

HYPERTENSIVE AND CHRONIC RESPIRATORY DISEASE MORTALITY: CONFIRMATION OF TRENDS BY MULTIPLE CAUSE OF DEATH DATA

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THE TREND of death rates for hypertensive disease has been downward since 1949, the first year that deaths from this cause were classified as codes 440-447 in the International Classification of Diseases. Each age, color, and sex group shared in the mortality decline. The trend of death rates for bronchitis and emphysema (ICD codes 500-502, 527.1), on the other hand, has been continuously upward since 1949.

Because only one cause is tabulated for each death, the decline in rates for hypertensive disease may result from the assignment of increasing proportions of these deaths to the cerebrovascular and coronary heart diseases which occur in many hypertensive persons. The upward trend for bronchitis and emphysema is an abrupt reversal of the trend prior to 1949, resulting in part from a change in method of selecting the cause to be tabulated.

In a study of smoking habits and mortality of veterans holding insurance policies issued prior to 1940, certificates of causes of deaths occurring among 293,000 white male veterans from July 1954 through 1962 have been collected and tabulated by the National Heart Institute. They include deaths of veterans who did not submit the smoking history questionnaire, a central focus of the study. Up to three causes of death were coded for each death. Person-years of observation classified by age were tabulated as the attained age of each veteran at each month throughout the period, or until death (1).

Average annual age-specific death rates for white males per 100,000 person-years of obser-

vation have been calculated for each of three calendar subdivisions of the 8½-year period, for hypertensive disease and for bronchitis and emphysema as the underlying cause and as associated causes. Rates for each period for ages 55-74 years, which include the bulk of the observation, have been adjusted to the age distribution of the person-years of observation for the combined periods and are shown in the table.

The downward movement for hypertensive disease as an associated cause is roughly the same as the trend for hypertensive disease as the underlying cause. This lends credence to the trend for hypertensive disease in the national mortality statistics. Similarly, the upward movement for bronchitis and emphysema

Age-adjusted death rates of white male veteran policyholders aged 55-74 years from hypertensive disease and from bronchitis and emphysema, by type of cause, 1954-62

Disease and type of cause	July 1954- June 1957	July 1957- December 1960	January 1961- December 1962 ¹
All deaths (n=41,814)-----	2, 312. 3	2, 249. 4	2, 086. 2
Hypertensive disease-----	311. 7	233. 5	178. 2
Underlying (n=1,665)---	122. 4	76. 4	63. 4
Associated (n=2,918)---	189. 4	157. 1	114. 8
Bronchitis and emphysema-----	66. 4	104. 4	125. 7
Underlying (n=713)---	23. 4	42. 1	45. 4
Associated (n=1,103)---	43. 0	62. 2	80. 4

¹ Rates may be understated by up to 5 percent because of delay in receipt of information about deaths.

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as associated causes supports the conclusion that the upward trend for these diseases in national mortality statistics is not simply a shift in reporting of these diseases from associated causes to underlying causes. Age-specific rates for 5-year intervals show changes much like those for the age-adjusted rates. The major difference is that the rate of increase of bronchitis and emphysema is faster for the younger than for the older age groups.

The decline in hypertensive disease mortality may reflect decreased incidence, milder severity, and delay in time of death due in part to the use of hypotensive diets and drugs. Conversely, the increase in mortality from bronchitis and emphysema may reflect increased incidence and greater severity, as well as more widespread recognition of the importance of chronic respiratory diseases as causes of death. Data on changes in the incidence and severity of these diseases are not available.

Among the veterans, changes in mortality for hypertensive disease and for bronchitis and emphysema are such that rates for the two groups would be of approximately equal magnitude by 1963 or 1964, both as underlying causes

and as associated causes. The national data for 1963, based on underlying causes, yield rates for white males aged 55-74, age-adjusted to the veterans' age distribution, of 89.4 per 100,000 of the general population for hypertensive disease and 88.8 for bronchitis and emphysema. General and cause-specific death rates of the study population are lower than those of the general population, presumably because of the selected character of these insurance policyholders.

National death rates from hypertensive disease are well below the rates from bronchitis and emphysema for younger white males and for white females and nonwhites of all ages in 1963. The finding of equal rates of both underlying and contributory causes for older white males emphasizes the importance of chronic respiratory disease as an emerging public health problem.

REFERENCE

- (1) Kahn, H. A.: The Dorn study of smoking and mortality among U.S. veterans—Report on eight and one-half years of observation. *J Nat Cancer Inst Monograph* No. 19. In press.

National Library of Medicine Bibliographies

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22. Economics of medical education. Mid-1963–August 1965. 174 citations.

23. Medical architecture. A selected and annotated list of bibliographies and monographs. 1951–65. 27 citations.

24. Mental retardation. A list of bibliographies and monographs. September 1964. 78 citations.

25. Organ weights. A selected annotated bibliography. 1930–65. 47 citations.

26. Thyroiditis and immune diseases. Mid-1963–August 1965. 102 citations.

27. Intravenous regional anesthesia. A selected list of references, 1963–65. 25 citations.

28. Long-term follow-up studies of meniscectomy. A selected list of references, 1951–65. 32 citations.

29. Juvenile rheumatoid arthritis. Mid-1963–October 1965. 129 citations.

30. Medicolegal implications of tissue banks and transplantations. 78 citations.

31. The thymus gland and immunity. January 1964–October 1965. 224 citations in English.

32. Hospital acquired infections. January 1964–October 1965. 276 citations in English.

33. Metabolic aspects of dietary carbohydrates. Mid-1963–October 1965. 122 citations in English.