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# THE EXECUTIVE COMMITTEE OF THE CONTINUOUS MORTALITY INVESTIGATION BUREAU

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# INTRODUCTION

THE Joint Continuous Mortality Investigation Committee of the Institute and Faculty has pleasure in presenting the fifth number of its *Reports*.

The first five papers form the third of the consolidated reports published in *C.M.I.R.* and contain summaries of mortality experienced in the latest 4-year period 1975–78. The report on the experience of assured lives includes for the first time a section on linked policies, in respect of which data were collected from 1976.

When studying the tables published with these papers, it is necessary to bear in mind the statistical significance of the results, particularly those which appear in the form of the ratio $r = 100\ A/E$. In general a good approximation (which may be calculated from the published figures) for the standard deviation of $r$ is $10\sqrt{r}/\sqrt{A}$. Alternatively, a slightly less accurate approximation is $100/\sqrt{A}$.

There follows an historical note on the rates of mortality at very high ages in the *a(55)* table of annuitants' mortality.

The final report in this number has been prepared by the P.H.I. Investigation Sub-committee on the sickness experience in 1973–76 under group P.H.I. policies.

E. B. O. Sherlock
Chairman of the Committee

# MORTALITY OF ASSURED LIVES

## EXPERIENCES FOR 1975–78

1. This report is on the various assured lives' experiences for the quadrennium 1975–78. The previous such report related to the years 1971–74 and was published in *C.M.I.R.* **3**, 31. As in that report, the present one is subdivided between whole-life and endowment assurances (males), whole-life and endowment assurances (females) and temporary assurances (males only), with additional sections on linked contracts (males) and linked contracts (females)—all in respect of policies issued in the U.K.; as for the previous quadrennium, there is a section on whole-life and endowment assurances (males only) in respect of policies issued in the Republic of Ireland, which appears immediately after the report on similar contracts on male lives issued in the U.K.

### WHOLE-LIFE AND ENDOWMENT ASSURANCES (MALES): POLICIES ISSUED IN THE U.K.

2. Table 1 shows the actual deaths in 1975–78 and compares them with the deaths expected by the A 1967–70 table; it shows the ratios of actual to expected deaths, together with the corresponding ratios for 1971–74 and, where available, for 1967–70. Table 2 gives similar comparisons for the medically examined and the non-medical data separately, with a summary in Table 3; it should be remembered that, although the expression 'assured lives' is used throughout, the investigations are based on 'policies' rather than 'lives'.

3. These comparisons show that for the combined data, the rates of mortality at durations 2 and over have declined at all ages, compared with the two previous quadrennia, indicating that they have fallen to a level appreciably below the A 1967–70 table up to age 75. This has not been the case at duration 0, where the overall mortality has not changed greatly, although there have been somewhat irregular changes within many of the age groups. At duration 1 there has been an overall fall in mortality rates, though not as marked as at the higher durations, and mainly at the ages 21–45. It is interesting to note that the critics who felt the select rates had been set too low at the upper range of ages when the standard table was constructed, have not in the event had their fears realized by the experiences.

4. When the medically examined and non-medical experiences are considered separately, after ignoring some irregularities from age group to age group at durations 0 and 1, it will be seen that the reduction in mortality has occurred fairly consistently over all the data except for the medically examined lives at duration 0 where, at most ages, mortality was higher in 1975–78 than in 1971–74.

Table 1. *Whole-life and endowment assurances 1975–78, males; actual and ratios of actual to expected deaths by the A 1967–70 table; medical and non-medical combined*

| Age group (nearest ages) | Actual deaths 1975–78 | 100 A/E 1975–78 | 100 A/E 1971–74 | 100 A/E 1967–70 |
|---|---|---|---|---|
| *Duration* 0 | | | | |
| –20 | 180 | 119 | 104 | 103 |
| 21–25 | 240 | 98 | 105 | 100 |
| 26–30 | 220 | 97 | 103 | 96 |
| 31–35 | 180 | 93 | 110 | 99 |
| 36–40 | 213 | 105 | 94 | 105 |
| 41–45 | 240 | 100 | 88 | 102 |
| 46–50 | 242 | 90 | 105 | 95 |
| 51–55 | 251 | 102 | 80 | 105 |
| 56–60 | 105 | 82 | 92 | 91 |
| 61–65 | 63 | 104 | 74 | 117 |
| 66–70 | 28 | 83 | 90 | 78 |
| 71– | 9 | 73 | 70 | 131 |
| All ages | 1,971 | 98 | 97 | 100 |
| *Duration* 1 | | | | |
| –20 | 128 | 115 | 102 | 100 |
| 21–25 | 202 | 79 | 89 | 99 |
| 26–30 | 231 | 81 | 95 | 102 |
| 31–35 | 218 | 89 | 110 | 98 |
| 36–40 | 231 | 93 | 100 | 107 |
| 41–45 | 273 | 92 | 98 | 94 |
| 46–50 | 338 | 98 | 95 | 107 |
| 51–55 | 357 | 105 | 102 | 98 |
| 56–60 | 200 | 95 | 105 | 95 |
| 61–65 | 84 | 98 | 78 | 97 |
| 66–70 | 51 | 85 | 102 | 90 |
| 71– | 23 | 105 | 127 | 146 |
| All ages | 2,336 | 93 | 98 | 100 |
| *Durations* 2 *and over* | | | | |
| –20 | 117 | 96 | 118 | 104 |
| 21–25 | 635 | 87 | 93 | 103 |
| 26–30 | 1,421 | 87 | 100 | 98 |
| 31–35 | 2,020 | 88 | 93 | 97 |
| 36–40 | 2,996 | 91 | 94 | 100 |
| 41–45 | 4,958 | 86 | 93 | 102 |

Table 1. (*continued*)

| Age group (nearest ages) | Actual deaths 1975–78 | 100 A/E 1975–78 | 100 A/E 1971–74 | 100 A/E 1967–70 |
|---|---|---|---|---|
| 46–50 | 8,611 | 85 | 95 | 101 |
| 51–55 | 14,187 | 89 | 95 | 99 |
| 56–60 | 16,767 | 85 | 92 | 100 |
| 61–65 | 16,453 | 88 | 93 | 101 |
| 66–70 | 6,095 | 84 | 90 | 98 |
| 71–75 | 5,514 | 90 | 98 | 103 |
| 76–80 | 4,862 | 97 | 98 | 101 |
| 81–85 | 3,524 | 94 | 98 | 100 |
| 86–90 | 2,367 | 96 | 99 | 99 |
| 91–95 | 1,061 | 95 | 89 | 94 |
| 96–100 | 245 | 75 | 85 | 93 |
| 101– | 11 | 39 | 37 | |
| –45 | 12,147 | 87 | 95 | 100 |
| 46–60 | 39,565 | 87 | 94 | 100 |
| 61–75 | 28,062 | 87 | 93 | 100 |
| 76– | 12,070 | 95 | 97 | 99 |
| All ages | 91,844 | 88 | 94 | 100 |

Table 2. *Whole-life and endowment assurances 1975–78, males, medically examined and non-medical data separately; actual and ratios of actual to expected deaths by the A 1967–70 table*

| | Medically examined | | | Non-medical | | |
|---|---|---|---|---|---|---|
| Age group (nearest ages) | Actual deaths 1975–78 | 100 A/E 1975–78 | 100 A/E 1971–74 | Actual deaths 1975–78 | 100 A/E 1975–78 | 100 A/E 1971–74 |
| *Duration* 0 | | | | | | |
| –20 | 5 | 122 | 150 | 175 | 119 | 103 |
| 21–25 | 19 | 113 | 90 | 221 | 97 | 107 |
| 26–30 | 27 | 118 | 94 | 193 | 95 | 104 |
| 31–35 | 16 | 74 | 93 | 164 | 95 | 114 |
| 36–40 | 26 | 112 | 103 | 187 | 104 | 92 |
| 41–45 | 32 | 101 | 89 | 208 | 100 | 88 |
| 46–50 | 21 | 60 | 92 | 221 | 94 | 108 |
| 51–55 | 72 | 91 | 64 | 179 | 107 | 93 |
| 56–60 | 35 | 70 | 61 | 70 | 90 | 119 |
| 61–65 | 23 | 93 | 56 | 40 | 111 | 93 |
| 66–70 | 8 | 50 | 44 | 20 | 112 | 143 |
| 71– | 7 | 88 | 88 | 2 | 45 | 0 |
| All ages | 291 | 87 | 78 | 1,680 | 100 | 102 |

Table 2. (*continued*)

| Age group (nearest ages) | Medically examined: Actual deaths 1975–78 | Medically examined: 100 A/E 1975–78 | Medically examined: 100 A/E 1971–74 | Non-medical: Actual deaths 1975–78 | Non-medical: 100 A/E 1975–78 | Non-medical: 100 A/E 1971–74 |
|---|---|---|---|---|---|---|
| *Duration* 1 | | | | | | |
| –20 | 4 | 142 | 100 | 124 | 115 | 102 |
| 21–25 | 10 | 55 | 96 | 192 | 81 | 88 |
| 26–30 | 26 | 80 | 98 | 205 | 81 | 95 |
| 31–35 | 41 | 130 | 111 | 177 | 83 | 109 |
| 36–40 | 34 | 103 | 107 | 197 | 92 | 98 |
| 41–45 | 43 | 97 | 105 | 230 | 91 | 97 |
| 46–50 | 41 | 82 | 87 | 297 | 101 | 97 |
| 51–55 | 102 | 93 | 85 | 255 | 110 | 112 |
| 56–60 | 57 | 68 | 82 | 143 | 114 | 125 |
| 61–65 | 24 | 60 | 53 | 60 | 132 | 104 |
| 66–70 | 15 | 55 | 70 | 36 | 111 | 129 |
| 71– | 10 | 67 | 106 | 13 | 183 | 183 |
| All ages | 407 | 83 | 88 | 1,929 | 96 | 101 |
| *Durations* 2 *and over* | | | | | | |
| –20 | 6 | 197 | 25 | 111 | 94 | 122 |
| 21–25 | 35 | 87 | 96 | 600 | 87 | 93 |
| 26–30 | 147 | 86 | 106 | 1,274 | 87 | 99 |
| 31–35 | 306 | 95 | 98 | 1,714 | 87 | 92 |
| 36–40 | 554 | 93 | 92 | 2,442 | 90 | 95 |
| 41–45 | 1,042 | 82 | 87 | 3,916 | 86 | 96 |
| 46–50 | 2,047 | 82 | 91 | 6,564 | 86 | 96 |
| 51–55 | 3,588 | 80 | 87 | 10,599 | 92 | 99 |
| 56–60 | 5,238 | 78 | 83 | 11,529 | 89 | 98 |
| 61–65 | 6,008 | 79 | 83 | 10,445 | 93 | 101 |
| 66–70 | 3,508 | 81 | 88 | 2,587 | 90 | 94 |
| 71–75 | 3,579 | 87 | 98 | 1,935 | 97 | 100 |
| 76–80 | 3,475 | 96 | 97 | 1,387 | 98 | 103 |
| 81–85 | 2,668 | 93 | 96 | 856 | 98 | 103 |
| 86–90 | 1,930 | 96 | 98 | 437 | 98 | 102 |
| 91–95 | 911 | 94 | 88 | 150 | 98 | 99 |
| 96–100 | 223 | 76 | 86 | 22 | 66 | 69 |
| 101– | 10 | 37 | 34 | 1 | 78 | 67 |
| –45 | 2,090 | 87 | 91 | 10,057 | 87 | 95 |
| 46–60 | 10,873 | 79 | 86 | 28,692 | 90 | 98 |
| 61–75 | 13,095 | 81 | 88 | 14,967 | 93 | 100 |
| 76– | 9,217 | 94 | 95 | 2,853 | 98 | 102 |
| All ages | 35,275 | 84 | 89 | 56,569 | 91 | 98 |

Table 3. *Whole-life and endowment assurances* 1975–78, *males; percentages of actual to expected deaths by the A* 1967–70 *table*

| Durations | Age group (nearest ages) | Medical | | Non-medical | | Combined | | |
|---|---|---|---|---|---|---|---|---|
| | | 1975–78 | 1971–74 | 1975–78 | 1971–74 | 1975–78 | 1971–74 | 1967–70 |
| 0 | All ages | 87 | 78 | 100 | 102 | 98 | 97 | 100 |
| 1 | All ages | 83 | 88 | 96 | 101 | 93 | 98 | 100 |
| 2 and over | –45 | 87 | 91 | 87 | 95 | 87 | 95 | 100 |
| | 46–60 | 79 | 86 | 90 | 98 | 87 | 94 | 100 |
| | 61–75 | 81 | 88 | 93 | 100 | 87 | 93 | 100 |
| | 76– | 94 | 95 | 98 | 102 | 95 | 97 | 99 |
| | All ages | 84 | 89 | 91 | 98 | 88 | 94 | 100 |

5. It has been usual, for some time now, for these reports to include an approximate relationship between the observed ultimate rates of mortality and the rates given in the standard table. In the case of 1975–78, the ratio

$$q_x \text{ (observed)} = \cdot 87\, q_x \text{ (A 1967–70)}$$

applies to the whole range up to age 75, which covers 99·4% of the exposed to risk and 87% of the actual deaths. Any linear or quadratic formula aimed at reproducing the higher percentages observed between ages 76 and 95 would cause distortion at the ages below 76, and no better relationship can be suggested than

$$q_x \text{ (1975–78)} = \cdot 88\, q_x \text{ (A 1967–70)}$$

which is still not really high enough in the upper age range.

6. A comparison of trends between the experiences of whole-life and endowment assurances (durations 2 and over, males) and the population of Great Britain is given in Table 4. The percentage ratios for the population have been based on the notes by Daykin on 'The Recent Trend of Mortality in Great Britain' in *J.I.A.* **104,** 93; **105,** 79; **106,** 219 and **107,** 529; in these notes the comparison was with the mortality experienced by the population in 1970–72, and to enable the comparison with assured lives to be valid, it has been necessary to estimate by interpolation the 1970–72 experience (which straddles two of the quadrennia on which the C.M.I. reports have been based), the centre point of 1970–72 being $2\frac{1}{2}$ years after the centre of 1967–70 and $1\frac{1}{2}$ years before the centre of 1971–74. The change in the base year means that it is not possible to bring earlier quadrennia into the comparison. It will be seen that the proportionate reductions in mortality between 1970–72 and 1975–78 have been more marked for the assured lives than for the population, with the exception of the age range 31–45.

7. Table 5 shows the central rates of mortality in quinary age groups for the whole-life and endowment assurance experience (males, durations 2 and over) for 1975–78, for the medical and non-medical sections separately and combined,

Table 4. *Ratios of actual deaths in the male whole-life and endowment assurance experience at durations 2 and over in 1975–78 to those expected on the experience of 1970–72; compared with ratios of actual deaths in the male population of Great Britain to those expected on the experience of 1970–72*

| Whole-life and endowment assurances (males) | | Great Britain population (males) | |
|---|---|---|---|
| Ages nearest birthday | 100 A/E 1975–78 | Ages last birthday | 100 A/E 1975–78 |
| 21–25 | 90 | 20–24 | 98 |
| 26–30 | 88 | 25–29 | 98 |
| 31–35 | 93 | 30–34 | 92 |
| 36–40 | 95 | 35–39 | 93 |
| 41–45 | 90 | 40–44 | 88 |
| 46–50 | 88 | 45–49 | 91 |
| 51–55 | 92 | 50–54 | 97 |
| 56–60 | 89 | 55–59 | 93 |
| 61–65 | 92 | 60–64 | 94 |
| 66–70 | 90 | 65–69 | 92 |
| 71–75 | 90 | 70–74 | 95 |
| 76–80 | 98 | 75–79 | 98 |
| 81–85 | 95 | 80–84 | 102 |

Table 5. *Central rates of mortality in the years 1975–78 under whole-life and endowment assurances (males, durations 2 and over) compared with corresponding rates in 1971–74 and 1967–70 and with rates experienced by the male population of Great Britain (shown in brackets)*

| Ages last birthday | 1975–78 | | | | 1971–74 | | 1967–70 | |
|---|---|---|---|---|---|---|---|---|
| | Med. | Non-med. | Combined | | Combined | | Combined | |
| 20–24 | ·0006 | ·0007 | ·0007 | (·0010) | ·0007 | (·0010) | ·0008 | (·0010) |
| 25–29 | ·0006 | ·0006 | ·0006 | (·0009) | ·0007 | (·0009) | ·0007 | (·0009) |
| 30–34 | ·0007 | ·0006 | ·0006 | (·0010) | ·0007 | (·0011) | ·0007 | (·0011) |
| 35–39 | ·0010 | ·0010 | ·0010 | (·0016) | ·0010 | (·0017) | ·0011 | (·0017) |
| 40–44 | ·0015 | ·0016 | ·0016 | (·0027) | ·0017 | (·0030) | ·0019 | (·0031) |
| 45–49 | ·0029 | ·0030 | ·0030 | (·0050) | ·0032 | (·0055) | ·0034 | (·0054) |
| 50–54 | ·0050 | ·0056 | ·0054 | (·0091) | ·0057 | (·0093) | ·0061 | (·0094) |
| 55–59 | ·0083 | ·0093 | ·0089 | (·0147) | ·0099 | (·0158) | ·0104 | (·0161) |
| 60–64 | ·0140 | ·0162 | ·0153 | (·0248) | ·0162 | (·0257) | ·0175 | (·0270) |
| 65–69 | ·0236 | ·0257 | ·0245 | (·0400) | ·0258 | (·0423) | ·0284 | (·0443) |
| 70–74 | ·0406 | ·0450 | ·0420 | (·0642) | ·0464 | (·0670) | ·0488 | (·0682) |
| 75–79 | ·0706 | ·0722 | ·0710 | (·0990) | ·0751 | (·1006) | ·0777 | (·1008) |
| 80–84 | ·1066 | ·1106 | ·1075 | (·1481) | ·1101 | (·1485) | ·1128 | (·1425) |

alongside the corresponding central rates for 1971–74 and 1967–70 for the medical and non-medical data combined, and the population rates for both quadrennia brought forward from *C.M.I.R.* 3, 31. The rates for 1975–78 are given for a larger range of ages than in earlier reports, and show assured lives' rates throughout of between 60 and 70% of population rates; in both experiences mortality rates fell between 1971–74 and 1975–78. A similar comparison with population mortality for female lives will be found in Table 9.

## WHOLE LIFE AND ENDOWMENT ASSURANCES (MALES): POLICIES ISSUED IN THE REPUBLIC OF IRELAND

8. The results of the investigation into the 1975–78 experience under policies issued in the Republic of Ireland are given in Table 6 which shows, for the medical and non-medical data both separately and combined, the actual deaths and the ratios between actual and expected according to the A 1967–70 table. The 1971–74 ratios, taken from the previous report, are shown alongside, and the corresponding ratios for both quadrennia applicable to policies issued in the United Kingdom are repeated from Table 3 and shown in brackets. It will be seen that the mortality experienced under the Republic of Ireland policies tended to be heavier than under the policies issued in the U.K., but some of the differences shown in the table are not statistically significant.

9. This experience, based on much smaller exposed to risk than the U.K. experience, seems to have settled down to mortality fairly comparable with A 1967–70, apart from the non-medical data at durations 0 and 1; bearing in mind that at ages up to 50 (where most of the select data lie) the A 1967–70 ultimate rates are nearly $1\frac{1}{2}$ times the duration 0 rates and 1·2 times the duration 1 rates, it is clear that the selective forces are present in the Irish experience, but in the case of the non-medical data their effects appear to wear off after the first year.

Table 6. *Whole-life and endowment assurances,* 1975–78, *males, policies issued in the Republic of Ireland; actual and ratios of actual to expected deaths according to the A* 1967–70 *table (corresponding figures for policies issued in the U.K. shown in brackets)*

| Duration | Age group (nearest ages) | Actual deaths | 100 A/E 1975–78 | 100 A/E 1971–74 |
|---|---|---|---|---|
| *Medically examined lives* | | | | |
| 0 | All ages | 15 | 92 (87) | 89 (78) |
| 1 | All ages | 19 | 82 (83) | 89 (88) |
| 2 and over | –30 | 13 | 117 | |
| | 31–35 | 24 | 104 | |
| | 36–40 | 42 | 95 | |
| | 41–45 | 99 | 106 | |

Table 6. (*continued*)

| Duration | Age group (nearest ages) | Actual deaths | 100 A/E 1975–78 | 100 A/E 1971–74 |
|---|---|---|---|---|
| | 46–50 | 161 | 88 | |
| | 51–55 | 381 | 121 | |
| | 56–60 | 503 | 103 | |
| | 61–65 | 579 | 102 | |
| | 66–70 | 277 | 91 | |
| | 71–75 | 193 | 97 | |
| | 76–80 | 196 | 123 | |
| | 81–85 | 121 | 113 | |
| | 86–90 | 39 | 93 | |
| | 91– | 13 | 79 | |
| | –45 | 178 | 104 (87) | 100 (91) |
| | 46–60 | 1,045 | 106 (79) | 112 (86) |
| | 61–75 | 1,049 | 98 (81) | 105 (88) |
| | 76– | 369 | 114 (94) | 112 (95) |
| | All ages | 2,641 | 104 (84) | 108 (89) |
| *Non-medical data* | | | | |
| 0 | All ages | 49 | 110 (100) | 100 (102) |
| 1 | All ages | 66 | 139 (96) | 116 (101) |
| 2 and over | –25 | 42 | 161 | |
| | 26–30 | 44 | 94 | |
| | 31–35 | 64 | 95 | |
| | 36–40 | 86 | 86 | |
| | 41–45 | 161 | 95 | |
| | 46–50 | 237 | 95 | |
| | 51–55 | 400 | 118 | |
| | 56–60 | 381 | 99 | |
| | 61–65 | 278 | 87 | |
| | 66–70 | 59 | 135 | |
| | 71 75 | 28 | 108 | |
| | 76–80 | 20 | 84 | |
| | 81–85 | 17 | 116 | |
| | 86– | 9 | 127 | |
| | –45 | 397 | 97 (87) | 102 (95) |
| | 46–60 | 1,018 | 105 (90) | 122 (98) |
| | 61–75 | 365 | 93 (93) | 105 (100) |
| | 76– | 46 | 101 (98) | 121 (102) |
| | All ages | 1,826 | 100 (91) | 114 (98) |

Table 6. (*continued*)

| Duration | Age group (nearest ages) | Actual deaths | 100 A/E 1975–78 | 100 A/E 1971–74 |
|---|---|---|---|---|
| *Combined data* | | | | |
| 0 | All ages | 64 | 105 (98) | 103 (97) |
| 1 | All ages | 85 | 119 (93) | 107 (98) |
| 2 and over | –25 | 43 | 154 | |
| | 26–30 | 56 | 100 | |
| | 31–35 | 88 | 97 | |
| | 36–40 | 128 | 88 | |
| | 41–45 | 260 | 99 | |
| | 46–50 | 398 | 92 | |
| | 51–55 | 781 | 120 | |
| | 56–60 | 884 | 101 | |
| | 61–65 | 857 | 97 | |
| | 66–70 | 336 | 96 | |
| | 71–75 | 221 | 98 | |
| | 76–80 | 216 | 118 | |
| | 81–85 | 138 | 113 | |
| | 86–90 | 48 | 101 | |
| | 91– | 13 | 73 | |
| | –45 | 575 | 99 (87) | 102 (95) |
| | 46–60 | 2,063 | 105 (87) | 117 (94) |
| | 61–75 | 1,414 | 97 (87) | 105 (93) |
| | 76– | 415 | 112 (95) | 113 (97) |
| | All ages | 4,467 | 102 (88) | 110 (94) |

## WHOLE LIFE AND ENDOWMENT ASSURANCES (FEMALES): POLICIES ISSUED IN THE U.K.

10. The report on policies effected on female lives, published in *C.M.I.R.* **3**, 42, was based on 2 years only, data having only been collected since the beginning of 1973. The report now being made is the first relating to a complete quadrennium. Table 7 shows the actual deaths and the ratios of actual to expected deaths for the medically examined and non-medical data combined, the two sections being shown separately in Table 8. The expected deaths have been calculated according to the A 1967–70 table with a four-year age deduction; this table was based on a male experience and it is believed the 4-year adjustment corresponds approximately to current practice. The expected deaths have also been calculated according to E.L.T. Nos. 12 and 13; E.L.T. No. 12 was the most up-to-date table for female lives at the time the 1973–74 report was prepared and also when the programme for 1975–78 was devised. It has not been thought worth while to re-run the data for the earlier experience in order to compare it with E.L.T. No. 13, particularly as a population table is not necessarily appropriate for assured lives.

