PART III

THE EXISTING HEALTH SERVICES COMPLEX

6

Development of Health Services

The development of health services in Canada is largely the result of the scientific and technological advances in medicine and the allied sciences. Their scope, distribution and utilization have been the result of the interaction of demographic, social, and economic factors affecting the health status and attitudes of the Canadian people.

Our first task is to set out the various elements which constitute our health services. Accordingly in Chapters 7 to 12 we describe the development and complexity of these services. These chapters deal with the existing services, facilities, and costs, and indicate the economic benefits to be derived from the provision of health services. We then turn to consider problems faced in the health field and the various gaps and deficiencies that exist in this area, and we deal with these matters in Chapters 13 to 18.

The history of health and health services in Canada has been fully recorded elsewhere.[1] However, a brief outline of the factors affecting the development of our health services is required if we are to understand the growing concern with their adequacy and operation, which led to the appointment of this Commission.

Canada's health services, baffling today in their multiplicity and diversification, were simple enough in their beginnings. Society then was much less complex with its largely rural character, and an urban element which was as different from the modern city as the idyllic Mariposa of the Sunshine Sketches from today's metropolis.

When sick, one called or saw the physician. The physician's office resembled a parlour rather than a laboratory, with the instruments and medications then available to medical practice assembled in one corner of the room and the text books in another. It was the physician's office, study, and examining room all in one. The physician—one of the two or three professional people in the community—was counsellor as much as professional adviser; his practice of medicine was more art than science. He

[1] Hastings, J. E. F., Mosley, W., *Organized Community Health Services,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, and the references in the Introduction.

alone looked after all of the patient's ailments as well as those of the other members of the household. In his role as general practitioner, he practised the skills of the surgeon, obstetrician, paediatrician, psychiatrist, and pharmacist, and he mastered all the knowledge medical science had to offer.

When visiting patients at their home, he would travel by buggy, sleigh or on horseback and patients used the same conveyances. The home usually provided plenty of room for members of several generations of the family, and someone in the household could be counted on to be available for nursing the sick. The mother, grandmother or aunt would have the necessary knowledge to care for the maternity cases in the family, caring for mother and baby, and also many cases of sickness—with or, if necessary, without medical advice and supervision.

Hospitals there were, but they had little to offer that the physician could not do in his office or in the patient's home. Hospitals were used largely to accommodate the hopeless or helpless without giving them much more than a place in which to live out their sickness. By today's standards, they were shelters or asylums for the sick. Looking after the ill and injured had begun to be recognized as something requiring special skill and knowledge.

The physician was the one person who embodied all medical knowledge and skill. Today, those hospitals would probably be considered as mainly custodial institutions. What health care the poor received was dispensed as charity by the physician and the hospital.

During the first half of the nineteenth century the public health agencies came into being when the first boards of health were established to cope with the devastating epidemics of communicable diseases. A serious cholera epidemic broke out in 1832 with the arrival of large numbers of Irish immigrants. The health services of that time were unable to cope with the deluge of sick and dying and the epidemic spread to the people of the colonies. A board of health was set up in Quebec City and a quarantine station at Grosse Isle nearby. "The legislatures of Lower Canada, Nova Scotia, New Brunswick, Upper Canada, and Newfoundland passed legislation in 1832-33 for the establishment of local boards of health in an effort to control the outbreak."[1] Typhus fever broke out in 1847 and cholera reappeared in 1849. This resulted in the establishment of a central board of health. Serious cholera epidemics again occurred in 1854 and 1865 and other local boards were set up. "Thus, at the time of Confederation in 1867 the main problems of the public health in Canada were the recurring epidemics of communicable diseases, such as cholera, typhus and smallpox."[2] In the latter part of the last century the discoveries of Pasteur led to measures for

[1] *Ibid.*, Introduction.
[2] *Ibid.*

the control and prevention of communicable diseases so that by the early decades of the present century substantial progress had been made in controlling epidemics. Changes occurred in hospital care. The discoveries of Semmelweiss, Lister, and Pasteur foreshadowed our present day aseptic hospital techniques. Surgical and anaesthetic techniques were greatly improved thereby lessening the hazards associated with their use. More hospitals were built in the new western provinces. "Many were still operated by religious orders or on a lay, voluntary basis but increasingly many were built and operated by municipalities or by a combination of municipalities, as union hospitals."[1]

Dentistry became an organized and licensed profession. In 1868 the Royal College of Dental Surgeons was incorporated with the functions of teaching and licensing. In 1875 the first dental school was established in Canada under the auspices of the Royal College of Dental Surgeons.[2]

Nursing developed into a skilled profession. In 1873 the first hospital school of nursing was begun at the General and Marine Hospital in St. Catharines, Ontario.[3]

In the following decades medicine participated fully in the rapid scientific progress which extended the field of medical knowledge continuously, requiring the practice of medicine to be subdivided into an increasing number of specialties. At the same time, science provided the physician with an ever widening range of technical equipment which supplemented and partially supplanted what was once the art of healing. Physician and patient alike had at their disposal a more effective means of communication and transportation. A host of technical skills entered the field of health care. Hospitals were equipped with highly complex equipment and staffed by a wide range of technicians. Science provided more effective means to combat disease. This, in turn, changed the prevailing health problems and disease patterns. Government activities in the health field, at the local, provincial and national levels, increased. Voluntary organizations entered the field with the purpose of filling existing gaps in the supply of services and funds.

As Canadian society became increasingly industrialized, urbanized, and wage-earning, demands for health services rose. As these services grew more effective their costs increased. Rising levels of real incomes made it possible to meet some of the higher cost, but they also contributed to a growing awareness of, and the demand for services. The problems of providing for the uncertain risks of the cost of sickness are similar now to what they were in England in the late 18th and 19th century. Here, as in the friendly societies there, voluntary prepayment had some early beginnings going back

[1] *Ibid.*

[2] Paynter, K. J., *Dental Education in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

[3] Hastings, J. E. F., *op. cit.*, Introduction.

over 300 years.[1] During the last twenty years or so it has had wider application first to hospital services mainly in the form of the Blue Cross plans, and then to medical care. Governments have gradually assumed a greater role in this field, and this culminated in the Hospital Insurance and Diagnostic Services Act in 1957. This was followed by plans for medical care insurance in some of the provinces. As far back as 1928 the House of Commons adopted a motion to the effect that "the Select Standing Committee on Industrial and International Relations be authorized to investigate and report on insurance against unemployment, sickness and invalidity".[2] The question of health insurance was thoroughly investigated by the Advisory Committee on Health Insurance whose report was released shortly after the completion of the Beveridge Report in England in 1942. Both reports reflected the yearning for security in the post-war world borne of the sufferings of depression and war. These developments culminated in the introduction of the National Health Grants Programme in 1948, and the Hospital Insurance and Diagnostic Services Act in 1958. Assistance programmes were collated to provide pensions for certain selected groups of disabled people, and free medical care was made available to various groups of the population such as those needing public assistance, veterans and members of the armed services. Apart from assisting in the financing of health services, however, some governments have long ago gone beyond the field originally defined as public health as opposed to personal health services. They have provided services for diseases whose cost ordinarily would be beyond the means of most citizens: tuberculosis, mental illness, and cancer are examples.

One way of looking at our overall health resources today, is to consider what is available to a unit of say, 100,000 Canadians, in terms of health workers and health facilities.

Standing at the apex of the phalanx of health workers are the physicians and surgeons and to serve this unit of 100,000 Canadians there are 1,150 physicians available.[3] These include both the general practitioners and the specialists. The latter group is qualified by advanced training and certified by the Royal College of Physicians and Surgeons of Canada, as well as by the Collège des Médecins et Chirurgiens de la Province de Québec. Some of these specialists groups and the number for each 100,000 people are as follows:[4]

General Surgery	9.16	Psychiatry	3.03
Internal Medicine	7.58	Radiology	2.86

[1] See Chapter 10.

[2] *Health Insurance,* report of the Advisory Committee on Health Insurance appointed by Order in Council, P.C. 836, dated February 5, 1942, Ottawa: King's Printer, 1943, p. 68.

[3] See Chapter 7. The data are for 1961, except where otherwise indicated.

[4] Certified specialists only, see Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter IV, Table 4-40.

Obstetrics and Gynaecology	3.93	Pathology	1.34
Ophthalmology and Otolaryngology	3.74	Orthopaedic Surgery	1.21
Paediatrics	3.03	Urology	1.02
		Dermatology	0.69

But these are only some of 21 certified specialists with more still being added from time to time.

For most patients the general practitioner serves as the first line of defence, and therefore the initial contact. Access to other health services takes place frequently on his referral or recommendation, including referral to specialists, admittance to hospital, or simply a pharmaceutical prescription. But in certain areas, the general practitioner may be by-passed by a number of patients, and for different reasons. Some individuals able to pay the cost, now use the specialist in internal medicine as the family physician for the adults, and the paediatrician for the children. Maternity patients go directly to obstetricians, while other patients select eye specialists, ear, nose and throat specialists and others, again without referral. Further, many people go directly to optometrists. In addition there has been a substantial increase in the volume of pharmaceuticals purchased without prescription.[1]

To select a specialist implies, of course, that the patient has made a personal diagnosis of his own condition and, for many obvious symptoms—a foreign body in the eye, an ear-ache, a broken leg, and advanced pregnancy—there is little likelihood of error. For many others, however, the self-selection of a specialist can only result in at least one unnecessary visit if the specialist decides that the condition is not, as the patient thought, "in his field".

This rising trend towards direct consultation of the specialist is a reflection of a more educated demand on the part of the public. As a result, for a substantial proportion of Canadians, the family doctor who delivered the baby, set the bone, removed the tonsils, and gave comfort where he could do no more, has become a good deal less important.

The range of knowledge and skill represented by the developing specialties is, indeed, impressive. But these, like the front-line troops, are only part of the health army. For, in addition, our unit of 100,000 people has available, 32.2 dentists,[2] 33.4 nurses,[3] 49.4 pharmacists,[4] 4.1 dietitians, 3.8 physiotherapists, 0.8 occupational therapists, 13.8 radiological technicians and 21.2 laboratory technicians.[5]

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[1] See Chapter 9.
[2] Based on Table 13-10.
[3] Based on Table 13-25.
[4] Ross, T., *Pharmacist Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964. Based on Table 2:A:I.
[5] Based on Table 7-26. These data are for 1960, for personnel in general hospitals.

These are the field personnel. There are others in hospitals, of course, providing food services, housekeeping, and laundry services.

The facilities are also numerous. Our unit of 100,000 has available to it a total of 1,075 hospital beds,[1] categorized as follows: 630 general hospital beds; 390 beds in hospitals for the mentally ill; 65 beds for tuberculosis care. There is also one large out-patient department.

It is possible that this community of 100,000 will also have rehabilitation facilities, home nursing services and perhaps as many as a dozen or so voluntary agencies providing health care or supporting services.

Nor is this all, for there are important industries providing drugs, laboratory equipment, X-ray equipment, other hospital equipment, surgical instruments and supplies.

The position of the health industry in our economy may be illustrated by the fact that the number of those employed in it not only has grown[2] but grown much more rapidly than the labour force as a whole.[3] Six per cent[4] of our Gross National Product is attributable to this "industry", and 4.3 per cent of the jobs provided.[5] Moreover, in addition to the paid workers, there are thousands of voluntary workers in hundreds of voluntary associations, hospital auxiliaries, and the like.

This brief perspective of the development of the modern health services should be considered in conjunction with what has been said in the foregoing chapters about the changes in the concepts of health and health services,[6] in income and demographic structure,[7] and in the health status.[8] Only thus can we fully understand the proliferation of our health services as they are today. It will, at once, assist us to see and appreciate the changes that have taken place as well as the apparently unchanging traditions from which these services have originated. Both these aspects are important in the assessment of the present situation which we discuss in this part of the Report, as well as in the planning for the future to which Part IV is devoted. At both these stages of our investigation we concern ourselves with the two main components making up our health resources: personnel and physical facilities. In

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[1] Based on Table 8-1. These data are for 1960.

[2] From 68,000 in 1931 to 281,000 in 1961. See Table 12-1.

[3] It accounted for 1.9 per cent of Canada's labour force in 1931, and for 4.3 per cent in 1961, with a trend rate growth of 6 per cent in 1961, compared with a rate of 2 per cent for the existing labour force. See Table 12-1.

[4] In 1961, total health expenditures amounted to $2,228.7 million, of which $177.8 million was spent on capital facilities. See Table 11-7.

[5] This proportion covers persons directly employed in the health industry. The proportion would be considerably greater if persons employed indirectly, e.g., construction workers building hospitals, were included.

[6] See Chapter 3.

[7] See Chapter 4.

[8] See Chapter 5.

this analysis we will keep in mind that the foregoing developments have resulted in a fundamental difficulty.

> "The paradox of the scientific and technological revolution is that it has diminished relatively the capacity of the individual doctor to meet man's health care needs at the same time as it has vastly increased the capacity of medicine as a whole to do so. . . . Circumstances are turning the provision of health care into the work of an interdependent team with interdependent facilities. . . . This specialization of function is both necessary and inevitable but it has also created problems and is an important root of many of the issues which today are faced in the provision of health services."[1]

[1] Hastings, J. E. F., *op. cit.* Introduction.

7

Health Manpower

MEDICAL PROFESSION

The actual number of active physicians in a particular year is determined by the number practising at the beginning plus the balance between the inflow and outflow of medical personnel. The inflow consists of the number graduating from medical schools, immigrants, and foreign physicians in temporary residence, plus those who re-enter the profession after a period of withdrawal from active practice for study or other reasons. The outflow includes physicians who emigrate, die or withdraw from active practice. The actual number of physicians, while of vital importance in estimating the present and future supply of physicians, cannot be considered alone for such an estimate. It must be accompanied by an appraisal of the actual utilization of medical manpower, its geographic distribution and professional specialization.[1]

Population-Physician Ratio

The supply of physicians is usually measured in terms of the population-physician ratio: the total population divided by the number of qualified physicians which gives the average number of people per physician. This ratio, although often used, does not indicate the volume of medical services rendered since it does not reflect the nature, scope and quality of the physician's work. Nor does the ratio allow for the social, economic, and physical characteristics of the population served. Even historical comparisons of the population-physician ratio yield limited results largely because of the many changes that do take place in the provision and quality of medical services over time: improved diagnostic methods, a greater use of new and better equipment, more hospitals and other facilities, the increasing employment of a variety of paramedical personnel, plus improvements in transportation which have made for easier access of patient to physician and physician to patient. All these improvements in the methods and techniques

[1] Estimates relating to the future supply of physicians in Canada are contained in Chapter 13.

of medical practice have combined to enable the physician to provide more service today than he did in the past. These qualifications suggest that the population-physician ratio should be used with caution. It can serve as a rough guide in comparisons of the supply of physicians as between provinces and regions, and over a period of time provided changing conditions are taken into account.

TABLE 7-1 POPULATION-PHYSICIAN RATIO, CANADA, 1901-1961

Year	Active Civilian Physicians	Population[a]	Population-Physician Ratio
		('000)	
1901	5,475	5,324	972
1911	7,411	7,191	970
1921	8,706	8,776	1,008
1931	10,020	10,363	1,034
1941	11,873[b]	11,490	968
1951	14,325	13,984	976
1961	21,290	18,238	857

[a] Exclusive of Yukon and Northwest Territories until 1960.
[b] The 1941 figure includes 1,150 Armed Forces' physicians.

SOURCE: 1901 to 1961, Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2, and Dominion Bureau of Statistics, *Census of Canada 1961,* Vol. I, Part 1, Ottawa: Queen's Printer, 1963, p. 6-1.

Table 7-1 indicates that the Canadian population-physician ratio has improved steadily over the last three decades with special conditions prevailing during the war years.[1] But as Table 7-2 shows there was wide variation in the provincial ratios between 1911 and 1961. Since 1951 all provinces shared in the improvement, with Ontario and British Columbia showing consistently more favourable ratios than the other provinces.

In making international comparisons of population-physician ratios the differences in the organization of medical care in various countries should be kept in mind. The most recent comparable data shown in Table 7-3 are for 1959. In that year, twelve of the countries mentioned had a ratio better than our own, and this despite the fact that, as already indicated in Table 7-1, our ratio had improved significantly, particularly since 1951.

Several of the countries mentioned in Table 7-3, and particularly the United Kingdom, contributed to our supply of physicians, and thereby depleted their own. How long this country can expect other nations to pay for the education of physicians which we require is a matter which must

[1] Deferred retirement of physicians brought the ratio down temporarily and this accounts in part for 968 shown in 1941 and 976 shown in 1951.

TABLE 7-2 PROVINCIAL POPULATION-PHYSICIAN RATIOS, 1911-1961

Province	1911	1921	1931	1941	1951	1961
Newfoundland	—	—	—	—	2,524	1,991
Prince Edward Island	1,306	1,309	1,397	1,418	1,342	1,149
Nova Scotia	1,206	1,147	1,153	1,350	1,094	1,044
New Brunswick	1,253	1,448	1,517	1,693	1,445	1,314
Quebec	1,003	1,065	1,046	1,054	990	853
Ontario	828	848	872	903	857	776
Manitoba	1,065	1,095	1,051	1,108	926	823
Saskatchewan	1,298	1,445	1,579	1,700	1,278	973
Alberta	1,014	1,073	1,256	1,320	1,118	982
British Columbia	945	862	952	1,010	847	758
CANADA	970	1,008	1,034	1,072	976	857

SOURCE: Judek, S., *Medical Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

TABLE 7-3 POPULATION-PHYSICIAN RATIOS, CANADA AND SELECTED COUNTRIES, 1959

Country	Population Per Physician
Italy	620
Austria	620
New Zealand	700
Germany: Federal Republic	730
Switzerland	740
United States of America	790
Belgium	800
Denmark	830
Australia	860
Norway	900
Netherlands	900
Luxembourg	910
Canada	*920*
France	950
England and Wales	960
Spain	1,000
Sweden	1,100
Portugal	1,300
Finland	1,600

SOURCE: World Health Organization, *Annual Epidemiological and Vital Statistics 1959*, Geneva: the Organization, 1962, pp. 654-659.

concern us. While Canada will continue to welcome well qualified physicians from abroad, this country should be put in a position which will enable it to train the physicians required to maintain an adequate standard of medical care for this nation[1] and also contribute to assisting the less developed nations in improving their health standards.[2]

Graduates of Canadian Medical Schools

The number of qualified physicians available to meet the demand for medical services at a particular point in time depends to a large extent on the number of physicians graduating from medical schools. Canada has twelve such schools which have produced 14,146 medical graduates since 1944 or an average of 785 physicians per annum. As indicated by the following table, the three medical schools in the Province of Quebec, Laval, Montreal and McGill graduated 38.2 per cent of the graduates between 1945 and 1962, while the four schools located in Ontario graduated 36.8 per cent during the same period. The medical schools in these two provinces, then, provided 75 per cent of the medical graduates between 1944 and 1962.

TABLE 7-4 NUMBER AND PER CENT DISTRIBUTION OF GRADUATES OF CANADIAN MEDICAL SCHOOLS, BY SCHOOL, 1944-45 TO 1961-62

Medical Schools	Number of Graduates	Per Cent of Total	Annual Average Output Per School	Per Cent of Total Annual Average Output
Dalhousie	847	6.0	50	5.9
Laval	1,869	13.2	104	12.1
Montreal	1,616	11.4	90	10.6
McGill	1,924	13.6	107	12.5
Ottawa	544	3.8	45	5.3
Queen's	891	6.3	52	6.1
Toronto	2,763	19.5	154	18.0
Western Ontario	1,019	7.2	57	6.7
Manitoba	1,140	8.2	63	7.4
Saskatchewan	181	1.3	30	3.5
Alberta	894	6.3	50	5.9
British Columbia	458	3.2	51	6.0
TOTALS	14,146 (785 annual average)	100.0	853	100.0

SOURCE: Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 3.

[1] Further discussion of the manner in which medical schools can supply the future requirements for physicians is contained in Chapter 13.

[2] Chapter 2, Recommendation 145.

Increasing technical complexity makes it more difficult for medicine to compete for talent with other professions, both old and new. It must compete for prestige and economic standing with other fields of endeavour, but the high cost of medical education, the relative lack of fellowships and bursaries, and the minimum of seven years required to complete medical training when compared with other types of professional education, hinders the recruitment of suitable candidates for medicine.[1] Provincial licensing bodies, provincial governments, and the faculties of medical schools have emphasized these factors in their recommendations to this Commission[2] and they have been examined in detail in a study undertaken for us.[3]

Physician Migration

A significant characteristic of the composition of Canadian medical manpower is the large proportion of immigrant physicians in the post-war years. This has been a period of rapid and substantial population growth, and an increased demand for medical services which stemmed, in part, from an increase in real income due to the rapid post-war economic growth. The increase in demand required a greater number of physicians than Canadian medical schools could supply, and the immigration of physicians helped to fill the gap.

The migration of Canadian physicians is shown in Table 7-5. A total of 4,652 physicians came to Canada in the period 1946 to 1961. Slightly less than half that figure left Canada for the United States leaving a net balance of 2,339. The number of physicians leaving Canada for countries other than the United States is not known but it may be considerably smaller. When we consider the number of physicians immigrating from, and emigrating to the United States there remains a net loss of 1,842. A substantial loss indeed.

Between 1953 and 1961 a total of 3,815 immigrant physicians entered Canada, of which 1,764, or just over 46 per cent, came from the United Kingdom, and 471, or just over 12 per cent, from the United States. In the period 1950 to 1960 nearly 15,000 physicians were registered in Canada.

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[1] For a more detailed discussion of the problem of recruitment and the relative decline in medical student enrolment see Chapter 13.

[2] *The Canadian Association of Medical Students and Interns,* brief submitted to the Royal Commission on Health Services, Ottawa, March 20, 1962, p. 2.
College of Medicine, University of Saskatchewan, brief submitted to the Royal Commission on Health Services, Regina, January 25, 1962, p. 5.
The College of Physicians and Surgeons, Province of Alberta, The Canadian Medical Association, Alberta Division, and The Faculty of Medicine, University of Alberta, briefs submitted to the Royal Commission on Health Services, Edmonton, February 1962, p. 60.
Faculty of Medicine, University of Toronto, brief submitted to the Royal Commission on Health Services, Toronto, May 14, 1962, p. 6.

[3] MacFarlane, J. A. *et al., Medical Education in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 9.

TABLE 7-5 MIGRATION OF PHYSICIANS INTO AND OUT OF CANADA, 1946-1961*

Year	Immigration		Total	Emigration to U.S.A.	Difference Between Immigration and Emigration	Net Loss to U.S.A.
	From U.S.A.	From Other Countries				
1946	—	56	56	—	56	—
1947	—	81	81	—	81	—
1948	—	95	95	—	95	—
1949	—	78	78	—	78	—
1950	—	68	68	260	−192	−260
1951	—	166	166	173	−7	−173
1952	—	293	293	186	107	−186
1953	55	347	402	105	297	− 50
1954	39	272	311	135	176	− 96
1955	33	300	333	127	206	− 94
1956	29	386	415	96	319	− 67
1957	46	589	635	265	370	−219
1958	52	342	394	179	215	−127
1959	66	373	439	229	210	−163
1960	84	357	441	262	179	−178
1961	67	378	445	296	149	−229
TOTAL	471	4,181	4,652	2,313	2,339	−1,842

*Data for the period 1946 to 1952 have been estimated by the Department of Citizenship and Immigration.

SOURCE: Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

Of this number about one-third were foreign medical graduates. This heavy dependence on foreign-trained physicians becomes even more striking when we consider that as a percentage of Canadian medical graduates, the graduates of foreign medical schools who were new registrants between 1950 and 1960 rose from 24.8 to 60.4. The heavy inflow of immigrant physicians has helped to some extent to meet the increased demand for medical services, but this demand has not been met fully due to a number of factors. Among them is the continued emigration of Canadian-born and Canadian-trained physicians to the United States. As of April 1962 there were 3,125[1] of these physicians practising in the United States, and approximately 15 per cent of the current medical manpower in Canada. Seen in terms of the output of our own medical schools, this is equivalent to the graduates of all the present medical schools for a four-year period.

[1] Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

In addition to the export of professional manpower, Canada trains United States physicians. In April 1962 there were 1,781 physicians practising in the United States who were born in that country, but who received their basic medical education in Canada.[1] To show the full extent of medical training here for practice in the United States, this total must be increased by an additional 456 physicians who were trained in Canada, but not born here, as well as 356 physicians who were trained here, but whose country of birth outside Canada is not known.[2]

To balance the picture of the extent to which Canadian medical schools train physicians for practice in the United States we must look at the extent to which United States facilities are used to train Canadian physicians. Table 7-6 indicates that the number of Canadian interns and residents trained in the United States has remained substantial since 1954.

TABLE 7-6 CANADIAN PHYSICIANS TRAINING IN UNITED STATES HOSPITALS, 1954-1962*

Year	Interns	Residents	Total
1954-55	—	—	520
1955-56	44	540	584
1956-57	60	516	576
1957-58	66	469	535
1958-59	50	513	563
1959-60	52	487	539
1960-61	75	583	658
1961-62	67	659	726

*Non-immigrant status.

SOURCE: Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2, Table 2-17.

Death and Retirement of Physicians

Estimates of the available Canadian medical manpower must take into account the death and retirement rates of physicians. Physicians, like the rest of us, have an increasing life span; their average age at death increased from 60.8 years in the period 1926-1930 to 66.4 years between 1956 and 1961.[3] Their death rate, however, appears to be slightly higher. Data available for the period 1952 to 1961 indicate an average annual death

[1] *Ibid.*
[2] *Ibid.*
[3] *Ibid.*

rate per 1,000 physicians of 14.6 compared with 13.4 for the male population 20 years of age and over. These data suggest that our supply of physicians is reduced by 1.5 per cent annually. In other words, about 300 physicians will be required in the years to come to take the place of those who have died.[1]

Apparently most physicians do not like to retire. Some may retire partially, or temporarily, or others may undertake some other activity. Furthermore, some physicians, although inactive in their profession continue to register with their professional licensing body. For these reasons it is difficult to estimate retirement rates. There is, however, some evidence suggesting that of the total number of physicians about 6 per cent are retired.[2]

Sources of Supply of Physicians

From 1959 to 1960 the number of active civilian physicians rose from 19,800 to 20,517, or by 717.[3] This of course represents the net balance between the inflow and outflow of physicians during this period, and is shown in the following tabulation.

In 1960 there were 766 Canadian graduates[4] and 521 immigrant physicians[5] licensed.

Information on how the number of physicians was reduced is less complete. A total of 312 physicians left Canada. Of these 262 immigrated to the United States and about 50[6] to Great Britain. How many physicians emigrated to other countries is not known, but believed to be insignificant. Similarly the number of retirements is not known. In 1961, 309 physicians died. However, not all of these represent *active* physicians, as a certain proportion would have retired before death. We do not have estimates of the number of physicians re-entering active practice, after, for example, a period of study or a sojourn in the United States. To the extent that physicians did re-enter active practice, deaths, retirements and emigration to other countries have been underestimated.

What the data show is that the principal source of supply of physicians in Canada is the medical school. In 1960, for example, Canada's net

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[1] *Ibid.*

[2] *Ibid.*

[3] The net addition could not be found between the period 1960-61 because the 1961 figure represents the census count on June 1, of that year. However, statistics on immigration, emigration and death are provided only for the 12 month span.

[4] Total number of graduates in 1960 was 863. From this figure 97 foreign medical graduates should be subtracted, as it is believed that the majority return to their country of origin. Judek, S. *op. cit.*, Chapter 3. To the extent, however, that some of these students do remain in Canada, this source of supply is underestimated.

[5] This figure does not correspond to the number of immigrant physicians provided by the Department of Citizenship and Immigration, as their records are based on "intended" occupation at time of entry into Canada, rather than occupation actually followed. Thus a number of years may pass before the "Immigrant Physician" sets up active practice.

[6] MacFarlane, J. A., *op. cit.*

gain of physicians from abroad was a little over 200 equivalent to about one-quarter of the number of Canadians graduating as physicians in this country.

Reliable and current information on the sources of supply of physicians is essential in planning the future requirements of medical manpower in Canada. The inadequacy and incompleteness of available statistics on this subject, indicated above, underlines the urgency for taking remedial steps in this area.[1]

TABLE 7-6A SOURCES OF SUPPLY OF PHYSICIANS, CANADA, 1959-1960

	+	−
Number of Graduates (Canadian)	777	
Immigration (Registrants of Foreign Medical Schools)	521	
Emigration—To United States		262
To Great Britain		50
Deaths and Retirements		269*
TOTAL	1,298	581
Number of Physicians—1959 19,800		
1960 20,517		
Net increase 717		

*Estimated.

SOURCE: Judek, S., *Medical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapters 2 and 3.

Geographic Distribution of Physicians

In 1961 nearly 70 per cent of our population lived in urban areas. This concentration is sustained by a similar location of services including medical and other health services. However, the concentration of physicians within urban areas in proportionately greater than that of the general population. Between 1951 and 1962 the proportion of physicians practising in urban centres of 10,000 or more population rose from 73.2 per cent to 85.8

[1] For recommendations on health statistics of which data on medical manpower are an integral part, see Chapter 2, Recommendation 186-189.

per cent. In the same period the general population located in these centres increased from 48.2 per cent to 58.7 per cent.[1]

Table 7-7 shows that the disproportionate distribution of physicians becomes particularly apparent in metropolitan areas. The high concentration of physicians in these areas does not fully reflect the availability of medical services since many of these men are engaged in teaching, full- or part-time research, hospital duties, and administrative tasks. In addition, many physicians look after patients from the surrounding rural areas and do consulting work for these areas. Even allowing for these factors, existing evidence suggests that there is a disproportion of physicians in the larger urban areas of Canada.

Rural areas not only have proportionately fewer physicians than urban centres, but rural physicians are usually older. This implies a reduced capacity for service as well as higher retirement and death rates of rural compared with urban physicians. Several factors lure the newly fledged professional to the urban areas rather than the rural: the less adequate diagnostic and treatment facilities in rural areas, lack of professional contacts, generally lower standards of living and the lack of amenities.

TABLE 7-7 ACTIVE CIVILIAN PHYSICIANS LOCATED IN METROPOLITAN AREAS FOR PROVINCES AND CANADA, 1961

Province and City	Metropolitan Areas*					Provincial Population-Physician Ratio	Provincial Non-metropolitan Population-Physician Ratio
	Population		Physicians		Population-Physician Ratio		
	Number	Per cent of Prov.	Number	Per cent of Prov.			
NEWFOUNDLAND						1,991	3,306
St. John's	90,838	19.8	179	51.7	763		
NOVA SCOTIA						1,044	1,503
Halifax	183,946	25.0	338	47.9	544		
NEW BRUNSWICK						1,314	1,570
Saint John	95,563	16.0	135	29.7	708		
QUEBEC						853	1,696
Montreal	2,109,509	40.1	3,728	60.5	568		
Quebec City	357,568	6.8	683	11.1	524		
Sherbrooke	70,253	1.3	105	1.7	669		
Trois-Rivières	86,659	1.6	97	1.6	893		
Total	2,623,989	49.8	4,613	74.9	569		

[1] Judek, S., *op. cit.*, Chapter 4.

