Special Article

Recent Statistics on Diabetes

The death rate from diabetes for the United States in 1956 showed a small increase over 1955. Provisional data for the entire year, based upon a 10 per cent sample of the death certificates, indicate an increase of 3 per cent for the year. A somewhat similar trend is found among the urban wage-earning population represented by the experience among industrial policyholders of the Metropolitan Life Insurance Company (table 1). In part, the increase reflects the continued rise in the proportion of older persons in the population. There was a parallel rise in the crude death rate from all causes, whereas the age-adjusted rate declined. It may be noted that the death rates from diabetes for the past three years have been appreciably below the rates during the period 1949-1953. The contrast is even more marked when the rates are age-adjusted to take into account the changing age distribution of the population.

Unlike the picture for the country as a whole, the death rates from diabetes in the cities and states for which reports are received regularly showed a decline between 1955 and 1956 with exception in Baltimore and Maryland. The two Canadian cities, Toronto and Montreal, experienced in 1956 a rise in the death rate as compared with 1955.

In England and Wales the death rate from diabetes was slightly lower in 1956 than in 1955. For males the death rate in the two years was identical whereas for females the rate in 1956 was 4 per cent less than in 1955. Figures for London (Administrative County) also showed a small decline in 1956 as compared with the year before.

Regional data for the United States for 1956, based upon the 10 per cent sample of death certificates, indicate a rise in the death rate over the two previous years in the Northeastern section of the country, in the East South Central states and in the Rocky Mountain area (table 2). The changes are relatively largest for the Rocky Mountain area, but the number of deaths in the sample is not very large. Elsewhere the rates for 1956 show a decrease from the previous years. The provision-

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—1956 and 1955

Area	Death Rates per 100,000		Number of Deaths	
	1956	1955	1956	1955
United States (10% sample)	15.8	15.3	2,634	2,506
Metropolitan Life Ins. Co.				
Industrial Policyholders	14.9	14.7	2,649	2,657
New York State	19.1	20.3	3,109	3,247
New York City	18.8	21.2	1,519	1,698
Maryland	18.7	17.8	518	481
Baltimore	25.2	22.7	245	219
Boston	18.1	19.1	148	156
Philadelphia	20.3	21.2	439	458
Toronto	19.9	15.5	128	106
Montreal, Resident	16.0	14.8	175	160
London (Administrative County)	8.1	8.3	266	273
England and Wales				
Total	7.3	7.4	3,242	3,291
Males	5.1	5.1	1,108	1,084
Females	9.2	9.6	2,134	2,207

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: 1956, 1955 and 1954

Geographic Division	Death Rates per 100,000*			Number of Deaths*		
	1956	1955	1954	1956	1955	1954
U. S. reporting area	15.8	15.3	15.4	2,634	2,506	2,482
New England	19.6	19.1	17.4	190	184	170
Middle Atlantic	22.0	20.9	20.8	717	674	668
East North Central	19.5	18.1	18.1	668	609	595
West North Central	15.1	13.3	15.1	228	197	220
South Atlantic	11.3	12.6	12.7	271	295	289
East South Central	11.8	9.2	11.0	138	107	126
West South Central	10.5	12.1	11.0	168	190	169
Mountain	12.4	10.6	7.7	76	63	44
Pacific	10.0	10.6	12.1	178	187	201

*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

Death rates per 100,000 from diabetes in the United States by geographic region and state,* 1954, 1953 and 1952

Region and State	1954	1953	1952
United States	15.6	16.3	16.4
New England	19.4	19.7	20.7
Maine	17.9	15.1	15.9
New Hampshire	21.8	21.1	21.8
Vermont	15.6	19.4	19.6
Massachusetts	19.6	19.0	21.5
Rhode Island	24.6	30.0	29.0
Connecticut	17.7	19.0	17.7
Middle Atlantic	20.8	22.5	21.6
New York	19.9	21.3	20.6
New Jersey	21.0	21.2	21.4
Pennsylvania	22.0	24.7	23.3
East North Central	19.0	19.5	19.8
Ohio	22.8	23.3	24.0
Indiana	16.9	17.6	18.1
Illinois	15.4	16.7	17.1
Michigan	20.5	20.5	19.8
Wisconsin	18.7	18.4	19.0
West North Central	16.3	17.3	17.5
Minnesota	17.8	17.4	16.6
Iowa	15.3	16.7	16.9
Missouri	15.3	16.8	17.7
North Dakota	13.9	15.5	16.9
South Dakota	15.5	17.8	18.0
Nebraska	18.6	21.2	19.7
Kansas	16.4	16.6	17.6
South Atlantic	11.9	12.3	12.5
Delaware	18.6	22.1	23.0
Maryland	16.9	17.6	17.9
District of Columbia	14.0	13.7	13.9
Virginia	10.3	10.1	10.5
South Atlantic (*continued*)			
West Virginia	12.4	11.5	14.4
North Carolina	10.0	10.4	9.3
South Carolina	10.5	12.0	11.8
Georgia	10.6	11.9	12.1
Florida	12.8	12.4	13.1
East South Central	10.5	11.0	11.0
Kentucky	13.0	12.8	13.8
Tennessee	8.7	9.2	9.1
Alabama	9.7	10.8	10.2
Mississippi	10.9	11.6	11.4
West South Central	11.5	11.6	11.5
Arkansas	10.1	9.7	8.9
Louisiana	14.3	14.8	14.5
Oklahoma	13.5	14.2	13.1
Texas	10.2	10.3	10.6
Mountain	9.9	10.7	11.7
Montana	15.8	14.7	16.1
Idaho	11.5	13.1	13.4
Wyoming	9.1	14.1	11.8
Colorado	9.8	11.0	11.0
New Mexico	7.2	5.4	7.3
Arizona	7.1	8.2	10.6
Utah	11.7	12.0	14.7
Nevada	6.7	11.2	7.6
Pacific	10.4	10.9	11.0
Washington	14.3	15.3	15.1
Oregon	10.3	12.4	11.6
California	9.7	9.9	10.0

