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CONTINUOUS MORTALITY INVESTIGATION

MORTALITY OF ASSURED LIVES 1964–66, ACCORDING TO CAUSE OF DEATH

INTRODUCTORY

THIS is the first report of the Committee since the offices were invited to submit information as to cause of death. Information was received from 51 offices concerning deaths notified during the year 1964, and from 56 offices for the years 1965 and 1966, out of the 58 offices submitting assured lives' data. The number of policies in respect of which cause-of-death cards were submitted totalled 71,267 for the three years combined. This was a very satisfactory response from the offices, whose co-operation in the matter is appreciated. If the remaining two offices were to join this part of the investigation, the number of policy deaths per annum would increase by about 1,000.

THE DATA

2. For each year, and for each office, an attempt was made to reconcile the number of policies for which cause-of-death cards were prepared with the number of policies in the office's return of assured lives' data for the main investigation. Absolute agreement could not always be obtained, by reason of policies which were correctly included in the cause-of-death data but which did not feature as deaths in the main returns; these were cases where the claim was not admissible within the terms of the policy, usually cases of suicide or aircraft accident during the early durations. Apart from these, there have been occasional unaccountable minor discrepancies in the numbers, but the overall difference is less than 1 per 1,000 and may be regarded as insignificant. Each year an interim report was prepared for the contributing offices; certain corrections in data which were notified after the preparation of these interim reports have been noted when combining the three years, and accordingly the figures in this report will not necessarily be reproduced by adding the figures of the three interim reports. Causes originally coded as 795 (cause unknown) have however been left as 795 even if the cause has subsequently been advised, otherwise the adjustments described in paragraph 9 to eliminate the effects of 'cause unknown' cases would have been thrown out and all the expected deaths would have needed to be recalculated.

3. It is possible from the cards to obtain information in respect of lives as well as policies, but this is of limited use as the exposed to risk, being obtained from the returns to the main investigation, are available only as numbers of policies, not as numbers of lives; an investigation for one of the three years in question indicated that there was no significant

difference in the distribution of deaths amongst the different cause groups between a policies and a lives basis, and accordingly the remainder of this report is based on a policies investigation only.

4. A very small number of female lives was discovered among the data, representing about one in a thousand of the total. This is, in the main, a legacy from early days when latitude was allowed to certain offices who found themselves unable to exclude female lives from the data for existing business.

PURPOSES OF THE INVESTIGATION

5. It is well known that assured lives' data usually exhibit lighter mortality than national data, but it is not known in what respects, that is to say in which causes of death, the main differences lie, or whether perhaps, for some causes, assured lives' mortality exceeds the national. In the same way, we know that there are differences between the experiences of medically examined and non-medically examined lives, and that there is initial selection which tends to wear off, but again we do not know whether these differences are spread over all the different causes or whether they are largely confined to certain of them. We cannot be absolutely certain, without investigation, just which causes of death medical selection is being successful in eliminating, nor can we know if selection is being exercised against the offices either at the time of taking out a policy or at subsequent times of deciding whether or not to continue a policy; and if such selection is being exercised it would be interesting to know in which causes of death it applies. And finally, the investigation will give a continuous record to which reference could be made if a medical breakthrough were to be made with regard to any particular cause, in order to estimate the possible effect of this breakthrough on the mortality of assured lives.

GROUPING OF CAUSES

6. In order to avoid preparing a mass of numbers from which no useful information could easily be gleaned, it was decided to group the causes of death, the groupings finally adopted appearing in the sub-headings of § 15 in which the experience in each group has been examined. The causes of death are indicated both by their descriptions and their code numbers according to the *Manual of the International Statistical Classification of Diseases Injuries and Causes of Death* (*Seventh Revision*) (W.H.O.). Experience will show whether any of these groups ought to be combined in future as yielding no additional information separately, or conversely whether any of them should be subdivided into further groups.