TABLE 7-7 ACTIVE CIVILIAN PHYSICIANS LOCATED IN METROPOLITAN AREAS FOR PROVINCES AND CANADA, 1961—*Concluded*

Province and City	Metropolitan Areas*					Provincial Population-Physician Ratio	Provincial Non-metropolitan Population-Physician Ratio
	Population		Physicians		Population-Physician Ratio		
	Number	Per cent of Prov.	Number	Per cent of Prov.			
ONTARIO						776	1,201
Hamilton	395,189	6.3	520	6.5	760		
Kingston	63,419	1.0	220	2.7	288		
Kitchener-Waterloo	154,864	2.5	185	2.3	837		
London	181,283	2.9	433	5.4	419		
Ottawa City and Eastview	292,761	4.7	577	7.2	507		
Oshawa	80,918	1.3	91	1.1	889		
Sudbury	110,694	1.8	129	1.6	858		
Toronto	1,824,481	29.3	3,157	39.3	578		
Windsor	193,365	3.1	280	3.5	691		
Total	3,296,974	52.9	5,592	69.6	590		
MANITOBA						823	1,913
Winnipeg	475,989	51.6	887	79.2	537		
SASKATCHEWAN						973	1,650
Regina	112,141	12.1	235	24.7	477		
Saskatoon	95,526	10.3	281	29.5	340		
Total	207,667	22.4	516	54.2	402		
ALBERTA						982	1,593
Calgary	279,062	21.0	331	24.4	843		
Edmonton	337,568	25.3	576	42.5	586		
Total	616,630	46.3	907	66.9	680		
BRITISH COLUMBIA						758	1,229
Vancouver	790,165	48.5	1,352	62.9	584		
Victoria	154,152	9.5	231	10.7	667		
Total	944,317	58.0	1,583	73.6	597		
CANADA†	8,535,913	47.2	14,690	69.4	581	855	1,474

*Metropolitan areas except Regina, Saskatoon and Ottawa, which excludes Hull and other cities within the Province of Quebec, metropolitan areas include suburban parts and cities.

†Excludes Yukon and Northwest Territories and Prince Edward Island.

SOURCE: Data supplied by Dominion Bureau of Statistics, Census Division, Occupation and Employment Section.

Specialization

Some of the most remarkable discoveries of the last hundred years have been directly or indirectly applicable to the scientific practice of medicine; the pace at which medical knowledge is translated into medical practice has quickened, and the repercussions on the organization of medical practice have been numerous. With increasing knowledge, specialization has grown and resulted in the emergence of a variety of skills. In modern society we are very much aware of this impact on academic teaching and research, as well as medical research and practice; each new discovery means increased knowledge in smaller and smaller fields of activity so that today one man can successfully master the detailed knowledge of only a small area. Formal specialist medical training started in Canada in 1929; today half of Canada's medical graduates are entering specialities and of the total civilian physicians in Canada in 1961, 37.3 per cent were certified and 13.8 per cent non-certified specialists.[1]

The following table indicates the growth of specialist practice.

TABLE 7-8 SPECIALIST CERTIFICATES GRANTED BY THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA, 1942-1960

Period (to Dec. 31)	Number of Years	Number of Certificates Granted	Cumulative Total	Average Number Per Annum
1942-1944	3	1,221	1,221	407
1945-1949	5	3,029	4,250	606
1950-1954	5	2,185	6,435	437
1955-1956	2	934	7,369	467
1957-1958	2	1,070	8,439	535
1959-1960	2	1,051	9,490	523
TOTAL	19	9,490*		499

* Includes 511 individuals certificated in more than one specialty.

SOURCE: Judek, S., *Medical Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 4.

Criticisms levelled at this trend are based on both scientific and social arguments. On the first count there is the danger that the specialist will tend to think of disease in terms of a particular organ or anatomical system. On the other it is possible that the beneficial aspects of the long-term personal relationship between a patient and his physician will gradually

[1] *Ibid.*

decline as medical care to one patient is increasingly rendered by several physicians. In general, movements to counteract the adverse effects of specialization aim at the "comprehensive" care of the patient. Some attempt has been made to incorporate an emphasis on the "total approach" in medical education. However, so great have been the pressures of specialization towards the fragmentation of medical care that the more successful attempt has been one that recognizes the fact of specialization but seeks to provide comprehensive care through the judicious combination of specialties within the organizational framework of combined practice.

Types of Practice

There are three main types of private medical practitioners in Canada today: those who are self-employed independent practitioners, those who are in partnership, and those in group practice. In 1962 these three groups comprised nearly 71 per cent of all active civilian physicians, 47.2 per cent were self-employed, 13.4 per cent were in partnership, and 10 per cent were in group practice. Of the remaining physicians nearly 14 per cent were working in hospitals that were not operating under the auspices of public authorities. The remainder were distributed amongst three levels of government, the universities and industry.[1]

In North America the traditional organization of medical practice is that of the independent physician operating under a fee-for-service system. The high degree of independence of the medical practitioner, whether he be in solo practice, in partnership, or in group practice, stems from the traditional belief that the individual is the really significant object of service and that such service is the sole responsibility of the practitioner. The individual concerned, on the other hand, puts his physician in a position of special trust and confidence. This imposes a special kind of responsibility upon the physician.

Although the practitioner may call upon colleagues for advice and help, the ultimate responsibility for the patient is his; he cannot share the patient's trust except through prior discussion with the patient, and even then it still remains his responsibility until relieved by the patient. Furthermore the physician cannot mass produce his services; he must treat each patient individually bringing all his skills to bear on each case. "The professional man cannot spread his services, he cannot, except within narrow limits, distribute his skill through subordinates. He is unable to go in for mass production and is forbidden to offer cheap lines for slender purses."[2] This tradition enforces a high degree of individualism and independence

[1] *Ibid.*

[2] Marshall, T. H., "Professionalism and Social Policy", in *Man, Work and Society*, ed. Sigmund Nosow and William H. Form, New York: Basic Books, Inc., 1962, p. 227.

upon the physician. The situation vis-à-vis the patient is such that he cannot relinquish his responsibility except to another doctor.

Despite this tradition, group practice has developed in Canada. The variations to be found in this type of practice are immense; essentially, "It entails professional co-operation, rather than competition of the physicians within a particular group practice. It includes three or more doctors representing various specialities as well as general practice, with joint ownership of buildings, office facilities and equipment. There is a pooling of medical skill, knowledge and experience through consultations and the collective use of technical administrative and other auxiliary personnel. Income is distributed to members of the group according to agreed principles".[1]

Judging by replies to a questionnaire on medical practice distributed by the Commission to all Canadian physicians, the combination involving three or more specialties attracts a greater number of specialists than does the partnership which is more popular with the general practitioner. This is not to say that general practitioners do not participate in the former groups, but there is a tendency for the contribution they make to total patient care to be rendered by a specialist in internal medicine or by a paediatrician. Group practice tends to contribute in some way to a better utilization of the services of the physician. It generally results in more efficient administration, greater use of technical equipment, paramedical and surgical personnel. Its growth, therefore, may be seen as an answer to an increased demand for physicians' services as well as a more satisfactory way of practising for physicians.

Medical group practice exists not only in the larger communities but also in some rural areas—for example, that at Maple Creek, Saskatchewan. Some groups have been formed as a result of health plans negotiated by rural communities. There are other instances where the actions of certain "consumer" groups have stimulated the growth of combined practice amongst doctors; a recent example is the establishment of a group practice clinic to serve a local of the Steel Workers Union at Sault Sainte Marie.[2]

A survey of group practice conducted in Canada in 1954 indicated that of the responding physicians (74 per cent of all physicians in group practice in Canada) 25 per cent were on a salaried basis or partially salaried. This is in contrast to the traditional pattern of the physician earning fees for services rendered. The salaried form of remuneration in group practice is, however, part of a much larger movement towards the salaried employment of medical practitioners. Physicians are increasingly being employed in administration, teaching, research and industry, with a corresponding decline

[1] Judek, S., *op. cit.*, Chapter 6.
[2] A further analysis of group practice is contained in Chapter 13.

in the proportion of physicians in private practice.[1] In 1943 physicians in private practice formed 85.1 per cent of all active civilian physicians, in 1961 they formed 73.5 per cent. The apparent increase in the number of physicians in other forms of employment may be underestimated because a number of physicians in private practice devote part of their time to work in research, administration, etc.

Education of the Physician

The fundamental purpose of medical education, which embraces undergraduate, graduate and continuing medical education, is to produce qualified physicians who will co-operate with others in meeting the health needs of society.[2]

The medical school in Canada is an integral part of the university. It is headed by a dean who is appointed by the Board of Governors of the university. The responsibilities of the school are divided among clinical departments each with its own head or chairman. These department heads in fields such as medicine, surgery, obstetrics and gynaecology, psychiatry, and paediatrics are appointed as geographic full-time[3] members of the medical school. The heads of the basic science departments such as bacteriology, anatomy, biochemistry, pathology, and physiology are also full-time members of the medical school. However, there is a tradition in medicine that whenever possible physicians should devote part of their time to teaching, and in Canada today much of the teaching in medical schools is undertaken by part-time faculty members who are practising physicians in the community. These men devote their time to medical education for a standard of remuneration which, in most cases, is nominal.

The teachers, both full- and part-time, in medical schools are an obviously vital element in the structure of medical services. On their shoulders rests the tremendous responsibility of educating a sufficient number of physicians to meet the demands for medical care in our society, a demand that is growing, and will continue to grow with the expansion of the method of prepaying medical and other health expenses. Without sufficient numbers of teachers in our medical schools any proposals for the expansion of medical care services face serious obstacles.

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[1] Whether this trend will continue in the future is problematical.

[2] Further discussion of medical education is contained in Chapter 13.

[3] In Canada a "geographic full-time clinical teacher" is one whose first responsibility relates to his appointment in the university from which he should derive the major part of his income. He may see private patients, but he does so within the teaching hospital in which he holds a clinical appointment. There may be financial limits on the amount of income from private patients which may supplement his university stipend, and there may be limitations on time as well. He is encouraged to confine his practice to referred patients. He may not establish any office for private practice outside the hospital.

It is the teacher in the basic sciences, anatomy, biochemistry, microbiology, pathology, pharmacology and physiology whom the neophyte medical student meets first. From these faculty members the student learns the fundamentals on which many of his clinical skills are based. The person wishing to become a teacher in one of these fields faces a long, arduous and expensive training period. If he wishes to graduate in medicine before undertaking post-graduate work in one of the basic sciences, he faces a minimum of twelve years of training: two years pre-medicine, four years medicine, one year of internship, three years for the Ph.D. in a basic science field, and a further two years of research experience. Only then will he be capable of undertaking research as an independent investigator. Because the acquisition of the medical degree adds appreciably to the time required to become an independent investigator and teacher in the basic sciences, many individuals prefer to qualify for the Ph.D. only. Even so, this requires three to four years of undergraduate training, three or four years to obtain the Ph.D. and two further years of experience to become an independent investigator and teacher; a total of eight or nine years. The extent to which this latter course is followed in Canada is seen in the following table.

TABLE 7-9 PERCENTAGE DISTRIBUTION OF TEACHERS OF BASIC SCIENCE OF RANK OF ASSISTANT PROFESSOR OR HIGHER IN TWELVE CANADIAN MEDICAL SCHOOLS ACCORDING TO QUALIFICATIONS, 1962

Subject	Degrees Held				
	M.D.	Ph.D. (D.Phil., D.Sc.)	M.D. and Ph.D.	No Doctoral Degree	Total
Anatomy	55	19	21	5	100
Physiology	45.5	41.5	12	1	100
Biochemistry	8	83	6.6	2.4	100
Pharmacology	33	50	12.5	4.5	100
Microbiology	55	27	12	6	100
Pathology	74	10	13	3	100

SOURCE: MacFarlane, J. A., et al., *Medical Education in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 6.

The teachers in clinical fields also face a long and expensive training: ". . . most teachers will be required to achieve the Fellowship in the Royal College, and will have acquired particular knowledge in the narrow field of a specialty. A majority will have had some training in research

methods, in either a basic science department or a Clinical Investigation Unit. They will have spent four to six years in training after the pre-registration Junior Interneship".[1]

The salaries of the medical faculty are the responsibility of the university, although in the past few years substantial assistance has been received from the Medical Research Council for medical research associates. In addition, financial support for full-time clinical staff has been forthcoming from Canada and United States foundations and voluntary associations. Salary scales in the various departments of Canadian medical schools vary according to the university, but in 1961 they were as follows:[2]

Department Heads	$11,000 – 18,000
Professors	10,500 – 17,000
Associate Professors	8,500 – 12,300
Assistant Professors	6,500 – 10,000

These salary ranges reflect the substantial improvement in university salaries in recent years, but for teachers in the basic science departments of medical schools who hold both the M.D., and Ph.D. degrees who cannot supplement their university stipends the investment in time and money required to qualify for them is an unattractive prospect.

The introduction of the Hospital Insurance and Diagnostic Services Act affected the relationship between medical schools and teaching hospitals. The teaching hospitals have become less dependent upon the financial support and the prestige of the medical schools. Today it is difficult for some teaching hospitals to accept the view of the medical faculty on matters pertaining to problems of professional service. The Act does not include the salaries of full-time faculty, and the appropriate fees of part-time faculty as a shareable expense. Nor does it include medical research which is so vital to good teaching.[3] Another important element in the teaching of medical students is the hospital out-patient department where the student takes responsibility for individual ambulatory patients under the guidance of his clinical instructor. Under the Act the provincial government decides if out-patient services are to be included as a shareable cost. Some have excluded them thus placing a strain on the financing of these services and the provision of educational services in this department.

The growth of plans for the prepayment of medical expenses has also affected the relationship between the medical school and the teaching hospital. With a growing proportion of the population covered by these plans it becomes increasingly difficult for medical schools to obtain charity patients for teaching purposes. With the possible growth in prepayment to cover

[1] McFarlane, J. A., et al., *op. cit.*, Chapter 9.

[2] *Ibid.*, Chapter 5.

[3] Public funds are available for medical research through the medium of the Health Grants. See Chapter 10.

an even greater segment of the population, the medical schools face a serious obstacle to teaching.

In order to meet changing needs, some Canadian universities have accepted a new approach to medical education. The University of British Columbia, Laval University, and the University of Montreal are organizing health sciences centres of which the teaching hospital is an integral part. These centres are based on the idea that although the various professionals working in the health field are trained according to distinct disciplines in separate departments of the university, their common purpose should predispose them to work together. In order to do this they require a variety of paramedical co-workers. The environment in which this idea of a co-operative enterprise can be nurtured, and which promotes an understanding of the contributions which the various professional skills make in prevention, treatment and rehabilitation, is a health sciences centre. In the process of working together in the centre the various health professions would come to accept the idea of a co-operative approach to health problems. It might be claimed that such a centre would tend to be isolated from the rest of the university with the result that the health professions, while becoming technically more competent than they are under present teaching arrangements, will be so isolated from the community of scholars in other fields of learning that they will lack an appreciation of developments in these other fields. The assumption here is that such an appreciation is developed under the present system of medical education. A moot point indeed!

One of the most serious problems facing those responsible for medical education in Canada today is to ensure that the standards of medical care, which are such an integral part of everything the medical student is taught, are maintained in practice. The professional association and the licensing body seek to maintain these standards, but it is the responsibility of the individual practitioner to adhere to them in his day-to-day practice. There is an assumption that as a recognized professional the individual practitioner's day-to-day actions will be open to the scrutiny of his colleagues who will expect him to live up to professional standards of conduct and practice. Only by doing so can the individual practitioner gain their approval and esteem. Without this acceptance by his colleagues he may find his earning power significantly impaired. The implicit concern of fellow practitioners provides the necessary controls for the majority of physicians, but as Clute has recently indicated with respect to general practitioners, such controls do not apply to a significant proportion of general practitioners whose practice does not provide the standard of care which their professional colleagues and the general public expect.[1]

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[1] Clute, Kenneth F., *The General Practitioner,* Toronto: University of Toronto Press, 1963, p. 461.

The Code of Hammurabi of about 2270 B.C. states that "If a physician treats of man for a severe wound with a bronze knife and kill him, or if he open an abscess (near the eye) and destroy the eye, one shall cut off his hands".[1] This punitive approach to the control of standards of medical care has been superseded by the profession's reliance on collegial control, but since the latter does not always produce the desired results, medical educators in Canada are experimenting with continuing medical education programmes. Their aim is to assist the practising physicians to keep in touch with recent advances in medical knowledge. As we have noted in a previous chapter of this report, the corpus of scientific knowledge is increasing in size at an accelerating rate.[2] In fact, Robert Oppenheimer claims that today research doubles the body of scientific knowledge every ten years.[3] This rate of increase in medical knowledge poses major problems for the educators. Not only is it impossible for the medical student to master the details of all available knowledge, but new developments occur at such a rapid rate that the knowledge he does assimilate is quickly superseded by new developments. How, then, can the busy practising physician keep abreast of new findings in his particular professional field? He may try to do so by careful study of his professional journals, but if his services are in great demand, as are the services of most physicians in Canada today, the amount of time he can give to such study is quite limited, and in many cases non-existent. The practitioner may try to glean what new knowledge he can from the papers presented at his local medical society but as a source of new developments this approach has definite limitations. Some university medical schools—notably Dalhousie, Toronto, Laval, and British Columbia—have organized refresher courses for general practitioners but due to the difficulties faced by the busy general practitioner in leaving his practice, they reach only a small proportion of physicians. Regional Clinical Programmes are another innovation organized by the already mentioned medical schools. The local hospital is the focus of the programme, and with the co-operation of the local medical society, problem cases are presented to those attending by the staff of the hospital. These local programmes have had some success, and it is possible that they can provide one pattern for a system of continuing medical education which is such an important factor in maintaining a high standard of medical care; a standard which may be under serious strain with a steadily rising demand for medical services.[4]

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[1] Code of Hammurabi as quoted by MacFarlane, J. A., et al., *op. cit.*, Chapter 9.
[2] Chapter 3.
[3] MacFarlane, J. A., et al., *op. cit.*, Chapter 9.
[4] The place of continuing medical education is discussed further in Chapter 13.

DENTAL PROFESSION

The formation of the Canadian Dental Association in 1902 marked the beginning of a statistical system from which can be derived fairly reliable data on the number of dentists. However, information on supply does not indicate whether these numbers are adequate. We know that the profession has grown in size, but the population which it serves has grown at an even faster rate.

Population-Dentist Ratio[1]

Ratios of this type usually conceal more than they reveal; some of their shortcomings have been noted in our discussion of the population-physician ratio. There is no doubt generally speaking that the better the ratio the more likelihood there is that the demand for dental care can be met. Comparison of ratios between countries with a similar social structure, and at approximately the same stage of economic development can give at least some indication of the relative position of individual countries with respect to the adequacy of the supply of various types of health personnel and in this case, the practising dental profession.

Canada's population per dentist ratio ranks low when compared with those for some European countries. Table 7-10 shows that only four European countries have ratios worse than our own. Of the 19 countries reviewed, Canada ranks fourteenth.

Some idea of the provision of dental services on a regional basis is set out in Table 7-11, and shows significant variations between provinces, with seven provinces showing a lower standard than Canada as a whole. Three provinces, Albert, Ontario and British Columbia have ratios better than the national average but it is the ratios of the latter two provinces which bring the national ratio to its present level.

Since its entry into Confederation, Newfoundland has experienced a considerable improvement in its ratio, but in the other provinces the trend has worsened.[2] These trends are shown in Table 7-11.

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[1] It will be noticed that in the population-dentist ratios quoted in the Tables which follow, there may be a difference of a year—i.e., in Table 7-10 the ratio of 3,032 is given for Canada for 1959. This is closer to the 1960 ratio of 3,025 quoted in the following Table 7-11. It depends on whether first-of-year or end-of-year figures for dentists are used to divide into the June estimate of population. McFarlane (i.e., Table 7-11) uses first-of-year figures; we use end-of-year figures. See also footnote 2 in Table 13-10, Chapter 13 of this Report.

[2] The future supply of dentists is discussed in Chapter 13.

TABLE 7-10 POPULATION-DENTIST RATIO, CANADA AND SELECTED COUNTRIES, 1959

Country	Population per Dentist
Germany: Federal Republic	566
Sweden	1,497
Norway	1,528
Austria	1,762
United States	1,919
Denmark	2,006
New Zealand	2,209
Switzerland	2,413
Australia	2,429
Finland	2,522
Greece	2,550
Spain	2,915
France	3,006
Canada	*3,032*
England and Wales	3,947
Holland	4,294
Belgium	6,784
Portugal	74,205
Italy	—*

*Not available.

SOURCE: Special compilation based on data from World Health Organization, *Annual Epidemiological and Vital Statistics 1959*, Geneva 1962, pp. 654-659, and *Demographic Yearbook 1960*, New York: United Nations, 1961, pp. 104-115.

Graduates of Canadian Dental Schools

The first three dental schools organized in Canada were not developed as part of a university though they all—the Royal College of Dental Surgeons, Toronto; the Dental School of Montreal, Montreal; and the Maritime Dental School, Halifax—had at least some connection with the local universities. Today these three, plus those which were subsequently organized, are faculties of recognized universities. The six dental schools[1] which are operating in Canada have produced 4,105 graduates since 1939. Approximately seven per cent of these graduates came to study in this country from the Commonwealth and the United States. On the other hand between 1955 and 1963, of all Canadian dental students, four per cent went to dental schools in the United States. How many of these returned to practise in Canada is not known.[2]

[1] Located at Dalhousie University, Université de Montréal, McGill University, University of Toronto, University of Manitoba and the University of Alberta.

[2] McFarlane, Bruce A., *Dental Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

TABLE 7-11 POPULATION-DENTIST RATIO, BY PROVINCES AND CANADA, 1881-1962

Year	Canada	Province									
		Nfld	PEI	NS	NB	PQ	Ont	Man	Sask	Alta	BC
1881....	8,480	—*	—*	—*	—*	—*	—*	—*	—*	—*	—*
1891....	6,419	—*	—*	—*	—*	—*	—*	—*	—*	—*	—*
1901....	4,100	—*	—*	—*	—*	—*	—*	—*	—*	—*	—*
1911....	3,301	—*	4,260	3,939	3,591	6,134	2,242	3,549	5,533	3,565	2,453
1921....	2,783	—*	4,028	3,401	3,463	3,753	2,130	2,812	4,139	3,081	1,921
1931....	2,569	—*	3,036	3,185	3,292	3,459	1,853	2,789	4,133	3,167	2,060
1938....	2,646	—*	3,100	3,248	3,973	3,594	1,882	2,849	4,390	3,288	2,097
1941....	2,733	—*	3,394	3,247	3,876	3,571	2,003	2,931	4,091	3,290	2,323
1943....	2,714	—*	3,214	3,377	4,936	3,553	2,004	2,828	3,926	2,885	2,390
1944....	2,678	—*	3,956	3,311	4,724	3,608	1,932	2,869	4,029	2,784	2,400
1945....	2,638	—*	3,250	3,199	4,044	3,539	1,922	2,908	4,078	2,667	2,408
1946....	2,644	—*	3,286	3,292	4,448	3,511	1,898	3,107	4,361	2,786	2,326
1947....	2,671	—*	3,357	3,378	4,193	3,486	1,967	2,979	4,272	3,042	2,204
1948....	2,728	—*	3,357	3,203	4,518	3,503	2,055	2,944	4,287	3,033	2,250
1949....	2,819	—*	3,207	3,511	4,446	3,563	2,155	3,045	4,297	3,175	2,283
1950....	2,906	18,158	3,241	3,678	4,838	3,561	2,194	3,154	3,981	3,127	2,290
1951....	2,791	16,714	3,200	3,323	4,830	3,460	2,126	2,965	3,839	2,844	2,203
1952....	2,763	17,210	3,394	3,278	4,688	3,357	2,134	2,975	3,815	2,864	2,134
1953....	2,772	15,583	3,030	3,315	4,655	3,361	2,159	3,093	3,780	2,764	2,171
1954....	2,802	11,969	2,970	3,348	4,595	3,353	2,226	3,088	4,005	2,728	2,163
1955....	2,855	11,970	2,886	3,399	4,538	3,423	2,293	3,106	3,897	2,804	2,195
1956....	2,898	11,600	3,030	3,449	4,484	3,491	2,320	3,290	4,046	2,848	2,204
1957....	2,934	10,643	2,920	3,599	4,437	3,522	2,353	3,232	4,234	2,836	2,285
1958....	2,985	10,341	2,912	3,670	4,496	3,652	2,378	3,504	4,211	2,825	2,352
1959....	2,969	9,391	3,030	3,731	4,605	3,627	2,351	3,159	4,243	2,892	2,449
1960....	3,025	10,256	2,886	3,725	5,105	3,630	2,410	3,217	4,724	3,029	2,400
1961....	3,047	10,667	3,322	3,709	4,908	3,705	2,432	3,168	4,668	2,995	2,420
1962....	3,108	10,648	3,608	3,879	4,822	3,712	2,511	3,257	4,794	3,069	2,406

*Not available.

SOURCE: Data supplied by the Canadian Dental Association.

The capacity of our present dental schools for first year students is 338, an increase from 202 in the academic year 1952-53. Any increase in the number of dentists in Canada depends almost solely on an expansion in the available places in the first years of dental schools.

The Migration of Dentists

Unlike the medical professions, the inflow of new members into the dental profession as a result of immigration is comparatively small. The various provincial licensing regulations are partly responsible for this state of affairs.[1]

While it is true that comparatively few dentists enter Canada as immigrants, it is also true that comparatively few emigrate. According to the Canadian Dental Association only 200 have left Canada since 1945, or approximately six per cent of the total number of dentists who have graduated from Canadian dental schools since that date. Of these emigrants, three-fifths went to the United States.[2]

Death and Retirement of Dentists

The death rate of dentists who are members of the Canadian Dental Association is approximately 1.2 per cent per year.[3] We expect this rate to increase slightly in the next few years because almost one-third of the number of dentists now practising in Canada were born around the turn of the century.

The number of dentists who retire in a particular year is difficult to determine. Many dentists continue to retain membership in their professional association after they have retired or become inactive in some other way. Furthermore, dentists, like physicians, tend to give up practising by degrees so that while some older dentists may give the appearance of being active in their profession, in fact, they are providing a limited amount of service.

The British Dental Association reports that 12 per cent of its registrants in 1962 were no longer practising dentistry.[4] In 1961 the American Dental Association reports 11.3 per cent in the same category.[5] In Canada, the Manitoba Dental Association reports 11 per cent of its registrants were inactive in 1962.[6] However, an annual average of only 1.1 per cent of Canadian dentists report their retirement to the Canadian Dental Association.[7] Obviously, this figure is too low.

Geographic Distribution of Dentists

Table 7-12 shows that a serious maldistribution of dentists exists in all provinces in Canada. This is true even in provinces with a comparatively

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[1] This point is discussed further in Chapter 13.
[2] McFarlane, Bruce A., *op. cit.*, Chapter 2.
[3] *Ibid.*
[4] *Ibid.*
[5] *Ibid.*
[6] *Ibid.*
[7] *Ibid.*

favourable over-all ratio. Thus, in Ontario there are some rural areas where the population-dentist ratio is as low as 20,892. Some urban areas too, suffer the same lack of dental services. Pembroke, Ontario, for example has a ratio of 10,000. Usually, however, the urban ratios are considerably more favourable than those in rural areas.[1]

Prince Edward Island is in a somewhat different situation in this regard when compared with the other provinces. Although it has a disparity in favour of urban dentists, the province is small enough for dentists from urban areas also to serve rural areas.

TABLE 7-12 POPULATION-DENTIST RATIO, BY SIZE OF COMMUNITY AND PROVINCE 1960

Province	Community Size		Ratio of Column B to A
	Under 10,000	Over 10,000	
	A	B	C
Newfoundland	30,859	3,424	1:9
Prince Edward Island	5,304	902	1:6
Nova Scotia	5,146	2,693	1:2
New Brunswick	8,604	2,682	1:3
Quebec	7,828	2,538	1:3
Ontario	4,136	1,956	1:2
Manitoba	9,145	2,041	1:4
Saskatchewan	8,411	2,046	1:4
Alberta	7,167	1,790	1:4
British Columbia	3,920	1,933	1:2
CANADA	6,061	2,119	1:3

SOURCE: McFarlane, Bruce A., *Dental Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

Specialization

Many general dental practitioners "specialize", but only 3.8 per cent of Canada's dentists are qualified specialists.[2] There are three recognized dental specialties in this country: orthodontics, oral surgery and periodontics. In other countries the number may vary. In the United States, for example, there are four additional specialties.[3]

Between 1952 and 1962 there has been a moderate proportionate increase in the number of dental specialists, from 2.5 to 3.8 per cent. These,

[1] *Ibid.*, Chapter 3.
[2] The Province of Newfoundland does not certify any dental specialists.
[3] McFarlane, Bruce A., *op. cit.*, Chapter 3. They include paedodontics, prosthodontics, oral pathology and public health.

even more than their colleagues in general practice, tend to concentrate in urban centres. Over three-quarters of the practitioners in each specialty are located in cities of over 250,000 population. Ontario has by far the largest share of these specialists with 54 per cent while Newfoundland and Prince Edward Island have none.[1]

Types of Practice

In Canada dentistry is predominantly an independent, fee-for-service type of practice. It is perhaps the health profession least marked by salaried employment or the concentration of personnel in large groups. This manner of organizing dental service is accompanied by a generally inadequate level of dental health.[2]

Forms of combined practice are found in dentistry—out of a sample of 216 dentists surveyed for this Commission approximately 30 per cent were engaged in other than solo practice.[3] Nevertheless the trend is not as marked, nor are the variations of combined practice so diverse as in the medical field. To a large extent dentists still retain their independent solo practice and even among those reported to be engaged in some form of combined practice, only 18 per cent share space, facilities and patients with colleagues.[4] It is possible though that combined or group practice in dentistry has advantages similar to those found in group practice in medicine: the pooling of special skills, equipment, and ancillary personnel; opportunity for continued education; and lower operating expenditures.

Education of the Dentist

According to Paynter[5] the six dental schools operating in Canada today, have a capacity for 338 first year students, or a total for the four years of the dental course of 1,352 students. An additional school with a first year capacity of 40 students is now being organized at the University of British Columbia. In the past the faculty of these schools consisted largely of practising dentists who taught part-time. Although the proportion of full-time academic staff has risen from nine per cent in 1926 to 18.7 per cent in 1961, the fact remains that half-time and part-time staff today make up 81.3 per cent of the faculty of our dental schools. In 1958 in the United States 31.4 per cent of the faculty were full-time.[6]

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[1] *Ibid.*

[2] See Chapter 5 of this Report.

[3] Hall, O., *The Utilization of Dentists,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter III.

[4] *Ibid.*

[5] Paynter, K. J., *Dental Education,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 5.

[6] *Ibid.*

Of the full-time staff 45.3 per cent have the D.D.S. degree only, and 28 per cent have specialist qualifications. A further 18.7 per cent have a D.D.S. degree plus a Masters or a Ph.D. degree. Of the part-time staff, 85.5 per cent have the D.D.S. degree only, 10.7 per cent have specialist qualifications, and 0.6 per cent have a D.D.S. degree plus a Masters or Ph.D. degree.[1]

These data indicate that the standard of dental education in Canada may not be as high as one might wish. No matter how dedicated the efforts of the present faculty, it is probably well-nigh impossible for them to maintain the standards of dental education they desire. According to the Commission on the Survey of Dentistry in the United States the ratio of full-time to part-time faculty should be two to one.[2] In Canada this ratio is about one to five. The strain on quality is further accentuated when we consider that the ratio of full-time and half-time staff to students stood at 1:12.6 in 1961-62. In his study of dental education in British Columbia, Macdonald recommended a ratio of 1:5.4.[3]

The fact that a significant proportion of full- and part-time faculty in our dental schools have no training beyond the D.D.S. degree, is due in part to the limited opportunities for graduate study in dentistry in Canada. Furthermore, not all of our dental schools are considered to have adequate facilities to offer graduate courses. In fact, only two dental schools provide programmes to train candidates as research workers. While this lack continues our present dental schools will be inadequately staffed, research will be impoverished or negligible, and the expansion of existing schools and the building of new schools will be severely hampered.

