

## Recent Statistics on Diabetes

Provisional figures for 1955 indicate that the number of deaths in the United States ascribed to diabetes was approximately 25,000 during the year. The death rate was 15.3 per 100,000, slightly less than the 15.4 recorded in 1954 (table 1). The 1955 rate was appreciably less than in prior years as far back as 1949, when the Sixth Revision of the International List first came into use. Provisional data for 1955 for the urban wage-earning population, represented by the industrial policy-holders of the Metropolitan Life Insurance Company, likewise show little change in diabetes mortality from 1954—the death rates from the disease being 14.9 and 14.8 respectively in the two years. The situation in the last six months of 1955 showed slight improvement over the first six months when, in both the national and the insurance company experiences, modest increases in the diabetes death rate were recorded over the corresponding period of 1954. The maintenance of the rate in 1955 at the level of the preceding year should be considered in the light of various factors which adversely affect diabetics and because of which some rise in the death rate from the disease might be expected. These are the rather widespread outbreaks of respiratory disease early in 1955, a prolonged and widespread heat spell during the summer, and the steady increase in the proportion of older persons in the population. On the other hand, there appears to be a continuing tendency on the part of physicians to ascribe fewer deaths of diabetics to the disease.

The several cities and states from which data are obtained regularly show, in general, some increase in the death rate from diabetes in 1955 as compared with 1954. The rise was particularly large for New York City and accounts for most, if not all, of the recorded increase in New York State. In like manner, the rise in Baltimore is rather large and accounts for most, if not all, of the recorded rise in the State of Maryland. The figures for Philadelphia and Boston, on the other hand, are not strictly comparable with those of a year ago.

Both of Canada's largest cities recorded a reduction in diabetes mortality in 1955, the decline being particularly marked for Montreal. In England, the rate for 1955 in the London Administrative County was remark-

ably higher than in 1954. Data for England and Wales for the first nine months of 1955 show a rise of 10 per cent over the same period of 1954. The increase was especially large among females. This rise in the diabetes rate in 1955 is a reflection of general health conditions in the country. The death rate from all causes in the first nine months of 1955 was the highest of any year since 1951. The mortality from respiratory diseases showed a particularly sharp rise in 1955.

Provisional data by region (table 2) for the United States for 1955 as compared with 1954 show, against a background of a slight decline for the country as a whole, a significant increase in the West South Central States, and significant decreases for the West North Central, and East South Central States. Elsewhere either the changes in the number of deaths in the sample or the total deaths were too small to yield reliable comparisons.

Final death rates are now available for 1953 by region and by state and are shown in table 3 along with the rates for the three preceding years 1950 to 1952 and the averages for the entire period 1950 to 1953. Few regions show any systematic changes over these four years. Probably most consistent is the increase recorded in the Middle Atlantic States. This is most strongly marked for New York State. In the East North Central States and New England the general trend has been downward.

During these four years the region with the highest rate has shifted from New England to the Middle Atlantic States. The latter has also the higher average rate for the four-year period. The level of diabetes mortality in all the regions of the South and the Far West is sharply differentiated from that in the Northern and Northeastern sections of the country. In fact, with few exceptions, the rates in the individual states in the South and Far West are all lower than in any state of the North and Northeast. The most notable exception is Delaware in which the rate has been consistently above 20 per 100,000 and which ranks fourth among the states during the period 1950 to 1953.

Throughout the period Rhode Island has maintained its position as the state with the highest death rate from diabetes in the country and second rank, based upon the average rate for the four years, is shared by

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

RECENT STATISTICS ON DIABETES

TABLE 1  
Recent data on diabetes mortality  
Death and death rates—1955 and 1954

Area	Death rates per 100,000		Number of deaths	
	1955	1954	1955	1954
United States (10% sample)	15.3	15.4	2,506	2,482
Metropolitan Life Ins. Co. industrial policyholders	14.9	14.8	2,698	2,705
New York State	20.4	19.8	3,247	3,121
New York City	21.1	19.4	1,693	1,571
Maryland	18.6	16.8	481	428
Baltimore, resident	21.7	18.6	210	180
Boston	18.1	19.0	147†	154
Philadelphia	21.6*	26.2	465*	563
Toronto	15.5	15.8	106	108
Montreal, resident	14.8	16.6	160	177
London (Administrative County)	8.2	6.8	273	226
	Jan.-Sept.		Jan.-Sept.	
England and Wales				
Total	7.6	6.9	2,520	2,289
Males	5.3	5.0	844	798
Females	9.7	8.7	1,676	1,491

\* Resident deaths.