Table 7. *Whole-life and endowment assurances, 1975–78, females; actual and ratios of actual to expected deaths by the E.L.T. Nos. 12 and 13 (female) and by the A 1967–70 table with a 4-year age adjustment; medical and non-medical combined (ratios for 1973–74 shown in brackets)*

| Age group (nearest ages) | Actual deaths | 100 A/E E.L.T. No. 13 | 100 A/E E.L.T. No. 12 | 100 A/E A 1967–70 (4-year age adjustment) |
|---|---|---|---|---|
| *Duration 0* | | | | |
| –25 | 49 | 59 | 57 (48) | 41 (34) |
| 26–35 | 54 | 45 | 36 (39) | 57 (60) |
| 36–45 | 80 | 43 | 39 (35) | 103 (92) |
| 46– | 146 | 33 | 32 (22) | 76 (53) |
| All ages | 329 | 39 | 37 (31) | 68 (55) |
| *Duration 1* | | | | |
| –25 | 46 | 72 | 69 (65) | 42 (40) |
| 26–35 | 54 | 50 | 40 (23) | 50 (28) |
| 36–45 | 81 | 48 | 43 (22) | 94 (48) |
| 46–55 | 101 | 38 | 38 (48) | 72 (91) |
| 56– | 70 | 39 | 37 (32) | 69 (61) |
| All ages | 352 | 45 | 42 (37) | 65 (58) |
| *Durations 2 and over* | | | | |
| –20 | 18 | 110 | 116 | 79 |
| 21–25 | 56 | 67 | 61 (55) | 31 (29) |
| 26–30 | 128 | 79 | 64 (45) | 55 (38) |
| 31–35 | 157 | 66 | 53 (63) | 75 (89) |
| 36–40 | 210 | 65 | 55 (68) | 103 (126) |
| 41–45 | 360 | 67 | 63 (55) | 116 (101) |
| 46–50 | 566 | 65 | 66 (61) | 106 (97) |
| 51–55 | 767 | 64 | 65 (64) | 88 (87) |
| 56–60 | 772 | 64 | 62 (66) | 74 (79) |
| 61–65 | 547 | 66 | 61 (61) | 70 (70) |
| 66–70 | 236 | 61 | 55 (47) | 63 (54) |
| 71–75 | 194 | 65 | 58 (57) | 71 (69) |
| 76–80 | 188 | 73 | 65 (60) | 84 (78) |
| 81–85 | 184 | 74 | 65 (70) | 88 (96) |
| 86–90 | 153 | 74 | 66 (63) | 92 (88) |
| 91– | 130 | 73 | 69 (92) | 91 (121) |
| –45 | 929 | 68 | 60 (58) | 80 (78) |
| 46–60 | 2,105 | 64 | 64 (64) | 86 (85) |
| 61–75 | 977 | 65 | 59 (57) | 68 (66) |
| 76– | 655 | 74 | 66 (70) | 88 (94) |
| All ages | 4,666 | 66 | 62 (62) | 81 (80) |

Table 8. *Whole-life and endowment assurances, 1975–78, females, medically examined and non-medical data separately; actual and ratios of actual to expected deaths by the E.L.T. Nos. 12 and 13 (female) and by the A 1967–70 table with a 4-year age adjustment (ratios for 1973–74 shown in brackets)*

| Age group (Nearest ages) | Medically Examined: Actual deaths | 100 A/E E.L.T. No. 13 | 100 A/E E.L.T. No. 12 | 100 A/E A 1967–70 (4-year age adjustment) | Non-Medical: Actual deaths | 100 A/E E.L.T. No. 13 | 100 A/E E.L.T. No. 12 | 100 A/E A 1967–70 (4-year age adjustment) |
|---|---|---|---|---|---|---|---|---|
| *Duration* 0 | | | | | | | | |
| All ages | 43 | 34 | 32 (24) | 72 (56) | 286 | 40 | 38 (32) | 67 (55) |
| *Duration* 1 | | | | | | | | |
| All ages | 47 | 35 | 32 (30) | 59 (57) | 305 | 47 | 44 (39) | 66 (58) |
| *Durations* 2 *and over* | | | | | | | | |
| –20 | 27 | 180 | 150 (38) | 115 (58) | 18 | 112 | 118 (53) | 80 (28) |
| 21–25 | | | | | 53 | 66 | 60 | 31 |
| 26–30 | | | | | 104 | 69 | 56 (48) | 48 (40) |
| 31–35 | 24 | 98 | 79 | 112 | 133 | 62 | 50 (67) | 70 (93) |
| 36–40 | 36 | 88 | 75 | 140 | 174 | 61 | 52 (70) | 97 (129) |
| 41–45 | 45 | 59 | 56 | 103 | 315 | 68 | 64 (58) | 119 (107) |
| 46–50 | 90 | 68 | 69 (63) | 110 (101) | 476 | 65 | 66 (60) | 105 (96) |
| 51–55 | 147 | 63 | 64 (51) | 86 (69) | 620 | 64 | 65 (67) | 89 (91) |
| 56–60 | 181 | 57 | 55 (65) | 66 (78) | 591 | 66 | 64 (66) | 77 (79) |
| 61–65 | 161 | 64 | 59 (47) | 67 (53) | 386 | 68 | 63 (65) | 71 (74) |
| 66–70 | 94 | 59 | 53 (49) | 61 (57) | 142 | 63 | 57 (46) | 65 (53) |
| 71–75 | 86 | 60 | 54 (57) | 65 (69) | 108 | 70 | 63 (57) | 76 (69) |
| 76–80 | 90 | 67 | 59 (45) | 77 (59) | 98 | 81 | 72 (75) | 92 (97) |
| 81–85 | 116 | 76 | 67 (79) | 92 (108) | 68 | 69 | 61 (62) | 83 (84) |
| 86–90 | 95 | 73 | 64 (55) | 90 (76) | 58 | 78 | 69 (70) | 96 (98) |
| 91– | 89 | 71 | 67 (76) | 88 (111) | 41 | 78 | 73 (111) | 97 (146) |
| –45 | 132 | 84 | 74 (38) | 115 (58) | 797 | 66 | 58 (60) | 76 (80) |
| 46–60 | 418 | 61 | 61 (59) | 80 (78) | 1,687 | 65 | 65 (65) | 88 (87) |
| 61–75 | 341 | 61 | 56 (50) | 65 (58) | 636 | 67 | 61 (60) | 70 (69) |
| 76– | 390 | 72 | 64 (64) | 87 (86) | 265 | 77 | 68 (75) | 91 (101) |
| All ages | 1,281 | 66 | 61 (57) | 79 (73) | 3,385 | 66 | 63 (64) | 81 (82) |

11. Compared with the small experience for 1973–74 which was based on data from fewer offices as well as a shorter period of observation, mortality rates appear to have increased at durations 0 and 1; also at the ultimate durations for the medical data. In view of the size of the 1973–74 data, the experience of which was by way of being a trial run, it is not considered that these increases are of great significance. The main conclusion is that none of the bases of comparison is really suitable; the E.L.T. Nos. 12 and 13 mortality rates are well above those

experienced by the female assured lives while the A 1967–70 table is of quite a different shape.

12. Table 9 compares central rates of mortality in quinary age groups at durations 2 and over, for the medical and non-medical sections separately and combined, with the central rates for the female population of Great Britain derived from the notes by Daykin (cf. Table 5). The slight rises in the assured lives' mortality since 1973–74 contrast with falls in population mortality rates but the rises may not be statistically significant as many more offices contributed to the later experience. The female assured lives' experience started to be observed too recently for a comparison of trends, such as was given in respect of male lives in Table 4, to be possible.

Table 9. *Central rates of mortality in the years* 1975–78 *under whole-life and endowment assurances (females, durations* 2 *and over) compared with corresponding rates in* 1973–74 *and with rates experienced by the female population of Great Britain (shown in brackets)*

| Ages last birthday | 1975–78 | | | | 1973–74 | |
|---|---|---|---|---|---|---|
| | Med. | Non-Med. | Combined | | Combined | |
| 20–24 | ·0004 | ·0003 | ·0003 | (·0004) | ·0003 | (·0004) |
| 25–29 | ·0010 | ·0004 | ·0004 | (·0005) | ·0003 | (·0005) |
| 30–34 | ·0008 | ·0005 | ·0005 | (·0007) | ·0006 | (·0007) |
| 35–39 | ·0011 | ·0007 | ·0008 | (·0011) | ·0009 | (·0011) |
| 40–44 | ·0013 | ·0014 | ·0013 | (·0018) | ·0012 | (·0020) |
| 45–49 | ·0023 | ·0022 | ·0023 | (·0032) | ·0021 | (·0035) |
| 50–54 | ·0035 | ·0034 | ·0035 | (·0053) | ·0034 | (·0054) |
| 55–59 | ·0046 | ·0052 | ·0050 | (·0079) | ·0054 | (·0083) |
| 60–64 | ·0078 | ·0083 | ·0081 | (·0126) | ·0079 | (·0126) |
| 65–69 | ·0121 | ·0127 | ·0124 | (·0199) | ·0102 | (·0205) |
| 70–74 | ·0210 | ·0243 | ·0227 | (·0331) | ·0215 | (·0349) |
| 75–79 | ·0401 | ·0479 | ·0439 | (·0567) | ·0426 | (·0597) |
| 80–84 | ·0762 | ·0704 | ·0740 | (·0997) | ·0786 | (·1030) |

## TEMPORARY ASSURANCES (MALES): POLICIES ISSUED IN THE U.K.

13. The size of this experience has increased considerably since the previous quadrennium, partly because more offices are now contributing data, and partly because those offices which only include new policies issued since they started contributing are now submitting returns in respect of a build-up of more policies; nevertheless, the fact that some old business is excluded means that there are still proportionately more exposures at the lower durations than in the case of the whole-life and endowment assurances. In fact, even if all the older business were included, the nature of the contracts would still result in the average duration of the experience being lower than for the whole-life and endowment assurances.

14. The experience is subdivided between level and decreasing assurances, and the comparisons have been made according to the A 1967–70(5) table. Level temporary assurances for terms of less than 1 year are excluded from the data, as are decreasing assurances with a terminal endowment benefit or with permanent life assurance. Much of the data consists of mortgage protection policies and policies providing family income benefits.

15. The general picture is of actual deaths well below those expected by A 1967–70(5), with the duration 2–4 ratios of actual to expected being generally a little lower than those for durations 5 and over in the decreasing temporary contracts, but a little higher than those for durations 5 and over in the rather smaller experience of the level contracts. The duration 0 ratios for both experiences, and the duration 1 ratios for the decreasing temporary experience, were somewhat higher though still well below 100. The use of the table with distinctive mortality rates for durations 2–4 appears to have been justified, although the A 1967–70(5) table has proved to be well on the safe side, as has the A 1967–70 table to a lesser extent for the whole-life and endowment assurances. The results for the different classes of assurance may be contrasted by comparing the ratios in Tables 10 and 11 with those in Tables 1, 2 and 3.

16. The comparisons with the previous quadrennia may not give a true indication of the changes, on account of the increase in the size of the experiences. The ratios in 1975–78 appear to have been generally lower than in 1971–74 at durations 2–4 and 5 and over in the decreasing temporary experience, and at durations 5 and over in the level temporary experience. At duration 0 in both experiences the percentages were higher in 1975–78 (though not significantly so in the decreasing experience), while the changes at duration 1, and also at durations 2–4 in the level experience, have been erratic.

17. It is doubtful whether sufficient experience has yet been obtained to contemplate the preparation of a new standard table appropriate to temporary assurances, and it is up to offices to make whatever adjustments they consider appropriate if continuing to use a table which appears to over-estimate mortality rates.

Table 10. *Level temporary assurances,* 1975–78, *males; actual and ratios of actual to expected deaths by the A* 1967–70(5) *table (ratios for* 1971–74 *shown in brackets)*

| Age group (nearest ages) | Medical | | Non-medical | | Combined | |
|---|---|---|---|---|---|---|
| | Actual deaths | 100 A/E | Actual deaths | 100 A/E | Actual deaths | 100 A/E |
| *Duration* 0 | | | | | | |
| –30 | 6 | 154 (100) | 28 | 127 (74) | 34 | 131 (78) |
| 31–45 | 19 | 126 (58) | 36 | 74 (85) | 55 | 87 (77) |
| 46–60 | 21 | 75 (58) | 27 | 80 (56) | 48 | 78 (58) |
| 61– | 4 | 41 (71) | 0 | 0 (200) | 4 | 36 (88) |
| All ages | 50 | 88 (64) | 91 | 86 (76) | 141 | 87 (71) |

Table 10 (*continued*)

| Age group (nearest ages) | Medical Actual deaths | Medical 100 A/E | Non-medical Actual deaths | Non-medical 100 A/E | Combined Actual deaths | Combined 100 A/E |
|---|---|---|---|---|---|---|
| *Duration* 1 | | | | | | |
| –30 | 1 | 25 (67) | 16 | 73 (56) | 17 | 66 (58) |
| 31–45 | 10 | 56 (58) | 36 | 71 (100) | 46 | 67 (86) |
| 46–60 | 24 | 74 (62) | 24 | 63 (119) | 48 | 68 (83) |
| 61– | 12 | 92 (45) | 1 | 52 (100) | 13 | 87 (50) |
| All ages | 47 | 70 (58) | 77 | 68 (93) | 124 | 69 (76) |
| *Durations* 2–4 | | | | | | |
| –30 | 3 | 43 (200) | 31 | 80 (93) | 34 | 74 (111) |
| 31–45 | 41 | 85 (65) | 81 | 71 (85) | 122 | 75 (78) |
| 46–60 | 71 | 78 (50) | 83 | 86 (58) | 154 | 82 (53) |
| 61– | 21 | 57 (50) | 2 | 40 (300) | 23 | 54 (67) |
| All ages | 136 | 74 (60) | 197 | 78 (80) | 333 | 76 (71) |
| *Durations 5 and over* | | | | | | |
| –30 | 4 | 240 | 7 | 76 (100) | 11 | 101 (200) |
| 31–45 | 20 | 78 (200) | 51 | 94 (117) | 71 | 89 (155) |
| 46–60 | 31 | 55 (60) | 33 | 55 (92) | 64 | 55 (74) |
| 61– | 22 | 74 (44) | 6 | 93 (50) | 28 | 77 (45) |
| All ages | 77 | 68 (83) | 97 | 75 (95) | 174 | 71 (88) |

Table 11. *Decreasing temporary assurances, 1975–78, males; actual and ratios of actual to expected deaths by the A 1967–70(5) table. (ratios for 1971–74 shown in brackets)*

| Age group (nearest ages) | Medical Actual deaths | Medical 100 A/E | Non-Medical Actual deaths | Non-Medical 100 A/E | Combined Actual deaths | Combined 100 A/E |
|---|---|---|---|---|---|---|
| *Duration* 0 | | | | | | |
| –30 | 1 | 18 (110) | 56 | 104 (66) | 57 | 96 (72) |
| 31–45 | 17 | 124 (162) | 75 | 82 (104) | 92 | 88 (113) |
| 46–60 | 38 | 90 (59) | 48 | 81 (85) | 86 | 85 (72) |
| 61– | 5 | 67 (71) | 1 | 95 (0) | 6 | 71 (62) |
| All ages | 61 | 88 (87) | 180 | 88 (87) | 241 | 88 (87) |
| *Duration* 1 | | | | | | |
| –30 | 7 | 100 (90) | 50 | 87 (75) | 57 | 89 (77) |
| 31–45 | 18 | 98 (50) | 89 | 81 (88) | 107 | 84 (82) |
| 46–60 | 50 | 92 (76) | 65 | 87 (90) | 115 | 89 (84) |
| 61– | 10 | 82 (45) | 1 | 52 (200) | 11 | 78 (69) |
| All ages | 85 | 93 (69) | 205 | 84 (85) | 290 | 87 (81) |

Table 11. (*continued*)

| Age group (nearest ages) | Medical Actual deaths | Medical 100 A/E | Non-Medical Actual deaths | Non-Medical 100 A/E | Combined Actual deaths | Combined 100 A/E |
|---|---|---|---|---|---|---|
| *Durations* 2–4 | | | | | | |
| –25 | 0 | 0 (67) | 19 | 93 (43) | 19 | 84 (46) |
| 26–30 | 14 | 90 (71) | 66 | 65 (81) | 80 | 68 (80) |
| 31–35 | 14 | 64 (129) | 67 | 59 (83) | 81 | 60 (90) |
| 36–40 | 11 | 45 (88) | 91 | 74 (77) | 102 | 69 (79) |
| 41–45 | 22 | 74 (89) | 127 | 85 (76) | 149 | 83 (78) |
| 46–50 | 28 | 77 (87) | 133 | 79 (90) | 161 | 79 (89) |
| 51–55 | 59 | 78 (74) | 105 | 77 (85) | 164 | 77 (81) |
| 56–60 | 83 | 78 (80) | 26 | 72 (127) | 109 | 77 (91) |
| 61–65 | 36 | 69 | 3 | 40 | 39 | 65 |
| 66– | 11 | 62 (72) | 1 | 65 (75) | 12 | 62 (72) |
| –30 | 14 | 79 | 85 | 70 | 99 | 71 |
| 31–45 | 47 | 62 (92) | 285 | 74 (77) | 332 | 72 (79) |
| 46–60 | 170 | 78 (79) | 264 | 78 (91) | 434 | 78 (86) |
| 61– | 47 | 67 (72) | 4 | 44 (75) | 51 | 65 (72) |
| All ages | 278 | 73 (82) | 638 | 74 (82) | 916 | 74 (82) |
| *Durations* 5 *and over* | | | | | | |
| –30 | 3 | 45 (160) | 25 | 51 (42) | 28 | 50 (67) |
| 31–35 | 15 | 56 (94) | 94 | 73 (82) | 109 | 70 (85) |
| 36–40 | 53 | 105 (100) | 158 | 82 (80) | 211 | 86 (85) |
| 41–45 | 63 | 78 (110) | 247 | 80 (116) | 310 | 80 (114) |
| 46–50 | 97 | 84 (96) | 335 | 79 (99) | 432 | 80 (89) |
| 51–55 | 134 | 90 (73) | 378 | 75 (90) | 512 | 78 (86) |
| 56–60 | 153 | 67 (92) | 280 | 81 (84) | 433 | 75 (87) |
| 61–65 | 135 | 68 | 94 | 73 | 229 | 71 |
| 66– | 42 | 53 (83) | 13 | 66 (77) | 55 | 56 (81) |
| –30 | 3 | 45 | 25 | 51 | 28 | 50 |
| 31–45 | 131 | 82 (107) | 499 | 79 (95) | 630 | 80 (97) |
| 46–60 | 384 | 78 (87) | 993 | 78 (92) | 1,337 | 78 (90) |
| 61– | 177 | 64 (83) | 107 | 72 (77) | 284 | 67 (81) |
| All ages | 695 | 74 (90) | 1,624 | 77 (92) | 2,319 | 76 (91) |

## LINKED CONTRACTS (MALES AND FEMALES): POLICIES ISSUED IN THE U.K.

18. A new investigation was started in 1976 into the mortality experienced under linked life assurance contracts. Some offices indicated that they could not distinguish between medically examined lives and non-medical data and their experience has been included in the combined data. In the event, the vast

majority of the experience has been contributed on the combined basis only, with the result that the separate medical and non-medical sections were small. Some offices were unable to separate their female data and included them with the males, but there has nevertheless been a considerable quantity of experience identified as female. Also some offices were unable to keep records of duration, as a result of which the duration 2 and over experience includes some policies at durations 0 and 1.

19. The males were compared with A 1967–70, and the females with the same table subject to a 4-year age deduction. The results for males are given in Table 12 and for females in Table 13, for the medical and non-medical combined data only. The deaths in the separate medical data totalled only 39 at all durations for males and only six for females, the corresponding figures in the non-medical data being 40 for males and three for females.

20. The male ratios of actual to expected deaths at duration 0 fluctuated

Table 12. *Linked contracts of life assurance, 1976–78, males; actual and ratios of actual to expected deaths by the A 1967–70 table*

| Age group (nearest ages) | Medical and non-medical combined Actual deaths | 100 A/E | Medical and non-medical combined Actual deaths | 100 A/E | Medical and non-medical combined Actual deaths | 100 A/E |
|---|---|---|---|---|---|---|
| | *Duration* 0 | | *Duration* 1 | | *Durations* 2 *and over* | |
| –20 | 5 | 92 | 5 | 160 | 3 | 60 |
| 21–25 | 10 | 89 | 9 | 92 | 25 | 134 |
| 26–30 | 14 | 137 | 11 | 100 | 31 | 85 |
| 31–35 | 11 | 113 | 14 | 129 | 38 | 81 |
| 36–40 | 11 | 102 | 10 | 85 | 58 | 101 |
| 41–45 | 16 | 115 | 16 | 102 | 82 | 89 |
| 46–50 | 7 | 39 | 16 | 79 | 121 | 80 |
| 51–55 | 17 | 83 | 18 | 77 | 168 | 73 |
| 56–60 | 7 | 32 | 19 | 79 | 178 | 63 |
| 61–65 | 49 | 175 | 19 | 66 | 219 | 59 |
| 66–70 | 13 | 52 | 27 | 98 | 332 | 71 |
| 71–75 | 21 | 125 | 8 | 44 | 312 | 77 |
| 76–80 | 15 | 151 | 27 | 253 | 179 | 70 |
| 81–85 | | | | | 140 | 91 |
| 86–90 | 19 | 221 | 26 | 208 | 55 | 76 |
| 91– | | | | | 18 | 56 |
| –30 | 29 | 108 | 25 | 104 | 59 | 98 |
| 31–45 | 38 | 110 | 40 | 104 | 178 | 91 |
| 46–60 | 31 | 51 | 53 | 79 | 467 | 70 |
| 61–75 | 83 | 119 | 54 | 72 | 863 | 69 |
| 76– | 34 | 183 | 53 | 229 | 392 | 77 |
| All ages | 215 | 102 | 225 | 99 | 1,959 | 73 |

Table 13. *Linked contracts of life assurance, 1976–78, females; actual and ratios of actual to expected deaths by the A 1967–70 table with a 4-year age adjustment*

| Age group (nearest ages) | Medical and non-medical combined Actual deaths | 100 A/E | Medical and non-medical combined Actual deaths | 100 A/E | Medical and non-medical combined Actual deaths | 100 A/E |
|---|---|---|---|---|---|---|
| | *Duration* 0 | | *Duration* 1 | | *Durations* 2 *and over* | |
| –20 | | | | | 2 | 84 |
| 21–25 | | | | | 3 | 63 |
| 26–30 | | | | | 6 | 85 |
| 31–35 | | | | | 4 | 58 |
| 36–40 | | | | | 4 | 53 |
| 41–45 | | | | | 12 | 92 |
| 46–50 | | | | | 18 | 66 |
| 51–55 | | | | | 42 | 73 |
| 56–60 | | | | | 42 | 42 |
| 61–65 | | | | | 94 | 58 |
| 66–70 | | | | | 121 | 50 |
| 71–75 | | | | | 170 | 66 |
| 76–80 | | | | | 163 | 70 |
| 81–85 | | | | | 145 | 82 |
| 86–90 | | | | | 100 | 101 |
| 91– | | | | | 49 | 93 |
| –30 | 3 | 43 | 3 | 52 | 11 | 78 |
| 31–45 | 4 | 57 | 3 | 44 | 20 | 73 |
| 46–60 | 5 | 22 | 17 | 79 | 102 | 55 |
| 61–75 | 27 | 64 | 43 | 106 | 385 | 58 |
| 76– | 113 | 366 | 99 | 299 | 457 | 81 |
| All ages | 152 | 138 | 165 | 153 | 975 | 67 |

considerably from age to age, with the overall actual deaths slightly in excess of the expected, and with an unfavourable experience at the oldest ages. Similarly at duration 1, where the total actual deaths were slightly below the expected, the most unfavourable part of the experience was above age 75. But at durations 2 and over the actual deaths were below the expected throughout, except for ages 21–25.

21. The female results were similar, with very high ratios at durations 0 and 1 above age 75.

## MORTALITY OF IMMEDIATE ANNUITANTS

### EXPERIENCE FOR 1975–78

22. The last report on the mortality experience of immediate annuitants related to the period 1971–74, and appeared in *C.M.I.R.* **3,** 53. Since that report was published the new standard tables *a(90)* have become available.

23. The present report relates to the period 1975–78. As before, the data for those annuities which were purchased before 1957 have been kept separate on account of the apparent change in the class of life purchasing annuities after the Finance Act 1956; most of the 'before 1957' data are now in respect of the lives at the oldest ages.

24. It was observed in the last report that mortality tended to fluctuate randomly from period to period rather than following any secular trend, and this feature continued into 1975–78. A comparison of the latest experience with that of the two previous quadrennia is given in Table 14, which shows the ratio of actual to expected deaths calculated according to the *aeg* 1967–70 table. This report, for the first time, includes figures based on 'amounts' as well as 'lives', but the 'amounts' figures cannot be compared with previous quadrennia for which 'amounts' data were not collected; however, there is no clear indication that mortality varied according to the size of the annuity, the ratios by 'lives' being sometimes larger, sometimes smaller than those by 'amounts'; the differences between the 'lives' and 'amounts' ratios are only significant in a few instances.

25. The mortality of male annuitants in 1975–78 was broadly similar to that observed in 1971–74. That of female annuitants was higher at duration 0 than in either of the two previous quadrennia; at durations 1–4 it was higher than in the previous quadrennia at the ages over 80 but generally lower at the younger ages. At durations 5 and over, the trend is difficult to follow.

26. Table 15 gives the ratios of actual to expected deaths according to the two standard tables *a(55)* and *a(90)*. It is clear that mortality in 1975–78 was well below *a(55)* except at duration 0, and also excepting the 'before 1957' data. But mortality had not fallen as low as *a(90)* (nor was it expected to do so) and the latter standard table therefore still contains a substantial safety margin. Once again, the table demonstrates little difference between the ratios on the 'lives' and 'amounts' bases.

27. Table 16 compares the 1975–78 mortality experienced by the 'after 1956' annuitants with that expected by the projected rates of mortality published at the end of the *a(90)* tables. As the projection was on a 'lives' basis, this basis only has been used for this comparison, which shows that for the 'after 1956' data the forecast rates were closer for males than for females, but that in general the improvement in mortality had not followed the projection, particularly at ages over 80.