*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.

TABLE 4

Number of deaths and death rates from diabetes in the United States by each region* and broad age periods, 1954 and 1950

Area	1954 Total†	1954 Under 5	1954 5-19	1954 20-44	1954 45-64	1954 65+	1950 Total†	1950 Under 5	1950 5-19	1950 20-44	1950 45-64	1950 65+
					Death Rates per 100,000							
United States	15.6	0.3	0.5	2.7	23.1	114.7	16.2	0.4	0.7	2.7	25.4	120.4
New England	19.4	0.3	0.4	2.6	23.8	130.9	21.0	0.4	0.4	2.6	27.2	142.3
Middle Atlantic	20.8	0.4	0.4	2.5	29.8	145.5	20.5	0.4	0.5	2.5	31.3	146.1
East North Central	19.0	0.2	0.5	3.1	26.6	137.4	20.6	0.3	0.9	2.7	31.3	148.2
West North Central	16.3	0.5	0.4	3.0	18.0	109.5	17.9	0.6	0.6	2.9	21.7	122.8
South Atlantic	11.9	0.5	0.7	3.0	24.1	90.2	12.6	0.4	0.9	3.4	25.6	99.6
East South Central	10.5	0.6	0.5	3.0	18.3	77.0	10.2	0.4	0.9	2.9	18.9	79.1
West South Central	11.5	0.2	0.7	2.1	18.1	94.0	11.6	0.4	0.9	2.6	20.1	94.1
Mountain	9.9	0.3	0.4	2.0	16.2	86.2	10.3	0.3	0.3	2.9	17.0	85.5
Pacific	10.4	0.2	0.6	2.3	13.4	77.4	10.0	0.2	0.8	1.8	13.1	73.5
					Number of Deaths							
United States	25,151	62	216	1,532	7,580	15,752	24,419	61	262	1,531	7,781	14,771
New England	1,898	3	8	89	508	1,288	1,955	4	8	90	559	1,290
Middle Atlantic	6,680	12	32	296	2,179	4,161	6,193	10	30	297	2,145	3,711
East North Central	6,235	8	43	353	1,832	3,999	6,266	10	62	312	2,034	3,847
West North Central	2,368	8	15	144	557	1,643	2,517	9	21	142	652	1,692
South Atlantic	2,708	14	43	247	973	1,429	2,664	11	50	274	933	1,391
East South Central	1,201	8	18	111	386	676	1,172	5	29	119	369	650
West South Central	1,757	4	28	110	527	1,087	1,684	7	34	139	532	972
Mountain	566	2	6	40	162	356	524	2	4	54	155	307
Pacific	1,738	3	23	142	456	1,113	1,444	3	24	104	402	911

*By place of residence. Excludes Armed Forces overseas. †Includes deaths with age not stated.

Source: National Office of Vital Statistics of the U. S. Public Health Service Special Reports—National Summaries, vol. 44, no. 17, Oct. 31, 1956.

TABLE 5

Diabetes as the primary diagnosis in disability freeze allowances among workers for whom a period of disability was allowed. By sex and age, July-December 1955.

Sex and age	Per cent diabetics of total cases
Both sexes	2.4
Male	2.1
Female	4.1
Under 50	2.2
50-59	2.4
60-64	2.4
65+	2.4

Source: Social Security Bulletin, Annual Statistical Supplement, 1955. U. S. Department of Health, Education and Welfare, Social Security Administration.

al rate for the Pacific Coast area was the lowest for the entire country.

