

Mortality of dentists, 1961 to 1966

Bureau of Economic Research and Statistics

The Bureau of Economic Research and Statistics has received copies of the death certificates of dentists from most of the state departments of health since 1951. Periodically, the Bureau collects data from the death certificates and compiles figures on the major causes of death and compares the mortality data of dentists with those of the general white male population over 24 years of age, since this segment of the population is very similar to the population of dentists. In order to prevent the sample from being unduly distorted, the death certificates of female and nonwhite dentists were removed.

This study includes 6,070 white male dentists who died from 1961 through 1966. Table 1 shows the comparison by region between the percentage of deceased dentists included in the study and that of all living dentists.

Causes of death were classified in accordance with the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (seventh revision), published by the World Health Organization. A cause of death is

Table 1 ■ Percentage distribution of 6,070 deceased white male dentists, 1961 to 1966 and percentage distribution by region of dentists in 1966.

Region	Deceased dentists	Dentists 1966
	%	%
New England	3.2	6.9
Middle East	16.6	27.3
Southeast	19.0	14.0
Southwest	6.7	5.7
Central	43.2	25.8
Northwest	7.3	5.0
Far West	4.0	15.3
Total	100.0	100.0

defined as the morbid condition or disease process, abnormality, injury, or poisoning leading directly or indirectly to death. It is the underlying cause of death that is classified, and this is (a) the disease or injury which initiated the train of morbid events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury.¹

Of the 15 major causes of death, diseases of the circulatory system accounted for 51.59% of the dentists' deaths. Previous studies on the mortality of dentists were published in 1956 and 1962. Comparison of the findings of the current study with those of the earlier studies provides evidence of a very encouraging trend: In 1956, the percentage

Table 2 ■ Age and cause of death of 6,070 white male dentists who died during 1961 to 1966.

