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BOOK REVIEWS AND NOTICES*

*R. D. Eilers, *Regulation of Blue Cross and Blue Shield Plans*, pp. xxii, 359, Richard D. Irwin, Inc., Homewood, Ill., 1963.

The central portion of this S. S. Huebner Foundation study describes Blue Cross–Blue Shield regulation, including both governmental supervision and self-regulation, in a concise but thorough fashion. Of equal, or even greater, general interest are the introductory and closing parts of the book. In the opening chapters Dr. Eilers succeeds in bringing into focus the complex interrelationships of local Blue Cross and Blue Shield plans, Blue Cross and Blue Shield national associations, the American Hospital Association, and the American Medical Association. The book's final section explores some questions of public policy which presently confront Blue Cross and Blue Shield, such as the need for positive action to extend coverage for the aged.

At the time of the study, there were 77 Blue Cross plans and 69 Blue Shield plans in the United States, all operated as individual organizations with local autonomy. The author indicates the variety of benefit levels found within the fragmented Blue Cross–Blue Shield structure. He points out gaps in coverage such as expenses for treatment of mental disorders and care in the outpatient department, physician's office, or patient's home.

The service approach is discussed, but a 1958 study of Blue Cross is cited to indicate that nearly half the conversion contracts for individuals separated from groups specify dollar indemnities. Similarly, most Blue Shield plans provide service benefits only for members whose income is below fixed amounts, which vary widely among the plans. (Even as the Blues have invaded the indemnity area, it might have been mentioned that service-type benefits are no longer their monopoly.)

The lack of uniformity in benefit structures is only one manifestation of the independence of individual Blue Cross and Blue Shield plans. In the author's view, this local autonomy is "the crux of many internal problems facing Blue Cross and Blue Shield." A Blue Cross executive is quoted as saying, "It is difficult to get agreement between the Pittsburgh and Philadelphia organizations, let alone getting uniformity between associations on two different coasts."

Enrollment of national companies with employees located throughout the country presents special problems, Dr. Eilers notes. Several approaches have been developed to handle this type of enrollment. Under the Local Benefit Agreement for National Accounts, uniform underwriting and administrative methods are employed by all the Blue Cross plans concerned with a particular group, but the benefits provided are those peculiar to each of the plans. Blue

* Books and other publications noted with an asterisk (*) may be borrowed from the library of the Society of Actuaries under the rules stated in the *Year Book*.

Shield does not have a similar agreement, because it provides national coverage largely on an indemnity rather than a service basis.

As another expedient to insure groups on a national basis, Blue Cross and Blue Shield have each organized stock insurance companies—Health Service, Inc., and Medical Indemnity of America, Inc., respectively. Using another mechanism, a "syndicate," local plans co-operate to provide a set of benefits developed specifically to meet the needs of a particular national group. As a purely Blue Cross–Blue Shield undertaking, a syndicate is largely exempt from the premium taxes to which HSI and MIA, as insurance companies, are subject.

With few exceptions, Blue Cross and Blue Shield plans are subject to regulation by state insurance departments, and they generally operate under special legislation which exempts them from most provisions of state law applicable to insurance companies. Dr. Eilers questions the extent to which self-regulatory procedures within the Blue Cross–Blue Shield system can supplement public supervision so that the interests of society are protected. At the national level, he feels that, because the American Hospital Association administers the standards determining which organizations may become, or remain, approved Blue Cross plans, it can exert more influence than the Blue Cross Association, an agency responsible for national advertising, public relations, research, and lobbying. Yet, he notes, it is difficult to evaluate the objectivity of the AHA because it represents the vendors of services purchased by Blue Cross. As for Blue Shield, while AMA is said not to exert comparable influence at the national level, the boards of directors of local plans are dominated by doctors, whose pecuniary interests are affected by board decisions on fee schedules and other matters.

The composition of the boards of local plans is an issue frequently raised at public hearings. In the past few years there has been a shift toward greater public representation, particularly within Blue Cross. However, according to recent data cited by Dr. Eilers, hospital and medical spokesmen filled slightly more than half the total number of places on Blue Cross plan boards and three-fourths of the positions on Blue Shield boards. The author, who reports that most regulatory officials favor a considerable change in board representation, recommends that representatives of the public should comprise a majority on the governing boards of both Blue Cross and Blue Shield plans. Dr. Eilers agrees that the Blues are in the "community interest"; but, in view of current board composition, "community sponsorship" can truly be argued only in specific areas.

Contracts establishing hospital reimbursement and doctors' fees are subject to approval by insurance regulatory agencies in about half the states. Many Blue Cross plans receive hospital "discounts." Most commonly, the plans reimburse hospitals on the basis of costs rather than the regular rates charged patients who are not Blue Cross subscribers. Blue Cross justifies hospital discounts on the grounds that it is a wholesale purchaser of care, it relieves the hospitals of collection problems, and it covers patients who would be unable to pay for care if they were not plan members. These arguments have lost much of their

force, because the insurance industry now provides hospitalization coverage for more people than Blue Cross, and insurance companies are increasingly offering conversion rights and insuring high-risk groups such as the aged in mass enrollment campaigns without stringent underwriting.

Yet, the discriminatory pricing policy persists. According to Dr. Eilers, the inequitable situation might be corrected eventually by a government subsidy to hospitals to pay for such items as capital improvements and care of the indigent. At present, government payments for such care are generally inadequate, and the balance is made up by charges for paying patients. However, this cost is not shared by Blue Cross plans which use cost-based reimbursement formulas. Although the author concludes that such reimbursement formulas appear to be justified, it is difficult to see the logic of allowing Blue Cross, a social agency, to avoid sharing the cost of what is acknowledged to be a social responsibility, thereby forcing those who pay their hospital bills by other means to carry the full load.