Of considerable importance in the organization of dental education in Canada today is the relationship between the dental school and other university departments especially the medical school. Dental schools rely on other departments, such as those in the biological and physical sciences, for student instruction, thus relieving them of adding to the school faculty members qualified in these fields. The medical school provides instruction in the basic sciences with the same result.

The concept of the Health Sciences Centre, within which the basic sciences serving the field of health form a unit, is a possible means of overcoming the scarcity of qualified personnel, for in this way the basic scientist would instruct not only physicians and dentists but also those students in the paramedical fields requiring the same type of instruction.[4]

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[1] *Ibid.*

[2] Commission on the Survey of Dentistry in the United States, *The Survey of Dentistry, The Final Report*, Washington, D.C.: 1961, American Council of Education, p. 309.

[3] Macdonald, J. B., *A Prospectus on Dental Education*, Vancouver: University of British Columbia, 1956, p. 53.

[4] Dental education is discussed further in Chapter 13.

NURSING PROFESSION

Unlike medicine and dentistry, nursing is practised mainly in an institutional setting, the hospital. Most other nurses are employed by public or private agencies with few practising independently. In the early part of this century the practice of nursing was more independent than it is today; in those days the nurse usually worked alone providing care in the home ranging from the actual care of the sick to the care of the children. Today, the hospital nurse performs a wide variety of duties many of which were unknown at the beginning of this century. She generally no longer cares for one patient in the home, but serves rather as a member of a team caring for a large number in a hospital. As the independent practice of nursing diminished, nursing procedures became more specialized and technical. Many of these procedures were formerly the responsibility of the physician:

> "Physicians are delegating increased responsibilities to the professional nurse. World War II gave impetus to the use of nurses for carrying out certain procedures,—e.g., giving intravenous fluids—formerly performed by the physician. Today the nurse when adequately trained is able to act on her own initiative in taking emergency measures—e.g., relieving respiratory distress—for the care of postoperative or other critically ill patients. With development of new techniques, she will be expected increasingly to perform highly specialized tasks . . ."[1]

There is little doubt that the role of the nurse is changing to meet the realities of the current health scene. These changes are a challenge to the profession for they have a direct bearing on the attractiveness of nursing as a career, and on the supply of nurses to meet our health needs. They also have a significant impact on the education of nurses and on the quality of nursing care.[2]

Population-Nurse Ratio

An approximation of the number of nurses in Canada can be obtained from statistics of registration but the limitations of such an estimate should be borne in mind. Licensing and registration of nurses are a provincial responsibility. The requirements vary from province to province. For example, in Newfoundland, Prince Edward Island, Quebec and Manitoba nurses who wish to practise must register with the provincial nurses' association and obtain a licence. In other provinces, a diploma nurse can work as nurse without registering. In the four provinces with licensing systems, therefore, statistics theoretically include all nurses who are actively practising

[1] U.S. Department of Health, Education, and Welfare, *Toward Quality in Nursing, Needs and Goals*, Washington: United States Government Printing Office, 1963, p. 4.

[2] The changing role of the nurse is discussed further in Chapter 13.

while in the other provinces the statistics do not necessarily cover all active nurses. In addition, nurses who have qualified may maintain their registration even though they are not practising. The foregoing indicates that statistics dealing with registered nurses do not provide a complete record of active and inactive nurses, but they can be useful in indicating trends.

The number of nurses registered in Canada has increased substantially over the post-war period. As shown in Table 7-13, 27,853 nurses were registered in Canada in 1941. Twenty years later in 1961, there were 78,340 registered, an increase of nearly threefold over the period. The more important part of this increase has taken place in the decade 1951-1961; in that period, the percentage increase amounted to nearly 80 per cent.

Along with the growth in the number of registered nurses has gone an improvement in the Canadian population-nurse ratio. As can be seen from Table 7-14, the population-registered nurse ratio has steadily declined until by 1962, there was one registered nurse for every 220 Canadians.

One piece of evidence relating to the growth of the supply of nurses practising their profession, as opposed to maintaining their registration is to be found in the decennial Census of Canada. These data are presented in Table 7-15 and show that between 1941 and 1951 the number of nurses reporting themselves as actively engaged in the practice of their profession,

TABLE 7-13 NURSES REGISTERED, ANNUAL INCREASE IN REGISTRATION AND NUMBER OF GRADUATES, CANADA, SELECTED YEARS, 1941-1961

Year	Number of Nurses Registered	Increase in Registration	Number of Graduates
1941	27,853	—	—
1950	41,088	—	4,068
1951	43,924	2,836	4,349
1952	43,880	−44	4,452*
1953	47,775	3,895	4,555*
1954	50,131	2,356	4,658*
1955	54,518	4,387	4,761*
1956	59,419	4,901	4,866
1957	60,864	1,445	5,034
1958	64,666	3,802	5,244
1959	68,502	3,836	5,670
1960	72,885	4,383	5,483
1961	78,340	5,455	6,004

*Estimated.

SOURCE: Based on data supplied by the Canadian Nurses' Association.

TABLE 7-14 POPULATION-REGISTERED NURSE* RATIO, CANADA AND PROVINCES, SELECTED YEARS, 1941-1962

Province	1941	1951	1955	1956	1957	1958	1959	1960	1961	1962
Newfoundland	—	—	612	654	592	555	531	506	478	449
Prince Edward Island	805	268	268	247	259	262	252	234	226	235
Nova Scotia	558	336	353	319	342	326	321	308	274	258
New Brunswick	713	395	348	342	340	310	289	268	244	228
Quebec	787	491	453	450	437	433	429	418	394	360
Ontario	257	216	200	191	198	191	179	176	165	162
Manitoba	474	411	347	325	307	311	308	257	247	241
Saskatchewan	736	364	301	282	269	251	269	247	245	235
Alberta	541	395	357	340	337	321	301	296	289	207
British Columbia	288	274	253	203	208	201	209	193	192	190
CANADA	413	319	288	271	273	264	255	245	233	220

*Registered nurses working in the Northwest Territories or the Yukon would be registered in one of the provinces.

SOURCE: Based on Table 7-13 and data obtained from the Canadian Nurses' Association.

either full-time or part-time, rose from 21,171 to 35,129 while by 1961 this had increased to 61,699.[1] Thus, about 80 per cent of registered nurses were in practice in the decade 1951-61. On the basis of census data the population-practising nurse ratio improved from 399 in 1951 to 296 in 1961.[2]

It is evident that registrations, while indicating the trend rate of growth in supply, are not a reliable indicator of the number of nurses practising at a particular moment of time. Table 7-13 makes this clear. While the number of graduates increased steadily in the period 1951 to 1961, the number of nurses registered changed quite abruptly. In 1952, there were fewer nurses registered than in 1951, yet in 1952, 4,452 nurses graduated. Again, in 1957 the increase in nurse registration was only 1,445, although 5,034 nurses graduated. There must be some variable operating here that is not revealed by the data. Is it possible that during the preceding few years of high employment levels some nurses gave up jobs which had been relied on for extra income? Significantly, in 1958, after a year of recession, the number of nurses registered increased by 3,802. Evidently, the number of qualified graduate nurses actually working at any given time is somewhat less than the number registered, but by how much less is difficult to establish without knowing a good deal more than at present of the social reasons for the changes in the rates of participation in the labour force.

[1] A registered nurse is one who has met specified qualifications for admission, and has been entered in a register of nurses authorized by a provincial statute. An active nurse is one who is registered and practising as a nurse.

[2] Ratio based on Table 7-15.

TABLE 7-15 NUMBER OF ACTIVE AND REGISTERED NURSES, CANADA, CENSUS YEARS 1941-1961

Year	Number of Registered Nurses	Number of Active Nurses (Census)	Active Nurses as Per-cent of Registered Nurses
1941	27,853	21,171	76.0
1951	43,924	35,129	80.0
1961	78,340	61,699	78.8

SOURCE: Table 7-13 and Dominion Bureau of Statistics, *Census of Canada, 1961*, Vol. III, Part 1, Labour Force, Ottawa: Queen's Printer, 1963, Table 6. *Census of Canada, 1951*, Vol. V, Labour Force, Ottawa: Queen's Printer, 1953, Table 10. *Census of Canada, 1941*, Vol. VI, Earnings, Employment and Unemployment of Wage-Earners, Ottawa: King's Printer, 1946, Table 6.

Although the Canadian population-registered nurse ratio has improved in the post-war period, as Table 7-14 indicates, this improvement is more pronounced in some provinces than in others. Ontario and British Columbia have the most favourable while Quebec and Newfoundland have the least favourable ratios consistently throughout this period. Improvement in the ratio is evident in every province with Prince Edward Island, New Brunswick and Saskatchewan showing the greatest gains over this period. If we can assume that registration statistics reflect at least the relative position of provinces with respect to full-time active nurses, Table 7-14 shows that Canada suffers from a shortage of nurses in certain regions.[1]

The Canadian population-nurse ratio however is high in comparison with many other countries. Table 7-16 shows that only four of the selected countries in 1959 were reported to have better ratios than our own, while the remainder had a less favourable ratio. There are certain limitations to these data, however. Some data are estimates, but more important, categories of nurses, as defined by their training and professional activities, have different meanings among western nations. Nurses considered to be auxiliaries in one country might appear as professional nurses in another.

Graduates of Canadian Schools of Nursing

The major sources of the supply of nurses in Canada are hospital and university schools of nursing. Table 7-17 provides data on student enrolment and indicates large increases in both the numbers of students

[1] The future supply of nurses is discussed in Chapter 13.

TABLE 7-16 POPULATION PER NURSE RATIOS, CANADA AND SELECTED COUNTRIES, 1959

Country	Population Per Nurse
Sweden	122
Germany: Federal Republic	136
New Zealand	215
Switzerland	249
*Canada**	*255*
Denmark	277
Finland	278
United States	294
Norway	366
Austria	453
England and Wales	471
France	536
Holland	815
Italy	952
Greece	1,207
Portugal	2,799
Spain	—†
Belgium	—†
Australia	—†

* From Table 7-14.

† Not available.

SOURCE: Table 7-14 and special compilation based on data from World Health Organization, *Annual Epidemiological and Vital Statistics 1959*, Geneva; 1962, pp. 674-680, and *Demographic Yearbook 1960*, New York: United Nations, 1961, pp. 154-261.

and graduates. A crucial question, however, is whether the number of students enrolled and, therefore, the number of graduates is increasing as a proportion of the junior matriculants from which nurses are recruited; i.e., the number of girls becoming nurses as a proportion of those who could become nurses. To obtain this information the number of girls entering nursing was taken as a percentage of the number of female students having junior matriculation, and therefore qualified to undertake nurse training in a particular year. Table 7-18 shows that this percentage has declined from 23.19 per cent in 1944 to 10.78 per cent in 1961. The general trend in the number entering nursing has been upward, but has increased at a considerably slower rate than the growth in the number of female students with junior matriculation. For example, the percentage rate of increase in the number of students entering nursing between 1951 and 1961 was 46 per cent, while the increase in the number of girls with junior matriculation, over the same period, was 170 per cent.

TABLE 7-17 ENROLMENT IN CANADIAN NURSING SCHOOLS CANADA, 1930-1961

Year	Total Enrolment	Graduates
1930	9,088	—†
1939	8,500	—†
1945	12,151	—†
1946	12,880	—†
1947	12,872	—†
1948	13,273	—†
1949	14,115	—†
1950	14,811	—†
1951	15,457	—†
1952	15,423	—†
1953	15,434	—†
1954	15,883	—†
1955	17,369	—†
1956	17,948	4,866
1957	18,500	5,034
1958	18,168	5,244
1959	19,352	5,670
1960	21,297	5,483
1961	22,821	6,004

† Not available.

SOURCE: Data supplied by the Canadian Nurses' Association.

The evidence suggests that there are more than enough young women who could become nurses and that a sizeable number of young women actually chose this career. In view of present and future needs there is still a problem of obtaining more recruits for the nursing profession. In the light of the attractive alternatives open to young women, if the percentage enrolling in the nursing schools is not to decline to a level where it significantly affects the supply of nurses, we will need a fresh and imaginative approach involving recruitment, education and utilization of the nursing profession.[1]

Migration of Nurses

The supply of nurses is increased each year by net migration as well as by the number of new graduates. Immigration and emigration fluctuate according to people's evaluation of the relative opportunities in other

[1] These matters are discussed further in Chapter 13.

TABLE 7-18 NUMBER AND PERCENTAGE OF FEMALES WITH JUNIOR MATRICULATION ENROLLING IN SCHOOLS OF NURSING, CANADA, 1944-1961

Year	Number of Female Students with Junior Matriculation*	Number Enrolling In Nursing Schools	Percentage Enrolling In Nursing Schools
1944	21,709	5,035	23.19
1945	22,802	4,536	19.89
1946	23,462	5,160	21.99
1947	24,181	4,929	20.38
1948	23,739	4,954	20.86
1949	27,005	5,320	19.70
1950	27,448	5,743	20.92
1951	28,997	5,754	19.84
1955	37,393	6,270	16.50
1956	39,455	6,377	16.16
1957	49,466	6,385	12.90
1958	58,441	6,895	11.79
1959	66,956	6,994	10.44
1960	70,656	7,666	10.84
1961	78,162	8,428	10.78

*Students graduating with Junior Matriculation from private schools are not included except for the years 1957-1961.

SOURCE: Data supplied by the Canadian Nurses' Association.

countries and this makes difficult the estimate of trends. The greatest drawback of the immigration statistics is that prospective immigrants indicate their intended occupation before leaving their country of origin, and there is no follow-up after arrival to ascertain that they have actually obtained work in this field.

The record since 1953 of immigration to, and emigration from Canada is shown in Table 7-19. Column 3 shows the number of people entering Canada who indicated they intended to practise nursing. There is no way of knowing if these intentions became a reality. Some of this number may have taken other jobs. Even if we can assume that the total in Column 3 represents the number of immigrants who practised nursing, the loss of Canadian nurses to the United States was so great that, as shown in Column 5, the net gain over the period 1953 to 1960 was only 553, not including those Canadian nurses who emigrated to countries outside North America. Because of our high level of emigration of nurses to the United States, Canada has to train more nurses for our minimum domestic requirements.

These data indicate that Canadian nurses are in great demand elsewhere, and that they willingly respond to such opportunities. It has also been presented to us that there is substantial movement of nurses from province

to province. This high degree of mobility creates special problems for less urbanized provinces and regions from which there is a constant drain.

TABLE 7-19 MIGRATION OF GRADUATE NURSES INTO AND OUT OF CANADA, 1953-1960

Year	(1) Immigration from U.S.A.	(2) Immigration from Other Countries	(3) Total Immigration	(4) Emigration to U.S.A.*	(5) Net Change	
					(1)-(4)	(3)-(4)
1953	98	1,483	1,581	951	− 853	630
1954	83	1,375	1,458	940	− 857	518
1955	71	1,156	1,227	1,227	−1,156	0
1956	61	1,187	1,248	1,388	−1,327	−140
1957	58	1,671	1,729	1,553	−1,495	176
1958	105	1,040	1,145	1,376	−1,271	−231
1959	97	976	1,073	1,343	−1,246	−270
1960	119	1,171	1,290	1,420	−1,301	−130
TOTAL	692	10,059	10,751	10,198	−9,506	553

*Includes student nurses. This represents a 3 per cent over-estimate in the number of emigrants.

SOURCE: Data provided by the Department of Citizenship and Immigration.

Marriage and The Nursing Profession

As with other predominantly female occupations, a large number of active graduate nurses are married. This has consequences for the supply of nurses as substantial numbers of qualified nurses withdraw from the profession in order to marry and raise a family. Data are not available to indicate the annual rate of withdrawal for this reason, nor to show the subsequent return of married nurses into the profession. We cannot, therefore, ascertain the balance between this type of outflow and inflow. But as Table 7-20 indicates an increasing proportion of active nurses are married. Between 1951 and 1961 it rose from 25.3 per cent to 46.5 per cent. This is a reflection of a general trend in the employment of married women as is evident for a selected group of occupations in the same table.

Nature of Employment

A major factor in the adequacy of the supply of nurses is their distribution in the various employment areas. Table 7-21 shows that private duty nursing has proportionately decreased as an area of nursing activity. The table also shows that nurses in public and occupational health are not increasing at the same rate as in other categories.

TABLE 7-20 NUMBER AND PERCENTAGE DISTRIBUTION OF MARRIED FEMALE LABOUR FORCE BY SELECTED OCCUPATIONS, 1951 AND 1961

Occupation	Total		Married	
	Year	Number	Number	Per Cent
School Teachers	1951	74,319	15,289	20.6
	1961	118,807	49,271	41.4
Nurses, Graduate	1951	34,270	8,685	25.3
	1961	59,345	27,608	46.5
Nurses-in-Training	1951	15,581	129	0.8
	1961	22,667	468	2.1
Therapists—Phys. and Occup.	1951	—*	—*	—*
	1961	2,044	834	40.8
Technicians—Medical and Dental	1951	—*	—*	—*
	1961	9,085	2,835	31.2
Dietitians	1951	1,100	201	18.3
	1961	1,849	666	36.0
Social Welfare Workers	1951	2,525	604	23.9
	1961	5,784	1,940	33.5
Stenographers and Typists	1951	133,485	31,665	23.7
	1961	160,843	67,654	42.1
Nursing Assistants, Stenographers and Aides	1951	—*	—*	—*
	1961	49,376	23,197	47.0

*Data not available.

SOURCE: Dominion Bureau of Statistics, *Census of Canada 1951*, Vol. IV, Labour Force, Ottawa: Queen's Printer, 1953, Table 11, Dominion Bureau of Statistics, *Census of Canada 1961*, Vol. III, Part 1, Table 17, Ottawa: Queen's Printer, 1963, pp. 17-241 and 17-243.

As the hospitals have increased in importance as centres of modern treatment, they have expanded as centres of nursing employment. In 1930, about 60 per cent of the registered nurses were recorded as being in private duty employment; by 1960, this type of nursing employed about 9 per cent of all registered nurses. The increase in the proportion of nurses found in hospitals has been accompanied by a substantial increase in the nursing complement. In 1941, the public hospitals reporting annually to the Dominion Bureau of Statistics enumerated 7,835 nurses; by 1958, the number had risen to a total of 28,925 full-time nurses and 4,136 part-time. During the period 1954 to 1960 the total nurses employed in mental institutions and tuberculosis sanatoria rose only slightly from 6,698 to 7,677. Because of the

TABLE 7-21 NUMBER AND PERCENTAGE DISTRIBUTION OF GRADUATE NURSES IN MAJOR FIELDS OF NURSING, CANADA, SELECTED YEARS, 1930-1960

	1930		1943		1948		1955		1956		1960	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Private Duty	6,370	60	6,327	29	2,886	15	4,962	9	4,962	8	6,165	9
Hospital and Schools of Nursing	2,639	25	10,705	48	12,846	67	24,292	45	30,448	51	40,358	59
Public Health and Occupational Health	1,521	15	3,241	15	3,017	16	4,370	8	4,524	8	5,109	7
Other Fields and Unspecified	*		1,849	8	287	2	20,894†	38	19,894†	33	16,870†	25
TOTAL	10,530	100	22,122	100	19,036	100	54,518	100	59,828	100	68,502	100

* Data not available.

† Includes inactive nurses.

SOURCE: Data provided by the Canadian Nurses' Association.

reduction of nursing hours and the elimination of the split shift it has been necessary to increase the number of nurses more rapidly than the number of hospital beds. Thus, although the increase in the nursing staff of public hospitals has outstripped the increase in the provision of hospital beds, some authorities still claim a shortage of nurses in Canada particularly in some areas.[1]

Education of Nurses: Hospital Schools of Nursing

Today there are four main educational programmes for nurses and nursing auxiliaries in Canada: the university programme undertaken by 17 university schools of nursing, the hospital programme operated by 171 hospital schools of nursing, the nursing assistant programmes of which there are 79 across Canada, and the psychiatric nurses' programmes of which there are 8 all located in the western provinces.

The first organized nursing schools were established in Canada late in the last century and were patterned after the Nightingale system which was first implemented in connection with St. Thomas's Hospital in London, England.[2] There was one significant difference, in that St. Thomas's Hospital School was an independent institution whose students were not part of the hospital staff. In the Canadian schools, however, the students were required to provide service to the hospital of which the school of nursing formed a part. The education of the nurse was subordinated to the service requirements of the hospital. It should be observed that this system made it possible for many thousands of young women to obtain a professional education without direct cost. In its essentials this pattern still prevails although educational standards have improved since it was introduced. It is noteworthy that as early as 1932, in his study of Canadian schools of nursing, George M. Weir recommended that schools of nursing be removed from the control of hospitals and placed under the control of the educational authorities of the provinces.[3] The demand for such a separation has risen progressively since that date.[4]

The extent to which education and service has been mixed can be seen from the financial data relating to the cost of nursing education in a few places where such records have been kept. One such estimate is obtained from the

[1] For a discussion of this point see Chapter 13.

[2] Gibbon, J. M., and Mathewson, M. S., *Three Centuries of Canadian Nursing*, Toronto: Macmillan Co. of Canada Ltd., 1947, p. 144.

[3] Weir, George M., *Survey of Nursing Education in Canada*, Toronto: University of Toronto Press, 1932, p. 471.

[4] See, for example, Mussallem, H. K., *Spotlight on Nursing Education, The Report of the Pilot Project for the Evaluation of Schools of Nursing in Canada*, Ottawa: Canadian Nurses' Association, 1960, p. 89. *Canadian Nurses' Association*, brief submitted to the Royal Commission on Health Services, Toronto, 1962, pp. 29-30.

TABLE 7-22 COST OF OPERATING SCHOOLS OF NURSING IN TEN SASKATCHEWAN GENERAL HOSPITALS CONDUCTING SCHOOLS OF NURSING, 1954

	Total	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E	Hospital F	Hospital G	Hospital H	Hospital I	Hospital J
Average Enrolment	1,169	211	213	51	58	52	194	99	48	54	189
					Dollars						
Gross Cost of Operating Schools of Nursing	1,763,208	357,263	321,832	65,744	80,928	81,537	320,332	129,472	62,741	100,532	242,827
Cost Per Student	1,508	1,693	1,511	1,289	1,395	1,568	1,651	1,308	1,307	1,862	1,285
Value of Students' Service	1,496,052	286,200	260,172	84,276	64,464	66,396	242,256	134,856	57,996	61,836	237,600
Value Per Student	1,280	1,356	1,221	1,652	1,111	1,277	1,249	1,362	1,208	1,146	1,257
Net Cost of Operating Schools of Nursing	267,156	71,063	61,660	18,532*	16,464	15,141	78,076	5,384*	4,745	38,696	5,227
Cost Per Student	228	337	290	363*	284	291	402	54*	99	716	28

*Excess value of students' service over the reported expenditures for the operation of the schools of nursing.

SOURCE: Wilson, L., *Cost Study of Basic Nursing Education Programs in Saskatchewan*, Regina: Saskatchewan Registered Nurses' Association, 1958, taken from Tables XVII and XVIII, p. 76.

schools of nursing in Saskatchewan.[1] Table 7-22 shows that the average gross cost per nursing student was $1,500 in 1954 with a range of $1,285 to $1,862. This includes such expenditures as the cost of instruction, supplies, depreciation, general administration, etc. The value of the student's service when deducted from the gross cost indicates average net cost. Again from Table 7-22, the average net cost to the hospital is $228 per student.[2] These cost figures for the hospital schools of nursing do not fully reflect the quality of the nursing programme offered. The number of students is a factor which can significantly affect the gross cost of any particular hospital school.

Unlike the financing of other educational institutions in the provinces, which are the responsibility of educational authorities with a clear conception of the aims of educational programmes, the schools of nursing are an integral part of a service institution and financed as such. It is worthy of note that one of the results of the introduction of the hospital insurance programme was to remove part of the costs of nursing education from hospitalized sick people to all taxpayers.

The lack of qualified teachers is a critical problem facing nursing education today. Table 7-23 shows that approximately 35 per cent of instructors in hospital schools of nursing are graduates of the hospital three year diploma programme with no additional training as teachers. A further 37 per cent hold one year post-basic certificates or diplomas, and 28 per cent hold B.Sc. or higher degrees. Only the last named group can be considered to be adequately trained for their hospital school teaching position. In the United States only one-fourth of teaching nurses lack an academic degree.[3]

One of the difficulties of achieving stability in the educational programme of nurses is the rate of turnover among faculty members. Ontario's experience, for example, suggests that 62 per cent of instructors have held their position less than two years.

The range of courses taught in the three-year programme of nursing education in Canadian hospital schools of nursing is, to put it mildly, fragmented. As many as 68 separate courses may be offered in the three years; it is not hard to imagine the content of such courses.[4]

Probably the most significant aspect of the whole programme for the student nurse is her actual nursing care or clinical experience. The clinical experience shows a wide variation in quality, due, in large part, to the fact

[1] Wilson, L., *Cost Study of Basic Nursing Education Programs in Saskatchewan, Regina*: Saskatchewan Registered Nurses' Association, 1958.

[2] The average net cost will vary according to the estimates of the costs of providing such services by other personnel.

[3] U.S. Department of Health, Education, and Welfare, *Toward Quality in Nursing, Needs and Goals*, Washington: United States Government Printing Office, 1963, p. 9.

[4] Mussallem, H. K., *Nursing Education in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter III.

TABLE 7-23 ACADEMIC PREPARATION OF FULL-TIME INSTRUCTORS IN SCHOOLS OF NURSING, 1959, 1960, 1961

Academic Preparation	25 Schools of Nursing in Pilot Project* (1959)		171 Schools of Nursing† (1960)		171 Schools of Nursing‡ (1961)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
No Preparation	82	30.9	448	31.0	532	34.9
One-Year Diploma	116	43.8	625	44.0	568	37.2
B.Sc. Degree	57	21.5	319	22.0	394	25.8
Master's Degree	10	3.8	54	3.0	32	2.1
TOTAL	265	100.0	1,446	100.0	1,526	100.0

*Pilot Project refers to Mussallem, H. K., *Spotlight on Nursing Education, The Report of the Pilot Project for the Evaluation of Schools of Nursing in Canada*, Ottawa: Canadian Nurses' Association, 1960, p. 45.

†Data from Canadian Nurses' Association *Fact Finding Survey*, Ottawa: the Association, 1960.

‡Data supplied by the Canadian Nurses' Association.

that this aspect of the nurses' training in Canada is determined to a great extent by the hospitals' nursing service requirements rather than the nurses' educational needs.

Part of the nursing care required by patients provides the necessary clinical experience for the student nurse. But frequently when hospitals do not have an adequate number of nurses, they over-use students to meet demands for nursing services. In many cases these young women have not received sufficient clinical experience to provide adequate nursing service. The result: the patient is not given adequate care and there is interference with the nursing student's educational programme.

Some indication of the heavy load of nursing care carried by student nurses is shown in Table 7-24. What this table does not show is that a substantial part of the nursing service provided by students is done during night hours and largely without supervision.

As long as nursing students contribute so large a proportion of nursing service in a hospital, it is doubtful if the educational objectives of the hospital school of nursing can be fully met without some major changes.[1] According to the World Health Organization: "It is felt essential that the student nurse be a student in fact and not only in name. A major difficulty in the way of the improvement in nursing education lies in the

[1] A further discussion of hospital schools of nursing is contained in Chapter 13.

fact that the majority of nursing schools are hospital schools in which the school has not obtained control of the students' time, and in which the so-called nursing student is, in reality, an employee or apprentice. . . ."[1]

TABLE 7-24 PERCENTAGE OF BEDSIDE CARE PROVIDED BY PROFESSIONAL, NON-PROFESSIONAL, AND STUDENT NURSES IN CANADIAN HOSPITAL SCHOOLS OF NURSING, 1961

Province	Professional	Non-Professional	Student
Newfoundland	28.6	19.0	52.4
Prince Edward Island	33.2	30.3	36.5
Nova Scotia	36.2	31.9	31.9
New Brunswick	39.3	30.3	30.4
Quebec	30.9	37.2	31.9
Ontario	40.7	33.8	25.5
Manitoba	36.7	37.0	26.3
Saskatchewan	32.7	32.6	34.7
Alberta	40.4	33.5	26.1
British Columbia	39.3	36.1	24.6
CANADA	35.8	32.2	32.0

SOURCE: Mussallem, H. K., *Nursing Education in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter III.

Education of Nurses: University Schools of Nursing

The first programme in nursing education leading to a B.Sc. degree was begun at the University of British Columbia in 1919. This was a five-year programme with the first two and the final years being taken at the University. The remaining two years were spent in training at the Vancouver General Hospital. Today there are 17 university schools of nursing in Canada of which 15 offer the B.Sc. degree. Of the latter number, seven offer basic degree courses comparable to those offered to other professions in which the faculty plans and assumes responsibility for the entire four-year course. The other eight universities grant the B.Sc. degree at the end of a five or six-year course, in which only the first and last years are controlled by the university. During the second, third, and fourth years the students are enrolled in hospital schools of nursing. These universities, therefore, grant degrees to students over whom they have no control for three years.[2] We think the time has come for all university schools to convert to the basic four-year degree course.[3]

[1] World Health Organization, *Report of a Study Group on Basic Nursing Curriculum,* Geneva: the Organization, 1956, p. 9.

[2] This point is discussed further in Chapter 13.

[3] See Chapter 2, Recommendation 131.

In addition to those enrolling in these basic degree programmes a growing number of nurses who have taken the three-year hospital diploma programme are taking either a one-year post-basic certificate programme or a post-basic B.Sc. degree.

Table 7-25 shows the number of students enrolled in these courses since 1945. A period of rapid increase up to 1947 was followed by one of general decline. Since 1953, a rapid rate of growth has once more been apparent. The proportion enrolled in degree programmes has increased somewhat since 1945, but still remains at one-fifth of the total number of students in the post-basic university programmes.

When the number of students in post-basic programmes is taken as a proportion of total nursing enrolment, it is seen to be almost insignificant. Only since 1960 has the percentage of students enrolled in post-basic B.Sc. degree programmes exceeded one per cent of total enrolment. If the number of students in both degree and certificate courses are taken, the

TABLE 7-25 NUMBER OF STUDENTS ENROLLED IN POST-BASIC BACCALAUREATE DEGREE AND CERTIFICATE COURSES, AND PERCENTAGE OF TOTAL NURSING ENROLMENT, CANADA, 1945-1961

Year	Post-basic B.Sc. Degree		Post-basic Certificate	
	Number	Per Cent	Number	Per Cent
1945	75	0.62	392	3.23
1946	87	0.68	462	3.59
1947	108	0.84	383	2.96
1948	80	0.60	332	2.50
1949	86	0.61	393	2.78
1950	61	0.40	395	2.67
1951	65	0.42	379	2.45
1952	59	0.38	423	2.74
1953	79	0.51	450	2.92
1954	97	0.61	495	3.12
1955	111	0.64	534	3.07
1956	109	0.61	561	3.13
1957	130	0.70	631	3.41
1958	162	0.89	660	3.63
1959	183	0.95	671	3.47
1960	244	1.15	787	3.70
1961	235	1.03	879	3.85

SOURCE: Data provided by the Canadian Nurses' Association.

percentage of total enrolment remains below 5 per cent. To these students must be added the even smaller number of graduate students working for their Master's degree. In 1962 there were two universities in Canada, McGill University and the University of Western Ontario, offering a programme at the Master's level with a total enrolment of 24.[1] At the present time, these are the only sources of recruits for university personnel.