Cause of death*	Age of dentists											Total	Percent				
	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79			80-84	85-89	90-94	95-99
Diseases of circulatory system	1	7	15	34	60	118	262	400	473	492	422	421	283	118	26	3,132	51.59
Diseases of the heart		7	12	33	56	111	251	376	431	441	370	370	236	94	22	2,810	46.29
Atherosclerotic heart disease, including coronary disease		6	11	30	51	105	228	337	398	370	318	284	175	70	18	2,399	39.52
Hypertensive heart disease				1	1	2	10	15	25	14	9	25	18	2	2	125	2.06
Chronic endocarditis, not specified as rheumatic				1	1	2	1	3	3	2	3	1	4	4	17	0.28	
Other myocardial degeneration				1	3	2	1	3	3	2	3	1	4	2	3	17	0.28
Chronic rheumatic heart disease	1	1	1	1	3	2	7	8	3	5	4	3	2	1	1	152	2.50
Other diseases of the heart				1	1	2	4	9	10	5	15	16	9	6	1	78	1.29
Diseases of the arteries	1	2	2	1	1	6	8	20	28	37	45	44	37	20	4	254	4.18
General arteriosclerosis				1	1	2	6	14	12	11	28	40	28	19	4	152	2.55
Other	1	1	1	1	5	6	14	16	26	17	4	9	9	1	1	102	1.68
Other hypertensive disease				1	1	1	3	1	8	6	4	6	7	4	4	41	0.68
Diseases of the veins and other diseases of the circulatory system				1	2	1	3	3	6	8	3	1	3	1	3	27	0.44
Neoplasms	3	6	14	15	25	54	91	121	181	165	126	108	76	23	2	1,010	16.64
Malignant neoplasms, including neoplasms of the lymphatic and hematopoietic tissues	3	5	13	15	23	54	89	120	177	164	124	107	75	23	2	994	16.38
Digestive organs and peritoneum	1	2	2	5	6	20	38	41	62	59	44	36	22	7		345	5.68
Respiratory system			1	3	7	18	22	34	50	41	18	6	10	1		211	3.48
Genital organs		1			2	2	4	8	9	24	27	32	25	10		142	2.34
Urinary organs				1	3	2	5	5	7	8	12	9	2	1		53	0.87
Lymphosarcoma and other neoplasms of lymphatic and hematopoietic tissues	1		2	3	2	7	5	10	10	5	6	5	2	2		58	0.96
Leukemia and aleukemia			5	2	3	2	4	7	14	10	8	7	1	2		59	0.97
Buccal cavity and pharynx				2	2	2	4	5	7	3	1	1	1	1		25	0.41
Other and unspecified sites	1	2	3	1	5	11	10	10	18	14	9	11	12	3	1	101	1.67
Benign and unspecified		1	1	1	2	2	1	1	4	1	2	1	1	1		16	0.26
Diseases of the nervous system and sense organs		1	1	1	1	3	2	13	10	9	6	5	4	10	2	113	1.86
Vascular lesions of the nervous system and sense organs				1	1	3	2	13	10	9	6	5	4	10	2	56	0.93
Other diseases of the nervous system and sense organs				1	1	1	1	1	1	1	1	1	1	1		7	0.12
Accidents, poisonings and violence	9	20	23	33	26	21	43	44	35	30	25	17	14	6		346	5.70
Accidents	9	13	12	17	18	12	22	24	25	24	18	13	12	5		224	3.69
Motor vehicle accidents		8	3	7	4	6	12	10	8	10	8	3	3	1		92	1.51
Accidental falls				1	1	2	7	7	7	5	6	9	8	4		49	0.81
Other accidents		5	9	10	14	5	8	7	10	9	4	1	1	1		83	1.37
Suicide		7	11	13	7	9	20	20	10	5	7	4	2	1		115	1.89
Homicide				3	1	1	1	1	1	1	1	1	1	1		7	0.12
Diseases of the respiratory system			1	2	2	5	13	27	47	50	41	47	33	8	3	280	4.60
Pneumonia				1	1	1	6	9	11	21	25	34	21	6	3	140	2.30
Other				1	1	4	7	18	36	29	16	13	12	2	2	140	2.30
Diseases of the digestive system		1	3	8	6	10	24	25	36	39	26	20	20	9	2	229	3.77
Cirrhosis of the liver		2	2	6	5	6	10	15	10	11	8	5	5	1	2	81	1.33
Other		1	1	2	1	4	14	10	26	28	18	15	19	7	2	148	2.44
Allergic, endocrine system, metabolic, and nutritional diseases		3		3	2	2	2	19	24	28	14	8	4	4		107	1.76
Diabetes mellitus		3		2	1	1	1	13	19	25	11	5	3	3		83	1.37
Other				1	1	1	1	6	5	3	3	3	1	1		24	0.39
Diseases of the genitourinary system		1		1	1	2	5	5	12	12	14	17	16	10	2	97	1.60
Nephritis and nephrosis					2	2	5	3	8	4	5	4	2	4	1	39	0.64
Other		2	1	2	1	3	4	10	6	8	9	13	14	6	1	58	0.96
Symptoms, senility, and ill-defined conditions			1	1	1	3	4	10	6	4	5	8	6	9	2	63	1.04
Infective and parasitic diseases				1	1	2	3	6	6	5	2	3	3	3		32	0.53
Tuberculosis, all forms				1	1	2	3	6	1	1	1	1	1	1		2	0.03
Other				1	1	2	3	6	5	5	2	2	2	3		30	0.50
Mental, psychoneurotic, and personality disorders			1	1	1	3	6	6	5	2	2	2	2	3		15	0.25
Diseases of the blood and blood-forming organs					1	2	1	1	5	2	1	2	1	2		12	0.20
Diseases of the bones and origins of movement					1	1	1	1	1	1	1	1	1	1		6	0.10
Congenital malformations																4	0.07
Diseases of the skin and cellular tissue																1	0.02
Total	14	41	63	103	129	228	467	720	928	954	805	786	588	228	44	6,070	100.00
Percent	0.23	0.67	1.04	1.70	2.13	3.76	7.69	11.86	15.29	15.72	13.26	12.95	9.19	3.76	0.72	0.03	

*Source: Copies of death certificates from 35 state departments of health. Mean age at death: 71.2. Median age at death: 71.0.

Table 3 ■ Mean age at death according to cause of death.

