

Recent Statistics on Diabetes

From present indications, in the year 1959 there was registered a slight increase in the recorded death rate from diabetes in the United States as compared with the previous year. For the first nine months of 1959, the provisional death rate based upon the 10 per cent sample of death certificates was 16.0 per 100,000 as against 15.6 in the corresponding period of 1958. No special significance can be attached to this difference, although it may be noted that it has occurred in a period of relatively good general health conditions. The provisional death rates from all causes of death and from the major cardiovascular-renal diseases during the first nine months of 1959 showed a small decline from the corresponding months of 1958.

Preliminary data on mortality from diabetes among the insured urban population represented by the Industrial policyholders of the Metropolitan Life Insurance Company show a trend opposite to that for the country as a whole. During the first nine months of 1959, the death rate from diabetes in that experience showed a modest decline, and this applies to the year as a whole, with a death rate of 14.7 per 100,000 in 1959 as compared with 15.2 in 1958.

Paralleling the trend among insured policyholders are the trends generally in the Eastern Seaboard areas for which data are regularly obtained as shown in table 1. In the two large Canadian cities, Toronto and Montreal, the mortality from diabetes shows opposite trends between 1958 and 1959. The provisional rate for Toronto registered a sharp decline, whereas for Montreal the rate rose appreciably. In England a modest decline was recorded for London Administrative County for the first nine months of 1959 from 1958. In the country as a whole during the first half of the year the rate was less than in 1958. This decline, however, was limited to females, the rate for males being identical for two years.

Regional data for the United States, based upon the 10 per cent sample as shown in table 2, show no consistent trend. The rates in the first nine months of 1959 are notably higher than in the corresponding period of 1958 in the Middle Atlantic and West North

Submitted by the Committee on Statistics, Herbert H. Marks, Chairman. The Committee welcomes suggestions or actual materials suitable for this section in future issues from Association members and other readers of the Journal.

TABLE 1
Recent data on diabetes mortality
Deaths and death rates—January-September 1959 and 1958

Area	Death rates per 100,000		Number of deaths	
	1959	1958	1959	1958
United States (10 per cent sample)	16.0	15.6	2,101	2,010
Metropolitan Life Insurance Company Industrial policyholders	15.1	15.7	1,845	1,995
New York State	18.2	18.7	2,287	2,324
New York City	19.1	20.5	1,153	1,235
Maryland	17.7	17.1	405	382
Baltimore	23.3	24.9	172	181
Boston	16.6	18.6	90	98
Philadelphia, resident	20.0	20.5	329	338
Toronto	16.8	20.5	83	101
Montreal, resident	15.8	13.7	138	118
London (Administrative County)	7.6	8.1	183	197
		Jan.-June	Jan.-June	
England and Wales				
Total	7.5	7.8	1,708	1,758
Males	5.5	5.5	606	602
Females	9.4	9.9	1,102	1,156

Note: Rates for the states and cities are based upon local estimates of population. United States data based upon the returns from a 10 per cent sample of death certificates received in vital statistics offices, as published in "Current Mortality Analysis," a monthly report of the National Office of Vital Statistics of the U. S. Public Health Service.

Central regions, but appreciably lower in the South Atlantic and East South Central regions.

Provisional data for the whole year 1958 show a drop from the rate recorded in 1957. As table 3 shows, this decrease reflects largely the trend at ages under sixty-five. Only at ages eighty-five and over was there a substantial increase in the death rate.

Analysis of the provisional data by race and sex for all ages combined shows that most of the decline between the two years occurred among females. The rates for males show little change (table 4).

Final data on diabetes mortality in the population of the United States are now available for the year 1957 and are shown in table 5, in detail by age, race and sex.*

*Figures by quinquennial age groups are available from "Mortality from Selected Causes, By Age, Race and Sex: United States, 1957," *Vital Statistics—Special Reports*, Vol. 50, No. 5, April 24, 1959.