Although the academic qualifications of faculty members are of vital importance to the standard of instruction, it is apparently an exception in university schools of nursing for the teaching staff to have a degree beyond the master's level. In fact, 10.3 per cent have a university certificate or diploma, 42.3 per cent have a B.Sc. degree, and only 44.3 per cent have a Master's degree.[2].

Supply and Education of Auxiliary Nursing Personnel

Four other categories of personnel may be considered as part of the nursing occupation. These are nursing assistants, psychiatric nurses, midwives, and operating room technicians.

There has been a rapid increase in the number of nursing assistants in Canada especially during the past decade. The number rose by 169 per cent, from 6,367 in 1953 to 17,140 in 1962. This latter number was produced by 79 recognized programmes for the education of nursing assistants in the ten provinces.[3] In all provinces those responsible for these programmes claim that the qualifications of the entering students are well above the acceptable minimum. Apparently many of these girls, with some tangible encouragement, might be persuaded to take the basic nursing course, and will do so, particularly if the course is shortened to two years.[4]

In the four western provinces of British Columbia, Alberta, Saskatchewan and Manitoba formal programmes are offered for the preparation of psychiatric nurses. The graduates of these three-year programmes may be licensed according to provincial acts. The programmes were instituted to meet the demand for qualified attendants to care for the mentally ill patient in mental institutions. Like the students in the nursing assistant programmes, those entering the psychiatric nurse programme in general have qualifications higher than the minimum. We foresee the disappearance of these programmes.[5]

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[1] Mussallem, H. K., *op. cit.*, Chapter IV.
[2] *Ibid.*
[3] *Ibid.*, Chapter V.
[4] See Chapter 2, Recommendation 129 and Chapter 13.
[5] *Ibid.*

Another category of personnel which can be considered as part of the occupation of nursing is the operating room technician. However, today, there is only one hospital, the Winnipeg General, which prepares these technicians for work outside the training hospital; a few hospitals train them for employment in their own operating rooms. The course at the Winnipeg General Hospital is limited to ten students although the Director of Nursing at this hospital states that the demand for qualified students exceeds the supply.[1]

This is one category in which males should be encouraged to enter. Surgeons complain that today there is too great a turnover in the operating room team. They ask for permanent operating room technicians. Higher salaries for males would attract them to qualify and seek a permanent career as operating room technicians.[2]

Midwives are trained at two universities in Canada. Since 1943 the University of Alberta in Edmonton has given an advanced course to prepare district nurses for obstetrical responsibilities. This is a course of 21 weeks' duration beyond the graduate or registered nurse level. A similar course was begun at Laval University in September 1962.[3] We do not foresee any great demand for midwives except in the under-doctored areas. The pattern of going to hospital for delivery is too firmly established to disturb, nor would we advocate the change.

PARAMEDICAL PERSONNEL

The various paramedical skills have become a vital element in medical care; in fact the modern physician could not function effectively without them. These occupations will be discussed in Volume II of our Report. However, the following general comments will indicate their place in the provision of medical care, and the growth in their numbers. They include the dietitian, the laboratory technician, the radiological technician, the physiotherapist, the occupational therapist, the medical record librarian, the medical social worker and others. A significant feature of the work done by paramedical personnel is that each depends upon the physician for the initiation of orders which call his or her special skills into play. Furthermore, persons performing paramedical functions are traditionally and legally prevented from assuming the physician's responsibility; they are dependent

[1] Mussallem, H. K., *op. cit.*, Chapter V.

[2] See Chapter 2, Recommendation 139.

[3] The education of auxiliary personnel concerned with nursing is further discussed in Chapter 13.

upon him for whatever degree of responsibility for patient care is turned over to them. The skills have largely grown up within the hospital for it is here that the technology, the technical equipment such as the diagnostic and therapeutic X-ray equipment, the laboratory, the occupational therapy equipment, and a vast array of other types of complex equipment are, in the main, located. It is in the hospital, too, that most patients requiring the use of this equipment are placed. These paramedical skills, therefore, must for the most part be practised in the hospital.

Employment Trends

Like other health personnel, working in all types of hospitals, the number of paramedical personnel has rapidly increased in the past decade. Between 1953 and 1960 their numbers rose from 6,182 to 10,083, or by 63 per cent.[1] If we look at public hospitals only, we see that for the group of paramedical occupations for which data are available, the rate of increase was even greater. Table 7-26 shows that, when compared in terms of the percentage increase between 1953 and 1960, these selected paramedical occupations increased at a faster rate than the total of all professional persons

TABLE 7-26 NUMBER OF PERSONNEL IN SELECTED HEALTH OCCUPATIONS IN PUBLIC HOSPITALS AND POPULATION—PERSONNEL RATIOS, CANADA, 1953 AND 1960

Population, Occupation and Employment	1953 Number	1960 Number	Per Cent Increase 1953-1960
Canada Population	14,845,000	17,870,000	20.4
All Professional Persons Employed	371,000	578,000	55.8
Female Professional Persons Employed	138,000	244,000	76.8
Selected Health Occupations			
Dietitians	965	727	−24.7
Medical Record Librarians	634	713	12.5
Laboratory Technicians	1,774	3,786	113.4
Radiological Technicians	1,218	2,467	102.5
Physiotherapists	287	676	135.5
Occupational Therapists	67	138	106.0
Social Workers	197	274	39.1
TOTAL	5,142	8,781	70.8

[1] Boyd, A., *Paramedical Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa, 1964, Chapter 2.

TABLE 7-26 NUMBER OF PERSONNEL IN SELECTED HEALTH OCCUPATIONS IN PUBLIC HOSPITALS AND POPULATION—PERSONNEL RATIOS, CANADA, 1953 AND 1960—*Concluded*

	Population-Selected Health Personnel Ratios	
	1953 Number	1960 Number
All Professional Persons Employed	2,499	3,234
Female Professional Persons Employed	929	1,365
Selected Health Occupations		
Dietitians	15,383	24,580
Medical Record Librarians	23,415	25,063
Laboratory Technicians	8,368	4,720
Radiological Technicians	12,188	7,244
Physiotherapists	51,725	26,435
Occupational Therapists	221,567	129,493
Social Workers	75,355	65,219
TOTAL	2,887	2,035

SOURCE: Boyd, A., *Paramedical Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa, 1964.

employed. There were exceptions for some paramedical groups, notably social workers, medical record librarians, and dietitians with the last named showing a significant decrease in numbers. Since these are predominantly female occupations their percentage increase for the 1953-1960 period should be compared with the percentage increase in the female professional persons employed. While the increase for the whole paramedical group is less than that for the female professionals, the laboratory technicians, the radiological technicians, the physiotherapists, and the occupational therapists show a much greater increase. Another measure of the growth of these types of personnel is the population-personnel ratio. As Table 7-26 shows there has been an improvement in the ratio for all except two types of personnel, dietitians and medical record librarians.

According to Table 7-26 Canada's population increased by 20.4 per cent between 1953 and 1960. However, Table 7-27 shows that during the same period the average daily number of patients rose more rapidly, 38.9 per cent. On any given day in 1953 there were 11 patients for each paramedical person employed, with this proportion dropping to nine patients per paramedical person in 1960, an improvement of 22.2 per cent.

TABLE 7-27 AVERAGE DAILY NUMBER OF PATIENTS PER PERSONNEL IN SELECTED HEALTH OCCUPATIONS IN PUBLIC HOSPITALS, CANADA, 1953 AND 1960

	1953 Number	1960 Number	Per Cent Increase
Average Daily Number of Patients*	57,023	79,181	38.9
Selected Health Occupations			
Dietitians	59	109	−45.9
Medical Record Librarians	90	111	−18.1
Laboratory Technicians	32	21	52.4
Radiological Technicians	48	32	50.0
Physiotherapists	199	117	70.1
Occupational Therapists	851	574	48.3
Social Workers	289	289	0.0
TOTAL	11	9	22.2

*Dominion Bureau of Statistics, *Hospital Statistics*, Vol. I, Hospital Beds, 1960, Ottawa: Queen's Printer, 1962, Table 13.
SOURCE: Based on Table 7-26.

PARADENTAL PERSONNEL

The dentist, like the physician, is assisted by other workers of which there are at present three main types: the dental hygienist, the dental assistant and the dental technician.

Dental Hygienist

This is in practice a female occupation requiring university training. The first two-year course in dental hygiene was started in 1951-52 at the University of Toronto. Since that time 89 dental hygienists have been graduated. As shown in Table 7-28 two other dental schools, Dalhousie and Alberta, have also introduced this course of training and graduated their first classes in the spring of 1963.

Three other dental schools are actively considering setting up training courses of this nature. Students wishing to enter this course must meet the admission requirements of the universities concerned. The subject matter covered in the course ranges through the social sciences, the humanities, public speaking, the biological sciences, clinical and laboratory courses. Whether studies in such a wide range of subjects or a course of two years' duration is necessary in order to prepare for the duties of a hygienist is a debatable point and we deal with this subject further in Chapter 13.

The duties of the hygienist are defined by law, but what she actually does under the supervision of her employer is determined, to a large extent,

TABLE 7-28 GRADUATES AND EXPECTED GRADUATES IN DENTAL HYGIENE, CANADA, 1951-52 TO 1962-63

Year of Graduation	Dalhousie*	Toronto	Alberta*	Total
Graduates				
1951-52	—	—	—	—
1952-53	—	5	—	5
1953-54	—	6	—	6
1954-55	—	8	—	8
1955-56	—	9	—	9
1956-57	—	8	—	8
1957-58	—	14	—	14
1958-59	—	9	—	9
1959-60	—	6	—	6
1960-61	—	8	—	8
1961-62	—	16	—	16
1962-63 (preliminary)	5	38	19	62
TOTAL	5	127	19	151

* First class entered 1961-62.

SOURCE: McFarlane, B.A., *Dental Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 6.

by his attitudes towards hygienists as a professional group in the practice of dentistry, and by the demands made upon him by his patients. The formal duties of the hygienist fall into four categories:

(i) professional-clinical service;
(ii) technical-mechanical;
(iii) clerical-administrative, and
(iv) educational.[1]

Professional-clinical service is defined in the provincial legislation governing the professional activities of the hygienist. This includes dental prophylaxis—the scaling and polishing of the patient's teeth; the application of topical fluorides; and "taking of impressions of the mouth from which artificial dentures can be made".[2] The technical-mechanical functions include the taking and mounting of dental X-rays, the cementing and facing of pontics, and making minor adjustments to prosthetic appliances.[3] The clerical-administrative duties involve those office procedures which make the administrative aspects of the practice of dentistry more efficient. The educational function includes teaching individual patients and the public at large the proper care of the teeth. The total numbers graduated in the past dozen years indicate that few dentists make use of this type of auxiliary service.[4]

[1] McFarlane, B. A., *op. cit.*, Chapter 6.
[2] Dunn, W. J., "Manpower in Dentistry—The Dental Hygienist", in *Canadian Dental Association Journal*, Vol. 27, January 1961, p. 19.
[3] McFarlane, B. A., *op. cit.*, Chapter 6.
[4] The future supply of dental auxiliaries is contained in Chapter 13.

Dental Assistant

Although few dentists employ dental hygienists, a large proportion employ dental assistants, of which there were approximately 4,700 full-time and 300 part-time in 1962. These assistants are of two types: the secretary-receptionist and the chair-side assistant. The majority have had no formal training for their duties although they have been given on-the-job training. The others have received some kind of formal training as a dental assistant, dental nurse, dental hygienist, or registered nurse.[1]

Dental Technician

The dental technician undertakes " . . . extra-oral technical services involved in the fabrication of prosthesis and appliances *on the basis of written prescriptions from the dentist*".[2] This separation of certain technical functions from the professional role of the dentist has led to problems of the control of the technician by the dentist. In some provinces dental technicians have tried to deal directly with the public rather than through the dentists, but only in Alberta have they been granted this right. Most of the technicians trained in Canada learned their skill through on-the-job training with a technician already in practice. Some provincial associations have organized part-time and evening classes for dental technician trainees.

There is no doubt that the utilization of dental auxiliaries can appreciably increase the productivity of dentists. Table 7-29 shows that there

TABLE 7-29 MEAN NUMBER OF PATIENTS AND MEAN NUMBER OF PATIENT-VISITS BY NUMBER OF EMPLOYEES, U.S.A., 1962

Number of Employees		Mean Number of Patients	Mean Number of Patient-Visits
Full-Time	Part-Time		
0	0	742	2,272
0	1	710	2,376
0	2	1,095	2,742
1	0	1,166	3,014
1	1	1,242	3,182
1	2	1,404	3,237
2	0	1,530	3,174
2	1	1,607	4,005
3	0	1,931	3,929

SOURCE: McFarlane, B. A., *Dental Manpower in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 6.

[1] McFarlane, B. A., *op. cit.* Chapter 6.

[2] Moen, B. Duane, "Survey of Present and Future Needs for Dental Manpower" in *Proceedings of the Workshop on the Future Requirements of Dental Manpower and the Training and Utilization of Auxiliary Personnel,* University of Michigan (*The Michigan Study*), W. K. Kellogg Foundation Institute, 1962, p. 148.

is a direct relationship between the number of para-dental workers and the number of patients and patient-visits.

Surveys conducted by the Canadian Dental Association have shown that average net income is related to the number of dental chairs and the employment of assistants. According to Table 7-30, however, there is an optimum. The highest mean net income was earned by dentists with three chairs and two assistants, one working as a chair-side assistant and one working as a secretary-receptionist. With this overhead the dentists' net income is about 50 per cent of gross income.[1]

Dental Auxiliaries

In New Zealand a programme of dental services for children has relied upon the school dental nurse to increase the supply of dental services.

TABLE 7-30 MEAN INCOME OF DENTISTS, NUMBER OF CHAIRS AND EMPLOYEES, CANADA, 1958

Number	Mean Gross Income	Mean Expense	Mean Net Income	Net as Per Cent of Gross
	$	$	$	
1 Chair, No Employees	10,165	3,929	5,917	58.2
1 Chair, 1 Secretary or Receptionist	16,978	7,276	9,586	56.5
1 Chair, 1 Assistant	18,388	7,944	9,933	54.0
2 Chairs, No Employees	13,909	5,519	7,186	51.7
2 Chairs, 1 Secretary or Receptionist	22,728	10,085	11,782	51.8
2 Chairs, 1 Assistant	23,163	9,938	11,910	51.4
2 Chairs, 1 Assistant and 1 Secretary or Receptionist	26,717	12,075	13,514	50.6
2 Chairs, 2 Assistants	27,535	12,230	15,231	55.3
2 Chairs, 1 Technician and One or Two of Following: Assistants, Secretaries or Receptionists	26,621	11,295	14,996	56.3
2 Chairs, 1 Hygienist and 1 or 2 of the Following: Assistants, Secretaries or Receptionists	29,086	13,670	15,415	53.0
3 Chairs, 1 Assistant	28,485	12,622	15,003	52.7
3 Chairs, 2 of the Following: Assistants, Secretaries or Receptionists	31,492	14,323	15,768	50.1
3 Chairs, 1 Hygienist and 1 or 2 of the Following: Assistants, Secretaries or Receptionists	27,223	13,262	13,960	51.3
4 Chairs, 1 or More Employees Other than Dentists	40,876	28,975	11,907	29.1
4 Chairs, 1 Dentist and 1 or more other Employees	—	—	—	—

SOURCE: McFarlane, B. A., *Dental Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 6.

[1] McFarlane, B.A., *op. cit.*, Chapter 6.

These dental nurses are trained and employed by the Department of Health which is responsible for the school dental clinics. Since this training programme has met with success, we think a discussion of some aspects of its operation may be helpful.

Girls over 17 years of age holding a school certificate, which is not equivalent to university entrance, are recruited for a two-year programme. Of the total of 1,608 training hours, the student spends 824 hours in the first year, and 784 in the second. In the first year, lectures take up 36 per cent of the time, and laboratory instruction 64 per cent. In the second year, 11 per cent of the time is spent in lectures, and 89 per cent in clinical instruction and practice. On successful completion of the course the school dental nurse, working under the direction of a dentist, may perform ". . . examinations, prophylaxis, fillings, extractions, gum treatments, and dental health education for elementary school children".[1]

A similar programme is now being tried on an experimental basis in the United Kingdom. This programme ". . . designed to ascertain the value of such auxiliaries, is being undertaken by the General Dental Council in accordance with the provisions of the Dentists Act, 1957".[2] The dental auxiliaries are given responsibilities similar to those of the New Zealand School Dental Nurse:

> "3. Subject to the provisions of these regulations, a dental auxiliary shall be permitted to carry out dental work amounting to the practice of dentistry of the following kinds:
>
> (*a*) extracting deciduous teeth under local infiltration anaesthesia;
>
> (*b*) undertaking simple dental fillings;
>
> (*c*) cleaning and polishing teeth;
>
> (*d*) scaling teeth (that is to say, the removal of tartar, deposits, accretions and stains from those parts of the surfaces of the teeth which are exposed or which are directly beneath the free margins of the gums, including the application of medicaments appropriate thereto);
>
> (*e*) the application to the teeth of solutions of sodium or stannous fluoride or such other similar prophylactic solutions as the Council may from time to time determine;
>
> (*f*) giving advice within the meaning of subsection (1) of section thirty-three of the Dentists Act, 1957, such as may be necessary to the proper performance of the dental work referred to in this regulation, and on matters relating to oral hygiene;

[1] Fulton, J. T., *Experiment in Dental Care*, World Health Organization Monograph Series, Geneva: World Health Organization, 1951, p. 84.

[2] Great Britain, *The Health of the School Child*, Report of the Chief Medical Officer of the Ministry of Education for the years 1960 and 1961, London: H.M.S.O., 1962, p. 186.

but shall not be permitted to carry out dental work amounting to the practice of dentistry of any other kind.

"4. A dental auxiliary shall not be permitted to carry out dental work amounting to the practice of dentistry except

(*a*) in the course of providing national or local authority health services;

(*b*) under the direction of a registered dentist; and

(*c*) after the registered dentist has examined the patient and has indicated to the auxiliary the specific treatment to be provided for the patient by the said auxiliary."[1]

The two programmes, although one is still in the experimental stage, provide evidence that auxiliary personnel can be recruited and trained to undertake many of the routine functions of the dentist.[2]

TABLE 7-31 PERCENTAGE OF TOTAL UNDERGRADUATE PHARMACY STUDENT ENROLMENT TO TOTAL UNDERGRADUATE ENROLMENT IN ALL CANADIAN UNIVERSITIES AND COLLEGES, 1947-48 TO 1961-62

School Year	Total Undergraduate Pharmacy Enrolment	Total Undergraduate Enrolment in Canada	Per Cent
1947-48	1,271	76,896	1.65
1948-49*	1,111	66,679	1.67
1949-50	1,432	62,846	2.28
1950-51	1,383	59,160	2.34
1951-52	1,355	57,301	2.36
1952-53	1,367	56,589	2.42
1953-54	1,256	57,961	2.17
1954-55	1,212	62,291	1.95
1955-56	1,198	66,177	1.81
1956-57	1,145	72,629	1.58
1957-58	1,100	80,443	1.37
1958-59	1,219	88,010	1.39
1959-60	1,307	94,928	1.38
1960-61	1,482	105,911	1.40
1961-62	1,529	121,547	1.26

*Excluding University of Montreal.

SOURCE: Dominion Bureau of Statistics, *Fall Enrolment in Universities and Colleges*, 1947 to 1961 editions, Ottawa: Queen's Printer.

[1] Great Britain, Statutory Instruments 1961 No. 1365, *The Dental Auxiliaries Regulations, 1961*, 5 & 6 Eliz. 2. c. 28.

[2] This point is discussed further in Chapter 13.

PHARMACEUTICAL PROFESSION

In North America the traditional form in which pharmacy is practised is the pharmacist dispensing prescribed drugs in a retail store. There is a marked dichotomy between the independent retail pharmacist and the salaried pharmacist who practises his profession as an employee of a drug store chain, the hospital, the drug manufacturer, the university, or the government.

In recent years the population-pharmacist ratio for Canada improved slightly; in 1962 it stood at 2,026. The most important sources of supply are the faculties and schools of pharmacy in Canadian universities. As Table 7-31 indicates, total undergraduate pharmacy enrolment increased significantly in the period 1947-48 to 1961-62, but this increase was insufficient to bring about any more than a small improvement in the population-pharmacist ratio.

TABLE 7-32 INTERNATIONAL COMPARISON, POPULATION PER PHARMACIST, CANADA AND SELECTED COUNTRIES, 1959

Country	Population per Pharmacist
Germany: Federal Republic	1,106
United States	1,470
New Zealand	1,474
Italy	1,603
Belgium	1,729
Denmark	2,218
France	2,379
England and Wales	2,654
Canada	2,831*
Austria	3,288
Greece	3,932
Portugal	4,207
Spain	4,351
Norway	4,710
Finland	5,099
Sweden	9,318

*Data refer to 1961.

SOURCE: Compilation based on data from World Health Organization, *Annual Epidemiological and Vital Statistics 1959*, Geneva: the Organization 1962, p. 654-695, and *Demographic Yearbook, 1960*, New York: United Nations, 1961, pp. 104-115.

Since immigration is not an important source of supply, any improvement in this ratio must come from an increase in the undergraduate pharmacy student enrolment.

Table 7-32 presents an international comparison of the population-pharmacist ratio for Canada and selected countries. Canada is situated roughly half-way in the array.

To determine if improvement in the population-pharmacist ratio is necessary requires an analysis of the supply of and demand for this member of the health team. This will be found in Volume II of our Report.

OPTOMETRISTS

The optometrist measures a person's vision according to a prescribed standard, advises on the correction of visual defects and supplies appropriate spectacles. According to the medically qualified ophthalmologist, however, anyone who requires an eye examination should be examined by a physician because many symptoms of serious general diseases can be revealed in the eye and the optometrist is not qualified to recognize these. The optometrists, on the other hand, maintain that they do recognize many diseases and refer these to the eye physicians. This debate between the medical profession and the optometrists still goes on.

Since eye care is such an important element in the health of our population, some means of resolving the issues involved must be found. We have made recommendations to this effect in Chapter 2.[1] Here we are concerned with the assessment of the type and extent of optometrical services in Canada.

A brief review of the literature dealing with the evidence of eye disease, and disease as manifested in the eye, indicates that they affect less than five per cent of the population.[2] But the proportion of the population re-

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[1] Recommendation 91.

[2] Sydenstricker, E., and Britten, R. H., "The Physical Impairments of Adult Life". General Results of a Statistical Study of Medical Examinations by the Life Extension Institute of 100,924 white male life insurance policyholders since 1921. *American Journal of Hygiene,* Vol. II, 1930.
The Department of National Health and Welfare and The Dominion Bureau of Statistics, *Illness and Health Care in Canada,* Ottawa: Queen's Printer, 1960, Table 3, p. 100.
Blum, H. L., Peters, H. B., and Bettman, J. W., *Vision Screening for Elementary Schools,* The Orinda Study. Berkeley and Los Angeles: University of California Press, 1959.
Department of Health, Levine, M. H., Smith, M. D., Kitching, J. S., *Study of Vision Testing Procedures,* Hamilton: Division of School Health Services, A Statistical Survey of 56,122 Case Records of Employees in Royal Ordnance Factories Examined by Ophthalmic Opticians, 1943-46. The Association of Optical Practitioners, 65 Brook St., London, W1., 1947.
Kintner, G. F., "Optometry's Role in Health Maintenance—A Study of Referrals", *American Journal of Public Health,* Nov. 1961.
Baker, I., "A Statistical Study of Optometric Patients", *Canadian Journal of Optometry,* Vol. 23, Dec. 1961.

TABLE 7-33 NUMBER OF PRACTISING LICENSED OPTOMETRISTS IN CANADA BY PROVINCE 1931, 1941, 1951 AND 1961

Province	Year				Per Cent Change				Population per Optometrist			
	1931	1941	1951	1961	1931-61	1931-41	1941-51	1951-61	1931	1941	1951	1961
Newfoundland	—	—	6	6	—	—	—	—	—	—	60,236	76,308
Prince Edward Island	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia	60	65	45	38	−36.7	− 8.3	−30.8	−15.6	8,547	8,891	14,279	19,394
New Brunswick	39	42	49	44	+12.8	+ 7.7	+16.7	−10.2	10,467	10,890	10,524	13,589
Quebec	230	262	306	420	+82.6	+13.9	+16.8	+37.3	12,498	12,717	13,253	12,521
Ontario	625	646	665	533	−14.7	+ 3.4	+ 2.9	−19.9	5,490	5,863	6,913	11,699
Manitoba	34	51	57	60	+76.5	+50.0	+11.8	+ 5.3	20,592	14,308	13,623	15,361
Saskatchewan	53	52	63	70	+32.1	− 1.9	+21.2	+11.1	17,392	17,230	13,202	13,216
Alberta	91	102	108	112	+23.1	+12.1	+ 5.9	+ 3.7	8,039	7,805	8,699	11,892
British Columbia	108	101	139	141	+30.6	− 6.5	+37.6	+ 1.4	6,428	8,097	8,382	11,553
TOTAL	1,240	1,321	1,438	1,424	+14.8	+ 6.5	+ 8.9	− 1.0	8,368	8,711	9,742	12,807

SOURCE: Data provided by Canadian Association of Optometrists.

quiring some form of eye care, whether for disease or some other eye defect, is much higher. The Canadian Association of Optometrists has estimated that in a population of 17 million in 1960 a total of 8.8 million or 51.7 per cent required vision care. According to the Association 8.3 per cent of the Canadian population received a refraction from an optometrist in 1960.[1] This proportion is substantially higher than the 3.3 per cent reported in the Canadian Sickness Survey of 1951. Of the 8.3 per cent, 88 per cent were provided with glasses.

In order to practise as an optometrist in Canada, a person must be a graduate of an accredited institute and have passed the examination requirements of the provincial Board of Examiners in Optometry. The accredited institutions consist of two schools of optometry in Canada; the College of Optometry of Ontario, and L'École d'optométrie, Université de Montréal, and a number of similar institutions in the United States, some of which are affiliated with schools or departments of universities.[2]

The number of practising licensed optometrists is shown in Table 7-33. Despite a more than 75 per cent increase in population between 1931 and 1961, the optometrists increased by only 184 or 14.8 per cent. As a result, the population-optometrist ratio rose from 8,368 to 12,807.

A further analysis of the supply of and demand for optometrists will be found in Volume II of our Report.

CURRENT SUPPLY OF HEALTH PERSONNEL

Health Personnel in Canada

In this chapter we have presented a brief description, both historical and current, of the changing supply of the various categories of health personnel, indicating the sources of supply, sources of new recruits, the operation of the educational programmes, the organization of practice, and the place of paramedical and paradental personnel. Our future requirements for the various types of health personnel, and problems associated with meeting these requirements are analysed in Chapter 13.

That there has been a substantial increase in the number of health personnel in Canada can be seen in Table 7-34 where the available data relating to the supply of physicians, dentists, nurses and pharmacists have been brought together. On the other hand, the population-personnel ratios have increased much less rapidly. Despite the sizeable inflow of physicians

[1] *The Canadian Association of Optometrists,* brief submitted to the Royal Commission on Health Services, Toronto, May 1962, p. 25.

[2] *Ibid.*

from other countries in the nineteen fifties, the population-physician ratio has not declined by a substantial amount from the level reached early in the century while the population-dentist ratio has actually risen. The population-nurse ratio has improved but this must be measured against the increased responsibilities of nurses, consequent on the expansion of hospital care.

International Comparisons

We have also presented in this chapter a comparison of health personnel available in different countries using for purposes of illustration ratios of population per physician, per dentist, per nurse, and per pharmacist. We have brought together the relevant data in Table 7-35 which serves to indicate in broad terms Canada's international position in providing health services.[1]

TABLE 7-34 POPULATION PER PHYSICIAN, DENTIST, NURSE, AND PHARMACIST, CANADA, SELECTED YEARS, 1901-1961

Year	Physicians		Dentists		Nurses		Pharmacists	
	Number	Population-Physician Ratio	Number	Population-Dentist Ratio	Number	Population-Nurse Ratio	Number	Population-Pharmacist Ratio
1901	5,475	972	1,310	4,100	—	—	—	—
1911	7,411	970	2,183	3,301	—	—	—	—
1921	8,706	1,008	3,158	2,783	—	—	—	—
1931	10,020	1,034	4,039	2,569	—	—	—	—
1941	11,873	968	4,210	2,733	21,171	544	—	—
1946	—	—	4,565	2,644	—	—	—	—
1951	14,325	976	4,912	2,791	35,129	399	—	—
1956	17,871	928	5,416	2,898	—	—	—	—
1961	21,290	857	5,865	3,108*	61,699	296	8,877	2,055

* See Table 7-11.

SOURCE: Tables 7-1, 7-11, 7-15; McFarlane, B. A., *Dental Manpower in Canada*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Table 2-1; *The Canadian Pharmaceutical Association, Inc.*, brief submitted to the Royal Commission on Health Services, Toronto: May 1962, Table I.

[1] The data are based on reports from the respective national agencies. Although efforts were made to obtain consistency in the coverage reported, it is possible that differences in the ratios are due to different concepts rather than actual differences (e.g., the counting of personnel who are qualified but not practising or those in administrative positions). Therefore figures collected routinely by international agencies will give a satisfactory general picture but complete consistency of the underlying concepts and statistical practices must be ensured before interpreting the data, especially minor differences.

TABLE 7-35 INTERNATIONAL COMPARISON, POPULATION PER PHYSICIAN, DENTIST, NURSE, AND PHARMACIST, SELECTED COUNTRIES, 1959

Country	Population Per			
	Physician	Dentist	Nurse	Pharmacist
Australia	860	2,429	—*	—*
Austria	620	1,762	453	3,288
Belgium	800	6,784	—	1,729
Canada	920	3,032	255	2,831†
Denmark	830	2,006	277	2,218
England and Wales	960	3,947	471	2,654
Finland	1,600	2,522	278	5,099
France	950	3,006	536	2,376
Germany: Federal Republic	730	566	136	1,106
Greece	—	2,550	1,207	3,932
Italy	620	—	952	1,603
Luxembourg	910	—*	—*	—*
Netherlands	900	4,294	815	—*
New Zealand	700	2,209	215	1,474
Norway	900	1,528	366	4,710
Portugal	1,300	74,205	2,799	4,207
Spain	1,000	2,915	—	4,351
Sweden	1,100	1,497	122	9,318
Switzerland	740	2,413	249	—*
United States	790	1,919	294	1,470

*Not available.
†Data related to 1961.

SOURCE: Tables 7-3, 7-10, 7-16 and 7-32.