The author discusses the regulatory efforts regarding the Blues by the National Association of Insurance Commissioners and reports lack of solid action in the fields of continuity of maternity benefits, suitable reserves, and other problems. In seeking NAIC help, he notes, some states may "wait for the millennium" in regulation of the Blues.

The chapter on rates and rate-making is of particular interest.[1] Though community rating was employed exclusively in the early days of Blue Cross, approximately two-thirds of the plans now will base rates upon experience for at least some groups, and more than one out of five plans experience-rate all groups above a minimum size. Competitive forces have been important in effecting the change, as groups with favorable experience turned to insurance companies for coverage at rates which reflected the relatively lower risk involved. The author observes that if carriers were prevented from using experience rating "it might be possible to cover a larger portion of those with a relatively high utilization of medical care benefits." However, this is questionable, because groups with favorable experience would be stimulated to self-insure (provide noninsured, nonregulated plans) if experience-rated insurance were not available.

Blue Cross and Blue Shield plans, other than those organized as insurance companies, pay no federal income tax. The states vary in their tax treatment of the plans. Information on 42 states collected for this study indicates that in 22 some sort of tax is collected, while in 20 Blue Cross and Blue Shield do not pay taxes of any kind. The favored tax position of Blue Cross and Blue Shield plans rests on the assumption that these agencies perform a social service, by making health insurance available to all elements in the community, including poor risks, at rates that are within the reach of even individuals with low incomes. The valid point is also made that there are states which favor local domestic insurance companies as well as local Blue Cross–Blue Shield plans. The author expects that tax exemption for the Blue plans will be continued for

[1] In this connection see review on D. M. MacIntyre, *Voluntary Health Insurance and Rate Making*, *TSA*, XIV, 544.

the next few years, at least, and probably longer. Although he notes that tax exemption is often justified by the "nonprofit" status of the plans, it is pointed out that "nonprofit" is not "distinctive with the Blues" among insurers, and he maintains that the nonprofit status is no reason for tax exemption.

Developments which may lead to reconsideration of the tax status are noted. As differences between these organizations and other carriers disappear—as Blue Cross and Blue Shield plans shift to experience rating and adopt techniques developed by insurance companies, such as deductibles and coinsurance, and as insurance companies perfect new methods to reach an even larger share of the low-income, high-cost risks—the argument for differential tax treatment will be hollow, indeed. Further, questions are being raised with increasing frequency as to the propriety of granting a public subsidy to plans with governing boards dominated by representatives of the vendors of service.

In the final section of the volume, some of the public issues which must concern Blue Cross and Blue Shield are examined. Among them is the steep and continuous rise in expenditures for hospital and medical care, caused by increasing utilization and higher prices. To control high utilization—stimulated, in part, by the availability of first-dollar coverage—plan administrators and regulatory officials are tending to favor the introduction of deductible and coinsurance provisions, according to Dr. Eilers. He reports that, despite the close relations between the Blues and the vendors of service, efforts to encourage control of utilization at the source of service have generally had little effect.

MILTON A. ELLIS
THEODORE ALLISON[2]

*O. W. Anderson, P. Collette, and J. J. Feldman, *Changes in Family Medical Care Expenditures and Voluntary Health Insurance*, pp. v, 217, Harvard University Press, Cambridge, Mass., 1963.

In 1953 the Health Information Foundation and the National Opinion Research Center jointly conducted a survey which produced twelve-month data for a period overlapping the years 1952–53.[3] This re-survey, five years later, which again covers a one-year period 1957–58, was designed to compare variations in the patterns of expenditures for medical care and in financing health care. Emphasis is given to data on families in various social and economic classifications. This study was carried out from the consumer's point of view. On the other hand, as the authors point out, broad national statistics, such as those compiled by the Department of Commerce, the Health Insurance Council, and other national studies are compiled principally from the data of vendors of medical goods and services or of insuring agencies. None of these sources is in a position to classify their information in relation to the family setting or

[2] Mr. Allison, not a member of the Society, is Research Associate in the Metropolitan Life Insurance Company.

[3] O. W. Anderson with J. J. Feldman, *Family Medical Costs and Voluntary Health Insurance: A Nationwide Survey* (New York: McGraw-Hill Book Co., 1956).

to other social or economic relationships. The HIF-NORC consumer studies present data relating only to direct personal expenditures, excluding expenditures by public bodies, private organizations, and those expenditures made in behalf of the institutionalized and noncivilian population. However, the authors attempt to compare and indicate where differences might logically arise between the results of their surveys and other national statistics. The extent that voluntary health insurance benefits cover the personal health services studied is indicated in most phases of the tables and text.

The over-all characteristics of the five-year comparisons are discussed on pages 100–101. The most outstanding characteristic noted is the rapid increase in consumer expenditures for personal health services, which seems to have amounted to about 42 per cent. The authors further find that, even though the prices of the various units of service rose 18 per cent, the increase in expenditures due to increased *use* went up 20 per cent. Hospital care and drugs account for almost two-thirds of this usage increase, measured in current dollars. Also, the authors confirm a finding brought out by other observations, namely, that two age groups—under 6 years and 65 and over—account for a great deal of the increases in expenditures. According to this survey, the proportion of the hospital bill covered by insurance benefits in 1957–58 was about the same as in 1952–53 even though the expenditures per family for this type of care increased 66 per cent. Their findings also indicate that surgical benefits levels improved with regard to proportion of services covered.

Although the methodology is described in some detail, reference is made to a more complete description published with the 1952–53 study. Comparisons of the sample population are made with selected data from the Census Bureau, the National Center for Health Statistics, and the Federal Reserve Board. Health Insurance Council estimates of percentage of population covered and individuals covered by type of health insurance agencies are also compared with results of the authors' survey. The many questionnaires, which are reproduced in the book, appear to be well drawn and to show a good grasp of medical care and health insurance problems.