Table 14. *Immediate annuitants, 1975–78; actual and ratio of actual to expected deaths according to the aeg 1967–70 table (select for duration 0, ultimate for other durations) calculated according to both 'lives' and 'amounts' and compared with ratios for previous quadrennia*

| Age group (nearest ages) | Males | | | | | Females | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Actual deaths | 1975–78 100 A/E 'Lives' | 100 A/E 'Amounts' | 1971–74 100 A/E 'Lives' | 1967–70 100 A/E 'Lives' | Actual deaths | 1975–78 100 A/E 'Lives' | 100 A/E 'Amounts' | 1971–74 100 A/E 'Lives' | 1967–70 100 A/E 'Lives' |
| *Duration* 0 | | | | | | | | | | |
| –70 | 55 | 145 | 147 | 118 | 97 | 26 | 168 | 156 | 127 | 100 |
| 71–80 | 46 | 91 | 89 | 104 | 97 | 70 | 122 | 96 | 99 | 102 |
| 81– | 52 | 101 | 103 | 95 | 107 | 112 | 116 | 126 | 112 | 99 |
| All ages | 153 | 109 | 105 | 105 | 100 | 208 | 123 | 119 | 109 | 100 |
| *Durations* 1–4 | | | | | | | | | | |
| –60 | 6 | 120 | 37 | 195 | 125 | 10 | 140 | 130 | 53 | 91 |
| 61–65 | 32 | 82 | 60 | 90 | 75 | 26 | 75 | 81 | 82 | 87 |
| 66–70 | 168 | 91 | 85 | 81 | 112 | 73 | 85 | 68 | 84 | 107 |
| 71–75 | 162 | 88 | 86 | 89 | 85 | 140 | 77 | 78 | 93 | 89 |
| 76–80 | 191 | 101 | 111 | 93 | 92 | 255 | 88 | 96 | 95 | 95 |
| 81–85 | 201 | 100 | 110 | 92 | 82 | 312 | 100 | 112 | 98 | 91 |
| 86–90 | 155 | 103 | 101 | 106 | 88 | 284 | 104 | 110 | 100 | 98 |
| 91–95 | 59 | 77 | 59 | 93 | 82 | 146 | 116 | 112 | 104 | 101 |
| 96– | 8 | 60 | 33 | 128 | 119 | 34 | 108 | 123 | 109 | 104 |
| All ages | 982 | 94 | 96 | 93 | 90 | 1,280 | 95 | 102 | 95 | 95 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Durations 5 and over (annuities purchased after 1956)* | | | | | | | | | | |
| –60 | 9 | 154 | 183 | 148 | 124 | 18 | 190 | 178 | 54 | 150 |
| 61–65 | 39 | 136 | 140 | 115 | 93 | 73 | 168 | 165 | 106 | 86 |
| 66–70 | 187 | 98 | 119 | 100 | 104 | 233 | 104 | 84 | 105 | 114 |
| 71–75 | 590 | 95 | 100 | 96 | 114 | 698 | 103 | 95 | 104 | 101 |
| 76–80 | 801 | 97 | 106 | 100 | 103 | 1,431 | 106 | 98 | 111 | 108 |
| 81–85 | 947 | 107 | 110 | 101 | 105 | 2,063 | 111 | 108 | 114 | 99 |
| 86–90 | 748 | 104 | 108 | 106 | 112 | 2,031 | 110 | 113 | 113 | 105 |
| 91–95 | 376 | 108 | 114 | 112 | 118 | 1,285 | 110 | 120 | 112 | 102 |
| 96– | 86 | 85 | 98 | 91 | 78 | 386 | 113 | 119 | 105 | 101 |
| All ages | 3,783 | 102 | 108 | 102 | 108 | 8,218 | 109 | 109 | 111 | 104 |
| *Durations 5 and over (annuities purchased before 1957)* | | | | | | | | | | |
| –60 | 2 | * | 144 | 152 | 126 | 2 | 196 | 136 | 186 | 111 |
| 61–65 | 6 | 237 | 210 | 177 | 204 | 3 | 70 | 248 | 147 | 109 |
| 66–70 | 5 | 92 | 39 | 154 | 232 | 16 | 92 | 117 | 82 | 130 |
| 71–75 | 24 | 138 | 79 | 128 | 127 | 88 | 140 | 98 | 140 | 139 |
| 76–80 | 41 | 113 | 96 | 147 | 123 | 258 | 140 | 134 | 117 | 137 |
| 81–85 | 106 | 129 | 126 | 121 | 123 | 657 | 126 | 147 | 121 | 120 |
| 86–90 | 150 | 119 | 142 | 109 | 124 | 1,063 | 117 | 111 | 119 | 122 |
| 91–95 | 115 | 100 | 126 | 101 | 130 | 982 | 116 | 114 | 118 | 121 |
| 96– | 46 | 92 | 118 | 93 | 93 | 493 | 104 | 104 | 108 | 103 |
| All ages | 495 | 114 | 127 | 116 | 126 | 3,562 | 118 | 119 | 118 | 123 |

* Expected deaths less than 1.

Table 15. *Immediate annuitants, 1975–78; ratios of actual to expected deaths according to the a(55) and a(90) tables (select for duration 0, ultimate for other durations) calculated according to both 'lives' and 'amounts'*

| | Males | | | | Females | | | |
|---|---|---|---|---|---|---|---|---|
| Age group (nearest ages) | 100 A/E 'Lives' *a(55)* | 100 A/E 'Amounts' *a(55)* | 100 A/E 'Lives' *a(90)* | 100 A/E 'Amounts' *a(90)* | 100 A/E 'Lives' *a(55)* | 100 A/E 'Amounts' *a(55)* | 100 A/E 'Lives' *a(90)* | 100 A/E 'Amounts' *a(90)* |
| *Duration* 0 | | | | | | | | |
| –70 | 176 | 177 | 160 | 161 | 133 | 124 | 196 | 180 |
| 71–80 | 93 | 91 | 100 | 97 | 110 | 87 | 140 | 110 |
| 81– | 83 | 84 | 110 | 112 | 110 | 119 | 132 | 143 |
| All ages | 143 | 99 | 120 | 115 | 112 | 109 | 140 | 135 |
| *Durations* 1–4 | | | | | | | | |
| –60 | 124 | 38 | 136 | 42 | 128 | 118 | 181 | 165 |
| 61–65 | 87 | 64 | 90 | 66 | 77 | 85 | 93 | 100 |
| 66–70 | 92 | 86 | 100 | 93 | 74 | 60 | 95 | 76 |
| 71–75 | 84 | 82 | 97 | 94 | 65 | 66 | 84 | 84 |
| 76–80 | 91 | 100 | 111 | 122 | 74 | 80 | 96 | 104 |
| 81–85 | 86 | 95 | 109 | 121 | 86 | 96 | 112 | 125 |
| 86–90 | 87 | 85 | 112 | 110 | 91 | 97 | 118 | 125 |
| 91–95 | 65 | 50 | 83 | 64 | 104 | 100 | 131 | 126 |
| 96– | 53 | 29 | 64 | 36 | 98 | 112 | 115 | 132 |
| All ages | 86 | 86 | 103 | 105 | 83 | 88 | 106 | 114 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Durations 5 and over (annuities purchased after 1956)* | | | | | | | | |
| –60 | 159 | 192 | 174 | 207 | 173 | 165 | 243 | 229 |
| 61–65 | 145 | 150 | 150 | 155 | 158 | 156 | 207 | 204 |
| 66–70 | 99 | 120 | 108 | 131 | 91 | 74 | 117 | 95 |
| 71–75 | 91 | 96 | 105 | 110 | 87 | 80 | 111 | 103 |
| 76–80 | 88 | 95 | 107 | 116 | 91 | 84 | 116 | 107 |
| 81–85 | 93 | 95 | 117 | 121 | 95 | 92 | 124 | 120 |
| 86–90 | 88 | 91 | 113 | 117 | 96 | 99 | 125 | 128 |
| 91–95 | 92 | 97 | 117 | 124 | 99 | 107 | 124 | 134 |
| 96– | 75 | 87 | 91 | 105 | 102 | 108 | 120 | 127 |
| All ages | 91 | 96 | 111 | 118 | 95 | 94 | 122 | 121 |
| *Durations 5 and over (annuities purchased before 1957)* | | | | | | | | |
| –60 | * | 151 | * | 163 | 180 | 126 | * | 176 |
| 61–65 | 254 | 225 | 263 | 233 | 72 | 234 | 94 | 306 |
| 66–70 | 93 | 40 | 101 | 43 | 80 | 103 | 103 | 131 |
| 71–75 | 132 | 76 | 152 | 87 | 118 | 83 | 151 | 107 |
| 76–80 | 102 | 87 | 124 | 106 | 120 | 115 | 153 | 147 |
| 81–85 | 111 | 109 | 141 | 138 | 108 | 126 | 141 | 165 |
| 86–90 | 101 | 120 | 130 | 154 | 103 | 98 | 133 | 126 |
| 91–95 | 86 | 108 | 108 | 137 | 104 | 102 | 130 | 128 |
| 96– | 82 | 105 | 99 | 126 | 94 | 94 | 109 | 109 |
| All ages | 99 | 110 | 124 | 138 | 104 | 105 | 131 | 132 |

* Expected deaths less than 1.

28. A persistent tendency can be observed for annuitants' mortality to be high at the youngest age groups when compared with the standard tables. Although in separate age and duration groups they are sometimes based on small numbers of deaths, taken as a whole they appear to be statistically significant, and a reference back to *C.M.I.R.* **2**, 57, suggests that this is not due to any quirk of the graduation. The Committee proposes to give special consideration to this feature when the experience for 1979–82 has become available for analysis.

29. Table 17 shows the average amounts of annuity in both the exposed to risk and the deaths. While there was a regular increase in the average amount of annuity with age for all except the 'before 1957' female data, the average amounts amongst the deaths were slightly higher than the average amounts amongst the exposed to risk. This is the opposite to the experience for pensioners (see Table 22 on page 30), but the differences in the averages shown in the annuitants' experience may not be large enough to be significant of any appreciable difference in mortality according to size of annuity.

Table 16. *Immediate annuitants,* 1975–78, *durations* 1 *and over combined, annuities purchased after* 1956 *only; actual and ratio of actual to expected deaths according to the projected rates of mortality published at the end of the a(90) tables, calculated on a basis of 'lives'*

| | Males | | Females | |
|---|---|---|---|---|
| Age group (nearest ages) | Actual deaths | 100 A/E | Actual deaths | 100 A/E |
| –60 | 15 | 145 | 28 | 202 |
| 61–65 | 71 | 109 | 99 | 145 |
| 66–70 | 355 | 98 | 306 | 103 |
| 71–75 | 752 | 97 | 838 | 98 |
| 76–80 | 992 | 102 | 1,686 | 105 |
| 81–85 | 1,148 | 109 | 2,375 | 114 |
| 86–90 | 903 | 107 | 2,315 | 116 |
| 91–95 | 435 | 105 | 1,431 | 117 |
| 96– | 94 | 84 | 420 | 113 |
| All ages | 4,765 | 103 | 9,498 | 111 |

Table 17. *Immediate annuitants, 1975–78, all durations combined; exposed-to-risk, deaths, and average amounts of annuity*

| Age group (nearest ages) | Males | | | | | | Females | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Exposed-to-risk | | | Deaths | | | Exposed-to-risk | | | Deaths | | |
| | Lives | Amounts | Average amount £ p.a. | Lives | Amounts | Average amount £ p.a. | Lives | Amounts | Average amount £ p.a. | Lives | Amounts | Average amount £ p.a. |
| *Annuities purchased after* 1956 | | | | | | | | | | | | |
| –60 | 1,443 | 799,716 | 554 | 19 | 8,254 | 434 | 3,626 | 1,669,705 | 460 | 32 | 12,838 | 401 |
| 61–65 | 4,202 | 2,396,815 | 570 | 86 | 42,947 | 499 | 8,057 | 3,624,866 | 450 | 104 | 43,144 | 415 |
| 66–70 | 13,275 | 7,860,649 | 592 | 391 | 251,915 | 644 | 20,117 | 9,458,122 | 470 | 323 | 123,699 | 383 |
| 71–75 | 18,032 | 12,068,051 | 669 | 769 | 525,456 | 683 | 34,748 | 16,273,942 | 468 | 870 | 372,609 | 428 |
| 76–80 | 14,920 | 11,141,597 | 747 | 1,021 | 827,035 | 810 | 39,546 | 19,654,262 | 497 | 1,724 | 800,162 | 464 |
| 81–85 | 10,599 | 8,602,776 | 812 | 1,172 | 982,161 | 838 | 31,413 | 16,567,968 | 527 | 2,427 | 1,277,777 | 526 |
| 86–90 | 5,792 | 4,978,829 | 860 | 923 | 817,727 | 886 | 18,727 | 10,210,947 | 545 | 2,348 | 1,312,816 | 559 |
| 91–95 | 2,016 | 1,639,458 | 813 | 443 | 342,190 | 772 | 7,423 | 3,868,585 | 521 | 1,452 | 793,628 | 547 |
| 96– | 377 | 426,837 | 1,131 | 94 | 110,592 | 1,177 | 1,466 | 772,989 | 527 | 426 | 236,313 | 555 |
| All ages | 70,656 | 49,914,728 | 706 | 4,918 | 3,908,277 | 795 | 165,123 | 82,101,386 | 497 | 9,706 | 4,972,986 | 512 |
| *Annuities purchased before* 1957 | | | | | | | | | | | | |
| –70 | 376 | 38,461 | 102 | 13 | 961 | 74 | 1,618 | 158,297 | 98 | 21 | 3,190 | 152 |
| 71–80 | 872 | 90,909 | 104 | 65 | 5,039 | 78 | 6,612 | 589,486 | 89 | 346 | 27,317 | 79 |
| 81– | 2,236 | 297,693 | 133 | 417 | 65,923 | 158 | 21,335 | 1,855,412 | 87 | 3,195 | 278,827 | 87 |
| All ages | 3,484 | 427,063 | 123 | 495 | 71,923 | 145 | 29,565 | 2,603,195 | 88 | 3,562 | 309,334 | 87 |

## MORTALITY OF PENSIONERS UNDER LIFE OFFICE PENSION SCHEMES

### EXPERIENCE FOR 1975–78

30. This report covers the experience of the years 1975–78. The previous report on the mortality of pensioners related to the years 1971–74 and appeared in *C.M.I.R.* **3**, 59, at a time when the only available bases of comparison strictly applicable to pensioners were the Peg 1967–70 tables given in *C.M.I.R.* **2**, 57. In the present report the Peg 1967–70 tables have again been used to enable comparisons to be made with previous quadrennia, but the 1975–78 experiences have also been compared with the recently published standard table PA(90), and also (for the 'amounts' data only) with the projected rates of mortality published at the end of those tables and applicable to the experience years. It must be remembered that Peg 1967–70 gives different mortality rates for 'lives' and 'amounts' while the PA(90) tables and the projected rates published with them were based on 'amounts'.

31. Tables 18 and 19 compare, on bases of 'lives' and 'amounts' respectively, the mortality of pensioners who retired at or after the normal age with all the tables mentioned above. It will be seen that although mortality at the lower ages decreased since the previous quadrennium, male mortality at the ages 76–90 was higher than in 1967–70 and similar to 1971–74. Female mortality was also higher at ages 81–85 on a basis of 'lives'. The comparison with the standard table PA(90) shows that the table, which was designed to be suitable for use in the 1980s, gives rates of mortality lower than those experienced and, therefore, contains the safety margin intended. The comparison with the projected rates on the 'amounts' basis shows that, overall, the projection has been fairly well reproduced; however, for both sexes the expected lowering of mortality has not been realized in the age range 76–90.

32. Table 20 gives the experience of pensioners who retired before the normal age, a class of lives which always shows heavy mortality compared with the normal retirement pensioners. This would be demonstrated on any of the tables mentioned above, and there seems no point in giving the comparative figures on more than one basis; accordingly, the standard table PA(90) has been used for this purpose. The table also compares the experience of the early retirement pensioners with that of the normal or late retirement pensioners, and it will be seen that, except at some of the oldest ages, the early retirement pensioners have indeed experienced the heavier mortality.

33. In earlier reports it has been the custom to include a comparison between the experiences of pensioners and annuitants; this was because, without a standard table for pensioners, annuitants' mortality tables suitably adjusted were

Table 18. *Pensioners who retired at or after the normal age. Experience* 1975–78 *on a basis of 'lives'*

| Age group (nearest ages) | Actual deaths 1975–78 | 100 A/E PA(90) 1975–78 | 100 A/E PA(90) projection 1975–78 | 100 A/E, Peg 1967–70 (lives tables) 1975–78 | 1971–74 | 1967–70 |
|---|---|---|---|---|---|---|
| *Males* | | | | | | |
| –65 | 1,607 | 111 | 108 | 88 | 97 | 106 |
| 66–70 | 19,075 | 118 | 111 | 92 | 95 | 99 |
| 71–75 | 24,451 | 126 | 118 | 101 | 101 | 102 |
| 76–80 | 17,637 | 124 | 117 | 103 | 102 | 99 |
| 81–85 | 9,188 | 119 | 113 | 102 | 105 | 99 |
| 86–90 | 3,933 | 118 | 112 | 104 | 101 | 98 |
| 91– | 1,016 | 105 | 100 | 96 | 103 | 105 |
| All ages | 76,907 | 121 | 115 | 99 | 100 | 100 |
| *Females* | | | | | | |
| –60 | 71 | 162 | 150 | 126 | 142 | 126 |
| 61–65 | 817 | 115 | 106 | 91 | 97 | 98 |
| 66–70 | 1,461 | 113 | 105 | 92 | 92 | 102 |
| 71–75 | 1,941 | 113 | 105 | 93 | 94 | 100 |
| 76–80 | 1,766 | 111 | 103 | 94 | 102 | 96 |
| 81–85 | 1,322 | 119 | 111 | 103 | 100 | 99 |
| 86–90 | 545 | 116 | 108 | 103 | 100 | 109 |
| 91– | 163 | 106 | 100 | 97 | | |
| All ages | 8,086 | 114 | 106 | 95 | 97 | 100 |

Table 19. *Pensioners who retired at or after the normal age. Experience* 1975–78 *on a basis of 'amounts'*

| Age group (nearest ages) | Actual deaths 1975–78 (£ p.a.) | 100 A/E PA(90) 1975–78 | 100 A/E PA(90) projection 1975–78 | 100 A/E, Peg 1967–70 (amounts tables) 1975–78 | 1971–74 | 1967–70 |
|---|---|---|---|---|---|---|
| *Males* | | | | | | |
| –65 | 523,790 | 97 | 92 | 88 | 101 | 105 |
| 66–70 | 3,858,685 | 100 | 95 | 91 | 95 | 98 |
| 71–75 | 4,205,380 | 108 | 102 | 99 | 102 | 103 |
| 76–80 | 2,825,209 | 111 | 105 | 102 | 102 | 99 |
| 81–85 | 1,448,227 | 114 | 107 | 104 | 102 | 99 |
| 86–90 | 590,656 | 111 | 106 | 103 | 99 | 98 |
| 91– | 142,602 | 101 | 96 | 93 | 191 | 102 |
| All ages | 13,594,549 | 107 | 100 | 97 | 99 | 100 |

Table 19. (*continued*)

| Age group (nearest ages) | Actual deaths 1975–78 (£ p.a.) | 100 A/E PA(90) 1975–78 | 100 A/E PA(90) projection 1975–78 | 100 A/E, Peg 1967–70 (amounts tables) 1975–78 | 1971–74 | 1967–70 |
|---|---|---|---|---|---|---|
| *Females* | | | | | | |
| –60 | 15,646 | 167 | 155 | 147 | 133 | 147 |
| 61–65 | 103,245 | 94 | 87 | 84 | 106 | 96 |
| 66–70 | 177,693 | 105 | 98 | 94 | 94 | 103 |
| 71–75 | 193,203 | 101 | 94 | 90 | 106 | 91 |
| 76–80 | 165,623 | 109 | 101 | 97 | 102 | 105 |
| 81–85 | 110,792 | 115 | 108 | 103 | 110 | 105 |
| 86–90 | 55,893 | 127 | 119 | 114 | 93 | 101 |
| 91– | 17,676 | 103 | 97 | 94 | | |
| All ages | 839,771 | 106 | 99 | 95 | 102 | 100 |

Table 20. *Pensioners who retired before the normal age. Experience* 1975–78 *compared with* PA(90) *table and with pensioners who retired at or after the normal age*

| | Lives | | | Amounts | | |
|---|---|---|---|---|---|---|
| Age group (nearest ages) | Actual deaths 1975–78 | 100 A/E | 100 A/E (early retirement) ÷ 100 A/E (normal or late retirement) | Actual deaths 1975–78 (£ p.a.) | 100 A/E | 100 A/E (early retirement) ÷ 100 A/E (normal or late retirement) |
| *Males* | | | | | | |
| –65 | 5,591 | 184 | 1·66 | 1,665,139 | 142 | 1·46 |
| 66–70 | 6,742 | 143 | 1·21 | 1,602,005 | 116 | 1·16 |
| 71–75 | 4,389 | 143 | 1·13 | 872,182 | 124 | 1·15 |
| 76–80 | 1,582 | 136 | 1·10 | 256,399 | 123 | 1·11 |
| 81–85 | 479 | 117 | ·98 | 64,322 | 117 | 1·03 |
| 86–90 | 152 | 104 | ·88 | 21,370 | 132 | 1·19 |
| 91– | 46 | 97 | ·92 | 3,204 | 60 | ·59 |
| All ages | 18,981 | 151 | 1·25 | 4,484,621 | 126 | 1·18 |
| *Females* | | | | | | |
| –60 | 227 | 248 | 1·53 | 38,130 | 223 | 1·34 |
| 61–65 | 288 | 168 | 1·46 | 41,285 | 152 | 1·62 |
| 66–70 | 265 | 137 | 1·21 | 32,702 | 143 | 1·36 |
| 71–75 | 258 | 133 | 1·18 | 20,678 | 128 | 1·27 |
| 76–80 | 200 | 130 | 1·17 | 11,299 | 106 | ·97 |
| 81–85 | 94 | 108 | ·91 | 3,993 | 89 | ·77 |
| 86–90 | 50 | 146 | 1·26 | 1,573 | 106 | ·83 |
| 91– | 19 | 181 | 1·71 | 802 | 166 | 1·61 |
| All ages | 1,401 | 149 | 1·31 | 150,462 | 150 | 1·42 |

Table 21. *Pensioners who retired at or after the normal age, 'lives'; and immediate annuitants, purchased after* 1956, *durations* 5 *and over; both experiences* 1975–78 *compared with aeg 1967–70 table*

| Age group (nearest ages) | Pensioners 100 A/E | Annuitants 100 A/E | 100 A/E (pensioners) ÷ 100 A/E (annuitants) |
|---|---|---|---|
| *Males* | | | |
| 66–70 | 122 | 98 | 1·24 |
| 71–75 | 130 | 95 | 1·37 |
| 76–80 | 128 | 97 | 1·32 |
| 81–85 | 123 | 107 | 1·15 |
| 86–90 | 121 | 104 | 1·16 |
| *Females* | | | |
| 61–65 | 102 | 168 | ·61 |
| 66–70 | 113 | 104 | 1·09 |
| 71–75 | 119 | 103 | 1·16 |
| 76–80 | 118 | 106 | 1·11 |
| 81–85 | 126 | 111 | 1·14 |
| 86–90 | 121 | 110 | 1·10 |

Table 22. *Pensioners,* 1975–78. *Exposed-to-risk, deaths, and average pensions*

| | Exposed-to-risk | | | Deaths | | |
|---|---|---|---|---|---|---|
| Age group (nearest ages) | Lives | Amounts (£ per annum) | Average pension (£ p.a.) | Lives | Amounts (£ per annum) | Average pension (£ p.a.) |
| *Males, normal or late retirement* | | | | | | |
| –65 | 62,240 | 24,963,417 | 401 | 1,607 | 523,790 | 326 |
| 66–70 | 517,260 | 124,158,429 | 240 | 19,075 | 3,858,685 | 202 |
| 71–75 | 410,270 | 82,048,994 | 200 | 24,451 | 4,205,380 | 172 |
| 76–80 | 200,696 | 35,871,646 | 179 | 17,637 | 2,825,209 | 160 |
| 81–85 | 72,192 | 11,978,129 | 166 | 9,188 | 1,448,227 | 158 |
| 86–90 | 21,460 | 3,424,824 | 160 | 3,933 | 590,656 | 150 |
| 91– | 4,225 | 621,238 | 147 | 1,016 | 142,602 | 140 |
| All ages | 1,288,343 | 283,066,677 | 220 | 76,907 | 13,594,549 | 177 |
| *Females, normal or late retirement* | | | | | | |
| –60 | 7,149 | 1,611,777 | 225 | 71 | 15,646 | 220 |
| 61–65 | 76,585 | 11,912,848 | 156 | 817 | 103,245 | 126 |
| 66–70 | 82,141 | 10,836,130 | 132 | 1,461 | 177,693 | 122 |
| 71–75 | 64,907 | 7,233,876 | 111 | 1,941 | 193,203 | 100 |
| 76–80 | 36,176 | 3,488,546 | 96 | 1,766 | 165,623 | 94 |
| 81–85 | 15,232 | 1,321,151 | 87 | 1,322 | 110,792 | 84 |
| 86–90 | 4,054 | 377,174 | 93 | 545 | 55,893 | 103 |
| 91– | 793 | 86,323 | 109 | 163 | 17,676 | 108 |
| All ages | 287,037 | 36,867,825 | 128 | 8,086 | 839,771 | 104 |

Table 22. (*continued*)

| Age group (nearest ages) | Exposed-to-risk Lives | Exposed-to-risk Amounts (£ per annum) | Exposed-to-risk Average pension (£ p.a.) | Deaths Lives | Deaths Amounts (£ per annum) | Deaths Average pension (£ p.a.) |
|---|---|---|---|---|---|---|
| *Males, early retirement* | | | | | | |
| –65 | 161,304 | 62,177,498 | 385 | 5,591 | 1,665,139 | 298 |
| 66–70 | 152,330 | 45,228,922 | 297 | 6,742 | 1,602,005 | 238 |
| 71–75 | 66,206 | 15,369,103 | 232 | 4,389 | 872,182 | 199 |
| 76–80 | 16,655 | 3,024,038 | 182 | 1,582 | 256,399 | 162 |
| 81–85 | 3,885 | 526,072 | 135 | 479 | 64,322 | 134 |
| 86–90 | 942 | 104,318 | 111 | 152 | 21,370 | 141 |
| 91– | 208 | 23,177 | 111 | 46 | 3,204 | 70 |
| All ages | 401,530 | 126,453,128 | 315 | 18,981 | 4,484,621 | 236 |
| *Females, early retirement* | | | | | | |
| –60 | 18,583 | 3,480,951 | 187 | 227 | 38,130 | 168 |
| 61–65 | 18,789 | 2,992,608 | 159 | 288 | 41,285 | 143 |
| 66–70 | 12,529 | 1,506,617 | 120 | 265 | 32,702 | 123 |
| 71–75 | 7,391 | 620,637 | 84 | 258 | 20,678 | 80 |
| 76–80 | 3,529 | 247,326 | 70 | 200 | 11,299 | 56 |
| 81–85 | 1,219 | 63,625 | 52 | 94 | 3,993 | 42 |
| 86–90 | 289 | 12,574 | 44 | 50 | 1,573 | 31 |
| 91– | 58 | 2,534 | 44 | 19 | 802 | 42 |
| All ages | 62,387 | 8,926,872 | 143 | 1,401 | 150,462 | 107 |

frequently used for calculations relating to pensioners; this was still the position when the data for the earlier years in the quadrennium 1975–78 were being tabulated, and one of the comparison bases chosen was the *aeg* 1967–70. The results on this basis are shown in Table 21 with a comparison with the experience of immediate annuitants (purchased after 1956, durations 5 and over) but the Committee is of the opinion that this type of comparison should be dropped for future experiences.