The statistics, however, do not tell the full story. For a more complete comprehensive international comparison we would require an analysis of many other factors; geographic, economic, social and institutional, e.g., density of population, effectiveness of transportation and communication systems, topography of the country, etc. Further, a lower ratio in one area of health services may be offset to some extent by a higher ratio of health services in another sector. For example, the Canadian ratio of persons per physician, 920, appears to be less favourable than the United States ratio, 790.[1] But Canada had a more favourable ratio than the United States in terms of population per nurse, 255 against 294, as well as population per hospital bed.[2]

[1] It should be noted that the data presented in Table 7-35 relate to the year 1959. Since that date the population-physician, dentist and nurse ratios in Canada have improved.
[2] 90 against 110 in 1959 (See Table 5-5).

Bearing in mind these qualifications, of the population-personnel ratios for 20 countries noted in Table 7-35, Canada ranks in the lower third for physicians (13th), and dentists (14th), in the middle third for pharmacists (9th), and in the highest third for nurses (5th). Alternatively, it is of particular interest to note that Canada's ratio of population per physician of 920 is ahead of the ratio indicated for countries that have comprehensive prepaid government supported programmes of medical care such as France, 950, the United Kingdom, 960,[1] and Sweden 1,100. The data support the suggestion which we have put forward earlier[2] that in proceeding with a comprehensive programme for health services a country does not have to wait until shortages of health personnel have been fully met.

[1] The figures relate to England and Wales.
[2] See also Chapter 1.

8

Health Facilities and Services

A major element in the health services complex is the hospital. In this chapter we show the growth of these institutions—general and allied special hospitals, mental institutions, and tuberculosis sanatoria—in terms of beds and their utilization. Past and current developments in the organization of mental health facilities are outlined, and the effect of present trends on the demand for mental and tuberculosis facilities is discussed.

Two other important elements in the health services complex are described: the various government health services, and the voluntary health services, both of which support the health programmes of the community. We also describe the services provided for selected groups such as the armed services, veterans, Indians, and Eskimos, and the problems associated with the provision of adequate health services in remote areas.

The emergence of modern diagnostic and treatment methods has increased the importance of the clinical aspects of hospital care so that today access to the equipment and services of the modern hospital is indispensable to high quality general practice. At the same time, there has been a parallel movement towards making the hospital the domain of the specialist. In Canada there is not the rigid distinction between the functions of the general practitioner and the specialist with regard to the hospital service that is found under the British National Health Service, nevertheless, there is a definite attempt on the part of the hospitals to control the quality of the work and the academic qualifications of employees and staff practitioners. Ostensibly many hospitals require the accreditation of a practitioner in the relevant speciality before he is allowed to treat his patient in the hospital; within the accredited hospital staff, internal audits aim at checking the quality of work. With this growing emphasis on the need for specialist qualifications in the hospital, an increasing number of physicians appear to feel that group practice combining the skills of general practitioners and specialists, is the organization best suited to render optimum patient care, and to ensure some kind of continuity between home and hospital for the patient.

HOSPITALS

The above discussion emphasizes the link between the physician practising in the community and the hospital. There is evidence to suggest that the relationship between the aggregate of hospital beds and physicians' services is inverse. Thus Ontario, which has a relatively high population-physician ratio has fewer hospital beds per 1,000 population than Saskatchewan where the ratio is low. This example serves to emphasize the fact that national data may not tell the whole story of the full range of medical services received by the population; the pattern varies depending on such factors as differentials in provincial levels of income and variations in the regional topography and the number and distribution of population.

Table 8-1 shows that by the end of 1960, total hospital beds numbered about 192,000 or 10.8 beds per 1,000 population. The over-all bed-population ratio moved up from 10.9 in 1948 to 11.6 beds per 1,000 population in the year 1956, but declined to 11.2 in 1958 and to 10.8 in 1960.[1] Most of this drop can be attributed to stabilization of the number of mental hospital beds and to a sharp decline in the number of beds in tuberculosis sanatoria.

In general, tuberculosis sanatorium facilities are now more than adequate for current requirements. A very substantial expansion has occurred in general and allied special hospital beds for treatment of acute disease. Shortages are still apparent in the areas of chronic-convalescent facilities and in the area of psychiatric care and physical medicine.

General and Allied Special Hospitals

Hospital construction has been concentrated in large urban hospitals, which have been acquiring a greater proportionate share of new hospital beds. For example, among public general hospitals, institutions with 500 beds or more had 26 per cent of all beds, cribs, and bassinets in 1948, and 29 per cent in 1960, while the share of hospitals under 100 beds declined from 29 per cent to 22 per cent. Alternately the proportion of hospital beds in hospitals of 200 beds and over increased from 54 per cent in 1948 to 58 per cent in 1960.

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[1] The distribution of beds in 1960 shown in Table 8-1 is based on distribution by hospitals. Thus beds located in tuberculosis hospitals but used for the treatment of the chronically ill, or mentally ill, are shown as tuberculosis beds. In Table 14-5 the estimated number of beds for 1961 has been distributed according to their usage. Thus beds in tuberculosis hospitals include only those beds which are used for tuberculous patients. Beds used for the chronically ill or the mentally ill have been included with general hospital and allied special hospital beds.

TABLE 8-1 ESTIMATED BEDS SET UP, TOTAL AND PER 1,000 POPULATION, BY CLASS OF HOSPITAL*
CANADA, 1948-1960, AND BY PROVINCES, 1960

Year	Gen. and Allied Spec. Hosp.**		Mental Hospitals†		Tuberculosis Sanatoria††		All Hospitals	
	Total Beds	Beds per 1,000 Pop.	Total Beds	Beds per 1,000 Pop.	Total Beds	Beds per 1,000 Pop.	Total Beds	Beds per 1,000 Pop.
1948	75,582	5.9	51,050	4.0	12,642	1.0	139,274	10.9
1949	81,482	6.1	52,663	3.9	14,058	1.0	148,203	11.0
1950	84,630	6.2	53,957	3.9	15,766	1.1	154,353	11.3
1951	87,172	6.2	55,395	4.0	16,450	1.2	159,017	11.4
1952	87,460	6.0	57,621	4.0	16,586	1.1	161,667	11.2
1953	92,861	6.3	60,887	4.1	16,783	1.1	170,531	11.5
1954	97,585	6.4	62,606	4.1	15,967	1.0	176,158	11.5
1955	101,116	6.4	64,163	4.1	15,616	1.0	180,895	11.5
1956	106,216	6.6	65,260	4.1	15,333	1.0	186,809	11.6
1957	107,115	6.4	65,786	4.0	14,662	0.9	187,563	11.3
1958	109,504	6.4	67,190	3.9	13,760	0.8	190,454	11.2
1959	107,918	6.2	66,724	3.8	12,770	0.7	187,412	10.7
1960—CANADA	112,649	6.3	67,895	3.9	11,618	0.6	192,162	10.8
Newfoundland	1,964	4.4	913	2.0	548	1.2	3,425	7.6
Prince Edward Island	649	6.3	298	2.9	90	0.9	1,037	10.1
Nova Scotia	4,003	5.5	2,356	3.2	510	0.7	6,869	9.4
New Brunswick	3,593	6.1	1,864	3.2	612	1.0	6,069	10.3
Quebec	29,369	5.7	19,648	3.8	3,477	0.7	52,494	10.2
Ontario	38,756	6.3	23,458	3.8	2,824	0.5	65,038	10.6
Manitoba	6,588	7.3	3,848	4.2	717	0.8	11,153	12.3
Saskatchewan	7,483	8.2	4,366	4.8	662	0.7	12,511	13.7
Alberta	9,390	7.3	4,871	3.8	1,083	0.8	15,344	11.9
British Columbia	10,289	6.4	6,273	3.9	887	0.6	17,449	10.9
Yukon	157	11.2	—	—	—	—	157	11.2
Northwest Territories	408	18.5	—	—	208	9.5	616	28.0

* Includes public, private, and federal hospitals, as well as estimates for non-reporting hospitals from 1952 on. Bassinets are excluded.

** *From 1948 to 1958* includes public, private, and federal hospitals with data adapted from Dominion Bureau of Statistics, *Annual Reports of Hospitals,* 1948-1952, Ottawa: Queen's Printer, and *Hospital Statistics,* 1953-1958, Vol. I, Ottawa: Queen's Printer. *From 1959 to 1960* includes budget review, contract, and federal hospitals, using list of such hospitals at time of entry into hospital insurance programme from provinces and territories not participating during one or both years in question, with data compiled by Research and Statistics Division from Annual Returns of Hospitals. *From 1952 to 1958*—includes estimates of beds in non-reporting hospitals as follows: 1952—2,466 beds; 1953—5,145 beds; 1954—6,658 beds; 1955—2,863 beds; 1956—2,910 beds; 1957—2,304 beds; 1958—2,679 beds. Also includes estimated beds set up in Newfoundland hospitals from 1949 to 1952 as follows: 1949—1,536 beds; 1950—1,608 beds; 1951—1,679 beds; 1952—1,751 beds. In 1958, deduction was made of 3,195 Quebec beds not considered to be hospital beds.

† Adapted from Dominion Bureau of Statistics, *Mental Institutions,* 1948-1952, Ottawa: Queen's Printer, based on number of patients in mental hospitals at the end of each year, and *Mental Health Statistics,* 1953-1960, Ottawa: Queen's Printer, based on average daily in-patient population for each year. Newfoundland included from 1949 on.

†† Adapted from Dominion Bureau of Statistics, *Tuberculosis Institutions,* 1948-1952, Ottawa: Queen's Printer, and *Tuberculosis Statistics,* 1953-1960, Ottawa: Queen's Printer. Newfoundland included from 1949 on.

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada,* Ottawa 1962.

Beds in general and allied special hospitals may be classified in terms of the broad class of patients accommodated. Acute hospitals provide treatment largely to patients with short-term conditions; such hospitals include general hospitals as well as special hospitals or units for maternity, infectious diseases, paediatrics, orthopaedics, some psychiatric, and other acute conditions. Chronic hospitals provide special care under medical supervision for the long-term patients; they include beds designated as chronic, convalescent, geriatric or rehabilitation beds. Federally operated acute and chronic hospitals may be considered as a third group within the category of general and allied special hospitals. In making comparisons between provinces it is necessary to recognize that patients with long-term conditions are treated in active treatment hospitals, and in some cases in tuberculosis hospitals. Thus a high rate of active treatment beds per 1,000 persons may not necessarily mean that all of these beds are occupied by short-term patients since, due to scarcities of chronic or convalescent hospital beds, or alternative accommodation, it may be necessary to accommodate long-stay or domiciliary care patients in short-stay hospitals.

ACUTE TREATMENT BEDS

The growth in the number of acute treatment beds is evident from Table 8-2. While the actual number of these beds has shown a significant increase in every province, over the period 1948 to 1960 the picture is different when viewed in terms of the number of beds per 1,000 population.[1] In these terms Prince Edward Island with an increase from five to six outstripped every other province. Other provinces also showed an increase except Alberta and British Columbia. These two provinces recorded a decrease in the number of acute treatment beds per 1,000 population of 0.4 and 0.2 respectively.

A rough measure of the degree of overcrowding in hospitals can be gained by the ratio of "beds set up" to "rated bed capacity". In nine provinces in which fairly accurate data are available, the combined margin of beds (active treatment) set up over rated bed capacity declined from 15 per cent to 5 per cent from 1948 to 1958, and to 4 per cent in 1960. The comparatively low excess of beds set up over rated bed capacity in 1960, characteristic of most provinces, indicates that, broadly speaking, some measure of equilibrium was being achieved between the demand for hospital care and the supply of adequate facilities. Still, there remain a number of communities where the length of the persistent waiting lists may suggest

[1] Data for 1960 are the latest data available on a comprehensive basis at the beginning of 1964, another indication of the delay involved in obtaining up to date information in an important sector of the health field. Partial data available for 1961 and 1962 suggest that the trends referred to above have not changed significantly.

TABLE 8-2 ACUTE TREATMENT HOSPITAL BEDS*: ESTIMATED BEDS SET UP, BY PROVINCE, SELECTED YEARS, 1948-1960.

Province	Dec. 31, 1948**		Dec. 31, 1953†		Dec. 31, 1958††		Dec. 31, 1959[a]		Dec. 31, 1960[a]	
	Total	Per Thousand Population	Total	Per Thousand Population	Total	Per Thousand Population	Total	Per Thousand Population	Total	Per Thousand Population
Newfoundland	1,402	4.1	1,573[b]	4.1	1,760	4.1	1,702	3.9	1,762	3.9
Prince Edward Island	468[c]	5.0	580	5.7	642	6.4	619	6.1	622	6.0
Nova Scotia	2,588	4.1	2,993	4.5	3,370	4.8	3,445	4.8	3,462	4.8
New Brunswick	2,338	4.7	2,403	4.5	2,751	4.8	2,938	5.0	3,048	5.2
Quebec	13,828	3.6	16,700	3.9	21,824	4.5	21,421	4.3	22,639	4.4
Ontario	18,302	4.3	23,050	4.7	26,483	4.5	28,401	4.8	30,384	5.0
Manitoba	3,424	4.6	4,085	5.0	4,778	5.5	4,733	5.3	4,951	5.5
Saskatchewan	5,752	6.9	6,119	7.1	6,863	7.7	6,847	7.5	6,815	7.4
Alberta	5,637	6.6	6,735	6.7	7,800	6.5	7,853	6.3	7,956	6.2
British Columbia	6,056	5.6	7,343	5.9	8,154	5.3	8,467	5.4	8,714	5.4
CANADA[d]	59,795	4.7	71,581	4.8	84,425	4.9	86,426	5.0	90,353	5.1

*Includes non-federal public and private hospital beds exclusive of chronic and convalescent beds and tuberculosis units but including psychiatric units. Excludes bassinets. Estimates were made for hospitals not reporting to the Dominion Bureau of Statistics.

**Based on provincial health survey reports except where otherwise indicated.

†Adapted from Dominion Bureau of Statistics *Hospital Statistics, 1953*, Vol. I, Ottawa: Queen's Printer, 1955, except where otherwise indicated.

††Adapted from Dominion Bureau of Statistics *Hospital Statistics, 1958*, Vol. I, Ottawa: Queen's Printer, 1960, except where otherwise indicated.

[a]Includes budget review and contract hospitals, using list of such hospitals at time of entry into hospital insurance programme for provinces not participating during one or both years in question, with data compiled by Research and Statistics Division from Annual Returns of Hospitals.

[b]Based on data supplied by provincial health department.

[c]Based on Dominion Bureau of Statistics, *Annual Report of Hospitals, 1948*, Ottawa: King's Printer, 1951.

[d]Excludes Northwest Territories and Yukon.

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada*, Ottawa 1962 (unpublished report).

shortages of hospital accommodation, or alternatively possible inefficient utilization of existing hospital bed facilities or lack of a home care programme.[1]

CHRONIC AND CONVALESCENT BEDS

There is considerable difficulty in determining the actual number of beds properly considered as belonging to chronic hospitals, or to chronic units of general hospitals.

Table 8-3 shows that the number of chronic beds reported at the end of 1960 declined by about 2,000 from the level two years earlier. This apparent drop was caused mainly by reclassification of various "private hospital beds" to the category of nursing home beds because they were not considered as hospital facilities by provincial hospital insurance authorities.

HOSPITAL UTILIZATION

The growth in the use of these facilities is evident in Table 8-4. In every province there was a substantial increase in the number of admissions, and, more important still, in the number of admissions per 1,000 population. In Canada between 1948 and 1961 admissions per 1,000 population rose from 111 to 149 but there was wide variation among provinces in this regard. At the beginning of this period the admission rate was highest for the three western-most provinces, Saskatchewan with 172, Alberta with 169 and British Columbia with 145. In 1961 Saskatchewan still had the highest rate with 212, and Alberta remained second highest with 190. Instead of British Columbia, however, New Brunswick was third highest with 168, closely followed by British Columbia with 167. Ontario with 144 was slightly below the national average, and Quebec with 127 also had a lower than average ratio. Although Quebec had the second lowest admission rate[2] in 1961, the percentage increase since 1948, 69.3 per cent, was about double the national average, 34.2 per cent.

An important factor influencing the volume of hospital care is the average length of hospital stay of patients. Between 1948 and 1961 there was a slight downward change in this figure in some years, but the 10 days in 1961 was the same as the 1948 figure. This national figure does not indicate the rather wide changes which occurred in some provinces, nine of which

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[1] *The Regina Grey Nuns' Hospital,* brief submitted to the Royal Commission on Health Services, Regina, January 1962. *Associated Hospitals of Alberta,* Supplement to the brief submitted to the Royal Commission on Health Services, Edmonton, February 1962. Vancouver General Hospital, *The Development and Utilization of Some Services of the Vancouver General Hospital,* Vancouver: The Hospital, 1962. *Government of Manitoba,* brief submitted to the Royal Commission on Health Services, Appendix 10, Winnipeg, January 1962.

[2] After Newfoundland.

showed a decline. Of these nine provinces, Newfoundland, Prince Edward Island and Quebec[1] showed the largest declines. Ontario with a rise of 0.6 days was the only province to show an increase.

There has been then, at least since 1948, an increase in the hospital admission rate but relatively little change in the average length of hospital stay. Therefore, as more beds became available more patients were accommodated. It could happen, of course, that as more beds were built, patients might tend to remain in hospital for longer periods, thereby nullifying the increase in bed capacity. That this has not happened in Canada is evident from Table 8-1 which shows that beds set up in general and allied special hospitals per 1,000 population increased from 5.9 in 1948 to 6.3 in 1960, and from Table 8-4 which indicates that days of care per 1,000 population rose from 1,318 to 1,656 in the same period, and this latter trend continued into 1961.

We may well ask why this upward trend in hospital utilization continues especially when we consider the advances which medicine has made in controlling the ravages of so many diseases and thereby adding to the life expectancy of the average Canadian. It appears, however, that these successes of medicine stimulate the demand for health services or to some extent are the result of it. As the economic barriers to health services are lowered more people use these services with consequent benefits. But at the same time by saving people from the effects of many diseases, and thereby prolonging their lives, we have increased the possibility of a higher prevalence of the long-term chronic conditions of the aged. The same scientific advances which have been so successful in controlling the effects of some diseases and in reducing the length of treatment they require, have increased the time required to treat other diseases more effectively than before.[2]

If we study the proportion of all general hospital separations, which includes both discharges and deaths, attributable to various causes as outlined in Table 8-5, it appears that in 1961 deliveries and complications of pregnancy plus the mature and immature new-born accounted for nearly one-third, 32.2 per cent of separations, but only 18.5 per cent of total patient-days. On the other hand, chronic diseases which account for a relatively small proportion of separations require a comparatively larger proportion of total hospital-days. Thus, cancer patients represent only 4.6 per cent of separations, but 8.0 per cent of hospital-days. Similarly, patients with diseases of the circulatory system which includes heart disease account for 6.4 per cent of separations but 13.3 per cent of hospital-days.

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[1] Quebec did not introduce hospital insurance until 1961.

[2] The problems associated with the control of hospital utilization are discussed in Chapter 14.

TABLE 8-3 CHRONIC AND CONVALESCENT HOSPITAL BEDS*: ESTIMATED BEDS AVAILABLE AND BEDS PER THOUSAND POPULATION, BY PROVINCES, SELECTED YEARS, 1948-1960

Province	Dec. 31, 1948**		Dec. 31, 1953†		Dec. 31, 1958††		Dec. 31, 1959[a]		Dec. 31, 1960[a]	
	Total	Per Thousand Population	Total	Per Thousand Population	Total	Per Thousand Population	Total	Per Thousand Population	Total	Per Thousand Population
Newfoundland	147[b]	0.4	128	0.3	99	0.2	189	0.4	104	0.2
Prince Edward Island	0	0	0	0	49	0.5	24	0.2	27	0.3
Nova Scotia	26	0.1	81	0.1	46	0.1	88	0.1	88	0.1
New Brunswick	26	0.1	89	0.2	135	0.2	56	0.1	91	0.2
Quebec	2,627	0.7	3,491[c]	0.8	5,310	1.1	4,271[d]	0.9	4,728[d]	0.9
Ontario	2,090	0.5	3,566[c]	0.8	5,468	0.9	5,756	1.0	5,803	0.9
Manitoba	520[e]	0.7	678	0.8	364	0.4	385	0.4	648	0.7
Saskatchewan	79	0.1	136	0.2	550	0.6	541	0.6	558	0.6
Alberta	160	0.2	172	0.2	687	0.6	879	0.7	849	0.7
British Columbia	1,039[f]	1.0	1,718[g]	1.4	2,295	1.5	492[h]	0.3	324	0.2
CANADA[i]	6,714	0.5	10,059	0.7	15,003	0.9	12,681	0.7	13,220	0.7

*Includes non-federal public and private hospital beds exclusive of tuberculosis units and institutions which provide custodial and/or domiciliary care only.

**Based on provincial health survey reports, except where otherwise indicated.

†Adapted from Dominion Bureau of Statistics *Hospital Statistics, 1953*, Vol. I, Ottawa: Queen's Printer, 1955.

‡Adapted from Dominion Bureau of Statistics *Hospital Statistics, 1958*, Vol. I, Ottawa: Queen's Printer, 1960. Estimates for non-reporting private hospitals based on the assumption that their proportion of chronic-convalescent hospitals is approximately the same as in the reporting group. Average size of private non-reporting hospital was used.

[a]Includes budget review and contract hospitals, using list of such hospitals at time of entry into hospital insurance programme for provinces not participating during one or both years in question, with data compiled by Research and Statistics Division from Annual Returns of Hospitals.

[b]Based on Dominion Bureau of Statistics *List of Hospitals, 1949*, Ottawa: Queen's Printer, 1952.

[c]Based on Dominion Bureau of Statistics *Hospital Statistics, 1953*, Vol. I, Ottawa: Queen's Printer, 1955, including assumption that one-third of private hospital beds are chronic-convalescent.

[d]Limited to data reported by 190 out of 255 hospitals in 1959 and 219 out of 255 hospitals in 1960.

[e]Based on Manitoba health survey report, plus inclusion of 430 beds in St. Boniface Provincial Infirmary.

[f]Based on British Columbia health survey report, plus inclusion of 329 beds in Provincial Infirmary.

[g]Based on Dominion Bureau of Statistics, *Hospital Statistics, 1953*, Vol. I, Ottawa: Queen's Printer, 1955, including assumption that four-fifths of private hospital beds are chronic-convalescent.

[h]Represents five public hospitals not covered by the hospital insurance programme but which reported to the Dominion Bureau of Statistics in previous years.

[i]Excluding the Yukon and Northwest Territories.

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada*, Ottawa 1962 (unpublished report).

TABLE 8-4 ADMISSION*, ADMISSION PER 1,000 POPULATION*, AVERAGE LENGTH OF STAY, DAYS OF CARE PER 1,000 POPULATION, SELECTED YEARS, 1948-1961

Province	1948				1950				1952			
	Admissions	Admissions per 1,000 Population	Average Length of Stay	Days of Care per 1,000 Population	Admissions	Admissions per 1,000 Population	Average Length of Stay	Days of Care per 1,000 Population	Admissions	Admissions per 1,000 Population	Average Length of Stay	Days of Care per 1,000 Population
Newfoundland	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island	11,947	128	10.4	1,370	11,002	115	11.0	1,205	12,648	126	10.5	1,317
Nova Scotia	64,570	103	10.0	1,093	69,832	109	9.8	1,106	78,440	120	10.3	1,233
New Brunswick	60,478	121	9.9	1,259	66,821	131	9.0	1,234	67,765	129	9.0	1,190
Quebec	288,521	75	11.5	1,122	329,351	83	11.1	1,270	387,062	93	11.2	1,351
Ontario	465,172	109	9.8	1,282	510,034	114	10.0	1,362	592,383	124	9.8	1,417
Manitoba	93,914	126	9.4	1,425	101,769	133	8.8	1,394	115,666	145	8.5	1,517
Saskatchewan	143,919	172	10.2	1,820	166,661	200	10.0	2,163	172,088	204	10.3	2,115
Alberta	144,095	169	9.2	1,632	157,676	173	8.6	1,516	182,179	187	8.9	1,660
British Columbia	157,029	145	9.9	1,548	173,047	152	10.2	1,682	197,657	164	10.8	1,774
Yukon and Northwest Territories	3,008	125	15.8	3,314	2,054	86	10.1	3,896	1,553	62	77.8	5,414
CANADA	1,427,653	111	10.0	1,318	1,588,247	119	9.9	1,411	1,807,411	128	10.0	1,481
	1954				1956				1957			
Newfoundland	32,144	81	13.4	1,245	37,628	91	13.9	1,259	41,136	97	12.5	1,226
Prince Edward Island	13,554	134	9.6	1,330	14,226	144	9.5	1,438	14,124	143	10.1	1,498
Nova Scotia	83,886	125	9.6	1,198	91,508	132	9.4	1,228	94,710	135	9.5	1,265
New Brunswick	76,261	141	8.3	1,231	80,611	145	8.3	1,289	83,350	148	8.1	1,292
Quebec	417,033	95	11.0	1,406	501,601	108	11.0	1,438	518,403	109	10.7	1.463
Ontario	683,102	134	9.9	1,504	754,861	140	9.8	1,569	790,980	140	9.8	1,576
Manitoba	116,961	142	8.4	1,524	124,491	146	8.6	1,404	134,301	156	8.3	1,447
Saskatchewan	176,322	202	10.1	2,010	180,793	205	10.4	2,120	189,496	215	10.0	2,322
Alberta	201,560	191	8.8	1,803	227,604	203	8.7	1,914	227,292	195	8.5	1,838
British Columbia	207,620	160	10.6	1,801	228,354	163	10.0	1,773	229,561	155	9.9	1,673
Yukon and Northwest Territories	1,989	74	137.0	8,088	4,331	140	—	4,850	6,150	198	—	4,602
CANADA	2,010,432	132	10.1	1,533	2,246,008	140	10.0	1,568	2,329,503	140	9.8	1,577

TABLE 8-4 ADMISSION*, ADMISSION PER 1,000 POPULATION, AVERAGE LENGTH OF STAY, DAYS OF CARE PER 1,000 POPULATION, SELECTED YEARS, 1948-1961 (*Concluded*)

Province	1958				1959			
	Admissions	Admissions per 1,000 Population	Average Length of Stay	Days of Care per 1,000 Population	Admissions	Admissions per 1,000 Population	Average Length of Stay	Days of Care per 1,000 Population
Newfoundland	43,453	101	11.9	1,279	44,781	102	11.4	1,276
Prince Edward Island	14,845	148	10.0	1,554	15,086	149	9.8	1,586
Nova Scotia	95,391	135	9.3	1,242	102,623	143	9.4	1,394
New Brunswick	84,857	149	7.8	1,274	90,745	156	8.4	1,441
Quebec	553,143	113	10.8	1,457	576,975	115	10.4	1,489
Ontario	815,746	140	9.7	1,566	835,745	140	9.9	1,622
Manitoba	143,469	164	8.6	1,574	147,815	166	8.9	1,630
Saskatchewan	188,778	212	9.9	2,308	190,096	210	9.9	2,277
Alberta	239,416	199	8.5	1,887	246,182	197	9.1	1,992
British Columbia	237,149	154	9.8	1,640	246,289	157	9.7	1,630
Yukon and Northwest Territories	6,170	187		4,301	4,108	121		3,390
CANADA	2,422,417	142	9.8	1,578	2,500,445	143	9.8	1,624
	1960				1961†			
Newfoundland	46,933	105	11.1	1,284	49,905	109	11.1	1,262
Prince Edward Island	16,010	155	9.1	1,562	16,217	155	9.9	1,599
Nova Scotia	105,746	145	9.6	1,421	105,392	143	9.8	1,429
New Brunswick	99,255	169	9.6	1,658	100,453	168	9.4	1,675
Quebec	584,971	114	10.0	1,491	667,920	127	10.4	1,536
Ontario	869,091	142	10.2	1,677	897,997	144	10.4	1,717
Manitoba	152,244	168	8.8	1,719	153,000	166	9.0	1,767
Saskatchewan	195,460	214	9.8	2,281	196,138	212	9.7	2,249
Alberta	252,792	196	9.0	1,971	253,069	190	9.0	1,922
British Columbia	261,300	163	9.8	1,647	272,057	167	9.7	1,661
Yukon and Northwest Territories	5,197	144		3,028				1,059
CANADA	2,588,999	145	9.9	1,656	2,717,499	149	10.0	1,678

*Excludes new-born admissions and all admissions to federal hospitals. From 1948 to 1958 includes public hospitals with data adapted from Dominion Bureau of Statistics, *Annual Reports of Hospitals, 1948 to 1952*, and *Hospital Statistics 1954 to 1958*, Vol. I. From 1959 to 1960 includes budget review hospitals (plus contract hospitals in the case of Newfoundland, Northwest Territories and Yukon) using list of such hospitals at time of entry into hospital insurance programme for provinces and territories not participating during one or both years in question. In the case of British Columbia, includes five public hospitals (1959) not covered by hospital insurance programme, but which reported to Dominion Bureau of Statistics the previous years. Based on data compiled by Research and Statistics Division from annual returns of hospitals from 1952 to 1960, includes some adjustments for estimated admission to non-reporting hospitals based on the ratio of admissions to beds in reporting hospitals in each province.

†Admissions are estimated.

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada*, Ottawa 1962 (unpublished report).

TABLE 8-5 PERCENTAGE DISTRIBUTION OF SEPARATIONS AND PATIENT-DAYS IN GENERAL HOSPITALS BY SELECTED DIAGNOSTIC GROUPS, (EIGHT PROVINCES),* 1960

	Diagnostic Group	Separations	Patient-Days
	TOTAL	100.0	100.0
I.	Infective and Parasitic Diseases	1.2	1.7
II.	Neoplasms	4.6	8.0
III.	Allergic, Endocrine System, Metabolic and Nutritional Diseases	2.2	3.2
IV.	Diseases of the Blood and Blood-forming Organs	0.4	0.6
V.	Mental, Psychoneurotic, and Personality Disorders	1.5	2.3
VI.	Diseases of the Nervous System	3.8	8.8
VII.	Diseases of the Circulatory System	6.4	13.3
VIII.	Diseases of the Respiratory System	14.1	8.6
IX.	Diseases of the Digestive System	10.9	10.1
X.	Diseases of the Genito-Urinary System	7.0	6.1
XI.	Deliveries and Complications of Maternity	18.6	10.1
XII.	Diseases of the Skin and Cellular Tissue	2.0	1.6
XIII.	Diseases of the Bones and Organs of Movement	2.3	5.1
XIV.	Congenital Malformations	0.8	1.2
XV.	Certain Diseases of Early Infancy	0.4	0.5
XVI.	Symptoms, Senility and Ill-defined Conditions	1.9	1.6
XVII.	Accidents, Poisoning, and Violence	7.6	8.1
	Supplementary Classification for Special Admissions, Livebirths and Stillbirths	13.9	9.1
	(New-born, mature and immature)	(13.6)	(8.4)

* Excludes Quebec, Alberta, Yukon, Northwest Territories.
SOURCE: Data supplied by Dominion Bureau of Statistics.