Following an introductory chapter, the authors discuss enrollment in voluntary health insurance, comparing 1953 and 1958. The data presented show the percentages of families covered, by income category, and of persons covered by age groupings, and by type of health insurance agency.

A nation-wide breakdown is made of expenditures, by families, for the various major categories of personal health insurance services—physicians, hospitals, other medical goods and services, and dentists. The physician's services category is further broken down into surgery, obstetrics, other physicians (subdivided by hospital, home, and office), and ophthalmologists. Other tables present the data by groupings as to income and residence (urban, rural nonfarm, rural farm). Further classifications of data are given by age and sex.

Expenditures for drugs and medicines are treated separately from those for health services. Variations are shown according to income and age, residence, number in the family, and various "reasons for seeing a physician." These

reasons are divided broadly into chronic-and-acute, chronic only, acute only, pregnancy-injury-physical examination (with no acute or chronic condition involved), and indeterminate conditions.

Chapter v is concerned with the utilization of services and presents the usual statistics with respect to hospital care, such as admission rates and average length of stay, all subdivided by age groupings, types of accommodation used, residence of person admitted, and broad categories of causes of admission. For example, it appears that, in all categories of utilization, the rural-farm families have the lower utilization rates.

Health insurance benefits in relation to personal expenditures for medical care are discussed in chapter vi. The percentages of expenditures covered by insurance benefits are shown for broad categories of services, such as those in the hospital, surgery, and other physician's services.

Of special interest is the authors' study of the "high-expenditure families" in chapter vii. Such a family was defined as one which spent $300 or more during the twelve-month period included in the study; these constituted 31.6 per cent of the total families. The average expenditure for this group was $685 per family. The high-spending families enjoyed a higher average level of annual income, as defined by the study, than average-spending families. Also, the educational attainment of the heads of these families appeared to be higher than that of the average family. As might be expected, the high-spending families had more voluntary health insurance coverage than the average, and their use of outpatient physician's services was markedly higher.

Although many tables in the book are not directly adaptable to use by actuaries and statisticians for insurance purposes, the data in them serve the purpose of verifying general impressions. The detailed characteristics and trends presented are of considerable interest, since they provide estimates in social and economic classifications where little data of any kind are available.

CHARLES E. PROBST

*H. Wayne Snider, *Risk Management*, pp. xvi, 211, Richard D. Irwin, Inc., Homewood, Ill., 1964.

This is a further volume in the series of studies sponsored by the S. S. Huebner Foundation for Insurance Education. The book consists of a series of lectures on various aspects of risk management by insurance buyers, brokers, or teachers. No one of the contributions is by an officer of an insurance company.

In his Preface Dr. Snider states that the lectures were delivered to graduate students who were preparing to become "college teachers in the field of risk and insurance." He goes on to refer to the "significant effect that the development of risk management is having on the teacher of insurance. It provides a new vantage point from which old concepts may be viewed. By emphasizing the needs of the consumer rather than those of the insurer fresh insight into the insurance mechanism often is obtained. The renaissance in constructive thinking by insurance teachers in the last few years may largely be explained

by the challenges of risk management." It is important for insurance company officers to understand the reason for this concentration on "risk" in the teaching of insurance today and to appreciate the effects it is likely to have on those who now study insurance in business schools at our universities.

In 1959 there appeared two important studies of business education, one under the auspices of the Ford Foundation and the other, the Carnegie Corporation. Both these reports were critical of business schools and recommended that they should revise their objectives, teaching methods, student-selection practices, and curriculum substantially. These reports are having a major impact on the teaching of insurance, with the tendency to avoid as far as possible the type of teaching provided in insurance company training schools and concentrate considerably on the theory of risk, from its economic and psychological aspects. As far as the reviewer is aware, no attempt is being made to teach the mathematical theory of risk which is receiving so much attention from certain European actuaries and which is now included in Part 10I of the Society's examinations.

Viewing insurance from the opposite end of the telescope certainly brings out a few new ideas, but most of these lectures are little more than a record of experiences in the actual practice of negotiating and arranging insurance contracts, with examples of unusual hazards or the unusual effects of ordinary hazards. The lecture on "Captive Insurance Companies" is a useful study because this information is difficult to get hold of without considerable research. There is only one lecture on the field of life and health insurance, "The Approach of the Risk Manager to the Problem of Employee Benefits," and this is very elementary.

If we accept, for the sake of argument, that insurance is a suitable subject for university degree work, it is interesting to speculate on some more valuable areas of study which could usefully be included in such a course. Dr. C. A. Kulp, late dean of the Wharton School at the University of Pennsylvania, gave some serious thought to the problem of risk, and his work is referred to on more than one occasion. The study of risk is an interesting one, but the area of the work of the risk manager provides the least mental stimulation. Attention should be directed rather to the perils against which insurance can be provided, either by private enterprise or by government and what conditions must be imposed. There is also the associated problem of the extent to which certain insurance is in the public interest. It will be recalled that the International Congress of Actuaries in Madrid in 1954 had "Insurable Hazards" as one of its principal topics and that the *Memorias* of that Congress contain a number of papers on the subject.

Another area for study could be the cost of insurance ("Is the enormous aggregation of attorneys' fees and the very heavy load on our law courts for automobile liability cases really the best way to deal with the automobile accident problem?"); the difference between the value of insurance to the buyer and the seller; insurance as a means of solving social problems; etc. There are

many interesting areas where it seems possible that material for courses can be found free from the criticisms of the Ford and Carnegie reports.

L. H. LONGLEY-COOK

Smoking and Health; Report of the Advisory Committee to the Surgeon General of the Public Health Service, pp. xvii, 387, Public Health Service Publication No. 1103, Washington, 1964.

