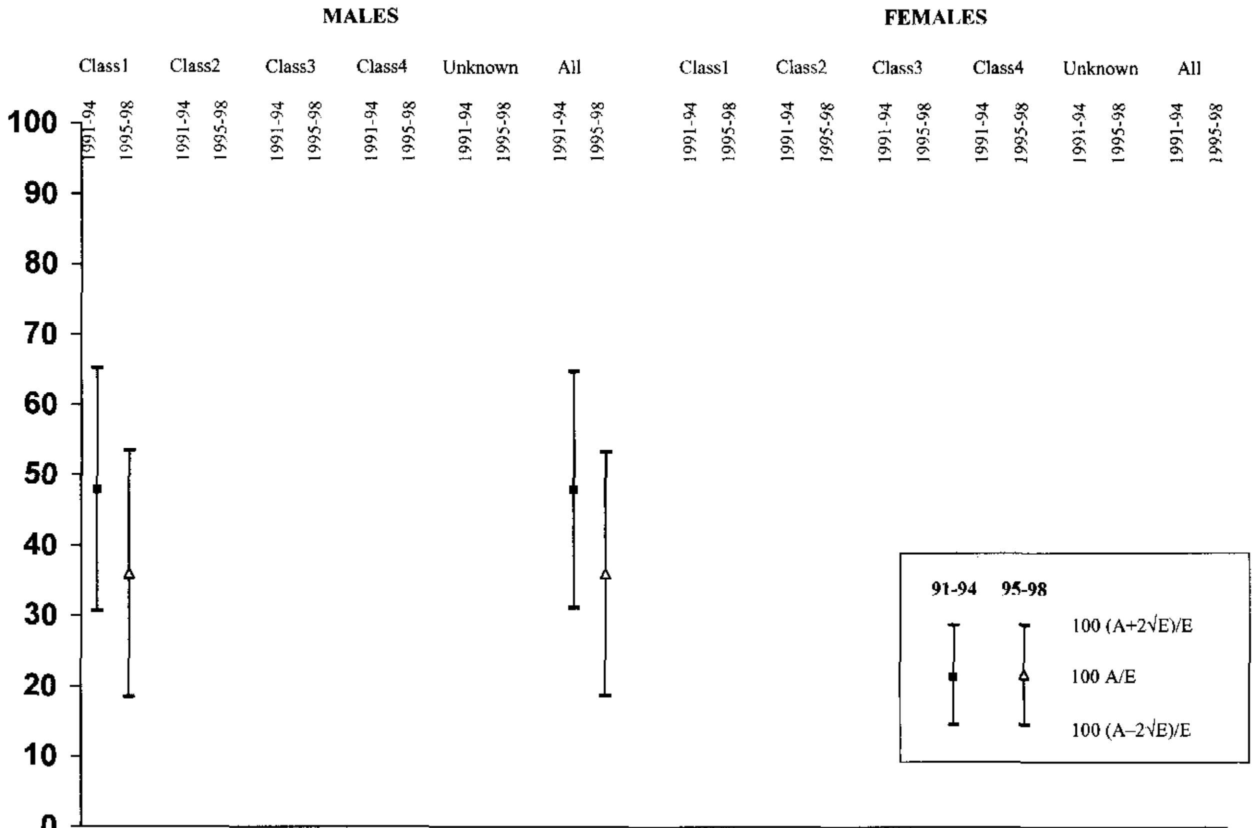
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.5. Males and females, individual policies, recoveries, quadrennia 1991–94 and 1995–98. Deferred period 52 weeks. Compare with Table A4.1.



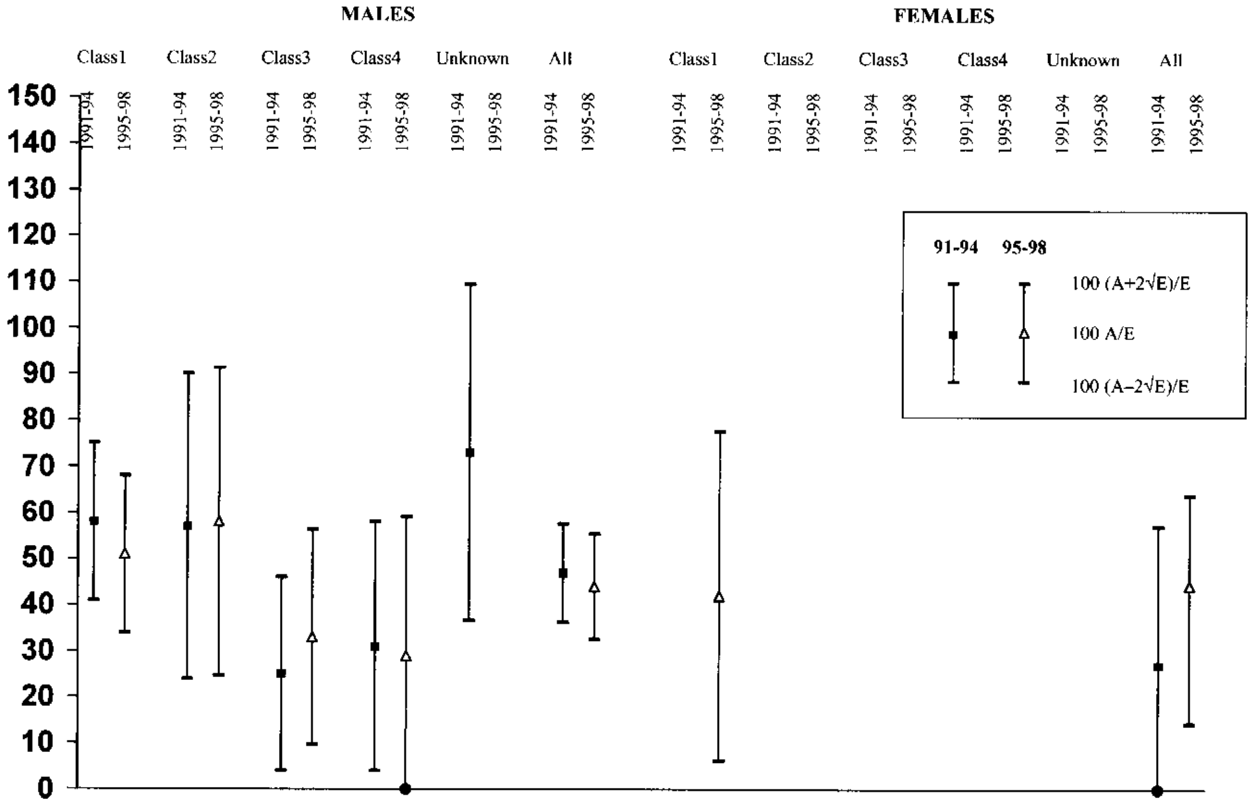
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.6. Males and females, individual policies, recoveries, quadrennia 1991–94 and 1995–98. All deferred periods. Compare with Table A4.1.



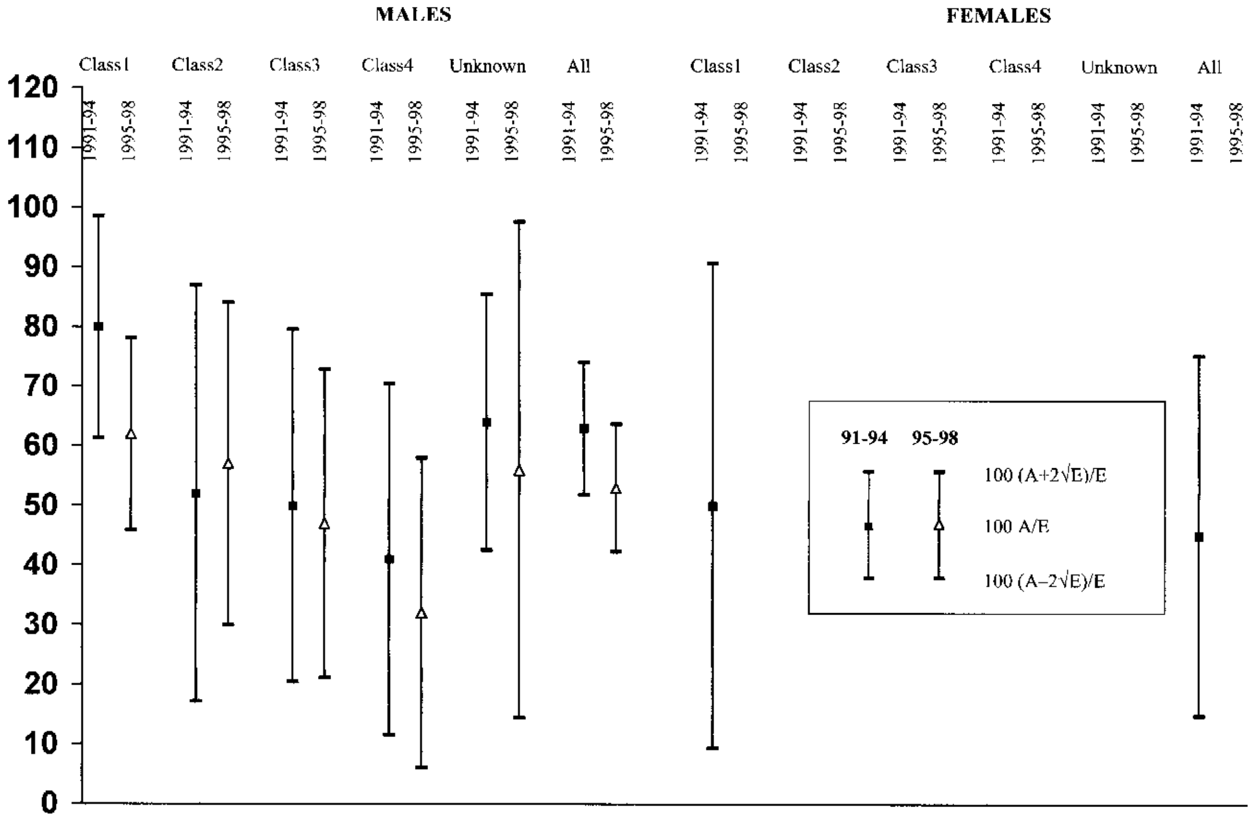
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A3.1. Males and females, individual policies, deaths, quadrennia 1991–94 and 1995–98. Deferred period 1 week. Compare with Table A4.2.



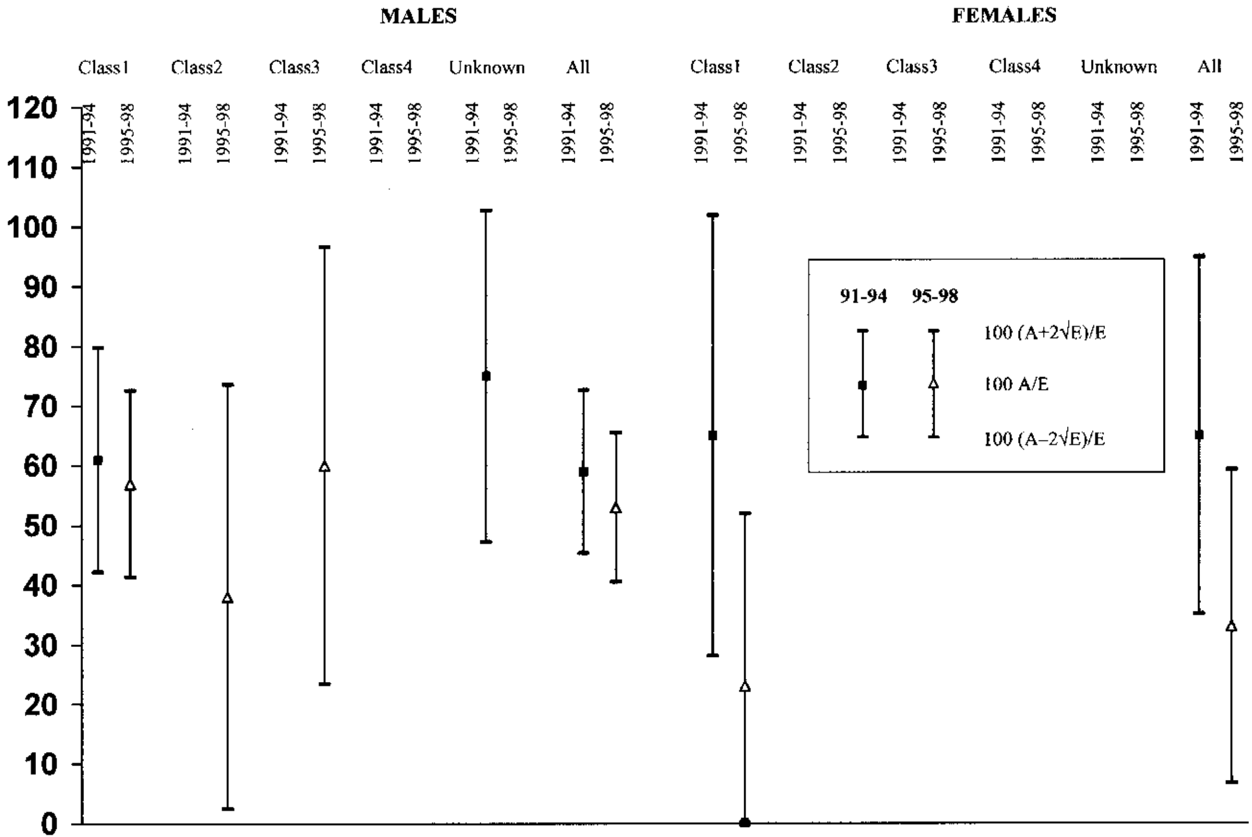
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A3.2. Males and females, individual policies, deaths, quadrennia 1991–94 and 1995–98. Deferred period 4 weeks. Compare with Table A4.2.



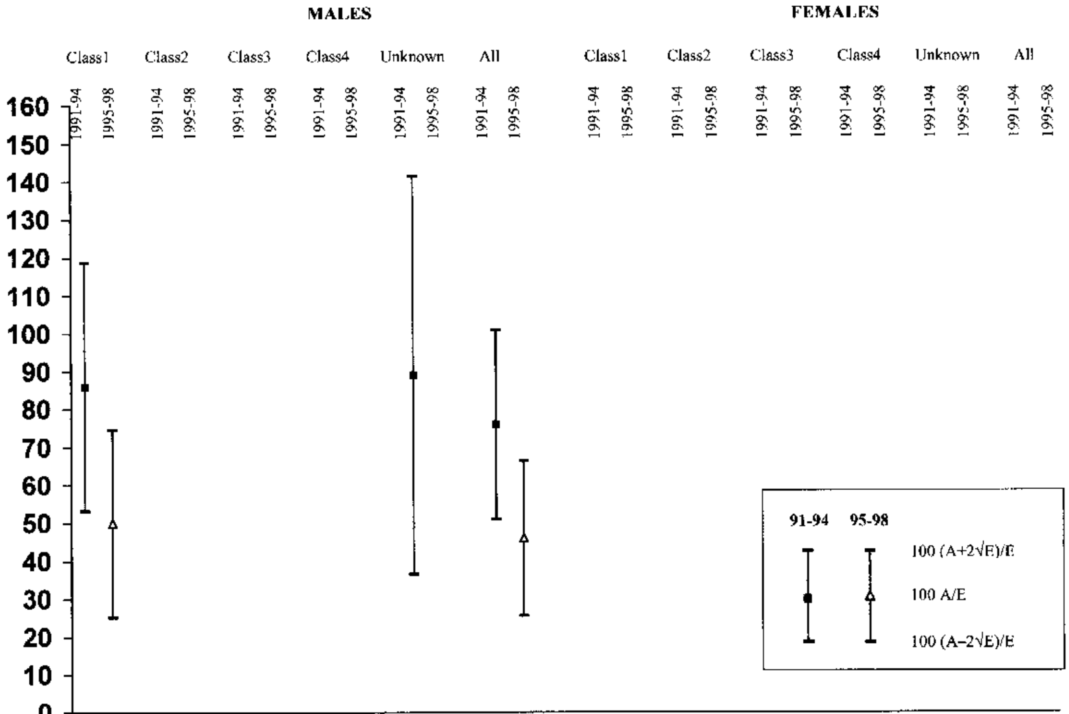
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A3.3. Males and females, individual policies, deaths, quadrennia 1991–94 and 1995–98. Deferred period 13 weeks. Compare with Table A4.2.



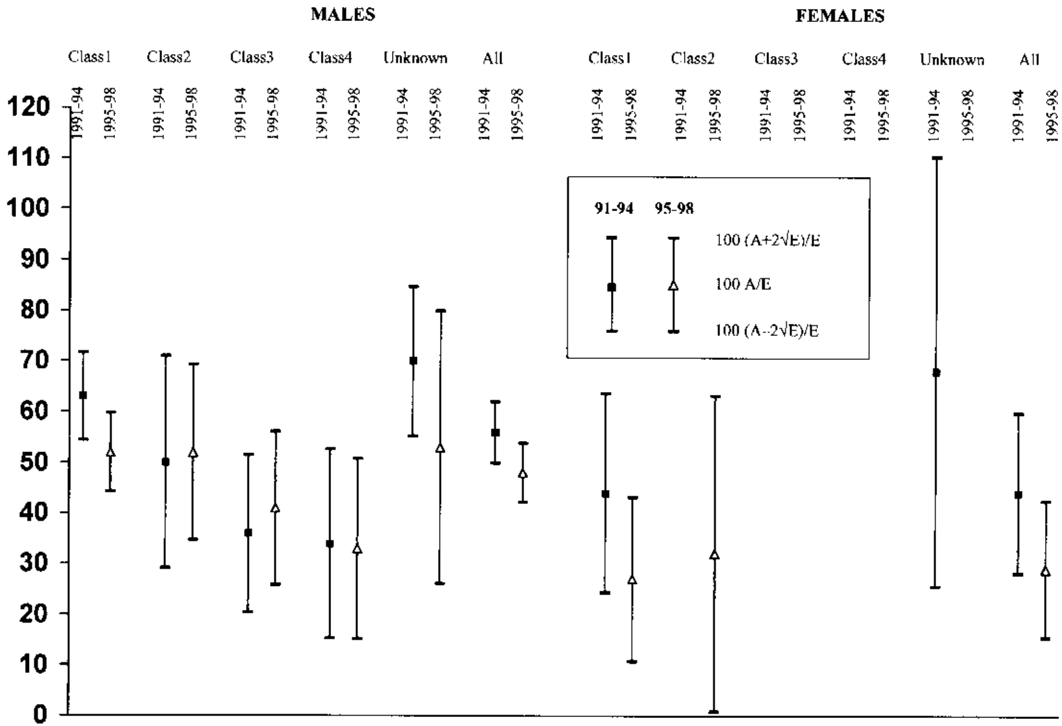
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A3.4. Males and females, individual policies, deaths, quadrennia 1991–94 and 1995–98. Deferred period 26 weeks. Compare with Table A4.2.