Cause of death	Mean age at death		
	Dentists	Dentists age-adjusted	White male population over 24 years
Diseases of circulatory system	71.8	71.8	70.1
Neoplasms	69.5	69.4	66.8
Diseases of nervous system and sense organs	76.2	75.8	73.9
Accidents, poisonings, and violence	59.0	59.8	54.3
Diseases of digestive system	69.7	69.6	64.4
Diseases of respiratory system	74.3	74.6	71.3
Diseases of genitourinary system	77.0	77.2	71.5
Allergic, endocrine system, metabolic, and nutritional diseases	69.0	69.5	67.4
Symptoms, senility, and ill-defined conditions	71.7	71.9	66.2
Infective and parasitic diseases	67.9	67.8	65.0
Diseases of blood and blood-forming organs	70.0	70.2	69.0
Diseases of bones and organs of movement	73.3	73.9	65.2
Mental, psychoneurotic, and personality disorders	62.2	61.5	56.4
Congenital malformations	67.5	66.8	51.2
Diseases of skin and cellular tissue	...*	...*	66.1
All causes	71.2	71.2	68.5

*Statistics omitted because of relative unreliability.

of deaths reportedly caused by diseases of the circulatory system was 54.89; in 1962, the percentage was 53.69. Primarily responsible for the tendency toward fewer deaths caused by diseases of the circulatory system is a gradual reduction in the number of deaths caused by heart disease. The 1956 figures showed that 50.42% of all dentists died from heart disease for the years covered by that study. In 1962, this figure had declined to 48.97%, and currently to 46.29%. Deaths caused by diseases of the arteries have been on the rise. The 4.18% of dentists' deaths caused by diseases of the arteries is higher than the 3.55% reported in 1962 and much higher than the 2.85% reported in 1956 (Table 2).

Neoplasms accounted for 16.64% of dentists' deaths. This figure was almost unchanged from the earlier studies. Deaths caused by diseases of the nervous system and sense organs are increasing. The 1956 figure was 10.40%; in 1962, 11.64%, and currently, 12.13%. The proportion of deaths resulting from accidents, poisonings and violence was 5.70%, about the same as in the previous studies. Of the 346 dentists who died violently, there were 115 suicides and 7 murder victims (Table 2).

Table 3 shows the mean age of dentists and the mean age of the white male population at death for each of the 15 major causes. The table shows the mean ages of dentists as calculated from the death certificates and the mean ages of dentists adjusted, as well as the mean ages for the white male population over 24 years of age. The dentists' ages at death were adjusted so that valid comparisons could be made with similar data for the general white male population over 24 years

of age. The adjustments were made by calculating the proportionate differences in the respective age distributions of living dentists and that of the white male population. In this manner, a factor was obtained for each age group, and the number of dentists who died in each age group was multiplied by this factor. For example, 9.90% of the dentists and 11.00% of the white male population over 24 were in the age bracket 25 through 29. In order to equalize this difference, 11.00 was divided by 9.90, yielding a factor of 1.11. The number of dentists who died between ages 25 and 29 was multiplied by this factor, yielding an estimate of the number of dentists who would have died had the percentage age distribution of dentists been the same as that of the white male population. Both the mean and adjusted mean ages of dentists who died from all causes were 71.2 years; this identity is accounted for by the fact that the age distributions of dentists and the white male population over 24 were almost identical, and the mean ages of the two groups were identical.

The age-adjusted percentages in Table 4 used the same factors as did the adjusted mean ages in Table 3. The percentage of dentists who died from diseases of the circulatory system was greater than that for the general population of white males. It is interesting that through age 54, the percentage of dentists who died from diseases of the circulatory system is smaller than the percentage of white males. Then, beginning with the 55 through 59 age group, the percentage of dentists who died from this cause is higher. A similar trend was present in the two earlier studies, but in those studies, the percentage of dentists who

Table 4 ■ Age-adjusted* percentage of white male dentists† and percentage of white male population over 24 years, who died at specified ages from specified causes.