In June, 1962, the Surgeon General of the United States Public Health Service announced that he was establishing an expert committee to undertake a comprehensive review of all data on smoking and health. The review was to constitute an objective assessment of the nature and magnitude of the health problem, which would be followed by Recommendations for action. The review was completed in December, 1963.

In view of the controversy which has invariably followed the publication of the results of any investigation into the effects of tobacco smoking on health, the statements in the *Report* concerning the establishment of the Committee, its composition, and its methods of operation are important in assessing the validity of the conclusions reached. A list was compiled of more than 150 scientists and physicians working in the fields of biology and medicine with interests and competence in the broad range of medical science and with capacity to evaluate the elements and factors in the complex relationship between tobacco smoking and health. This list was screened by representatives of the American Cancer Society, the American College of Chest Physicians, the American Heart Association, the American Medical Association, the Tobacco Institute Incorporated, the Food and Drug Administration, the National Tuberculosis Association, the Federal Trade Commission, and the President's Office of Science and Technology. The names of any who had taken a public position on the question at issue were eliminated, and any organization could veto any name with no reasons being required. A committee of ten men was eventually selected under the chairmanship of Luther L. Terry, M.D., Surgeon General of the Public Health Service. The *Report* acknowledges an enormous amount of assistance from 155 consultants, from members and associates of the supporting staff, and from several organizations and institutions.

Information was secured in a number of ways. The bibliographic service of the National Library of Medicine provided references to more than 6,000 articles published in some 1,200 journals up to 1959 and a bibliography under about 1,100 titles covering the world literature since 1958. Members also drew upon the libraries and bibliographic services of those institutions in which they held academic positions. Statements and information pertinent to the subject were received from the major manufacturers of tobacco products. Through a system of contracts with individuals competent in certain fields, special reports were prepared for the use of the Committee. Some of the information secured was new and hitherto unpublished.

Critical appraisals were made of all data and interpretations under review.

"The primary reviews, analyses and evaluations of publications and unpublished reports containing data, interpretations and conclusions of authors were made by individual members of the Committee and, in some instances, by consultants. Their statements were next reviewed and evaluated by a subcommittee. This was followed at an appropriate time by the Committee's critical consideration of a subcommittee's report. . . . Finally, after repeated critical reviews of drafts of chapters, conclusions were formulated and adopted by the whole Committee, setting forth the considered judgment of the Committee."

Three main kinds of scientific evidence were considered—animal experiments, clinical and autopsy studies, and population studies. Each of these three lines of evidence was evaluated and then considered together in drawing conclusions.

Although all sections of the *Report* are of considerable interest, the attention of actuaries will perhaps naturally be drawn to those sections dealing with population studies. The results of seven large prospective studies were critically examined. Substantial amounts of data beyond that which had already been published were made available to the Committee, and the results are given in the *Report* separately for each study and combined. The combined results involve 1,123,000 male entrants and 37,391 deaths, all since October 1951.

The consistency of findings among these seven studies is noteworthy. In all of them coronary artery disease is the chief contributor (45 per cent) to the excess deaths among cigarette smokers. Lung cancer is uniformly in second place (16 per cent of the extra deaths). The other most important causes of extra deaths are diseases of the heart and blood vessels other than coronary artery disease (14 per cent), cancer of sites other than the lung (8 per cent), and chronic bronchitis and emphysema (4 per cent).

The death rate of cigarette smokers is shown in total to be 70 per cent higher than for nonsmokers. The rate varies directly with the amount smoked. It is substantially higher for those who started smoking before age 20 than for those who started after age 25. It is higher for inhalers than for noninhalers. It is proportionately highest in the age group 40 to 50, after which it declines with increasing age. "The array of information from the prospective and retrospective studies of smokers and nonsmokers clearly establishes an association between cigarette smoking and substantially higher death rates."

The principal findings are briefly as follows:

Cigarette smoking is associated with a 70 per cent increase in the age-specific death rates of smokers. (The data for women are less extensive but point, throughout the report, in the same direction.)

Cigarette smoking is causally related to lung cancer in men.

Cigarette smoking is the most important of the causes of chronic bronchitis in the United States and increases the risk of dying from chronic bronchitis and emphysema. Studies demonstrate that fatalities from emphysema are infrequent among nonsmokers.

Male cigarette smokers have a higher death rate from coronary disease than nonsmoking males. Although the causative role of cigarette smoking in deaths

from coronary disease is not proved, the Committee considers it more prudent from the health viewpoint to assume that the established association has causative meaning than to suspend judgment until no uncertainty exists.

The association of smoking with other cardiovascular disorders such as hypertensive heart disease and general arteriosclerosis is less well established.

Pipe smoking appears to be causally related to lip cancer.

Cigarette smoking is a significant factor in the causation of cancer of the larynx.

Evidence supports the belief that an association exists between tobacco use and cancer of the esophagus and between cigarette smoking and cancer of the urinary bladder in men.

The over-all judgment of the Committee is that cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action.

In general, the *Report* may be regarded as a comprehensive, critical, and authoritative review of all the important information which has been produced on what has been a controversial subject. The conclusions reached appear to be justified by the competence of the Committee, their methods of operation, and the evidence produced. The *Report* produces mortality curves for cancer of the lung and bronchus by birth cohort and age at death which dramatically illustrate that successively younger cohorts of males are at higher risks throughout life than their predecessors. Unfortunately, similar curves have not been produced for arteriosclerotic and degenerative heart disease which would undoubtedly show a similar situation. Bearing in mind the substantial increase in cigarette smoking throughout the years (49 cigarettes per annum per person aged 15 and over in U.S.A. in 1900, 1,365 in 1930, a peak of 3,986 in 1961), one may conclude that the rates of mortality from lung cancer and coronary artery disease will continue to increase unless there is a radical change in the smoking habits of the people.