† Incomplete returns.

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.

TABLE 2  
Number of deaths and death rates from diabetes in geographic division;  
United States reporting area for the 10 per cent sample;  
1955, 1954 and 1953

Geographic division	Death rates per 100,000*			Number of deaths*		
	1955	1954	1953	1955	1954	1953
U. S. reporting area	15.3	15.4	16.0	2,506	2,482	2,539
New England	18.5	17.4	18.4	184	170	178
Middle Atlantic	20.6	20.8	22.6	674	668	702
East North Central	18.1	18.1	20.2	609	595	651
West North Central	13.4	15.1	17.3	197	220	247
South Atlantic	12.8	12.7	12.5	295	289	281
East South Central	9.3	11.0	8.9	107	126	102
West South Central	12.3	11.0	10.6	190	169	162
Mountain	10.7	7.7	9.8	63	44	55
Pacific	10.6	12.1	9.9	187	201	161

\* 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.

Ohio and Pennsylvania. The lowest rates have been maintained by New Mexico and Arizona. Notable also is the low rate recorded in California. The range of the rates is surprisingly large—the highest rate over the four-year period, registered in Rhode Island, is nearly five times as high as the minimum recorded for New Mexico.

Provisional data for 1954 on diabetes mortality by age, without regard to color and sex, are now available

(table 4). They show, at most ages, a slight decline from the provisional data recorded for the previous year. The only noteworthy exception is a rise in the rate at age 85 and over. The number of deaths in the sample at some ages is rather small, and caution is necessary in interpreting the differences between the two years in the rates at these ages.

Data for several years are now available on mortality

RECENT STATISTICS ON DIABETES

TABLE 3  
Death rates per 100,000 from diabetes in the United States by geographic region and state,\* 1950 to 1953

