

# Recent Mortality Trends in Areas of Low Mortality

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**F**ORTY-FOUR COUNTRIES reported an average crude death rate of less than 10 per 1,000 population during the period 1948-50. A crude death rate of that magnitude might well be taken as characterizing areas of low mortality. However, a low recorded crude death rate does not necessarily signify low mortality. Death statistics, particularly those collected under diverse conditions of administration, culture, geography, and population distribution and composition may yield numerically similar overall mortality rates even though the age-specific death rates differ greatly.

The selection of areas of low mortality is an arbitrary procedure. There does not appear to be any one method that is completely satisfactory. For the purpose of this discussion, the measure selected for designating areas of "low mortality" was life expectancy at birth. A life table value was selected rather than the crude death rate since some weight is given to the age-specific death rates. However, the weights (stationary population) vary from area to area. This is not a particularly desirable

feature of a life table death rate, but it was selected in preference to the age-adjusted death rate for two reasons. First, the use of a standard population as weights is not satisfactory if the age composition of the actual populations is not similar to that of the standard population. Second, death rates adjusted to a single standard population are not readily available for individual countries, and the labor involved in computing them is not inconsiderable.

Areas of low mortality were first delineated by taking areas in which the life expectancy at birth in 1949 or 1950 exceeded 65 years (life table death rate of less than 15.4 per 1,000 population). Excluded from this preliminary listing were areas where death registration was adjudged in the United Nations Demographic Yearbook to be incomplete or inadequate, and areas that did not include in their statistics data for the total population in the area. Although data for Australia and New Zealand exclude aborigines and Maoris, respectively, an exception was made of them since the number of deaths among the excluded groups is relatively small and would not affect the level of mortality significantly even if included.

On the basis of this procedure, the following areas were selected as representing areas of "low" mortality: Denmark, Iceland, the Netherlands, Norway, and Sweden; Belgium, England and Wales, France, and Scotland; Italy and Switzerland; Canada and the United States; and Australia and New Zealand.

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Recent mortality trends for these areas are somewhat difficult to describe because of the intervention of World War II. Countries that were under hostile attack or under enemy occupation experienced severe upswings in mortality during the early 1940's. The death rates for the other countries were also higher in varying degrees during the war years because of the movement of the armed forces population for foreign duty. Since deaths and population of the armed forces outside of the country are usually not included in computation of death rates, and because the armed forces come from a segment of the population with normally low death rates, the death rates during the war years were generally artificially increased by the effects of troop movements and hence not comparable with the prewar and postwar death rates.

While crude death rates have considerable significance as indications of the rate of population loss through mortality, they may be affected to a considerable degree by differences or changes in population composition, particularly