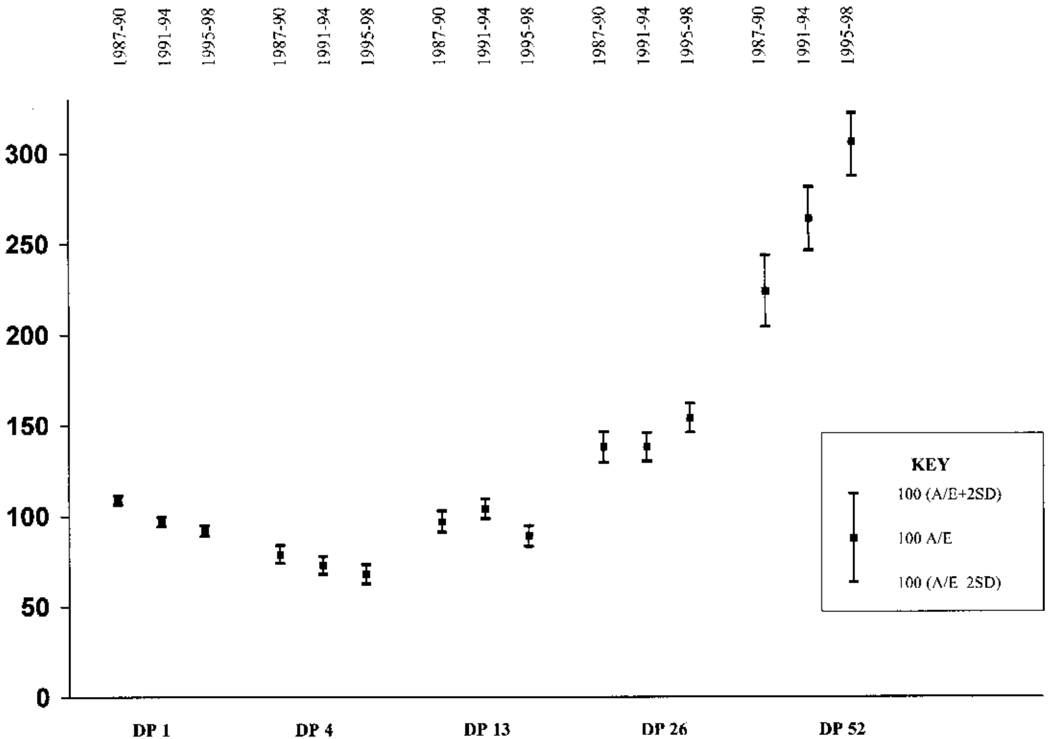
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A3.5. Males and females, individual policies, deaths, quadrennia 1991–94 and 1995–98. Deferred period 52 weeks. Compare with Table A4.2.



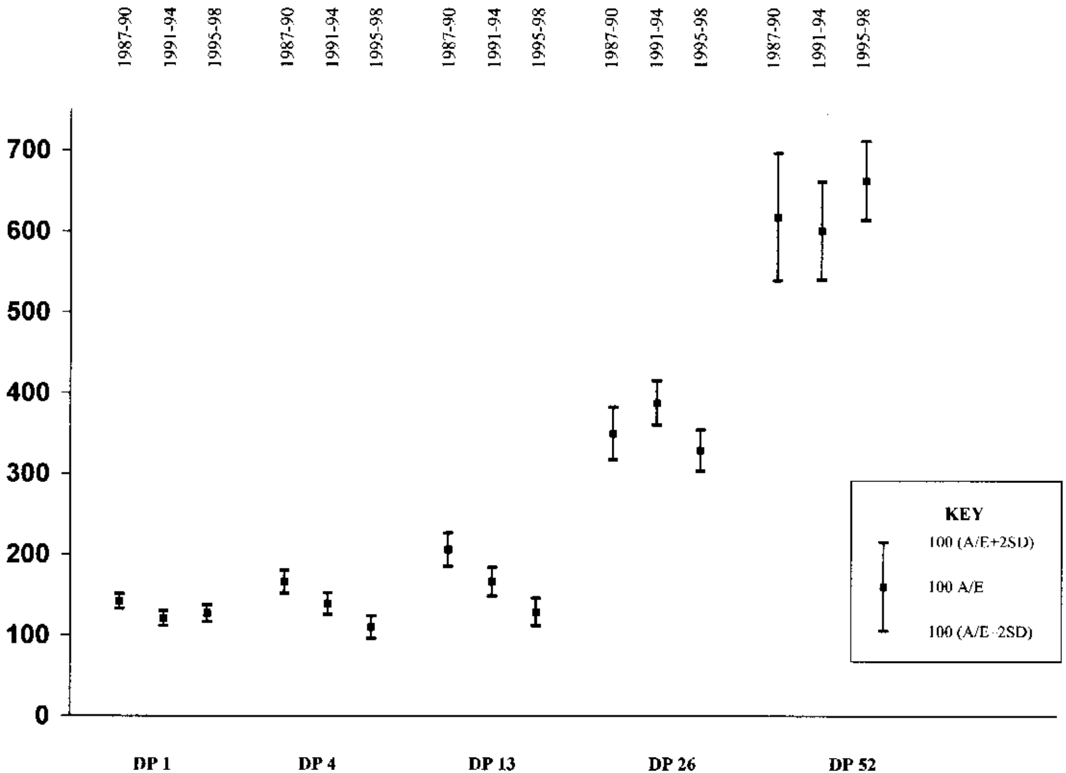
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A3.6. Males and females, individual policies, deaths, quadrennia 1991–94 and 1995–98. All deferred periods. Compare with Table A4.2.



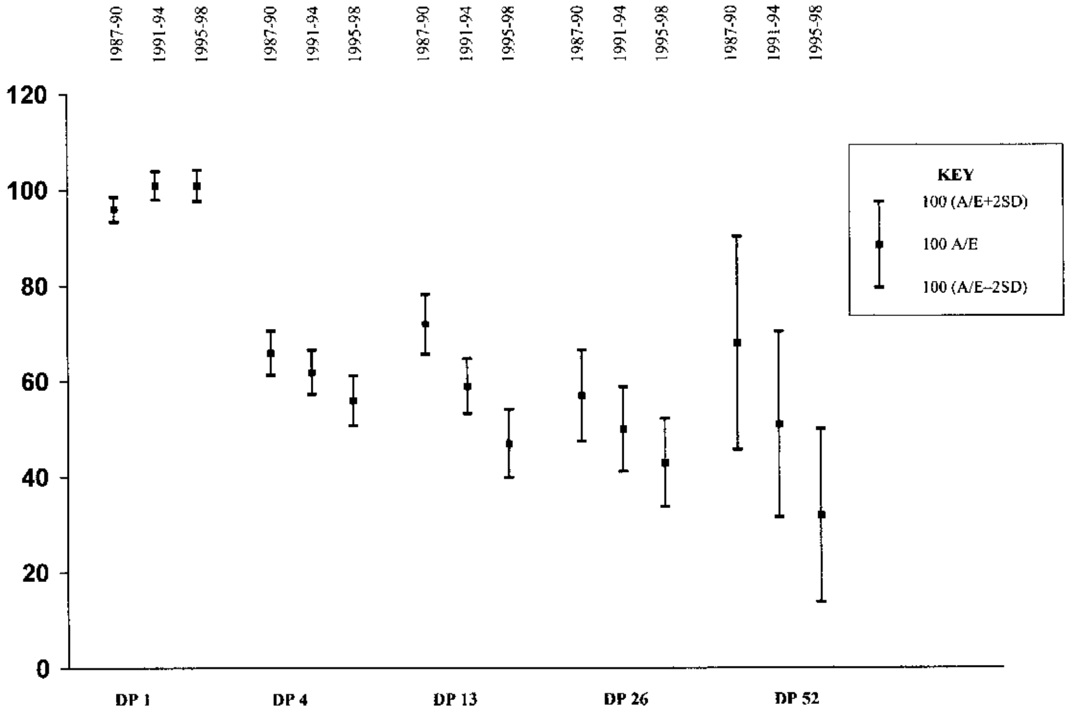
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A4.1. Offices contributing throughout 1987–98. Standard experience. Males, individual policies, inceptions, quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Compare with Tables A9.1a–A9.1e.



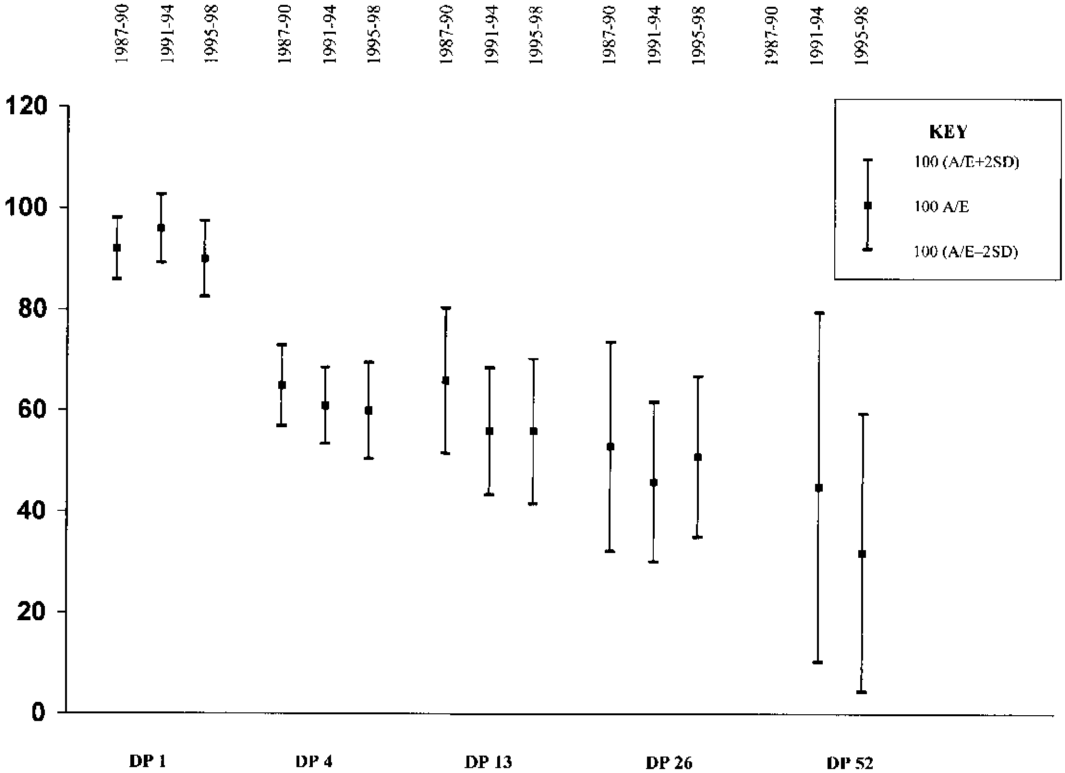
Note: Results are omitted from the above figure if based on less than 10 actual inceptions.

Figure A4.2. Offices contributing throughout 1987–98. Standard experience. Females, individual policies, inceptions, quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Compare with Tables A9.2a–A9.2e.



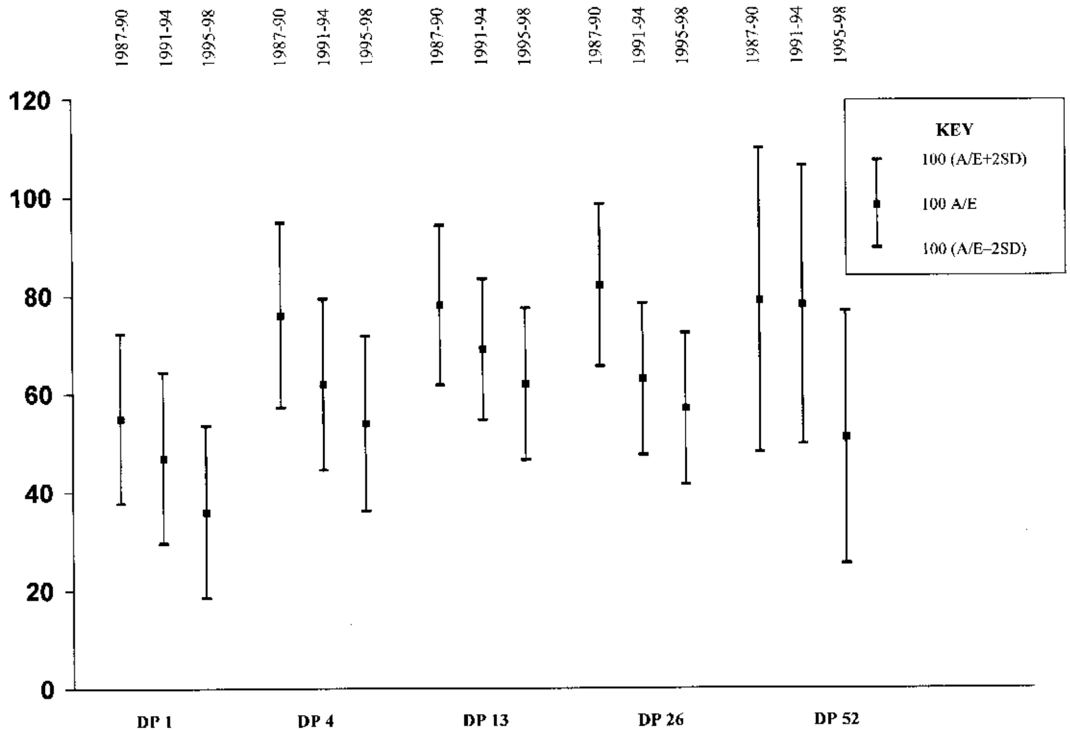
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A5.1. Offices contributing throughout 1987–98. Standard experience. Males, individual policies, recoveries, quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Compare with Tables A10.1–A10.5.



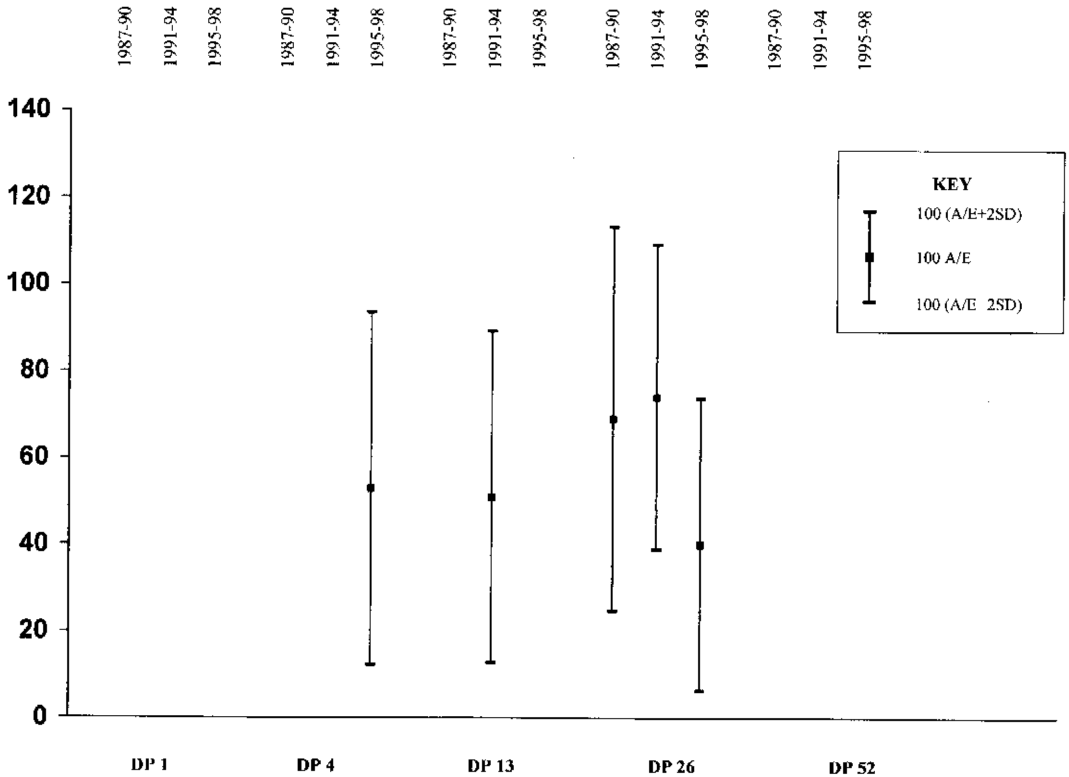
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A5.2. Offices contributing throughout 1987–98. Standard experience. Females, individual policies, recoveries, quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Compare with Tables A10.1–A10.5.



Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A5.3. Offices contributing throughout 1987–98. Standard experience. Males, individual policies, deaths, quadrennia 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26 and 52 weeks. Compare with Tables A11.1–A11.5.



Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A5.4. Offices contributing throughout 1987–98. Standard experience. Females, individual policies, deaths, quadrennia 1987–90, 1991–94 and 1995-98. Deferred periods 1, 4, 13, 26 and 52 weeks. Compare with Tables A11.1–A11.5.

CMIR **20** (2001) 261–315

SICKNESS EXPERIENCE 1995–98 FOR GROUP INCOME PROTECTION POLICIES

KEYWORDS

Group Income Protection; PHI; Terminations; Occupational class

EXECUTIVE SUMMARY

This report reflects the re-naming of the underlying product from Permanent Health Insurance (PHI) to Income Protection (IP) in line with the industry norm. It presents the results of an analysis of the claim termination experience for individual IP policies for the quadrennium 1995–98.

The analysis is based on the mathematical model for the analysis of IP data described in *C.M.I.R.* **12** (1991). The methods of analysis used for claim terminations are those described in *C.M.I.R.* **15** (1996).

The key points arising from the analysis are described below.

