

BOOK REVIEW

Year: 1981

Author: Doll, Richard and Peto, Richard

Title: The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today

Publisher: Oxford University Press

Review

There is good evidence that over 75 to 80% of cancer deaths in the U.S. today are preventable, in spite of the fact that we have poor evidence regarding the specific preventive measures that can be taken. This is one of the major conclusions of a leading British biostatistician, Dr. Richard Peto, and epidemiologist, Sr. Richard Doll, first appearing in a special June, 1981 volume of the Journal of the National Cancer Institute entitled "The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in America Today" and subsequently published by Oxford University Press.

The methods used by the authors in determining the proportion of "preventable" cancers in the U.S. are straight forward and intuitively appealing. For example, cancer incidence rates are examined world wide and regions with reliable statistics having the lowest rates for 37 to 40 different (common) types of cancer in males and females (1968-72) are identified. Using direct age standardization techniques, the expected number of cancers that would have occurred in the U.S. in 1970, if the U.S. had achieved these lowest feasible levels of cancer incidence, are calculated. The results indicate that it should be possible to prevent 75 to 80% of cancer deaths once the reasons for the lower levels prevalent in other countries are fully understood (no easy task!).

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Although half of the cancers in the U.S. occur among persons over the age of 65 - their analysis ignored this segment of the population because incidence rates for the elderly in countries other than the U.S. are extremely unreliable. The authors assume, however, that the same proportions of preventable cancers should apply to both age groups - 35-64 (on which their calculators are based) - and over 65 years.

One reason for the commissioning of this major analysis of cancer incidence and trends in the U.S. by the Office of Technology Assessment was to resolve the controversy regarding the proportion of cancers today that are attributable to occupational (industrial/chemical) factors. A previous article written by a committee of scientists from The National Cancer Institute, the National Institute of Environmental Health Sciences and The Occupational Safety and Health Administration (OSHA) concluded that 23 to 38% of today's cancers were attributable to occupational exposures. The reanalysis by Doll and Peto concludes that no more than 5-8% could be attributable to occupation, citing numerous flaws and limitations of the early "OSHA paper" analysis.

Estimates of the proportion of total cancer deaths attributable to other factors such as tobacco, alcohol and diet are also presented and the methods of estimation are discussed extensively. For example, tobacco alone is estimated to account for 30% of total cancer deaths, alcohol 2-4% and diet as much as 35%. A fuller understanding of the "softness" of these figures requires a detailed reading of the original document.

For any one seriously interested in a quantitative description of cancer trends in the U.S. today and the thoughtful application of statistical methods in contributing to the understanding of a very complex issue, this article is highly recommended. It is over 100 pages long but conveniently divided into major subsections and appendices for ease of digestion.

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February 17, 1984