CODING

7. Before the investigation started, advice was taken from Dr Bernard Benjamin, who strongly recommended from his experience at the General

Register Office that although it was intended to group the causes of death, nevertheless it would be advisable for each death to be coded fully according to the International Classification; this was advised, partly because subdivision is then always available if required, and partly because by this method the correct coding is more likely to be reached, it being essential that in as many cases as possible the coding made by the Bureau should be identical with the coding made by the G.R.O.; the only exceptions to this should be those cases where the G.R.O. is able to obtain additional information which, because of its confidential nature, cannot be made available to the Bureau. It should be mentioned here that the information published by the Registrar General is the only cause-of-death information in this country which gives a reasonable standard for comparison with the assured lives' experience. Acknowledgment is made to the Statistical Department of the G.R.O. at Titchfield, who have been extremely helpful in instructing two actuaries in the methods of coding which they use; they were also kind enough, first, to investigate a sample of the Bureau's 1965 data, which confirmed that the results are not affected to any significant extent by differences in coding between the Bureau and the G.R.O., apart from the accident groups where the G.R.O.'s additional information affects the results; and secondly to investigate a sample of their own data (based on September 1966) to assist the Bureau in making the necessary adjustments to the motor vehicle accident group (see also under § 15.)

COMPARISON WITH NATIONAL DATA

8. The Registrar General's data which have been used for comparison are those based on England and Wales. A separate investigation made for one of the three years in question indicated that no significant difference would be shown in the results if the Registrar General's information for Scotland were combined with the data for England and Wales. It is of course true that the deaths in the assured lives' data are not wholly confined to England, Wales and Scotland, but the number of deaths occurring elsewhere are a small proportion only of the total. A further difference between the assured lives' data and the Registrar General's data occurs in the cause-of-death group 795, i.e. cause of death unknown; in the Registrar General's figures the only rare cases in this group are those where the doctor signing the death certificate did not know the cause of death, whereas in the assured lives' data only a small proportion of this group referred to such cases, and the remainder, i.e. the vast majority of cases coded to 795, were cases either where there was a foreign death certificate which did not record the cause of death, or where the office was unable to obtain a death certificate by the time the investigation was closed. Steps had to be taken to eliminate the effects of this group, and the method employed by Hayward and Lucena in their paper on the Mortality of Diabetics (*J.I.A.* 1965, **91**, 286), was adopted; this becomes apparent in §§ 9 and 11 below.

CALCULATION OF EXPECTED DEATHS BY CAUSES

9. After the causes of death had been coded, and the cards sorted, tabulated and totalled it was necessary to compile figures of expected deaths for each of the three years, with which the actual deaths could be compared. *The Registrar General's Statistical Review of England and Wales, Part 1, Tables, Medical,* gives the number of deaths by cause separately for each sex, and these were easily grouped into the same cause-of-death groups as the assured lives' data; the same publication also gives the estimated Home Male Population for England and Wales. In each case the information is available according to age last birthday in quinary groups. The populations in each age-group were adjusted by multiplying by all the male deaths in the age-group except Code 795 and then dividing by all the male deaths. Crude central rates were then obtained in age-groups for each cause-of-death group. However, the average age for each group differs from the average age of the corresponding group in the assured lives' data. It was decided to estimate the average age of each national group by reference to the Graduated Home Male Population, based on the 1961 census, published by the Registrar General, it being assumed that the distribution from age to age would not have changed very much since 1961. Having calculated these ages to which each age-group is deemed to apply, the crude central rates of mortality were plotted on a graph which showed a separate curve for each cause-group.

10. The central exposed to risk for the assured lives' data were first extracted from the ordinary returns of the offices which contributed cause-of-death data for the year. These were available age by age, and it was therefore possible also to calculate the mean age for each age-group. By reading the appropriate rates off the graph it was possible to allow at the same time for the half-age shift due to national data being classified according to age last birthday and assured lives' data according to nearest ages.

11. The assured lives' central exposed to risk in each age- and duration-group were also adjusted by multiplying by all deaths except those in group 795 and dividing by all deaths, for each age-group, and this gave the necessary figures for multiplying up to obtain the expected deaths in each subdivision. These were then compared with the actual deaths, and expressed as percentages to whole numbers only, because the method of calculation would not justify the retaining of a decimal percentage, nor would the decimal figure add any special information. Age-groups were combined as appropriate in order to limit each comparison between actual and expected to reasonable sized groups.