34. Table 22 shows the size of the data and the average pensions per annum on both a 'lives' and an 'amounts' basis. For all sections the average pension decreased fairly regularly with age, and with only one or two exceptions the average pension amongst those dying was lower than the average amongst the exposed-to-risk. This is consistent with the results of Tables 18 and 19, where the ratios of actual to expected deaths in the data for the normal and late retirements were mostly lower on the 'amounts' basis than on the 'lives' basis.

35. At the end of the last report it was suggested that it might be useful to show results for 'all pensioners combined' irrespective of the time of retirement as this grouping would be an aggregation of all those who were originally 'selected' as

members of certain employments and who are now on pension. This combined group has been compared on the basis of the PA(90) table and the results shown in Table 23. It will be seen that the ratios of actual to expected deaths tend to decrease with advancing age for both sexes, although this trend is not so clear for the females on the 'amounts' basis.

36. This quadrennium the data from some offices have been collected for the first time according to duration since retirement. Those offices who were unable to subdivide their data in this way have their whole experience included under durations 5 and over. For the report on this subdivided investigation, the comparisons with PA(90) are shown in Table 24; as it is in its infancy the comparison has been limited to a 'lives' basis. There is no sign of any 'reverse selection' at retirement which some members of the profession thought might be disclosed, and the only duration effect of any kind appears to be to give relatively low male mortality in the first year of retirement. Whether the extension of the select period to 10 years, starting with the 1981 experience, will in the event be worth while, remains to be seen, but it must be commented that the data at short duration at very high ages are suspect, with the possibility that classification has

Table 23. *Pensioners; normal, late and early retirements combined. Experience, 1975–78 compared with* PA (90) *table*

| | Lives | | Amounts | |
|---|---|---|---|---|
| Age group (nearest ages) | Actual deaths | 100 A/E | Actual deaths (£ p.a.) | 100 A/E |
| *Males* | | | | |
| –65 | 7,198 | 160 | 2,188,929 | 128 |
| 66–70 | 25,817 | 124 | 5,460,690 | 105 |
| 71–75 | 28,840 | 128 | 5,077,562 | 111 |
| 76–80 | 19,219 | 125 | 3,081,608 | 112 |
| 81–85 | 9,667 | 119 | 1,512,549 | 114 |
| 86–90 | 4,085 | 118 | 612,026 | 112 |
| 91– | 1,062 | 105 | 145,806 | 99 |
| All ages | 95,888 | 126 | 18,079,170 | 111 |
| *Females* | | | | |
| –60 | 298 | 220 | 53,776 | 203 |
| 61–65 | 1,105 | 125 | 144,530 | 106 |
| 66–70 | 1,726 | 116 | 210,395 | 110 |
| 71–75 | 2,199 | 115 | 213,881 | 103 |
| 76–80 | 1,966 | 113 | 176,922 | 108 |
| 81–85 | 1,416 | 119 | 114,785 | 114 |
| 86–90 | 595 | 118 | 57,466 | 126 |
| 91– | 182 | 111 | 18,478 | 105 |
| All ages | 9,487 | 118 | 990,233 | 111 |

Table 24. *Pensioners who retired at or after the normal age. 'Lives' Experience, by duration since retirement, compared with* PA (90) *table*

| Age group (nearest ages) | Duration 0 Actual deaths | 100 A/E | Duration 1 Actual deaths | 100 A/E | Duration 2 Actual deaths | 100 A/E | Duration 3 Actual deaths | 100 A/E | Duration 4 Actual deaths | 100 A/E | Durations 5 and over Actual deaths | 100 A/E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Males* | | | | | | | | | | | | |
| –65 | 852 | 114 | 106 | 240 | 42 | 179 | 17 | 118 | 17 | 134 | 573 | 103 |
| 66–70 | 1,212 | 101 | 2,040 | 122 | 1,792 | 135 | 1,386 | 127 | 1,423 | 133 | 11,222 | 114 |
| 71–75 | 105 | 92 | 174 | 127 | 197 | 132 | 194 | 123 | 257 | 122 | 23,524 | 126 |
| 76–80 | 70 | 135 | 85 | 142 | 74 | 118 | 72 | 132 | 62 | 131 | 17,274 | 124 |
| 81–85 | 39 | 131 | 48 | 137 | 49 | 130 | 26 | 92 | 34 | 127 | 8,992 | 119 |
| 86-90 | 19 | 113 | 19 | 109 | 27 | 140 | 26 | 144 | 23 | 128 | 3,819 | 118 |
| 91– | 7 | 138 | 8 | 121 | 8 | 137 | 8 | 156 | 8 | 152 | 977 | 104 |
| All ages | 2,304 | 107 | 2,480 | 126 | 2,189 | 136 | 1,729 | 126 | 1,824 | 131 | 67,381 | 123 |
| *Females* | | | | | | | | | | | | |
| –60 | 40 | 160 | 5 | * | 2 | * | 2 | * | 0 | * | 22 | 131 |
| 61–65 | 72 | 116 | 115 | 146 | 68 | 109 | 53 | 101 | 77 | 149 | 432 | 107 |
| 66–70 | 32 | 147 | 30 | 114 | 20 | 77 | 36 | 148 | 34 | 118 | 1,309 | 113 |
| 71–75 | 18 | 121 | 19 | 115 | 20 | 123 | 13 | 87 | 17 | 117 | 1,854 | 113 |
| 76–80 | 21 | 148 | 27 | 168 | 31 | 180 | 14 | 103 | 10 | 85 | 1,663 | 110 |
| 81–85 | 17 | 132 | 20 | 142 | 24 | 172 | 13 | 111 | 14 | 162 | 1,234 | 118 |
| 86–90 | 13 | 181 | 10 | 114 | 21 | 220 | 10 | 141 | 4 | 67 | 488 | 113 |
| 91– | 4 | 82 | 8 | 199 | 2 | 53 | 5 | 132 | 5 | 161 | 138 | 103 |
| All ages | 217 | 133 | 234 | 141 | 188 | 125 | 146 | 114 | 161 | 129 | 7,140 | 112 |

* Expected deaths less than 1.

been by duration since purchase of a pension rather than by duration since retirement.

37. A new investigation into the experience of spouses receiving pensions from pension schemes was also started in 1975–78, but with no male deaths and only 20 female deaths there is not yet sufficient experience for any tables to be published.

## MORTALITY EXPERIENCED DURING THE PERIOD 1975–78 BY PURCHASERS OF RETIREMENT ANNUITIES UNDER THE PROVISIONS OF THE FINANCE ACT 1956

38. The previous report on the experience of purchasers of retirement annuities under the Finance Act, 1956, related to the period 1971–74 and appeared in *C.M.I.R.* **3**, 69. The present report relates to the period 1975–78.

39. Some changes were made in the collection of statistics, starting with the year 1975. The medically examined and non-medical sections are no longer kept separate, the medical data having been too scanty to justify separating the two sections. Data for annuities in payment resulting from retirements which took place before age 60 are no longer separated from other retirement annuities in course of payment.

40. Table 25 shows the experience in 1975–78, compared with the 1971–74 experience on the bases of A 1967–70 for males in deferment, E.L.T. No. 12 for females in deferment, and *aeg* 1967–70 (ultimate) for both males and females in course of payment. It will be seen that the ratios of actual to expected deaths were nearly all lower in 1975–78 than in 1971–74, notwithstanding the fact that the lives who had retired before age 60 were excluded from the 1971–74 calculations, but included in those for 1975–78. The main exception to this general picture occurred in the annuities in course of payment to both males and females in the age group 76–80 where the ratios rose sharply from 1971–74 to 1975–78.

41. Table 25 also shows the ratios of actual to expected deaths in 1975–78 on new bases which have become available during the last few years, and which will be used for the next quadrennium 1979–82, viz. E.L.T. No. 13 for females in deferment and *a(90)* ultimate for both males and females in course of payment.

42. Both males and females in deferment experienced lighter mortality than was shown under the whole-life and endowment assurances at durations 2 and over during the same quadrennium; those in course of payment experienced lighter mortality than the immediate annuitants at durations 1 and over. The males in course of payment experienced mortality close to *a(90)* ultimate rates; in the case of the females in payment even the *a(90)* ultimate table appears no longer to give a safety margin at most ages.

Table 25. *Retirement annuity policies. Actual and ratios of actual to expected deaths,* 1975–78

| Age group (nearest ages) | Males: Actual deaths | Males: 100 A/E 1975–78 | Males: 100 A/E 1971–74 | Females: Actual deaths | Females: 100 A/E 1975–78 | Females: 100 A/E 1975–78 | Females: 100 A/E 1971–74 |
|---|---|---|---|---|---|---|---|
| Basis: | | A 1967–70 | A 1967–70 | | E.L.T. No. 13 | E.L.T. No. 12 | E.L.T. No. 12 |
| *In deferment* | | | | | | | |
| –25 | 11 | 77 | 125 | 3 | 150 | 125 | 26 |
| 26–30 | 47 | 92 | | | | | |
| 31–35 | 99 | 88 | 89 | 5 | 92 | 74 | |
| 36–40 | 185 | 92 | 91 | 7 | 50 | 43 | |
| 41–45 | 365 | 85 | 103 | 21 | 56 | 53 | 80 |
| 46–50 | 720 | 83 | 99 | 45 | 51 | 52 | 76 |
| 51–55 | 1,283 | 83 | 102 | 88 | 58 | 59 | 78 |
| 56–60 | 1,825 | 83 | 95 | 117 | 63 | 61 | 75 |
| 61–65 | 2,074 | 79 | 86 | 73 | 49 | 45 | 53 |
| 66–70 | 643 | 59 | 75 | 28 | 48 | 44 | 60 |
| 71–75 | 38 | 51 | 150 | 1 | 22 | 20 | 180 |
| 76–80 | 3 | 91 | | | | | |
| 81– | 4 | 124 | | | | | |
| –50 | 1,427 | 85 | 100 | 81 | 55 | 54 | 71 |
| 51–60 | 3,108 | 83 | 90 | 205 | 61 | 60 | 67 |
| 61– | 2,762 | 73 | | 102 | 48 | 44 | |
| All ages | 7,297 | 79 | 91 | 388 | 56 | 54 | 68 |

| Age group (nearest ages) | Males: Actual deaths | Males: 100 A/E 1975–78 | Males: 100 A/E 1975–78 | Males: 100 A/E 1971–74 | Females: Actual deaths | Females: 100 A/E 1975–78 | Females: 100 A/E 1975–78 | Females: 100 A/E 1971–74 |
|---|---|---|---|---|---|---|---|---|
| * Basis: | | *a(90)* | *aeg* 1967–70 | *aeg* 1967–70 | | *a(90)* | *aeg* 1967–70 | *aeg* 1967–70 |
| *In course of payment* | | | | | | | | |
| –60 | 24 | 210 | 187 | 104 | 5 | 141 | 109 | 89 |
| 61–65 | 439 | 116 | 105 | | 44 | 97 | 78 | |
| 66–70 | 1,677 | 101 | 92 | 93 | 110 | 90 | 80 | 93 |
| 71–75 | 1,740 | 100 | 91 | 93 | 119 | 90 | 83 | 86 |
| 76–80 | 843 | 101 | 92 | 80 | 70 | 103 | 94 | 76 |
| 81–85 | 280 | 104 | 95 | 109 | 11 | 63 | 57 | 103 |
| 86– | 46 | 100 | 92 | 104 | 4 | 110 | 105 | |
| All ages | 5,049 | 102 | 93 | 93 | 363 | 93 | 83 | 89 |

* Ultimate mortality in all cases.

## MORTALITY IN 1975–78 OF MALE LIVES UNDER WHOLE LIFE AND ENDOWMENT ASSURANCES, ACCORDING TO CAUSE OF DEATH

43. THE last report on the mortality of assured lives according to cause of death related to the years 1971–74 and appeared in *C.M.I.R.* **3**, 77. The present report relates to 1975–78 and, as before, the investigation was confined to male lives under whole life and endowment assurances.

44. The cause-specific central rates of mortality were again calculated for each of the years of experience by reference to the Home Populations and the distributions of death by cause from the publication *Mortality Statistics—Cause* (Series DH2 No. 1.) These rates were applied to the exposed to risk for the year in question, adjusted to allow for the proportions of 'cause unknown' cases which arose either because the office was unable to produce copies of the death certificate, or because consular or foreign certificates were produced which had no space for the cause of death. The product of the cause-specific rate and the adjusted exposed to risk gave the expected deaths by cause, which were calculated for the same age and duration groups as previously. (In the case of all causes combined the rates of mortality were multiplied by the unadjusted exposed to risk to find the expected deaths, since the actual deaths with which they were to be compared included the 'cause unknown' cases.)

45. Coding was again according to the *Eighth Revision* of the *Manual of the International Statistical Classification of Diseases Injuries and Causes of Death* (W.H.O.) which was also used by the Office of Population Censuses and Surveys (O.P.C.S.) up to and including the year of experience 1978.

46. The assured lives experience excludes industrial business and does not, it is thought, include many members of social classes IV and V. Standardization Factors have been calculated by reference to figures given in the microfiches which were published with the *Registrar-General's Decennial Supplement, England & Wales, 1971*; in the first instance these Factors were calculated separately by age groups, but the O.P.C.S. observed that the figures up to age 24, and for most causes up to age 34, were based on very few deaths, while for ages over 64 the occupation has often been described at the census as 'retired' making the social class classification unreliable; as the Factors showed little variation with age for the age groups between 25 and 64 a single Factor was calculated for each cause group, but it was however calculated in two ways, first by taking the ratio between the cause-specific mortality rate in social classes I, II, III (Non-Manual) and III (Manual) combined and the corresponding rate in all classes combined, and secondly by taking a similar ratio excluding the data for social class III (Manual) from the numerator. These Standardization Factors are given in Table 30.

47. The actual deaths by cause, experienced by the male lives in the whole life and endowment assurance data submitted by those offices making cause-of-death returns, together with the ratios 100 A/E, appear in Tables 26 to 29 which also show for convenience, in the heading of each cause-group 'box', the appropriate Standardization Factor applicable to social classes I, II, III (Non-Manual) and III (Manual) combined, i.e. the Factor taken from the centre column of Table 30; readers who prefer to use the Standardization Factor which excludes the data for social class III (Manual) should refer to the final column of Table 30, but the Committee has no definite information as to the extent to which members of social class III (Manual) make up the assured lives' data. The distribution by social class may vary from office to office, and this is why it has been considered preferable to publish both sets of Factors.

48. The cause-groups for the Standardization Factors differ slightly, in some instances, from the groupings employed in this report, but the attempt has been made to obtain the Factors for groupings as near as possible, from the information available, to those used by the Committee.

49. The Standardization Factors will be found to be somewhat different from those employed in earlier reports, which were based on the *Decennial Supplement* 1961 and were less reliable because the information was not given for so many subdivisions by cause of death.

50. A commentary on the results shown in Tables 26 to 29 appears in tabular form in Table 31.

## Table 26. *Actual deaths reported in* 1975–78 *due to neoplasms, and percentages of actual to expected deaths from these causes*

| | | 150–159 (SF 97) Malignant neoplasms of digestive system | | | | 160–163 (SF 92) Malignant neoplasms of respiratory system | | | | 170–174 (SF 105) Malignant neoplasms of bone, connective tissue and skin | | | | 180–189 (SF 94) *Malignant neoplasms* of genito-urinary organs | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Duration | Age group | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E |
| 0 | All ages | 21 | 36 | 64 | 34 | 13 | 16 | 70 | 32 | 5 | 93 | 7 | 22 | 3 | 16 | 30 | 42 |
| 1–2 | All ages | 111 | 76 | 255 | 64 | 81 | 40 | 257 | 54 | 5 | 37 | 45 | 73 | 33 | 72 | 84 | 59 |
| 3–4 | All ages | 118 | 59 | 318 | 68 | 122 | 43 | 273 | 46 | 8 | 49 | 49 | 80 | 47 | 76 | 105 | 69 |
| 5 and over | –44 | 82 | 68 | 372 | 73 | 43 | 43 | 187 | 46 | 29 | 126 | 126 | 114 | 42 | 102 | 179 | 89 |
| | 45–59 | 865 | 68 | 2,281 | 73 | 795 | 42 | 2,331 | 51 | 75 | 83 | 221 | 97 | 241 | 78 | 589 | 79 |
| | 60–74 | 1,180 | 69 | 1,292 | 68 | 1,223 | 46 | 1,749 | 58 | 54 | 75 | 52 | 62 | 489 | 79 | 509 | 80 |
| | 75– | 505 | 76 | 178 | 81 | 449 | 69 | 155 | 68 | 12 | 43 | 6 | 68 | 364 | 86 | 113 | 82 |
| | All ages | 2,632 | 70 | 4,123 | 72 | 2,510 | 47 | 4,422 | 54 | 170 | 80 | 405 | 94 | 1,136 | 82 | 1,390 | 81 |

| | | 190–192 (SF 99) Malignant neoplasms of nervous system | | | | 140–149 and 193–194 (SF 95) Malignant neoplasms of buccal cavity, pharynx and endocrine glands | | | | 200–209 (SF 103) Neoplasms of lymphatic and haematopoietic tissue | | | | 140–239 (SF 97) All neoplasms (including ill-defined and unspecified sites not included in the seven sub-groups) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Duration | Age group | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E |
| 0 | All ages | 4 | 43 | 19 | 36 | 0 | (4) | 4 | 26 | 5 | 27 | 31 | 28 | 56 | 27 | 247 | 34 |
| 1–2 | All ages | 29 | 120 | 77 | 72 | 2 | 20 | 21 | 67 | 39 | 83 | 120 | 57 | 319 | 62 | 915 | 60 |
| 3–4 | All ages | 25 | 85 | 115 | 106 | 8 | 61 | 25 | 70 | 56 | 99 | 171 | 83 | 404 | 58 | 1,136 | 66 |
| 5 and over | –44 | 49 | 113 | 203 | 101 | 9 | 86 | 38 | 83 | 73 | 97 | 313 | 84 | 352 | 80 | 1,535 | 78 |
| | 45–59 | 187 | 107 | 469 | 106 | 51 | 59 | 120 | 57 | 264 | 89 | 602 | 82 | 2,630 | 60 | 7,070 | 67 |
| | 60–74 | 155 | 147 | 179 | 131 | 67 | 75 | 46 | 44 | 273 | 95 | 289 | 88 | 3,668 | 63 | 4,356 | 67 |
| | 75– | 20 | 323 | 4 | 174 | 16 | 45 | 3 | 27 | 106 | 114 | 37 | 119 | 1,561 | 78 | 531 | 79 |
| | All ages | 411 | 125 | 855 | 110 | 143 | 64 | 207 | 56 | 716 | 95 | 1,241 | 85 | 8,211 | 65 | 13,492 | 68 |

*Notes:* A = Actual Deaths. E = Deaths expected according to 1975–78 national experience of England and Wales (males) calculated from tables published by the Registrar General.
Where A = 0 or E = 1 or less, the figure shown in brackets is E calculated to the nearer integer.
SF = Standardization Factor for Social Class.

Table 27. *Actual deaths reported in* 1975–78 *from diseases of the circulatory system, and percentages of actual to expected deaths from these causes*

| | | 410·0 (SF 98) Acute myocardial infarction, with mention of hypertension | | | | 410·9 (SF 98) Acute myocardial infarction, without mention of hypertension | | | | 411·0–414·0 (SF 95) Other forms of ischaemic heart disease, with mention of hypertension | | | | 411·9–414·9 (SF 95) Other forms of ischaemic heart disease, without mention of hypertension | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Duration | Age group | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E |
| 0 | All ages | 3 | 16 | 18 | 33 | 84 | 46 | 271 | 46 | 0 | (7) | 9 | 45 | 19 | 36 | 75 | 45 |
| 1–2 | All ages | 9 | 20 | 37 | 32 | 177 | 38 | 687 | 55 | 2 | 11 | 14 | 32 | 40 | 30 | 155 | 43 |
| 3–4 | All ages | 13 | 21 | 61 | 43 | 301 | 48 | 876 | 58 | 3 | 12 | 24 | 46 | 67 | 36 | 212 | 50 |
| 5 and over | –44 | 11 | 36 | 61 | 50 | 214 | 54 | 864 | 55 | 8 | 73 | 21 | 49 | 65 | 58 | 265 | 58 |
| | 45–59 | 216 | 50 | 728 | 69 | 2,561 | 60 | 7,291 | 69 | 64 | 39 | 169 | 43 | 565 | 47 | 1,621 | 55 |
| | 60–74 | 289 | 55 | 499 | 82 | 3,342 | 69 | 4,300 | 80 | 85 | 40 | 119 | 50 | 788 | 51 | 1,025 | 62 |
| | 75– | 97 | 80 | 38 | 90 | 1,590 | 85 | 537 | 87 | 47 | 68 | 21 | 89 | 944 | 83 | 292 | 83 |
| | All ages | 613 | 55 | 1,326 | 72 | 7,707 | 68 | 12,992 | 72 | 204 | 45 | 330 | 47 | 2,362 | 59 | 3,203 | 59 |

| | | 400–404 (SF92) Hypertensive disease (excluding ischaemic heart disease and cerebrovascular disease) | | | | 430·0–438·0 (SF 93) Cerebrovascular disease, with mention of hypertension | | | | 430·9–438·9 (SF 93) Cerebrovascular disease, without mention of hypertension | | | | 390 398 and 420–429 (SF 92) Other diseases of the heart | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Duration | Age group | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | | |
| 0 | All ages | 1 | 11 | 9 | 31 | 2 | 15 | 13 | 31 | 9 | 27 | 46 | 43 | 4 | 17 | 27 | 28 |
| 1–2 | All ages | 5 | 23 | 19 | 31 | 10 | 29 | 35 | 38 | 32 | 38 | 115 | 52 | 14 | 23 | 74 | 38 |
| 3–4 | All ages | 7 | 23 | 12 | 16 | 5 | 11 | 40 | 37 | 63 | 53 | 140 | 56 | 26 | 32 | 79 | 37 |
| 5 and over | –44 | 10 | 47 | 34 | 39 | 13 | 47 | 43 | 39 | 26 | 38 | 162 | 54 | 77 | 114 | 176 | 58 |
| | 45–59 | 71 | 39 | 242 | 55 | 132 | 43 | 487 | 65 | 301 | 54 | 750 | 55 | 203 | 46 | 526 | 49 |
| | 60–74 | 107 | 41 | 186 | 65 | 291 | 71 | 332 | 72 | 735 | 56 | 762 | 59 | 313 | 49 | 344 | 51 |
| | 75– | 88 | 69 | 29 | 70 | 116 | 97 | 40 | 98 | 1,259 | 83 | 372 | 72 | 529 | 68 | 132 | 59 |
| | All ages | 276 | 47 | 491 | 58 | 552 | 64 | 902 | 66 | 2,321 | 67 | 2,046 | 60 | 1,122 | 58 | 1,178 | 52 |

## Table 27 (*continued*)

| | | 440–458 (SF 95) Other diseases of the circulatory system | | | | 390–458 (SF 96) All diseases of the circulatory system (combined) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | |
| Duration | Age group | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E |
| 0 | All ages | 4 | 22 | 17 | 31 | 126 | 35 | 485 | 42 |
| 1–2 | All ages | 19 | 42 | 60 | 54 | 308 | 34 | 1,196 | 49 |
| 3–4 | All ages | 24 | 37 | 55 | 42 | 509 | 41 | 1,499 | 52 |
| 5 and over | -44 | 31 | 101 | 85 | 63 | 455 | 60 | 1,711 | 55 |
| | 45–59 | 204 | 61 | 442 | 55 | 4,317 | 55 | 12,256 | 63 |
| | 60–74 | 430 | 61 | 446 | 62 | 6,380 | 61 | 8,013 | 71 |
| | 75- | 567 | 84 | 151 | 75 | 5,237 | 82 | 1,612 | 80 |
| | All ages | 1,232 | 71 | 1,124 | 60 | 16,389 | 64 | 23,592 | 66 |

*Notes:* A = Actual Deaths. E = Deaths expected according to 1975–78 national experience of England and Wales (males) calculated from tables published by the Registrar General.
Where A = O or E = 1 or less, the figure shown in brackets is E calculated to the nearer integer.
SF = Standardiazation Factor for Social Class.