In view of the wide difference in hazard established in the *Report* between nonsmokers and heavy smokers, it is likely that the selection of risks for life and health insurance will, in the course of time, be modified to give some weight to this factor. Bearing in mind that a study in 1955 indicated that 68 per cent of the male population 18 years of age and over were regular smokers of cigarettes, the practical difficulties of introducing effective selection procedures are obvious. There is, of course, a natural selection which takes place in that an applicant whose health has already been affected by his smoking habits is refused a policy or is accepted on terms appropriate to the extra hazard indicated by the impairment. Nevertheless, if the impairment is known to have an established association with smoking, it may in some cases be appropriate to ascertain the applicant's past and present smoking habits in order to make an equitable assessment of the extra risk.

H. F. GUNDY

SELECT CURRENT BIBLIOGRAPHY

In compiling this list, the Committee on Review has digested only those papers which appear to be of direct interest to members of the Society of Actuaries; in doing so, the Committee offers no opinion on the views which the various articles express. The digested articles will be listed under the following subject matter classifications: 1—Actuarial and other mathematics, statistics, graduation; 2—Life insurance and annuities; 3—Health insurance; 4—Social security; 5—Other topics.

The review section of the *Journal of the Institute of Actuaries* contains digests in English of articles appearing in foreign actuarial journals.

Actuarial and Other Mathematics, Statistics, Graduation

U.S. National Center for Health Statistics, *Comparison of Two Methods of Constructing Abridged Life Tables by Reference to a "Standard" Table*, pp. 11, Public Health Service Publication No. 1000, Series 2, No. 4, Washington, February 1964.

The two methods involve reference to a standard life table. In the revised method, ${}_nq_x$ is a function of ${}_nm_x$, computed as the observed age-specific death rate of the population for which the life table is being constructed. However, for the computation of ${}_nL_x$, use is made of the age-specific death rate of the stationary population of the life table in place of that of the observed population.

Life Insurance and Annuities

U.S. National Center for Health Statistics, *The Change in Mortality Trend in the United States*, pp. 43, Public Health Service Publication No. 1000, Series 3, No. 1, Washington, March 1964.

"After a long period of rapid and substantial decline, the crude death rate in the United States has remained somewhat stationary for the past 10 years or so. In 46 of the States and the District of Columbia, the crude death rates have leveled off or have begun to increase. Similar trends have been exhibited in a number of other countries.

"The mortality trends for virtually all age, sex, and color groups in the United States have changed. Beginning about 1950, the rate of decrease in infant mortality dropped to about one-third of the rate of decline experienced in the preceding 17-year period. The death rates for certain subpopulations in the older ages are now stationary or increasing.

"The deceleration of the rate of decline of the total death rate is not attributed to an aging of the population or to artifacts in the mortality rates, but rather to a combination of two other factors: (1) Starting about 1938, antimicrobial therapy began successfully to prevent deaths from diseases of infectious origin. The impetus imparted by this reduction gradually diminished as the proportion of deaths from infective diseases decreased. (2) Chronic diseases (such as cardiovascular renal diseases, malignant neoplasms, diabetes mellitus, cirrhosis of the liver, and congenital malformations), accidents, and other violence constitute the nucleus of mortality in the present population. The mortality trends of these incidents are such that they retard the downward course of the total death rate."

"The death rate for the United States does not appear to have reached an irreducible minimum. If the mortality rates in this country were to equal the lowest rates achieved by any country of low mortality in 1959 or 1960, the crude death rate for the United States would be 7.3 per 1,000 population as compared with the recorded rate of 9.5 in 1960."

M. G. Sirken, L. L. Bachrach, and G. A. Carlson, *Guide to United States Life Tables, 1900–1959*, pp. iv, 63, National Center for Health Statistics, Public Health Service, Washington, D.C., 1963.

Part I describes briefly the history, coverage, and the current status of the life table program in the federal government. Part II contains a bibliography of published and unpublished life tables which are on file in the National Center for Health Statistics.

Cancer Registration and Survival in California, pp. viii, 406, California Tumor Registry, Department of Public Health, Berkeley, California, 1963.

The report presents and analyzes data on the characteristics, diagnoses, treatment, and survival of 110,229 initially diagnosed cases received from 37 hospitals during 1942–56. Chapters discuss the stage of the disease at time of diagnosis, the first course of treatment, survival on both an absolute basis and relative to the general population, the experiences of county and private hospitals, and the findings for the more important cancer sites. The report states:

"Comparison of survival rates with data from other registries showed that differences in survival rates for individual sites among registries were smaller than differences in survival rates among the sites in each registry. The similarity in survival rates among registries in various geographic areas, despite probable differences in age, race, stage of disease, and treatment methods, suggests that the natural course of the disease is the most profound influence on survival."

*L. E. Coward, *Pensions in Canada*, pp. ix, 226, C.C.H. Canadian Ltd., Don Mills, Ontario, Canada, 1964.

This book owes its existence to a project of the Canadian Pension Conference. It is designed to answer a need felt by many pension specialists and interested laymen for a compendium of factual information and informed opinion on pension developments which are now of such grave public concern in Canada. It is the hope of the Canadian Pension Conference that this collection of essays will contribute to a better understanding of pensions at this time of major development. Rapid developments subsequent to the writing of these essays have changed the factual information on which some of the essays were based.