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TABLE 2

Number of deaths and death rates from diabetes in geographic division: United States reporting area for the 10 per cent sample; January-September 1959, 1958 and 1957

Geographic division	Death rates per 100,000*			Number of deaths*		
	1959	1958	1957	1959	1958	1957
U. S. reporting area	16.0	15.6	15.9	2,101	2,010	2,019
New England	19.4	20.3	21.1	141	139	155
Middle Atlantic	22.2	19.5	20.3	553	483	498
East North Central	18.1	19.1	18.0	494	508	470
West North Central	17.1	14.7	16.7	199	169	189
South Atlantic	11.8	13.3	13.5	228	251	249
East South Central	11.7	13.1	10.3	106	117	91
West South Central	13.6	12.6	12.7	171	156	155
Mountain	9.7	8.7	11.2	49	42	53
Pacific	11.4	10.3	11.6	160	145	159

*Excludes armed forces overseas.

Note: These data from the 10 per cent sample are subject to sampling error. The number of deaths, as given, does not cover the entire United States for each month but is limited by the completeness of the reporting area. The size of the reporting area is indicated by the footnote on page 7 of each monthly issue of the "Current Mortality Analysis."

Source: Data furnished by National Office of Vital Statistics of the U. S. Public Health Service.

TABLE 3

Deaths and death rates from diabetes by age. United States, 1958 and 1957

Age period (year)	Death rates per 100,000		Number of deaths	
	1958	1957	1958*	1957
Total	15.4	16.0	26,670	27,180
Under 1	—	0.3	—	12
1-14	0.4	0.4	180	188
15-24	0.7	1.1	160	253
25-34	2.1	2.6	480	620
35-44	2.9	4.6	690	1,064
45-54	9.5	11.1	1,910	2,182
55-64	37.1	38.0	5,620	5,684
65-74	97.7	97.8	9,640	9,526
75-84	148.7	151.2	6,440	6,324
85+	180.7	157.9	1,520	1,314
Not stated			30	13

*Estimated from 10 per cent sample. Classified by the Seventh Revision.

Note: Includes deaths only occurring within the continental United States.

Source: National Office of Vital Statistics—For 1958, Monthly Vital Statistics Report, Annual Summary, Part 2. For 1957, Vital Statistics—Special Reports, National Summaries, Vol. 50, No. 5, April 24, 1959.

At all ages combined, both crude and age-adjusted rates are given. The figures show the characteristic excess in female mortality from diabetes over that of males among both whites and nonwhites. This is due in part to the higher proportions of females at the older ages. Consequently, the difference between the two sexes is appreciably less for the age-adjusted rates than for the crude rates. In like manner comparative levels of diabetes mortality among white and nonwhite males and between

TABLE 4

Deaths and death rates from diabetes by race and sex. United States, 1958 and 1957

Race and sex	Death rates per 100,000		Number of deaths	
	1958	1957	1958*	1957
All races				
Total	15.4	16.0	26,670	27,180
Male	12.5	12.6	10,680	10,605
Female	18.2	19.2	15,990	16,575
White				
Total	15.4	16.0	23,770	24,234
Male	12.7	12.9	9,650	9,623
Female	18.1	19.0	14,120	14,611
Nonwhite				
Total	15.1	15.7	2,900	2,946
Male	11.0	10.8	1,030	982
Female	19.0	20.4	1,870	1,964

*Estimated from 10 per cent sample. Classified by the Seventh Revision.

Note: Includes deaths only occurring within the continental United States.

Source: National Office of Vital Statistics—For 1958, Monthly Vital Statistics Report, Annual Summary, Part 2. For 1957, Vital Statistics—Special Reports, National Summaries, Vol. 50, No. 5, April 24, 1959.

white and nonwhite females differ as between crude and age-adjusted rates, the latter showing an excess of 20 per cent for nonwhite over white males and an excess of more than 70 per cent for nonwhite females over white females.

Among white persons, the female rates are generally higher than for males at ages under twenty-five, lower at ages twenty-five to fifty-four and higher again at ages fifty-five and over. The excess is greatest at ages sixty-

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TABLE 5

Death rates per 100,000 from diabetes mellitus by age, color and sex. United States, 1957