12. The actual and expected deaths for the three years in question were then brought together, and the actual deaths (for each cause-group) and ratios of actual to expected deaths are given in Table 1.

13. It may be thought that to some extent any possible inferences from

the report are masked by the fact that the exposed to risk were calculated from the experience of the whole population, whereas we know that members of social classes 4 and 5 do not enter the assured lives' experience to any great extent. Unfortunately information about social class mortality in sufficient detail is only available after a census; the last volume was published in 1958 and related to the year 1951 (*The Registrar General's Decennial Supplement, England and Wales*, 1951, *Occupational Mortality Part II, Volume 2: Tables.*) A brief investigation has been made into the figures shown in that volume. Table 2 shows the percentage ratios of the central mortality rate for all social classes except 4 and 5 to the corresponding rate for all classes combined. Information is not available for all the cause-groups mentioned in this report, but as much relevant information as possible has been extracted. The figures in the table take the place of 100 for the national data if we wish to compare the assured lives results with the national statistics standardized for social class. (A further set of figures was obtained to show the effect of standardizing by omitting social class 3 as well as 4 and 5, although it is believed that a population more like the assured lives' section is obtained by including social class 3; the alternative figures, however, do not affect the results described in § 15 below, and are therefore not included in this report.)

THE RESULTS

14. Before examining the results for the different cause-of-death groups given in Table 1, it may be interesting to look at the figures for all causes combined, which may be regarded as a norm with which the figures for the different cause-groups can be compared. As the percentage ratios of actual to expected deaths show no significant age pattern at the select durations the ages have been combined and, to avoid unnecessary fragmentation of the data, durations 1 and 2 are combined, as are durations 3 and 4. It will be seen that all the percentages are lower than the standardized national percentages. As may have been expected, the percentages increase sharply after duration 0, but there is only a small and barely significant difference between durations 1–2 and 3–4. The percentages at durations 5 and over are significantly greater than 3–4 and there is a noticeable tendency for the percentages to increase with age; (the ages here are combined into four broad groups, thus avoiding presenting the results as an excessive number of figures.) When the percentages for the medical data are compared with those for the non-medical, it will be seen that those for the medical are lower throughout, but the difference becomes insignificant for the age-group 75 and over. It is of course clear that some of the cause-groups will show percentages lower than the norm we have just described, and some higher; the general picture may be shown by mentioning those groups for which the percentages are generally higher than the norm, as follows: 140–239 (the various groups of neoplasms) apart from duration 0 and excepting malignant neoplasms of the respiratory system

(160–165) at the ultimate durations; 240–245 (allergic disorders) (medical data only); 420 (arteriosclerotic heart disease, including coronary disease); 590–594 (nephritis) (age-groups over 60 only); and the accidental groups (but not suicide).

15. The results of each separate cause-group will now be analysed by comparing with the national figures for the same group, after allowing for standardization described in § 13; by considering the apparent effects of initial selection; and by comparing the figures for the medical and non-medical sections.

001–008 *Respiratory tuberculosis*

All the percentages are well below the standardized national, and the effect of initial selection, as far as can be judged from scanty data, is normal, with the medical percentages lower than the non-medical.

010–138 *Other infective and parasitic diseases*

All percentages are below the standardized national, apart from two groups in the ultimate data, at least one of which is too small to be significant. The effect of initial selection is normal but there is little difference between the medical and non-medical experiences.

150–159 *Malignant neoplasms of digestive system*

All the percentages are below the standardized national, but the effect of the initial selection lasts no more than three years. The medical percentages are generally a little lower than the non-medical.

160–165 *Malignant neoplasms of respiratory system*

The percentages are below the standardized national, generally well below, but there is no evidence of the effect of initial selection beyond one year except perhaps at the higher ages. The medical percentages are lower than the non-medical.

170–181 *Malignant neoplasms of genito-urinary system*

The percentages at durations 0, 1 and 2 are well below the standardized national, but at the other durations only slightly below; and initial selection is not in evidence after the first three years. There is no significant difference between medical and non-medical.