The final death rates from diabetes for the year 1954 by state are now available. These are given in table 3, along with the rates for the two previous years. The general pattern of the mortality by states continues unchanged. The higher rates are recorded in the Northern states and generally, the lower rates in the South and Southwest. The differences between these areas in the death rates are larger than can be accounted for by the differences in sex, age and color distribution of the populations. Rhode Island maintains its position in having the highest rate in the entire country. In 1954 the second highest rate was recorded in Ohio; the states with the lowest rates were Nevada, New Mexico and Arizona. Noteworthy also is the relatively low rate for California.

Regional death rates by age have recently been published for the years 1950 and 1954. The general pattern of mortality in these two years is about the same (table 4). For most groups by age and region where the number of deaths is appreciable, the rates in 1954 were lower than in 1950. It is noteworthy that at ages under twenty and to some extent at ages twenty to forty-four, when the onset of diabetes is generally acute and the disease tends to be severe, the regional variation in the death rates from the disease is relatively smaller than at ages forty-five and over. Moreover, the rates at the younger ages, even though based often on small numbers, are in many cases as high in the South and Southwest as in the North. This is in contrast with the situation at ages forty-five and over where the rates are highest in the Northeast and lowest in the Pacific Coast states and in

certain regions of the South. At these ages the maximum regional rate is more than double the lowest. While these differences may reflect some variations in the prevalence of diabetes, the more important factors appear to be recognition and reporting of the disease.

New information on the importance of diabetes as a cause of permanent disability is revealed by the compilation of data on the diseases and impairments for which "Disability Freeze" allowances have been made under the Social Security Amendments of 1954. Prior to the adoption of these amendments periods of prolonged disability were excluded from the period of covered employment and from the earnings base upon which the scale of benefits would be computed. Accordingly, the Social Security benefits payable to the worker with prolonged disability and to his family might be greatly reduced or lost entirely. Under the disability provision of the amended law which became effective on July 1, 1955, workers who meet specific conditions relating to regular attachment to covered employment may have periods of prolonged total disability occurring before the age of sixty-five, eliminated from the computation of their average earnings. Persons already on the rolls at the time of the 1954 amendments and meeting the conditions specified in the law could have their benefits recomputed to eliminate periods of disability before the age of sixty-five. Among the 57,221 persons granted such allowances by the end of 1955, diabetes was reported to be the primary diagnosis in 2.4 per cent. The vast majority of the beneficiaries were males (50,055 of the total), but as indicated in table 5, the proportion of diabetics among them was much lower than among females. The variation in the proportion, according to age at application for the benefit, was insignificant.

Attention is called to a recent publication "Diabetes Mellitus — Death Rates by Age, Race and Sex, United States 1900-1953," Vital Statistics-Special Reports, Volume 43, No. 12, June 28, 1956, issued by the National Office of Vital Statistics of the Public Health Service. As the title indicates, this publication gives detailed statistics on the trends of death rates over this long period, along with some explanatory notes. Accordingly, it is a convenient source of data on the subject for readers needing such information.

"Lipophile Dystrophy"

A remarkable but still insufficiently studied late effect of protracted malnutrition is the "lipophile dystrophy" (Bansi).[1] This disturbance was observed in the early phases of rehabilitation during which no N was retained in spite of satisfactory protein and caloric intake. This disturbance is different from that observed during the "catabolic phase" following injury, because in "lipophile dystrophy" large amounts of fat are accumulated due to positive caloric balance, and only the N-retention, the protein synthesis, is disturbed. It seems that damage to the endocrine system suffered during malnutrition may be responsible for this syndrome.

It was stated by Osborne and Mendel[2] about forty years ago that "the tissues either form a typical protoplasmic product or none at all." This observation has since been confirmed repeatedly. It was found that in absence of some amino acids no incomplete proteins—those missing some building stones—are formed, but protein synthesis ceases completely.

The somewhat dogmatic statement made by these masters of nutritional science is, however, valid for physiological conditions only. Modern analytical methods lead to the discovery that abnormal proteins may be formed in the tissues under pathological conditions. Such are the hemoglobin formed in sickle cell anemia[3] or cases of "paraproteinemia," where abnormal proteins are found in the blood plasma.[4]

These important recent results open an entirely new field not only in the biochemistry of proteins, but also in chemical pathology.

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[1] Bansi: Med. Klin. *42*:397, 1947.

[2] Osborne, and Mendel: J. Biol. Chem. *17*:325, 1914.

[3] Pauling, Itano, Singer, and Wells: Science *110*:543, 1949.

[4a] Waldenstrom: Adv. Inter. Med. *5*:398, 1952.

[4b] Schreier: Bioch. Ztft. *321*:528, 1951.

From the book *Modern Nutrition in Health and Disease* edited by Michael G. Wohl, M.D., and Robert S. Goodhart, M.D. Philadelphia, Lea & Febiger, 1955, Chapter "Digestion, Absorption and Metabolism of Protein" by Ernest Geiger, M.D., Ph.D., pp. 138-39.