- Volumes of data submitted to the investigation increased from the levels of the previous quadrennium by some 38% due to new contributors joining or re-joining the investigation towards the end of the quadrennium.
- There is very little data for the shorter deferred periods DP1 and DP4. The majority of the data is concentrated in DP13, DP26 and DP52, particularly DP26.
- This is the first report analysing the group IP experience by occupational class.
- The data for earlier quadrennia had contained an "occupational rating" field which was coded either "rated" or "not rated". An elite sub-set of the overall data known as the Standard data was the subject of the main analysis for these earlier quadrennia. This contained only those policies coded as "not rated". Since 1991, offices have been asked to supply a specific occupational class in addition to the "occupational rating" field. The amount of data given a specific occupational class coding for 1991–94 did not merit an analysis by occupational class and only the Standard data was analysed. Volumes of occupationally coded data increased considerably in 1995–98 and an analysis by occupational class has been carried out.

- In order to compare experience with previous quadrennia, the Standard experience, which ignores the specific occupational class coding field, is analysed in this report.
- Recovery rates for the Standard experience were considerably lower than at the previous quadrennium for both males and females.
- Overall male and female recovery rates for the Standard experience were at similar levels in the quadrennium.
- Overall male death rates declined from the levels of the previous quadrennium but overall female death rates were at similar levels.
- The experience of individual offices varies considerably and readers are cautioned about drawing conclusions about underlying morbidity trends from the results of the all offices experience which is influenced by offices entering and leaving the investigation.
- The analysis of terminations by occupational class showed no discernible pattern for recovery rates to vary by occupational class. This applied to both males and females.
- For males, there was some evidence of a tendency for death rates to decrease with increasing occupational class. A similar pattern has been observed in recent individual IP data. Female data were too sparse to draw conclusions.

1. INTRODUCTION

Firstly it should be noted that the name of the investigation has been changed to reflect a re-naming of the underlying product that has been adopted almost universally throughout the insurance industry and the actuarial profession. The Permanent Health Insurance (PHI) investigation is now known as the Income Protection (IP) investigation and the Sub-Committee that governs the investigation has been similarly re-named.

It may take some time to reflect this change in all the various computer systems that collect, validate and analyse the data, so we ask our members to bear with us if the old and new name appear for a while on output that they receive.

A number of reports have been published to date covering the sickness experience for group IP policies.

The first report, published in *C.M.I.R.* **5**, 51 (1981) described the experience of 1973–76 and compared actual weeks of sickness with those expected on the basis of the Manchester Unity A.H.J. table. Inception rates for quinquennial age groups were also tabulated.

The second report, *C.M.I.R.* **8**, 89 (1986) described the experience of 1975–78. The main basis of comparison was again the Manchester Unity A.H.J. table of sickness rates. Some comparisons were carried out against both sickness rates and inception rates derived from the 1975–78 individual Standard experience as set out in *C.M.I.R.* **7**, 99 (1984).

A third report, *C.M.I.R.* **15**, 209 (1996) covered the experience of 1979–82 and 1983–86 and compared Manchester Unity-type sickness rates and inception rates with those expected on the basis of the 1975–78 individual Standard experience. The report also contained some commentary on the variation of experience between the eight offices whose experience was analysed.

The above reports all relied on the traditional Manchester Unity approach to analysing IP data. Most practical IP pricing has for many years been based around an inception/disability annuity approach. Although some analysis of inception rates had been carried out in these reports, they contained no analysis of termination rates. *C.M.I.R.* **12** introduced a multiple state model for IP which reconciled the two approaches. The individual male Standard data for 1975–78 was used to develop graduated transition intensities between healthy and sick, sick and healthy and sick and dead. *C.M.I.R.* **12** described how inception rates, disability annuities and other functions could be derived from these basic building blocks.

Four further reports used the model to compare the experience of subsequent data sets with the graduated rates based on individual Standard data for 1975–78.

The first of these, *C.M.I.R.* **15**, 1, compared actual and expected inceptions for, *inter alia*, the quadrennia 1975–78, 1979–82 and 1983–86 in respect of group IP business. The report described the methodology used to analyse inceptions.

A second report, *C.M.I.R.* **15**, 51, compared actual and expected recoveries and deaths of those sick and claiming under IP policies for, *inter alia*, group IP business in 1975–78, 1979–82 and 1983–86. The report described the methodology that has been used to analyse claim terminations in this report.

The third report, *C.M.I.R.* **16**, 143 (1998), covered the experience of 1987–90 and used the methodology of the two reports in *C.M.I.R.* **15** to analyse inception and termination rates of group IP business.

The most recent report, *C.M.I.R.* **18**, 89 (2000), covered the experience of 1991–94 and used the methodology of *C.M.I.R.* **15**, 51 to analyse termination rates of group IP business.

Group IP business can be sub-divided into two basic types, individually costed and unit costed. Individually costed business involves a premium being calculated separately for each person in the scheme. Full records of the in force by age and sex are available and can be passed to the C.M.I. Bureau each year for analysis. This permits a detailed analysis of claim inceptions and claim terminations as well as Manchester Unity-type sickness rates. Unit costed business has premiums calculated on the basis of a single rate for all and records of in force by age and sex are not generally available on an annual basis. Claim records have, however, been collected by the C.M.I. Bureau which permits an analysis of claim terminations but not of claim inceptions or Manchester Unity-type sickness rates.

Due to the continuing decline in individually costed data it has not been possible to produce a meaningful analysis of inception experience for 1995–98. This was anticipated in *C.M.I.R.* **18** and was also the case for 1991–94.

It has also previously been announced that, with effect from 1999, in force data for this business will no longer be collected. Therefore the results published in *C.M.I.R.* **16** in respect of 1987–90 are the final set of results published by the C.M.I. Bureau in respect of group IP claim inceptions.

Since 1991, the data collected has included each office's own occupational class field (see 2.2 below), but for the 1991–94 quadrennium the level of data split by occupational class was thought to be too low for a meaningful analysis split by occupational class. Happily, the number of records containing this rating has increased sharply for the 1995–98 quadrennium and an analysis has been performed.

This report therefore describes the analysis of termination rates of group IP business for the quadrennium 1995–98, including an analysis by occupational class.

2. THE DATA

2.1 *Description of the data*

The data supplied to the C.M.I. Bureau is detailed and consists of at least one record for each claim in payment at any time in the quadrennium. Each claim which is in force during an investigation year will generate one or more records for that year, thus one claim which spans several years will generate at least one separate record in each investigation year.

Each record contains information on the attributes of the policy and details of the duration and other features of the claim. A full description of the data was given in *C.M.I.R.* **5**, 82–90, although a few amendments have been made subsequently, notably the addition, since the 1991 investigation year, of a field to record the office's own occupational class code.

2.2 *Occupational class data*

The approach adopted to investigate the effect of occupational class is the same as that used in respect of the individual IP investigation and described in *C.M.I.R.* **18**, 3. Offices submit data using their own internal class coding field. Each internal class code is then converted to the most appropriate of four C.M.I. standard classes for analysis purposes, based on an inspection of internal rating guides kindly provided by the office. The classes used by the C.M.I. Bureau can broadly be described as follows:

Class 1 Professional, managerial, executive, administrative and clerical classes not engaged in manual labour.

Class 2 Master craftsmen and tradesmen engaged in management and supervision; skilled operatives engaged in light manual work in non-hazardous occupations.

Class 3 Skilled operatives engaged in manual work in non-hazardous occupations.

Class 4 Skilled and semi-skilled operatives engaged in heavy manual work or subject to special hazard.

There will undoubtedly be inconsistencies introduced and the same life insured by two different offices could, in some cases, end up in two different C.M.I. classes. However, the IP Sub-Committee believes that there will still be useful information to be gained from the analysis.

2.3 *The Standard* subset*

Since the 1975–78 quadrennium, the main analyses carried out by the Bureau have been based on an elite subset of the overall data known as the ***Standard*** data. The Standard data consists of UK policies with no occupational rating, no special benefit types (e.g. lump sums) and no identifiable underwriting exclusions. Since 1991 offices have submitted data containing the old "occupational rating" field and the new occupational class coding field. It is apparent from an examination of the data that some offices have interpreted occupationally rated as "not Class 1" and others have adopted a different definition. This is likely to have been the case in previous quadrennia. It would be erroneous to assume that the group IP Standard data is essentially Class 1. It clearly contains a broad range of occupational classes.

To make use of the occupational information a new subset of the total, or ***Aggregate***, data has been defined. This uses the same criteria as for the Standard data but ignores completely the contents of the "occupational rating" field. It therefore represents a larger subset than the Standard data and consists of UK polices with no special benefit types and no identifiable underwriting exclusions and has been designated ***Standard****.

The termination experience for the Standard* data is presented for the four occupational classes described above. Not all offices, however, could provide a complete breakdown of their business by occupational class for all their data. This might arise for a number of reasons:

- None of the data could be coded by occupational class for any year.
- Coding by occupational class was possible for some years (usually the later years) only.
- Only part of the office's portfolio can be coded by occupational class.

This required a fifth subset of the Standard* data, "Class Unknown", to be analysed. This presents no special problems with the analysis of terminations.

It is likely that for the future the Standard* experience only will be published. For the purposes of comparability with previous quadrennia this report also contains the results of the Standard experience used in previous reports.

The relationship between Aggregate, Standard and Standard* is illustrated in Figure 1 below.

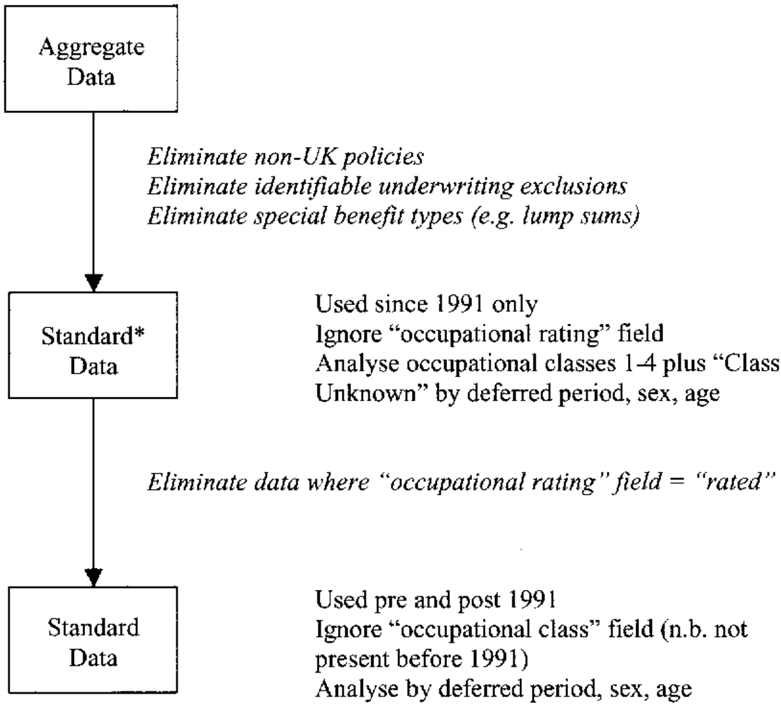


Figure 1. Aggregate, Standard* and Standard data. Definition and analysis.

2.4 *Features of the data*

A detailed breakdown of the data analysed by attribute is given in Table A1 of the Appendix. It shows for the Aggregate data, together with the Standard* subset, the number of claims records summed across the four year period.

The following features emerge from this table and an examination of similar tables in respect of earlier quadrennia.

Figure 2 below shows the comparison of the volume of Aggregate in force and claims records submitted for group IP business against the previous three quadrennia. The claims volumes are measured by the total number of claims records received.

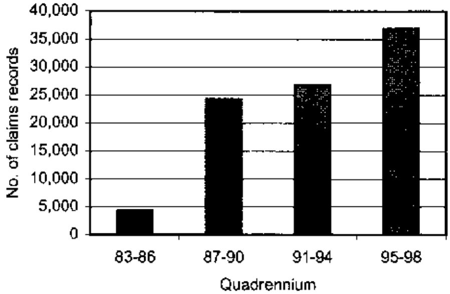


Figure 2. Comparison of volumes of Aggregate data for group IP business in 1983–86, 1987–90, 1991–94, and 1995–98.

The volume of data has increased from the amount collected in the previous quadrennium. The effect of recruiting new offices to the investigation, and getting lapsed contributors to rejoin, is also seen when looking at the volume of data contributed in each of the four years of the quadrennium as shown in Figure 3 below. Assuming that the 1998 contributors will remain, there should be another marked increase in volumes in 1999–2002. The IP Sub-Committee is keen to ensure that the investigation has access to the largest possible volume of industry data and any new contributors are always welcome.

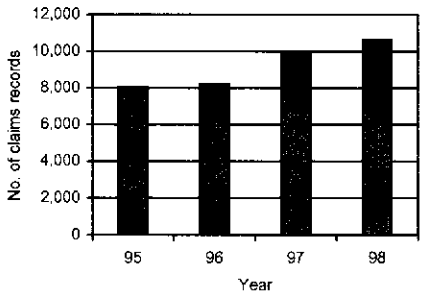


Figure 3. Comparison of volumes of Aggregate data for group IP business in 1995, 1996, 1997 and 1998.

The Standard* data represents about 98% of the Aggregate claims data. The difference is mainly accounted for by Republic of Ireland business.

The breakdown of the Aggregate data and Standard* subset by deferred period is shown in Table 1 below.

Table 1. Group IP 1995–98. Aggregate and Standard* data. Percentage of data by deferred period.

	Claims records			
	Aggregate		Standard*	
Deferred period	No of claim records	%	No. of claim records	%
1 week	124	0	124	0
4 weeks	630	2	624	2
13 weeks	4,759	13	4,653	13
26 weeks	23,940	65	23,356	65
52 weeks	7,439	20	7,387	20
	36,892	100	36,144	100

Table 1 shows the breakdown of the Aggregate and Standard* data by deferred period. The proportions are almost identical for each data set. There is very little data for the two shorter deferred periods and the experience is dominated by the 26 week deferred period business.

Approximately 30% of the Aggregate data and Standard* data were female lives. These figures compare with 21% of the Aggregate data for the 1991–94 quadrennium. This continues the trend for a greater proportion of the data relating to female lives to be seen in each successive investigation.

Table 2 shows the breakdown of claims records split by occupational class for Aggregate data and Standard* data.

A second, perhaps more informative, way of looking at volumes of data is by the number of significant 'events' – claim inceptions and claim terminations by recovery and death. A breakdown of the Standard* experience by analysed

Table 2. Group IP 1995–98 claims. Aggregate and Standard* data. Percentage of data by occupational class.

	Claims records (%)	
CMI allocated occupational class	Aggregate 1995–98	Standard* 1995–98
Class 1	26	26
Class 2	13	13
Class 3	11	11
Class 4	11	11
Class Unknown	39	39
	100	100

events for each occupational class within each deferred period is shown in Table 3 below.

Table 3. Group IP 1995–98. Volumes of data by number of analysed events. Standard* data by occupational class within deferred period.

Occupational class	No. of recoveries		No. of deaths	
	No.	%	No.	%
DP1				
Class 1	18	*72*	–	–
Class 2	5	*20*	–	–
Class 3	0	*0*	–	–
Class 4	1	*4*	–	–
Class Unknown	1	*4*	–	–
	25		–	
DP4				
Class 1	12	*11*	1	*20*
Class 2	13	*12*	0	*0*
Class 3	58	*55*	0	*0*
Class 4	16	*15*	0	*0*
Class Unknown	7	*7*	4	*80*
	106		5	
DP13				
Class 1	192	*31*	36	*31*
Class 2	50	*8*	9	*8*
Class 3	43	*7*	11	*9*
Class 4	16	*3*	2	*2*
Class Unknown	327	*51*	59	*50*
	628		117	
DP26				
Class 1	366	*27*	176	*29*
Class 2	196	*15*	76	*13*
Class 3	94	*7*	54	*9*
Class 4	143	*11*	44	*7*
Class Unknown	526	*40*	257	*42*
	1,325		607	
DP52				
Class 1	91	*34*	35	*26*
Class 2	27	*10*	17	*13*
Class 3	27	*10*	8	*6*
Class 4	28	*10*	10	*8*
Class Unknown	99	*36*	63	*47*
	272		133	

Key features of this table are as follows:

- It can be seen that, where data could be coded by occupational class, the most data were in Class 1 apart from DP4 recoveries which were concentrated in Class 3.
- DP1 and DP4 contained little recovery data and no / very little deaths data.
- For DP13, DP26 and DP52 a fairly large proportion of the data could not be classed by occupation, although this is lower than for the previous quadrennium where the volume of occupational data did not merit analysis.

3. CLAIMS EXPERIENCE – STANDARD DATA

3.1 *Terminations*

Although it is envisaged that the main thrust of future data analysis will be by occupational class (using the Standard* data set), it is not possible to compare such an analysis with the experience of quadrennia prior to 1995–98, little occupational data being available for 1991–94. For this reason, the Standard experience for 1995–98 was analysed and compared with earlier Standard experiences.

The methodology for analysing the claim termination experience for IP business was set out in *C.M.I.R.* **15**, 51. The same methodology and table layout is used in this report. Actual deaths and recoveries are compared with those expected on the basis of the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78.

Table A2 of the Appendix contains a comparison of the values of 100A/E, for all ages and durations combined, with those applying to the previous five quadrennia. Values based on fewer than 30 events are shown in *italic*; values where the value of either $p(+/-)$ or $p(B)$ is less than 0.025 are shown in **bold**. No results are shown where the number of actual events is less than 10.

The results in Table A2 are illustrated graphically in Figures A1.1–A1.4 in the Appendix. In addition to the 100A/E results shown in the tables, the figures also illustrate a confidence interval, the lower limit being $100(A - 2\sqrt{E})/E$ and the upper limit being $100(A + 2\sqrt{E})/E$. As with Table A2, no results are shown when the number of actual events is less than 10.

The detailed results and statistical analysis of the results are summarised in Tables A3.1–A3.4 of the Appendix for male recoveries, male deaths, female recoveries and female deaths respectively. Readers are referred to the report in *C.M.I.R.* **15** for a full description of the tables and the statistical analysis used.

Note that the statistical analysis is carried out on two bases for expected events. Firstly, they are based on "E", the expected events on the basis of the males, individual policies, Standard experience for 1975–78. Secondly, they are based on "adjusted E", which is equal to the expected number of events multiplied by the overall ratio of actual to expected events for that combination of sex, deferred period and type of event. The purpose of this dual statistical analysis is to indicate whether any lack of fit relates only to the level of the comparison basis rather than the "shape".