190–191 *Malignant neoplasms of skin*

The percentages are generally, though not always, below the standardized national. Initial selection appears to wear off after three years in the medical data and one year in the non-medical, but as the data for the five-year select period consists of only eleven deaths amongst the medical data (expected deaths 15·8) this inconsistency between the two sets of data is probably insignificant. In general, the medical percentages are slightly below the non-medical.

192–193 *Malignant neoplasms of nervous system including eye*

The percentages are generally near to the standardized national at the ultimate durations, the effects of the initial selection wearing off after five years in the medical data and three years in the non-medical. The medical percentages are lower than the non-medical only at the select durations.

140–148 *and* 194–198 *Malignant neoplasms of other specified sites*

The percentages are all lower than the standardized national and the effects of initial selection are normal. The medical percentages are less than the non-medical at the select durations.

199 *Malignant neoplasms of unspecified sites*

This is one of the groups where comparison with the national data is not valid. The reason for this is that the G.R.O. have access to additional information which is called for in certain cases when coding the national data, and this information is not available to the coders of the assured lives' data. The G.R.O. frequently by this means obtain information specifying the site, but the Bureau have no option but to code all these cases to the unspecified group, hence the high percentage shown. As some of these deaths should, for a valid comparison with the national data, really be shown in some of the other groups of malignant neoplasms it follows that the mortality in the other groups tends to be understated, and this makes even more significant the relatively high percentages in some of the groups; the understatements in these other groups are, however, relatively small; in the three years in question code 199 included only 609 deaths compared with a total of nearly 18,000 for all neoplasms combined.

200–205 *Neoplasms of lymphatic and haematopoietic tissues*

Standardization figures are not available for this group but the ultimate percentages appear similar to the national. Initial selection lasts the full five years in the medical section but only one year in the non-medical, and it is only at durations 1–4 that the medical percentages are lower than the non-medical.

210–239 *Benign and unspecified neoplasms*

The remarks made under Code 199 above apply here, as in the national data a high proportion of the unspecified neoplasms are recoded to malignant groups as a result of the information yielded by the special inquiries made by the G.R.O. The deaths in this group during the three years numbered 427. There is possibly no advantage in keeping 199 separate from 210–239 in future as no conclusions can be drawn for either group; they must, however, be kept separate from 780–794 (which will be dealt with later) so that figures can be deduced for all neoplasms combined.

140–239 *All neoplasms combined*

When the foregoing nine groups are combined, the resulting figures are

all below the standardized national and although initial selection is probably shown to last five years in the medical data the position is not very clear from the figures, when it is considered that the percentage for the age-group 45–59 in the ultimate data is lower than the percentages for all data at durations 1–2. In the non-medical data initial selection certainly only appears to last one year. The medical percentages are less than the non-medical except in the age-group 75 and over.

240–245 *Allergic disorders*

The standardization figures are not available, but the percentages are generally below the national. For some reason which is not apparent the medical percentages are greater than the non-medical and initial selection appears to last five years for the non-medical and only one year for the medical, but this is probably fortuitous due to relatively scanty figures at the select durations.

260 *Diabetes mellitus*

The percentages are generally less than the standardized national, the effect of selection is normal and the medical percentages are less than the non-medical in all those groups where the data are large enough to be significant.

330–334 *Vascular lesions affecting the central nervous system*

The percentages are all less than the standardized national, the effects of selection are normal and the medical percentages are all less than the non-medical.

300–326 *and* 340–398 *Other diseases of the nervous system*

The percentages are less than the national except in age-group 75 and over, and although the effects of initial selection are normal, the medical percentages are greater than the non-medical.

420 *Arteriosclerotic heart diseases, including coronary disease*
421–422 *Degenerative heart disease*
440–447 *Hypertensive disease*
400–416, 430–434 *and* 450–468 *Other diseases of heart and circulatory system*

In all these groups the percentages are less than the standardized national with one exception at age-group 75 and over. Initial selection lasts five years throughout and the medical percentages are less than the non-medical, apart from one or two groups where either the data are scanty or the percentages are similar.

480–483 *Influenza*

The percentages are well below the standardized national but there is little difference between the different durations.