Table 28. *Actual deaths reported in* 1975–78 *due to suicide, accident and violence, and percentages of actual to expected deaths from these causes*

| | | E810–E823 (SF 93) Motor vehicle accidents | | | | E950–E959 (SF 87) Suicide | | | | E800–E807, E825–E949 and E960–E999 (SF 78) All other accidental and violent causes | | | | E800–E999 (SF 86) All accidental and violent causes | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| Duration | Age group | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E |
| 0 | All ages | 34 | 111 | 327 | 102 | 11 | 48 | 66 | 35 | 26 | 73 | 260 | 87 | 71 | 80 | 653 | 81 |
| 1–2 | All ages | 52 | 72 | 443 | 82 | 33 | 57 | 127 | 36 | 72 | 81 | 412 | 76 | 157 | 72 | 982 | 68 |
| 3–4 | All ages | 57 | 81 | 341 | 80 | 33 | 52 | 132 | 41 | 76 | 80 | 387 | 80 | 166 | 73 | 860 | 70 |
| 5 and over | –44 | 112 | 83 | 595 | 77 | 86 | 66 | 328 | 49 | 147 | 77 | 863 | 87 | 345 | 76 | 1,786 | 73 |
| | 45–59 | 144 | 69 | 348 | 65 | 192 | 78 | 347 | 54 | 296 | 83 | 646 | 71 | 632 | 78 | 1,341 | 64 |
| | 60–74 | 79 | 69 | 104 | 74 | 62 | 60 | 74 | 58 | 142 | 81 | 185 | 90 | 283 | 72 | 363 | 76 |
| | 75– | 25 | 62 | 10 | 77 | 16 | 93 | 3 | 51 | 102 | 79 | 36 | 96 | 143 | 77 | 49 | 87 |
| | All ages | 360 | 72 | 1,057 | 72 | 356 | 72 | 752 | 52 | 687 | 81 | 1,730 | 80 | 1,403 | 76 | 3,539 | 70 |

*Notes:* A = Actual Deaths. E = Deaths expected according to 1975–78 national experience of England and Wales (males) calculated from tables published by the Registrar General.
SF = Standardization Factor for Social Class.

Table 29. *Actual deaths reported in 1975–78 from miscellaneous causes, and from all causes combined, and percentages of actual to expected deaths*

| | | 000–136 and 470–474 (SF 75) Infective and parasitic diseases, including influenza | | | | 250 (SF 90) Diabetes mellitus | | | | 571, 291 and 303 (SF 103) Cirrhosis of the liver and/or alcoholism | | | | 480–486 (SF 65) Pneumonia | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Duration | Age group | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E |
| 0 | All ages | 4 | 53 | 21 | 54 | 0 | (6) | 2 | 8 | 0 | (8) | 7 | 20 | 0 | (24) | 21 | 25 |
| 1–2 | All ages | 6 | 31 | 34 | 45 | 0 | (15) | 7 | 13 | 4 | 21 | 17 | 23 | 8 | 13 | 37 | 22 |
| 3–4 | All ages | 9 | 37 | 24 | 31 | 1 | 5 | 9 | 16 | 11 | 46 | 36 | 45 | 15 | 18 | 37 | 20 |
| 5 and over | –44 | 7 | 26 | 61 | 48 | 6 | 27 | 21 | 21 | 21 | 66 | 71 | 51 | 12 | 25 | 80 | 36 |
| | 45–59 | 40 | 30 | 124 | 38 | 21 | 21 | 69 | 28 | 159 | 98 | 267 | 65 | 99 | 26 | 272 | 29 |
| | 60–74 | 61 | 45 | 100 | 66 | 75 | 53 | 72 | 48 | 102 | 122 | 75 | 71 | 287 | 33 | 367 | 44 |
| | 75– | 68 | 63 | 31 | 97 | 69 | 85 | 24 | 92 | 22 | 206 | 9 | 237 | 937 | 55 | 282 | 58 |
| | *All ages* | *176* | *44* | *316* | *50* | *171* | *49* | *186* | *35* | *304* | *105* | *422* | *64* | 1,335 | 44 | 1,001 | 40 |

| | | 490–493 (SF 81) Bronchitis | | | | 460–466 and 500–519 (SF 80) Other respiratory diseases | | | | 520–577 excluding 571 (SF 82) Diseases of the digestive system other than cirrhosis | | | | 580–584 (SF 89) Nephritis | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| | | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Duration | Age group | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E | A | A/E |
| 0 | All ages | 1 | 3 | 10 | 13 | 0 | (8) | 5 | 17 | 1 | 7 | 19 | 29 | 1 | 19 | 4 | 15 |
| 1–2 | All ages | 6 | 8 | 13 | 8 | 3 | 16 | 13 | 22 | 14 | 37 | 50 | 38 | 2 | 15 | 8 | 16 |
| 3–4 | All ages | 9 | 9 | 27 | 14 | 6 | 23 | 23 | 36 | 17 | 34 | 62 | 44 | 2 | 12 | 17 | 32 |
| 5 and over | –44 | 11 | 34 | 38 | 27 | 4 | 22 | 31 | 38 | 25 | 54 | 120 | 58 | 3 | 15 | 37 | 40 |
| | *45–59* | *112* | *21* | *305* | *24* | *28* | *20* | *127* | *37* | *131* | *46* | *316* | *45* | *34* | *38* | *114* | *52* |
| | 60–74 | 350 | 27 | 451 | 34 | 106 | 43 | 116 | 45 | 187 | 52 | 211 | 54 | 69 | 67 | 90 | 78 |
| | 75– | 370 | 42 | 128 | 45 | 90 | 53 | 31 | 58 | 159 | 61 | 42 | 52 | 47 | 68 | 9 | 43 |
| | All ages | 843 | 31 | 922 | 30 | 228 | 40 | 305 | 41 | 502 | 53 | 689 | 50 | 153 | 54 | 250 | 56 |

## Table 29 (*continued*)

| | | 590-678 (SF 82) Other diseases of the genito-urinary system | | | | 240–389 and 680–779 excluding 250, 291 and 303 (SF 77) All other specified causes | | | | All causes (SF 91) (including ill-defined causes not tabulated elsewhere) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Med | | Non-med | | Med | | Non-med | | Med | | Non-med | |
| Duration | Age group | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E | A | 100 A/E |
| 0 | All ages | 0 | (3) | 3 | 25 | 6 | 26 | 22 | 14 | 291 | 34 | 1,630 | 49 |
| 1–2 | All ages | 2 | 25 | 8 | 33 | 14 | 24 | 64 | 22 | 884 | 43 | 3,586 | 54 |
| 3–4 | All ages | 0 | (11) | 13 | 49 | 17 | 25 | 76 | 28 | 1,214 | 47 | 4,057 | 57 |
| 5 and over | –44 | 1 | 12 | 16 | 42 | 38 | 40 | 198 | 41 | 1,353 | 66 | 6,014 | 65 |
| | 45–59 | 17 | 34 | 59 | 48 | 151 | 46 | 399 | 49 | 8,672 | 56 | 23,665 | 63 |
| | 60–74 | 45 | 41 | 55 | 51 | 261 | 78 | 272 | 74 | 12,295 | 60 | 15,155 | 68 |
| | 75– | 174 | 95 | 55 | 102 | 189 | 85 | 46 | 67 | 9,391 | 76 | 2,918 | 75 |
| | All ages | 237 | 67 | 185 | 57 | 639 | 65 | 915 | 53 | 31,711 | 63 | 47,752 | 65 |

*Notes*: A = Actual Deaths. E = Deaths expected according to 1975–78 national experience of England and Wales (males) calculated from tables published by the Registrar General.
Where A = 0 or E = 1 or less, the figure shown in brackets is E calculated to the nearer integer.
SF = Standardization Factor for Social Class.

Table 30. *Factors for standardizing national mortality rates (England & Wales, 1971) according to social class (males)*

| | 100 × death rate for classes shown / death rate for all classes combined | |
|---|---|---|
| Cause group | Classes I, II, III(NM) and III(M) combined | Classes I, II and III(NM) combined |
| 150–154+157 | 97 | 88 |
| 161–162 | 92 | 70 |
| 172–174 | 105 | 119 |
| 185+188–189 | 94 | 91 |
| 191 | 99 | 96 |
| 140–149 | 95 | 91 |
| 200–209 | 103 | 105 |
| 140–239 | 97 | 88 |
| 410 | 98 | 86 |
| 411–414 | 95 | 84 |
| 400–404 | 92 | 79 |
| 430–438 | 93 | 85 |
| 393–398+420–429 | 92 | 89 |
| 440–453 | 95 | 90 |
| 390–458 | 96 | 87 |
| E810–823+940 | 93 | 85 |
| E950–959 | 87 | 100 |
| E800–807+825–949 (except 940) +960–999 | 78 | 61 |
| E800–999 | 86 | 80 |
| 000–136+470–474 | 75 | 63 |
| 250 | 90 | 89 |
| 571 | 103 | 117 |
| 480–486 | 65 | 52 |
| 490–493 | 81 | 65 |
| 460–466+500–519 | 80 | 70 |
| 520–577 less 571 | 82 | 76 |
| 580–584 | 89 | 79 |
| 590–629 | 82 | 79 |
| 240–389+680–779 (excluding 250) | 77 | 75 |
| All classes combined | 91 | 83 |

Table 31. *Summary of the results shown in Tables 26 to 29, and comparison of cause of death experience with that of 1971–74*

| (1) | (2)* | | (3) | | (4)* | | (5)* | |
|---|---|---|---|---|---|---|---|---|
| Cause group I.C.D. Codes (see Tables 1–4 for descriptions) | Comparison with all causes combined | | Apparent duration of initial selection (years) | | Comparison with 1971–74 | | Comparison with Standardization Factor | |
| | Med. | Non-med. | Med. | Non-med. | Med. | Non-med. | Med. | Non-med. |
| 150–159 | H | H | 1 | 1 | — | — | L | L |
| 160–163 | L | L | 1 | 1 | — | — | L | L |
| 170–174 | H | H | — | — | — | — | L | L |
| 180–189 | H | H | 1 | 3 | — | — | L | L |
| 190–192 | H | H | 1 | 1 | — | — | H | H |
| 140–149 + 193–194 | — | — | — | — | — | — | L | L |
| 200–209 | H | H | 1 | 3 | — | — | L | L |
| 140–239 | — | H | 1 | 1 | — | — | L | L |
| 410·0 | L | H | 5 | 5 | — | — | L | L |
| 410·9 | H | H | 5 | 5 | — | — | L | L |
| 411·0–414·0 | L | L | — | — | — | — | L | L |
| 411·9–414·9 | — | L | 5 | 3 | — | — | L | L |
| 400–404 | L | — | — | — | — | — | L | L |
| 430·0–438·0 | — | — | 5 | 5 | — | — | L | L |
| 430·9–438·9 | — | — | 3 | 1 | — | — | L | L |
| 390–398 + 420–429 | — | L | 3 | 1 | — | — | L | L |
| 440–458 | H | — | 1 | 1 | — | L | L | L |
| 390–458 | — | — | 5 | 5 | — | — | L | L |
| E810–823 | H | H | 0 | 0 | — | — | L | L |
| E950–959 | H | L | — | — | — | — | L | L |
| E800–807 + 825–949 + 960–999 | H | H | 0 | 0 | — | — | — | — |
| E800–999 | H | H | 0 | 0 | — | — | L | L |
| 000–136 + 470–474 | L | L | 0 | 0 | — | H | L | L |
| 250 | L | L | — | — | — | — | L | L |
| 571 + 291 + 303 | L | — | 5 | 5 | H | — | — | L |
| 480–486 | L | L | 5 | 5 | — | — | L | L |
| 490–493 | L | L | — | — | — | — | L | L |
| 460–466 + 500–519 | L | L | — | — | — | — | L | L |
| 520–577 except 571 | L | L | — | — | — | — | L | L |
| 580–584 | — | — | 5 | 3 | — | — | L | L |
| 590–678 | — | — | — | — | — | — | L | L |
| 240–389 + 680–779 except 250, 291, 303 | — | L | 5 | 5 | — | — | L | L |
| All combined | — | — | 5 | 5 | — | H | L | L |

* In these columns 'H' or 'L' indicates that the 1975-78 mortality experienced (as measured by the ratio 100 A/E) for a particular cause-group was in general either significantly higher (H) or significantly lower (L) than that experienced for all causes combined in 1975–78 (column 2) or than the ratio for the same cause-group in 1971–74 (column 4) or than the standardization factor (column 5) as the case may be. If neither of the letters H or L appears the comparison in question indicates no significant difference.

A dash in column 3 indicates that the select experience was too small for the effect of initial selection to be assessed.

## *a(55)* TABLES: $q_x$ AT HIGH AGES

This note arises from a query received from an actuary who wished, for the purpose of a computer program, to know what formula could be fed to the computer in order to produce the values of $q_x$ at ages above 103 as shown in the preface to the *a(55)* tables.

A search indicated that no record had been kept of the method by which these values had been devised. Several of the then Committee are now deceased, as is the actuary who compiled the Minutes at the time in question before a Secretary was appointed. The only survivor who produced a positive answer was not a Committee member for long and had not been directly involved in the graduation; his information is that the data at these ages were too scanty for a sophisticated method to have been employed. A senior member of the profession who was not a Committee member, but who was involved in some of the calculations, believes the values were obtained graphically by extending the graduated values in such a way that $q_x$ becomes unity at age 116 for females, 114 for males.

The Committee is of the opinion that there should be some permanent record of what was done, for the sake of completeness, and so that the answer is readily available if the question again arises, as it may well do as it is believed the *a(55)* Tables are still extensively used.

From the above comments it may be assumed that a summation method would not have been used on the scanty data. The fitting of a curve is just feasible, but it was not quoted in the preface and the values were only shown to three significant figures. The first differences of the published figures were calculated, down to age 102 to ensure that if an apparent underlying basis were discovered, the results would run into the main part of the tables. The ratios between successive first differences indicate that a Makeham formula had not been used, and a Perks formula was ruled out as the tabulated $q_x$'s go up to unity.

A third difference formula was still a possibility. Third differences were calculated and it was found that for females they were all 1 or 0; ten 1's and two 0's but the latter were both in the early part of the age range and the tabulated values could only approximately be reproduced by a third difference formula; similarly for the males where the third differences were, in order, three 1's, three 2's, three more 1's and one 3. These third differences indicate strongly that the tabulated values were obtained graphically with efficient hand-polishing.

A fourth difference formula came no closer than a third. Details follow of third difference formulae which reproduce the published values to three significant figures with no discrepancy exceeding 3 in the third figure, nor exceeding $\frac{1}{2}$ of 1%.

*a(55) Tables. Third difference formulae which approximately reproduce the published values of $q_x$ at ages from 102 upwards*

$$q_x = a + by + cy^2 + dy^3$$

| | | *females* | *males* |
|---|---|---|---|
| where | $10^6 a =$ | 557880 | 576000 |
| | $10^7 b =$ | 384733 | 377333 |
| | $10^8 c =$ | 265400 | 388889 |
| | $10^9 d =$ | 124667 | 266667 |
| and | $x - y =$ | 109 | 108 |

$q_x$ to three decimal places:

| Age $x$ | Females: by above formula | Females: as published | Males: by above formula | Males: as published |
|---|---|---|---|---|
| 102 | ·376 | ·376 | ·432 | ·432 |
| 103 | ·396 | ·396 | ·451 | ·450 |
| 104 | ·416 | ·417 | ·470 | ·469 |
| 105 | ·438 | ·440 | ·491 | ·490 |
| 106 | ·463 | ·465 | ·514 | ·514 |
| 107 | ·491 | ·493 | ·542 | ·542 |
| 108 | ·522 | ·524 | ·576 | ·576 |
| 109 | ·558 | ·559 | ·618 | ·618 |
| 110 | ·599 | ·599 | ·669 | ·670 |
| 111 | ·646 | ·645 | ·731 | ·733 |
| 112 | ·701 | ·698 | ·806 | ·808 |
| 113 | ·762 | ·759 | ·895 | ·896 |
| 114 | ·832 | ·829 | 1·000 | 1·000 |
| 115 | ·911 | ·909 | | |
| 116 | 1·000 | 1·000 | | |

# SICKNESS EXPERIENCE 1973–76 FOR GROUP POLICIES

# SICKNESS EXPERIENCE 1973–76 FOR GROUP POLICIES

## 1. INTRODUCTION

1.1 THE experience for individual policies during the years 1972 to 1975 has already been described in *C.M.I.R.* **2, 3** and **4,** in the last of which there is a more detailed analysis of that business. The investigation into group business effectively started a year later and the results for the first 4 years have now become available.

1.2 For various reasons the volume of data, on which this report is based, is much smaller—being only about 25% of that for individual policies. In group business there was probably not such an established core of 'in force' at the start of the investigation and although there has been a fairly rapid expansion, much group business (or perhaps most) is conducted in a manner where it is impractical to give estimates for the exposed-to-risk more frequently than once in every 3 or 5 years.

1.3 It cannot be emphasized too much that readers should exercise caution in their interpretation of the results given in this report. The amount of business included from one year to the next has increased very rapidly and it is very difficult to avoid some bias creeping into group results because of the presence of a few larger schemes with either very light or very heavy morbidity; whilst these may balance out in the broader analyses, they can have a marked influence where data are smaller.

1.4 The reader should rather look on this report as the start of a series of such reports, which will probably appear at 4-yearly intervals and which, hopefully, will indicate more accurately the levels and trends of group sickness.

## 2. SPECIAL PROBLEMS

2.1 Apart from the comparative lack of data the collection of data ran into two particular problems. The main one was that an accurate estimate of the business in force is often only available at the annual renewal date of the group scheme rather than at 31 December. An alternative method had, therefore, to be devised and detailed instructions were given in Group Circular No. 1 which is reproduced in Appendix 2. Instructions were also incorporated for terminated schemes to prevent them being included for only one half of their final year instead of the full year which was considered more likely to apply.

2.2 Contributing offices are given a choice of submitting data on the 31 December or on the scheme renewal date. No scheme year data were available for 1973 so that Tables 1–14 are based on four 'calendar' years' data plus three 'scheme' years' data.

2.3 The other problem was the delay experienced by most offices in finalizing their data. Medical evidence may be required and until this is obtained and

scrutinized the level of benefit may be uncertain—nearly all of such lives will have some cover throughout the scheme year, either as a continuation from the previous year or, in the case of new entrants to larger schemes, some cover may be available without evidence of good health. To speed matters up it was, therefore, decided to stop asking for details of the amounts insured.

2.4 The analysis is, therefore, by lives rather than by policies or amounts. For simplicity, date of entry is the date of joining the scheme and, as far as possible, medical and other codes are determined at that date and remain unchanged.

## 3. EXPOSED-TO-RISK FORMULAE

3. For 'calendar year' data the method outlined in *C.M.I.R.* **2** pages 11 to 13 applies but the periods of exposure set out in Table 11 of that report are not suitable for the 'scheme year' basis. That table is repeated below, together with the table used for 'scheme year' data.

Factors to apply to the mean in-force for a year, to correct for recent entry

1974 *Calendar Year Data*

| | Factor (fraction of a year) for sickness period | | | | | |
|---|---|---|---|---|---|---|
| Year of entry | 1/3 | 4/9 | 13/13 | 26/26 | 52/52 | 104/all |
| Before 1972 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1972 | 1 | 1 | 1 | 1 | 1 | $\frac{1}{2}$ |
| 1973 | 1 | $\frac{287}{288}$ | $\frac{31}{32}$ | $\frac{7}{8}$ | 1<br>2 | — |
| 1974 | 1 | $\frac{121}{124}$ | $\frac{9}{16}$ | $\frac{1}{4}$ | — | — |

1973/74 *Scheme Year Data*

| Scheme renewal date of entry | Factor (fraction of a year) for sickness period | | | | | |
|---|---|---|---|---|---|---|
| | 1/3 | 4/9 | 13/13 | 26/26 | 52/52 | 104/all |
| Before 1972 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1972 | 1 | 1 | 1 | 1 | 1 | 0 |
| 1973 | 1 | $\frac{11}{12}$ | $\frac{3}{4}$ | $\frac{1}{2}$ | 0 | 0 |

## 4. UNIT-COSTED SCHEMES

4.1 A large proportion of group schemes are costed in detail less frequently than once a year—usually at 3- or 5-year intervals. They do not, therefore, fit the system which coped with individual policies and has been extended to suit annually costed group schemes. It was, however, envisaged that a Manchester Unity type of investigation would over the years gradually be expanded by examining inception rates and disability annuities. Although the disability

annuity investigation has not yet started, data are being collected including data from the unit-costed schemes which by volume of lives probably covers 50% or more of all group business. Unit-costed claims data are, however, not included in the results given in this paper.

4.2 A circular has, however, been sent to offices inviting submission of data on a manual system which will lead to an examination of the inception rates in unit-costed schemes.

## 5. NATURE OF THE RESULTS

5. Much of the group business in the U.K. is costed by the single premium or current cost method commonly used for group life insurance business rather than by the level annual premium method used for individual policies and the rest of the group business. These premiums are calculated to insure benefits arising from disability which commences during the following scheme year. In the long run, therefore, inception rates and disability annuities will perhaps be of even more relevance to group than individual business. Until more data have been collected and analysed, however, the Manchester Unity A.H.J. table will remain the basis for comparison and this has been used in Tables 1–12 which may, with reservations on Tables 6 and 12, be compared with the 1972/75 results for individual business given in *C.M.I.R.* **4**.

## 6. VOLUME OF DATA

6.1 The following table shows the number of lives in force at various dates during the current investigation:

| Attribute | Number of lives at start of investigation year | | | | Number at end of 1976 |
|---|---|---|---|---|---|
| | 1973 | 1974 | 1975 | 1976 | |
| Total | 22,496 | 36,023 | 48,858 | 57,365 | 58,842 |
| Males | 20,978 | 32,522 | 43,737 | 50,579 | 51,120 |
| Females | 1,518 | 3,501 | 5,121 | 6,786 | 7,722 |
| U.K. | 18,686 | 31,567 | 41,504 | 48,658 | 49,822 |
| Eire | 3,810 | 4,433 | 7,312 | 8,677 | 8,959 |
| Not rated for occupation | 21,944 | 34,561 | 46,834 | 53,340 | 55,051 |
| Level benefit | 19,074 | 28,926 | 36,058 | 40,502 | 40,398 |
| Increasing benefit | 3,383 | 7,075 | 12,781 | 16,847 | 18,430 |
| Non-selection limit | 2,954 | 15,373 | 23,578 | 29,304 | 29,458 |
| Unknown medical evidence | 18,065 | 12,529 | 10,260 | 10,181 | 9,348 |
| Costed by annual premium | 19,434 | 25,716 | 32,031 | 35,116 | 29,271 |
| single premium | 3,033 | 10,278 | 16,359 | 21,216 | 28,876 |
| Underwriting impairments | | | | | |
| no exclusion | 11,705 | 26,622 | 38,155 | 45,842 | 47,761 |
| unknown whether exclusion exists | 10,484 | 8,975 | 10,126 | 10,929 | 10,488 |

6.2 The number of claims were as follows:

| Attribute | Investigation year 1973 | 1974 | 1975 | 1976 | Total |
|---|---|---|---|---|---|
| Total | 224 | 306 | 340 | 357 | 1,227 |
| Males | 205 | 286 | 313 | 315 | 1,119 |
| Females | 19 | 20 | 27 | 42 | 108 |
| UK | 186 | 256 | 297 | 305 | 1,044 |
| Eire | 38 | 50 | 43 | 52 | 183 |
| Not rated for occupation | 216 | 285 | 324 | 336 | 1,161 |
| Level benefit | 211 | 274 | 292 | 287 | 1,064 |
| Increasing benefit | 11 | 28 | 43 | 66 | 148 |
| Non-selection limit | 40 | 75 | 121 | 163 | 399 |
| Unknown medical evidence | 112 | 134 | 117 | 108 | 471 |
| Costed by annual premium | 221 | 258 | 257 | 171 | 907 |
| single premium | 3 | 48 | 83 | 186 | 320 |
| Underwriting impairments | | | | | |
| no exclusion | 115 | 179 | 219 | 267 | 780 |
| unknown whether exclusion exists | 103 | 117 | 110 | 81 | 411 |
| Mode of commencement | | | | | |
| Continuation from previous record year | 101 | 130 | 142 | 193 | 566 |
| New claim | 117 | 172 | 185 | 159 | 633 |
| New claim following interruption of sickness in deferred period | 0 | 1 | 0 | 1 | 2 |
| Revival of claim following interruption | 1 | 1 | 4 | 1 | 7 |
| Continuation of claim but benefit rate changes | 5 | 2 | 9 | 3 | 19 |
| Rate of benefit | | | | | |
| Full rate being paid | 204 | 297 | 323 | 347 | 1,171 |
| Reduced rate being paid | 20 | 9 | 17 | 10 | 56 |
| Mode of cessation | | | | | |
| No cessation at end of year | 115 | 154 | 191 | 235 | 695 |
| Policy expired or void | 1 | 5 | 4 | 4 | 14 |
| Death | 7 | 15 | 20 | 17 | 59 |
| Recovery | 96 | 130 | 110 | 92 | 428 |
| Lump sum paid | 0 | 0 | 0 | 1 | 1 |
| *Ex gratia* commutation | 0 | 0 | 0 | 0 | 0 |
| Benefit rate altered but claim continues | 5 | 2 | 8 | 3 | 18 |
| Membership expired or void | 0 | 0 | 7 | 5 | 12 |

6.3 The analysis does not show the size of many of the less frequent attributes, although these have been recorded and might well be analysed in future as the size of the investigation grows.