The following features are apparent:

- For DP1 and DP4 the data are very sparse and confidence intervals, where they are shown, are very wide.
- For DP13, DP26 and DP52 recovery rates are significantly lower than at the previous quadrennium for both males and females. Only the DP13 males had overlapping confidence intervals for the two quadrennia. Overall male recovery rates reduced from 69% in 1991–94 to 49% in 1995–98 and for females from 80% to 51%. Male and female recovery rates were at a similar level.
- For both male and female recoveries, there is a tendency for A/E values to increase as duration increases for claim durations over 1 year. There is no readily apparent pattern for A/E to vary with age, apart from the highest A/E values appearing in the highest age group, 60–64. This may possibly relate, in part, to mis-coding policy expiries as recoveries.
- Overall male death rates have declined from 92% of expected in the previous quadrennium to 78% of expected in 1995–98. The reduction was observed for DP13, DP26 and DP52.
- Overall female death rates were at similar levels in the two quadrennia, being 87% of expected in 1991–94 and 86% of expected in 1995–98.

Readers must exercise caution when attempting to draw conclusions about trends from these results. There is considerable variation in experience between offices and the combined results can be influenced significantly by changes in the mix of offices contributing from year to year. Other factors may also mask any trends in the underlying morbidity, for example changes to underwriting practices or claims control procedures.

4. OCCUPATIONAL CLAIMS EXPERIENCE – STANDARD* DATA

4.1 *Terminations*

The same methodology is used for analysing the Standard* data set as was used to analyse the Standard data as described above.

Actual deaths and recoveries are compared with those expected on the basis of the *C.M.I.R.* **12** model parameterised using the males, individual policies, Standard experience for 1975–78. The results are presented in the basic format introduced in *C.M.I.R.* **15**, 51. The experience for each sex and deferred period is subdivided into six elements for Classes 1–4, Class Unknown and all business combined.

Table A4 of the Appendix shows a summary of the experience by sex, deferred period and occupational class. The figures represent 100A/E for all ages and durations combined. The figures are in *italic* if the number of actual events is less than 30 and omitted completely if the number of actual events is less than 10. Values where the value of $p(+/-)$ or $p(B)$ is less than 0.025 are shown in **bold**.

The results in Table A4 are also shown graphically in Figures A2.1–A2.4 in the Appendix. In addition to the 100A/E shown in the tables, the figures also illustrate a confidence interval, the lower limit being $100(A - 2\sqrt{E})/E$ and the upper limit being $100(A + 2\sqrt{E})/E$. As with Table A4, no results are shown when the number of actual events is less than 10.

The detailed results by duration of sickness and age group together with the results of the various statistical tests are shown in Tables A5–A8 of the Appendix. These deal with male recoveries, male deaths, female recoveries and female deaths respectively. Each table is further sub-divided into six sections by occupational class. For example, Table A5 is sub-divided as follows:

Table A5.1	Class 1
Table A5.2	Class 2
Table A5.3	Class 3
Table A5.4	Class 4
Table A5.5	Class Unknown
Table A5.6	All business

Readers are referred to the report in *C.M.I.R.* **15** for a full description of the tables and the statistical tests used. Where the volume of data is sparse, less than 10 actual results, the sub-division of the table is omitted for the relevant occupational class.

Note that the statistical analysis is carried out on two bases for expected events. Firstly, they are based on "E", the expected events on the basis of the males, individual policies, Standard experience for 1975–78. Secondly, they are based on "adjusted E", which is equal to the expected number of events multiplied by the overall ratio of actual to expected events for that combination of sex, deferred period, occupational class and type of event. The purpose of this dual statistical analysis is to indicate whether any lack of fit relates only to the level of the comparison basis rather than the "shape".

The following features are apparent:

- For male recoveries, there is no strong influence of occupational class on overall recovery rates. This applies to the experience of all deferred periods combined and each deferred period in isolation.
- For female recoveries, data are more sparse and no clear pattern for recovery rates to increase or decrease with occupational class emerges.
- For male deaths, data are sparse but there is some evidence for mortality rates to decrease from Class 1 through to Class 4. A similar effect has been observed in the individual IP investigation for 1991–94 and 1995–98.
- For female deaths, data are too sparse to draw any conclusions.

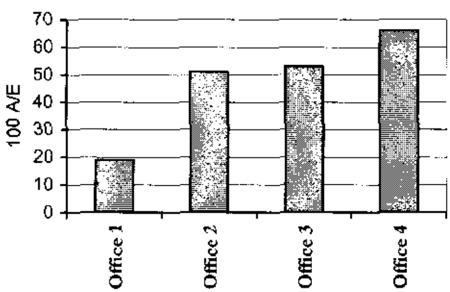
There are no prior quadrennia with which to compare the results for the 1995–98 Standard* experience for group IP business. Readers are again cautioned that the experience of contributing offices does differ significantly.

5. VARIATION BETWEEN OFFICES

The variation in experience between offices has been referred to earlier in this paper. The C.M.I. Bureau has been cautious when addressing this issue for fear of compromising the confidentiality of the investigation. Problems can also arise when, as might be otherwise desirable, an indication is given (directly or indirectly) as to the volume of data underlying an A/E figure. The problem is particularly acute when sections of the data are dominated by small numbers of offices. This is a feature of the group IP investigation.

However, in order to give an indication of the variation, Figures 4(a)–4(b) below have been compiled for DP13 and DP26 business only. Other deferred periods had few offices with significant volumes of data when taken in isolation.

(a) Deferred period 13 weeks



(b) Deferred period 26 weeks

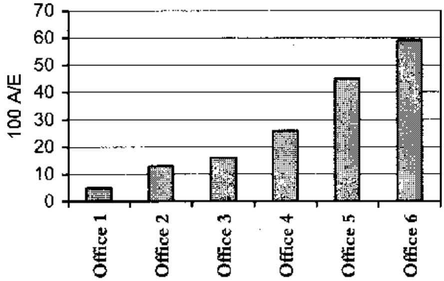


Figure 4. Variation of claim recovery rates by office. 100A/E for those offices having E $\geq$ 30. Males, Standard experience. Deferred periods 13 weeks and 26 weeks.

Each figure shows, for each office where there are 30 or more expected recoveries, the value of 100 A/E in respect of recoveries for all ages and durations combined. The figures relate to the male Standard experience only.

The offices have been arranged in ascending order of recovery rates from left to right. Office numbering is not therefore consistent for the two deferred periods (e.g. office 1 may be a different office for the two deferred periods).

For confidentiality reasons the figures do not indicate credibility and random variations will inevitably contribute to the variation in the results. It is clear, though, that the experience of different offices' portfolios can differ markedly. This reinforces the point that great care must be taken when using the results derived from an industry investigation for pricing and valuation purposes.

The wide variation in experience also, as already discussed, leads to problems in discerning trends when offices join or leave the investigation from year to year. In the paper describing the individual IP experience for 1995–98 this issue was addressed, in part, by following the experience of a core group of offices who had contributed data throughout that quadrennium and the two previous quadrennia. Unfortunately, this approach was not possible for the group investigation due to the smaller number of offices contributing and the comings and goings from year to year. Thus, we can only repeat the earlier warnings about the dangers of drawing interpretations about long-term trends from the results of successive quadrennia containing different mixes of offices.

6. CONTRIBUTING OFFICES

The Executive Committee and IP Sub-Committee would like to thank the following offices which have contributed data to this investigation. The office names given are, generally, those applying at the time of submission.

Eagle Star	Scottish Life
Friends Provident	Sun Alliance
Guardian	Swiss Life
Norwich Union	UNUM

Table A1. Group IP policies, 1995–98. Aggregate and Standard* data. Individually costed and unit costed combined. Number of claims records for each investigation year summed across the four year period.

		Aggregate	Standard*
	Attribute	Claims records	Claims records
Sex	Male	25,770	25,192
	Female	11,122	10,952
Country	UK	36,172	36,144
	Republic of Ireland	628	0
	Isle of Man	10	0
	Channel Islands	82	0
Occupational Rating	Not rated	27,403	26,762
	Rated	6,445	6,368
	Unknown	3,044	3,014
Benefit Type	Level	9,072	8,708
	Increasing	27,819	27,435
	Decreasing	1	1
	Other	0	0
Medical Evidence	Medical	1,893	1,696
	Non-medical	2,189	2,025
	Non-selection	26,136	25,799
	Unknown	6,674	6,624
Premium Type	Level annual	1,685	1,427
	Recurrent single	32,423	31,933
	Increasing annual	2,784	2,784
	Other	0	0
Underwriting Impairment	No extra risk	30,239	29,553
	Hypertension	11	0
	Neurosis	22	0
	Exclusion possible	6,616	6,591
	Unknown impairment	0	0
	Other	4	0
CMI Occupational Class	Class 1	9,760	9,520
	Class 2	4,620	4,535
	Class 3	3,899	3,833
	Class 4	3,969	3,884
	Class Unknown	14,644	14,372
Investigation Year	1995	8,071	7,859
	1996	8,220	8,046
	1997	9,958	9,776
	1998	10,643	10,463
	Total records	36,892	36,144

Table A2. Summary of termination experience for group IP claims 1975–98. Individually costed and unit costed combined. Standard experience.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
(a) Males, recoveries						
1975–78	*59*	102	111	59	–	74
1979–82	74	83	77	40	*41*	52
1983–86	*63*	*77*	60	**31**	*29*	39
1987–90	*64*	–	61	**69**	88	**69**
1991–94	–	–	62	**71**	76	**69**
1995–98	*82*	*23*	**52**	**49**	47	49
(b) Females, recoveries						
1975–78	–	*54*	*112*	66	–	72
1979–82	–	*78*	75	35	–	46
1983–86	–	–	66	33	–	43
1987–90	–	–	83	**63**	*55*	**67**
1991–94	–	–	77	79	*92*	**80**
1995–98	–	–	51	50	54	51
(c) Males, deaths						
1975–78	–	–	203	204	*167*	199
1979–82	–	–	93	96	*97*	94
1983–86	–	–	121	**116**	96	114
1987–90	–	–	78	83	88	83
1991–94	–	–	110	90	85	92
1995–98	–	–	71	83	68	78
(d) Females, deaths						
1975–78	–	–	–	*120*	–	*92*
1979–82	–	–	–	91	–	91
1983–86	–	–	*88*	62	–	64
1987–90	–	–	*79*	**71**	–	69
1991–94	–	–	*81*	83	*115*	87
1995–98	–	–	87	90	72	86

Note: *Italic* if actual number of recoveries or deaths is less than 30. Not shown if actual number of recoveries or deaths is less than 10. **Bold** if either $p(+/-)$ or $p(B) < 0.025$ for adjusted E.

Table A3.1. Males, group policies, 1995–98, Standard experience, recoveries.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	18	12	301	662	134	1,127
E	22.0	51.2	580.8	1,344.0	286.7	2,284.7
100*A*/*E*						
Durations:						
1–8 weeks	↓	↓	–	–	–	*59*
8–13 weeks	↓	↓	–	–	–	*20*
13–17 weeks	↓	*19*	*27*	–	–	*28*
17–26 weeks	↓	↓	43	–	–	43
26–30 weeks	↓	↓	71	27	–	40
30–39 weeks	↓	↓	67	36	–	41
39 wks–1 yr	↓	↓	*51*	50	–	50
1–2 years	↓	↓	82	55	42	54
2–5 years	↓	↓	↓	62	50	58
5–11 years	*82*	*31*	*57*	71	*69*	70
Ages:						
18–24	–	–	*30*	*49*	↓	43
25–29	–	↓	54	52	*73*	56
30–34	–	↓	58	61	*35*	57
35–39	–	↓	50	44	*44*	45
40–44	↓	↓	52	46	*46*	47
45–49	↓	*18*	60	48	*53*	50
50–54	↓	↓	42	49	*34*	44
55–59	↓	↓	*53*	45	↓	50
60–64	*82*	*30*	*68*	57	*55*	61
All cells	*82*	*23*	52	49	47	49
Using *E*						
Σz^2	0.57	27.49	152.14	361.79	80.14	597.37
df	1	4	37	47	15	69
$p(\chi^2)$	0.45	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	0/1	0/4	1/36	1/46	0/15	0/69
p(+/–)	1.0	0.13	**0.0000**	**0.0000**	**0.0001**	**0.0000**
p(*B*)	1.0	1.0	0.603	0.172	1.0	1.0
Using adjusted *E*						
Σz^2	–	–	40.44	63.02	3.89	71.48
df	–	–	21	37	9	55
$p(\chi^2)$	–	–	**0.0066**	**0.0048**	0.92	**0.0668**
#(+/–)	–	–	12/10	19/19	5/5	27/29
p(+/–)	–	–	0.83	1.0	1.0	0.89
p(*B*)	–	–	**0.025**	**0.001**	0.983	0.192

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and *p*(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. *p*(*B*) is shown as **bold** if less than 0.050.

Table A3.2. Males, group policies, 1995–98, Standard experience, deaths.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	2	58	320	76	456
E	1.2	4.5	81.9	386.3	112.5	586.4
100*A*/*E*						
Durations:						
1–26 weeks	↓	↓	↓	–	–	*72*
26–30 weeks	↓	↓	↓	*91*	–	*77*
30–39 weeks	↓	↓	*63*	94	–	88
39 wks–1 yr	↓	↓	↓	78	–	71
1–2 years	↓	↓	*65*	110	83	100
2–5 years	↓	↓	↓	61	73	66
5–11 years	–	*45*	*83*	77	*39*	70
Ages:						
18–29	–	↓	↓	↓	↓	*74*
30–34	–	↓	↓	*89*	↓	*89*
35–39	–	↓	↓	*78*	↓	*75*
40–44	↓	↓	*76*	91	*60*	83
45–49	↓	↓	↓	85	*54*	78
50–54	↓	↓	*70*	103	*60*	87
55–59	↓	↓	↓	71	↓	78
60–64	–	*45*	*68*	*58*	85	50
All cells	–	*45*	71	83	68	78
Using *E*						
Σz^2	0.40	0.87	6.19	54.37	15.11	66.22
df	1	1	7	25	8	31
$p(\chi^2)$	0.53	0.35	0.52	**0.0006**	0.0571	**0.0002**
#(+/–)	0/1	0/1	0/7	7/18	0/8	6/25
p(+/–)	1.0	1.0	**0.0156**	**0.0433**	**0.0078**	**0.0009**
p(*B*)	1.0	1.0	1.0	0.446	1.0	0.123
Using adjusted *E*						
Σz^2	–	–	0.43	49.72	5.57	47.31
df	–	–	4	20	4	24
$p(\chi^2)$	–	–	0.98	**0.0002**	0.23	**0.0031**
#(+/–)	–	–	2/3	10/11	3/2	10/15
p(+/–)	–	–	1.0	1.0	1.0	0.42
p(*B*)	–	–	0.857	0.105	0.499	0.656

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and *p*(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. *p*(*B*) is shown as **bold** if less than 0.050.

Table A3.3. Females, group policies, 1995–98, Standard experience, recoveries.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	4	243	501	110	858
E	6.2	12.9	474.2	994.2	203.0	1,690.5
$100A/E$						
Durations:						
1–17 weeks	↓	↓	42	–	–	40
17–26 weeks	↓	↓	38	–	–	37
26–30 weeks	↓	↓	*55*	*20*	–	31
30–39 weeks	↓	↓	73	37	–	43
39 wks–1 yr	↓	↓	99	51	–	59
1–2 years	↓	↓	*39*	60	45	54
2–5 years	↓	↓	↓	60	↓	62
5–11 years	–	*31*	*70*	106	68	105
Ages:						
18–24	–	–	*49*	*43*	↓	51
25–29	–	↓	39	48	*52*	43
30–34	–	↓	55	*51*	*43*	*51*
35–39	–	↓	59	42	*63*	49
40–44	–	↓	*51*	46	*65*	50
45–49	↓	↓	*47*	54	*36*	49
50–54	–	↓	62	58	↓	58
55–59	–	*31*	↓	↓	↓	↓
60–64	–	–	*62*	60	*68*	64
All cells	–	*31*	51	50	54	51
Using E						
Σz^2	5.20	5.51	128.91	273.78	46.89	451.56
df	1	1	31	41	12	55
$p(\chi^2)$	**0.0226**	**0.0189**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$\#(+/-)$	0/1	0/1	1/30	3/38	1/11	3/52
$p(+/-)$	1.0	1.0	**0.0000**	**0.0000**	**0.0063**	**0.0000**
$p(B)$	1.0	1.0	1.0	0.037	1.0	**0.002**
Using adjusted E						
Σz^2	–	–	45.02	74.26	8.15	97.30
df	–	–	20	30	7	45
$p(\chi^2)$	–	–	**0.0011**	**0.0000**	0.32	**0.0000**
$\#(+/-)$	–	–	10/11	15/16	4/4	22/24
$p(+/-)$	–	–	1.0	1.0	1.0	0.88
$p(B)$	–	–	0.499	**0.044**	0.913	0.216

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A3.4. Females, group policies, 1995–98, Standard experience, deaths.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	35	155	32	222
E	0.3	1.1	40.1	172.9	44.3	258.7
$100A/E$						
Durations:						
1–30 weeks	↓	↓	↓	↓	–	*79*
30–39 weeks	↓	↓	↓	*72*	–	*63*
39 wks–1 yr	↓	↓	*61*	*96*	–	*85*
1–2 years	↓	↓	↓	116	*110*	117
2–5 years	↓	↓	↓	88	↓	75
5–11 years	–	–	*121*	*58*	*44*	*63*
Ages:						
18–29	–	↓	↓	↓	↓	*45*
30–34	–	↓	↓	*75*	↓	*90*
35–39	–	↓	*45*	*68*	↓	*64*
40–44	–	↓	↓	*47*	*50*	*35*
45–49	↓	↓	↓	90	↓	103
50–54	–	↓	↓	108	↓	102
55–64	–	–	*113*	128	*87*	120
All cells	–	–	87	90	72	86
Using E						
Σz^2	0.00	0.30	5.36	14.70	8.64	31.66
df	1	1	3	14	4	19
$p(\chi^2)$	**0.0000**	0.58	0.15	0.40	0.0706	**0.0342**
$\#(+/-)$	0/1	0/1	1/2	4/10	1/3	7/12
$p(+/-)$	1.0	1.0	1.0	0.18	0.63	0.36
$p(B)$	1.0	1.0	0.676	0.092	1.0	0.301
Using adjusted E						
Σz^2	–	–	7.47	14.97	–	33.75
df	–	–	2	13	–	17
$p(\chi^2)$	–	–	**0.0239**	0.31	–	**0.0091**
$\#(+/-)$	–	–	2/1	5/9	–	8/10
$p(+/-)$	–	–	1.0	0.42	–	0.81
$p(B)$	–	–	0.737	0.405	–	0.580

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A4. Summary of termination experience for group IP claims 1995–98. Standard* experience. Occupational class 1, 2, 3, 4, unknown and all combined.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
(a) Males, recoveries						
Class 1	*78*	–	50	**38**	48	43
Class 2	–	–	48	53	*33*	49
Class 3	–	51	53	40	*74*	48
Class 4	–	*55*	*26*	41	*64*	43
Class Unknown	–	–	47	**42**	35	42
All business	*72*	45	47	**42**	44	44
(b) Females, recoveries						
Class 1	–	–	45	43	65	46
Class 2	–	–	*47*	60	*40*	56
Class 3	–	–	–	*40*	–	*38*
Class 4	–	–	–	51	–	48
Class Unknown	–	–	51	40	37	43
All business	–	–	49	44	45	45
(c) Males, deaths						
Class 1	–	–	*60*	94	80	84
Class 2	–	–	–	76	*51*	66
Class 3	–	–	–	74	–	62
Class 4	–	–	–	57	–	52
Class Unknown	–	–	79	83	83	82
All business	–	–	64	80	70	**74**
(d) Females, deaths						
Class 1	–	–	*84*	82	*61*	79
Class 2	–	–	–	*97*	–	89
Class 3	–	–	–	–	–	–
Class 4	–	–	–	–	–	–
Class Unknown	–	–	*83*	88	*74*	86
All business	–	–	81	80	63	77

Note: *Italic* if actual numbers of recoveries or deaths is less than 30. Not shown if actual numbers of recoveries or deaths is less than 10. **Bold** if either $p(+/-)$ or $p(B) < 0.025$ for adjusted E.