490–493 *Pneumonia*
500–502 *Bronchitis*
470–475 and 510–527 *Other respiratory diseases*

The percentages are well below the standardized national and the effects of initial selection are normal. There is not a great deal of difference between medical and non-medical but in general the medical percentages appear to be slightly lower.

530–587 *Diseases of the digestive system*

The percentages are less than the standardized national and the effects of the initial selection are normal. The medical percentages are lower than the non-medical at the select durations but not at the younger age-groups in the ultimate data.

590–594 *Nephritis*

The percentages are less than the standardized national except at the higher age-groups in the non-medical ultimate data. The effects of the initial selection are normal and the medical percentages are less than the non-medical.

600–689 *Other diseases of the genito-urinary system*

There is no standardization factor available but the percentages are all well below the national. The effects of initial selection are normal and the medical percentages are generally below the non-medical.

*E*810–*E*835 *Motor-vehicle accidents*

The International Classification codes accidental and violent deaths in two ways, according to external cause (E) and nature of injury (N). For the purpose of this investigation interest centres round the event causing the injury itself and for this reason only the E codings have been used. When the figures for 1964 were first analysed the figures indicated much lower percentages in this group than in the next following group, i.e. Other accidents. Subsequently the G.R.O. made the sample investigation mentioned in § 7, as a result of which it became clear that the additional information available to the G.R.O. recoded a high proportion of E936 cases (Unspecified accidents) and a smaller proportion of E904 cases (Unspecified falls, but including cases of fracture where there is no indication of the external cause) as Motor-vehicle accidents. It was found from the first sample investigation that the discrepancy between the assured lives' and the national data could be approximately corrected by including all the actual deaths coded to E936 with the Motor-vehicle accidents but none of those coded to E904, but of course leaving the expected deaths in E936 (based on the national data) with the other accidents. This correction tends slightly, but not significantly, to understate the Motor-vehicle accidents at the younger ages and to overstate them at the older ages; the second sample investigation indicated that a closer approximation would have been obtained by including as Motor-vehicle

accidents only those cases in E936 which were described in the certificates as 'accidental death', 'multiple injuries', 'extensive injuries' without further qualification and those in E904 described as 'multiple fracture', 'fractured skull' or 'fractured neck' with no further information; however, as the results would not be significantly affected, the deaths for 1964–66 have not been recoded on this basis, but it is proposed to adopt it from 1967 onwards.

After the correction has been made, we are left with percentages which are generally a little less than the standardized national but—as might have been expected—no evidence of initial selection and no significant difference between medical and non-medical.

E800–802, E840–962, E964–965 and E980–999 Other accidents

The percentages are generally similar to the standardized national, there is no indication of initial selection and little difference between medical and non-medical.

E970–979 and E936 Suicide

The percentages are well below the standardized national. Initial selection lasts five years in the medical data but only one year in the non-medical. The medical percentages are lower than the non-medical at durations 1–4 but tend to be higher at durations 5 and over.

250–254, 270–299 *and* 690–759 *All other well-defined causes*

The percentages are well below the standardized national (although it should be remembered that the standardization factor for 'Other causes' does not relate to quite the same residual group). The effect of initial selection appears to be fairly normal although the data are somewhat scanty, and the medical percentages are generally less than the non-medical.

780–794 *Ill-defined conditions*

The remarks made under groups 199 and 210–239 apply here, most of the cases in the national data becoming transferred to other groups as a result of additional information. The number of deaths in the assured lives' data for 1964–66 totalled only 293.

795 *Cause unknown*

No comparison is made, for the reasons stated in § 8.

CONCLUDING REMARKS AND FUTURE PLANS

16. There is probably little point in attempting to summarize the results given in § 15, as different interests may centre upon different cause-groups, but it may perhaps be commented that it is in some of the Neoplasm groups where the higher percentages are shown and also, in general, that it is in some of these groups (apart from the accidental-groups) where

initial selection seems to have the shortest effect, for reasons which are not immediately apparent.