6.4 The analysis of modes of commencement and cessation of claims compared with that for individual business brings out the difference between business with relatively long deferred periods (group) and that with relatively short deferred periods (individual). A much higher proportion of group claims were still giving rise to benefit at the end of an investigation year than was the case with individual policies.

## 7. COMPARISON WITH 1972–75 INDIVIDUAL POLICY EXPERIENCE

7.1 It is difficult to draw any conclusions about relative heaviness of experience. On most male tables the group business seems to be the heavier above age 55, but at younger ages there does not seem to be any definite indication. To assist readers the inception rates from the individual experience are shown on the page facing those for group (tables 13 I and 14 I facing tables 13G and 14G).

7.2 Tables 6 and 12 should not be used in comparisons because of the different distribution by deferred period. The male distribution based on $E_x$ 104/all is as follows:

| | Group | Individual |
|---|---|---|
| Table 1 | 1 | 16 |
| 2 | 4 | 20 |
| 3 | 19 | 21 |
| 4 | 60 | 33 |
| 5 | 16 | 10 |
| 6 | 100 | 100 |

An example of the effect of comparing the two experiences on Table 6 can be found by dividing the actual to expected ratios on Manchester Unity A.H.J. for all ages combined in the sickness period 13/13 for group by the corresponding figure for individual policies. On Tables 1, 2 and 3 this gives figures of 1·5, 1·0 and 1·1 whereas on Table 6 which is the sum of Tables 1, 2 and 3 the relevant figure is ·9 because of the preponderance of the heavier 1-week and 4-week policies in the individual business.

7.3. Another variable to be considered when comparing Group with Individual Policy experience is the extent to which recent entrants might affect the situation. It could be affected by either new business or lapses. One can measure this by dividing the exposed-to-risk in the 104/all sickness by the exposed-to-risk in the sickness period which immediately follows the end of the deferred period. For males, this division gave the following figures:

| | Group 73–76 | Individual 72–75 |
|---|---|---|
| Table 1 | ·88 | ·85 |
| 2 | ·72 | ·72 |
| 3 | ·66 | ·74 |
| 4 | ·62 | ·75 |
| 5 | ·79 | ·82 |

As there is very little group business in Tables 1 and 2 the conclusion is that the group data appear to include a greater percentage of lives whose inclusion in the experience is comparatively recent.

7.4 To help comparisons, the following table compares the actual sickness rates for male, Group 73–76 and Individual 72–75 from Table 4, which contains the largest volume of data.

| Age group | Sickness Period 26/26 Group | 26/26 Individual | 52/52 Group | 52/52 Individual | 104/all Group | 104/all Individual |
|---|---|---|---|---|---|---|
| 20–24 | ·006 | ·020 | ·002 | ·015 | ·035 | ·001 |
| 25–29 | ·010 | ·004 | ·000 | ·003 | ·000 | ·012 |
| 30–34 | ·007 | ·011 | ·003 | ·012 | ·000 | ·007 |
| 35–39 | ·012 | ·013 | ·017 | ·013 | ·041 | ·019 |
| 40–44 | ·022 | ·013 | ·027 | ·017 | ·046 | ·032 |
| 45–49 | ·032 | ·031 | ·050 | ·041 | ·079 | ·055 |
| 50–54 | ·061 | ·064 | ·084 | ·079 | ·245 | ·303 |
| 55–59 | ·147 | ·116 | ·236 | ·145 | ·446 | ·557 |
| 60–64 | ·225 | ·209 | ·220 | ·372 | 1·295 | 1·145 |

## 8. FEMALE LIVES

8.1 The amount of the exposed-to-risk for females is too small to enable a very meaningful comparison to be made with the male experience. The distribution of business by deferred period is very similar to that for male group business as is the average age if males over age 60 are excluded.

8.2 The effect of recent entrants or lapses seemed to be minimal when male and female individual experiences were compared, but this aspect will have considerably more effect on any group comparison. The measure for new entrants or lapses described in paragraph 7.3 gives the following figures:

| | Males | Females | Individual Females |
|---|---|---|---|
| Table 1 | ·88 | ·57 | ·76 |
| 2 | ·72 | ·75 | ·67 |
| 3 | ·66 | ·53 | ·70 |
| 4 | ·62 | ·41 | ·73 |
| 5 | ·79 | ·68 | ·79 |

8.3 It is considered that any comparison of the group results with individual business will, therefore, be considerably distorted not only by the distribution of business by deferred period, but also by this other feature, particularly at the older ages and longer durations of sickness.

8.4 The above figures also suggest caution in interpreting all group results at the longer durations, but particularly so for females. Nevertheless, the table below shows the comparison between male and female morbidity during

1973–76, all deferred periods combined, but it should be borne in mind that the above figures for new entrants and/or lapses will tend to have lightened the apparent morbidity for female lives:

*Actual weeks of claim (females)* × 100/*EG*

| Sickness Period | Age group | | |
|---|---|---|---|
| | 20–39 | 40–49 | 50–59 |
| 1/3 | 60 | 200 | 50 |
| 4/9 | 250 | 419 | 200 |
| 13/13 | 248 | 235 | 67 |
| 26/26 | 203 | 214 | 95 |
| 52/52 | 244 | 252 | 132 |
| 104/all | 12 | 144 | 65 |
| all periods | 166 | 211 | 94 |

*Note*: EG denotes expected sickness from this male group experience.

## 9. SUPPORTING INVESTIGATIONS

9.1 In *C.M.I.R.* **4**, Part 4 of the paper 'Sickness Experience 1972–75 for Individual Policies' reported on several supporting investigations to examine the level of morbidity according to certain attributes. Similar investigations have been carried out on the group experience for 1973–76, although not so extensively. Regrettably, it has not been feasible to examine morbidity according to amount of benefit but it is hoped that the other investigations which deal only with male lives will be of interest.

9.1.1 Even more caution is needed in interpretation of the group results than was needed for individual business. In particular, the amount of data is considerably smaller, and in the case of sickness periods of less than 13 weeks it can be extremely small. Moreover, in group, there are individual schemes that have consistently light or heavy morbidity and in a small experience the presence of such a scheme can produce an unforeseen bias. For the sake of continuity, and bearing in mind that this report is intended to be the start of a series of 4 yearly reports, the format used in Tables SA 4.3.1a and SA 4.3.1b of *C.M.I.R.* 4 has been followed, even although this means wide swings from age group to age group in an erratic manner.

9.2 *Basis of comparison.* Actual sickness divided by expected sickness has been used as the basis for all comparisons except for inception rates. The experience as a whole has been compared with Manchester Unity in earlier parts; but in this part the comparison is with the overall 1973–76 group experience for males, so that all values of 100 A/EG should be compared with a figure of 100. (EG is as defined above whereas E denotes expected sickness from Manchester Unity.)

9.3 The attributes in respect of which experience was collected are shown in Section 6 together with the number of claims under each heading.

9.3.1 Because of problems of size it was decided to limit the number of

attributes investigated and the results are given in Appendix 3, Tables SA 9.3.1a and 9.3.1b. In certain cases the results may be compared not only with group business as a whole, but also with those for individual business, i.e. Eire, rated for occupation, increasing benefits, medical and non-medical selection. In some cases we are more interested in the important features of group business, i.e. the existence or otherwise of medical selection and the method of premium calculation.

9.3.2 *Eire.* The data for sickness of less than 26 weeks' duration are very sparse and the average age is somewhat lower than for U.K. group business. These may be the reasons for the experience appearing to be somewhat better than for individual experience—overall 104 for 100 A/EG compared to 155 for individual business. The inception rates are too erratic to aid any comparison.

9.3.3 *Lives charged higher rates of premiums on account of occupation.* The overall value of 100 A/EG is 94 compared to 163 for individual business. There is a considerably higher proportion of business with a 4-week deferred period than for group as a whole, but this was also a feature of the individual experience. The average age is slightly above normal, whereas it was below normal for individual business. The experience for longer durations of sickness is relatively light but there is some evidence that the business is of slightly more recent origin than applies to group as a whole.

9.3.4 *Increasing Benefits.* This benefit is of comparatively recent origin and this may partly account for an overall value of 100 A/EG of 53 compared to 77 for individual business. The experience for shorter duration sickness and younger ages would appear to be nearer normal and may, therefore, be a better guide for the future. The table of inception rates does not assist interpretation of the results.

9.3.5 *Medical, Non-Medical and Non-Selection Business.* Overall the values of 100 A/EG are all near the 100 mark. There is evidence that the medical and non-selection business is of recent origin whilst much of the older business being in the unknown class has not been investigated. The non-medical class contains a higher proportion of data deferred 26 weeks, whilst the medical class contains more than an average amount of data deferred 4 and 13 weeks. The non-medical class also appears to have a younger age spread. Even though there are scanty data, the inception rates are consistently high for non-selection business deferred 4 and 13 weeks and almost so for medical business, 1 and 4 weeks deferred.

9.3.6 Certain offices have had problems with coding for this analysis. A life can enter a scheme under any heading but subsequently have further benefits under another heading. The official rule is that the original coding should always apply to each life, but offices have had difficulty when for their own reasons they may require to change the coding, particularly when a non-selection limit is granted to a scheme for the first time. Of particular interest to offices is the level of morbidity where there is such a non-selection limit, and consideration was given to changing this rule so that the existence of a non-selection limit would be given priority over other codings. However, the Sub-Committee decided to await the

results of this investigation. It was thought that some indication of the effect of non-selection might be obtained from schemes costed by recurrent single premiums which would tend to be the larger schemes and, therefore, more likely to have non-selection limits than those costed by level annual premiums.

9.3.7 *Level annual premium and recurrent single premium policies.* Except for the 13 weeks' inception rates and the 13/13 period of sickness, there appears to be little difference between A.P. and S.P. experience. In fact the whole experience for 13 weeks deferred business is heavier for S.P. than for A.P. which indicates some untraced peculiarity of the 13 weeks' deferred experience.

9.3.8 A similar feature occurs in the non-selection business and one potential reason for the difference, that cannot be excluded, must be the possibility that a few larger employers with poor sickness records have deliberately selected against the insurance companies, choosing the shortest deferred period generally on offer under non-selection terms. Unfortunately, the Sub-committee is unable to prove this.

9.3.9 There is less data for single-premium business than for the non-selection experience with which the Sub-committee intended to make a comparison but the results do not seem very dissimilar for the longer durations of sickness. At the shorter durations data is extremely scanty in both sets of results.

## 10. CONTRIBUTING OFFICES

The following offices have contributed data to this investigation:

Eagle Star Group
Friends' Provident
Guardian Royal Exchange
Life Association of Scotland
National Employers Group
Norwich Union Group
Prudential
Scottish Widows'
Standard

## 11. APPENDICES

The following appendices appear on the ensuing pages 60–95.

Appendix 1—Tables 1–14 plus 13 & 14 from *C.M.I.R.* **4**.
Appendix 2—Group circular No. 1.
Appendix 3—Analysis by attributes—tables.

# APPENDIX 1

## *Group P.H.I. Policies* Se 1973–76

## *All offices—Sickness experience* 1973–76

Table 1. *Males—Deferred period* 1 *week*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 1/3 | | | | | | | | | | | |
| Exposed to risk | — | 5 | 72 | 96 | 119 | 128 | 112 | 88 | 42 | 24 | 686 |
| Actual weeks of sickness | — | 2 | 18 | 13 | 20 | 18 | 15 | 27 | 12 | 12 | 137 |
| Expected weeks of sickness | — | 1 | 33 | 45 | 59 | 68 | 63 | 53 | 30 | 19 | 371 |
| Actual sickness rate | ·000 | ·400 | ·250 | ·135 | ·168 | ·141 | ·134 | ·307 | ·286 | ·500 | |
| Actual/expected % | | 200·0 | 54·5 | 28·9 | 33·9 | 26·5 | 23·8 | 50·9 | 40·0 | 63·2 | 36·9 |
| Sickness period 4/9 | | | | | | | | | | | |
| Exposed to risk | — | 3 | 70 | 95 | 116 | 127 | 111 | 87 | 42 | 24 | 675 |
| Actual weeks of sickness | — | — | 7 | 18 | 16 | 33 | 24 | 24 | 31 | 17 | 170 |
| Expected weeks of sickness | — | — | 13 | 18 | 26 | 35 | 38 | 39 | 23 | 16 | 208 |
| Actual sickness rate | ·000 | ·000 | ·100 | ·189 | ·138 | ·260 | ·216 | ·276 | ·738 | ·708 | |
| Actual/expected % | | | 53·8 | 100·0 | 61·5 | 94·3 | 63·2 | 61·5 | 134·8 | 106·3 | 81·7 |
| Sickness period 13/13 | | | | | | | | | | | |
| Exposed to risk | — | 3 | 68 | 93 | 116 | 127 | 111 | 87 | 42 | 24 | 671 |
| Actual weeks of sickness | — | — | — | 6 | — | 18 | 8 | 10 | 29 | 17 | 88 |
| Expected weeks of sickness | — | — | 6 | 10 | 15 | 21 | 23 | 24 | 17 | 13 | 129 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·065 | ·000 | ·142 | ·072 | ·115 | ·690 | ·708 | |
| Actual/expected % | | | | 60·0 | | 85·7 | 34·8 | 41·7 | 170·6 | 130·8 | 68·2 |

Table 1 (*continued*)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | | |
| Exposed to risk | — | 3 | 66 | 91 | 115 | 127 | 111 | 87 | 41 | 24 | 665 |
| Actual weeks of sickness | — | — | — | — | — | 12 | — | — | 39 | 21 | 72 |
| Expected weeks of sickness | — | — | 4 | 6 | 11 | 16 | 19 | 22 | 18 | 15 | 111 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·094 | ·000 | ·000 | ·951 | ·875 | |
| Actual/expected % | | | | | | 75·0 | | | 216·7 | 140·0 | 64·9 |
| Sickness period 52/52 | | | | | | | | | | | |
| Exposed to risk | — | 1 | 61 | 85 | 112 | 125 | 111 | 87 | 41 | 24 | 647 |
| Actual weeks of sickness | — | — | — | — | — | — | 2 | — | 12 | 42 | 56 |
| Expected weeks of sickness | — | — | 3 | 5 | 7 | 12 | 15 | 19 | 17 | 15 | 93 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·018 | ·000 | ·293 | 1·750 | |
| Actual/expected % | | | | | | | 13·3 | | 70·6 | 280·0 | 60·2 |
| Sickness period 104/all | | | | | | | | | | | |
| Exposed to risk | — | 1 | 51 | 73 | 100 | 119 | 108 | 85 | 40 | 24 | 601 |
| Actual weeks of sickness | — | — | — | — | — | 52 | — | — | — | 38 | 90 |
| Expected weeks of sickness | — | — | 3 | 6 | 15 | 31 | 43 | 62 | 52 | 47 | 259 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·437 | ·000 | ·000 | ·000 | 1·583 | |
| Actual/expected % | | | | | | 167·7 | | | | 80·9 | 34·7 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 2. *Males—Deferred period* 4 *weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 4/9 | | | | | | | | | | | |
| Exposed to risk | 15 | 269 | 777 | 866 | 642 | 608 | 555 | 428 | 271 | 153 | 4,584 |
| Actual weeks of sickness | — | 16 | 19 | 64 | 27 | 73 | 98 | 105 | 106 | 56 | 564 |
| Expected weeks of sickness | 2 | 40 | 132 | 167 | 143 | 172 | 190 | 190 | 153 | 110 | 1,299 |
| Actual sickness rate | ·000 | ·059 | ·024 | ·074 | ·042 | ·120 | ·177 | ·245 | ·391 | ·366 | |
| Actual/expected % | | 40·0 | 14·4 | 38·3 | 18·9 | 42·4 | 51·6 | 55·3 | 69·3 | 50·9 | 43·4 |
| Sickness period 13/13 | | | | | | | | | | | |
| Exposed to risk | 13 | 256 | 753 | 845 | 628 | 598 | 548 | 425 | 269 | 152 | 4,487 |
| Actual weeks of sickness | — | — | 10 | 42 | 14 | 30 | 65 | 33 | 84 | 37 | 315 |
| Expected weeks of sickness | — | 20 | 64 | 82 | 76 | 94 | 110 | 122 | 109 | 90 | 767 |
| Actual sickness rate | ·000 | ·000 | ·013 | ·050 | ·022 | ·050 | ·119 | ·078 | ·312 | ·243 | |
| Actual/expected % | | | 15·6 | 51·2 | 18·4 | 31·9 | 59·1 | 27·0 | 77·1 | 41·1 | 41·1 |

Table 2 (*continued*)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | | |
| Exposed to risk | 11 | 235 | 715 | 811 | 609 | 584 | 539 | 420 | 269 | 152 | 4,345 |
| Actual weeks of sickness | — | — | — | 81 | 10 | 40 | 34 | 13 | 145 | 64 | 387 |
| Expected weeks of sickness | — | 11 | 43 | 56 | 55 | 73 | 89 | 103 | 107 | 100 | 637 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·100 | ·016 | ·068 | ·063 | ·031 | ·539 | ·421 | |
| Actual/expected % | | | | 144·6 | 18·2 | 54·8 | 38·2 | 12·6 | 135·5 | 64·0 | 60·8 |
| Sickness period 52/52 | | | | | | | | | | | |
| Exposed to risk | 8 | 191 | 632 | 737 | 562 | 550 | 515 | 405 | 263 | 150 | 4,013 |
| Actual weeks of sickness | — | — | — | 52 | — | — | 14 | 5 | 163 | 69 | 303 |
| Expected weeks of sickness | — | 5 | 25 | 39 | 40 | 54 | 72 | 88 | 103 | 111 | 537 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·071 | ·000 | ·000 | ·027 | ·012 | ·620 | ·460 | |
| Actual/expected % | | | | 133·3 | | | 19·4 | 5·7 | 158·3 | 62·2 | 56·4 |
| Sickness period 104/all | | | | | | | | | | | |
| Exposed to risk | 3 | 107 | 446 | 578 | 461 | 475 | 462 | 369 | 247 | 148 | 3,296 |
| Actual weeks of sickness | — | — | — | 19 | — | 182 | 78 | 26 | 124 | 38 | 467 |
| Expected weeks of sickness | — | 2 | 23 | 48 | 68 | 125 | 183 | 266 | 312 | 337 | 1,364 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·033 | ·000 | ·383 | ·169 | ·070 | ·502 | ·257 | |
| Actual/expected % | | | | 39·6 | | 145·6 | 42·6 | 9·8 | 39·7 | 11·3 | 34·2 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 3. *Males—Deferred period* 13 *weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 13/13 | | | | | | | | | | | |
| Exposed to risk | 58 | 942 | 3,530 | 4,164 | 4,047 | 3,963 | 3,397 | 2,732 | 1,610 | 961 | 25,404 |
| Actual weeks of sickness | — | 10 | 74 | 69 | 49 | 89 | 189 | 255 | 256 | 425 | 1,416 |
| Expected weeks of sickness | 3 | 73 | 302 | 402 | 494 | 628 | 691 | 783 | 648 | 562 | 4,585 |
| Actual sickness rate | ·000 | ·011 | ·021 | ·017 | ·012 | ·022 | ·056 | ·093 | ·159 | ·442 | |
| Actual/expected % | | 13·9 | 24·5 | 17·2 | 9·9 | 14·2 | 27·4 | 32·6 | 39·5 | 75·6 | 30·9 |
| Sickness period 26/26 | | | | | | | | | | | |
| Exposed to risk | 47 | 836 | 3,262 | 3,931 | 3,861 | 3,811 | 3,278 | 2,640 | 1,567 | 942 | 24,175 |
| Actual weeks of sickness | — | — | 84 | 21 | 28 | 76 | 179 | 221 | 267 | 658 | 1,534 |
| Expected weeks of sickness | 1 | 40 | 198 | 278 | 354 | 474 | 544 | 654 | 630 | 613 | 3,786 |
| Actual sickness rate | ·000 | ·000 | ·026 | ·005 | ·007 | ·020 | ·055 | ·084 | ·170 | ·699 | |
| Actual/expected % | | | 42·4 | 7·6 | 7·9 | 16·0 | 32·9 | 33·8 | 42·4 | 107·3 | 40·5 |
| Sickness period 52/52 | | | | | | | | | | | |
| Exposed to risk | 31 | 641 | 2,718 | 3,450 | 3,482 | 3,491 | 3,026 | 2,454 | 1,475 | 901 | 21,669 |
| Actual weeks of sickness | — | — | 21 | 81 | 72 | 12 | 148 | 171 | 228 | 927 | 1,660 |
| Expected weeks of sickness | — | 17 | 108 | 184 | 239 | 345 | 419 | 539 | 585 | 657 | 3,093 |
| Actual sickness rate | ·000 | ·000 | ·008 | ·023 | ·021 | ·003 | ·049 | ·070 | ·155 | 1·029 | |
| Actual/expected % | | | 19·4 | 44·0 | 30·1 | 3·5 | 35·3 | 31·7 | 39·0 | 141·1 | 53·7 |
| Sickness period 104/all | | | | | | | | | | | |
| Exposed to risk | 8 | 331 | 1,732 | 2,507 | 2,712 | 2,832 | 2,490 | 2,097 | 1,296 | 825 | 16,830 |
| Actual weeks of sickness | — | — | 52 | 66 | 90 | — | 306 | 260 | 622 | 797 | 2,193 |
| Expected weeks of sickness | — | 8 | 89 | 209 | 411 | 733 | 1,000 | 1,518 | 1,655 | 1,866 | 7,489 |
| Actual sickness rate | ·000 | ·000 | ·030 | ·026 | ·033 | ·000 | ·123· | ·124 | ·480 | ·966 | |
| Actual/expected % | | | 58·4 | 31·6 | 21·9 | | 30·6 | 17·1 | 37·6 | 42·7 | 29·3 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 4. *Males—Deferred period* 26 *weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | | |
| Exposed to risk | 120 | 3,314 | 11,264 | 13,722 | 12,717 | 12,395 | 11,804 | 10,282 | 6,822 | 3,790 | 86,230 |
| Actual weeks of sickness | — | 21 | 111 | 99 | 151 | 272 | 381 | 632 | 1,006 | 852 | 3,525 |
| Expected weeks of sickness | 3 | 163 | 682 | 968 | 1,161 | 1,544 | 1,966 | 2,555 | 2,745 | 2,450 | 14,237 |
| Actual sickness rate | ·000 | ·006 | ·010 | ·007 | ·012 | ·022 | ·032 | ·061 | ·147 | ·225 | |
| Actual/expected % | | 12·9 | 16·3 | 10·2 | 13·0 | 17·6 | 19·4 | 24·7 | 36·6 | 34·8 | 24·8 |
| Sickness period 52/52 | | | | | | | | | | | |
| Exposed to risk | 71 | 2,420 | 9,035 | 11,614 | 10,973 | 10,839 | 10,423 | 9,076 | 6,084 | 3,407 | 73,942 |
| Actual weeks of sickness | — | 6 | 2 | 32 | 184 | 296 | 518 | 759 | 1,435 | 750 | 3,982 |
| Expected weeks of sickness | — | 71 | 357 | 617 | 751 | 1,071 | 1,449 | 2,002 | 2,416 | 2,465 | 11,199 |
| Actual sickness rate | ·000 | ·002 | ·000 | ·003 | ·017 | ·027 | ·050 | ·084 | ·236 | ·220 | |
| Actual/expected % | | 8·5 | 0·6 | 5·2 | 24·5 | 27·6 | 35·7 | 37·9 | 59·4 | 30·4 | 35·6 |
| Sickness period 104/all | | | | | | | | | | | |
| Exposed to risk | 24 | 1,324 | 5,505 | 7,986 | 7,975 | 8,177 | 8,014 | 7,072 | 4,731 | 2,655 | 53,463 |
| Actual weeks of sickness | — | 46 | — | — | 330 | 378 | 632 | 1,736 | 2,112 | 3,439 | 8,673 |
| Expected weeks of sickness | — | 32 | 281 | 663 | 1,200 | 2,120 | 3,223 | 5,146 | 6,026 | 5,959 | 24,650 |
| Actual sickness rate | ·000 | ·035 | ·000 | ·000 | ·041 | ·046 | ·079 | ·245 | ·446 | 1·295 | |
| Actual/expected % | | 143·8 | | | 27·5 | 17·8 | 19·6 | 33·7 | 35·0 | 57·7 | 35·2 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 5. *Males—Deferred period 52 weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 52/52 | | | | | | | | | | | |
| Exposed to risk | 14 | 195 | 1,085 | 2,114 | 2,656 | 2,732 | 2,921 | 2,637 | 1,802 | 871 | 17,027 |
| Actual weeks of sickness | — | — | — | — | 15 | — | 59 | 203 | 265 | 310 | 852 |
| Expected weeks of sickness | — | 5 | 44 | 113 | 183 | 270 | 406 | 583 | 711 | 628 | 2,943 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·006 | ·000 | ·020 | ·077 | ·147 | ·356 | |
| Actual/expected % | | | | | 8·2 | | 14·5 | 34·8 | 37·3 | 49·4 | 29·0 |
| Sickness period 104/all | | | | | | | | | | | |
| Exposed to risk | 5 | 100 | 701 | 1,555 | 2,085 | 2,168 | 2,390 | 2,158 | 1,531 | 758 | 13,451 |
| Actual weeks of sickness | — | — | — | — | — | — | 91 | 340 | 593 | 1,190 | 2,214 |
| Expected weeks of sickness | — | 2 | 37 | 132 | 316 | 561 | 962 | 1,579 | 1,944 | 1,686 | 7,219 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·038 | ·158 | ·387 | 1·570 | |
| Actual/expected % | | | | | | | 9·5 | 21·5 | 30·5 | 70·6 | 30·7 |