Table A5.1. Males, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	17	9	107	160	38	331
E	21.9	31.3	214.0	420.7	78.7	766.6
$100A/E$						
Durations:						
1–13 weeks	↓	*25*	–	–	–	*57*
13–17 weeks	↓	↓	*29*	–	–	*31*
17–26 weeks	↓	↓	44	–	–	45
26–30 weeks	↓	↓	*64*	*22*	–	*37*
30–39 weeks	↓	↓	*66*	*26*	–	34
39 wks–1 yr	↓	↓	*51*	*32*	–	35
1–2 years	↓	↓	*68*	47	*42*	48
2–5 years	↓	↓	↓	44	↓	47
5–11 years	*78*	*33*	*52*	*65*	*57*	*65*
Ages:						
18–24	–	–	↓	↓	↓	*54*
25–29	–	–	*54*	*43*	↓	*46*
30–34	–	–	↓	*45*	↓	55
35–39	–	↓	*52*	*40*	*52*	40
40–44	↓	↓	*64*	*32*	↓	41
45–49	↓	↓	*56*	44	*58*	48
50–54	↓	↓	*32*	*28*	↓	28
55–59	↓	↓	↓	↓	↓	50
60–64	*78*	*29*	*57*	*40*	*35*	*60*
All cells	*78*	*29*	50	38	48	43
Using E						
Σz^2	0.88	14.52	54.99	156.47	19.63	242.71
df	1	2	17	31	6	45
$p(\chi^2)$	0.35	**0.0007**	**0.0000**	**0.0000**	**0.0032**	**0.0000**
#(+/–)	0/1	0/2	0/17	0/31	0/6	0/45
p(+/–)	1.0	0.50	**0.0000**	**0.0000**	**0.0313**	**0.0000**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	10.11	13.28	1.71	26.03
df	–	–	8	12	2	25
$p(\chi^2)$	–	–	0.26	0.35	0.43	0.41
#(+/–)	–	–	5/4	8/5	2/1	13/13
p(+/–)	–	–	1.0	0.58	1.0	1.0
$p(B)$	–	–	0.915	**0.009**	1.0	0.143

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and p(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.2. Males, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	5	9	38	115	17	184
E	6.4	17.3	79.0	218.2	51.5	372.4
$100A/E$						
Durations:						
1–17 weeks	↓	↓	↓	–	–	*46*
17–26 weeks	↓	↓	↓	–	–	*52*
26–30 weeks	↓	↓	*35*	*21*	–	*20*
30–39 weeks	↓	↓	↓	*35*	–	*38*
39 wks–1 yr	↓	↓	*54*	*75*	–	70
1–2 years	↓	↓	↓	51	*45*	53
2–5 years	↓	↓	↓	↓	↓	52
5–11 years	*78*	*52*	*73*	67	*20*	*52*
Ages:						
19–29	–	–	↓	*30*	↓	*38*
30–34	–	↓	*50*	*71*	↓	*57*
35–39	–	↓	↓	*49*	↓	*43*
40–44	↓	↓	*41*	*56*	*29*	*48*
45–49	↓	↓	*58*	*44*	↓	47
50–54	↓	↓	↓	*41*	↓	48
55–59	↓	↓	↓	↓	↓	*57*
60–64	*78*	*52*	*46*	*76*	*36*	*60*
All cells	*78*	*52*	48	53	*33*	49
Using E						
Σz^2	0.13	3.50	20.83	53.54	21.31	96.76
df	1	1	5	18	4	30
$p(\chi^2)$	0.72	0.0614	**0.0009**	**0.0000**	**0.0003**	**0.0000**
$\#(+/-)$	0/1	0/1	0/5	1/17	0/4	1/29
$p(+/-)$	1.0	1.0	0.0625	**0.0001**	0.13	**0.0000**
$p(B)$	1.0	1.0	1.0	0.323	1.0	0.656
Using adjusted E						
Σz^2	–	–	3.00	11.55	–	14.55
df	–	–	2	8	–	16
$p(\chi^2)$	–	–	0.22	0.17	–	0.56
$\#(+/-)$	–	–	1/2	4/5	–	9/8
$p(+/-)$	–	–	1.0	1.0	–	1.0
$p(B)$	–	–	0.758	0.487	–	0.221

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.3. Males, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	58	38	74	23	193
E	0.7	114.8	71.3	186.1	131.1	404.0
100*A*/*E*						
Durations:						
1–8 weeks	↓	*42*	–	–	–	*42*
8–13 weeks	↓	↓	–	–	–	*39*
13–17 weeks	↓	*47*	↓	–	–	*56*
17–26 weeks	↓	↓	*43*	–	–	*48*
26–30 weeks	↓	↓	↓	↓	–	*61*
30–39 weeks	↓	*58*	↓	*26*	–	*29*
39 wks–1 yr	↓	↓	*90*	*33*	–	*46*
1–2 years	↓	↓	↓	*44*	*62*	47
2–5 years	↓	↓	↓	↓	↓	52
5–11 years	–	*67*	*38*	*53*	*86*	*76*
Ages:						
21–29	–	↓	↓	*35*	↓	*39*
30–34	–	*42*	↓	↓	↓	*61*
35–39	↓	*68*	↓	*37*	↓	*46*
40–44	↓	*63*	*48*	*27*	*62*	*39*
45–49	↓	*21*	↓	*38*	↓	*35*
50–54	↓	*65*	↓	*50*	↓	61
55–59	–	↓	↓	↓	↓	58
60–64	–	*54*	58	*50*	*86*	*53*
All cells	–	51	53	40	*74*	48
Using *E*						
Σz^2	0.05	26.74	16.60	64.33	2.08	108.73
df	1	9	5	14	2	33
$p(\chi^2)$	0.83	**0.0015**	**0.0053**	**0.0000**	0.35	**0.0000**
#(+/–)	0/1	0/9	0/5	0/14	0/2	0/33
$p(+/-)$	1.0	**0.0039**	0.0625	**0.0001**	0.50	**0.0000**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted *E*						
Σz^2	–	3.38	0.14	4.33	–	13.43
df	–	3	2	4	–	14
$p(\chi^2)$	–	0.34	0.93	0.36	–	0.49
#(+/–)	–	2/2	1/2	2/3	–	9/6
$p(+/-)$	–	1.0	1.0	1.0	–	0.61
$p(B)$	–	0.867	1.0	0.360	–	0.671

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.4. Males, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 4.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	1	16	10	100	25	152
E	1.7	29.0	38.6	243.8	39.0	352.1
100*A*/*E*						
Durations:						
1–13 weeks	↓	↓	–	–	–	*57*
13–26 weeks	↓	↓	↓	–	–	*25*
26–30 weeks	↓	↓	↓	*9*	–	*16*
30–39 weeks	↓	↓	*25*	*32*	–	*31*
39 wks–1 yr	↓	↓	↓	*44*	–	*40*
1–2 years	↓	↓	↓	*41*	*64*	46
2–5 years	↓	↓	↓	↓	↓	60
5–11 years	*57*	*55*	*27*	61	*64*	*68*
Ages:						
21–29	–	↓	↓	*31*	↓	*45*
30–34	–	↓	↓	*58*	↓	*50*
35–39	–	↓	↓	*33*	↓	*33*
40–44	–	↓	*11*	*20*	*60*	*24*
45–49	–	↓	↓	*42*	↓	*49*
50–54	↓	↓	↓	*65*	↓	58
55–59	↓	*55*	↓	*29*	↓	*32*
60–64	*57*	–	*38*	*55*	*68*	*59*
All cells	*57*	*55*	*26*	41	*64*	43
Using *E*						
Σz^2	0.03	5.37	19.17	86.05	7.59	115.60
df	1	1	3	21	4	28
$p(\chi^2)$	0.85	**0.0204**	**0.0003**	**0.0000**	0.11	**0.0000**
#(+/–)	0/1	0/1	0/3	0/21	0/4	0/28
p(+/–)	1.0	1.0	0.25	**0.0000**	0.13	**0.0000**
p(*B*)	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted *E*						
Σz^2	–	–	–	11.51	–	20.24
df	–	–	–	7	–	12
$p(\chi^2)$	–	–	–	0.12	–	0.0626
#(+/–)	–	–	–	4/4	–	6/7
p(+/–)	–	–	–	1.0	–	1.0
p(*B*)	–	–	–	0.244	–	0.706

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.5. Males, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class Unknown.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	1	6	171	303	52	533
E	2.5	26.3	364.3	718.4	149.4	1,260.9
$100A/E$						
Durations:						
1–17 weeks	↓	↓	*31*	–	–	*27*
17–26 weeks	↓	↓	40	–	–	41
26–30 weeks	↓	↓	*64*	*32*	–	*42*
30–39 weeks	↓	↓	*61*	32	–	37
39 wks–1 yr	↓	↓	*40*	43	–	42
1–2 years	↓	↓	75	48	*30*	47
2–5 years	↓	↓	↓	48	↓	47
5–11 years	*41*	*23*	*40*	*52*	*42*	*43*
Ages:						
18–24	↓	–	*27*	*36*	↓	*37*
25–29	↓	↓	*56*	60	↓	58
30–34	↓	↓	*46*	43	*33*	41
35–39	↓	↓	*50*	38	*52*	42
40–44	↓	↓	*42*	47	*31*	42
45–49	↓	↓	*60*	44	*46*	47
50–54	↓	↓	*34*	40	*14*	34
55–59	↓	*23*	*42*	34	↓	37
60–64	*41*	–	*69*	*37*	*41*	*45*
All cells:	*41*	23	47	42	35	42
Using E						
Σz^2	0.37	14.92	104.50	239.80	58.90	416.02
df	1	1	28	39	11	57
$p(\chi^2)$	0.54	**0.0001**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$\#(+/-)$	0/1	0/1	0/28	0/39	0/11	0/57
$p(+/-)$	1.0	1.0	**0.0000**	**0.0000**	**0.0010**	**0.0000**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	18.47	23.14	2.02	43.01
df	–	–	13	24	3	41
$p(\chi^2)$	–	–	0.14	0.51	0.57	0.38
$\#(+/-)$	–	–	8/6	16/9	2/2	22/20
$p(+/-)$	–	–	0.79	0.23	1.0	0.88
$p(B)$	–	–	0.959	**0.018**	0.877	0.438

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A5.6. Males, group policies, 1995–98, Standard* experience, recoveries. Occupational class = All classes.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	24	98	364	752	155	1,393
E	33.2	218.6	767.3	1,787.2	349.7	3,156.0
$100A/E$						
Durations:						
1–4 weeks	*57*	–	–	–	–	*57*
4–8 weeks	↓	*38*	–	–	–	50
8–13 weeks	↓	*37*	–	–	–	*39*
13–17 weeks	↓	*56*	29	–	–	34
17–26 weeks	↓	↓	42	–	–	43
26–30 weeks	↓	*60*	66	24	–	37
30–39 weeks	↓	↓	57	30	–	35
39 wks–1 yr	↓	*19*	48	43	–	44
1–2 years	↓	↓	68	47	41	48
2–5 years	↓	↓	*45*	51	46	50
5–11 years	*86*	*61*	*40*	60	*60*	58
Ages:						
18–24	↓	–	*34*	*38*	↓	40
25–29	↓	↓	54	45	*62*	51
30–34	↓	*62*	54	49	*32*	49
35–39	↓	*55*	43	38	*45*	42
40–44	↓	*40*	44	38	*42*	40
45–49	↓	*24*	56	43	53	46
50–54	↓	*46*	39	41	*32*	40
55–59	↓	↓	45	40	↓	45
60–64	*72*	*53*	*59*	49	*51*	53
All cells	*72*	45	47	42	44	44
Using E						
Σz^2	2.67	66.51	218.11	605.05	106.00	979.86
df	2	18	47	48	16	79
$p(\chi^2)$	0.26	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	0/2	1/17	0/47	0/48	0/16	0/79
$p(+/-)$	0.50	**0.0001**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$p(B)$	1.0	0.516	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	7.60	37.47	59.01	5.05	63.33
df	–	7	27	39	11	62
$p(\chi^2)$	–	0.37	0.0866	**0.0208**	0.93	0.43
#(+/–)	–	3/5	13/15	21/19	7/5	30/33
$p(+/-)$	–	0.73	0.85	0.87	0.77	0.80
$p(B)$	–	0.093	0.110	**0.000**	0.903	0.063

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.1. Males, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	1	21	109	24	155
E	1.2	3.1	34.7	116.1	29.8	184.9
$100A/E$						
Durations:						
1–39 weeks	↓	↓	↓	↓	–	*77*
39 wks–1 yr	↓	↓	↓	103	–	*95*
1–2 years	↓	↓	↓	150	↓	129
2–5 years	↓	↓	↓	*65*	↓	67
5–11 years	–	*32*	*60*	*64*	*80*	*59*
Ages:						
18–39	–	↓	↓	*145*	↓	135
40–44	↓	↓	↓	↓	↓	*94*
45–49	↓	↓	↓	*86*	↓	*72*
50–54	↓	↓	↓	117	↓	83
55–59	↓	↓	↓	↓	↓	75
60–64	–	*32*	*60*	*61*	*80*	*49*
All cells	–	*32*	*60*	94	*80*	84
Using E						
Σz^2	0.37	0.84	5.04	16.11	0.95	25.93
df	1	1	1	8	1	13
$p(\chi^2)$	0.54	0.36	**0.0248**	**0.0409**	0.33	**0.0174**
#(+/–)	0/1	0/1	0/1	3/5	0/1	2/11
p(+/–)	1.0	1.0	1.0	0.73	1.0	**0.0225**
$p(B)$	1.0	1.0	1.0	0.426	1.0	0.457
Using adjusted E						
Σz^2	–	–	–	16.72	–	22.03
df	–	–	–	7	–	11
$p(\chi^2)$	–	–	–	**0.0193**	–	**0.0242**
#(+/–)	–	–	–	4/4	–	6/6
p(+/–)	–	–	–	1.0	–	1.0
$p(B)$	–	–	–	0.087	–	0.608

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and p(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.2. Males, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	7	50	11	68
E	0.4	1.3	14.3	65.7	21.4	103.1
$100A/E$						
Durations:						
1 wk–1 yr	↓	↓	↓	↓	–	*85*
1–2 years	↓	↓	↓	*84*	↓	*70*
2–5 years	↓	↓	↓	*63*	↓	*60*
5–11 years	–	–	*49*	*79*	*51*	*55*
Ages:						
19–44	↓	↓	↓	↓	↓	*80*
45–49	↓	↓	↓	*71*	↓	*44*
50–54	↓	↓	↓	*86*	↓	*71*
55–64	–	–	*49*	*76*	*51*	*64*
All cells	–	–	*49*	76	*51*	66
Using E						
Σz^2	0.00	0.50	3.23	5.41	4.61	16.42
df	1	1	1	4	1	9
$p(\chi^2)$	**0.0000**	0.48	0.0725	0.25	**0.0318**	0.0586
#(+/–)	0/1	0/1	0/1	1/3	0/1	0/9
$p(+/-)$	1.0	1.0	1.0	0.63	1.0	**0.0039**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	3.22	–	5.18
df	–	–	–	3	–	4
$p(\chi^2)$	–	–	–	0.36	–	0.27
#(+/–)	–	–	–	2/2	–	1/4
$p(+/-)$	–	–	–	1.0	–	0.38
$p(B)$	–	–	–	1.0	–	0.879

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.3. Males, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	9	47	8	64
E	0.4	9.6	14.3	63.6	16.1	104.0
$100A/E$						
Durations:						
1 wk–1 yr	↓	↓	↓	↓	–	*60*
1–2 years	↓	↓	↓	*88*	↓	*81*
2–5 years	↓	↓	↓	*54*	↓	*44*
5–11 years	–	–	*63*	*74*	*50*	*66*
Ages:						
21–44	↓	↓	↓	↓	↓	*49*
45–49	↓	↓	↓	*68*	↓	*74*
50–54	↓	↓	↓	↓	↓	*68*
55–64	–	–	*63*	77	*50*	*59*
All cells	–	–	*63*	74	*50*	62
Using E						
Σz^2	0.00	8.67	1.64	4.59	3.56	17.54
df	1	1	1	5	1	8
$p(\chi^2)$	**0.0000**	**0.0032**	0.20	0.47	0.0593	**0.0250**
#(+/–)	0/1	0/1	0/1	0/5	0/1	1/7
$p(+/-)$	1.0	1.0	1.0	0.0625	1.0	0.0703
$p(B)$	1.0	1.0	1.0	1.0	1.0	0.864
Using adjusted E						
Σz^2	–	–	–	1.20	–	2.10
df	–	–	–	2	–	4
$p(\chi^2)$	–	–	–	0.55	–	0.72
#(+/–)	–	–	–	1/2	–	3/2
$p(+/-)$	–	–	–	1.0	–	1.0
$p(B)$	–	–	–	0.732	–	1.0

