

CONTINUOUS INVESTIGATION INTO THE MORTALITY OF ASSURED LIVES: EXPERIENCE FOR 1953-58

The experience of assured lives, medical and non-medical combined, for the period 1953-58, has been compared with the A1949-52 Table and the results are summarised in Table 1. Reference to individual years will be found in the periodical notes prepared by Mr. H. A. R. Barnett under the title "Population Mortality and Assured Lives' Mortality in Great Britain—A Comparison of Trends" (the last such note related to 1948-55 and was published in *T.F.A.*, Vol. 26, p. 115, and *J.I.A.*, Vol. 84, p. 287).

The results show appreciable reductions in mortality compared with the A1949-52 Table, and these reductions are most marked at ages under 50 in the ultimate section, i.e. at durations 2 and over. It can be seen from Table 1 that, whereas the ratios of actual to expected deaths lie generally between 90% and 100% at durations 0 and 1 and also at ages over 50 at durations 2 and over, for deaths at ages below 50 at durations 2 and over the ratios are all less than 90%. This reduction at younger ages accords with the experience of the general population as revealed by the statistics of the Registrar General.

Certain of the features in Table 1 arise from the graduation of the 1949-52 data. Thus the graduated curve cut through the slight "hump" caused by heavy accident deaths in the age-group 20-24 so that the rates of mortality at these ages in the A1949-52 Table are lower than the ungraduated rates—particularly at durations 0 and 1. Other age-groups where the percentages are materially affected by variations between the graduated curve and the ungraduated data are 30-34, 65-69 and 95-99.

In order to provide a more exact comparison with the period 1949-52, Table 2 has been compiled showing percentages of actual deaths in 1953-58 to expected deaths on the basis of the actual experience in 1949-52. The corresponding percentages from Table 1 have been set out alongside for comparison. The upward trend of the percentages with increasing age at durations 2 and over is even clearer when the expected deaths are calculated on an experience basis and the only important interruption is at the age-group

55½-59½ where actual deaths in 1953-58 were 99% of those expected by the 1949-52 experience. The growing steepness of the mortality curve between ages 40 and 55, which was noted when the A1949-52 Table was prepared, has been accentuated.

At durations 0 and 1 the data are less numerous and the percentages more variable. Nevertheless, it is noteworthy that in the age-group 20½-24½ the percentages remain high (100% at duration 0 and 102% at duration 1) even after they have been reduced by being related to the actual experience of the earlier period.

Experiment has shown that the assured lives' mortality for 1953-58 at durations 2 and over may be approximately related to the A1949-52 Table by the following formula :

$$q_x(1953-58) = .95 q_x(A1949-52) - .0002$$

Expected deaths have been computed on the basis of the right-hand side of this equation and the resulting percentages of actual to expected deaths are as follows :—

Age-group	100 A/E	Age-group	100 A/E
-19½	91	65½-69½	96
20½-24½	108	70½-74½	98
25½-29½	97	75½-79½	100
30½-34½	99	80½-84½	100
35½-39½	101	85½-89½	104
40½-44½	98	90½-94½	101
45½-49½	96	95½-99½	93
50½-54½	101	100½	70
55½-59½	104	All ages	100
60½-64½	100		

TABLE 1
Assured Lives 1953-58
Comparison of actual and expected deaths by the A1949-52 Table

Age-group	Duration 0			Duration 1			Durations 2 and over		
	Actual Deaths	Ex-pected Deaths	100 A/E	Actual Deaths	Ex-pected Deaths	100 A/E	Actual Deaths	Ex-pected Deaths	100 A/E
-19½	58	55	105	42	42	100	52	74	70
20½-24½	200	183	109	171	152	113	387	466	83
25½-29½	160	204	78	181	220	82	1,031	1,379	75
30½-34½	177	190	93	194	220	88	1,808	2,326	78
35½-39½	194	196	99	220	240	92	2,982	3,589	83
40½-44½	298	282	106	335	371	90	6,393	7,463	86
45½-49½	336	371	91	488	513	95	12,459	14,307	87
50½-54½	333	337	99	504	519	97	19,738	21,115	93
55½-59½	202	212	95	327	353	93	22,085	22,794	97
60½-64½	106	111	95	166	192	86	17,007	18,003	94
65½-69½	46	48	96	60	98	61	10,479	11,512	91
70½-74½							11,002	11,816	93
75½-79½							11,810	12,504	94
80½-84½	8	14	57	22	31	71	9,455	9,919	95
85½-89½							5,230	5,303	99
90½-94½							1,757	1,826	96
95½-99½							273	307	89
100½-							21	32	66
All ages	2,118	2,203	96	2,710	2,951	92	133,969	144,735	93

TABLE 2
Percentages of actual deaths for 1953-58 to deaths expected on
(A) the ungraduated data for 1949-52, and (B) the A1949-52 Table

Age-group	Duration 0		Duration 1		Durations 2 and over	
	A	B	A	B	A	B
20½-24½	100	109	102	113	77	83
25½-29½	79	78	68	82	75	75
30½-34½	86	93	87	88	82	78
35½-39½	95	99	97	92	81	83
40½-44½	107	106	89	90	86	86
45½-49½	85	91	94	95	86	87
50½-54½	89	99	99	97	92	93
55½-59½	102	95	81	93	99	97
60½-64½	90	95	123	86	95	94
65½-69½					95	91
70½-74½					94	93
75½-79½					97	94
80½-84½					94	95
85½-89½					102	99
90½-94½					98	96
95½-99½					111	89