The scope of this book is indicated by its Table of Contents: "The Ontario Approach to Pensions," The Honourable John Robarts, Premier of Ontario; "La Caisse de Retraite Québecoise," l'honorable Jean Lesage, Premier of Quebec; "The Quebec Pension Plan," The Honourable Jean Lesage, Premier of Quebec; "The Canada Pension Plan," The Honourable Judy LaMarsh, Canadian Minister of National Health and Welfare; "The Pension Benefits Act of Ontario and Its Relation to Federal Pension Proposals," Dr. Robert M. Clark; "Social Security in Canada," William M. Anderson; "The Funding of Public and Private Pension Plans in Canada," Professor Donald C. MacGregor; "Some Effects of Pensions on the Canadian Economy," Robert W. MacIntosh; "Old Age Security around the World," Anthony R. Hicks; "Pension Plans and Income Tax," William R. Latimer; "The Design of Pension Plans in Canada," Norman G. Kirkland; "The Services of a Consultant," Samuel Eckler; "The Growth and Coverage of Insurance and Trusteed Pension Plans in Canada," W. Leonard McBride; "Insurance Companies in the Pension Market," E. Sydney Jackson; "The Trust Company Function in the Pension Field," John Seltzer; "A New Force in Pension Fund Investing—Mutual Funds," Raymond W. Gregory; "Pension Fund Investments," Cyril J. Woods; "Profit-sharing in Canada," David B. Meynell; "Labour's Interest in Pension

Planning," Gordon Milling; "Adequate Disability Pensions: The New Way," Donald R. Anderson; "Some History on Pensions in Canada," Laurence E. Coward; "The Canadian Pension Conference," Lawrence M. Baldwin.

C. B. Baughman, *Voluntary Contributions under the Civil Service Retirement Act*, Actuarial Note No. 12, Social Security Administration, Washington, March 1964, pp. 2.

The Civil Service Retirement Act provides that employees may make voluntary contributions up to 10 per cent of basic pay to purchase a cash-refund life annuity beginning at retirement. If death occurs before retirement, contributions plus accumulated interest at 3 per cent compounded annually are refunded. The annual income (payable monthly) per $100 of accumulated contributions is $7.00 plus 20¢ for each year that the age at retirement exceeds 55.

This basis presents an "actuarial bargain," and this note indicates the relative magnitude—namely, the cost for males being in most instances approximately 82 per cent of the net cost based on the Progressive Annuity Table at 3 per cent interest and 75 per cent for females.

J. G. Day and K. M. McKelvey, "The Treatment of Assets in the Actuarial Valuation of a Pension Fund," *Journal of the Institute of Actuaries*, vol. 90, pt. 1, 1964.

The valuation of a pension plan essentially consists of comparing the liabilities under the plan with the assets implementing the plan. Traditionally, great care is exercised in arriving at an appropriate determination of the liabilities using various actuarial assumptions intended to represent experience over long periods of time, but relatively less consideration is given to the present value under various assumptions of the assets implementing the plan. This paper directs itself principally to the various procedures that may be adopted in arriving at the present value of the assets if (*a*) inflation is ignored, and (*b*) an allowance is made for inflation. The authors point out that, "An allowance for inflation on the liabilities side can be rigorously justified only if benefits are linked to salary levels" and that "an assumption of inflation would affect . . . also the valuation rate of interest to be chosen."

The effect on the value of the assets of nine different sets of assumptions is illustrated for a "final salary" pension plan where the effect of inflation is either introduced or ignored in valuing both the liabilities and the assets. Two sets of liabilities are used, one (e.g., with 2 per cent per annum inflation of salaries before retirement) being about 45 per cent greater than the other (ignoring inflation of salaries). Of the seven values of the assets used in this illustration, the highest value is more than twice the lowest. As a result, when assets and liabilities are compared there is developed a wide range of valuation surplus.

The authors caution against predisposition toward any single method of asset valuation as the "right" one, and "there is no right answer but only a range within which the right answer almost certainly lies." They comment on "pace of funding" and mention their reluctance "to recommend a rate of funding as high as that implicit in taking assets at their book value" where the pension plan provides benefits based on final average salary and the pension fund includes a substantial portion of equity type investments.

Health Insurance

U.S. National Center for Health Statistics, *Current Estimates from the Health Interview Survey, United States, July 1962—June 1963*, pp. 40, Public Health Service Publication No. 1000, Series 10, No. 5, Washington, January 1964.

This report is derived from interviews conducted by the National Health Survey during July, 1962—June, 1963. It is the first of an intended annual series of reports containing provisional data on selected characteristics of the civilian noninstitutional population of the United States. The data in this report relate to acute conditions, persons with chronic conditions, persons injured, hospital discharges, and disability days. Details are presented according to age and sex.

U.S. National Center for Health Statistics, *Impairments Due to Injury by Class and Type of Accident, United States, July 1959—June 1961*, pp. 35, Public Health Service Publication No. 1000, Series 10, No. 6, Washington, January 1964.

Impairments, "as used in the Health Interview Survey, refers to certain chronic or permanent defects, disabling or not, representing, for the most part, decrease or loss of ability to perform certain functions, particularly those of the musculoskeletal system and special senses." For the period July, 1959—June, 1961, it is estimated that the civilian noninstitutional population had an average total of 28,167,000 impairments, of which 37.9 per cent were due to injury, or at a rate of 60.5 per 1,000 population. Of the impairments due to injury, 28.0 per cent were incurred in the home, 33.0 per cent while at work, and 15.4 per cent in moving motor vehicles. Further data are presented according to age, type of impairment, and class and type of accident causing the injury.

U.S. National Center for Health Statistics, *Disability among Persons in the Labor Force by Employment Status, United States, July 1961—June 1962*, pp. 54, Public Health Service Publication No. 1000, Series 10, No. 7, Washington, March 1964.

The only data presented with regard to age and sex are the number of restricted-activity days per person per year. These are shown separately for persons with no chronic conditions and for those with one or more such conditions, the latter subdivided into cases with no limitation of activity, cases with some limitation which does not affect major activity, and lastly cases with limitation affecting major activity.

U.S. National Center for Health Statistics, *Cycle 1 of the Health Examination Survey: Sample and Response, United States, 1960–1962*, pp. 36, Public Health Service Publication No. 1000, Series 11, No. 1, Washington, April 1964.