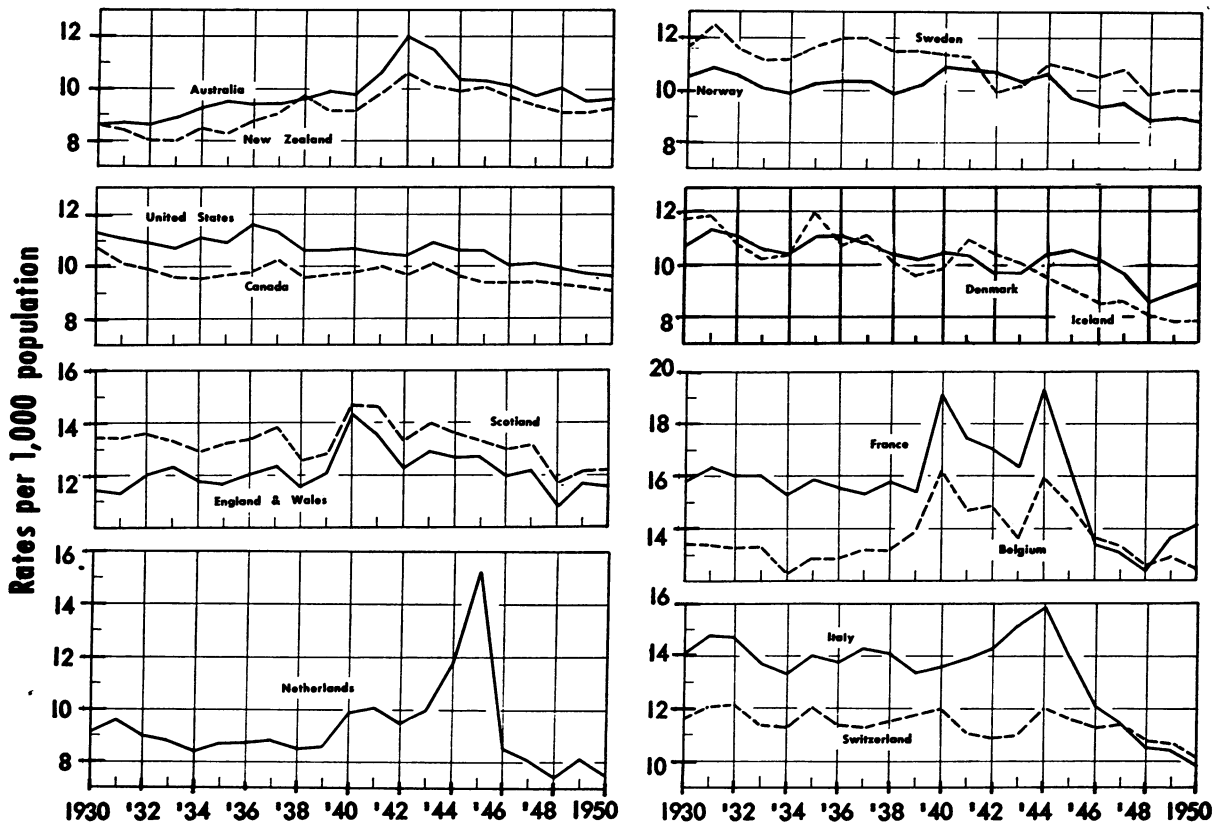
with respect to age. Therefore, age-specific death rates were computed wherever data were available for the years around 1930, 1938, 1947, and 1950. The years 1930 to 1938 were taken as the prewar years, and 1947 to 1950 as the postwar period. Death rates at the beginning and end of each period were compared. Because of the variability of death rates, precise evaluation of trend is not possible by this method. However, it does give a rough indication of trend.

### Mortality Trends

The level of general mortality for areas of low death rates varies over a wide range. The lowest recorded crude death rate in 1950 was 7.5 per 1,000 population for the Netherlands and the highest 14.2, for France. All of the crude death rates, except those for France, Belgium, Scotland, England and Wales, and Switzerland, were 10 per 1,000 population or lower in 1950.

The trends of crude death rates show several different patterns (see chart). Despite the

Crude death rates for specified areas of low mortality, 1930-50



SOURCE: Demographic Yearbook of the United Nations.

existing differentials in the levels of mortality, the patterns appear to be uniform geographically.

Prior to World War II, the trend of the crude death rates for most of the countries was downward or stationary. Exceptions are noted for England and Wales, Australia and New Zealand, where there has been a reversal of the downward trend. During World War II, increased mortality was experienced in virtually all of the countries. The upswing in mortality was particularly violent in the Netherlands, France, Belgium, Italy, Scotland, and England and Wales. However, the rapid postwar decline in mortality has brought the crude death rate back in line with the prewar trend. The postwar drop in the death rate for Italy and France was especially great.

The age-specific death rates show significant improvements in every country of low mortality over the past 20 years (see table). The reductions in death rates have been greatest for the younger ages. In the older ages, the decrements are smaller, and in a few countries small increases have been recorded.

Unusually low levels of mortality have been attained in the areas of low mortality. The indications are that the reductions in mortality are continuing. Future prospects for further improvements are good, especially in countries like Italy, France, and Belgium, where the death rates at the younger ages are still high compared to those for other countries of low mortality. On the other hand, substantial increases in life expectancy at birth cannot be as readily achieved in most of the other areas where the age-specific rates are already low, unless some unusual means are found to reduce mortality in the older ages.

Even with the declining age-specific death rates, there will be a point in time when the crude death rate will turn upwards because of aging of the population. Indications of such a situation may be observed in the crude death rates for Australia, New Zealand, and England and Wales in the years prior to World War II.