Region and State	1950-1953 (Average)					Region and State	1950-1953 (Average)				
	1953	1952	1951	1950	1953		1952	1951	1950		
United States	16.3	16.3	16.4	16.3	16.2						
New England	21.1	19.7	20.7	22.8	21.0	South Atlantic (con't)					
Maine	16.9	15.1	15.9	19.7	16.9	West Virginia	12.2	11.5	14.4	10.7	12.2
New Hampshire	21.2	21.1	21.8	21.9	20.1	North Carolina	9.7	10.4	9.3	9.3	9.8
Vermont	17.9	19.4	19.6	16.6	15.9	South Carolina	12.3	12.0	11.8	11.9	13.4
Massachusetts	21.3	19.0	21.5	24.2	20.5	Georgia	12.1	11.9	12.1	12.5	12.0
Rhode Island	31.4	30.0	29.0	30.7	35.9	Florida	12.6	12.4	13.1	12.2	12.7
Connecticut	18.8	19.0	17.7	19.1	19.3	East South Central	10.8	11.0	11.0	11.0	10.2
Middle Atlantic	21.4	22.5	21.6	20.9	20.5	Kentucky	12.8	12.8	13.8	12.7	11.9
New York	20.1	21.3	20.6	19.6	19.0	Tennessee	9.2	9.2	9.1	9.1	9.5
New Jersey	21.0	21.2	21.4	21.7	19.7	Alabama	10.2	10.8	10.2	10.7	8.9
Pennsylvania	23.4	24.7	23.3	22.4	23.0	Mississippi	11.5	11.6	11.4	12.2	10.8
East North Central	20.0	19.5	19.8	20.2	20.6	West South Central	11.6	11.6	11.5	11.7	11.6
Ohio	23.4	23.3	24.0	23.9	22.5	Arkansas	9.5	9.7	8.9	9.8	9.4
Indiana	17.7	17.6	18.1	17.2	17.9	Louisiana	14.1	14.8	14.5	14.4	12.5
Illinois	17.9	16.7	17.1	18.3	19.5	Oklahoma	13.4	14.2	13.1	12.9	13.4
Michigan	20.8	20.5	19.8	21.1	21.9	Texas	10.8	10.3	10.6	11.0	11.3
Wisconsin	18.8	18.4	19.0	18.2	19.5	Mountain	11.0	10.7	11.7	11.3	10.3
West North Central	17.4	17.3	17.5	17.0	17.9	Montana	13.9	14.7	16.1	13.4	11.5
Minnesota	16.9	17.4	16.6	16.5	17.0	Idaho	13.9	13.1	13.4	14.9	14.1
Iowa	17.1	16.7	16.9	17.4	17.4	Wyoming	13.4	14.1	11.8	16.1	11.4
Missouri	17.6	16.8	17.7	17.4	18.5	Colorado	10.9	11.0	11.0	10.8	10.9
North Dakota	17.3	15.5	16.9	19.1	17.6	New Mexico	6.5	5.4	7.3	7.8	5.6
South Dakota	17.1	17.8	18.0	14.7	17.8	Arizona	8.8	8.2	10.6	7.8	8.4
Nebraska	19.7	21.2	19.7	18.5	19.5	Utah	12.6	12.0	14.7	12.2	11.3
Kansas	16.9	16.6	17.6	15.6	17.9	Nevada	10.7	11.2	7.6	13.5	10.6
South Atlantic	12.4	12.3	12.5	12.0	12.6	Pacific	10.8	10.9	11.0	11.1	10.0
Delaware	23.3	22.1	23.0	21.2	27.0	Washington	15.2	15.3	15.1	16.0	14.2
Maryland	17.6	17.6	17.9	17.9	17.0	Oregon	11.7	12.4	11.6	11.7	11.2
Dist. of Columbia	13.9	13.7	13.9	12.7	15.1	California	9.7	9.9	10.0	9.9	8.8
Virginia	10.4	10.1	10.5	10.1	11.0						

\* By place of residence. Excludes Armed Forces overseas.

Source: National Office of Vital Statistics of the U. S. Public Health Service, Special Reports—National Summaries.

from diabetes, by race and sex, according to the Sixth Revision of the International List of Causes of Death. As has been noted in earlier issues, the level of mortality ascribed to diabetes was reduced sharply below that prevailing prior to the Sixth Revision. The crude death rates from diabetes since 1949 and the rates adjusted for changes in age distribution of the population are shown in table 5, along with similar data for all causes of death combined. The data reveal the recent trends in mortality from diabetes and in the proportion to all causes. Perhaps some caution is necessary in interpreting the figures for 1949 because not all the states were using the new death certificate inaugurated with the Sixth Revision nor had physicians had time to familiarize themselves with it.

For the population as a whole, for which both crude and adjusted death rates are available for the year 1954 from a 10 per cent sample of death certificates, the trend

of the crude mortality is marked by a moderate decline, perhaps spurious in part, between 1949 and 1950; then a virtual stationary rate during the four-year period 1950-1953; and then a sizable decrease in 1954, which has apparently been maintained in 1955 (see table 1).

The age-adjusted death rate, which allows for the increased proportion of older persons in the population, shows somewhat the same characteristics, except for a slight downward trend in 1950-1953. The trend of the death rate from all causes has been similar. Consequently, the proportion of deaths ascribed to diabetes has remained virtually unchanged.

