obviously of vital importance to this country. In fact, a population policy without reference to these problems is meaningless. Though Landis might understandably have chosen not to venture an original contribution on the implications of a declining population, the value of his book would have been greatly enhanced by a critical summary of the exploratory work in this field carried on by Reddaway, Myrdal, Thompson, and others.

Despite these and other omissions (as for instance the neglect of the demographic effects of war except as regards the sex ratio) the book may serve a useful purpose in an expanding field. It is plentifully illustrated with effective graphic materials, which, combined with a relatively simple and straight-forward style, should make a somewhat technical subject readily intelligible to beginners in the field.

DUDLEY KIRK

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## COSTS OF DENTAL CARE[1]

IT HAS been well known for a long time that the prevalence of neglected dental disorders is very high. The extent and seriousness of the problem has been further emphasized recently by reports on physical examinations of young men for military service which indicate that defective or missing teeth were the greatest single cause of rejections. Many persons in public health and the dental profession realize the importance of better dental care for the health of the population and various plans for financing dental care, as well as medical care, have been under discussion. There are several distinctive features about dental care as compared with medical care which affect the cost of essential dental service; specifically, everyone should receive prophylaxis and diagnostic care regularly, tooth decay does not heal spontaneously, and the volume of service required for the accumulated dental defects is enormous. In order to obtain actual data on the cost of providing needed dental care, a study of complete service to a group of adults was sponsored by the American College of Dentists. The report on this study furnishes valuable information on the costs of

[1] Costs of Dental Care for Adults Under Specific Clinical Conditions, by Dorothy Fahs Beck, assisted by Mary Frost Jessup. Socio-Economics Committee, American College of Dentists, 4952 Maryland Avenue, St. Louis, Missouri.

providing for the dental needs of the population and on the time of dentists and other professional workers which would be required.

The report presents a thorough and detailed analysis of dental services to 485 patients 16 years or older who attended a nonprofit pay clinic in New York City, the Dental Health Service. A unique feature of the study is the separation of "initial care" or services for dental rehabilitation after first visit to the clinic and "maintenance care" or dental services during several years following initial care. In order to study both types of care for the same patients, records analyzed are for those who visited the clinic at least once during each calendar year for four or five out of five consecutive years following completion of initial care, who completed during the initial period and during the maintenance period all fillings and extractions recommended and sufficient prosthetic work for reasonable mastication, and who received all dental work during the period studied at the clinic or from specialists on referral by the clinic. The 485 cases which met these qualifications and were complete as to cost and time data were 2.2 per cent of the different patients who attended the clinic from 1926 to 1938. Patients were accepted on the basis of low income and most of them were from the white-collar group.

At regular clinic fees, the initial care received cost an average of $52.66, of which $23.78 was for prosthetic work; $19.37 for fillings; $3.20 for extractions; $2.50 for x-rays; $3.81 for prophylaxes and miscellaneous services. If patients had had all prophylaxes and x-rays recommended during the initial period, the average total bill for essential initial care would have been $55.23. In terms of the actual cost to the clinic to furnish all recommended services, the estimated average cost was $48.65 per patient. At typical, low, urban, private fees, the estimated charge for services recommended would have been $71.34.

For an average maintenance year, clinic fees for services received amounted to $10.05, of which $4.80 was for fillings; $2.76 for prosthetic work; 20 cents for extractions; 49 cents for x-rays; and $1.80 for prophylaxes and miscellaneous services. If all patients had had the recommended annual prophylaxis and a full mouth x-ray biannually, annual maintenance charges would have averaged $13.26. Cost to the clinic for the recommended maintenance care was estimated at $13.87 per patient per year. At low, urban, private fees, charges for recommended services would be $16.05.

At the fees charged by the clinic, "only x-rays and initial prosthetic

work (dentures) yielded net hourly returns in excess of cost to clinic to provide them." Dental examinations, miscellaneous treatments, and extractions were provided at a loss, and prophylaxes and fillings were done at about cost. Part-time dentists employed at the clinic received hourly pay somewhat above average figures for net income of dentists in New York City in 1937; and technicians, who did all prophylaxes and x-rays, were on prevailing full-time salaries. Since the fees charged were in line with low fees charged by private dentists, it is suggested that dentists are depending too largely on dentures and x-ray service for income.

Detailed tabulations give the number of specific services received and the "chair time" required for these services. Therefore, data are available to make estimates of potential costs on any desired basis for different groups. There is a discussion of differences in dental needs according to sex and age among these patients and of other factors to be considered in making predictions of costs or services for specific populations. Findings of other studies on dental needs and costs are reviewed.

Present number of dentists and hygienists could supply only a small fraction of the volume of service required by the total adult population. If all dentists in active practice devoted themselves exclusively to initial care, it is estimated that they could provide it for less than 20,000,000 adults per year. Maintenance care alone could not be provided for all the population by dentists now in practice, even if all prophylaxes, x-ray pictures, and laboratory work were delegated to auxiliary workers. But the demand for dental care indicates that most of the population receive only emergency services. In the Consumer Purchase Study by the Bureau of Labor Statistics, it was found that the average annual expenditure per capita for dental care equalled or exceeded $13.87 for white families with annual incomes between $5,000 and $7,499 in about two-thirds of the cities studied, and with incomes of $7,500 or more in all the sample cities. In villages and rural areas, expenditures by families with incomes between $5,000 and $10,000 fell considerably below the $13.87 average maintenance cost. Attitudes and habits concerning dental care will have to undergo considerable change before those economically able to purchase adequate care create an effective demand for more dental service, especially prophylaxis and preventive care.

The discussion of costs, methods, and other problems involved in the extension of dental care to moderate and low-income families merits

careful reading by all persons interested in better dental health for the general population. For the dentally indigent and marginal income families who cannot budget for dental care, government subsidy seems necessary. The estimated cost of adequate dental care for these families is very large, in fact, somewhat staggering, but the authors believe that it is subject to gradual attainment. For that part of the population which is able to pay, the applicability of the insurance principle to dental care is considered and the authors conclude that "insurance cannot be a solution of the initial costs problem" since initial care needs are present and can be determined at any time by examination. They believe that the insurance principle does offer a sound method for spreading the cost of maintenance care since individual costs vary considerably among individuals and from year to year, and "the care needed by any individual cannot be predicted accurately." Actual experience with providing maintenance care to insured persons is needed to answer certain questions. Would annual payments induce the subscribing members to have all needed prophylaxes and other care? If not, what would be the cumulative effect on average costs of failures to receive examinations regularly, and early treatment for dental conditions? If regular care is received, annual maintenance costs over a long period may be more, or less, than the average costs for a four-year period following dental rehabilitation. The authors are aware of these problems and of the need for continuing research. It is emphasized that public education, more research, and experimental efforts in the coordinated use of all available methods to meet costs will be required for a solution of the dental problem.

DOROTHY G. WIEHL

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## ILLNESS FROM CANCER IN THE UNITED STATES[1]

IN THE past few decades, cancer mortality has increased and cancer has advanced to second place as a cause of death. Consequently, the interest in this illness has become widespread. Harold F. Dorn of the United States Public Health Service has published a series of papers which describe a survey on illness from cancer and discuss age, sex, racial, and regional differences in the illness rates from the disease.

[1] Dorn, Harold F.: Illness from Cancer in the United States. *Public Health Reports*, January 14, 21, 28, 1944, 59, Nos. 2, 3, and 4.