17. Recently the 8th Revision to the International Classification was published, and the G.R.O. have coded the 1967 deaths according to both the 7th and 8th Revisions, and it is proposed to do the same for the 1967 Assured deaths in order to indicate the effects of changing from one basis of coding to the other. It seems as if the group which under the 7th Revision was 240–245 (Allergic disorders) will disappear since in the 8th Revision these are redistributed under other main headings, but otherwise, broadly speaking, similar groupings will be possible.

18. It will also be desired to ask the G.R.O. to investigate a further and larger sample, and plans have been made for a large number of offices to submit full information in regard to the 1969 deaths to enable the G.R.O. to identify the cases in order to indicate whether the Bureau's coding coincides with the G.R.O., and also to show whether any inconsistency in the results of the investigation is occurring as a result of recoding which the G.R.O. carry out as a result of their additional information.

19. It is proposed that the next report of this nature will be based on the four years 1967–70, thus coinciding with the next four-year period in respect of which it is expected there will be a report by the Committee on the Mortality of Assured Lives; at the same time it will then be possible to compare the 1967 results under the two coding methods, in order to indicate in what respects comparisons between 1964–66 and 1967–70 are valid.

Causes of death among assured lives in 1964–66

Table 1. *Actual deaths and percentages of actual to expected deaths in groups of causes*

Duration	Age-group	001–008 Respiratory tuberculosis				010–138 Other infective and parasitic diseases				150–159 Malignant neoplasms of digestive system				160–165 Malignant neoplasms of respiratory system				170–181 Malignant neoplasms of genito-urinary system			
		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.	
		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	A	100 A/E	A	100 A/E
0	All ages	—	(8)	—	(16)	1	17	4	27	20	29	55	49	30	30	47	32	7	34	14	36
1–2	All ages	1	5	5	14	3	25	13	48	108	68	169	69	131	56	203	61	28	61	44	55
3–4	All ages	1	5	3	8	7	57	13	51	146	79	212	75	146	53	249	62	52	98	69	83
5 and over	–44	1	4	10	20	16	114	21	65	83	71	189	78	45	35	122	48	31	85	88	104
	45–59	38	26	53	26	33	42	68	64	839	63	1349	76	1045	50	1600	57	249	80	352	84
	60–74	35	27	33	36	53	86	25	58	1072	76	821	83	1251	60	1068	69	381	82	257	83
	75–	12	37	3	48	12	47	6	130	512	77	88	74	315	81	76	98	379	96	62	92
	All ages	86	26	99	28	114	64	120	64	2506	71	2447	78	2656	56	2866	61	1040	86	759	87

Duration	Age-group	190–191 Malignant neoplasms of skin				192–193 Malignant neoplasms of nervous system				140–148 and 194–198 Malignant neoplasms of other specified sites				199 Malignant neoplasms of unspecified sites				200–205 Neoplasms of lymphatic and haematopoietic sites			
		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.	
		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	A	100 A/E	A	100 A/E
0	All ages	1	33	3	38	8	68	4	13	1	14	4	21	2	43	2	25	11	46	24	34
1–2	All ages	3	48	14	90	17	69	45	76	6	39	17	49	18	164	25	145	26	53	116	92
3–4	All ages	7	106	18	124	16	63	49	88	5	30	20	61	9	73	26	129	36	74	97	86
5 and over	–44	15	130	28	107	49	115	83	89	14	73	31	73	7	83	35	197	92	117	173	95
	45–59	27	75	39	78	140	89	154	71	54	54	98	71	91	100	133	109	211	81	325	91
	60–74	19	91	12	82	84	121	56	99	83	84	42	61	114	137	85	141	201	106	136	98
	75–	9	49	1	34	4	103	—	(1)	43	72	5	50	57	175	5	85	97	160	7	63
	All ages	70	81	80	85	277	101	293	80	194	70	176	68	269	125	258	125	601	102	641	93