Among white males, during 1950-1953 the crude death rate from diabetes increased slightly, but as indicated by the age-adjusted rate, this was due primarily to the aging factor. Among white females, on the other hand, the trend for diabetes has been downward, but the proportion of diabetes deaths to those from all causes

RECENT STATISTICS ON DIABETES

TABLE 4  
Estimated deaths and death rates from diabetes by age  
United States, 1954 and 1953  
(Based upon the returns from a 10 per cent sample  
of death certificates)

Age groups	Death rates per 100,000*		Number of deaths*	
	1954	1953	1954	1953
All ages	15.4	16.0	24,830	25,390
Under 1	0.8	0.6	30	20
1-14	0.4	0.5	190	220
15-24	1.3	1.4	270	300
25-34	2.2	2.5	520	610
35-44	4.2	4.4	940	980
45-54	11.0	12.1	2,040	2,200
55-64	38.5	41.9	5,510	5,880
65-74	91.5	93.6	8,450	8,540
75-84	152.7	158.8	5,680	5,740
85 & over	154.9	120.5	1,180	880
Not stated			20	20

\* Excludes Armed Forces overseas.

Source: Monthly Vital Statistics Reports—Annual Summaries for 1954 and 1953, Part 2. National Office of Vital Statistics of U. S. Public Health Service.

has not changed significantly.

Among nonwhite males the death rates from diabetes during 1950-1953 have been relatively stable. However, among nonwhite females, both the crude and adjusted rates have varied appreciably. The 1953 rate was the highest for the four-year period, and the proportion of deaths ascribed to diabetes was also at a peak for the period.

The causes of death among diabetics, based upon 3,543 deaths since 1950 among patients treated at some time in the Joslin Clinic, are shown in table 6. These data relate to deaths wherever they occurred and do not represent the specific experience on such patients dying in the New England Deaconess Hospital. Most striking is the finding that fully three-fourths of the deaths were due to cardiovascular and renal conditions, and in virtually all arteriosclerosis was the underlying etiological factor. Approximately two-thirds of the deaths in this

TABLE 5  
Crude and age-adjusted\* death rates per 100,000 from all causes and from diabetes mellitus  
United States, by color and sex, 1949-1954 (excludes Armed Forces overseas)

Race, sex and year	Crude rates		Per cent Diabetes of All causes	Age-adjusted rates		Per cent Diabetes of All causes
	All causes	Diabetes		All causes	Diabetes	
Total persons						
1954	918.8†	15.4†	1.68	771.9†	13.2†	1.71
1953	958.6	16.3	1.70	811.7	14.0	1.72
1952	961.0	16.4	1.71	817.6	14.1	1.72
1951	966.3	16.3	1.69	827.3	14.2	1.72
1950	963.8	16.2	1.68	841.4	14.3	1.70
1949	971.7	16.9	1.74	875.6	15.4	1.76
White males						
1953	1,097.7	13.0	1.18	946.5	11.3	1.19
1952	1,095.1	13.3	1.21	946.6	11.5	1.21
1951	1,098.6	12.8	1.17	955.3	11.2	1.17
1950	1,089.5	12.8	1.17	964.1	11.3	1.17
1949	1,099.0	13.2	1.20	1,000.0	12.1	1.21
White females						
1953	795.0	19.9	2.50	611.6	15.7	2.57
1952	797.1	19.9	2.50	618.4	15.8	2.55
1951	802.7	20.3	2.53	629.0	16.3	2.59
1950	803.3	20.0	2.49	645.9	16.4	2.54
1949	810.9	21.2	2.61	683.1	18.0	2.64
Colored males						
1953	1,225.0	9.8	.80	1,323.4	11.6	.88
1952	1,250.1	9.8	.78	1,344.6	11.8	.88
1951	1,249.6	10.2	.82	1,338.6	12.0	.90
1950	1,251.1	10.0	.80	1,349.8	11.6	.86
1949	1,239.4	9.3	.75	1,396.2	11.5	.82
Colored females						
1953	937.0	19.4	2.07	1,021.1	23.6	2.31
1952	960.8	18.1	1.88	1,048.8	22.2	2.12
1951	979.0	17.9	1.83	1,068.5	21.7	2.03
1950	993.5	18.7	1.88	1,087.5	22.5	2.07
1949	990.1	18.6	1.88	1,129.6	23.8	2.11

\* Computed on the basis of the age distribution of the population of the United States in 1940.