The importance of confinement for childbirth, and births as a leading cause of hospital admissions is the result of a high birth rate and of the large increase in the percentage of births occurring in hospital. In Canada in 1931 this percentage stood at 26.8; in 1960 it was 94.6. In the latter year in three provinces, Prince Edward Island, Ontario, and Saskatchewan, it was of the order of 99.0 per cent. In only one province, Quebec, and in the Yukon and the Northwest Territories was the percentage below the national figure, 85.2 per cent, 93.3 per cent, and 51.7 per cent respectively.[1]

The pattern of the utilization of facilities is significantly affected by their quantity and type. Thus, if we examine rated bed capacity, apparently

[1] Dominion Bureau of Statistics, *Vital Statistics 1960,* Ottawa: Queen's Printer, 1962, p. 96.

there is a limit to the amount of care which this given number of beds can provide, the limit being set by the extent to which extra beds in excess of the rated capacity may be set up. According to the Department of National Health and Welfare, in 1948 when bed shortages in the early post-war years were undoubtedly restricting utilization in some provinces, average percentage occupancy in relation to rated capacity was 86 per cent. In succeeding years, extensive new construction increased rated bed capacity at a considerably faster rate than beds set up. Total days of care increased at a slower rate than rated bed capacity and the average percentage occupancy of hospitals, expressed in terms of rated bed capacity, declined to a low of 80.9 per cent in 1958. As the pressure of increased demand for hospital care under provincial hospital insurance plans made itself felt in 1959 and 1960, percentage occupancy went up to 82 per cent in 1960. While the provision of hospital beds exhibits regional variations, available beds in most instances are fully utilized within the limits set by administrative rulings on occupancy rates. Whether all the patients occupying beds are admissible on grounds of clinical need is another matter. Seemingly, if cases were analysed on the grounds of clinical need alone then there would be numerous instances of patient over-stay and the unnecessary utilization of beds.[1]

MENTAL HEALTH FACILITIES

Mental Institutions

By the end of 1960 Canada had 75 separate mental institutions,[2] and over 40 psychiatric units in general hospitals. The standard bed capacity of these facilities,[3] stood at 66,172, an increase of 33,221 since 1932.[4] This is a rise in bed capacity for 100,000 population from 314 to 370. In 1960 there existed wide variations in this ratio between provinces, from a low of 187 beds in Newfoundland to a high of 419 beds in Alberta.

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[1] This problem is discussed further in Chapter 14.

[2] In order to distinguish between the various types of mental institutions the following definitions should be kept in mind: Mental Hospitals—"Institutions that provide treatment for all types of psychiatric conditions", Psychiatric Hospitals—"Institutions that provide short-term, intensive psychiatric treatment", Hospital for Mentally Defectives—"Institutions that provide care for mentally defective patients, including training schools for mentally defectives", Psychiatric Unit—"Units within hospitals that are organized for the treatment of patients with psychiatric disorders". Dominion Bureau of Statistics, *Mental Health Statistics 1960*, Ottawa: Queen's Printer, 1962, p. 9, also Richman, A., *Psychiatric Care in Canada: Extent and Results*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

[3] Representing the maximum number of patients which can be accommodated according to minimum space requirements for patients receiving different types of care.

[4] Dominion Bureau of Statistics, *Mental Health Statistics 1960, op. cit.*, p. 43.

The type of accommodation for in-patients in mental institutions shows wide variation among the provinces. While in some provinces the only facilities are public mental hospitals, there is in others a variety of facilities ranging from psychiatric hospitals and psychiatric units in general hospitals to institutions providing care for patients with mental deficiency, psychoses of the senium and disturbed children. According to Richman,

> "The amount of accommodation provided is not necessarily related to the frequency of occurrence of illness, frequency of admission or the duration of hospital care. Neither is bed capacity an index of the accommodation available for the admission of patients, since over-crowding varies and the institutions contain patients of various lengths of stay and therefore different potentials for discharge. Although the ratio of public mental hospital accommodation to population may be similar in different provinces, mental hospitals in one province may contain a higher proportion of patients of longer duration of stay, and therefore a lower ratio of accommodation for new admissions."[1]

TABLE 8-6 MENTAL INSTITUTIONS, REPORTED BED CAPACITY 1932, TOTAL BED CAPACITY 1960, CANADA AND PROVINCES

Province	1932			1960		
	Reported bed Capacity	Population	Ratio per 100,000	Total bed Capacity	Population	Ratio per 100,000*
		'000			'000	
CANADA	32,951	10,510	314	66,172	17,870	370
Newfoundland	—	—	—	838	448	187
Prince Edward Island	300	89	337	377	103	366
Nova Scotia	1,951	519	376	2,719	727	374
New Brunswick	900	414	217	1,394	589	237
Quebec	8,875	2,925	303	20,766	5,142	404
Ontario	11,666	3,473	336	21,679	6,111	355
Manitoba	2,249	705	319	3,562	906	393
Saskatchewan	2,450	924	265	3,191	915	349
Alberta	1,875	740	253	5,408	1,291	419
British Columbia	2,685	707	380	6,238	1,602	389

* Based on revised population estimates of the Census Division, Dominion Bureau of Statistics. Accordingly the "Ratio per 100,000" for 1960 does not correspond to the figures quoted by Dominion Bureau of Statistics, *Mental Health Statistics 1960*, p. 42.

SOURCE: Dominion Bureau of Statistics, *Mental Health Statistics 1960*, Ottawa: Queen's Printer, 1962, pp. 42 and 43.

[1] Richman, A., *Psychiatric Care in Canada: Extent and Results*, a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter 2.

OVERCROWDING

The bed occupancy rate of mental institutions is a measure of the extent of overcrowding, but although overcrowding may place a strain on quality, it is not necessarily a full indication of the quality of care. The rate is determined by the ratio of the average number of hospitalized patients to the bed capacity. A ratio of 110 per cent, for example, indicates that on the average 110 patients occupy facilities which, according to prescribed standards, should accommodate 100 patients or less.

In Canada our mental institutions have been overcrowded for a number of years, although between 1949 and 1960 some improvement is evident with the occupancy ratio for all mental institutions falling from 120 per cent to 106 per cent.[1] The highest degree of overcrowding is evident in public mental institutions. The reduction in overcrowding between 1948 and 1960 varies between provinces, but by 1960 a total of 5,561 beds would have been required to eliminate overcrowding in public mental hospitals.

TABLE 8-7 PERCENTAGE OCCUPANCY OF PUBLIC MENTAL HOSPITALS, AND ALL INSTITUTIONS, CANADA AND PROVINCES, 1960

Province	Public Mental Hospital	All Institutions
CANADA	110	106
Newfoundland	109	109
Prince Edward Island	79	79
Nova Scotia	89	88
New Brunswick	140	136
Quebec	101	100
Ontario	115	112
Manitoba	120	111
Saskatchewan	156	136
Alberta	97	92
British Columbia	115	102

SOURCE: Dominion Bureau of Statistics, *Mental Health Statistics 1960*, Ottawa: Queen's Printer, 1962, p. 36.

The rise in bed capacity, which has resulted in some reduction in overcrowding, is due mainly to the enlargement of existing facilities rather than the construction of new facilities.

> "There has been a flurry of proposals recently to adopt new policies involving construction of 'small' mental hospitals of 400 to 500 beds in close proximity to medical centres or general hospitals. So far very little

[1] Dominion Bureau of Statistics, *Mental Health Statistics 1960, op. cit.*, p. 31.

> change is apparent. Practically all assistance given under the federal Hospital Construction Grant toward the expansion of all-purpose mental hospital facilities from 1948 to 19692, has been for new large hospitals, or for additions to the already large existing hospitals. Up to 1962, four new all-purpose mental hospitals with an aggregate of 3,716 beds, had been fully completed with grant assistance, as well as 20 hospital additions totalling 6,860 beds."[1]

The use of a bed-population ratio is now considered inadequate as a guide to the need for accommodation for mental patients. One authority claims that:

> "In the past, health authorities have attempted to estimate facility needs on a formula basis. Previously used indices of need such as ratios of mental hospital beds to population served are no longer believed to be realistic because of the constant changes brought about by such factors as new developments in treatment methods, the increased numbers of the aged, and improved social and economic status of the population. These factors complicate the planning process, making it unfeasible to plan by merely applying a mechanical ratio of beds per thousand population."[2]

In 1945 the Dominion-Provincial Conference on Reconstruction suggested a ratio of 5.25 beds per 1,000 population. In 1960 the Department of National Health and Welfare gave a lower estimate, tentatively, "five mental hospital beds per thousand population".[3] By 1962, however, the Department indicated that most of the existing mental hospitals could be considered obsolete. In this respect a desirable ratio of between 3.65 and 5 beds per 1,000 population was quoted.

> "Many of Canada's mental hospitals were constructed about the turn of the century and, although they have been added to over the years, many of the original buildings are still in operation. Advances in psychiatric treatment have accentuated the inadequacy of these buildings. Many of them are not of fire-resistant construction, and it is estimated that most could be considered obsolete.
>
> "Current opinion is that the need is for additional personnel and for facilities such as day care and night care centres, rather than additional mental hospital beds, other than the replacement of obsolete accommodation. The trend is now away from large mental institutions, often remote from other medical facilities, and toward the development of smaller units so located that supplementary medical services are easily within reach and that the patients are not too far removed from their home communities. "World Health Organization P.H. Paper No. 1, 1959, estimated that at least 3.65 beds per 1,000 population are required to care for this

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[1] Department of National Health and Welfare, *Hospital Care in Canada*, Ottawa: The Department, 1962 (unpublished report), Chapter III. The three new all-purpose hospitals are as follows: Ontario Hospital, Port Arthur, Ontario Hospital, North Bay and Hôpital Sainte-Elizabeth, Roberval, Quebec.

[2] U.S. Department of Health, Education, and Welfare, Public Health Service, *Planning of Facilities for Mental Health*, Washington: U.S. Government Printing Office, 1961, p. 30.

[3] Department of National Health and Welfare, *Hospital Care in Canada, op. cit.*, Chapter III.

type of patient. However, care should be exercised in applying this figure to Canada because many beds are now in use that could be condemned as obsolete. Others have recommended as high as 5 beds per 1,000 for mental patients and that cottage plans and home care facilities should be fully used."[1]

Utilization and Organization of Facilities

Between 1948 and 1960 there was an increase in the number of first admissions to the various types of mental health facilities. An increasing proportion of all admissions was made up of readmissions; patients who had been discharged and subsequently readmitted one or more times. During this period the number of resident patients in public mental hospitals increased about 4 per cent, but the number of patients in hospitals for mentally defectives increased by 120 per cent. The utilization experience of psychiatric in-patient facilities is presented in Table 8-8.

The table shows rates only and thus does not reflect the increased demand due to the increased population. The total number of patient-days per 1,000 population was on about the same level in 1960 as it has been in 1948. But these days in institutions served a greater number of patients. The rates of both first and readmissions increased, the latter at a faster rate, but the mean length of stay declined. The mean length of stay, it should be noted, is a measure not sensitive to recent changes as current separations will reflect largely earlier treatment patterns. Nevertheless, the trend towards a reduction in the direction of institutional care is indicated.

In the past the provision of mental hospitals has followed a pattern similar to that of the now vanishing tuberculosis sanatoria, i.e., one of isolation from the residential community which has often strained the contact between a patient and his relatives and friends and contributed towards difficulties of staffing. Furthermore, mental institutions have too often reflected the "storage bin" philosophy with which modern society has treated its old, its insane and its unbalanced. Only in the last decade has there been real interest in applying the findings of the psychoanalysts and psychiatrists to mental therapy and the related concern of institutional planning. Advances in drug therapy have enabled the mentally disturbed to be kept within the community and this has been incorporated into the planning of treatment facilities. Far more is now known about the distinctions between various mental illnesses and the various therapies and environmental factors to which each is responsive. It is generally held that even in the case of the chronic mentally ill, isolation from the normal community can only be

[1] Department of National Health and Welfare, *National Health Grants 1948-1961*, Ottawa: Queen's Printer, 1962, pp. 40-41.

TABLE 8-8 PUBLIC PSYCHIATRIC IN-PATIENT FACILITIES, CANADA, 1948 AND 1960
GENERAL CHARACTERISTICS

Item	All Mental Institutions		Mental Hospitals		Hospitals for Mentally Defectives		Psychiatric Hospitals		Psychiatric Divisions of General Hospitals	
	1948	1960	1948	1960	1948	1960	1948	1960	1948	1960
Average Daily Number of Patients	51,050	69,022	46,904	55,372	3,796	11,392	350	897	—	1,361
Days of Care During Year per 1,000 Population	1,457	1,412	1,339	1,134	108	233	10	18	—	27
Admissions (First and Readmissions) per 100,000 Population	111	271	87	123	3	7	21	48	—	93
First Admissions per 100,000 Population	83	171	65	75	3	7	15	28	—	61
Readmissions per 100 First Admissions	33	59	33	63	5	9	37	74	—	53
Discharges per 100 Patients Under Care During Year*	15	34	12	21	3	4	79	90	—	92
Mean Length of Stay of Discharges (months)	8.6†	6.3	10.6**	10.6	40.4**	40.5	1.2**	1.4	0.7**	0.7

*Patients Under Care means the sum of patients on books at December 31, and discharges and deaths during the year.
**Data provided are for the year 1955.
†Data provided are for the year 1954.

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada*, Ottawa 1962, (unpublished report). Dominion Bureau of Statistics, *Mental Health Statistics*, 1955, Ottawa: Queen's Printer, 1957. Dominion Bureau of Statistics, *Mental Health Statistics 1960*, Ottawa: Queen's Printer, 1962. Dominion Bureau of Statistics, *Mental Health Statistics*, 1954, Ottawa: Queen's Printer, 1955.

an obstacle to recovery. Consequently there has been an increased emphasis on attaching facilities for psychiatric treatment to general hospitals in an attempt to provide more effective therapy, and recognizing that there should be no distinction in our approach to the treatment of physical and mental illness. In general hospitals of 100 or more beds there was an increase in psychiatric beds from 318 to 1,331 between 1951 and 1959.[1]

There are, however, opposing views on the effectiveness of psychiatric units in general hospitals. The proponents of this type of care claim for it a number of benefits: it does not result in the stigma which is associated with admission to mental hospitals, the patient is not isolated from the community to which he is expected to return, the relative ease with which family and friends can visit the patient, and the integration of psychiatric services with other medical services. Much of the evidence presented to us in the course of the hearings supports this view.[2]

Typical of the views of the opponents of psychiatric care in general hospitals is the following:

> "The psychiatric divisions . . . more often are still being used as mere clearing houses and possibly increasing disability by retarding treatment. Others are forced to conform to a pattern of bed care found on other wards. Undue stress may be laid on the need for clear-cut-diagnosis and somatic therapy. There is a danger that the general hospital may treat a large proportion of psychiatric patients capable of early recovery, and send on to the mental hospital only those with bad prognosis, lowering the mental hospital's status and ability to function as a therapeutic community."[3]

In Britain there is a great deal of interest in the administrative problems of psychiatric units. Both the proponents and opponents of this type of care agree that psychiatric units will not work unless the general hospital supplies adequate day space, occupational and recreational therapy space, and creates a proper therapeutic milieu.[4]

A further development in psychiatric facilities is the "small" mental hospital of about 300 beds. At present there are very few such institutions

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[1] Dominion Bureau of Statistics, *Hospital Statistics 1959,* Vol. I, Table 20, Ottawa: Queen's Printer, 1961, p. 62.

[2] See for example briefs submitted to the Royal Commission on Health Services by: The Canadian Psychiatric Association, Toronto, May 1962, Appendix 5. The Canadian Medical Association, Toronto, May 1962, p. 15. The Government of Manitoba, Winnipeg, January 1962, p. 12. The Canadian Welfare Council, Toronto, May 1962, p. 67. Canadian Hospital Association, Toronto, May 1962, pp. 86 and 87.

[3] American Public Health Association, *Mental Disorders: A Guide to Control Methods,* New York: The Association, 1962, p. 11.

[4] McKerracher, D. G., *Trends in Psychiatric Care,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

in this country. Concerning this type of facility the World Health Organization had this to say:

> "Recent studies have suggested that from a point of view of financial economy the optimum capacity for hospitals probably lies between 250 and 400 beds. Smaller establishments are expensive because of their lower average percentage of occupants and the difficulty of amortizing technical equipment which is not in full use. Above 400 beds, the cost per bed begins to increase slowly and reaches rather high figures above 800 beds. The reason is probably uncontrollable wastage, lack of responsibility on the part of too large a staff, unnecessary buying, and an industrial type of mechanization which is inevitable in very large hospitals; one must add to these the impossibility of sustained personal contact between the director and hundreds of hospital workers."[1]

The World Health Organization recommends that these institutions should have a relatively short-life span. Industrial buildings, schools and certain other types of buildings are built on the basis of the prevailing technology, and are demolished when technology advances and their efficiency is thereby impaired. An alternative to erecting buildings which become obsolete is to plan buildings which can have alternative uses so that when their initial use is outmoded, they can be used for something else.

With the increasing number of aged persons in the population, there has been a rise in the proportion of aged and senile admissions to our mental institutions. In these spatially and professionally isolated long-term mental hospitals, chronic mental patients stand little chance of being returned to the care of the family, or a special community facility. The latter would be possible only if there existed adequate local community or regional services to treat the patient. Some patients, those suffering from severe psychiatric disability, require long-term psychiatric and other medical care, while others with less severe psychiatric conditions need less intensive care which may be given in the home or a non-institutional community health facility.[2]

Much of the recent expansion in accommodation for mental disorder has been due to the increase in facilities for the mentally retarded. In Canada today there are eleven hospitals for the mentally retarded which care for 10,751 patients. In those provinces which do not have these facilities, Newfoundland, Prince Edward Island, and New Brunswick, the mentally

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[1] World Health Organization, *The Community Mental Hospital,* Third Report of the Expert Committee on Mental Health, Technical Report Series, No. 73, Geneva: The Organization, 1953, p. 29. As quoted by McKerracher, *op. cit.*

[2] See, for example, briefs submitted to the Royal Commission on Health Services by: Canadian Hospital Association, Toronto, May 1962, p. 23; The Canadian Medical Association, Toronto, May 1962, pp. 4 and 50; The Canadian Welfare Council, Toronto, May 1962, pp. 48-52; The Government of Manitoba, Winnipeg, January 1962, p. 9; Victorian Order of Nurses, Toronto, May 1962, pp. 15-24.

retarded are cared for in provincial mental hospitals.[1] The total number of mentally retarded individuals in Canada is estimated to be between 200,000 and 300,000 consisting of the three following groups:

"(1) a high-grade group which includes 85 percent of the total; these persons can be self-supporting if given special education and training and some assistance in finding suitable employment;

(2) the second group comprises about twelve percent of the total; they can never be totally self-supporting but given suitable training and supervision in the community should, for the most part, remain out of institutions, contributing something towards their own support;

(3) the third and lowest grade is wholly dependent and will require moderately skilled nursing care throughout life".[2]

Since the first group can be made self-supporting, the practice of segregating large numbers of them in institutions will need a critical review. An attempt to integrate as many as possible of these patients into the regular school programme rather than segregate them as is now the case, would seem to be a more effective means of treatment. After school age, this group in order to become self-supporting, would require job placement and supervision.

The second group can never be self-supporting, but the patients could be cared for in the home, provided visiting nurses and counsellors for the parents are available. The sheltered workshop is possibly the only work situation in which individuals in this group can function.

For those in the third group there is no possibility of becoming self-supporting. These individuals place a particularly heavy financial, physical and psychological strain on the family, especially the mother. Nevertheless, with help from the visiting nurse and counsellor, home care may be possible for some for part of their lives. When this proves inadequate, institutional care is the only recourse.

The problem of the early recognition of the mildly mentally retarded children is difficult under our present system. When the child fails in school, or shows some abnormal behaviour characteristics, treatment and care should begin. Unless those closest to the child, parents and teachers, are cognizant of the first signs of mental retardation, early recognition and care are delayed. The vital importance of early recognition of mental retardation is illustrated by the problem of phenylketonuria which is diagnosed when phenylpyruvic acid is found in the urine of infants. "If the infants were

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[1] McKerracher, D. G., *op. cit.*, Part III.

[2] *Ibid.* Another classification is that used by the Canadian Association for Retarded Children, brief submitted to the Royal Commission on Health Services, Toronto, May 1962, pp. 7 and 8. (See introduction to Recommendations 7-12.)

diagnosed at 3 to 5 weeks of age and placed on proper dietary therapy it is likely the retardation could be prevented or at least minimized."[1]

A key figure in the diagnosis and treatment of the full range of psychiatric disorders is the family physician. He may be the general practitioner or internist, paediatrician, and to a lesser extent some other specialist. According to McKerracher:

> "A ... about 25 per cent of all patients consulting their family doctor do so because of disorders caused by anxiety or depression, and these physicians also see many patients with organic confusion. Of necessity, the family physicians refer very few of these problems to specialists—probably not more than five per cent at the most. The factors influencing referral are complex and varied; they include severity of illness, the nature of the training of the family physician, the availability of consultants and also financial and social circumstances. In dealing with the social and psychological problems of their patients, Canadian family physicians now receive little help from social agencies and from public health nurses.
>
> "B The family doctor always has treated and always will treat most of those who come to him with psychiatric problems. Even if it were desirable, it would never be possible to provide cradle-to-grave psychiatry through an organization of specialists. Unfortunately, the family physician usually lacks training in psychiatry, yet receives little help from psychiatric consultants and from the community social services. Usually he can't get a psychiatrist quickly and when he does secure one, often he is not very helpful. Moreover, when any of his psychiatric patients need hospitalization, the general practitioner is faced with the distasteful necessity of referring the patient to a provincial hospital."[2]

Despite the importance of the family physician in the diagnosis and treatment of psychiatric conditions, it is not often that his present and potential contribution is recognized, but this is due, in part, to his inadequate training in psychiatry.[3]

Another important service for the diagnosis and treatment of psychiatric conditions is provided by psychiatric clinics and out-patient departments. Although the data on facilities published by the Dominion Bureau of Statistics are incomplete,[4] this is the only source available to which we can turn for information.[5] The total number of new patients seen in 1960 was 34,104, and assuming each of these was seen by a physician, "the average full time physician saw 214 new patients per year, and the ratio of total interviews to new patients was 4.0:1".[6] In view of the lack

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[1] *The Nova Scotia Division of the Canadian Association for Retarded Children,* brief submitted to the Royal Commission on Health Services, Halifax, October 1961, p. 12.

[2] McKerracher, D. G., *op. cit.,* Part III.

[3] *Ibid.,* see also MacFarlane, J. A., *Medical Education in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

[4] Richman, A., *op. cit.,* Chapter II.

[5] This is another instance where improvement in data collection would strengthen greatly our ability to formulate judgment based on facts rather than on inadequate knowledge.

[6] Richman, A., *op. cit.,* Chapter II.

of studies aimed at objectively evaluating the services provided in the clinics and out-patient departments, it is impossible to state the degree of their effectiveness as one of the community's weapons in combatting psychiatric disorders. Nevertheless the Canadian Mental Health Association is of the opinion that in the future we will see an emphasis on community psychiatric services including those "where a large proportion of psychological disorder can be diagnosed and treated without hospitalization".[1]

TUBERCULOSIS FACILITIES

Tuberculosis services share with the services for the mentally ill a long history of development apart from the general health services in the community. This separation found its most recent formal expression in the Hospital Insurance and Diagnostic Services Act of 1957, which specifically excludes both tuberculosis and mental hospitals from the coverage by the Act.

The early concern of provincial governments with the treatment of tuberculosis was the direct result of their role in the control of communicable diseases. There has been no uniform pattern in the development of tuberculosis services in the different provinces. Invariably, the first services were organized and financed by voluntary effort. Then they were gradually financed by governments in whole or in part and were incorporated into the public health services as they developed.[2] They still remain, however, a combination of voluntary and official effort.

Tuberculosis being a communicable disease, diagnosis and case-finding were given early attention by the voluntary and provincial agencies concerned. The next step in the chain of control measures was the isolation and the treatment of the case. The protection of the community was a strong reason for removing the patient to an institution. It was an important public health objective in the hospitalization of the tuberculous.

Physical separation with the resulting problems of securing medical staff contributed to the isolation of tuberculosis services from the general health services. Because of their location, these institutions required a full-time medical staff which resulted in the development of a discipline of its own with a substantial number of doctors recruited from those who had contracted the disease and after recovery were willing to continue work in this

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[1] The Canadian Mental Health Association, *More For The Mind,* Toronto: The Association, 1963, p. 55.

[2] Wherrett, G. J., *Tuberculosis in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964.

specialty. This source of supply has happily dried up, however, with increasingly effective protection of the medical practitioners against infection. The recruitment of personnel from outside has also been made more difficult by the isolation of these services as well as the declining prospects for professional practice in the tuberculosis field as such.[1]

The public health aspects in the control of tuberculosis have been one factor in the assumption of provincial responsibility. Another has been the fact that, on the one hand, treatment could be enforced by law, but on the other, hospitalization was so long and costly that the affected individual could hardly be expected to bear the resulting expense. Thus, today, sanatorium treatment is provided at government expense in most provinces. Even in those provinces where an individual charge for the care may be made, the amount collected from paying patients is usually a small percentage of the total cost. The work of case-finding continues to be supported largely by voluntary campaigns conducted by the Canadian Tuberculosis Association.[2]

Hospital Resources

The erstwhile reasons for the separate development of tuberculosis services have been gradually removed during the last two decades or so. Chemotherapy and antibiotics have drastically transformed the course of treatment and decreased the length of stay in sanatoria. The average hospital stay of tuberculosis patients was reduced from 300 days to 264 days between 1958 and 1960, with New Brunswick showing an average stay of only 194 days in 1960.

Table 8-9 shows that an increasing proportion of the disease is treated in tuberculosis units of general hospitals rather than in sanatoria. The percentage of total beds located in these units rose from 6.6 per cent in 1958 to 10 per cent in 1960. The number of these beds has actually increased while the bed capacity in sanatoria has fallen substantially, resulting in a steady decline in the total number of tuberculosis beds. This decline is taking place despite the population increase. Thus, the rated bed capacity per 1,000 population declined from 0.9 beds per 1,000 population in 1958 to 0.7 beds in 1960.[3]

The rehabilitation of the recovered is being more and more co-ordinated with general rehabilitation programmes. This trend towards integration has also begun in the tuberculosis services provided for the Indian and

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[1] *Ibid.*

[2] Dominion Bureau of Statistics, *Canada Year Book 1962*, Ottawa: Queen's Printer, 1962, p. 235.

[3] Department of National Health and Welfare, *Hospital Care in Canada, op. cit.*, Chapter III.

TABLE 8-9 ESTIMATED RATED BED CAPACITY, TUBERCULOSIS SANATORIA AND UNITS (FEDERAL AND NON-FEDERAL), CANADA, 1958-1960

Year	Tuberculosis Sanatoria	Tuberculosis Units	Total
1958	14,237	998	15,235
1959	13,242	823	14,065
1960	11,687	1,292	12,979

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada*, Ottawa 1962: (unpublished report), Chapter III.

Eskimo population among whom the largest remaining pockets of tuberculosis still persist. There the co-ordination of tuberculosis services with general health services is progressing simultaneously with the gradual integration of the special services for these population groups with the regular provincial health services.

These developments are the consequence of the greatly reduced incidence of tuberculosis morbidity as indicated in Chapter 5. That the reduction in beds still lags behind the declining demand is indicated by the fact that the occupancy rate in relation to beds set up has declined from its high of 93 per cent in 1953 to 78 per cent in 1960.[1] One of the reasons for this slow rate of converting unused beds to other uses is the location of many of the institutions, their structure, and often also their age, which in some instances renders them unsuitable for other purposes.

The lagging reduction in the number of tuberculosis beds is also reflected in the trend in the number of staff. Total staff has decreased by about 12 per cent from 1958 to 1960.[2] This corresponds roughly to the decline in the number of beds but, as may be expected from the sharply lowered occupancy rate of the remaining beds, the ratio of personnel per 100 patients has increased by almost 25 per cent between 1958 and 1960.[3] According to Table 8-10, there has been little change in the number of physicians and nurses per 100 patients but the number of orderlies, attendants, and nursing assistants, has risen significantly.

[1] Dominion Bureau of Statistics, *Tuberculosis Statistics 1960*, Ottawa: Queen's Printer, 1962, p. 48. It should be noted that the number of beds shown in tuberculosis sanatoria is not an indicator of the number of patients hospitalized with tuberculosis since sanatoria have been used in some provinces to provide accommodation for the chronically ill and the aged mental patient.

[2] Department of National Health and Welfare, *Hospital Care in Canada, op. cit.*, Chapter III.

[3] Dominion Bureau of Statistics, *Tuberculosis Statistics 1960*, Ottawa: Queen's Printer, 1962, p. 54.

TABLE 8-10 NUMBER OF SELECTED CATEGORIES OF PERSONNEL PER 100 PATIENTS, IN TUBERCULOSIS SANATORIA, CANADA, 1958-1960

Category	1958	1959	1960
Physicians	4.1	4.1	4.1
Full-time	2.4	2.5	2.5
Part-time	1.7	1.5	1.6
Graduate Nurses	11.6	11.5	12.0
Orderlies, Attendants, and Nursing Assistants	16.5	18.3	21.2

SOURCE: Department of National Health and Welfare, *Hospital Care in Canada,* Ottawa 1962 (unpublished report).

INTERNATIONAL COMPARISON, HOSPITAL FACILITIES

We have described the expansion of hospital facilities in Canada and have indicated that although the number of beds available has increased substantially, the supply of beds relative to the population has not changed significantly, and with the elimination of many beds in tuberculosis hospitals this ratio has been declining in recent years.

Compared with other nations, however, Canada ranks favourably in terms of population per hospital bed. Table 8-11 shows that in 1959 of the countries listed, Switzerland had the lowest ratio followed by Canada, Australia, New Zealand, and Sweden with population-bed ratios of 90 people per bed. The United States and the United Kingdom had a ratio of 110 people per bed and other countries, such as the Netherlands, had a ratio of 130 to each bed.[1]

With only few exceptions, the differences between the ratios in the selected countries fell within a range of 90 to 110 persons per bed. On the other hand, if the ratio is expressed in terms of the number of beds per 1,000 population, the above mentioned range would mean that in these countries there are between 10 and 11 hospital beds of all types per 1,000 population. Thus, in most developed countries the total hospital bed supply in relation to the population does not vary substantially, although there may be greater differences in the proportions of the various types of beds.[2]

[1] See Table 8-11.

[2] In 1960, the United Kingdom had 10.3 beds per 1,000 persons of which 5.7 were in acute, geriatric, maternity and other hospitals and 4.6 beds in hospital for the mentally ill and mentally retarded. In that year Canada had 10.7 beds per 1,000 persons of which 3.8 were in hospitals for the mentally ill and the mentally defective and 6.9 in other hospitals including tuberculosis hospitals. See National Health Service, *A Hospital Plan for England and Wales,* London: Her Majesty's Stationery Office, January 1962, pp. 274-275.

TABLE 8-11 INTERNATIONAL COMPARISON, POPULATION PER HOSPITAL BED, SELECTED COUNTRIES, 1959

Country	Population per Hospital Bed
Australia	90
Austria	110
Belgium	130*
Canada	90
Denmark	110
England & Wales	110
Finland	110
France	110
Germany: Federal Republic	100
Greece	**
Italy	110
Luxembourg	100
Netherlands	130
New Zealand	90
Norway	110
Portugal	190
Spain	310
Sweden	90
Switzerland	80†
United States	110

*Data related to 1958.
**Not available.
†Data related to 1956.
SOURCE: Compilation based on World Health Organization, *Annual Epidemiological and Vital Statistics*, Geneva: The Organization, 1962, pp. 654-695, and United Nations *Demographic Yearbook 1960*, New York: The Organization, 1961, pp. 104-115.