Duration	Age-group	210–239 Benign and unspecified neoplasms				140–239 All neoplasms combined				240–245 Allergic disorders				260 Diabetes mellitus				330–334 Vascular lesions affecting central nervous system			
		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.	
		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	A	100 A/E	A	100 A/E
0	All ages	3	57	16	119	83	34	169	38	3	37	6	23	—	(6)	2	17	23	38	57	55
1–2	All ages	4	37	28	110	341	62	661	70	14	84	15	32	2	17	1	4	41	29	124	56
3–4	All ages	5	44	15	64	422	66	755	74	13	81	11	28	1	8	10	41	59	34	157	63
5 and over	–44	15	100	36	106	351	77	785	80	17	63	39	60	5	30	11	30	63	63	139	66
	45–59	68	97	101	106	2724	61	4151	70	61	74	69	60	36	47	54	52	684	66	1000	72
	60–74	57	124	59	163	3262	73	2536	79	44	96	25	72	66	74	46	76	1153	68	783	71
	75–	17	145	3	150	1433	88	247	84	9	107	—	(2)	60	94	17	153	1649	85	263	86
	All ages	157	110	199	119	7770	71	7719	74	131	80	133	62	167	68	128	61	3549	74	2185	73

Table 1. (*cont.*)

Duration	Age-group	300–326 and 340–398 Other diseases of the nervous system				420 Arteriosclerotic heart disease including coronary disease				421–422 Degenerative heart disease				440–447 Hypertensive disease				400–416, 430–434 and 450–468 Other diseases of the circulatory system.			
		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med	
		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	A	100 A/E	A	100 A/E
0	All ages	3	17	8	16	124	48	235	56	5	35	4	17	—	(17)	7	23	7	15	25	26
1–2	All ages	12	34	29	32	334	56	634	68	6	18	19	38	5	13	28	43	28	26	74	38
3–4	All ages	13	36	24	29	411	59	762	71	17	44	31	56	9	20	32	45	41	34	81	39
5 and over	–44	37	66	62	49	281	59	717	75	14	55	28	51	12	36	40	57	39	34	125	50
	45–59	160	80	187	68	4253	85	5772	85	100	49	177	64	183	61	290	72	392	54	657	67
	60–74	146	91	97	88	4424	89	3308	93	276	65	181	71	178	51	162	69	631	70	407	68
	75–	124	127	20	120	2208	96	433	107	1066	78	147	77	197	78	31	73	917	85	134	80
	All ages	467	91	366	69	11166	87	10230	88	1456	72	533	69	570	61	523	70	1979	70	1323	66

Notes: A = Actual Deaths. E = Deaths expected according to (1966) national experience of England and Wales (males) calculated from Tables 1 and 17 of the Registrar General's Statistical Reviews (Part 1, Tables Medical).
Where A = 0 or E = 1 or less the figure shown in brackets is E calculated to the nearer integer.

Duration	Age-group	480–483 Influenza				490–493 Pneumonia				500–502 Bronchitis				470–475 and 510–527 Other respiratory diseases				530–587 Diseases of the digestive system			
		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.	
		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	A	100 A/E	A	100 A/E
0	All ages	2	87	3	58	1	4	13	27	—	(49)	9	14	1	9	5	22	5	20	21	38
1–2	All ages	1	19	5	45	11	21	24	26	6	5	19	13	1	4	8	17	19	33	56	51
3–4	All ages	3	51	2	18	17	28	19	20	12	8	36	19	9	30	14	29	29	45	56	49
5 and over	–44	3	38	8	48	13	30	31	32	10	24	24	28	9	39	22	44	39	61	79	58
	45–59	6	17	16	33	83	23	139	29	213	22	463	37	58	30	78	30	289	70	351	63
	60–74	15	36	13	45	166	29	146	41	541	34	477	44	93	39	74	44	304	71	226	76
	75–	40	77	—	(8)	650	63	92	60	434	47	93	58	110	86	17	79	210	71	39	79
	All ages	64	47	37	36	912	46	408	37	1198	34	1057	41	270	46	191	38	842	70	695	67