*Group* P.H.I. *Policies Se* 1973–76

Table 6 (*Males—All deferred periods combined*) is overleaf

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 6. *Males—All deferred periods combined*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 1/3 | | | | | | | | | | | |
| Exposed to risk | — | 5 | 72 | 96 | 119 | 128 | 112 | 88 | 42 | 24 | 686 |
| Actual weeks of sickness | — | 2 | 18 | 13 | 20 | 18 | 15 | 27 | 12 | 12 | 137 |
| Expected weeks of sickness | — | 1 | 33 | 45 | 59 | 68 | 63 | 53 | 30 | 19 | 371 |
| Actual sickness rate | ·000 | ·400 | ·250 | ·135 | ·168 | ·141 | ·134 | ·307 | ·286 | ·500 | |
| Actual/expected % | | 200·0 | 54·5 | 28·9 | 33·9 | 26·5 | 23·8 | 50·9 | 40·0 | 63·2 | 36·9 |
| Sickness period 4/9 | | | | | | | | | | | |
| Exposed to risk | 15 | 274 | 846 | 961 | 759 | 736 | 665 | 516 | 313 | 176 | 5,261 |
| Actual weeks of sickness | — | 16 | 27 | 80 | 43 | 105 | 121 | 128 | 137 | 72 | 729 |
| Expected weeks of sickness | 2 | 40 | 146 | 184 | 169 | 207 | 229 | 227 | 176 | 126 | 1,506 |
| Actual sickness rate | ·000 | ·058 | ·032 | ·083 | ·057 | ·143 | ·182 | ·248 | ·438 | ·409 | |
| Actual/expected % | | 40·0 | 18·5 | 43·5 | 25·4 | 50·7 | 52·8 | 56·4 | 77·8 | 57·1 | 48·4 |

Table 6 (*continued*)

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 13/13 | | | | | | | | | | | |
| Exposed to risk | 71 | 1,200 | 4,350 | 5,103 | 4,792 | 4,689 | 4,058 | 3,244 | 1,922 | 1,136 | 30,565 |
| Actual weeks of sickness | — | 10 | 85 | 114 | 63 | 135 | 262 | 298 | 369 | 476 | 1,812 |
| Expected weeks of sickness | 4 | 92 | 372 | 493 | 586 | 744 | 825 | 929 | 773 | 665 | 5,483 |
| Actual sickness rate | ·000 | ·008 | ·020 | ·022 | ·013 | ·029 | ·065 | ·092 | ·192 | ·419 | |
| Actual/expected % | | 10·9 | 22·8 | 23·1 | 10·8 | 18·1 | 31·8 | 32·1 | 47·7 | 71·6 | 33·0 |
| Sickness period 26/26 | | | | | | | | | | | |
| Exposed to risk | 178 | 4,389 | 15,307 | 18,552 | 17,300 | 16,916 | 15,732 | 13,427 | 8,698 | 4,908 | 115,407 |
| Actual weeks of sickness | — | 21 | 196 | 201 | 191 | 397 | 594 | 864 | 1,457 | 1,595 | 5,516 |
| Expected weeks of sickness | 4 | 213 | 927 | 1,311 | 1,579 | 2,107 | 2,618 | 3,333 | 3,499 | 3,177 | 18,768 |
| Actual sickness rate | ·000 | ·005 | ·013 | ·011 | ·011 | ·023 | ·038 | ·064 | ·168 | ·325 | |
| Actual/expected % | | 9·9 | 21·1 | 15·3 | 12·1 | 18·8 | 22·7 | 25·9 | 41·6 | 50·2 | 29·4 |
| Sickness period 52/52 | | | | | | | | | | | |
| Exposed to risk | 124 | 3,447 | 13,529 | 17,999 | 17,784 | 17,739 | 16,997 | 14,659 | 9,666 | 5,351 | 117,295 |
| Actual weeks of sickness | | 6 | 23 | 166 | 269 | 308 | 740 | 1,136 | 2,102 | 2,097 | 6,847 |
| Expected weeks of sickness | 1 | 100 | 535 | 957 | 1,220 | 1,753 | 2,359 | 3,230 | 3,831 | 3,878 | 17,864 |
| Actual sickness rate | ·000 | ·002 | ·002 | ·009 | ·015 | ·017 | ·044 | ·077 | ·217 | ·392 | |
| Actual/expected % | | 6·0 | 4·3 | 17·3 | 22·0 | 17·6 | 31·4 | 35·2 | 54·9 | 54·1 | 38·3 |
| Sickness period 104/all | | | | | | | | | | | |
| Exposed to risk | 41 | 1,861 | 8,436 | 12,699 | 13,332 | 13,771 | 13,463 | 11,781 | 7,845 | 4,407 | 87,636 |
| Actual weeks of sickness | — | 46 | 52 | 85 | 421 | 613 | 1,106 | 2,362 | 3,451 | 5,502 | 13,638 |
| Expected weeks of sickness | — | 43 | 432 | 1,059 | 2,012 | 3,572 | 5,410 | 8,572 | 9,989 | 9,897 | 40,986 |
| Actual sickness rate | ·000 | ·025 | ·006 | ·007 | ·032 | ·045 | ·082 | ·200 | ·440 | 1·248 | |
| Actual/expected % | | 107·0 | 12·0 | 8·0 | 20·9 | 17·2 | 20·4 | 27·6 | 34·5 | 55·6 | 33·3 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 7. *Females—Deferred period* 1 *week*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 1/3 | | | | | | | | | | |
| Exposed to risk | — | 8 | 26 | 7 | 2 | 8 | 10 | 6 | 7 | 74 |
| Actual weeks of sickness | — | 2 | 2 | 2 | — | — | 4 | 2 | — | 12 |
| Expected weeks of sickness | — | 4 | 11 | 3 | — | 4 | 5 | 3 | 4 | 34 |
| Actual sickness rate | ·000 | ·250 | ·077 | ·286 | ·000 | ·000 | ·400 | ·333 | ·000 | |
| Actual/expected % | | 50·0 | 18·2 | 66·7 | | | 80·0 | 66·7 | | 35·3 |
| Sickness period 4/9 | | | | | | | | | | |
| Exposed to risk | — | 7 | 22 | 6 | 1 | 6 | 10 | 6 | 7 | 65 |
| Actual weeks of sickness | — | — | — | — | — | — | 4 | 6 | 0 | 10 |
| Expected weeks of sickness | — | — | 5 | — | — | 2 | 5 | 2 | 4 | 18 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·400 | 1·000 | ·000 | |
| Actual/expected % | | | | | | | 80·0 | 300·0 | | 55·6 |
| Sickness period 13/13 | | | | | | | | | | |
| Exposed to risk | — | 7 | 22 | 6 | 1 | 6 | 10 | 6 | 7 | 65 |
| Actual weeks of sickness | — | — | — | — | — | — | — | — | — | — |
| Expected weeks of sickness | – | – | – | — | — | — | — | — | 3 | 3 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | |
| Actual/expected % | | | | | | | | | | |

Table 7 (*continued*)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | |
| Exposed to risk | — | 6 | 21 | 6 | 1 | 6 | 10 | 6 | 7 | 63 |
| Actual weeks of sickness | — | — | — | — | — | — | — | — | — | — |
| Expected weeks of sickness | — | — | — | — | — | — | — | — | 3 | 3 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | |
| Actual/expected % | | | | | | | | | | |
| Sickness period 52/52 | | | | | | | | | | |
| Exposed to risk | — | 6 | 21 | 6 | 1 | 6 | 9 | 6 | 7 | 62 |
| Actual weeks of sickness | — | — | — | — | — | — | — | — | — | — |
| Expected weeks of sickness | — | — | — | — | — | — | — | — | 3 | 3 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | |
| Actual/expected % | | | | | | | | | | |
| Sickness period 104/all | | | | | | | | | | |
| Exposed to risk | — | 3 | 12 | 4 | 1 | 3 | 8 | 4 | 7 | 42 |
| Actual weeks of sickness | — | — | — | — | — | — | — | — | — | — |
| Expected weeks of sickness | — | — | — | — | — | 1 | 3 | 3 | 10 | 17 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | |
| Actual/expected % | | | | | | | | | | |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 8. *Females—Deferred period* 4 *weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 4/9 | | | | | | | | | | |
| Exposed to risk | 6 | 25 | 58 | 39 | 57 | 80 | 41 | 42 | 30 | 378 |
| Actual weeks of sickness | — | — | 8 | 3 | 14 | 31 | 53 | 44 | 8 | 161 |
| Expected weeks of sickness | 1 | 4 | 9 | 8 | 12 | 23 | 16 | 18 | 16 | 107 |
| Actual sickness rate | ·000 | ·000 | ·138 | ·077 | ·246 | ·388 | 1·293 | 1·048 | ·267 | |
| Actual/expected % | | | 88·9 | 37·5 | 116·7 | 134·8 | 331·3 | 244·4 | 50·0 | 150·5 |
| Sickness period 13/13 | | | | | | | | | | |
| Exposed to risk | 6 | 25 | 56 | 38 | 56 | 80 | 41 | 42 | 30 | 374 |
| Actual weeks of sickness | — | — | — | — | 13 | 26 | 27 | 29 | — | 95 |
| Expected weeks of sickness | — | — | 5 | 4 | 7 | 12 | 10 | 13 | 12 | 63 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·232 | ·325 | ·659 | ·690 | ·000 | |
| Actual/expected % | | | | | 185·7 | 216·7 | 270·0 | 223·1 | | 150·8 |

Table 8 (*continued*)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | |
| Exposed to risk | 4 | 23 | 53 | 35 | 55 | 77 | 41 | 42 | 30 | 360 |
| Actual weeks of sickness | — | — | — | — | 1 | 38 | 2 | 49 | — | 90 |
| Expected weeks of sickness | — | — | 4 | 3 | 5 | 10 | 6 | 10 | 12 | 50 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·018 | ·494 | ·049 | 1·167 | ·000 | |
| Actual/expected % | | | | | 20·0 | 380·0 | 33·3 | 490·0 | | 180·0 |
| Sickness period 52/52 | | | | | | | | | | |
| Exposed to risk | 3 | 20 | 48 | 32 | 51 | 75 | 38 | 41 | 30 | 338 |
| Actual weeks of sickness | — | — | — | — | — | 39 | — | 31 | 73 | 143 |
| Expected weeks of sickness | — | — | — | — | 5 | 7 | 5 | 9 | 12 | 38 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·520 | ·000 | ·756 | 2·433 | |
| Actual/expected % | | | | | | 557·1 | | 344·4 | 608·3 | 376·3 |
| Sickness period 104/all | | | | | | | | | | |
| Exposed to risk | 1 | 15 | 38 | 23 | 40 | 64 | 35 | 39 | 29 | 284 |
| Actual weeks of sickness | — | — | — | — | — | — | — | 5 | 76 | 81 |
| Expected weeks of sickness | — | — | 1 | 1 | 7 | 16 | 13 | 27 | 35 | 100 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·128 | 2·621 | |
| Actual/expected % | | | | | | | | 18·5 | 217·1 | 81·0 |

## *Group P.H.I. Policies* Se 1973–76

### *All offices—Sickness experience* 1973–76

Table 9. *Females—Deferred period* 13 *weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 13/13 | | | | | | | | | | |
| Exposed to risk | 24 | 194 | 355 | 277 | 231 | 274 | 309 | 225 | 94 | 1,983 |
| Actual weeks of sickness | — | 13 | 13 | — | 13 | 14 | 13 | — | 7 | 73 |
| Expected weeks of sickness | 2 | 14 | 30 | 27 | 28 | 43 | 64 | 65 | 37 | 310 |
| Actual sickness rate | ·000 | ·067 | ·037 | ·000 | ·056 | ·051 | ·042 | ·000 | ·074 | |
| Actual/expected % | | 92·9 | 43·3 | | 46·4 | 32·6 | 20·3 | | 18·9 | 23·5 |
| Sickness period 26/26 | | | | | | | | | | |
| Exposed to risk | 19 | 166 | 318 | 254 | 215 | 255 | 295 | 211 | 90 | 1,823 |
| Actual weeks of sickness | — | 26 | 2 | — | 9 | — | 5 | — | — | 42 |
| Expected weeks of sickness | — | 8 | 19 | 19 | 20 | 31 | 50 | 52 | 36 | 235 |
| Actual sickness rate | ·000 | ·157 | ·006 | ·000 | ·042 | ·000 | ·017 | ·000 | ·000 | |
| Actual/expected % | | 325·0 | 10·5 | | 45·0 | | 10·0 | | | 17·9 |
| Sickness period 52/52 | | | | | | | | | | |
| Exposed to risk | 9 | 118 | 250 | 208 | 187 | 224 | 266 | 187 | 84 | 1,533 |
| Actual weeks of sickness | — | — | — | — | — | 5 | — | — | — | 5 |
| Expected weeks of sickness | — | 3 | 9 | 10 | 13 | 22 | 37 | 40 | 32 | 166 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·022 | ·000 | ·000 | ·000 | |
| Actual/expected % | | | | | | 22·7 | | | | 3·0 |
| Sickness period 104/all | | | | | | | | | | |
| Exposed to risk | 3 | 61 | 149 | 127 | 134 | 164 | 203 | 139 | 69 | 1,049 |
| Actual weeks of sickness | — | — | — | — | — | 47 | — | — | — | 47 |
| Expected weeks of sickness | — | 1 | 7 | 10 | 20 | 43 | 82 | 100 | 85 | 348 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·287 | ·000 | ·000 | ·000 | |
| Actual/expected % | | | | | | 109·3 | | | | 13·5 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 10. *Females—Deferred period 26 weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | |
| Exposed to risk | 115 | 1,314 | 1,911 | 1,183 | 1,047 | 1,307 | 1,554 | 1,532 | 775 | 10,738 |
| Actual weeks of sickness | — | — | — | 12 | 78 | 62 | 126 | 68 | 136 | 482 |
| Expected weeks of sickness | 3 | 62 | 115 | 84 | 95 | 164 | 260 | 383 | 303 | 1,469 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·010 | ·074 | ·047 | ·081 | ·044 | ·175 | |
| Actual/expected % | | | | 14·3 | 82·1 | 37·8 | 48·5 | 17·8 | 44·9 | 32·8 |
| Sickness period 52/52 | | | | | | | | | | |
| Exposed to risk | 56 | 813 | 1,374 | 894 | 811 | 1,048 | 1,253 | 1,254 | 656 | 8,159 |
| Actual weeks of sickness | — | — | — | 12 | 66 | 26 | 207 | 60 | 226 | 597 |
| Expected weeks of sickness | — | 23 | 53 | 47 | 56 | 104 | 174 | 278 | 251 | 986 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·013 | ·081 | ·025 | ·165 | ·048 | ·345 | |
| Actual/expected % | | | | 25·5 | 117·9 | 25·0 | 119·0 | 21·6 | 90·0 | 60·5 |
| Sickness period 104/all | | | | | | | | | | |
| Exposed to risk | 11 | 275 | 614 | 456 | 461 | 629 | 762 | 771 | 404 | 4,383 |
| Actual weeks of sickness | — | — | — | — | 5 | 4 | 62 | 65 | 63 | 199 |
| Expected weeks of sickness | — | 6 | 30 | 38 | 70 | 164 | 309 | 564 | 502 | 1,683 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·011 | ·006 | ·081 | ·084 | ·156 | |
| Actual/expected % | | | | | 7·1 | 2·4 | 20·1 | 11·5 | 12·5 | 11·8 |

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 11. *Females—Deferred period 52 weeks*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 52/52 | | | | | | | | | | |
| Exposed to risk | 5 | 95 | 169 | 174 | 165 | 173 | 181 | 149 | 101 | 1,212 |
| *Actual weeks of sickness* | — | — | — | — | — | — | — | 50 | — | 50 |
| Expected weeks of sickness | — | 2 | 5 | 10 | 11 | 17 | 24 | 32 | 40 | 141 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·336 | ·000 | |
| Actual/expected % | | | | | | | | 156·3 | | 35·5 |
| Sickness period 104/all | | | | | | | | | | |
| Exposed to risk | 1 | 39 | 109 | 124 | 123 | 126 | 128 | 104 | 72 | 826 |
| Actual weeks of sickness | — | — | — | — | — | — | 104 | 52 | 52 | 208 |
| Expected weeks of sickness | — | — | 5 | 10 | 19 | 32 | 52 | 74 | 91 | 283 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·000 | ·000 | ·813 | ·500 | ·722 | |
| Actual/expected % | | | | | | | 200·0 | 70·3 | 57·1 | 73·5 |

*Group* P.H.I. *Policies* Se 1973–76

Table 12 (*Females—All deferred periods combined*) is overleaf

*Group P.H.I. Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 12. *Females—All deferred periods combined*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 1/3 | | | | | | | | | | |
| Exposed to risk | — | 8 | 26 | 7 | 2 | 8 | 10 | 6 | 7 | 74 |
| Actual weeks of sickness | — | 2 | 2 | 2 | — | — | 4 | 2 | — | 12 |
| Expected weeks of sickness | — | 4 | 11 | 3 | — | 4 | 5 | 3 | 4 | 34 |
| Actual sickness rate | ·000 | ·250 | ·077 | ·286 | ·000 | ·000 | ·400 | ·333 | ·000 | |
| Actual/expected % | | 50·0 | 18·2 | 66·7 | | | 80·0 | 66·7 | | 35·3 |
| Sickness period 4/9 | | | | | | | | | | |
| Exposed to risk | 6 | 33 | 81 | 46 | 60 | 88 | 51 | 48 | 37 | 450 |
| Actual weeks of sickness | — | — | 8 | 3 | 14 | 31 | 57 | 50 | 8 | 171 |
| Expected weeks of sickness | 1 | 4 | 14 | 8 | 13 | 26 | 17 | 22 | 21 | 126 |
| Actual sickness rate | ·000 | ·000 | ·099 | ·065 | ·233 | ·352 | 1·118 | 1·042 | ·216 | |
| Actual/expected % | | | 57·1 | 37·5 | 107·7 | 119·2 | 335·3 | 227·3 | 38·1 | 135·7 |
| Sickness period 13/13 | | | | | | | | | | |
| Exposed to risk | 30 | 226 | 433 | 320 | 290 | 361 | 361 | 271 | 131 | 2,423 |
| Actual weeks of sickness | — | 13 | 13 | — | 26 | 40 | 39 | 29 | 7 | 167 |
| Expected weeks of sickness | 2 | 18 | 37 | 31 | 37 | 57 | 73 | 78 | 52 | 385 |
| Actual sickness rate | ·000 | ·058 | ·030 | ·000 | ·090 | ·111 | ·108 | ·107 | ·053 | |
| Actual/expected % | | 72·2 | 35·1 | | 70·3 | 70·2 | 53·4 | 37·2 | 13·5 | 43·4 |

Table 12 (*continued*)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sickness period 26/26 | | | | | | | | | | |
| Exposed to risk | 138 | 1,509 | 2,306 | 1,477 | 1,319 | 1,648 | 1,898 | 1,789 | 902 | 12,986 |
| Actual weeks of sickness | — | 26 | 2 | 12 | 89 | 100 | 133 | 118 | 136 | 616 |
| Expected weeks of sickness | 4 | 70 | 139 | 104 | 121 | 207 | 316 | 445 | 354 | 1,760 |
| Actual sickness rate | ·000 | ·017 | ·001 | ·008 | ·067 | ·061 | ·070 | ·066 | ·151 | |
| Actual/expected % | | 37·1 | 1·4 | 11·5 | 73·6 | 48·3 | 42·1 | 26·5 | 38·4 | 35·0 |
| Sickness period 52/52 | | | | | | | | | | |
| Exposed to risk | 73 | 1,051 | 1,859 | 1,311 | 1,215 | 1,524 | 1,745 | 1,633 | 877 | 11,288 |
| Actual weeks of sickness | — | — | — | 12 | 66 | 70 | 207 | 141 | 299 | 795 |
| Expected weeks of sickness | — | 28 | 71 | 70 | 84 | 151 | 243 | 361 | 337 | 1,345 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·009 | ·054 | ·046 | ·119 | ·086 | ·341 | |
| Actual/expected % | | | | 17·1 | 78·6 | 46·4 | 85·2 | 39·1 | 88·7 | 59·1 |
| Sickness period 104/all | | | | | | | | | | |
| Exposed to risk | 17 | 390 | 920 | 734 | 757 | 986 | 1,131 | 1,056 | 577 | 6,568 |
| Actual weeks of sickness | — | — | — | — | 5 | 51 | 166 | 122 | 192 | 536 |
| Expected weeks of sickness | — | 8 | 45 | 61 | 115 | 256 | 458 | 766 | 721 | 2,430 |
| Actual sickness rate | ·000 | ·000 | ·000 | ·000 | ·007 | ·052 | ·147 | ·116 | ·333 | |
| Actual/expected % | | | | | 4·3 | 19·9 | 36·2 | 15·9 | 26·6 | 22·1 |

*Group P.H.I Policies* Se 1973–76

*All offices—Sickness experience* 1973–76

Table 13 G. *Male claim inception rates per ten thousand exposed to risk*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Deferred period 1 week | — | 3,000 | 1,458 | 938 | 1,008 | 781 | 714 | 1,307 | 1,071 | 2,500 | 1,064 |
| Deferred period 4 weeks | — | 93 | 58 | 104 | 78 | 214 | 297 | 362 | 664 | 523 | 201 |
| Deferred period 13 weeks | — | 16 | 21 | 22 | 20 | 24 | 63 | 99 | 158 | 390 | 58 |
| Deferred period 26 weeks | — | 9 | 7 | 3 | 4 | 11 | 13 | 36 | 74 | 98 | 20 |
| Deferred period 52 weeks | — | — | — | — | 4 | — | 5 | 17 | 44 | 80 | 13 |

Table 14 G. *Female claim inception rates per ten thousand exposed to risk*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Deferred period 1 week | — | 1,250 | 1,154 | 2,857 | — | — | 1,000 | 1,667 | — | 1,081 |
| Deferred period 4 weeks | — | — | 259 | 128 | 351 | 500 | 1,707 | 1,429 | 667 | 608 |
| Deferred period 13 weeks | — | 52 | 28 | — | 43 | 73 | 32 | — | 106 | 35 |
| Deferred period 26 weeks | — | — | — | 17 | 38 | 31 | 45 | 23 | 84 | 25 |
| Deferred period 52 weeks | — | — | — | — | — | — | — | 134 | — | 17 |

*Individual P.H.I. Policies* Se 1972–75

*All offices—Sickness experience* 1972–75

Table 13 I. *Male claim inception rates per ten thousand exposed to risk*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Deferred period 1 week | 2,500 | 1,380 | 1,150 | 1,220 | 1,230 | 1,320 | 1,320 | 1,350 | 1,590 | 2,130 | 1,360 |
| Deferred period 4 weeks | 50 | 150 | 150 | 170 | 190 | 260 | 290 | 300 | 380 | 490 | 220 |
| Deferred period 13 weeks | — | 30 | 20 | 20 | 30 | 40 | 60 | 70 | 130 | 210 | 50 |
| Deferred period 26 weeks | — | 10 | — | 10 | 10 | 10 | 20 | 30 | 50 | 90 | 10 |
| Deferred period 52 weeks | — | — | — | — | — | — | 10 | 10 | 20 | 50 | — |

Table 14 I. *Female claim inception rates per ten thousand exposed to risk*

| Age group | 18–19 | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | All ages |
|---|---|---|---|---|---|---|---|---|---|---|
| Deferred period 1 week | — | 1,360 | 1,730 | 1,810 | 2,180 | 1,790 | 1,980 | 1,490 | 2,130 | 1,830 |
| Deferred period 4 weeks | — | 120 | 140 | 250 | 300 | 360 | 440 | 320 | 500 | 270 |
| Deferred period 13 weeks | — | 40 | 40 | 30 | 50 | 130 | 80 | 180 | 170 | 80 |
| Deferred period 26 weeks | — | — | 10 | — | 40 | 20 | 30 | 40 | 70 | 30 |
| Deferred period 52 weeks | — | — | — | — | 20 | — | 20 | — | 80 | 10 |

*Note:* These inception rates for individual policies are included for comparison purposes, but were originally calculated on a 'per thousand exposed-to-risk' basis and subsequently multiplied by 10.

## APPENDIX 2

The following is the text of the first circular on group business, prepared in October 1973, as amended by a second circular in December 1974.

### GROUP BUSINESS

THE Sub-committee has further considered the collection of group data and is now inviting offices to submit their data.