Age	Total			White			Nonwhite		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All Ages									
Crude	16.0	12.6	19.2	16.0	12.9	19.0	15.7	10.8	20.4
Adjusted*	13.5	11.3	15.4	12.9	11.1	14.5	19.3	13.3	24.9
Under 1	0.3	0.2	0.5	0.2	0.1	0.4	0.7	0.4	1.1
1-4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.4
5-14	0.4	0.3	0.5	0.4	0.3	0.5	0.6	0.4	0.7
15-24	1.1	1.0	1.3	1.0	0.9	1.2	2.0	1.9	2.0
25-34	2.6	3.0	2.3	2.5	2.8	2.1	4.0	4.4	3.5
35-44	4.6	5.0	4.1	3.9	4.7	3.1	10.9	8.0	13.5
45-54	11.1	10.3	11.8	9.2	9.6	8.8	29.1	17.1	40.2
55-64	38.0	29.5	46.1	35.3	28.6	41.6	68.5	39.4	96.6
65-74	97.8	76.0	117.2	96.4	75.0	115.4	117.9	90.4	144.7
75-84	151.2	129.8	168.0	154.8	134.3	170.8	101.8	73.1	127.5
85+	157.9	140.5	170.5	167.6	148.6	181.1	71.1	75.0	69.6

*Based on age distribution of the total population of the United States in 1940.

Source: National Office of Vital Statistics—Vital Statistics of the United States, 1957, Vol. 1.

Note: Includes deaths only occurring within the continental United States.

five to seventy-four. Among nonwhites the female rates are the higher through the greater part of the life span and the excess is particularly marked at forty-five to sixty-four when the female death rate is more than double that for males. Among nonwhites of both sexes the recorded rates reach a maximum at ages sixty-five to seventy-four. At ages seventy-five and over, rates for nonwhites are well below those for whites. This may reflect the frequency of undiscovered diabetes in elderly Negroes.

Table 6 gives data on comparability ratios for diabetes and for certain other major causes based upon deaths classified according to the *Seventh Revision of the International List of Causes of Death* as compared with the *Sixth Revision*. This table is similar to that presented a year ago (DIABETES, March-April 1959, p. 153), but is based on the data for the 10 per cent sample of death certificates for the whole year 1958. The comparability ratio for diabetes is 1.01, or slightly less than that previously shown for the first six months of the year. Eventually, further data on this matter will be available by age.

Data on recent trends in diabetes mortality in various countries are given in table 7. For most countries the data cover the years 1950 to 1957. The trend of the death rate in this country over this period has not been consistent, but the average for the second half has been slightly below that for the first half. In Canada no distinct trend is apparent. A great part of Western Europe has experienced an increase in diabetes mortality recently, for example, the German Federal Republic, Austria, France, Belgium, Denmark and Italy. In a few

TABLE 6
Provisional comparability ratios for certain causes.
United States, 1958

Cause of death	Ratio*
(Seventh Revision of the International Lists, 1955)	
Diabetes mellitus	1.01
Malignant neoplasms	0.99
Major cardiovascular-renal diseases	1.01
Diseases of cardiovascular system	1.01
Vascular lesions affecting central nervous system	1.00
Rheumatic fever	0.92
Disease of heart	1.00
Chronic rheumatic heart disease	0.99
Arteriosclerotic heart disease, including coronary disease	0.98
Nonrheumatic chronic endocarditis and other myocardial degeneration	0.99
Other diseases of heart	1.10
Hypertensive heart disease	1.11
General arteriosclerosis	1.02
Other diseases of circulatory system	1.04
Chronic and unspecified nephritis and other renal sclerosis	1.02
Influenza and pneumonia, except pneumonia of newborn	0.94
Influenza	1.04
Pneumonia, except pneumonia of newborn	0.93

*Ratio of deaths in the 10 per cent sample for 1958 classified by the Seventh Revision to deaths classified by the Sixth Revision.

Source: National Office of Vital Statistics, Annual Summary for 1958, Part 2, vol. 7, no. 13, July 22, 1959.

countries, such as Switzerland and Sweden, there has been no marked change in the rate, while in a few cases, notably England, the trend has been downward. In both Australia and New Zealand the general trend has been downward also.