### *Oceania*

By the early 1930's, the crude death rates for Australia and New Zealand had declined to their lowest levels, and Oceania was the area of

lowest mortality as compared with the rest of the world. However, in the same decade, the crude death rate took a definite upward turn. During World War II, both Australia and New Zealand experienced a marked increase in mortality. Since mortality statistics for Australia include military deaths outside the country, the wartime rise is explainable. On the other hand, the statistics for New Zealand do not include deaths of armed forces outside the country. Hence, the reason for the wartime peak in 1942 is not as clear unless it represents the effects of the movement of able-bodied men for military service out of the country.

The postwar decline in mortality has brought the crude death rates to their prewar levels. However, there is a hint of a resumption of the upward trend in the crude death rate evident in the prewar years. The inclusion of data for 1951 reinforces the suggestion of a continuation of an upward trend in the crude death rates for both Australia and New Zealand.

The rising trend of the crude death rates in the prewar years is partially explained by the increase in mortality by age. In the period 1933-38, the only age group in Australia for which a decline was recorded in the rate was the age group 25-44 years. In the postwar years there was a substantial drop in the death rate for some segments of the population, namely, the infant and preschool children and the 25-44 year age group. On the other hand, a relatively large increase was reported for the 15-24 year age group and a smaller rise for the age group 65 years and over. For the period 1933-50, the age specific death rates for the various age groups in 1950 may be seen to be considerably lower than those for the corresponding ages in 1933, except for the age group 45 years and over.

The mortality experience for New Zealand is marked by relatively large increments in rates for every age group between the years 1933 and 1938, the period of greatest increase in mortality in New Zealand. The increases were particularly large in the younger ages. In the postwar years, the rates dropped for every age group except for children of school age, 5-14, and in the old age group. Although the crude death rate for 1950 was higher than that re-

## Death rates by age: 15 selected countries, for specified years

[Exclusive of fetal deaths. Rates per 1,000 population in each specified group.]

Area and year	All ages	Under 1 year	1-4 years	5-14 years	15-24 years	25-44 years	45-64 years	65 years and over
<b>NORTH AMERICA</b>								
Canada: <sup>1</sup>								
1950-----	9.0	11.2		0.8	1.2	2.2	10.9	61.4
1947-----	9.4	48.9	2.5	.9	1.6	2.6	11.5	62.5
1938-----	9.5	18.3		1.6	2.1	3.4	11.3	65.8
1931-----	10.1	24.0		1.7	2.8	4.2	11.9	64.1
United States:								
1950 <sup>2</sup> -----	9.6	33.0	1.4	.6	1.3	2.6	13.1	62.3
1947 <sup>2</sup> -----	10.1	34.5	1.6	.7	1.6	3.0	14.1	63.7
1938-----	10.6	58.0	3.8	1.2	2.3	4.4	15.4	69.8
1930-----	11.3	69.0	5.6	1.7	3.3	5.7	16.8	73.7
<b>EUROPE</b>								
Belgium: <sup>3</sup>								
1950-----	12.5	55.8	1.9	.6	1.3	2.7	11.9	67.9
1947-----	13.2	72.9	2.9	1.0	2.1	3.7	12.8	67.0
1938-----	13.4	89.3	5.8	1.7	2.7	4.4	14.2	69.9
1930-----	13.4	106.8	8.3	2.1	3.7	5.0	14.5	70.9
Denmark: <sup>4</sup>								
1950-----	9.2	7.0		.5	.8	1.8	9.1	63.9
1947-----	9.7	39.9	1.8	.6	1.2	2.4	10.0	65.6
1935-----	11.0	19.3		1.3	2.0	3.3	11.9	74.7
1930-----	10.8	20.1		1.2	2.5	3.6	11.8	70.0
England and Wales:								
1950 <sup>5</sup> -----	11.6	29.8	1.4	.6	1.1	2.1	11.2	69.1
1947 <sup>2</sup> -----	12.0	12.1		.8	1.5	2.6	11.8	68.2
1938-----	11.6	55.1	4.6	1.5	2.2	3.3	13.1	69.0
1930 <sup>6</sup> -----	11.4	64.6	7.0	1.9	2.7	4.1	13.7	67.9
France: <sup>7</sup>								
1950-----	12.6	48.7	2.3	.6	1.3	2.9	11.3	65.2
1946-----	13.6	90.5	4.4	1.2	2.3	3.8	11.7	69.4
1938-----	15.7	17.7		1.5	3.2	5.8	16.7	80.7
1931-----	16.5	75.8	6.7	2.1	4.2	6.2	16.8	86.9
Iceland:								
1950-----	7.9	22.8	1.3	.8	1.2	2.9	8.8	59.0
1947-----	8.5	22.9	2.5	.9	2.1	3.1	9.8	60.9
1930-----	11.5	46.4	4.6	1.9	6.6	7.4	13.1	56.9
Italy:								
1950-----	9.8	67.7	4.9	.9		4.5		63.0
1947 <sup>8</sup> -----	11.4	90.7	8.0	1.5		5.4		66.6
1936 <sup>2</sup> -----	13.9	101.9	13.9	2.0	3.3	4.7	13.3	78.3
1931-----	14.8	115.0	16.5	2.3	3.7	5.1	13.7	77.8

