DATA SOURCES APPENDIX

***Expenditures*:** Data on health care expenditures in Canada, total and by components, on a current outlay basis, are compiled annually by Health and Welfare Canada and released in occasional publications and unpublished memoranda. The most recent publication is *National Health Expenditures in Canada, 1970-1982* (Canada, Health and Welfare Canada, n.d. [1984]). Earlier data can be assembled from several previous releases, but each publication appears to include some minor revisions from previous data. The most recent and historically continuous source is Fraser (1983) Series B504-B513, which reports total expenditures and major components. (It should be noted, however, that B513, Health Expenditures, Canada, 1945-1975, total, is not a continuous series. From 1960 forwards it reports total expenditures on the National Health Expenditure concept, but for 1959 and earlier years it is simply the sum of hospital, physician, dental, and prescribed drug expenses. These components reported prior to 1960 represent only about two-thirds of the total as measured from 1960 on.) A finer component breakdown back to 1960 is given by *National Health Expenditures in Canada 1960-1975* (Canada, Health and Welfare Canada 1979).

These sources are the basis for almost all tables reporting expenditure data, Tables 1-1, 2-1, 7-3, and 8-1, as well as text references to national expenditures. They are the only source of comprehensive nation-wide expenditure data, across all forms of payment; Ontario (Ministry of Treasury and Economics 1981) has reported independent provincial estimates for 1970/71 to 1977/78.

Manpower: *The Canada Health Manpower Inventory* (Canada, Health and Welfare Canada 1980, 1983b) reports total membership in each of a large number of the health care occupations. The data are, in most cases, registry or license-holder data, unadjusted for labour force participation, though for physicians an estimate is made of the active civilian physician stock. This is reported with and without interns and residents; the inclusive data are used throughout this book on the ground that interns and residents are providing medical services, even if their costs emerge in hospital budgets.

Canada Health Manpower Inventory data go back only to 1968. A series for active civilian physicians back to 1935 has been pieced together by Barer and Evans (1983) where sources and methods are described. For other professionals, some data are available from the Hall Commission Report and supporting studies (Canada, Royal Commission on Health Services 1964). These sources are drawn on for physician data used in Table 1-2, for active civilian physicians and licensed dentists and pharmacists reported in Table 7-1, and for physician and dentist denominators in Table 7-3.

The other two sources of manpower data used are the Census, and taxation statistics. The Census surveys establishments -- practices, hospitals, pharmacies -- and counts workers, rather than using registry data by occupation. It is therefore the only regular source of data on total numbers of workers in particular settings, as opposed to numbers of people with particular qualifications, whether or not working. The Census also collects occupational data as part of the household survey. Table 7-2 and the surrounding text draw on the 1971 Census of labour force by industry (Statistics Canada Cat. #94-740, Vol. III part 4, Census Bulletin (3.4-3), Table 2, December 1974) as well as by occupation (Statistics Canada Cat. #94-717, Vol. III part 2,

Census Bulletin (3.2-3), Table 2, September 1974). Census data for 1961 by industry are from Statistics Canada Cat. #94-518, Vol. III part 2, Census Bulletin (3.2-1), May 1963, and by occupation, Statistics Canada Cat. #94-503, Vol. III part 1, Census Bulletin (3.1-3), Table 6, February 1963. Census data by occupation are significantly lower than the *CHMI* counts and, in any case, are available only every ten years. They have, therefore, been used only to derive a (very rough) estimate of the numbers of workers in professional practices who are not of the same profession as the owner(s).

Taxation statistics report numbers of tax returns by self-employed practitioners, full- or part-time, who earn 50 per cent or more of their incomes from professional practice. This represents an estimate of the proportion of licenced members of a profession who are actually in private, fee-for-service practice. But it excludes practitioners working on salary in a group which is reimbursed on fee-for-service. The physician relative income data in Table 1-2 refer to self-employed (taxable) tax-filers, comparing their net incomes with the industrial composite of average weekly wages and salaries, and Table 7-1 reports these data as "Physicians in Fee-for-Service Practice" to compare with the *CHMI* "Active Civilian Physicians" series.

Unfortunately, counts from this source depend on the accuracy of occupational reporting to the Department of National Revenue, and the adequacy of their sampling process. Health and Welfare Canada, Health Information Division, has, since 1972, prepared more comprehensive counts of physicians and dentists in fee-for-service practice. The data prior to 1972 are thus drawn straight from the annual publication, *Taxation Statistics*, of the Department of National Revenue, but subsequent counts are from unpublished data provided by Health and Welfare Canada.

***Prices*:** Physician fee indices are a combination of fee-benefit schedule indices compiled by Health and Welfare Canada, linked to the Consumer Price Index, medical services component, in earlier years, and adjusted (crudely) for changes in collections rates (Barer and Evans 1983). This index is used in Table 7-3 to derive an index of "real" physicians' services output, adjusted for fee change, and is compared with the all-items CPI to show the relative inflation or deflation of medical fees. Table 7-3 uses the dental service component of the CPI for the same purposes with respect to dental care expenditures.