Two of the three countries in Asia for which data are shown show a generally rising trend in diabetes mor-

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TABLE 7
Death rates per 100,000 from diabetes mellitus in various countries, 1950-1957

Country	1957	1956	1955	1954	1953	1952	1951	1950
United States	16.0	15.7	15.5	15.6	16.3	16.4	16.3	16.2
Canada*	11.2	11.3	11.0	10.6	11.0	10.9	11.3	11.3
Germany								
Fed. Republic	11.8	11.6	10.5	10.0	10.7	11.1	§	§
Austria	9.4	9.3	8.0	7.2	6.9	§	§	§
Belgium		24.5	23.9	24.0	22.6	14.6	§	§
Denmark	6.9	7.0	5.2	5.9	5.1	5.3	6.8	§
Finland	8.7	6.0	5.7	4.9	6.2	6.0	5.9	5.4
France	12.0	12.7	11.8	11.3	11.5	10.8	10.5	9.2
Ireland	7.4	7.1	6.9	6.8	7.2	6.5	8.4	7.4
Italy†		11.8	11.1	12.3	10.0	9.7	8.1	§
Norway		6.9	6.6	6.8	6.3	6.9	8.3	§
Netherlands	13.9	12.7	12.7	11.9	11.2	11.4	11.4	8.5
Portugal	6.0	6.7	6.7	5.8	5.0	5.4	§	§
United Kingdom								
England & Wales	7.0	7.3	7.4	6.8	7.2	7.6	8.5	8.4
Scotland	9.8	9.2	8.9	8.7	8.6	9.3	10.9	10.9
Northern Ireland	6.4	6.4	7.0	7.5	5.9	5.5	6.4	6.8
Sweden		10.1	9.9	10.3	10.9	12.0	10.5	§
Switzerland		13.9	13.9	13.6	14.8	14.0	14.0	§
Australia	11.9	12.9	12.3	12.2	12.5	12.6	12.6	13.3
New Zealand‡		10.5	10.2	9.8	12.6	11.8	13.3	12.7
Ceylon		6.7	7.0	6.9	6.7	6.8	6.9	6.6
Israel, Jewish pop.	4.3	3.7	3.3	3.3	3.1	3.6	3.9	6.9
Japan	3.0	2.8	2.5	2.3	2.4	2.3	2.4	2.4

*1950-1955: Excluding Yukon and Northwest Territories.

†Since 1954, including Trieste.

‡Excluding Maoris.

§Data not available.

||Data not yet available.

Source: World Health Organization—Epidemiological and Vital Statistics Reports, 1955-57—Vol. 12, No. 1, 1959, p. 11. 1950-56—Vol. 11, No. 3, 1958, p. 107.

tality. In Israel this applies more particularly to the period since 1953. The very low level of the rates there is notable. The death rates for Ceylon during the 1950's have been remarkably stable. The accuracy of the rates for that country is open to question for the reasons

carefully set forth in a recent critical paper on the vital statistics of that country (Padley, R.: Cause-of-death statements in Ceylon—a study in levels of diagnostic reporting. *Bulletin of the World Health Organization* 20:677-95, 1959).

The enzyme, glucose-6-phosphatase, has been found in high concentrations in the liver, while lower levels of activity are present in the kidney and traces are found in the intestine. This enzyme is responsible for removing the phosphate from the 6 carbon of glucose, and for the release of glucose from the liver into the peripheral and hepatic circulation. Its activity has been found to increase in the liver of alloxan-diabetic animals.

R. L. Burt (*Am. J. Obstet. Gynec.* 74:551, 1957) noted that pregnancy induced a diabetogenic effect on carbohydrate metabolism, which was characterized by impaired peripheral utilization of glucose and resistance to insulin. The question arose as to whether these changes might be caused by increased levels of glucocorticoids occurring during gestation. It has also been reported by R. G. Langdon and D. R. Weakley (*J. Biol. Chem.*

214:167, 1955) that the administration of cortisone or adrenal cortical extract to mice increased the level of liver glucose-6-phosphatase.

Recently, R. L. Burt and N. Julian (*Am. J. Obstet. Gynec.* 77:6, 1959) studied the glucose-6-phosphatase activity in the liver of albino rats who were sacrificed on the seventeenth day of gestation. . . . In studying the livers of twenty-three pregnant rats for glucose-6-phosphatase activity, they found that an average of 5.25 ± 1.23 (mean \pm standard deviation) mg. of inorganic phosphorus was released per gm. of liver. In thirty-one control animals, 6.98 ± 1.10 mg. of inorganic phosphorus was released per gm. of liver.

From *Nutrition Reviews*, Vol. 17, No. 8, pp. 245, 246, August 1959.