The layouts of tapes and cards for both 'in force' and claims are given at the end of these notes.

It is realized that there can often be considerable delays in obtaining group data and that an accurate return is not always possible. With this in mind the Sub-committee have modified the original rules to permit a certain amount of flexibility.

Offices may be worried about the accuracy of the data submitted. Nevertheless, the Sub-committee would like as much data to work on as possible and hope that offices will enter into the spirit of the investigation on the basis that fairly accurate information is better than none at all.

Some offices value each group scheme at its annual re-costing date and others value all group schemes at 31 December, and it has been found necessary to make provision for offices to submit data on either or both of the following methods:

(a) Assemble information as at 31 December in the same way as for individual business. Offices using this method would be expected to allow for exits and any new entrants since the preceding re-costing. The exposed-to-risk formula for the 'in force' effectively takes one-half of the 'in force' at the start of the calendar year and one-half at the end of the calendar year.

(b) Record the 'in force' immediately after completing the re-costing. Under this method the exposed-to-risk formula effectively takes one-half of the 'in force' at the start of the scheme year and one-half at the beginning of the next scheme year less one-half of the data for new entrants at the latter date. New entrants at any renewal date should, therefore, be included with the 'in force' at that date.

This information will give offices some idea of the errors which could be involved if they departed from the instructions set out in these notes.

If both methods are used for submitting data, the data for either method must be kept physically separate from the other, i.e. on separate packs of cards or separate tapes.

The method used for submitting claims should follow that adopted for the 'in force'. A life which would have been included under method (a) for the 'in force' should be reported as a claim under method (a) and a life which would have been

included under method (b) for the 'in force' should be reported as a claim under method (b).

If by the time an office is due to submit its data a re-costing is not complete, then the return of data should be made as accurate as the office considers reasonably possible. In particular the group experience rates will be calculated on the basis of lives rather than amounts but amounts of benefit must be shown so that the Sub-committee can investigate whether or not there is a significant difference between the experience of schemes with high levels of benefit and other schemes. The Sub-committee would prefer to have approximate amounts rather than no figures at all.

The aim of the investigation is to assemble the data and calculate claim inception rates. When a sufficient volume of business has been tabulated it will be possible to calculate disability annuity factors but in the meantime the results will be analysed on a Manchester Unity basis for expected claims and ratios of actual to expected claims will be reported by age groups.

The 'in force' for the calendar year method can start as at 31 December 1972, claims during 1973 being the first reported claims. For the scheme year method the investigation will start with the 'in force' on the re-costing dates in 1973 and the claims up to subsequent re-costing dates in 1974.

*'Continuation Option' Policies*

Occasionally some offices issue a 'continuation option' individual policy whilst the member is disabled. Any claim arising from that particular disablement should be included with the group claims by using code 2 or 3 as appropriate in field 7A, and blocks A and B should be completed as if the life were a member of his old group scheme. The more common 'continuation option' policies taken out by members who were not disabled when they left the scheme should not be included in the investigation.

*Rated-up Cases*

It has been decided not to exclude lives who have at any stage been rated up or declined for benefit. The reason for this is that a life may have been accepted into a scheme initially on different underwriting criteria from those which applied to additional benefits. Further information about this is given in the card layouts.

*Submission Dates*

Data for the calendar year method as at 31 December 1972 should be submitted as soon as possible. Data for the scheme year method whose record year is 1973 should be submitted by 30 June 1974.

*Specimen 'Group' Policies*

Offices which have not yet submitted specimens of their group policy contracts to the Sub-committee are asked to do so as soon as possible.

## CARD LAYOUTS

### 1. IN FORCE CARD

| *Field* | *Columns* | *Description* |
|---|---|---|
| Block A | | |
| 1 | 1 | Type of record<br>1 = individual record<br>2 = group record |
| 2 | 2–4 | Contributor's code number |
| 3 | 5–6 | Record year<br>The last two digits<br>(i) Where code 2 appears in field 7A, of the calendar year to the end of which the record refers.<br>(ii) Where code 3 appears in field 7A, of the calendar year into which falls the scheme renewal date to which the record refers.<br>(iii) Where code 4 appears in field 7A, of the calendar year into which falls the scheme renewal date at which the scheme terminated.<br>In the case of schemes where the record year is the scheme year and the renewal date is 1 January it is necessary that the record year for the 'in force' appears as the previous calendar year, e.g. all in-force data relating to scheme renewals at any date from 2 January 1973 to 1 January 1974 inclusive should be coded as record year 1973. This facilitates the procedure for calculating the exposed-to-risk. If you are unable to code 1 January schemes in this way will you nevertheless continue to submit data. We should, however, appreciate your letting us know approximately how many lives are at present in these 1 January schemes and, if there is a subsequent addition of a substantial size to the number of lives in such schemes, would you please let us know roughly how many lives would be involved.<br>If the preceding matter is corrected, offices may submit scheme year and calendar year data on the same tape if they wish. |
| 4 | 7 | Geographical Location<br>1 = U.K.<br>2 = Eire<br>3 = Isle of Man<br>4 = Channel Islands |
| 5 | 8 | Please leave blank |

| *Field* | *Columns* | *Description* |
|---|---|---|
| 6 | 9 | Age definition<br>Blank or zero if month and year of birth are given in field 11 otherwise<br>1 = nearest birthday at the date referred to in field 3<br>2 = next birthday at the date referred to in field 3 |
| Block B | | |
| 7A | 11 | Extension to type of record code<br>2 = record using the calendar year approach<br>3 = record using the re-costing date approach<br>4 = group record for terminated scheme where re-costing date approach was used in previous year. (A scheme will normally terminate at a renewal date. Without this code such a scheme would be treated as being on risk for only half a year and by using this code the extra half-year can be included. *If a termination occurs at any other time in the scheme year no data should be submitted.* If information is submitted under this code it should be as accurate as possible. For example any exits or deaths which occurred during the scheme year should be excluded unless it is impracticable to do so. As a last resort the Sub-committee would accept a repeat of the data submitted for the previous re-costing subject only to this code being used and to the advancing of the record year in field 3 by one year.) |
| 7B | 12–15 | For schemes using codes 3 or 4 in field 7A, specify the date of the re-costing, showing the day in columns 12 and 13 and the month in columns 14 and 15. |
| 7C | 16 | Sex<br>1 = male<br>2 = female |
| 8 | 17 | Occupational rating<br>0 = no rating<br>1 = rated. This code should be used for known individual lives if possible. If, however, a scheme as a whole has been rated the code should be used for all members of that scheme. |
| 9 | 18–20 | Period of deferment. Code in weeks thus 001 = 1 week, 052 = 52 weeks, etc. to nearest week, but use code 999 if the period of deferment is one CALENDAR MONTH. |
| 10 | 21–22 | Year of entry<br>(i) Where code 2 is used in field 7A show the last two digits of the calendar year in which the particular member joined the scheme. If this cannot be done for |

| *Field* | *Columns* | *Description* |
|---|---|---|
| | | existing business please endeavour to supply the information for new cases thereafter. |
| | | (ii) Where code 3 or 4 is used in field 7A show the last two digits of the record year as defined in field 3 in which a particular member joined the scheme, except for members who enter a scheme between re-costings when the year should be the calendar year into which fell the scheme's annual re-costing date immediately prior to the date on which the member joined. For example, if the re-costing date is 1st October 1973 and a member joins on 1 July 1974 the year of entry is 73 but, on the other hand, a member who joins on 1 October 1974 is to be allocated to year of entry 74. |
| | | (iii) Where the year of entry is unknown, the field should not be left blank but coded '00'. |
| 11 | 23–26 | Month and Year of Birth or Office Year of Birth<br>Contributors will have the option of showing the month of birth in cols. 23–24 and the last two digits of the year of birth in cols. 25–26 or the last two digits of the office year of birth in columns 25–26 to make it possible to calculate the age nearest birthday or next birthday at the date referred to in field 3. Offices should adopt the former method if possible since it is more accurate. If the latter method is used, zeros should appear in cols. 23–24.<br>Where code 3 or 4 is being used in field 7A the office year of birth should make it possible to calculate the age nearest birthday or next birthday at the renewal date specified by cols. 5–6 and 12–15. |
| 12 | 27–28 | Ceasing year<br>This may be omitted for group business |
| 13 | 29 | Period of benefit payment<br>The payment period to which the rate shown in cols. 30–34 relates is coded:<br>1 = weekly<br>2 = monthly<br>3 = yearly<br>4 = special |
| 14 | 30–34 | Rate of benefit<br>Rate of benefit to the nearer £ gross of reinsurance<br>Although the group investigation will not be done by amounts it is essential that this field should not be left completely blank. The values shown may be approximate if necessary. If code 2 or 3 applies in field 15 the initial rate |

| *Field* | *Columns* | *Description* |
|---|---|---|
| | | of benefit should be shown. Reinsurances accepted from other offices are not to be included in the investigation. Where individual policies and possibly incremental policies are used the rate of benefit should, if practicable, be the total amount. Separate records must not be submitted for each policy and increment. |
| 15 | 35 | Type of benefit<br>1 = level sickness benefit<br>2 = increasing sickness benefit<br>3 = decreasing sickness benefit<br>5 = lump sum benefit |
| 16 | 36 | Medical evidence<br>1 = medical<br>2 = non-medical (with or without PMA report)<br>3 = non-selection limit applies to part or whole of benefit<br>4 = unknown (for existing business at start of investigation only).<br>Once the medical evidence code has been determined for an individual it should not subsequently be altered. For example, if a life entered with code 3 and is later accepted for an increment on a non-medical basis and later still accepted on a medical basis he would remain in code 3 throughout. The Sub-committee would like to restrict the use of code 4 for existing business as far as possible. Where a non-selection limit applied at the beginning of the investigation to the whole of a scheme then that scheme may be coded 3 where the appropriate medical evidence is otherwise unknown. |
| 17 | 37 | Type of premium<br>1 = level annual premium<br>2 = recurrent single premium<br>3 = increasing annual premium<br>4 = any other type |
| 18 | 38 | Underwriting impairment code<br>This is for cases dealt with by exclusions only and does not apply to occupational ratings, which are covered by field 8, nor to ratings for dangerous pursuits on the part of individual members which should be excluded from the investigation.<br>0 = no extra risk<br>1 = exclusion relating to hypertension and disease of the cardiovascular system<br>2 = exclusion relating to neurosis, psychoneurosis, psychosis and anxiety state |

| *Field* | *Columns* | *Description* |
|---|---|---|
| | | 7 = exclusion may or may not be present (for members existing at the beginning of the investigation only)<br>8 = exclusion known to be present but impairment not known<br>9 = all other exclusions<br>Codes 3 to 6 are being reserved for possible future use |
| Block C | | |
| 19 | 71–80 | Policy number<br>Policy number of group followed by membership number of individual<br>This field is reserved for the policy number or any other means by which the particular record can be identified in any communications between the Bureau and the contributing office. |

2. CLAIMS CARD

| *Field* | *Columns* | *Description* |
|---|---|---|
| Block A | | |
| 1 | 1 | Type of record<br>(3 = claim under individual policy)<br>4 = claim under group policy |
| 2 | 2–4 | Contributor's code number |
| 3 | 5–6 | Record year<br>The last two digits<br>(i) Where code 2 appears in field 7A, of the calendar year to which the record refers.<br>(ii) Where code 3 appears in field 7A, of the calendar year into which fell the last day of the scheme year. |
| 4 | 7 | As for 'in force' card |
| 5 | 8 | Please leave blank |
| 6 | 9 | Age definition<br>Blank or zero if month and year of birth are given in field 11 otherwise<br>1 = nearest birthday at the beginning of the record year<br>2 = next birthday at the beginning of the record year |
| Block B | | |
| 7A | 11 | Extension to type of record card<br>2 = record based on calendar year<br>3 = record based on scheme year<br>(Code 4 does not arise in claims records) |
| 7B | 12–15 | (i) When code 2 appears in field 7A the claims card should cover the normal calendar year. |

| *Field* | *Columns* | *Description* |
|---|---|---|
| | | (ii) When code 3 appears in field 7A specify here the day and month of the scheme renewal date. |
| 7C–18 | 16–38 | As for 'in force' card |
| | Block C | |
| 19 | 44–49 | Date of falling sick (i.e. beginning of deferred period)<br>If the present card relates to an interrupted claim (including a change from total to partial disability) record the date of first falling sick—in three groups of two digits, day, month, year.<br>If the claim is in course of payment when the investigation starts record the actual date of falling sick and not the date of policy or the date of commencement of exposure to risk. If it is not practicable to give the date of falling sick the case should be excluded from both the exposed to risk and the claims. |
| 20 | 50–53 | Date payments commenced (in present record year) in benefit period to which present card relates (day and month only); 0000 if continuation of claim from previous year.<br>A new card should be prepared each time a claim is resumed after interruption or a change in the degree of disability. |
| 21 | 54 | Mode of commencement of present benefit<br>0 = continuation from previous record year<br>1 = new claim<br>2 = new claim following interruption of sickness in the deferred period<br>3 = revival of claim following interruption (whether the benefit rate is the same as before the interruption or different)<br>4 = continuation of an existing claim but benefit rate changed from date recorded in field 20 |
| 22 | 55–56 | Percentage which the benefit under the current claim bears to the full rate of benefit. This applies to partial disability claims and the field should be punched with zeros if the full rate of benefit is being paid. |
| 23 | 57–60 | Date payments ceased in benefit period to which the present card relates (day and month only), 9999 if the claim is in force at the end of the record year. |
| 24 | 61 | Mode of cessation<br>1 = policy expired or void for reason other than death or lump sum payment<br>2 = death of claimant |

| *Field* | *Columns* | *Description* |
|---|---|---|
| | | 3 = recovery of claimant<br>4 = lump sum payment terminating contract with employer<br>5 = *ex gratia* commutation.<br>6 = benefit rate alters but claim continues (continuation reported on further card)<br>7 = lump sum payment terminating individual membership but not terminating contract with employer<br>8 = membership of individual expired or void for reason other than death or lump sum payment.<br>For all codes except 2, 3 and 6 which are self-explanatory a few words of explanation would be appreciated. In particular, please state the amount of the lump sum payment and whether it was paid under the terms of the contract, after negotiation, or otherwise. But if the *ex gratia* payment under code 5 is one calendar month's payment or less please punch an adjusted expiry date in field 23 which would give a correct total claim. This will not be possible if the adjusted expiry date is after the current record year and in such a case please explain what has been done in field 24. |
| 25 | 62–65 | Cause of disability for current claim<br>See separate instructions issued with the circular dated June 1972 and amplified in the circular dated March 1973. |
| Block D | | |
| 26 | 71–80 | Policy number and membership number for identification purposes |

## APPENDIX 3

Table SA 9.3. 1a 1973–76 experience. Analysis by attributes. Males—Table 6. All deferred periods combined (*is overleaf*).

## APPENDIX 3

Table SA 9.3.1a 1973–76 experience. Analysis by attributes. Males—Table 6. All deferred periods combined.

| Attribute and sickness period | Actual weeks of claim x 100/EG under 40 | 40–50 | 50–60 | 60–65 | all ages | Percentage sickness in each period | Total weeks of sickness |
|---|---|---|---|---|---|---|---|
| *Eire* | | | | | | | 3,451 |
| 1/3 | 100 | 50 | 333 | — | 124 | 1 | |
| 4/9 | 91 | 62 | 143 | 0 | 92 | 2 | |
| 13/13 | 109 | 8 | 64 | 0 | 49 | 3 | |
| 26/26 | 107 | 77 | 146 | 48 | 104 | 21 | |
| 52/52 | 135 | 192 | 103 | 100 | 123 | 27 | |
| 104/all | 113 | 221 | 83 | 62 | 102 | 46 | |
| all periods | 114 | 156 | 101 | 65 | 104 | 100 | |
| *Occupation Rated* | | | | | | | 1,295 |
| 1/3 | 0 | 100 | 144 | 200 | 119 | 1 | |
| 4/9 | 169 | 45 | 148 | 167 | 120 | 9 | |
| 13/13 | 147 | 78 | 83 | 150 | 109 | 7 | |
| 26/26 | 45 | 68 | 131 | 209 | 143 | 29 | |
| 52/52 | 107 | 164 | 74 | 92 | 94 | 22 | |
| 104/all | 0 | 88 | 96 | 41 | 66 | 32 | |
| all periods | 94 | 90 | 101 | 88 | 94 | 100 | |
| *Increasing Benefits* | | | | | | | 2,992 |
| 1/3 | 40 | 0 | 0 | — | 14 | 0 | |
| 4/9 | 116 | 148 | 106 | 0 | 117 | 3 | |
| 13/13 | 98 | 74 | 48 | 111 | 76 | 6 | |
| 26/26 | 97 | 99 | 62 | 41 | 67 | 30 | |
| 52/52 | 41 | 76 | 59 | 50 | 58 | 29 | |
| 104/all | 69 | 56 | 47 | 19 | 39 | 32 | |
| all periods | 76 | 76 | 55 | 34 | 53 | 100 | |
| *Medical* | | | | | | | 3,728 |
| 1/3 | 93 | 350 | 300 | 200 | 164 | 1 | |
| 4/9 | 93 | 152 | 133 | 167 | 124 | 6 | |
| 13/13 | 124 | 95 | 118 | 42 | 99 | 9 | |
| 26/26 | 179 | 118 | 110 | 48 | 104 | 20 | |
| 52/52 | 27 | 100 | 105 | 50 | 82 | 20 | |
| 104/all | 68 | 83 | 148 | 74 | 105 | 44 | |
| all periods | 101 | 103 | 127 | 63 | 100 | 100 | |

| Attribute and sickness period | Actual weeks of claim × 100/EG under 40 | 40–50 | 50–60 | 60–65 | all ages | Percentage sickness in each period | Total weeks of sickness |
|---|---|---|---|---|---|---|---|
| *Non-Medical* | | | | | | | 3,083 |
| 1/3 | 200 | 200 | — | — | 350 | 0 | |
| 4/9 | 57 | 10 | 90 | 0 | 48 | 1 | |
| 13/13 | 104 | 45 | 3 | 130 | 59 | 4 | |
| 26/26 | 88 | 169 | 104 | 16 | 99 | 19 | |
| 52/52 | 136 | 218 | 85 | 99 | 119 | 28 | |
| 104/all | 89 | 75 | 129 | 87 | 104 | 48 | |
| all periods | 100 | 130 | 106 | 81 | 103 | 100 | |
| *Non-Selection* | | | | | | | 9,646 |
| 1/3 | — | — | — | — | — | 0 | |
| 4/9 | 875 | 167 | 362 | 900 | 477 | 1 | |
| 13/13 | 165 | 198 | 207 | 202 | 198 | 10 | |
| 26/26 | 74 | 116 | 110 | 162 | 124 | 29 | |
| 52/52 | 123 | 95 | 110 | 161 | 126 | 31 | |
| 104/all | 106 | 148 | 53 | 67 | 71 | 29 | |
| all periods | 108 | 128 | 91 | 116 | 107 | 100 | |
| *Level Annual Premium* | | | | | | | 20,608 |
| 1/3 | 102 | 100 | 100 | 100 | 101 | 1 | |
| 4/9 | 98 | 99 | 100 | 101 | 100 | 3 | |
| 13/13 | 82 | 66 | 67 | 50 | 65 | 5 | |
| 26/26 | 117 | 94 | 102 | 54 | 89 | 16 | |
| 52/52 | 92 | 104 | 104 | 56 | 89 | 21 | |
| 104/all | 84 | 96 | 113 | 108 | 107 | 54 | |
| all periods | 95 | 95 | 106 | 86 | 97 | 100 | |
| *Recurrent Single Premium* | | | | | | | 8,066 |
| 1/3 | 0 | — | — | — | 0 | 0 | |
| 4/9 | 250 | 300 | — | 0 | 200 | 0 | |
| 13/13 | 200 | 239 | 234 | 233 | 231 | 11 | |
| 26/26 | 60 | 119 | 97 | 182 | 124 | 27 | |
| 52/52 | 129 | 88 | 92 | 193 | 130 | 31 | |
| 104/all | 166 | 119 | 55 | 83 | 78 | 31 | |
| all periods | 117 | 121 | 84 | 135 | 111 | 100 | |

Table SA 9.3.1b 1973–76 experience. Analysis by attributes. Males. Inception rates per ten thousand exposed to risk

| | Eire | Occupation Rated | Increasing Benefits | All Lives | Medical | Non-Medical | Non-Selection | Annual Premium | Single Premium |
|---|---|---|---|---|---|---|---|---|---|
| deferred 1 week | | | | | | | | | |
| 20–24 | 10,000 | — | 0 | 3,000 | 1,667 | — | 0 | 5,000 | 0 |
| 25–29 | 2,115 | 0 | 0 | 1,458 | 217 | — | — | 1,458 | — |
| 30–34 | 1,250 | 0 | 0 | 938 | 1,250 | — | 0 | 947 | 0 |
| 35–39 | 0 | 0 | 714 | 1,008 | 1,944 | 5,000 | — | 1,008 | — |
| 40–44 | 238 | 0 | 0 | 781 | 2,500 | 7,500 | — | 781 | — |
| 45–49 | 625 | 556 | 0 | 714 | 1,667 | — | 0 | 714 | 0 |
| 50–54 | 5,714 | 1,579 | 0 | 1,307 | 3,000 | 5,000 | — | 1,307 | — |
| 55–59 | 0 | 2,500 | 0 | 1,071 | 12,500 | 0 | 0 | 1,098 | 0 |
| 60–64 | — | 3,333 | — | 2,500 | 3,333 | 0 | — | 2,500 | — |
| deferred 4 weeks | | | | | | | | | |
| 20–24 | 357 | 179 | 0 | 93 | 34 | 0 | 513 | 97 | 0 |
| 25–29 | 0 | 0 | 116 | 58 | 35 | 263 | 270 | 59 | 0 |
| 30–34 | 0 | 217 | 114 | 104 | 145 | 0 | 1,333 | 93 | 2,000 |
| 35–39 | 0 | 189 | 225 | 78 | 45 | 313 | 1,250 | 79 | 0 |
| 40–44 | 300 | 280 | 254 | 214 | 330 | 0 | 1,250 | 199 | 3,333 |
| 45–49 | 339 | 0 | 686 | 297 | 458 | 370 | 909 | 298 | 0 |
| 50–54 | 638 | 417 | 938 | 362 | 795 | 0 | 2,308 | 363 | 0 |
| 54–59 | 714 | 1,250 | 0 | 664 | 778 | 714 | 1,429 | 664 | 0 |
| 60–64 | 0 | 0 | 0 | 523 | 0 | 0 | 4,000 | 530 | 0 |
| deferred 13 weeks | | | | | | | | | |
| 20–24 | 28 | 0 | 0 | 16 | 0 | 15 | 28 | 7 | 46 |
| 25–29 | 43 | 0 | 0 | 21 | 14 | 26 | 34 | 13 | 54 |
| 30–34 | 15 | 0 | 33 | 22 | 10 | 12 | 66 | 9 | 79 |
| 35–39 | 16 | 115 | 12 | 20 | 11 | 35 | 39 | 15 | 40 |
| 40–44 | 0 | 0 | 13 | 24 | 35 | 0 | 49 | 11 | 79 |
| 45–49 | 0 | 101 | 34 | 63 | 7 | 50 | 150 | 29 | 169 |
| 50–54 | 34 | 222 | 51 | 99 | 103 | 27 | 242 | 44 | 271 |
| 55–59 | 122 | 0 | 87 | 158 | 344 | 0 | 281 | 101 | 351 |
| 60–64 | 0 | 370 | 366 | 390 | 69 | 455 | 783 | 161 | 877 |

| | Eire | Occupation Rated | Increasing Benefits | All Lives | Medical | Non-Medical | Non-Selection | Annual Premium | Single Premium |
|---|---|---|---|---|---|---|---|---|---|
| deferred 26 weeks | | | | | | | | | |
| 20–24 | 31 | 0 | 0 | 9 | 0 | 19 | 5 | 17 | 0 |
| 25–29 | 12 | 0 | 13 | 7 | 24 | 5 | 5 | 7 | 6 |
| 30–34 | 2 | 0 | 0 | 3 | 0 | 2 | 2 | 5 | 0 |
| 35–39 | 2 | 0 | 3 | 4 | 12 | 2 | 4 | 6 | 0 |
| 40–44 | 21 | 0 | 15 | 11 | 13 | 18 | 17 | 12 | 11 |
| 45–49 | 9 | 0 | 21 | 13 | 23 | 19 | 13 | 14 | 11 |
| 50–54 | 63 | 52 | 30 | 36 | 43 | 79 | 19 | 49 | 12 |
| 55–59 | 87 | 108 | 63 | 74 | 118 | 80 | 87 | 76 | 71 |
| 60–64 | 43 | 233 | 75 | 98 | 70 | 0 | 147 | 57 | 162 |
| deferred 52 weeks | | | | | | | | | |
| 20–24 | 0 | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25–29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30–34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35–39 | 0 | 435 | 0 | 4 | 0 | 33 | 0 | 5 | 0 |
| 40–44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45–49 | 0 | 217 | 0 | 5 | 0 | 32 | 0 | 7 | 0 |
| 50–54 | 61 | 147 | 0 | 17 | 20 | 31 | 13 | 17 | 18 |
| 55–59 | 0 | 0 | 100 | 44 | 72 | 0 | 66 | 44 | 49 |
| 60–64 | 0 | 0 | 0 | 80 | 0 | 252 | 50 | 63 | 139 |

# CONTINUOUS MORTALITY INVESTIGATION REPORTS

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