"The National Health Survey uses three methods for obtaining information about the health of the U.S. population. The first is a household interview in which persons are asked to give information related to their health or to the health of other household members. The second method is the utilization of available health records. The third method is direct examination, which the Health Examination Survey administers by drawing samples of the civilian, noninstitutional population of the United States and, by means of medical and dental examinations and various tests and measurements, undertakes to characterize the population under study."

Data for the Health Examination Survey "are collected by actual examinations of, and tests upon, the individuals selected in the sample. . . . They can provide information about diagnosed conditions including those which persons may fail to report or may be incapable of reporting in a survey based upon individual interviews. They can also reveal previously undiagnosed, unattended, and nonmanifested chronic diseases."

". . . in the process of defining the sample group, information about all sample persons and their households is obtained prior to the examination, by means of a household interview."

"The first cycle of the Health Examination Survey was the examination of a sample of adults. . . ."

"Although this initial report does not deal with the survey findings as such, it does consider the frame against which the findings are to be presented, describes the sampling procedures, the sample drawn and the group examined, and indicates how the survey data will be converted into estimates for the general population."

U.S. National Center for Health Statistics, *Types of Injuries, Incidence and Associated Disability, United States, July 1957—June 1961*, pp. 47, Public Health Service Publication No. 1000, Series 10, No. 8, Washington, April 1964.

The types of injury for which data are presented are skull fractures and head injury, other fractures and dislocations, sprains and strains of back, other sprains and strains, lacerations and abrasions, contusions, burns, adverse effects of medical and/or surgical procedures and a residual class of all other injuries. The following table is an excerpt of detail presented with regard to both age and sex.

Type of Injury	Sex	Age (Years)					
		All Ages	Under 15	15–24	25–44	45–64	65 and Over
		Injuries per 100 Persons per Year					
All injuries	M	33.0	37.4	46.1	32.0	26.0	15.6
	F	22.9	25.9	20.3	19.6	22.3	27.7
Lacerations and abrasions	M	11.4	16.9	13.0	9.5	6.9	3.6
	F	6.2	9.7	6.0	5.5	3.6	2.5
Contusions	M	4.9	4.5	8.5	5.1	4.0	2.8
	F	4.7	3.9	4.7	3.6	5.0	9.8
		Bed-Disability Days per 100 Persons per Day					
All injuries	M	48.0	27.8	53.8	52.7	65.9	62.8
	F	41.7	21.1	32.2	28.6	65.1	108.6
Lacerations and abrasions	M	7.9	6.1	8.9	8.4	10.6	5.5
	F	4.8	4.5	6.6	2.5	3.9	11.7
Contusions	M	5.8	3.4	11.0	5.1	8.0	*
	F	9.0	3.8	8.2	5.9	11.8	29.5

* Figure not reliable.

U.S. National Center for Health Statistics, *Health Survey Procedure: Concepts, Questionnaire Development, and Definitions in the Health Interview Survey*, pp. 66, Public Health Service Publication No. 1000, Series 1, No. 2, Washington, May 1964.

Among the concepts described is that for morbidity, as follows:

"Morbidity is basically a departure from a state of physical or mental well-being, resulting from disease or injury, of which the affected individual is aware. Awareness connotes a degree of measurable impact on the individual or his family in terms of the restrictions and disabilities caused by the morbidity. Morbidity includes not only active or progressive disease but also impairments, that is, chronic or permanent defects that are static in nature, resulting from disease, injury, or congenital malformation."

With regard to disability, the following statement is made:

"Because the other usages had gained such wide acceptance in certain fields it was decided not to employ the term 'disability' in this survey except in a very general sense where it is intended to cover the whole field of interference with activities caused by

disease, injury, or impairment (in much the same way that the term 'morbidity' is used for a generic rather than a specific concept) and also where other words used with it make clear the desired meaning, as in 'bed disability.' "

U.S. National Center for Health Statistics, *Medical Care, Health Status, and Family Income, United States*, pp. 92, Public Health Service Publication No. 1000, Series 10, No. 9, Washington, May 1964.

This report contains a section on health insurance coverage and presents the following data which were gathered by household interviews. In this regard the report states:

"Interview data, for a variety of reasons, produce estimates of coverage which are about 5 percentage points lower than estimates based upon reports from insuring organizations. These differences, while of interest from the standpoint of variations in methods of collection of data, do not substantially influence the interpretation of the rates with respect to identification of population groups in need of protection against the costs of ill health."

Age	Family Income					Family Income				
	All Incomes*	Under $2,000	$2,000-3,999	$4,000-6,999	$7,000 and Over	All Incomes*	Under $2,000	$2,000-3,999	$4,000-6,999	$7,000 and Over
	Percentage of Persons with Hospital Insurance†					Percentage of Persons with Surgical Insurance†				
All Ages	70.3	34.1	51.9	79.0	87.5	65.2	28.8	46.8	73.9	83.0
Under 15	68.7	21.9	42.8	78.2	87.6	64.8	18.5	39.2	74.1	83.5
15-24	66.1	41.6	49.4	73.7	82.6	60.6	35.6	43.7	68.2	77.7
25-44	76.3	30.9	52.7	81.8	90.0	71.8	26.4	48.4	77.2	86.0
45-64	75.7	37.9	63.1	83.5	90.5	69.8	32.5	57.6	77.2	85.6
65 and over	54.0	39.0	58.4	66.4	70.3	45.7	32.0	50.3	56.4	61.0
	Percentage of Total Hospital Discharges for Which Insurance Paid Some Part, but Less than 3/4 of the Hospital Bill‡					Percentage of Total Hospital Discharges for Which Insurance Paid 3/4 or More of the Hospital Bill‡				
All Ages	16.7	12.9	15.5	17.4	19.7	51.3	26.7	43.7	61.7	61.2
Under 15	13.8	7.7	12.4	16.3	12.6	58.3	25.2	46.9	64.8	67.8
15-44	16.3	9.0	13.3	17.1	22.2	50.6	24.0	41.4	60.9	59.1
45-64	18.0	14.6	18.6	17.8	20.2	58.0	35.5	53.1	66.0	68.8
65 and over	20.9	18.4	25.1	23.2	19.8	30.3	24.3	34.7	40.2	31.3

* Includes persons with unknown incomes.