corded for 1933, the age-specific death rates for 1950 were lower than those for 1933.

### *North America*

After a period of rapidly declining mortality, there was a deceleration in the rate of decrease in the crude death rates for Canada and the United States in the decade prior to World War II. In the mid-1930's there was a brief period of upswing after which the course of mortality resumed its trend downward. The recorded crude death rates for Canada and the United States were somewhat higher during the war, but a good part of the change was due

to the technicalities of rate computation, that is, the exclusion from the numerator and denominator of the rates, deaths, and population, respectively, of the armed forces overseas. The overall death rates for Canada and the United States follow an amazingly parallel course with Canada recording lower rates.

The age-specific death rates for Canada and the United States indicate continuous decline in mortality at every age. The rates of decline during the prewar years were greater in the United States, whereas in the postwar period this is not consistently true. In general, the decrease in rates has been greatest in the

## Death rates by age: 15 selected countries, for specified years—Continued

[Exclusive of fetal deaths. Rates per 1,000 population in each specified group.]

Area and year	All ages	Under 1 year	1-4 years	5-14 years	15-24 years	25-44 years	45-64 years	65 years and over
<b>EUROPE—Continued</b>								
<b>Netherlands:</b>								
1950.....	7.4	25.7	1.6	0.5	0.8	1.5	7.9	57.9
1947.....	8.0	34.4	2.3	.8	1.5	2.1	8.6	57.0
1938.....	8.5	37.6	3.2	1.0	1.5	2.5	10.3	65.3
1930.....	9.0	53.2	5.2	1.4	2.1	3.1	11.0	64.8
<b>Norway:</b>								
1950.....	9.1	6.7		.7	1.1	1.7	7.5	61.9
1947.....	9.5	9.4		.8	1.7	2.4	7.9	61.3
1938.....	10.0	10.4		1.0	2.3	3.7	9.8	66.4
1930.....	10.5	12.0		1.6	3.8	5.1	10.7	63.4
<b>Scotland:</b>								
1950 <sup>5</sup> .....	12.4	39.0	1.8	.6	1.5	2.9	13.2	74.8
1947 <sup>2</sup> .....	12.9	56.7	2.9	1.1	2.2	3.4	13.4	72.2
1938.....	12.6	73.9	6.6	1.6	2.5	3.9	14.9	74.8
1930 <sup>9</sup> .....	13.3	91.2	10.2	2.2	2.9	4.9	15.6	75.8
<b>Sweden:</b>								
1950.....	10.0	21.4	1.3	.5	1.0	1.8	8.8	65.8
1947.....	10.8	25.9	1.5	.7	1.5	2.4	9.5	70.2
1938.....	11.5	44.0	3.0	1.2	2.6	3.5	11.2	71.7
1930.....	11.7	57.2	3.9	1.7	3.5	4.5	11.6	67.5
<b>Switzerland:</b>								
1950.....	10.0	32.4	1.9	.6	1.1	2.2	10.4	62.7
1947.....	11.4	40.0	2.5	1.1	1.9	2.8	11.6	71.7
1941.....	11.1	46.4	3.0	1.2	2.2	3.2	13.0	68.4
1930.....	11.5	14.5		1.6	3.1	4.4	15.6	73.5
<b>OCEANIA</b>								
<b>Australia:</b> <sup>10</sup>								
1950.....	9.6	25.0	1.6	.7	1.3	2.1	11.7	67.5
1947.....	9.7	28.4	1.8	.7	1.2	2.4	12.0	66.7
1938.....	9.6	39.2	3.4	1.2	1.9	3.2	12.2	67.3
1933.....	8.9	10.8		1.2	1.8	3.5	12.2	63.9
<b>New Zealand:</b> <sup>11</sup>								
1950.....	9.3	23.3	1.2	.5	1.1	1.8	10.5	61.4
1947.....	9.4	7.6		.5	1.2	2.0	11.0	60.4
1938.....	9.7	10.8		1.4	1.9	3.3	12.0	67.3
1933.....	8.0	8.0		1.0	1.7	3.0	10.7	64.3