HEALTH SERVICES

In Chapter 6 we described briefly the evolution of health services from an early, simple and primitive stage to the technically advanced health services complex of today. The discussion of health personnel in Chapter 7 and of facilities in this chapter illustrates the vast difference between medical practice then and now, and also between the early hospital and the modern institution. But apart from the high degree of diversification of these two types of health resources, our modern communities have a great number of new services and agencies, all attempting to fill some newly developed or

newly recognized need. Among these are the services provided to the general public by local or provincial governments and by voluntary organizations, as well as services made available under a variety of auspices to selected groups of the population such as members of the armed services, veterans, Indians, and employee groups.[1]

Also comparatively new is our concern with the provision of more adequate health services in the remote areas of the country which have problems entirely different from those in the more densely settled parts.

We have come to recognize, furthermore, that the sick and disabled require a number of services which are not health services in the sense of applying medical knowledge and techniques, but which are, nevertheless, essential if the patient is to derive the full benefit from the medical services he is using. Among them are the various welfare services, educational and training facilities, placement and employment services, and others which play a part in the rehabilitation of the patient. Also related to the problem of helping those disabled temporarily or permanently by illness are the various existing or still needed income maintenance programmes.[2]

Government Health Services

We use the term "government health services" instead of the term "public health services", which is still frequently used, because public health has the connotation of environmental and general preventive services as distinct from personal health services. The latter were originally considered to lie outside the sphere of government activity, but today this distinction is difficult to maintain. For instance, immunization, prenatal and postnatal care, well-baby care, to mention some, are personal—though preventive—health services. The same is true of actual treatment service provided by government; for example, the service to the tuberculous, or home nursing carried out by the public health nurse. A preferable term is one which refers both to the auspices under which a service is provided, e.g., government, and to the type of service, e.g., environmental sanitation, and immunization.

The federal Department of National Health and Welfare and the provincial departments of health are organized largely along parallel lines, with the former assuming mainly a consulting function except in the areas of grants (National Health Grants and Hospital Insurance Programmes), and the areas assigned to federal jurisdiction.

Provincial governments have set up separate divisions or sections responsible for the general stimulation and supervision of local health activity,

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[1] We have presented here a brief outline of the services available through various government agencies. A more detailed analysis for the organization and provision of these services will appear in Vol. II of this Report.

[2] See Chapter 1.

the organization of new local health districts, the administration of grants-in-aid, the channelling of information from the specialist divisions to local health officials, and the co-ordination of provincial and local programmes.[1]

The organization and administration of the local health units vary considerably. Local requirements in public health services have necessitated a decentralization of public health facilities which has led to a certain degree of local autonomy. The functions and organization of local public health facilities vary considerably among the provinces although basic programmes are similar. Most types of preventive public health service are provided at the local level, and these include sanitation, child, maternal and school health, and communicable disease control.

Local health units are financed by all three levels of government; municipal, provincial and federal. The municipal share is usually distributed among participating municipalities on a population basis. Provincial assistance is provided through percentage grants for approved services in Ontario and Alberta. In Quebec, Manitoba, Saskatchewan and British Columbia local governments are assessed some portion of the cost, while the province pays the balance. Federal assistance for the expansion of local health services has been provided since 1948 through the General Public Health Grant under the National Health Grants Programme.

At the end of 1962, full-time public health services were supplied through 28 urban health departments and 179 local health units. The number of full-time health departments, units and districts had increased to 207 from 157 in 1948. Intermunicipal units were distributed as follows: Nova Scotia 8, Quebec 73, Ontario 35, Manitoba 13, Saskatchewan 10, Alberta 23 and British Columbia 17. Urban health departments were located in these provinces as follows: Nova Scotia 1, Quebec 6, Ontario 13, Manitoba 1, Saskatchewan 2, Alberta 3 and British Columbia 2.[2]

Some of the most common functions of health departments are briefly described below, but this description is by no means exhaustive. The degree of departmentalization varies with the size of the department and also with its policies.

ENVIRONMENTAL HEALTH MEASURES

These still form a very significant part of government activity. Their continued importance in the prevention of the spread of epidemic disease was discussed in Chapter 5. Some of the traditional functions in this area, such as maintenance of safe water supplies and supervision of sewage disposal systems, are generally well established and accepted as desirable

[1] Canadian Public Health Association, *The Federal and Provincial Health Services in Canada*, Second Edition, Toronto: The University of Toronto Press, 1962.

[2] Data supplied by the Department of National Health and Welfare.

community responsibilities, carried out by agencies other than health departments. But new and more difficult tasks have arisen such as the control of air pollution, and radiation hazards. Some of these operations require international collaboration plus close co-ordination between the various levels of government in their administration as well as in their laboratory and other scientific services.

The prevention of industrial accidents, occupational diseases and the maintenance of the health of employees are the joint concern of industry and government agencies, including workmen's compensation boards and health departments.

Specialized advisory services on occupational health problems are provided by the Federal Government which undertakes studies such as a continuous review of certain occupational health hazards, e.g., those caused by radiation. Federal industrial radiation protection activities include the reviewing of all applications for licence to procure radio-isotopes for clinical or other use and the regulation of safe design and operation of nuclear reactors. Field studies are undertaken of radiation hazards associated with the industrial and institutional use of X-ray equipment.

COMMUNICABLE DISEASE CONTROL

A major function of government health authorities is the control of communicable disease. This is the function of separate divisions in six provincial health departments and is part of the duties of a medical officer in others. The successes in the field of communicable disease control and the remaining and new challenges have been pointed out in Chapter 5. The traditional immunization programmes and particularly the anti-poliomyelitis campaigns using the Salk and Sabin vaccines are outstanding examples of effective collaboration among all levels of government.

FOOD AND DRUG CONTROL

This is one of the oldest functions of government in the health field; it is one of the most important functions and at the same time one of the most difficult to administer. Together with other environmental control measures it is all too often taken for granted by the public.

The Federal Government protects the public against health hazards in the consumption of food and drugs, fraud, deceptive labelling and misleading advertising, and against abuse of narcotics and other potentially dangerous drugs through administration of the Food and Drugs Act, the Proprietary or Patent Medicine Act, and the Narcotics Control Act.[1]

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[1] Activities in the field of drugs are dealt with in Chapters 9, 16 and 17.

MATERNAL AND CHILD HEALTH

Programmes of this nature have been greatly stimulated by the still unnecessarily high, though declining, infant mortality rate.[1] Provincial maternal and child health services include supervision of the mother from the beginning of pregnancy into the post partum period, and of the child from the time of birth through the neonatal stage, infancy, early childhood and the school age period. These services are largely decentralized through local health units and departments, but nearly all provinces maintain separate divisions of maternal and child health, or employ consultants to promote better standards and give technical assistance. Public health nurses play a prominent role in providing services. All provinces have special divisions or sections to supervise public health nursing activities. Dental health and rehabilitation services form an integral part of maternal and child health programmes.

Here, as in the following discussion of dental health measures, we find a government operated service which is preventive but largely personal in nature thus supplementing the services provided by private personnel and agencies.

DENTAL HEALTH

Dental health programmes are focussed mainly on children and public welfare recipients and are administered chiefly by local authorities through dental health clinics. Although prevention of dental disease is the primary goal of these programmes, the provision of emergency care for children whose parents are unable to pay remains a primary consideration in some districts. Limited dental care benefits are provided for public assistance recipients in five provinces: British Columbia, Alberta, Saskatchewan, Manitoba and Ontario. The service is carried into remote areas by mobile units. Consultation on fluoridation is frequently found among the functions of dental health divisions of provincial health departments.

HEALTH EDUCATION

This function has received growing recognition as a necessary prerequisite for the success of health measures, particularly preventive ones. While every health worker is expected to carry out some health education, the need for professional full-time health educators has been increasingly recognized. This is evidenced by the fact that most provincial health departments have developed separate divisions or units to co-ordinate educational programmes; Nova Scotia conducts health education activities through various agencies.

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[1] See Chapter 5.

NUTRITION

This is an important factor in the maintenance of health; it has resulted in the development of nutrition services in provincial and federal departments. Such services include technical guidance, education, consultation and research, and in some instances, sponsorship of school lunch programmes and distribution of dietary supplements.[1]

PUBLIC HEALTH LABORATORIES

These are involved in environmental studies and communicable disease control. The principal types of work performed by laboratories include medical microbiology, serodiagnosis, sanitary bacteriology, clinical pathology and tissue pathology. Studies involve the testing of water, milk and food samples, and investigation of infectious diseases of bacterial, viral, fungal and parasitic origin.

Recent trends in some provinces include efforts to co-ordinate public health and hospital laboratory services, special measures to bring laboratory facilities to rural areas, and devices to reduce the direct cost of clinical laboratory procedures to the individual. Notable among these experiments are the provincially subsidized laboratory and X-ray units in Manitoba, and integration with general hospitals and standardized charges for service achieved in the Atlantic Provinces. The scope of free service has been extended beyond public health tests in many provinces to include histopathological examinations for cancer and a variety of other clinical procedures.

The Federal Government operates separate central laboratories specializing in research in environmental and occupational health, radiation protection, public health engineering, nutrition, bacteriology, biochemicals, biologics control, clinical chemistry, syphilis serology, virus control, and food and drug analysis. Regional food and drug laboratories are also maintained in five major Canadian cities.[2]

RESEARCH AND STATISTICS

The activities carried out in government departments of health vary with the size and the resources of the department as well as the awareness of their value. A good deal of technical—as opposed to operational—research has always been carried out in connection with the various programmes mentioned above. Of relative recent origin is operational research which attempts to evaluate various phases of the health services; this has come about as the result of the growing complexity and cost of our health services. Studies

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[1] Canadian Public Health Association, *The Federal and Provincial Health Services in Canada, op. cit.*, and data supplied by the Department of National Health and Welfare.

[2] Halifax, Montreal, Toronto, Winnipeg and Vancouver.

of this nature as well as epidemiological studies of disease require reliable and comprehensive statistics compiled on a continuing and comparable basis. While certain statistical series such as vital statistics are well established, Canadian health statistics particularly on the national level are still woefully inadequate, a fact which made the task of the Commission more difficult in a number of aspects. This does not mean that we suffer from a numerical lack of data. There is an impressive array of health statistics but these are not always based on clearly discernible criteria except perhaps that data should be produced in increasing quantities.[1] The usefulness of these data is further limited by the time lag in their publication. These are serious shortcomings especially in an era when significant changes are taking place in the health of our citizens, and in the health services complex. Comprehensive, accurate, up-to-date data which reflect these changes are a vital element in the planning required to deal with the task of continuing improvement of the health status of the Canadian people.[2] We think that the remarks of Titmuss concerning statistics on income distribution in the United Kingdom are equally pertinent to the field of health statistics in Canada.

> "To what extent then... are we becoming prisoners of the statistical houses we built in the past to accommodate the social data of that age? The appeal of continuity in the analysis and presentation of large masses of data must always be strong in an historically conscious society and statisticians (like other people) have their own particular reasons for not wishing to change. Their preferences for stability and order are reinforced when those who use the results of their work fail to appraise its relevance to a different social structure and to changes in economic and institutional relationships."[3]

Voluntary Health Services

Besides the health services provided by governments, the hospitals, the health professions and occupations, there are numerous other agencies concerned with the care of the sick and disabled. These are voluntary health agencies which provide actual personal health services, although some of these agencies are devoted wholly or in part to fund raising and research.[4] A significant feature of these voluntary services when compared with government services, is their uneven distribution due to their greater dependence on local initiative in their organization and operation.

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[1] See, for example, the proliferation of publications such as the following: Dominion Bureau of Statistics, *Hospital Statistics,* Vols. I and II, which in recent years have become *Hospital Statistics,* Vols. I to VI.

[2] We propose to deal with this subject more specifically in Volume II of this Report.

[3] Titmuss, Richard M., *Income Distribution and Social Change,* Toronto: University of Toronto Press, 1962, p. 192.

[4] We deal further with this subject in Volume II of this Report.

Health organizations considered as voluntary in this context are non-profit organizations under voluntarily organized boards.[1] In most cases it is the stated policy of these organizations that the services provided are only to be financed if they are not supported elsewhere from either public or private funds.

In terms of their objectives as well as the nature of their membership one can distinguish two types of voluntary health organizations: (1) The "citizen-member" organization, established by citizens to provide services to other people and representing the familiar form of voluntary philanthropy; (2) The "patient-member" organization, organized by patients, their relatives or friends to provide services to themselves.[2]

Many of the organizations are concerned with case-finding and particularly the early detection of disease or disability. They determine services needed and refer to sources of treatment, including the family physician. The clinics may be stationary or travelling, and are in some cases designed to estimate the prevalence of certain conditions and the need for more permanent service.

Voluntary organizations have been instrumental in providing hospital care by contributing to the capital and operating expenditures, as well as by administering certain institutions. After the advent of the hospital insurance programme, some of these organizations have provided supplementary services for in- and out-patients. This applies particularly in the field of tuberculosis and rehabilitation services, as well as the hospitals established and operated by the Red Cross.

In the area of rehabilitation, voluntary effort is as diversified as the rehabilitation services themselves, ranging from in-patient care, out-patient care in hospitals or special centres, to the training and education of the handicapped, as well as the supply of appliances and equipment. But while hospitalization has become almost entirely a public responsibility, home nursing is still carried out largely by voluntary organizations such as the Victorian Order of Nurses. The importance of this service is increasing with the growing attention to organized home care and the prenatal and post-natal care of maternity cases.[3]

The role of voluntary organizations in the field of psychiatric care and the treatment of the emotionally disturbed is increasing as the emphasis shifts from institutional care to the development of community mental health facilities. Here again, training and education are partly supplied or assisted by voluntary organizations.

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[1] Govan, E. S. L., *Voluntary Health Organizations in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa: Queen's Printer, 1964, Chapter I.

[2] *Ibid.*

[3] Home care programmes are discussed in detail in Chapter 15.

A limited amount of dental care is provided through voluntary effort in outlying areas or to needy children.[1]

Transportation to and from treatment centres is paid for by voluntary organizations, and also accommodation for patients who have to wait for diagnosis or treatment at a place remote from their residence without being admitted as in-patients is sometimes provided. The latter applies to handicapped persons attending special schools or classes.

Voluntary effort has succeeded in organizing a vital element in Canada's health services: the blood transfusion service of the Canadian Red Cross. The objective of this service is:

> ". . . to supply every hospital in Canada, free of charge with whole blood, dried plasma, distilled water for its reconstitution and sterile administration sets, the one stipulation being that any hospital wishing to participate would undertake to make no charge whatsoever to patients transfused under the scheme".[2]

Voluntary effort has resulted also in the organization of eye and tissue banks, and in the preparation and distribution of surgical dressings particularly to cancer patients.

The actual provision of drugs is a service which most organizations consider beyond their means, but patient-member organizations have been formed which, together with existing citizen-member organizations, are active in assisting in the purchase of drugs particularly where costly drugs have to be taken regularly. Voluntary organizations also assist in the supply of prosthetic devices and other equipment to the temporarily or permanently disabled.

The home care of the sick, whether as an organized programme or not, and the rehabilitation of the handicapped require a wide range of ancillary services, a large number of which are provided by voluntary effort. Among these services are homemaking, practical nursing, other social services, and the provision of teaching and training personnel and facilities such as sheltered workshops, a logical extension of the extensive voluntary services to the handicapped during their rehabilitation stage. Their objective is either to serve as a stepping stone to competitive employment, or as a permanent place of work for those unable to compete in the open labour market. Many handicapped are able to perform various types of work, but are unable

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[1] Since September 1957, the Junior Red Cross Advisory Committee of the Saskatchewan Division, Canadian Red Cross Society has carried on seven dental clinics for children at Cumberland House and eight at Ile à la Crosse in Northern Saskatchewan. These dental clinics were undertaken as a five-year pilot project, *The Canadian Red Cross Society*, brief submitted to the Royal Commission on Health Services, Toronto, May 1962.

[2] Stanbury, W. S., *Origin, Development and Future of the Canadian Red Cross Blood Transfusion Service*, Toronto: The Society, 1961, pp. 9 and 10.

to cope with the environment which usually prevails in industry or business; they may be unable to travel to or from work, use the regular machines or other equipment, or they may require longer rest periods or other special arrangements. This is where the sheltered workshop comes in: it provides "a work experience without the stress and tension of competitive employment".[1] Thus, the emphasis is on the provision of a work environment suited to the condition of the handicapped. The type of work itself ranges all the way from routine jobs requiring a minimum of skill and strength to the production of articles "of high artistic quality".[2] It is estimated that about 3,500 persons are assisted by these workshops.[3]

What has been said about the need for greater co-ordination among the health services in general applies also to many forms of the voluntary effort in this field. Voluntary organizations, by their very nature, come into being through the initiative of groups and individuals who recognize certain problems and needs in the community. Their primary concern is, therefore, with a particular need. With the growing complexity of our health problems as well as the services aimed at their solution, it is becoming increasingly difficult to isolate specific needs and activities directed towards meeting them.

Voluntary effort, nevertheless, has the great merit of recognizing needs and taking action often long before public services come into operation. The history of government health services abounds with examples of voluntary initiative preceding an active interest by governments. Tuberculosis services and the erection of hospitals are examples. They also illustrate the fact that it is essential for voluntary health agencies to continue to function in areas where governments become involved. In the fields of tuberculosis and hospital construction, which we cited as examples of some of the earliest fields of large scale voluntary services, these services have continued their substantial contributions long after government has assumed a much greater role. The visiting nursing service is another instance where a voluntary effort has been in operation for a long time even though its services are increasingly employed by public agencies. In thus recognizing and emphasizing the contributions of voluntary organizations, one should include not only those providing actual services but also those whose aim is the education of the public or research. Nor should one overlook the contributions made by voluntary effort towards the solution of the problem of financing health services. Often there may be limits to what voluntary enterprise can accomplish, limits which eventually may require public agencies to substantially support a voluntary scheme or completely take over its programme.

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[1] Armstrong, K. S., *"The Sheltered Workshop in the Rehabilitation Process"* in *Rehabilitation in Canada,* Department of Labour, Ottawa: Queen's Printer, Summer 1962, p. 5.

[2] *Marina Creations,* Rehabilitation in Canada, *ibid.,* p. 14.

[3] Data supplied by Department of Labour.

But we are convinced that voluntary organizations in the health field will continue to render essential services by:

1. identifying problem areas and drawing attention to them;
2. providing at least some relief expeditiously;
3. developing methods of solving the problems; and
4. participating with government in particular programmes.

It would be difficult to over-estimate the competence of voluntary effort and agencies in the health field. Nevertheless, in a field of action as complex as this one, it is essential that there be increasing co-ordination among voluntary agencies and co-operation with government. We deal with this matter further in Volume II of this Report.

Other Community Services

We wish to emphasize the relationship of health services with other community services. While we cannot concern ourselves in detail with these other services, they are an important element in an integrated system of health services.

These supplementary services include the services provided by welfare departments, social workers, homemakers, and the wide range of services required to establish and maintain the patient or his dependents in the community including the placement of the rehabilitated in fitting employment. Effective co-ordination of such services with a properly planned health care programme is essential if adequate progress is to be achieved in the health field making the most effective use of the nation's *total* resources.

Health Services for Selected Groups

Certain services are established exclusively for use by members of specific population groups, such as the armed services, veterans, Indians, and employee groups, including workmen's compensation cases.

The auspices under which these services are provided vary with the group. So does the range of services provided and the provisions for their use. Our main interest in this context is in services specifically earmarked for a certain group and not generally accessible to other members of the community. With the exception of the armed services, members of these groups may either be treated by a physician employed, or a hospital operated by the particular agency. For certain conditions or in certain areas a person may be referred to the general community services which would then be reimbursed. The health care of Indians particularly is now in a state of transition with the administration gradually moving from the Indian Health Services of the Department of National Health and Welfare to the general health services of the provinces.

Industrial health services provided by government have been noted above, but industry is now concerned with the general health of the members of the labour force. During World War II the objective of maintaining peak production in industry with a reduced labour force focused attention on the importance of a healthy labour force on the home front and of keeping to a minimum absenteeism due to sickness. Health services of some sort also have always been maintained in company towns or similar situations in isolated areas where the local industry provided the existing community health services. Since World War II the concern of industry with the general health of its employees, including the executives, continued to grow although the motives behind this concern changed gradually. In addition to the interest in maintaining high productivity, employers as well as unions began to take into account the growing awareness of health and health services as a desirable goal in our society. This led not only to the growth of group insurance for health services, but also to the establishment by industries of certain health services for their employees. The provision of a wide range of health services is still limited largely to industrial establishments in isolated areas. Most health services provided by industry are designed not to interfere with, but to supplement existing medical and hospital care by providing emergency services and consultation, leaving actual treatment to the private practitioner. Of a different nature but also designed primarily for specific groups of employees and their dependents are the facilities created by labour unions. An outstanding example is the recently organized centre at Sault Ste Marie, Ontario.

Health Services in Remote Areas

The remote areas present a picture essentially different from that we have painted for the rest of the country, and we wish to emphasize this point specifically. By remote areas we mean primarily the northern territories and it is for these areas that most of the existing data are available. But health and social conditions do not change with administrative boundaries, and much of what is said about the Yukon and the Northwest Territories also applies to the northern and outlying parts of the provinces, particularly in Newfoundland.

Most of the criteria established for the adequacy of health services in southern Canada do not apply in the North where the service has to cope with proportionally more sickness and death, a population much more widely scattered over more inaccessible country, generally worse weather, with more limited transportation facilities, and inadequate communication facilities.[1]

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[1] Northern Health Service, Department of National Health and Welfare, *Health Services Plan, Northwest Territories 1962-67 (Revised)*, Ottawa: The Department, February 1962, p. 5.

The following data illustrate the situation but the figures should be interpreted against the background of climate, transportation and communication difficulties, and social conditions.

TABLE 8-12 HEALTH SERVICES IN THE YUKON AND NORTHWEST TERRITORIES, 1962

Item	Yukon	Northwest Territories	Total
Total area (sq. miles)	207,076	1,304,903	1,511,979
Population	15,000	24,000	39,000
Hospital beds	170	576	746
of these, in nursing stations	8	67	75
Physicians	12	19	31
Dentists	5	5	10
Registered Nurses	52	90	142
Paramedical Personnel	30	78	108

SOURCE: Northern Health Service, Department of National Health and Welfare, *Health in Canada's North*, brief submitted to the Royal Commission on Health Services, Ottawa, November 1962, and Dominion Bureau of Statistics, *Canada Year Book 1962*, Ottawa: Queen's Printer, 1962.

These are the services available in an area covering about 40 per cent of Canada's total area, inhabited by about one-fifth of one per cent of her population. Obviously under these circumstances different standards regarding health resources must be applied since it is much more difficult and frequently more costly to reach a hospital, proportionally more beds must be kept available for unexpected emergencies, and nurses and doctors serve fewer people in the North. Considerable time must be spent travelling, unpacking equipment, and organizing space for public health or treatment purposes.[1]

In isolated locations the only health facility may be a medicine chest with supplies sufficient to cope with emergencies under field conditions. There may be one among the people in the area with enough training in elementary hygiene, sanitation, first-aid and home nursing to cope with the situation until professional help or advice can be obtained.

In or near larger settlements the nurse working in or from her nursing station provides all the health services that are available, preventive

[1] Northern Health Service, Department of National Health and Welfare, *Health in Canada's North*, brief submitted to the Royal Commission on Health Services, Ottawa, November 1962, p. 5, and Dominion Bureau of Statistics, *Canada Year Book 1962*, Ottawa: Queen's Printer, 1962, p. 238.

as well as treatment. Due to her isolation, the nurse must also shoulder a far greater than usual share of the responsibility for individual cases. Medical advice may be available to her only by radio from a physician several hundred miles away. Clearly, service under such conditions requires not only professional proficiency, but also high ideals of service both of which are found in large measure among the nurses working in the remote areas.

The logistic problems of transport and communications, of bringing patient and health personnel together, establishing sanitary facilities and bringing in supplies are unusually difficult because of distances, cost, and technical problems created by tundra terrain, permafrost, and the harsh climatic conditions. Even if a plane is ready to pick up a patient, the nurse, or a physician, weather conditions may delay the take-off for a week or more.

The challenge of the vast open spaces grows the farther one moves north. It is present in the northern parts of Newfoundland and Labrador, the Province of Quebec, Ontario and even south of the 60th parallel in the western provinces. These areas are distinguished from the more densely populated areas in the south by the thinning population; lack of communications; an economy limited largely to fishing, hunting, trapping, and scattered mineral resources; and the severe climate. These create problems for the provincial administrations in these areas, and particularly also for the Northern Health Division[1] administering health services in the territories.

The following tabulation, based on Table 8-12, compares health service ratios in the territories with the corresponding data for Canada:

	Yukon	Northwest Territories	Canada[a]
Hospital beds per 1,000 population	11.3	24.0	10.8
Population per physician	1,250	1,263	857
Population per dentist	3,000	4,800	3,108
Population per registered nurse	288	267	296

[a] Data for Canada for 1961; data for Yukon and Northwest Territories for 1962.

The population per square mile is 0.07 in the Yukon, 0.01 in the Northwest Territories, and 7.7 in the area covered by the provinces. In comparing the ratios of the territories with the Canadian figures one must

[1] The Department of National Health and Welfare.

bear in mind the fact that in the Yukon there are about 14, and in the Northwest Territories 55 square miles for every inhabitant.

The need to transport patients or health personnel over distances often of many hundreds of miles creates not only logistic but also economic problems. In the eastern and central Arctic the aircraft is the only means of communication at a cost ranging from about 10 cents to $1.00 per mile. In the Yukon there is access to many places by road but the travel time creates serious problems in emergencies.[1]

Members of the medical profession in the Yukon feel that the health services now operated by the federal department should be administered by the territorial administration.[2] The same group emphasizes the principle of "a free enterprise type of practice" with prepaid medical insurance,[3] but it also stresses the need for government assistance in such matters as travel subsidies[4] because of the time and cost involved in visits to outlying areas. Subsidies are also suggested to induce physicians to stay or settle in certain locations.[5] Visits of specialists also should be encouraged by subsidizing their transportation costs.[6]

The problems of distance and service to small communities and scattered population are still greater in the Northwest Territories with a corresponding greater share of the Northern Health Division in the responsibility for both public health and treatment services. These services have been greatly strengthened since the establishment in 1954 of the Northern Health Services Division in the Department of National Health and Welfare. Plans for the further development of the health services in both territories during the period 1962 to 1967 were prepared by the Northern Health Service and have been approved by the Interdepartmental Committee on Federal-Territorial Financial Relations.[7]

Further, the feasibility of successfully overcoming some of the handicaps of distance and inaccessibility has been demonstrated in some of the northern areas of the provinces, e.g., by the Saskatchewan air ambulance service, and in Newfoundland by the chartered air service and the floating clinic.[8]

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[1] See, for instance, Transcript of evidence, *Hearings*, Vol. No. 69, pp. 13278, 13292 and 13293.

[2] *The Yukon Medical Association*, brief submitted to the Royal Commission on Health Services, Whitehorse, 1963, p. 3.

[3] *Ibid.*, p. 2.

[4] *Ibid.*, p. 9.

[5] *Ibid.*

[6] *Ibid.*

[7] Northern Health Service, Department of National Health and Welfare, *Health Services Plan, Northwest Territories 1962-67 (Revised)*, Ottawa: The Department, June 1961, and *Health Services Plan, Yukon Territory 1962-67 (Revised)*, Ottawa: The Department, 1962.

[8] The northern health services will be further discussed in Volume II of this Report.

SUMMARY OF DEVELOPMENTS

In this chapter we have presented an outline of health facilities as they have developed and now exist, with some indication of changing patterns and needs. The traditional pattern of caring for the mentally ill and tuberculosis patients in segregated institutions is slowly being eliminated as the care of such patients is integrated into general hospitals. General hospitals themselves are growing larger and are being slowly concentrated in urban areas as the population of the country slowly shifts from rural areas. Important changes are still going on in the whole complex of general hospitals as a consequence of the national operation of the Hospital Insurance and Diagnostic Programme. These changes are due partly to the effects of integration of mental and tuberculosis services into general health services, but also to new concepts of the relationship between patient and hospital as evidenced by progressive patient care, rehabilitation services, and home care programmes.[1]

The requirements to which these developments point in the future are discussed in Chapters 14 and 15.

[1] The organization of health services, particularly the changing role of hospitals in community health programmes, is discussed in Volume II of this Report.

9

Drugs as a Health Service

This chapter deals with drugs within the health services complex. Whereas the other major components of this complex, the health professions and institutions provide basically services rendered in Canada, drugs represent commodities coming from an industry that relies heavily on imports and is largely foreign controlled. We have, therefore, found it necessary to deal with some of the special problems we face in Canada concerning the production, distribution, and the quality of drugs and present certain conclusions relating thereto.

Health care is an integrated service designed to safeguard and improve the health of the nation. One vital part of that service is the provision of drugs or pharmaceuticals to persons requiring them for health reasons.[1] A distinction should be made between "prescribed" drugs and "non-prescribed" drugs. Prescribed drugs may mean different things to different people as is noted later. Unless specified otherwise, prescribed drugs are those pharmaceuticals prescribed by a duly licensed medical, dental or other practitioner in Canada.[2] "Non-prescribed" drugs, or "proprietary medicine" as they are sometimes called, refer to drugs purchased by consumers directly from distributors, mainly retail outlets without prescription by either a physician or a dentist. These range all the way from vitamin preparations to drugs containing antihistamines. Expenditures on drugs of the latter type are based largely on "self medication", that is, on the decision

[1] We define drugs as chemical substances of therapeutic value serving a health purpose. This definition is further elaborated on in this chapter.

[2] By far the vast majority of drugs are prescribed by physicians. The practising dentist using drugs usually purchases and uses them in the treatment of his patients. Hence most costs of drugs used in dental treatment are included in the fees paid for dental services. The Select Committee of the Ontario Legislature observed: "The practising dentist prescribes few drugs and those used are well established" . . . . "The total cost of drugs used by the dental profession in Ontario was estimated at approximately $1,000,000 which forms a very small percentage of the total drug bill for the province." (Report of the Select Committee of the Ontario Legislature on The Cost of Drugs, Toronto: April 26, 1963, p. 20). "Other" practitioners include osteopaths, podiatrists, etc., licensed by provincial laws.

of the consumer on what to buy and how much to buy.[1] Expenditures of this type have assumed large proportions in recent years involving an annual business in Canada considerably in excess of $200 million[2] and representing something like between 56 and 58 per cent of all expenditures on drugs made in this country.[3]

The outstanding progress made in medicine in the present generation would not have been possible had it not been accompanied by major advances, and in some cases by a breakthrough in the discovery of new drugs and the development of improved pharmaceuticals to help physicians to combat and in many instances prevent disease and illness.