***Incomes*:** Incomes of physicians and other professionals as reported in Table 7-4, and (in relative form) Table 1-2, are drawn from the annual *Taxation Statistics* reports. They are net incomes (after expenses, before tax) of wholly or primarily fee-for-service practitioners, full- or part-time, taxable returns only. This is the only source which provides historical continuity back to the immediate post-war period. But as noted in the text, it is believed by Health and Welfare Canada to be subject to increasing downward biases, at least since the mid-1970s, and they have provided alternative estimates in unpublished data reported in Table 7-4. Whether there are similar biases in other professionals' incomes as reported in *Taxation Statistics* is unknown, since there is no cross-check similar to the provincial insurance plan data. The conceptual problems in measuring physician incomes, and a comparison of some of the data sources, are presented in Wolfson, Evans, and Lomas (1980).

Taxation Statistics report income from all sources, broken down by professional income (fee or salary and sessional) and other sources. Provincial medical insurance plan data report payments under the plan to all practitioners, physicians and others, whether or not "primarily" in fee-for-service medical practice. Thus reports of total medical care plan payments divided by

total numbers of practitioners receiving payment represent a serious understatement of average incomes. The data in Table 7-5, drawn from federal compilations of provincial insurance plan data (Canada, Health and Welfare Canada 1981, 1983a) are based on estimates of numbers of full-time-equivalent (FTE) physicians, but refer only to plan outlays. They are reported only in rate of change, not level, form.

***Insurance Coverage*:** Data on the extent of coverage by public and private medical insurance plans prior to the public universal programs in Canada, as presented in Table 2-1 and discussed in the text, are drawn from an unpublished Health and Welfare Canada compilation, "Historical Series on Public and Private Health Insurance Enrollment for Physicians' Services, Canada and Provinces, 1950-1971" (Ottawa 1977). Earlier documentation of hospital and medical coverage is given in *Voluntary Medical Insurance in Canada, 1955-1961* (Canada, Department of National Health and Welfare 1963b). Data on the non-profit sector are reported in Shillington (1972).

***Hospital Utilization Statistics*:** Hospital utilization data are derived from various Statistics Canada publications, all of which are based on the Annual Returns of Hospitals, HS-1 and HS-2. Unfortunately data tables in these publications change from year to year in title, format, and content. Assembly of consistent historical series, and sometimes even year-to-year comparisons, is thus made both time-consuming and difficult. Fortunately, Fraser (1983) now provides a comprehensive source for hospital capacity and utilization, clearly and consistently identified by type and ownership of hospital, but only for 1975 and prior years. This is the source for the pre-1976 data in the first column of Table 1-2, and in Table 8-2. Most cost and use data are reported either for "public general and allied special" hospitals or for "public general" alone. In both cases, federal, private, provincial mental, and (in earlier years) T.B. institutions are excluded. The "allied special" component is primarily chronic and convalescent hospitals, but also includes maternity and paediatric hospitals providing "acute care" similar to that in a general hospital. Fraser (1983) therefore reports paediatric hospitals in the "public general" category -- see note to Table 8-2.

Data from 1976 on, in Tables 1-2 and 8-2, are drawn from *Hospital Statistics Preliminary Annual Report 1982/83* (Statistics Canada Cat. #83-X-202) (Canada, Statistics Canada, 1984). The breakdown by type of hospital (Table 8-2) uses data from the annual publication *Hospital Annual Statistics* (Statistics Canada Cat. #83-232) as available, up to the 1979-80 fiscal year. (Hospital statistical reporting changed over to an April 1 year in 1977-78. Hospital data in Table 1-2 after that date are actually fiscal year, not calendar as labelled.) The 1980-81 and 1981-82 breakdowns in Table 8-2 use data from *Hospital Statistics -- Preliminary Annual Report* (Statistics Canada Cat. #83-217) (1980-81 and 1981-82). Hospital index data in Table 1-2 are calculated as reported in Barer and Evans (1983).

***General Economic Statistics*:** The scale of the health care sector relative to the general economy is usually indicated by relating health expenditures to the Gross National Product (GNP) which adjusts for general inflation levels as well as scaling for growth in population and productivity. Specific "prices" such as hospital costs per day or physician or dental fees, have been adjusted for general inflation by the all-items Consumer Price Index. Professional incomes are scaled relative to either the "all taxpayers" income level (Table 1-2) or the average weekly wages and salaries, industrial composite index drawn from the labour force survey. This is also the source

of total labour force data. Such general statistics are widely available; the best single source for data over several decades being the *Historical Statistics of Canada*, 2nd edition (F. H. Leacy, ed., Ottawa: Statistics Canada, 1983). More recent data are in the monthly *Canadian Statistical Review* published by Statistics Canada, or the monthly *Bank of Canada Review*, and many other places.