<sup>1</sup> Excluding Yukon and Northwest Territories, and prior to 1950, excluding Newfoundland also. <sup>2</sup> Excluding deaths among armed forces outside country. Rates based on population excluding armed forces outside country. <sup>3</sup> Including deaths among armed forces. <sup>4</sup> Excluding Faroe Islands. <sup>5</sup> Excluding deaths among armed forces outside country. Rates based on population including armed forces outside country. <sup>6</sup> Rates based on population enumerated as of Apr. 26-27, 1931. <sup>7</sup> Excluding deaths of live-born infants dying within 3 days after birth without being registered as live births. <sup>8</sup> Provisional. <sup>9</sup> Rates based on population enumerated as of Apr. 26, 1931. <sup>10</sup> Excluding deaths of full-blooded aborigines. <sup>11</sup> Excluding deaths among Maoris.

SOURCE: Rates were computed by the National Office of Vital Statistics. Basic data were from the demographic yearbooks of the United Nations or from the official statistical yearbooks of the individual countries.

younger ages and the average annual decrements smaller in the older ages.

### *Europe*

The areas of low mortality in Europe may be conveniently described in three groups, namely, the Scandinavian countries, areas of the United

Kingdom, and a group of other countries on the European Continent, specifically, France, Belgium, Italy, and Switzerland. The crude death rates for the European countries, except for the Scandinavian countries, are generally higher than those for other parts of the world. *Scandinavian countries.* The trends of the

crude death rates for Sweden, Denmark, Norway, Iceland, and the Netherlands during the decade prior to the war were generally downward, and form an undulating pattern. With the possible exception of Sweden, there was increased mortality in the Scandinavian countries during the war years. The Netherlands, in particular, suffered high mortality all through the war. The peak was reached in 1945, and the crude death rate recorded for that year was about 75 percent higher than the prewar rate. However, the crude death rates for all of these countries appear now to be in line with their prewar trends.

The age-specific mortality rates show a fairly consistent pattern. During the prewar years, death rates were declining for every age group, except 65 years and over in the Netherlands, Norway, and Sweden. In Denmark, increased mortality was recorded for those 5-14 years and 45-64 years in addition to the age group 65 years and over. In the postwar period, drops in rate were recorded for every age group in Denmark and Sweden, while in the Netherlands and Norway, decreases were reported for every age group except that of 65 years and over. The average annual decrements in the death rates at the younger ages were relatively large.

As compared with data for 1930, the death rates for 1950 were lower than those for 1930 in every age group. The drop in mortality is most conspicuous in the younger age groups.

*England and Wales and Scotland.* The rising trend in mortality for England and Wales is fairly evident in the prewar years. In Scotland, the crude death rate is higher than that in England and Wales, but the trend is not as clear. However, there appears to be a tendency for the crude death rates of Scotland to parallel those of England and Wales.