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.4. Males, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 4.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	2	41	9	52
E	0.3	2.1	8.6	72.4	17.0	100.4
$100A/E$						
Durations:						
1 wk–1 yr	↓	↓	↓	*65*	–	*55*
1–2 years	↓	↓	↓	*60*	↓	*60*
2–5 years	↓	↓	↓	*35*	↓	*41*
5–11 years	–	–	*23*	*70*	*53*	*55*
Ages:						
21–44	–	↓	↓	*32*	↓	*23*
45–54	↓	↓	↓	*69*	↓	*60*
55–64	–	–	*23*	*59*	*53*	*60*
All cells	–	–	*23*	*57*	*53*	52
Using E						
Σz^2	0.00	1.18	4.35	13.85	3.32	22.20
df	1	1	1	7	1	7
$p(\chi^2)$	**0.0000**	0.28	**0.0370**	0.0539	0.0683	**0.0023**
#(+/–)	0/1	0/1	0/1	0/7	0/1	0/7
$p(+/-)$	1.0	1.0	1.0	**0.0156**	1.0	**0.0156**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	1.38	–	4.69
df	–	–	–	2	–	3
$p(\chi^2)$	–	–	–	0.50	–	0.20
#(+/–)	–	–	–	1/2	–	2/2
$p(+/-)$	–	–	–	1.0	–	1.0
$p(B)$	–	–	–	1.0	–	1.0

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.5. Males, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class Unknown.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	2	38	173	44	257
E	0.4	2.1	48.2	209.3	53.2	313.2
$100A/E$						
Durations:						
1–30 weeks	↓	↓	↓	↓	–	*45*
30–39 weeks	↓	↓	↓	*87*	–	*106*
39 wks–1 yr	↓	↓	↓	*60*	–	*67*
1–2 years	↓	↓	*66*	101	*91*	93
2–5 years	↓	↓	↓	78	↓	82
5–11 years	–	*96*	*103*	79	*77*	80
Ages:						
18–34	↓	↓	↓	↓	↓	*57*
35–39	↓	↓	↓	*52*	↓	*56*
40–44	↓	↓	↓	*107*	↓	99
45–49	↓	↓	*84*	*87*	*47*	79
50–54	↓	↓	↓	97	↓	95
55–59	↓	*96*	↓	78	↓	87
60–64	–	–	*75*	*74*	103	*65*
All cells	–	*96*	79	83	83	82
Using E						
Σz^2	0.00	0.00	3.15	25.30	4.87	31.99
df	1	1	3	16	3	20
$p(\chi^2)$	**0.0000**	**0.0000**	0.37	0.0647	0.18	**0.0434**
$\#(+/-)$	0/1	0/1	1/2	4/12	1/2	7/13
$p(+/-)$	1.0	1.0	1.0	0.0768	1.0	0.26
$p(B)$	1.0	1.0	0.657	0.423	1.0	0.408
Using adjusted E						
Σz^2	–	–	0.53	21.00	3.97	27.39
df	–	–	2	13	2	18
$p(\chi^2)$	–	–	0.77	0.0730	0.14	0.0720
$\#(+/-)$	–	–	1/2	9/5	2/1	10/9
$p(+/-)$	–	–	1.0	0.42	1.0	1.0
$p(B)$	–	–	0.719	0.619	0.762	0.088

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A6.6. Males, group policies, 1995–98, Standard* experience, deaths. Occupational class = All classes.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	3	77	420	96	596
E	2.7	18.2	120.2	527.0	137.6	805.7
$100A/E$						
Durations:						
1–26 weeks	↓	↓	↓	–	–	*60*
26–30 weeks	↓	↓	*63*	*77*	–	*65*
30–39 weeks	↓	↓	↓	97	–	88
39 wks–1 yr	↓	↓	*55*	73	–	69
1–2 years	↓	↓	*70*	102	86	93
2–5 years	↓	↓	*63*	64	74	66
5–11 years	–	*16*	*71*	74	*42*	66
Ages:						
18–29	↓	↓	↓	↓	↓	*84*
30–34	↓	↓	↓	85	↓	*76*
35–39	↓	↓	*64*	*73*	↓	65
40–44	↓	↓	↓	90	*60*	79
45–49	↓	↓	*78*	75	*49*	71
50–54	↓	↓	*58*	94	*65*	80
55–59	↓	↓	↓	76	↓	79
60–64	–	*16*	*57*	57	89	50
All cells	–	*16*	64	80	70	74
Using E						
Σz^2	1.82	11.89	13.80	56.99	15.79	91.25
df	1	1	10	28	9	35
$p(\chi^2)$	0.18	**0.0006**	0.18	**0.0010**	0.0714	**0.0000**
$\#(+/-)$	0/1	0/1	0/10	5/23	0/9	7/28
$p(+/-)$	1.0	1.0	**0.0020**	**0.0009**	**0.0039**	**0.0005**
$p(B)$	1.0	1.0	1.0	0.204	1.0	0.481
Using adjusted E						
Σz^2	–	–	1.17	46.52	7.55	50.95
df	–	–	5	25	6	30
$p(\chi^2)$	–	–	0.95	**0.0056**	0.27	**0.0099**
$\#(+/-)$	–	–	2/4	11/15	3/4	14/17
$p(+/-)$	–	–	0.69	0.56	1.0	0.72
$p(B)$	–	–	0.969	**0.036**	0.373	**0.022**

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.1. Females, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	1	3	85	206	53	348
E	6.2	6.8	188.7	480.2	82.1	763.9
100*A*/*E*						
Durations:						
1–17 weeks	↓	↓	*35*	–	–	*35*
17–26 weeks	↓	↓	*27*	–	–	*27*
26–30 weeks	↓	↓	*42*	*16*	–	*24*
30–39 weeks	↓	↓	*52*	32	–	36
39 wks–1 yr	↓	↓	*107*	44	–	53
1–2 years	↓	↓	*47*	51	60	53
2–5 years	↓	↓	↓	42	↓	48
5–11 years	*16*	*44*	*66*	*107*	*72*	*111*
Ages:						
18–24	–	–	↓	*38*	↓	*43*
25–29	–	–	*32*	48	↓	45
30–34	–	–	*58*	55	*67*	55
35–39	–	↓	*64*	*31*	*63*	41
40–44	–	↓	*52*	45	↓	47
45–49	↓	↓	*27*	46	↓	41
50–54	*16*	↓	↓	*39*	↓	42
55–59	–	*44*	↓	↓	↓	↓
60–63	–	–	*60*	*30*	*64*	*54*
All cells	*16*	*44*	45	43	65	46
Using *E*						
Σz^2	3.53	1.57	61.69	163.43	10.62	243.74
df	1	1	15	29	5	42
$p(\chi^2)$	0.0601	0.21	**0.0000**	**0.0000**	0.0594	**0.0000**
#(+/–)	0/1	0/1	1/14	1/28	0/5	2/40
$p(+/-)$	1.0	1.0	**0.0010**	**0.0000**	0.0625	**0.0000**
$p(B)$	1.0	1.0	0.750	0.051	1.0	0.093
Using adjusted *E*						
Σz^2	–	–	13.40	28.06	2.81	45.51
df	–	–	5	16	3	26
$p(\chi^2)$	–	–	**0.0199**	**0.0311**	0.42	**0.0103**
#(+/–)	–	–	3/3	8/9	3/1	11/16
$p(+/-)$	–	–	1.0	1.0	0.63	0.44
$p(B)$	–	–	0.488	0.313	1.0	0.439

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.2. Females, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	4	12	81	10	107
E	0.1	7.6	25.6	134.0	24.8	192.2
$100A/E$						
Durations:						
1–30 weeks	↓	↓	↓	↓	–	*35*
30–39 weeks	↓	↓	↓	*30*	–	*43*
39 wks–1 yr	↓	↓	↓	*80*	–	*72*
1–2 years	↓	↓	↓	*67*	↓	57
2–11 years	–	*52*	*47*	*78*	*40*	68
Ages:						
20–29	–	↓	↓	*45*	↓	*44*
30–34	–	↓	↓	*52*	↓	*44*
35–39	–	↓	↓	*62*	↓	*51*
40–44	–	↓	↓	*38*	↓	*38*
45–49	–	↓	↓	*63*	↓	*57*
50–59	–	*52*	↓	↓	*40*	↓
60–63	–	–	*47*	*88*	–	87
All cells:	–	*52*	*47*	60	*40*	56
Using E						
Σz^2	0.00	1.29	6.71	29.74	8.24	43.87
df	1	1	1	12	1	17
$p(\chi^2)$	**0.0000**	0.26	**0.0096**	**0.0031**	**0.0041**	**0.0004**
#(+/–)	0/1	0/1	0/1	1/11	0/1	1/16
$p(+/-)$	1.0	1.0	1.0	**0.0063**	1.0	**0.0003**
$p(B)$	1.0	1.0	1.0	0.511	1.0	0.452
Using adjusted E						
Σz^2	–	–	–	4.91	–	9.18
df	–	–	–	5	–	7
$p(\chi^2)$	–	–	–	0.43	–	0.24
#(+/–)	–	–	–	4/2	–	4/4
$p(+/-)$	–	–	–	0.69	–	1.0
$p(B)$	–	–	–	0.306	–	0.987

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.3. Females, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	5	20	4	29
E	0.1	0.9	16.2	50.0	10.1	77.3
$100A/E$						
Durations:						
1 wk–1 yr	↓	↓	↓	*21*	–	*25*
1–2 years	↓	↓	↓	↓	↓	*31*
2–11 years	–	–	*31*	*57*	*39*	*71*
Ages:						
20–29	–	–	↓	↓	↓	*27*
30–34	–	–	↓	*45*	↓	↓
35–39	–	–	↓	↓	↓	*61*
40–49	–	–	↓	↓	↓	*32*
50–59	–	–	*31*	↓	*39*	↓
60–62	–	–	–	*38*	–	*32*
All cells	–	–	*31*	*40*	*39*	*38*
Using E						
Σz^2	0.00	0.17	7.07	17.71	3.14	29.84
df	1	1	1	3	1	6
$p(\chi^2)$	**0.0000**	0.68	**0.0078**	**0.0005**	0.0762	**0.0000**
#(+/–)	0/1	0/1	0/1	0/3	0/1	0/6
$p(+/-)$	1.0	1.0	1.0	0.25	1.0	**0.0313**
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	–
df	–	–	–	–	–	–
$p(\chi^2)$	–	–	–	–	–	–
#(+/–)	–	–	–	–	–	–
$p(+/-)$	–	–	–	–	–	–
$p(B)$	–	–	–	–	–	-

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.4. Females, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class 4.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	–	6	43	3	52
E	1.1	–	8.3	83.7	15.7	108.9
$100A/E$						
Durations:						
1–39 weeks	↓	–	↓	*27*	–	*38*
39 wks–1 yr	↓	–	↓	*65*	–	*62*
1–2 years	↓	–	↓	*50*	↓	*45*
2–11 years	–	–	*72*	*76*	*19*	*54*
Ages:						
22–29	–	–	↓	↓	↓	*34*
30–34	–	–	↓	*38*	↓	↓
35–39	–	–	↓	↓	↓	*44*
40–44	–	–	↓	*39*	↓	*24*
45–49	–	–	↓	↓	↓	*50*
50–59	–	–	*72*	↓	*19*	↓
60–61	–	–	–	*67*	–	*72*
All cells	–	–	*72*	51	*19*	48
Using E						
Σz^2	0.37	–	0.40	20.94	9.46	28.07
df	1	–	1	6	1	9
$p(\chi^2)$	0.55	–	0.53	**0.0019**	**0.0021**	**0.0009**
#(+/–)	0/1	–	0/1	0/6	0/1	0/9
$p(+/-)$	1.0	–	1.0	**0.0313**	1.0	**0.0039**
$p(B)$	1.0	–	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	1.27	–	0.73
df	–	–	–	2	–	2
$p(\chi^2)$	–	–	–	0.53	–	0.70
#(+/–)	–	–	–	2/1	–	1/2
$p(+/-)$	–	–	–	1.0	–	1.0
$p(B)$	–	–	–	0.745	–	1.0

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.5. Females, group policies, 1995–98, Standard* experience, recoveries. Occupational class = C.M.I. Class Unknown.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	–	1	156	223	47	427
E	–	7.4	304.2	554.3	128.2	994.1
$100A/E$						
Durations:						
1–17 weeks	–	↓	*44*	–	–	*41*
17–26 weeks	–	↓	42	–	–	42
26–30 weeks	–	↓	*54*	*23*	–	*33*
30–39 weeks	–	↓	*78*	35	–	44
39 wks–1 yr	–	↓	*97*	38	–	49
1–2 years	–	↓	*34*	52	*29*	43
2–5 years	–	↓	↓	43	↓	46
5–11 years	–	*14*	*48*	*28*	*50*	*30*
Ages:						
19–24	–	–	*59*	*26*	↓	*42*
25–29	–	↓	41	43	*34*	39
30–34	–	↓	50	39	*29*	41
35–39	–	↓	*62*	*36*	*51*	45
40–44	–	↓	*42*	*35*	*50*	39
45–49	–	↓	*71*	44	*14*	46
50–54	–	↓	↓	47	↓	47
55–59	–	*14*	↓	↓	↓	↓
60–64	–	–	*52*	*47*	*47*	*47*
All cells	–	*14*	51	40	37	43
Using E						
Σz^2	–	4.70	81.18	194.59	49.26	322.02
df	–	1	23	35	10	48
$p(\chi^2)$	–	**0.0302**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
$\#(+/-)$	–	0/1	2/21	0/35	0/10	1/47
$p(+/-)$	–	1.0	**0.0001**	**0.0000**	**0.0020**	**0.0000**
$p(B)$	–	1.0	0.864	1.0	1.0	0.457
Using adjusted E						
Σz^2	–	–	19.35	26.65	2.78	33.29
df	–	–	11	19	2	31
$p(\chi^2)$	–	–	0.0551	0.11	0.25	0.36
$\#(+/-)$	–	–	6/6	11/9	1/2	15/17
$p(+/-)$	–	–	1.0	0.82	1.0	0.86
$p(B)$	–	–	0.392	0.917	0.746	0.957

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A7.6. Females, group policies, 1995–98, Standard* experience, recoveries. Occupational class = All classes.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	1	8	264	573	117	963
E	7.5	22.7	543.1	1,302.3	260.9	2,136.4
100*A*/*E*						
Durations:						
1–17 weeks	↓	↓	43	–	–	43
17–26 weeks	↓	↓	37	–	–	37
26–30 weeks	↓	↓	*49*	*16*	–	25
30–39 weeks	↓	↓	66	34	–	39
39 wks–1 yr	↓	↓	92	47	–	54
1–2 years	↓	↓	*38*	53	40	48
2–5 years	↓	↓	↓	49	↓	50
5–11 years	*13*	*35*	*56*	74	53	76
Ages:						
18–24	–	–	*46*	*36*	↓	44
25–29	–	↓	38	43	*43*	40
30–34	–	↓	52	47	*38*	47
35–39	↓	↓	55	39	*57*	45
40–44	↓	↓	*44*	38	*47*	40
45–49	↓	↓	45	48	*34*	45
50–54	↓	↓	58	49	↓	50
55–59	*13*	*35*	↓	↓	↓	↓
60–64	–	–	*66*	50	*51*	56
All cells	*13*	*35*	49	44	45	45
Using *E*						
Σz^2	4.83	8.87	154.39	429.38	79.82	668.90
df	1	1	34	43	12	59
$p(\chi^2)$	**0.0280**	**0.0029**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
#(+/–)	0/1	0/1	1/33	1/42	0/12	2/57
$p(+/-)$	1.0	1.0	**0.0000**	**0.0000**	**0.0005**	**0.0000**
$p(B)$	1.0	1.0	1.0	0.474	1.0	**0.032**
Using adjusted *E*						
Σz^2	–	–	40.93	83.50	7.37	80.11
df	–	–	21	32	8	45
$p(\chi^2)$	–	–	**0.0057**	**0.0000**	0.50	**0.0010**
#(+/–)	–	–	11/11	14/19	4/5	24/22
$p(+/-)$	–	–	1.0	0.49	1.0	0.88
$p(B)$	–	–	0.236	0.295	0.929	0.091

Note: 100A/E is shown as *italic* if the actual number of recoveries is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.1. Females, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 1.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	15	67	11	93
E	0.2	0.8	17.8	81.5	18.0	118.4
$100A/E$						
Durations:						
1 wk–1 yr	↓	↓	↓	*64*	–	*63*
1–2 years	↓	↓	↓	*127*	↓	109
2–5 years	↓	↓	↓	↓	↓	*64*
5–11 years	–	–	*84*	*68*	*61*	*81*
Ages:						
18–34	–	–	↓	↓	↓	*83*
35–39	–	↓	↓	*96*	↓	↓
40–44	–	↓	↓	↓	↓	*40*
45–49	↓	↓	↓	*48*	↓	*99*
50–54	–	↓	↓	↓	↓	*75*
55–63	–	–	*84*	103	*61*	*122*
All cells	–	–	*84*	82	*61*	79
Using E						
Σz^2	0.00	0.13	0.31	13.98	2.35	13.09
df	1	1	1	7	1	7
$p(\chi^2)$	**0.0000**	0.72	0.58	0.0515	0.13	0.0700
$\#(+/-)$	0/1	0/1	0/1	2/5	0/1	1/6
$p(+/-)$	1.0	1.0	1.0	0.45	1.0	0.13
$p(B)$	1.0	1.0	1.0	0.943	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	10.02	–	10.97
df	–	–	–	5	–	6
$p(\chi^2)$	–	–	–	0.0748	–	0.0892
$\#(+/-)$	–	–	–	3/3	–	3/4
$p(+/-)$	–	–	–	1.0	–	1.0
$p(B)$	–	–	–	1.0	–	0.898

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.2. Females, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 2.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	2	26	6	34
E	0.1	0.6	3.2	26.9	7.2	38.0
$100A/E$						
Durations:						
1 wk–2 yrs	↓	↓	↓	↓	↓	*90*
2–11 years	–	–	*63*	*97*	*83*	*89*
Ages:						
20–59	–	–	↓	↓	*83*	↓
60–63	–	–	*63*	*97*	–	89
All cells	–	–	*63*	*97*	*83*	89
Using E						
Σz^2	0.00	0.03	0.14	0.01	0.07	0.24
df	1	1	1	1	1	2
$p(\chi^2)$	**0.0000**	0.87	0.71	0.94	0.79	0.89
#(+/–)	0/1	0/1	0/1	0/1	0/1	0/2
$p(+/-)$	1.0	1.0	1.0	1.0	1.0	0.50
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	0.00
df	–	–	–	–	–	1
$p(\chi^2)$	–	–	–	–	–	**0.0000**
#(+/–)	–	–	–	–	–	1/1
$p(+/-)$	–	–	–	–	–	1.0
$p(B)$	–	–	–	–	–	1.0

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.3. Females, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 3.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	0	2	7	0	9
E	0.0	0.1	1.8	11.5	2.9	16.3
$100A/E$						
Duration:						
1 wk–11 yrs	–	–	*108*	*61*	–	*55*
Ages:						
20–59	–	–	*108*	↓	–	↓
60–62	–	–	–	*61*	–	*55*
All cells	–	–	*108*	*61*	–	*55*
Using E						
Σz^2	0.00	0.00	0.00	1.37	1.98	2.86
df	1	1	1	1	1	1
$p(\chi^2)$	**0.0000**	**0.0000**	**0.0000**	0.24	0.16	0.0906
$\#(+/-)$	0/1	0/1	1/0	0/1	0/1	0/1
$p(+/-)$	1.0	1.0	1.0	1.0	1.0	1.0
$p(B)$	1.0	1.0	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	–
df	–	–	–	–	–	–
$p(\chi^2)$	–	–	–	–	–	–
$\#(+/-)$	–	–	–	–	–	–
$p(+/-)$	–	–	–	–	–	–
$p(B)$	–	–	–	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.4. Females, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class 4.