† Provisional—10 per cent sample.

Source: Mortality from Selected Causes, by Age, Race and Sex. Vital Statistics—Special Reports, National Summaries, Annual Reports 1949-1953.

TABLE 6

The causes of death of diabetic patients, 1950-1955\*  
Experience of the Joslin Clinic, Boston, Mass.

Cause of death	Number of deaths	Per cent of all causes
All causes	3,543	100.0
Diabetic coma (primary)	47	1.3
Cardio-renal vascular	2,690	75.9
Arteriosclerotic	2,666	75.2
Cardiac	1,714	48.4
Coronary and angina	1,176	33.2
Renal, total	350	9.9
Diabetic nephropathy	211	6.0
Typical or unqualified	189	5.3
Probable	22	0.6
Cerebral	470	13.3
Gangrene	66	1.9
Site unassigned	66	1.9
Other circulatory and		
rheumatic heart disease	24	0.7
Infections, total	193	5.4
Pneumonia and respiratory	122	3.4
Gall bladder	10	0.3
Appendicitis	4	0.1
Kidney, acute	16	0.5
Abscesses	6	0.2
Other infections	35	1.0
Cancer	367	10.4
Tuberculosis	28	0.8
Diabetes—(i.e., unknown)	22	0.6
Accidents	75	2.1
Suicides	16	0.5
Insulin reactions	7	0.2
Other diseases	98	2.8

\* Deaths reported through Dec. 1, 1955.

category or nearly half of the total from all causes, were due to heart disease, and most of these were reported to be due to coronary occlusion or sclerosis. Next in order of importance in this broad category are deaths from cerebral accidents; they accounted for more than one-eighth of all the deaths. Renal conditions caused approximately 10 per cent of the total mortality, with approximately 60 per cent of these reported as diabetic nephropathy. Deaths from gangrene accounted for only 2 per cent of the total.

Among the other causes of death, malignant neoplasms stood out most prominently. In this recent experience slightly more than one-tenth of the deaths were due to these conditions. In contrast, tuberculosis accounted for less than 1 per cent of the deaths. The only other group of causes responsible for an appreciable part of the mortality consisted of pneumonia and other respiratory conditions—3.4 per cent of the total.

Primary diabetic coma accounted for a relatively small proportion of the total mortality in this recent experience—1.3 per cent of all deaths. This is the lowest figure recorded in the entire period of more than fifty years for which data on causes of death are available among patients of the Joslin Clinic. While the progress in controlling mortality from coma has been excellent, unremitting efforts to reduce deaths from this cause to a minimum should be pursued.

## The Early History of The American Diabetes Association

*Cecil Striker, M.D., Cincinnati*

I have had the honor and privilege to have been intimately associated with the formation and early period of the American Diabetes Association. In view of the fact that I was its first President, and then its Secretary for seven consecutive years, I have had the opportunity of seeing the flourishing development of this unique organization.

Let us go back to the spring of 1939, when a small group of physicians gathered around a lunch table in New Orleans, where they had been attending the annual meeting of the American College of Physicians. A few of them had been exchanging letters as to why there was not a common meeting place for discussion by men who were interested in diabetes. A great deal of

correspondence had taken place so the stage was set to create some sort of machinery to develop such an organization. It is important to record the names of Dr. Herman O. Mosenthal of New York City, Dr. Joseph H. Barach of Pittsburgh, Dr. Joseph T. Beardwood, Jr., and Dr. E. S. Dillon of Philadelphia and a few others, whose names should not be slighted but whose record is not complete. Following this meeting I met with Dr. Mosenthal to delineate specific machinery for the establishment of the American Diabetes Association. This machinery consisted of obtaining representatives from the five known existing local diabetes associations in the United States and, on April 2, 1940, the first meeting of a formal committee for the establishment of an