The wartime peak occurred in 1940 in both Scotland and England and Wales, after which the crude death rates decline rapidly in 1941 and 1943. Since 1943 the decline has been more gradual but fairly regular. A sudden drop in mortality in 1948 brought the crude death rates to the lowest levels ever recorded in England and Wales and in Scotland. While the rates returned to a higher level in 1949 and 1950, the crude death rates for these years are

much lower than those for the prewar years.

Unlike the general death rates, the age-specific death rates for both Scotland and England and Wales have been declining at every age except in the older ages. The average annual increase in the death rates for the population 65 years and over is relatively small. The rate of decrease in the death rates for the 45-65 year age group is considerably smaller than that for the younger ages. The average annual decrement in the age-specific death rates is greater in the postwar as compared with the prewar years.

*Other European countries.* The prewar trend of the crude death rates for France, Belgium, Switzerland, and Italy was generally downward. There is considerable similarity in the pattern of crude death rates for France and Belgium in the prewar and war periods. The rates for Switzerland and Italy were very much alike before the war.

The excess mortality in France and Belgium during the war was considerable. Two major peaks of almost equal magnitude occurred, the first in 1940 and the second in 1944. The decline in mortality was rapid after the war. This was true particularly in France, and the large differential that existed in the crude death rate between Belgium and France in prior years was closed. The crude death rate for France dropped below that for Belgium between 1946 and 1948, but in 1949 and 1950 the rate for France exceeded that for Belgium again. However, the rates for these years are not out of line from what the rates would have been had the prewar trend continued.

The crude death rates for Switzerland do not indicate any unusual change in mortality during the war period. On the other hand, the reported crude death rates for Italy show a continuous increase from 1940 to a major peak in 1944. As in France, the decline in mortality was rapid after the 1944 peak, and the postwar death rates dropped to the lowest levels ever recorded for the country, and the large gap between the crude death rate for Italy and Switzerland was wiped out. There appears also to be an acceleration in the decline of mortality in both of these countries after the war.

The age-specific death rates were decreasing in every age group before the war in France, Belgium, and Switzerland, and in every age

group except that 65 years and over in Italy. In the postwar period, the decline continued at an accelerated pace.

### Summary

The areas of lowest mortality selected for study include Norway, Sweden, Iceland, Denmark, the Netherlands, Scotland, England and Wales, France, Belgium, Switzerland, Italy, Canada, the United States, Australia, and New Zealand.

Although there is a large differential in the levels of mortality even among the areas of lowest mortality, several patterns of mortality trends are observed. Each of these patterns appears to be generally uniform geographically.

Prior to World War II, the trend of the crude death rates for most of the countries was downward or stationary. Exceptions are noted for England and Wales, Australia, and New Zea-

land, where there has been a reversal of the downward trend. Virtually all of the countries experienced increased mortality during World War II. However, in almost every instance, the rapid postwar decline has brought the crude death rates back in line with the prewar trend.

Significant improvements in mortality rates have been made in every country of low mortality over the past 20 years, particularly in the younger ages. The decline in mortality has not been especially large for the age groups over 45 years in most countries.

The prospects of further declines in mortality are good, especially in several European countries where the death rates at the younger ages are still relatively high. On the other hand, substantial increases in life expectancy at birth cannot be expected in most of the other areas where the age-specific rates are already low, unless death rates at the older ages can be reduced.

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## United Nations Day

President Eisenhower has proclaimed October 24, 1954, as United Nations Day.

On this ninth anniversary of the United Nations Charter, the President has urged that the citizens of this Nation demonstrate their faith and support of the United Nations with community programs that will create a better public understanding of its aims, achievements, and problems.

Pointing out that the United Nations represents man's most determined and promising effort to save humanity from the scourge of war and to promote conditions of peace and well-being for all nations, the President called for continued support of the organization. He stated that its success depends not only on the support given it by its members but equally on that of the people of the member countries.

In this, the October, issue of Public Health Reports, readers will find two articles on health projects in Iran that typify United States cooperation in international programs. Scheduled for early publication are a paper by John H. Stambaugh, assistant to the director of the Foreign Operations Administration, on the broad considerations which underlie the United States technical assistance programs in the health fields and one by Dr. John J. Hanlon, chief of the FOA Public Health Division, on a system of priorities that may be used as a guide in planning these programs.