	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	–	0	3	1	4
E	0.1	–	1.2	17.9	4.7	23.9
$100A/E$						
Durations:						
1 wk–11 yrs	–	–	–	*17*	*21*	*17*
Ages:						
22–59	–	–	–	↓	*21*	↓
60–61	–	–	–	*17*	–	*17*
All cells	–	–	–	*17*	*21*	*17*
Using E						
Σz^2	0.00	–	0.38	11.57	2.16	15.71
df	1	–	1	1	1	1
$p(\chi^2)$	**0.0000**	–	0.54	**0.0007**	0.14	**0.0001**
$\#(+/-)$	0/1	–	0/1	0/1	0/1	0/1
$p(+/-)$	1.0	–	1.0	1.0	1.0	1.0
$p(B)$	1.0	–	1.0	1.0	1.0	1.0
Using adjusted E						
Σz^2	–	–	–	–	–	–
df	–	–	–	–	–	–
$p(\chi^2)$	–	–	–	–	–	–
$\#(+/-)$	–	–	–	–	–	–
$p(+/-)$	–	–	–	–	–	–
$p(B)$	–	–	–	–	–	–

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.5. Females, group policies, 1995–98, Standard* experience, deaths. Occupational class = C.M.I. Class Unknown.

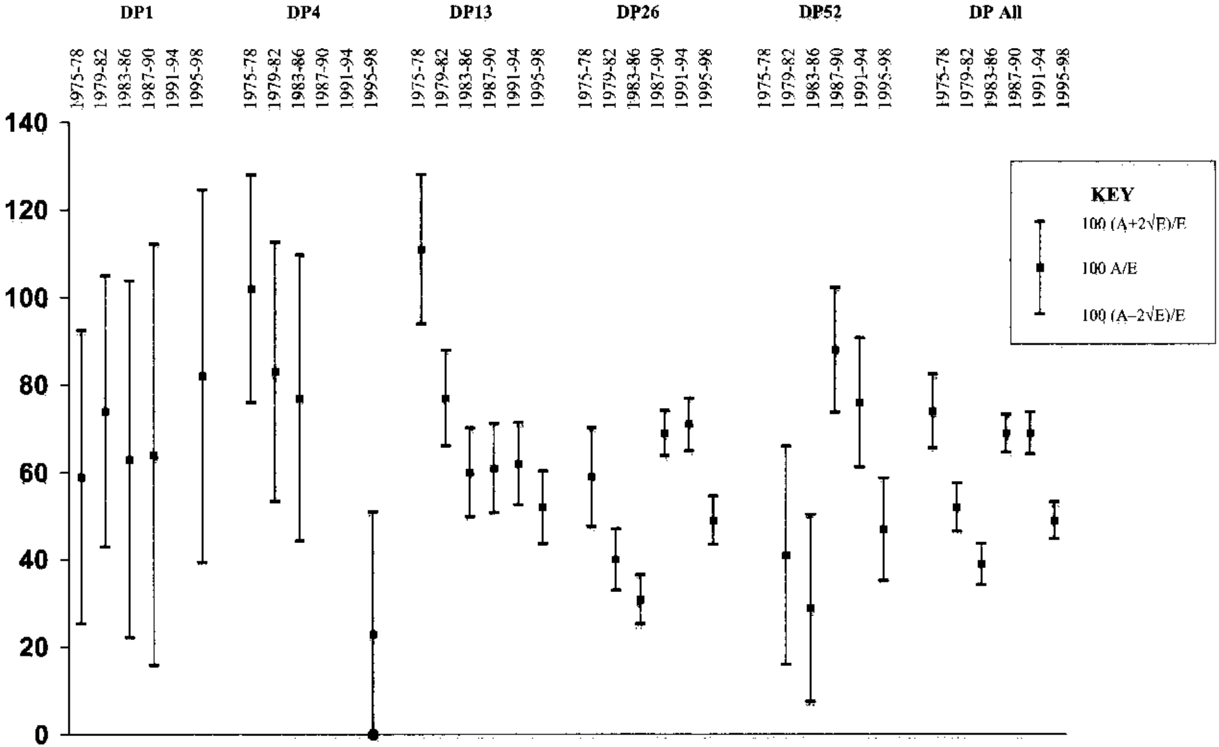
	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	–	2	21	84	19	126
E	–	0.8	25.3	95.5	25.6	147.2
$100A/E$						
Durations:						
1–30 weeks	–	↓	↓	↓	–	*66*
30–39 weeks	–	↓	↓	↓	–	*84*
39 wks–1 yr	–	↓	↓	91	–	*91*
1–2 years	–	↓	↓	*95*	↓	103
2–5 years	–	↓	↓	↓	↓	81
5–11 years	–	*240*	*83*	81	*74*	*66*
Ages:						
19–29	–	↓	↓	↓	↓	*26*
30–34	–	↓	↓	*67*	↓	↓
35–39	–	↓	↓	↓	↓	*76*
40–44	–	↓	↓	*50*	↓	*45*
45–49	–	↓	↓	*115*	↓	116
50–54	–	↓	↓	*89*	↓	89
55–59	–	*240*	↓	↓	↓	↓
60–64	–	–	*83*	*129*	*74*	*130*
All cells	–	*240*	*83*	88	*74*	86
Using E						
Σz^2	–	0.53	0.57	6.48	1.45	5.67
df	–	1	1	7	1	11
$p(\chi^2)$	–	0.47	0.45	0.49	0.23	0.89
$\#(+/-)$	–	1/0	0/1	3/4	0/1	1/10
$p(+/-)$	–	1.0	1.0	1.0	1.0	**0.0117**
$p(B)$	–	1.0	1.0	0.820	1.0	0.743
Using adjusted E						
Σz^2	–	–	–	3.82	–	14.46
df	–	–	–	7	–	8
$p(\chi^2)$	–	–	–	0.80	–	0.0705
$\#(+/-)$	–	–	–	4/4	–	3/6
$p(+/-)$	–	–	–	1.0	–	0.51
$p(B)$	–	–	–	0.356	–	0.524

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and $p(+/-)$ are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. $p(B)$ is shown as **bold** if less than 0.050.

Table A8.6. Females, group policies, 1995–98, Standard* experience, deaths. Occupational class = All classes.

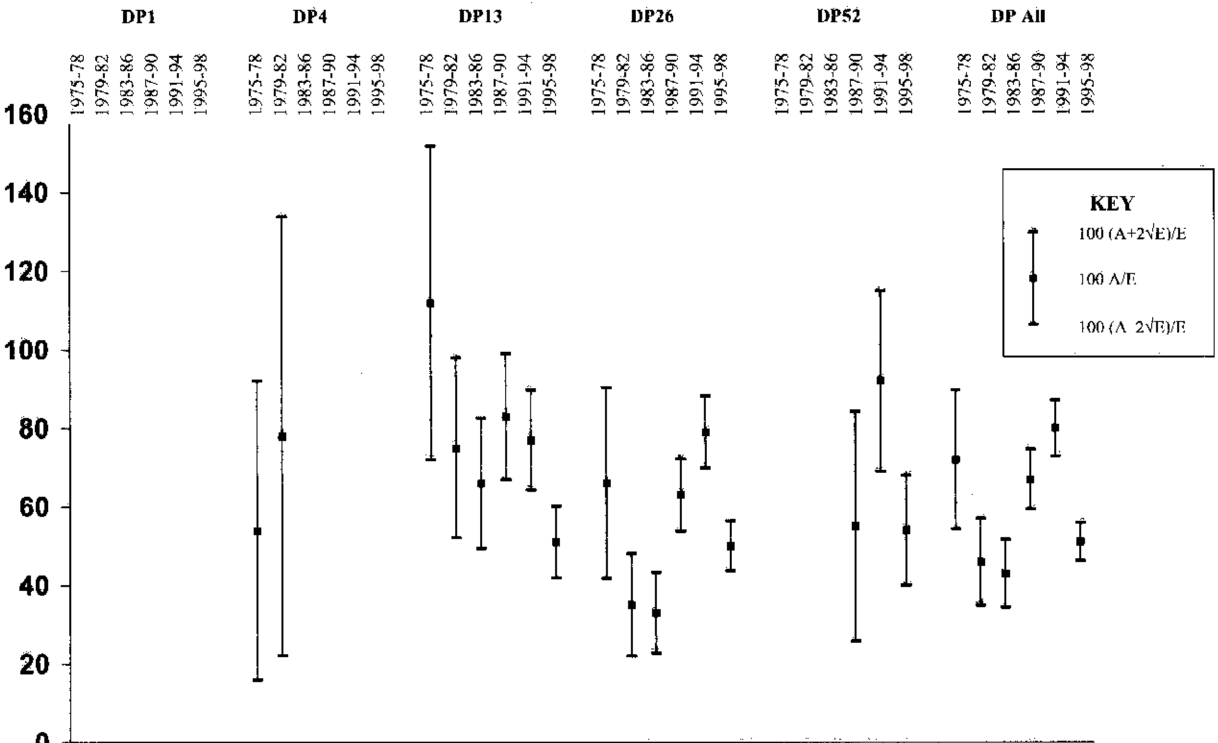
	DP 1	DP 4	DP 13	DP 26	DP 52	All DP
A	0	2	40	187	37	266
E	0.5	2.4	49.3	233.3	58.4	343.8
100*A*/*E*						
Durations:						
1–30 weeks	↓	↓	↓	↓	–	*68*
30–39 weeks	↓	↓	↓	*67*	–	*62*
39 wks–1 yr	↓	↓	*58*	*84*	–	*78*
1–2 years	↓	↓	↓	105	*88*	101
2–5 years	↓	↓	↓	76	↓	70
5–11 years	–	*84*	*107*	*55*	*45*	*61*
Ages:						
18–29	–	↓	↓	*52*	↓	*45*
30–34	–	↓	↓	*96*	↓	*90*
35–39	↓	↓	*51*	*55*	↓	*52*
40–44	↓	↓	↓	*36*	*39*	*28*
45–49	↓	↓	*100*	90	↓	97
50–54	↓	↓	↓	85	↓	82
55–59	–	*84*	↓	↓	↓	↓
60–64	–	–	*97*	121	*80*	119
All cells	–	*84*	81	80	63	77
Using *E*						
Σz^2	0.00	0.00	5.99	31.79	11.22	45.92
df	1	1	3	19	4	25
$p(\chi^2)$	**0.0000**	**0.0000**	0.11	**0.0330**	**0.0242**	**0.0066**
#(+/–)	0/1	0/1	1/2	7/12	1/3	5/20
p(+/–)	1.0	1.0	1.0	0.36	0.63	**0.0041**
p(*B*)	1.0	1.0	0.349	0.391	1.0	0.099
Using adjusted *E*						
Σz^2	–	–	11.43	16.77	3.45	39.91
df	–	–	3	13	1	18
$p(\chi^2)$	–	–	**0.0096**	0.21	0.0633	**0.0021**
#(+/–)	–	–	2/2	5/9	1/1	10/9
p(+/–)	–	–	1.0	0.42	1.0	1.0
p(*B*)	–	–	0.881	0.115	1.0	0.420

Note: 100A/E is shown as *italic* if the actual number of deaths is less than 30. $p(\chi^2)$ and *p*(+/–) are shown to 4 decimal places if less than 0.10 and as **bold** if less than 0.05. *p*(*B*) is shown as **bold** if less than 0.050.



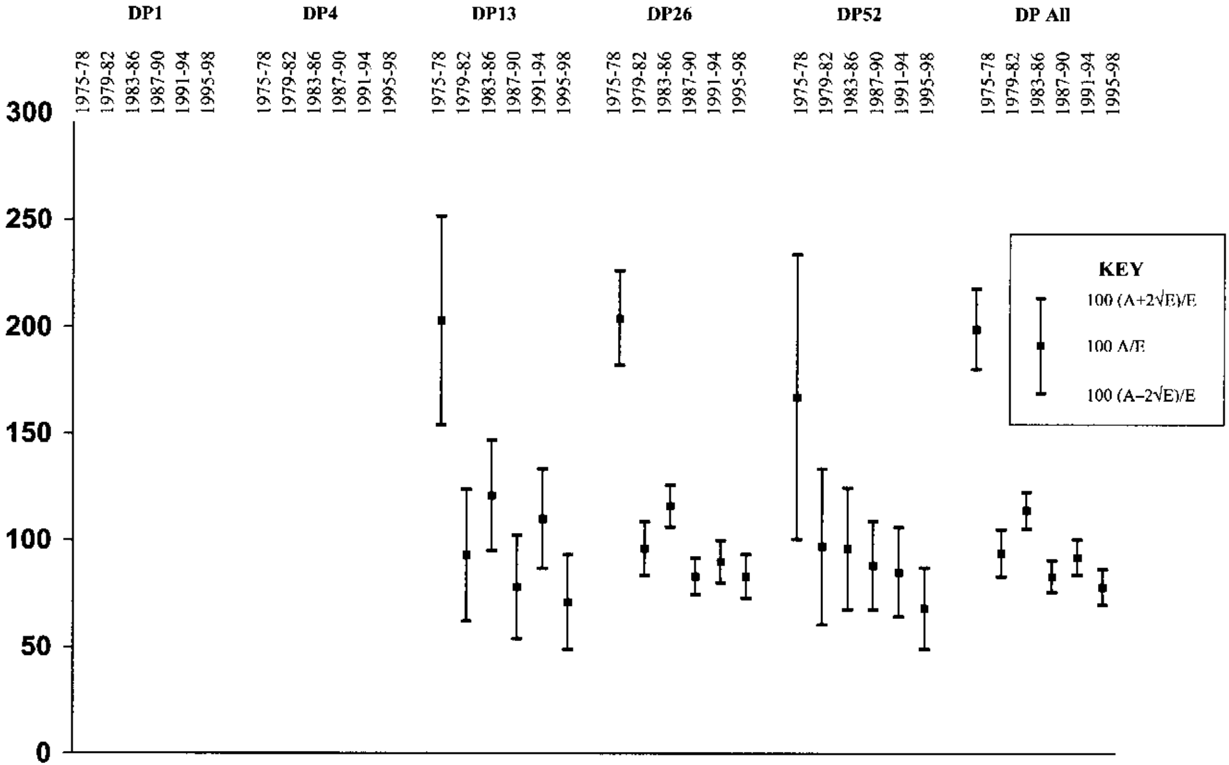
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A1.1. Males, group policies. Standard experience, recoveries, quadrennia 1975–78, 1979–82, 1983–86, 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26, 52 and all weeks. Compare with Table A2(a).



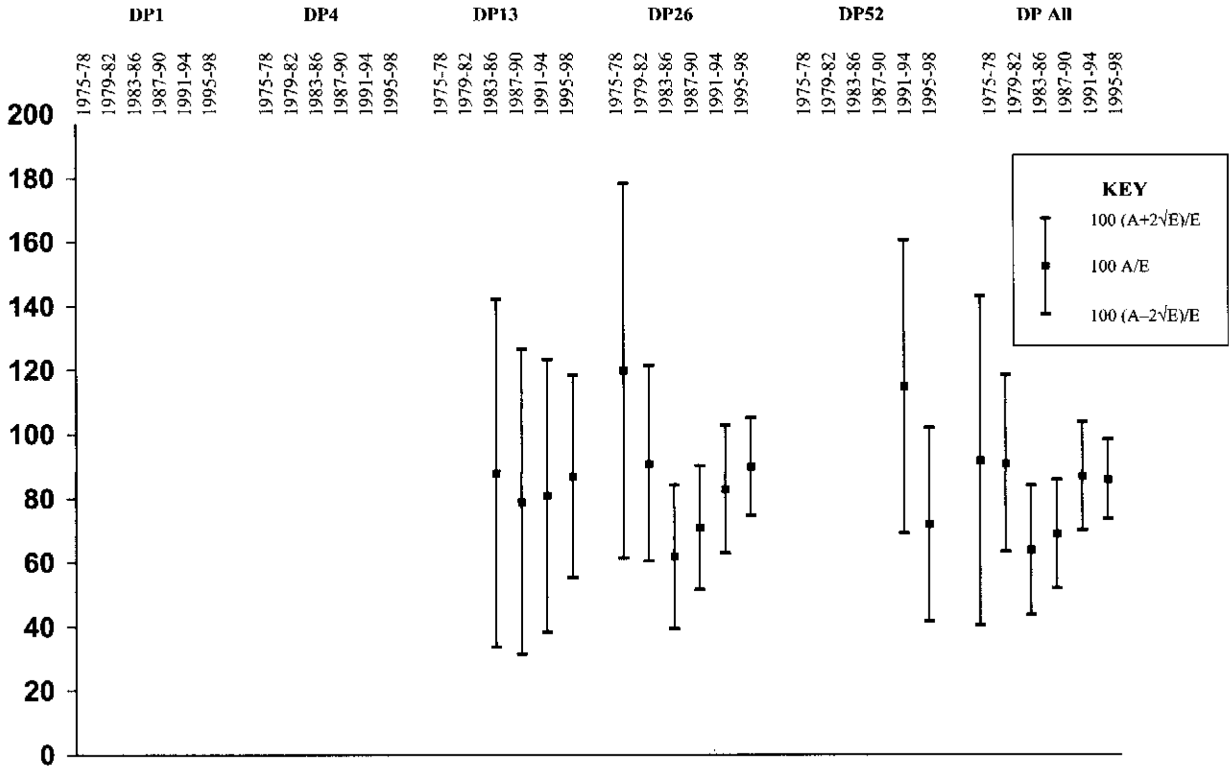
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A1.2. Females, group policies. Standard experience, recoveries, quadrennia 1975–78, 1979–82, 1983–86, 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26, 52 and all weeks. Compare with Table A2(b).