Duration	Age-group	590–594 Nephritis				600–689 Other diseases of the genito-urinary system				E810–835 plus E936 Motor vehicle accidents (adjusted) (E936 included in actual deaths but not in expected)				E800–802, E840–935* E940–962, E964–965 and E980–999 Other accidents				E970–979 and E963 Suicide			
		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.		Med.		Non-med.	
		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	A	100 A/E	A	100 A/E
0	All ages	1	9	9	27	1	16	2	14	47	82	240	92	38	82	155	91	14	38	32	27
1–2	All ages	4	17	28	46	2	14	8	28	95	96	361	91	80	90	265	93	33	46	101	49
3–4	All ages	6	26	31	57	3	18	8	29	77	94	253	92	74	91	174	77	30	44	92	52
5 and over	–44	18	49	48	57	5	34	13	39	139	90	371	90	156	96	358	90	100	74	146	46
	45–59	75	58	114	64	32	36	70	58	263	89	329	80	289	85	344	72	207	64	265	59
	60–74	60	77	63	113	95	64	67	74	81	63	70	72	148	87	92	73	70	50	58	54
	75–	41	95	9	125	244	80	33	73	37	59	11	102	116	68	12	47	9	32	1	19
	All ages	194	67	234	72	376	67	183	68	520	81	781	84	709	84	806	79	386	62	470	53

Table 1. (*cont.*)

Duration	Age-group	250–254, 270–299 and 690–759 All other specified causes				780–794 Ill-defined conditions				795 Cause unknown		All causes			
		Med.		Non-med.		Med.		Non-med.		Med.	Non-med.	Med.		Non-med.	
		A	100 A/E	A	100 A/E	A	100 A/E	A	100 A/E	A	A	A	100 A/E	A	100 A/E
0	All ages	1	7	6	14	2	(0)	—	(0)	5	12	367	37	1024	49
1–2	All ages	3	10	23	31	3	(0)	2	(1)	10	24	1055	49	2527	61
3–4	All ages	15	51	27	42	4	(1)	7	(1)	10	21	1283	53	2619	62
5 and over	–44	4	11	37	41	4	(0)	8	(1)	19	36	1355	65	3158	69
	45–59	97	59	142	63	17	230	18	189	104	84	10397	66	14891	71
	60–74	82	63	80	88	21	198	15	259	84	39	12028	70	9023	76
	75–	64	72	12	82	178	84	14	59	81	5	9901	81	1639	83
	All ages	247	59	271	65	220	96	55	137	288	164	33681	71	28711	72

* E936 included in expected deaths but not in actual.

Notes: A = Actual Deaths. E = Deaths expected according to national experience of England and Wales (males) calculated from Tables 1 and 17 of the Registrar General's Statistical Review (Part 1, Tables Medical).
Where A = 0 or E = 1 the figure shown in brackets is E calculated to the nearer integer.

Table 2. *Factors for standardizing the national data according to social class*

$$\frac{100 \times \text{death rate for all classes except 4 and 5}}{\text{death rate for all classes combined}} \text{ (England and Wales, 1951)}$$

Causes of Death:			140–159† and 170–		330–		421–	440–	480–	490–	500–	530–	590–	810–	970–	All other accidents	Other causes	All causes
Ages lbd	001–008	162–163*	199	260	334	420	422	447	483	493	502	587‡	594	835	979			
20–24	93	97	98	89	97	97	108	100	100	110	103	97	99	106	97	98	95	98
25–34	95	94	100	91	100	96	87	94	96	93	98	97	99	102	90	92	94	96
35–44	94	96	96	89	100	102	88	102	91	88	79	92	98	99	96	87	94	95
45–54	92	97	97	100	102	106	90	106	87	83	78	96	100	95	102	83	95	96
55–64	92	99	100	110	103	109	93	104	92	89	85	100	103	90	101	83	99	99
65–69	90	99	97	112	100	107	92	100	94	90	87	99	105	89	96	82	99	98
70–74	91	99	96	107	97	104	92	97	92	89	87	100	102	91	96	86	97	96
75 and over	92	98	94	106	95	100	92	94	94	92	88	98	98	94	95	92	94	94

* This is very nearly the same as 160–165.
† This represents seven of the cause-groups combined.
‡ This group consists of codes 540, 541, 543, 550–3, 560–1, 570–2, 581, 584–5; information is not available for 530–9, 542, 544–5, 573–8, 580, 582–3 and 586–7 but these are relatively rare and the information available approximates to 530–587.