† U.S., July, 1962—June, 1963.

‡ U.S., July, 1958—June, 1960.

Social Security

Robert J. Myers, *Actuarial Cost Estimates for Hospital Insurance Bill*, Actuarial Study No. 57, pp. 33, Division of the Actuary, Social Security Administration, Washington, July 1963.

This study discusses the data, assumptions, and procedures used in preparing the cost estimates for the Administration's Hospital Insurance Bill, H.R. 3920, and also presents the results of the cost estimates, with a discussion of some of the problems involved.

The study is a revision and expansion of *Actuarial Cost Estimates for Health Insurance Benefits Bill* (Actuarial Study No. 52),[4] which dealt with an earlier version of the Administration proposal, but the methodology and results do not differ greatly.

Briefly, in connection with the two most important factors affecting future costs, it has been assumed that (1) hospital utilization rates by age will approximate those derived from a survey of beneficiaries conducted by the Social Security Administration, after upward adjustment to allow for the presence of "insurance" benefits, and (2) average daily hospital costs and earnings rates remain at 1961 levels. The latter assumption is made, not because of an expectation that these rates will remain at 1961 levels, but because the estimate of the level-cost of the bill as a percent of taxable payroll would be unchanged by a rise in average daily hospital costs if earnings rates, the maximum taxable earnings base, and the deductible amounts increase in proportion to such a rise.

The cost of the HI benefits is estimated in this Study to be 0.68 per cent of taxable payroll. The bill provides for an increase of ½ per cent in the combined employer-employee tax rate, plus an increase from $4,800 to $5,200 in the maximum earnings base. The latter provision is estimated to result in a net "gain" to the system equivalent to 0.18 per cent of taxable payroll, which is allocated to the HI Trust Fund.

Figures are also given for the cost of the different types of benefits, for the future year-by-year progress of the HI Trust Fund, for the cost estimates for the "blanketing-in" for persons aged 65 and over who are not insured under OASDI, and for the savings under certain public assistance programs (OAA and MAA) as a result of the benefits provided under the bill.

R. J. Myers and F. Bayo, *Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance System, 1963*, Actuarial Study No. 58, pp. 46, Division of the Actuary, Social Security Administration, Washington, November 1963.

This is the eighth in a series of reports dealing with the long-range cost of the OASDI program. The basic assumptions followed in the estimates are described, and the resulting projections of the most important statistics are presented. Final cost estimates are given in the usual "percentage of taxable payroll" form; projections of the income and outgo and of the balances in the funds are also included. Comparison is made with all previously published estimates.

The valuation shows the OASI portion of the system to be in close actuarial balance, with the balance in the trust fund increasing rapidly after 1968. The DI portion is found to be somewhat out of actuarial balance; this trust fund is projected to decrease continuously until exhausted shortly after 1970.

The results of this long-range cost study are also presented, along with a brief description of the methodology, in the *24th Annual Report of the Board of Trustees of the OASDI Trust Funds* (House Report No. 236 [88th Cong., March, 1964]). The Board of Trustees recognizes the financing problem of the DI Trust Fund and recommends that the allocation to this fund should be increased from 0.5 per cent of taxable payroll for the combined employer-employee contribution rate to 0.6 per cent (and the OASI allocation decreased correspondingly), with similar change being made in the self-employed rate. This report to Congress, in addition, presents short-range and medium-range projections prepared under assumptions somewhat different from those made for the long-range estimates.

[4] Reviewed in *TSA*, XIII, 667.

G. I. KOWALCZYK, *U.S.S. Thresher Disaster: An Actuarial Analysis of Survivor Benefits Payable*, Actuarial Note No. 7, pp. 3, Social Security Administration, Washington, December 1963.

This note contains an actuarial analysis of the survivor benefits payable as a result of this disaster. The 129 men who lost their lives were young and left a total of 85 widows and 178 children who were eligible for benefits, with a present value averaging about $19,500 per family.

M. C. Hart, *Conversion of Existing Benefits under Formula Changes*, Actuarial Note No. 10, pp. 6, Social Security Administration, Washington, January 1964.

This note contains a historical summary of the basis of conversion of benefits under the OASDI program for those on the roll when changes in the benefit formula were enacted. Particular attention is directed to the methodology underlying the conversion included in the 1950 Amendments.

M. Glanz, *Average Value of Invested Funds, OASI Trust Fund, Fiscal Year 1962*, Actuarial Note No. 8, pp. 4, Social Security Administration, Washington, January 1964.

This note analyzes the effect on the average value of the invested trust funds of short-term investments made in a month and liquidated at the end of the month and compares the value derived in this way with the arithmetic mean of funds invested in the beginning and end of the fiscal year.

OTHER TOPICS

*A. J. Coale and M. Zelnik, *New Estimates of Fertility and Population in the United States: A Study of Annual White Births from 1855 to 1960 and of Completeness of Enumeration in the Censuses from 1880 to 1960*, pp. xvi, 186, Princeton University Press, Princeton, N.J., 1963.

Part I contains an introduction and outline of methods; Part II presents the principal results; and Part III develops the techniques of analysis and estimation. Among the appendixes is a section on the construction of model life tables for the nineteenth century and on the construction and adjustment of decade life tables for the twentieth century.