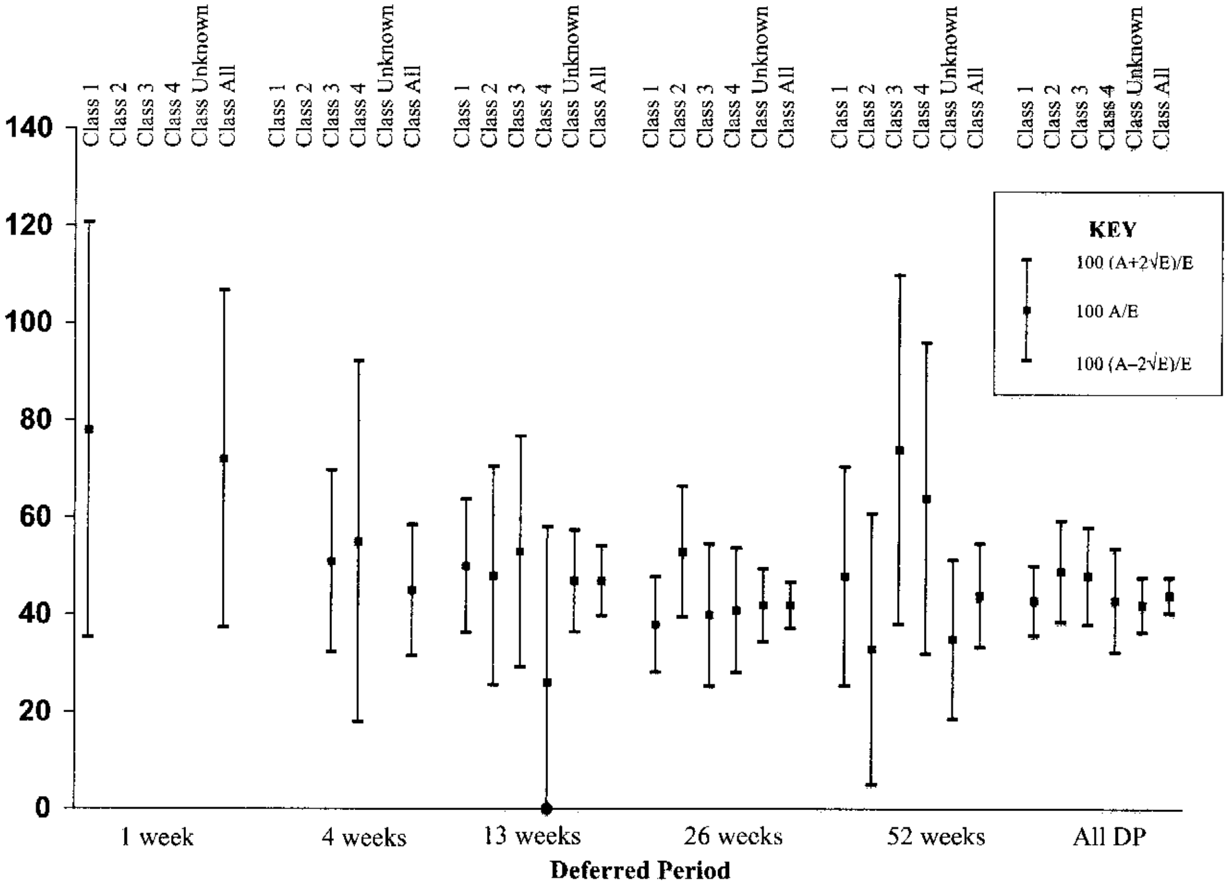
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A1.3. Males, group policies. Standard experience, deaths, quadrennia 1975–78, 1979–82, 1983–86, 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26, 52 and all weeks. Compare with Table A2(c).



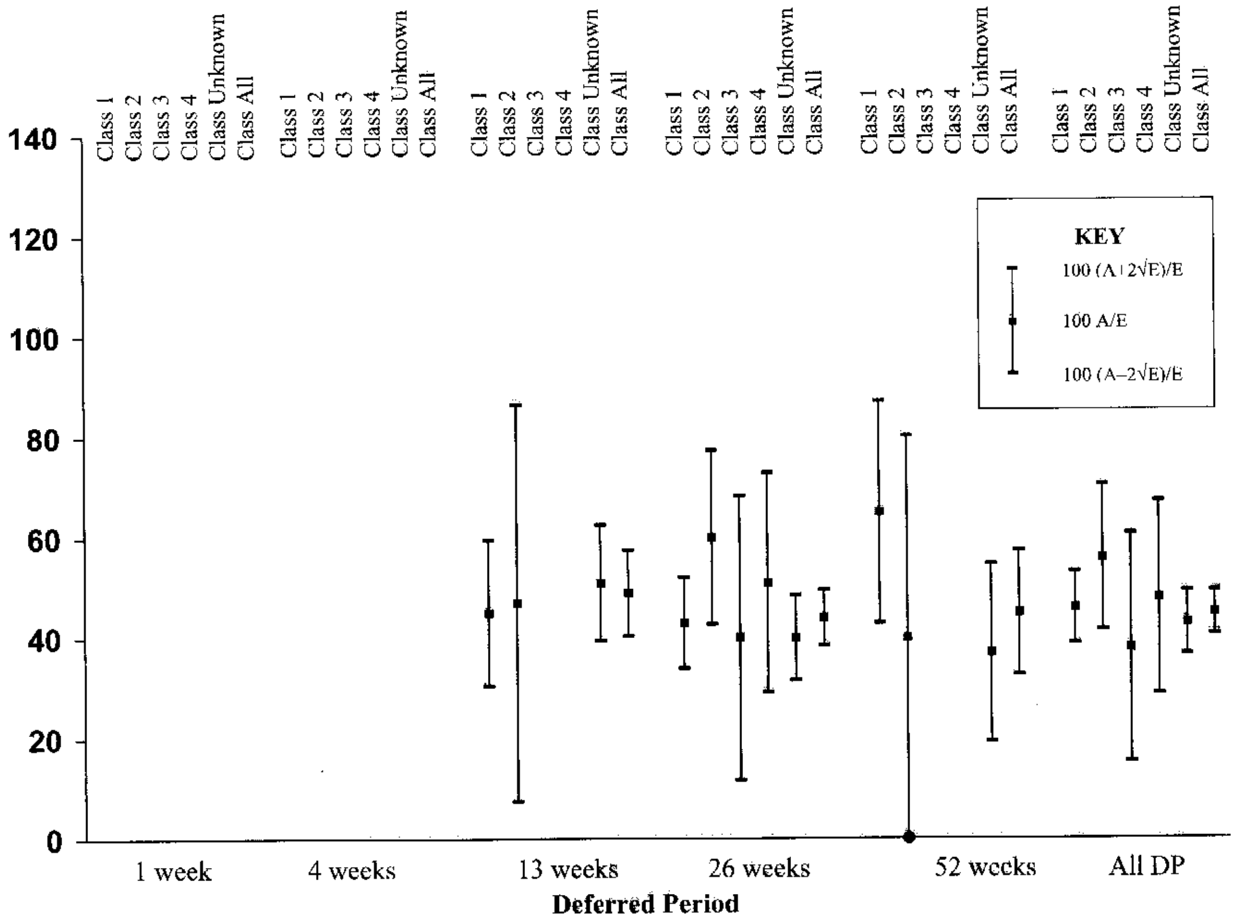
Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A1.4. Females, group policies. Standard experience, deaths, quadrennia 1975–78, 1979–82, 1983–86, 1987–90, 1991–94 and 1995–98. Deferred periods 1, 4, 13, 26, 52 and all weeks. Compare with Table A2(d).



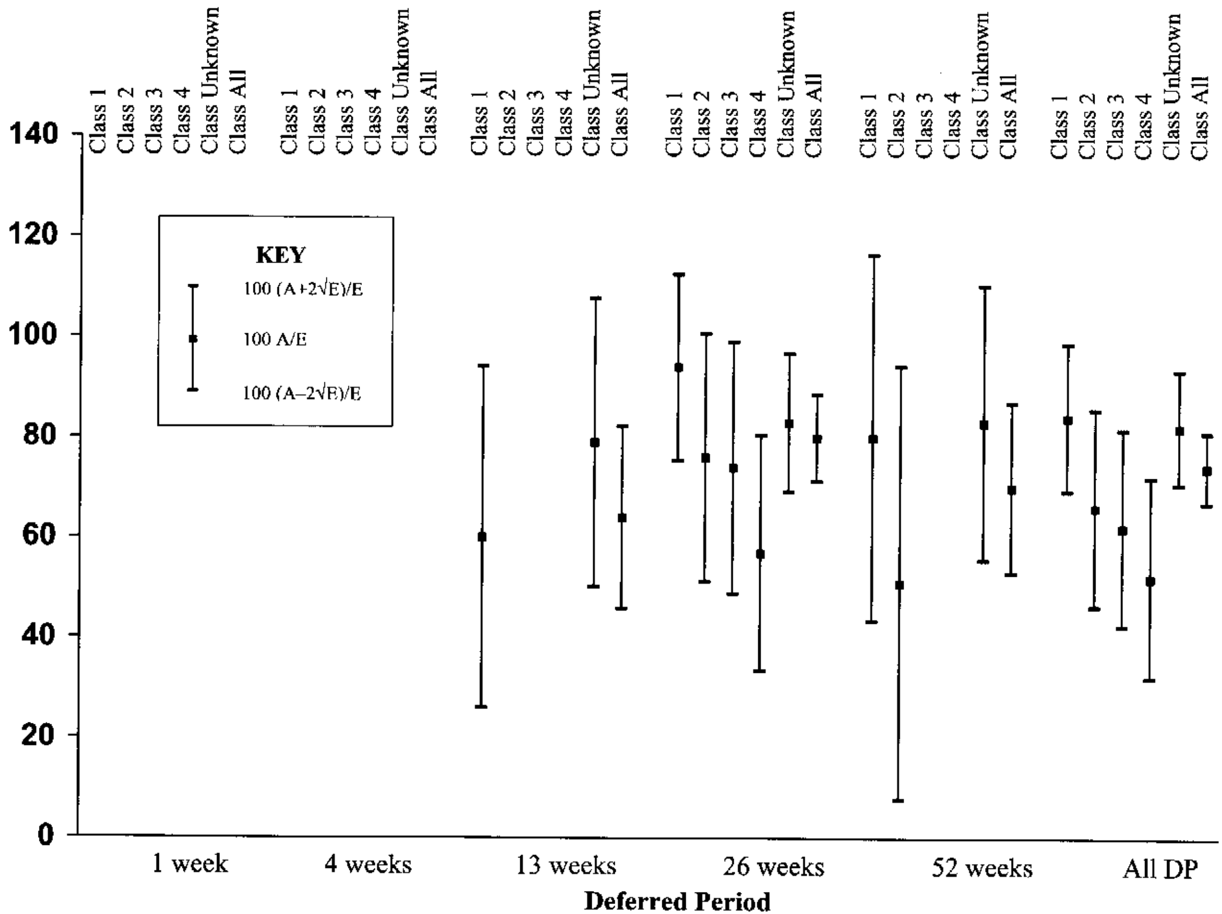
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.1. Males, group policies, recoveries, quadrennium 1995–98, C.M.I. occupational classes 1, 2, 3, 4, unknown and all combined. 100A/E and confidence intervals. Compare with Table A4(a).



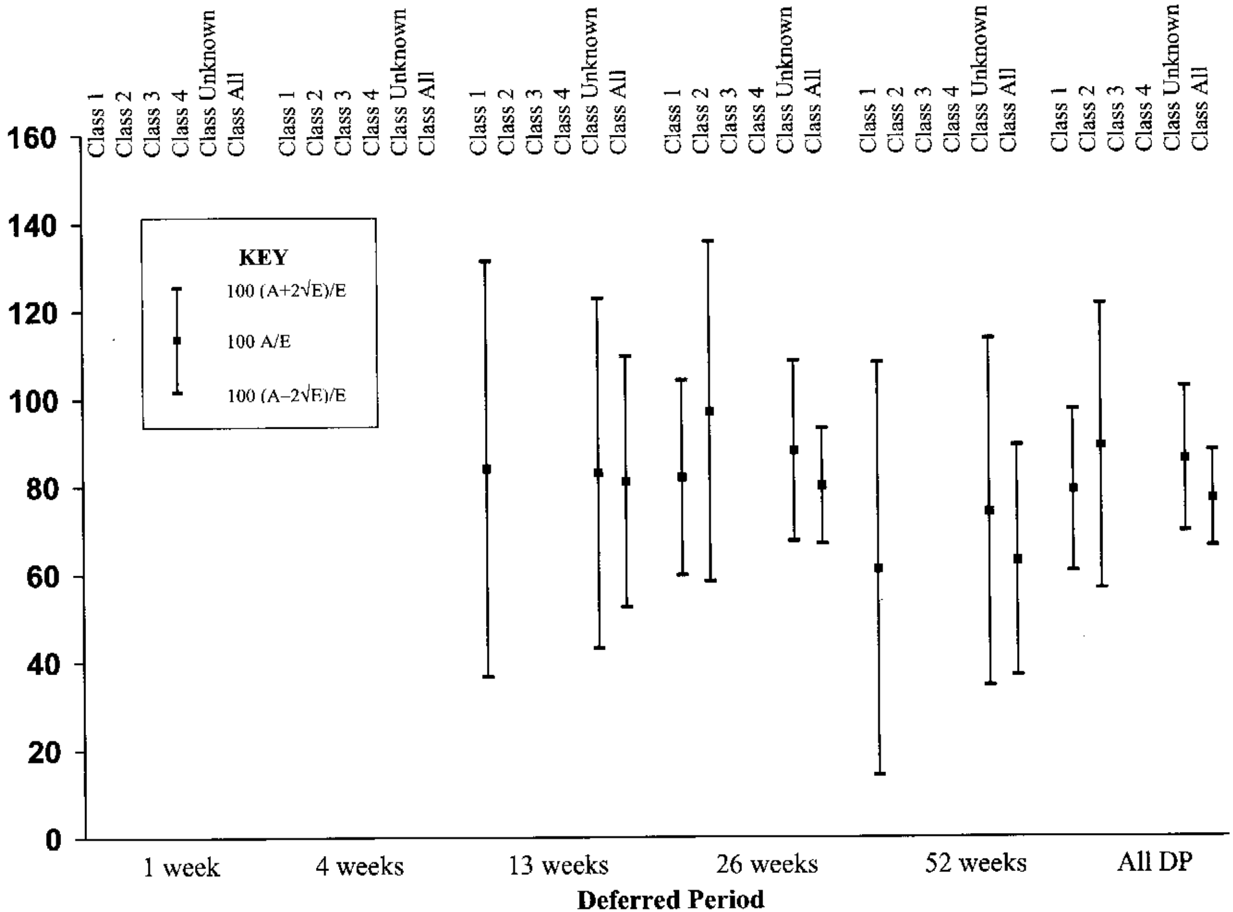
Note: Results are omitted from the above figure if based on less than 10 actual recoveries.

Figure A2.2. Females, group policies, recoveries, quadrennium 1995–98, C.M.I. occupational classes 1, 2, 3, 4, unknown and all combined. 100A/E and confidence intervals. Compare with Table A4(b).



Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A2.3. Males, group policies, deaths, quadrennium 1995–98, C.M.I. occupational classes 1, 2, 3, 4, unknown and all combined. 100A/E and confidence intervals. Compare with Table A4(c).



Note: Results are omitted from the above figure if based on less than 10 actual deaths.

Figure A2.4. Females, group policies, deaths, quadrennium 1995–98, C.M.I. occupational classes 1, 2, 3, 4, unknown and all combined. 100A/E and confidence intervals. Compare with Table A4(d).

CORRIGENDA

C.M.I.R. **19**, 44-45 Tables TEMP 2.1.1 and TEMP 2.1.2
The comparison bases used in these tables are the female versions of the relevant mortality tables, not the male tables as stated in the column headings. Thus, TM92 should read TF92, TM80 should read TF80, AM92 should read AF92 and AM80 should read AF80.

C.M.I.R. **19**, 116
The table name is incorrect. SMOK 2.3b should read SMOK 2.3a.

CONTINUOUS MORTALITY INVESTIGATION REPORTS

NUMBER 20

Introduction iii

The Mortality in 1987–90 and 1991–94 of Lives Assured Under Permanent (Whole Life and Endowment) Assurances, According to Cause of Death 1

Mini-graduations of the Mortality Experience of Smokers and Non-Smokers for Assured Lives 75

The Mortality of Impaired Assured Lives, 1987–98 91

A Report on a Pilot Investigation into the Mortality Experience of Pensioners of Self-Administered Pension Schemes 109

Inter-Office Comparisons 141

Sickness Experience 1995–98 for Individual Income Protection Policies 145

Sickness Experience 1995–98 for Group Income Protection Policies 261

Corrigenda 317