Cause of death	Age												Total																
	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84		85+															
Diseases of the circulatory system	0.02	0.06	0.10	0.15	0.25	0.43	0.53	1.00	1.25	1.82	2.58	2.97	4.54	4.23	6.06	5.39	6.05	6.67	7.95	7.68	8.45	7.46	6.66	6.00	7.19	5.44	51.62	49.30	
Neoplasms	0.06	0.09	0.08	0.13	0.23	0.23	0.23	0.23	0.41	0.52	0.72	1.18	1.58	1.81	1.83	2.31	2.31	2.69	2.67	2.77	2.52	2.26	1.71	1.40	1.70	0.84	16.63	16.91	
Diseases of the nervous system and sense organs	0.17	0.60	0.27	0.54	0.38	0.59	0.86	0.62	0.12	0.15	0.20	0.15	0.33	0.31	0.51	0.92	0.76	1.25	1.15	1.99	1.67	1.99	2.10	1.79	2.63	1.66	12.13	10.35	
Accidents, poisonings, and violence	0.02	0.01	0.05	0.05	0.11	0.13	0.20	0.13	0.13	0.13	0.22	0.41	0.42	0.48	0.67	0.75	0.63	0.45	0.47	0.48	0.47	0.50	0.42	0.27	0.33	0.30	5.79	6.85	
Diseases of the digestive system	0.02	0.02	0.01	0.03	0.02	0.03	0.08	0.04	0.15	0.11	0.27	0.23	0.42	0.41	0.62	0.60	0.84	0.81	1.00	0.82	0.96	0.74	0.74	0.74	0.74	4.56	5.92		
Diseases of the respiratory system	0.02	0.01	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.08	0.04	0.12	0.03	0.17	0.29	0.23	0.31	0.27	0.45	0.32	0.28	0.28	0.13	0.19	0.27	0.47	0.26	1.61	1.72
Allergic, endocrine system, metabolic, and nutritional diseases	0.01	0.03	0.02	0.02	0.02	0.02	0.03	0.04	0.06	0.07	0.09	0.07	0.10	0.15	0.11	0.11	0.08	0.12	0.06	0.12	0.10	0.11	0.13	0.09	0.29	0.12	1.04	1.02	
Infective and parasitic diseases	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.05	0.04	0.08	0.05	0.11	0.09	0.13	0.08	0.14	0.08	0.14	0.08	0.11	0.11	0.05	0.07	0.05	0.51	0.95	
Diseases of the blood and blood-forming organs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Diseases of the bones and organs of movement	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mental, psychoneurotic, and personality disorders	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Congenital malformations	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.04	0.02	0.03	0.04	0.03	0.03	0.02	0.02	0.04	0.01	0.02	0.01	0.01	0.10	0.15	
Diseases of the skin and cellular tissue	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.15	
Total	0.26	0.90	0.56	1.05	1.05	1.65	1.61	2.67	2.69	4.16	4.99	6.34	8.09	8.66	10.91	10.83	11.87	13.19	15.41	15.04	16.12	14.44	12.43	11.27	14.00	9.80	100.00	100.00	

*Age-adjusted means that differences in the age distribution of living dentists and white male population have been taken into account. Percentages given are not the actual percentages calculated from death certificate data but the percentages that would have obtained were the age distribution of living dentists identical to that of the white male population. Detail will not necessarily add to total because of rounding. Data on death of white males over 24 years were obtained from Vital Statistics of the United States, 1963, 1964, 1965, Vol. 11, part B, U.S. Department of Health, Education, and Welfare.
 †Source: Copies of death certificates from 35 state departments of health for the period 1961 to 1966.
 ‡Less than 0.0005% is indicated by —.

Table 5 ■ Dentists' mean age at death, according to state.*

State of residence	Mean age at death
Kansas	73.8
Florida	73.1
Iowa	72.8
Nebraska	72.7
Mississippi	72.6
Oklahoma	72.6
Missouri	72.0
Indiana	71.9
Colorado	71.3
Minnesota	71.3
Georgia	70.9
Ohio	70.5
Kentucky	70.3
Texas	70.3
Wisconsin	70.3
Illinois	70.2
Pennsylvania	70.1
Louisiana	70.0
Connecticut	69.9
Washington	69.9
Virginia	69.9
Alabama	69.8
Tennessee	69.6
Maryland	69.5
West Virginia	68.8
North Carolina	68.7
Michigan	68.4
New York	67.4

*Only those states are included where the number of death certificates are numerous enough for reliable statistics.

died became greater in the 50 through 54 age group.

The proportion of dentists who died of cancer was slightly less than that of the proportion of white males.

There were enough death certificates from 28 states to make it statistically feasible to calculate the mean age at death of the dentists from these states. These means have not been adjusted to make them validly comparable with each other or with the white male population.

1. U.S. Department of Health, Education, and Welfare, National Office of Vital Statistics. Vital statistics instruction manual, part II, cause of death coding. Washington, DC, Government Printing Office, 1955.