Effective and judicious use of drugs have made it possible not only to improve the health of the nation but also to raise the economic benefits resulting from the provision of health services. The use of many of the newer drugs by physicians facilitates their patients' recovery, and in some instances avoids or minimizes the effect of serious diseases.[4] Improvement in the state of health of the nation meant increases in the productivity of the working force. Persons released from hospital care sooner because of new or improved drug therapy meant saving costly hospital bed days, a welcome economy in the light of rapidly increasing costs of hospital care.[5]

Even more important than the economic advantages are the numerous benefits to Canadians in reducing or preventing human suffering. Furthermore, drugs have proven to be an invaluable weapon in the arsenal of the medical profession in its fight against disease and emotional disorder. Advances in drug therapy in the last two decades have been particularly spectacular. Most of the progress made has taken place in such industrially

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[1] Dr. C. A. Morrell, Director of the Food and Drug Directorate of the Department of National Health and Welfare has pointed out the unique feature of the Food and Drugs Act which discourages self-medication. The Act "prohibits the advertising of any food, drug, device and even cosmetic, as a treatment, preventative or cure of any of a list of serious diseases. It is wisely held that anyone suffering from such diseases should consult his doctor for a proper diagnosis and treatment and that persons with something to sell should not encourage the public to diagnose and treat themselves for these grave conditions. Furthermore, delays in going to a doctor may have serious or even fatal results. I believe this section in Canada's law is unique". (Statement by Dr. C. A. Morrell, reproduced in Minutes of Proceedings and Evidence, No. 4, Special Committee on Food and Drugs, House of Commons, Ottawa: February 5, 1963, p. 133).

[2] A rough approximation places expenditure on non-prescribed drugs in Canada for 1961 at between $200 million and $210 million. Expenditures of this type have continued to rise with the outlay on non-prescribed drugs likely to be considerably in excess of $200 million in 1963. See also p. 348 of this chapter.

[3] See p. 348.

[4] Examples include insulin, sulphonamides, penicillin and vitamin B_{12}.

[5] The Manitoba Government stated in its submission that: "The rapid advances and improvements in drug therapy in recent years have resulted in reduced incidence and severity of certain diseases and made possible the care of more patients at home. For example, the community health programme has resulted in a reduction in the number of hospital beds required by the mentally ill and it is estimated that 30% of drugs purchased by the Selkirk and Brandon Mental Hospitals are used for patients under community health programmes". *The Government of Manitoba,* brief submitted to the Royal Commission on Health Services, Winnipeg: January 1962, p. 47.

advanced countries as the United States and the United Kingdom. Canadians have shared in this progress. The dynamics of progress in the drug field are illustrated by estimates which indicate that 90 per cent of the drugs prescribed in 1960 were introduced in the previous two decades; 40 per cent could not have been prescribed in 1954.[1]

The major advances in drug therapy over the last two decades have materially affected the practice of the health professions, particularly physicians and pharmacists, the operations of the hospital and the production and distribution pattern of the drug industry.

The traditional relationship between physicians and the drug manufacturer has been altered. As in earlier days the physician continues to be the sole deciding factor when prescribing drugs. But the growing complexity of drug combinations and the great number of new drugs coming on the market, the lack of time to study adequately all the relevant literature relating to advances in drug therapy, and the absence of an up-to-date Canadian Drug Formulary has made it necessary for many physicians to rely increasingly on the promotional literature of drug manufacturers passed on to them in an unending stream of pamphlets, notices, samples, advertising matter and visits from detail men.[2]

The role of the practising pharmacist has been changing. The growing complexity of the pharmaceutical sciences and their application to medicine have made it necessary for universities to strengthen their courses and to raise the academic requirements for a degree in pharmacy. Further, the demand has been increasing for retail pharmacists to substitute lower priced generic type drugs of equivalent quality for higher priced brand name drugs.[3] Hence, increased professional expertise is expected of practising pharmacists. At the same time there has been a change in the practice of dispensing drugs by pharmacists. Prefabrication of ready-to-use drug combinations has largely replaced compounding, and to this extent has reduced dispensing to "packaging" service.[4]

Increasing use of drug prescriptions and higher costs of the newer type drugs have been an important contributing factor to rising costs of

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[1] Somers, Herman M., Somers, Anne R., *Doctors, Patients, and Health Insurance*, Washington, D.C.: The Brookings Institution, 1961, p. 24.

[2] An American study puts the problem facing physicians in the United States in these terms: "Instead of supplying the products the doctor orders, the manufacturer now tells him what he should order and why." . . . Dr. Walter Modell of Cornell University Medical College reports: "The undesirable effects of some new drugs employed therapeutically already have achieved alarming proportions; as one example, they constitute 5 per cent of 1,000 consecutive admissions to a major hospital in the city of New York. Improper prescription of antibiotics has had serious consequences", Somers, *ibid.*, pp. 97 and 98.

[3] See, for example, the amendment to the Alberta Pharmaceutical Association Act, passed by the Alberta Legislature in 1962.

[4] See Chapter 16.

hospital services. This trend has been offset in part by certain economies, e.g., in some cases by earlier release of patients and the greater use of pharmaceuticals in hospitals has contributed to an improvement in the quality of health services. From prior to World War II and to the present time, the total amount of drugs per patient-day used in hospitals has about tripled.[1] More and more drugs are now used in preventive medicine,[2] and in fighting mental diseases.[3] Drug therapy has been an important contributing factor towards reducing the average number of days of hospital stay, a subject we examine in greater detail in Chapters 8 and 14.

In most industrialized countries the drug industry has made great strides in marketing its products. In part, this progress has been due to making available genuinely new or improved products, and, in part to "planned" obsolescence. "Hundreds of products are rushed in and out of production before the average practitioner has any way of evaluating their advantages and limitations."[4] This subject is discussed further in Chapter 16 in the section dealing with "Physician and Drug Prescription".

The rapid distribution of new drugs has on some occasions led to tragic occurrences as, for example, the birth of deformed children to mothers using thalidomide.

This chapter presents a discussion of the role of drugs in a modern health service, the growing public interest in the subject of drugs, their uses, and their costs. An examination is made of expenditures on drugs and how drug purchases are financed. Some of the key questions relating to the quality of drugs are reviewed, but only briefly in view of the inquiries conducted by a House of Commons Special Committee,[5] and the steps already taken by the Minister of Health and Welfare to tighten regulations with respect to the manufacture and administration of drugs.

The drug industry is dealt with in Chapter 16 and an assessment of drug costs and drug prices is made in Chapter 17. Our recommendations with respect to an extended programme of prescribed drugs and matters relating to costs, prices and quality of drugs are presented in Chapter 2.[6]

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[1] We are basing this observation on an American study which showed the following numbers of drug prescriptions per patient-day: 1938—0.53; 1948—0.98; and 1958—1.32. Walter J. McNerney and others, *Hospital and Medical Economics,* Chicago: The Lakeside Press, 1962, Table 277, p. 619. We are advised that the trend toward increasing use of drugs per patient-day is continuing and that trends in Canadian hospitals are similar to those indicated for American hospitals.

[2] An example is the almost universal use of poliomyelitis vaccine for children in Canada.

[3] See Chapter 5.

[4] Somers, *op. cit.,* p. 97.

[5] Special Committee on Food and Drugs, House of Commons, Minutes of Proceedings and Evidence, No. 1, Dec. 19, 1962, to No. 4, Feb. 5, 1963, First Session—Twenty-fifth Parliament, 1962-63, p. 2-52; Minutes of Proceedings and Evidence, No. 1, Aug. 1, 1963, and Subsequent Proceedings, First Session—Twenty-sixth Parliament, 1963, pp. 1 ff.

[6] Chapter 2, Recommendations 58-82.

DEFINITION OF DRUGS

Drugs constitute a group of substances which come under the broad definition of chemicals. Chemicals and similar substances become drugs if they are defined in such a way that they fall under the definition of a drug as given in the Food and Drugs Act. For example, sodium chloride, or common salt, is a chemical and when used in the pickling of meat it is a food. On the other hand, if it is dissolved in water for use as an intravenous injection, it is a drug. In the case of some drugs, e.g., the biologicals, the identity of the active chemical ingredient is not known in many instances, while in the great majority of drugs the active ingredient may be defined in terms of standard chemical nomenclature. There are standard sets of rules for describing chemical compounds. Many chemical names are unwieldy and a pharmaceutical nomenclature has been developed to overcome this difficulty. However, the chemical name always serves as the standard of reference in determining the identity of a drug, and it is the only name a new drug may have until a recognized proper or non-proprietary name has been developed.

Section C.01.001(b) of the Regulations under the Food and Drugs Act defines "common name" with reference to a drug to mean the name in English or French by which the drug is commonly known. Hence, until a recognized name has been selected, the chemical name of a drug is the common name. A recognized name for a drug is one selected by an official organization dealing in drugs such as the Food and Drug Directorate, the British Pharmacopoeia, United States Pharmacopoeia or the International Pharmacopoeia, and designated as the "proper name" in Canada.

The term "proper name" appears to be distinctly Canadian. In other countries a different title is used to indicate the same thing. The British Pharmacopoeia Commission refers to this name as the "approved name", while the World Health Organization, which is responsible for the Pharmacopoeia Internationalis, refers to the "international non-proprietary name". The Revision Committee of the United States Pharmacopoeia has collaborated with the Council on Pharmacy of the American Medical Association in establishing official names for drugs. Prior to this, the Council on Pharmacy of the American Medical Association used "generic name" as an abbreviated scientific name for general use in prescribing, naming and identifying drugs with unwieldy chemical names. For practical purposes the names "proper name", "approved name", "adopted name", "pharmacopoeal name", "international non-proprietary name" and "generic name", are used as synonyms in the trade.

If a manufacturer wishes to distribute a new drug in Canada he must comply with the provisions of the Food and Drugs Act, and these are

elaborated later in this chapter. In this volume the definition of a "new" drug is that given by Dr. C. A. Morrell, Chief of the Food and Drug Directorate of the Department of National Health and Welfare before the House of Commons Special Committee on Food and Drugs:

> "There are several reasons for calling a drug a new drug. No. 1, and the one that occurs probably to all of us at once, is that it is a new chemical structure that has not been used previously in medicine. It may have been known but not used for medical purposes, or it may have been developed simply for medical purposes. These things are now appearing on the market because the pharmaceutical industry is interested in developing new products. If it is a new compound obviously it is a new drug. Now, a combination of known drugs that have not been previously used in combination, is also a new drug. It may be a combination of two or more perhaps well known drugs. This is, in most instances, called a new drug."[1]

ROLE OF DRUGS IN MODERN HEALTH SERVICE

The World Health Organization has estimated that in most medical care plans in force in various parts of the world pharmaceutical benefits amount to 10 per cent of total health care expenditures.[2] According to the Dominion Bureau of Statistics studies of "City Family Expenditures" in Canada for the years 1953 and 1957, prescription drugs have remained a constant 12 per cent of health care expenditures.[3] This figure is substantially confirmed by the estimates made by the Saskatchewan Pharmaceutical Association which shows that, generally, prescribed medicines account for 10 or 11 per cent of the health services dollar.

Expenditures on drugs have been increasing substantially over the past several decades. In the Green Book[4] estimates are presented showing that sales by drug firms in the United States increased eight times in dollar value from 1939 to 1958. Increased drug utilization in Canada appears to have been similarly dramatic. On the basis of statistics derived from annual surveys made by the Canadian Pharmaceutical Association, the Restrictive Trade Practices Commission concluded that between 1951 and 1961 inclusive, the total number of prescriptions dispensed by Canadian pharmacies rose from

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[1] Special Committee on Food and Drugs, House of Commons, Ottawa, Minutes of Proceedings and Evidence No. 2, January 29, 1963, p. 34.

[2] The Saskatchewan Pharmaceutical Association, brief submitted to the Royal Commission on Health Services, Regina, January 2, 1962, p. 14.

[3] The Canadian Pharmaceutical Association, Inc., brief submitted to the Royal Commission on Health Services, Toronto, May 1962, p. 134.

[4] Material collected for submission to the Restrictive Trade Practices Commission in the Course of an Inquiry under Section 42 of the Combines Investigation Act relating to the Manufacture, Distribution and Sale of Drugs by the Director of Investigation and Research, Combines Investigation Act (referred to hereafter as the "Green Book"), p. 57.

31 million to almost 43 million and the value of these prescriptions rose from $52 million to almost $134 million.[1] This increase has been attributed to a number of factors including particularly the development of powerful new drugs, higher prices, rising incomes, increased coverage by medical and hospital insurance programmes, the growing urbanization of Canada's population, changes in the age composition of the population, increased reliance by physicians on drug therapy, and a rising ratio of physicians to population.

Increased spending on drugs in Canada has been measured on another basis by the Department of National Health and Welfare which reported that during 1961, $364 million were spent on prescribed and other drugs supplied by drug stores, hospitals, other institutions and agencies, physicians and non-pharmacy retail outlets. The estimate given for 1953 is $201 million reflecting an increase of 81 per cent.[2] The same report estimates that hospital purchases of drugs more than doubled between 1953 and 1961. On the basis of such trends it seems reasonable to expect the utilization of drugs to continue to climb and probably to increase as a proportion of the total health care dollar.

Expenditures on drugs place almost as heavy a burden on the average Canadian family as paying medical bills. In 1961, for example, expenditures on physicians' services amounted to $383 million as against $364 million spent on prescribed and non-prescribed drugs.[3] In effect then, drug expenditures are equivalent to 95 per cent of expenditures on physician services. Outlay on prescribed drugs is estimated at approximately $164 million in 1961,[4] equivalent to about 43 per cent of medical expenditures. The trend, however, has been for expenditures on medical services to grow more rapidly than expenditures on drugs. Comparing again the period 1953 to 1961, the increases were 115 per cent for physicians' services and 81 per cent for pharmaceutical purchases.

In seeking physicians' services the consumer looks for a medical care package, i.e., all the services required to help him to maintain or regain his health. It was strongly represented to us by the Canadian Welfare Council, among others, that all prescription drugs should be included in any comprehensive medical care plan because, to some extent, different

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[1] Restrictive Trade Practices Commission, Report Concerning the Manufacture, Distribution and Sale of Drugs, Department of Justice, Ottawa: Queen's Printer, 1963, p. 388.

[2] Research and Statistics Division, Department of National Health and Welfare, *Report on the Provision, Distribution, and Cost of Drugs in Canada,* a study prepared for the Royal Commission on Health Services, Ottawa, 1964.

[3] These figures differ from the data on prescribed drugs shown in Chapter 11 in that the above figures cover purchased drugs, i.e., prescribed and non-prescribed, while prescribed drugs cover only pharmaceuticals purchased on a physician's prescription from retail outlets and do not include drugs prescribed in hospitals, etc.

[4] Total expenditures on drugs for 1961 are estimated at $364 million (see p. 348), on non-prescribed drugs, $200 million to $210 million (see p. 340) with prescribed drugs accounting for $154 million to $164 million.

kinds of therapy are substitutes for one another.[1] In its submission the Pharmaceutical Association of the Province of British Columbia pointed out that drug therapy has extensively replaced institutional care in the fields of mental illness and tuberculosis. Steroids, used in the treatment of inflammatory diseases have been largely responsible for making unnecessary the sending to hospital of people suffering from these disabilities.[2]

The integrated nature of health services is such that the exclusion of some of them from a comprehensive medical care plan could affect the quality of therapy. Evidence presented to the Commission indicated that if all drugs were not included, physicians and dentists would be under some pressure to prescribe drugs which were included in preference to those for which the patient would have to pay.[3] Similarly if drugs were provided for hospital in-patients only, physicians would be under some pressure to put the patient to bed in a hospital instead of treating him in the out-patient department or under home care plans. In a comprehensive plan, in cases where the physician has a choice between a lower priced drug not covered in the plan and a higher priced drug which is covered, the drug bill might be unnecessarily increased. If expensive drugs were excluded, the most effective drug would not always be prescribed.

Chapter 14 indicates that hospital bed utilization continues to be a major problem. One way of tackling the problem is to make increasing use of drug therapy, which, if properly applied tends to reduce the period of hospitalization. A memorandum issued to hospitals by the British Ministry of Health on August 15, 1961, points out that there is a danger of pushing economy measures affecting drugs in hospitals too far and that " 'one extra day in hospital would cost more than the equivalent of four weeks' supply of drugs and dressings' ".[4] The Canadian Pharmaceutical Association suggested that there have been cases where discharged patients could not meet bills which might amount to say $50 per month for drugs, and who have had to be readmitted to hospitals where maintenance costs could be say $210 per month.[5]

The Canadian Society of Hospital Pharmacists in its submission makes it clear that although actual drug costs have been rising, savings have been achieved in other areas of health services.[6] Such other areas, of course,

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[1] The Canadian Welfare Council, brief submitted to the Royal Commission on Health Services, Ottawa, May 1962, p. A-122; The Ontario College of Pharmacy, brief submitted to the Royal Commission on Health Services, Toronto, May 1962, p. 6.

[2] Transcript of evidence, *Hearings,* February 21, 1962, Vol. 29, p. 6307.

[3] Transcript, *op. cit.,* May 14, 1962, Vol. 52, p. 9943.

[4] The Canadian Pharmaceutical Association, Inc., *op. cit.,* p. 91.

[5] *Ibid.,* p. 111.

[6] Ontario Branch of the Canadian Society of Hospital Pharmacists, brief submitted to the Royal Commission on Health Services, Toronto, May 1962, p. 18.

include the shorter periods of hospitalization which have ensued. Other improvements have occurred because in the past decade antibiotics have been developed for the fight against infection, tranquilizers to combat mental disorders, steroids for use against inflammatory diseases, compounds for use in various treatments of cancer and many drugs for use against heart disease. Many of these drugs are relatively expensive and most were unknown ten years ago.

It is important to recognize that the term "prescribed drugs" represents a class of purchases, not a defined group of substances, because it includes

(a) drugs which are never legally sold except on prescription,

(b) drugs legally requiring a prescription only in some cases; for example, when codeine tablets go beyond a certain strength,

(c) drugs requiring compounding by the druggist but not subject to any legal restrictions, and

(d) over-the-counter drugs, any of which may occasionally be sold on prescription. Among this group are some which only the medical profession is likely to know about because under the Food and Drugs Act, the advertising of drugs for the treatment of certain diseases or conditions is prohibited.

There are approximately 5,000 prescription drugs which are subject to legal restrictions on the Canadian market. When prepared in various pharmaceutical forms and strengths these make a total of some 8,000 items.[1] If the different brands of these items are counted separately there are of course a great many more than 8,000.

Only limited information is available to indicate the relative importance of prescribed and non-prescribed drugs. Two American studies, conducted in 1958 and 1959, suggest that the amount spent in the United States on non-prescribed drugs equals about 50 per cent of the amount spent on prescribed.[2] The Canadian Sickness Survey of 1951 indicated that expenditures on non-prescribed drugs represented about 58 per cent of the amount spent on prescribed.[3] The Saskatchewan Pharmaceutical Association estimated that the cost of non-prescription drugs was about half the cost of prescribed drugs, but acknowledged that this estimate was based on the impression of retail druggists and that non-prescribed drugs were sold by other retailers.[4] The Manitoba Pharmaceutical Association estimated that

[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 74.
[2] Transcript, *op. cit.*, February 21, 1962, Vol. 29, p. 6300.
[3] *Ibid.*, p. 6301.
[4] *Ibid.*, January 24, 1962, Vol. 19, p. 4405.

sales of non-prescription drugs in pharmacies would be equivalent to between 50 and 60 per cent of prescription sales.[1]

The Pharmaceutical Association of the Province of British Columbia suggested that in view of the increase in utilization of prescribed drugs in Canada self-medication appears to have decreased.[2] This view is supported by the Dominion Bureau of Statistics data which show that between the years 1953 and 1960 inclusive the value of shipments under the classification "Human Pharmaceuticals" increased from 71 per cent to 75 per cent of the broad drug classification while in the same period the value of shipments under the classification "Proprietary Medicines" decreased from 20 per cent to 15 per cent of the same total.[3]

The study prepared for this Commission by the Department of National Health and Welfare has presented us with estimates of drug expenditures for 1961 as follows:[4]

Prescribed drugs in retail outlets	$111,100,000
Prescribed drugs distributed in hospitals	$ 32,500,000
Sub-total	$143,600,000
Other drugs	$220,200,000
Total	$363,800,000

The category "other drugs" mentioned above includes prescribed drugs distributed by physicians and by institutions other than hospitals, e.g., homes for the aged. Allowing for drugs distributed by these two sectors it appears that the value of non-prescribed drugs sold in Canada in 1961 amounted to between $200 million and $210 million, or between 56 and 58 per cent of total expenditures on drugs. This ratio is very close to the 58 per cent indicated by the Canadian Sickness Survey.

The inadequacy of basic information on what Canadians spend on drugs, distinguishing between prescribed and non-prescribed drugs, indicates the necessity for the appropriate Canadian Government Department to collect more adequate statistics in this area in order to provide more reliable information. Comprehensive and current data on prescribed pharmaceuticals will be necessary to evaluate the costs of a drug programme as well as the

[1] These data exclude non-prescription drugs sold through outlets other than drug stores. *Ibid.*, January 18, 1962, Vol. 15, p. 3724.

[2] *Ibid.*, February 21, 1962, Vol. 29, p. 6301.

[3] Research and Statistics Division, Department of National Health and Welfare, *op. cit.*, p. 37.

[4] Based on data from Table 9 of study prepared by the Research and Statistics Division of the Department of National Health and Welfare, *op. cit.*

means of financing such a programme. Data on expenditures on non-prescribed drugs will be needed to examine their relative economic importance, and the various claims that are being made about their effectiveness or lack of effectiveness.

We conclude that the Dominion Bureau of Statistics would be the proper agency to collect such statistics and prepare the necessary estimates with the Research Division of the Department of National Health and Welfare undertaking the analyses of the data.[1]

The distinction between prescribed and non-prescribed drugs has important economic implications. With respect to non-prescribed drugs competitive market forces are likely to regulate their production and sale, but when it comes to prescribed drugs, the individual purchaser has no discretion in choosing them. Hence the price mechanism cannot operate as effectively in the area of prescribed drugs as it can in the case of non-prescribed drugs. The drug manufacturer can scarcely hope to attract many more customers by lowering prices or, generally speaking, need not fear losing many customers by raising prices. The buyer of prescribed drugs, in turn, will not increase his consumption very much given a lower price. He may not reduce his consumption significantly if he is forced to pay a high price though large expenditures on drugs may lead to a curtailment of other consumer expenditures, or if the drug purchaser has to go into debt this may affect his future level of consumer spending. These considerations do not apply to purchases made by hospitals.

In view of the high costs of many of the new life-saving, life-sustaining and disease-preventing drugs, of the unequal incidence of the burden of paying for these drugs, of the integrated character of health services, and of the fact that market forces do not operate effectively to regulate the drug industry, all of which subjects are dealt with in later sections of this Report, the Commission has concluded that prescribed drugs should be included as a benefit of a comprehensive health care programme for Canada.

To leave non-prescribed drugs outside such a programme, at first sight might appear to conflict with the point made above about the integrated character of health services. However, as has been stated already, competitive market forces are likely to regulate the production and sale of non-prescribed drugs. In any event, there are apparently few if any non-prescribed drugs which are costly, for which there is a valid and appreciable need, and which may be properly used without medical supervision. Thus there should be little tendency for prescribed drugs to be substituted for non-prescribed drugs resulting in an unwarranted increase in social costs.

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[1] See Chapter 2, Recommendation 82.

PUBLIC INTEREST

One indication of public concern about apparent shortcomings in the existing system for the supply of drugs to those who require them, is available in the number and character of official investigations and legislative hearings in Canada dealing with drugs as well as the quality, costs and prices of drugs. The following appear to have been among the more important of the recent inquiries:

(a) On April 14, 1958, the Director of Investigation and Research under the Combines Investigation Act began a general inquiry into the manufacture, distribution and sale of drugs, following informal complaints about the high cost of drugs.

(b) Extended hearings were held in Toronto in 1960 by a Select Committee of the Legislature of Ontario on Cost of Drugs.

(c) In May 1961, a Joint Committee of The Manitoba Pharmaceutical Association and the Government of Manitoba made its report on the Retail Structure of Drug Prices in Manitoba.

(d) On the basis of the material collected by the Director and summarized in a volume referred to as the Green Book, the Restrictive Trade Practices Commission conducted public hearings from coast to coast throughout the summer and fall of 1961.

(e) On April 5, 1962, an Act was proclaimed in Alberta which permits druggists to substitute an equivalent generic drug for a brand name drug in any prescription, unless substitution is specifically forbidden by the physician.

(f) On December 7, 1962, a special committee of the House of Commons was appointed to consider and report upon the law and practices relating to the control of the introduction, marketing, and use of drugs.

(g) In December 1962 the Special Committee on New Drugs, appointed by the Royal College of Physicians and Surgeons of Canada, at the request of the Minister of National Health and Welfare, submitted its report (published as Appendix A in the Minutes of Proceedings and Evidence, Special Committee on Food and Drugs, House of Commons, Ottawa: February 5, 1963, pp. 127 ff.).

(h) On January 4, 1963, the Report of the Restrictive Trade Practices Commission concerning the Manufacture, Distribution and Sale of Drugs was published.

(i) On April 26, 1963, the Select Committee of the Ontario Legislature issued its Report on the Cost of Drugs.

(j) On July 26, 1963, a House of Commons Committee on Drugs and Chemical Food Contamination was established with its terms of reference including the "safety and cost of drugs".

(k) On August 2, 1963, the Special House of Commons Committee on Food and Drugs presented its first report.

Similar concern has been demonstrated in other countries. Antibiotic drugs were the subject of a special study made by the Federal Trade Commission in the United States. The Commission's "Economic Report on Antibiotics Manufacture" was released in August 1958. Also in the United States, a Report of the Committee on the Judiciary, United States Senate, made by its Subcommittee on Antitrust and Monopoly covering drug prices, and commonly known as the Kefauver Report, was issued in 1961. In 1963 the Federal Trade Commission found five leading drug companies guilty of a price-fixing conspiracy in the distribution and sale of tetracycline.

In Britain several official inquiries have been conducted. In 1958 the Ministry of Health issued an "Interim Report of the Committee [commonly known as the Hinchliffe Committee] on Cost of Prescribing". In 1959 the "Final Report of the Committee on Cost of Prescribing" was made.

Another indication of public concern about the existing system under which drugs are manufactured and distributed in Canada, is available in the number and the pressing nature of briefs submitted to us and of representations made in the course of our hearings. The following is a list of the organizations which devoted particular attention to the subject of drugs:

The Alberta Pharmaceutical Association Inc. (Vol. 23)[1]
Canadian Conference of Pharmaceutical Faculties (Vol. 60)
The Canadian Federation of Agriculture (Vol. 33)
The Canadian Foundation for the Advancement of Pharmacy (Vol. 56)
Canadian Labour Congress (Vol. 60)
The Canadian Medical Association (Vol. 53)
The Canadian Pharmaceutical Association, Inc. (Vol. 60)
Canadian Pharmaceutical Manufacturers Association (Vol. 56)
Canadian Society of Hospital Pharmacists (Vol. 56)
The Canadian Welfare Council (Vol. 64)
Committee for the Furtherance of Creative Research in the Pharmaceutical and Allied Industries (Vol. 66)
Connaught Medical Research Laboratories (Vol. 51)

[1] The bracketed references indicate where each submission may be found in the Transcript of evidence of the Royal Commission on Health Services.

Cooperative Union of Canada Health Services Society (Vol. 30)
Faculty of Pharmacy, University of Toronto (Vol. 52)
The Government of the Province of Alberta (Vol. 22)
The Government of the Province of Manitoba (Vol. 12)
The Manitoba Pharmaceutical Association (Vol. 15)
The Medical Section of the Canadian Pharmaceutical Manufacturers Association (Vol. 56)
New Brunswick Pharmaceutical Society (Vol. 10)
Nova Scotia Pharmaceutical Society (Vol. 4)
Ontario Branch of the Canadian Society of Hospital Pharmacists (Vol. 56)
The Ontario College of Pharmacy (Vol. 56)
The Ontario Retail Pharmacists' Association (Vol. 50)
The Pharmaceutical Association of the Province of British Columbia (Vol. 29)
Prescription Services Inc. (Vol. 50)
Saskatchewan Branch of the Canadian Society of Hospital Pharmacists (Vol. 19)
Saskatchewan Farmers Union (Vol. 18)
The Saskatchewan Pharmaceutical Association (Vol. 19)

CONSUMER EXPENDITURES ON PRESCRIPTION DRUGS

The Canadian Pharmaceutical Association conducts an annual survey of Canadian retail pharmacy operations. The survey covering the year 1960 indicates that per capita expenditures by Canadians in retail pharmacies for prescription drugs amounted to $7.36. In that year almost 43 million prescriptions were dispensed with an estimated total value of $131 million. The number of prescriptions purchased by Canadians from retail pharmacies averaged 2.41 per capita, an increase of 9 per cent since 1951, and the price of such prescriptions averaged $3.06, an increase of 82.1 per cent since 1951.[1] The 1961 survey disclosed that the average price increased to $3.14.[2]

When one adds to these estimates the prescriptions which are written by physicians, but which are not dispensed by retail pharmacies (in other words prescriptions which are dispensed by the physicians themselves, by hospitals, etc.) the number of prescriptions utilized rises to 3.2 per capita,

[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 123.
[2] Restrictive Trade Practices Commission, *op. cit.*, p. 388.

and the per capita cost to $9.79 at retail value. On this basis the Canadian Pharmaceutical Association estimates that the population of the country received prescription services in 1960 valued at $177 million.[1]

The Pharmaceutical Association of the Province of British Columbia conducted a prescription survey in 1960 of the retail pharmacies in British Columbia, and of drugs supplied through the B.C. Hospital Insurance Service and other provincial and private agencies. The only drugs omitted were those supplied through federal government agencies such as the Department of Veterans Affairs and the hospitals of the Indian Affairs Branch. The results of the survey indicate that the per capita cost of prescription drugs in British Columbia in 1960 was $11.36. Of this amount $9.24 was spent directly through retail pharmacies with the balance made up of drugs supplied by hospitals, government institutions, etc.[2]

Based on surveys which it had conducted, The Alberta Pharmaceutical Association Inc. concluded that Alberta citizens obtained 2.75 prescriptions each per annum. Using $3.16 as the average cost per prescription, the Association estimated that the per capita expenditure on prescription drugs in Alberta was therefore $8.69.[3]

During 1961, the Saskatchewan Pharmaceutical Association conducted a survey to find the actual cost of providing prescription drugs for the population of Saskatchewan covering the year 1960. Returns were obtained from 40 per cent of the province's retail pharmacies. The Association concluded that on the average each person in Saskatchewan had about 3.5 prescriptions filled at a total cost of approximately $9.[4] The Association also pointed out that the Dominion Bureau of Statistics report on "City Family Expenditures" covering the year 1957, indicates that prescription drugs averaged $8.15.

The New Brunswick Pharmaceutical Society organized a prescription survey covering the year 1960, and in addition obtained information from provincial and federal agencies. These surveys place the cost of drugs per capita in New Brunswick at $7.90 of which $5.80 per person was expended directly by consumers purchasing drugs from retail pharmacies, and the balance was financed through taxation or insurance contributions.[5]

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[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 187. Using the method of estimation described on p. 348 yields a value of prescribed drugs between $154 million and $164 million for 1961.

[2] The Pharmaceutical Association of the Province of British Columbia, brief submitted to the Royal Commission on Health Services, Vancouver, February 1962, p. 16.

[3] The Alberta Pharmaceutical Association Inc., brief submitted to the Royal Commission on Health Services, Edmonton, February 1962, p. 5.

[4] The Saskatchewan Pharmaceutical Association, *op. cit.*, p. 13.

[5] New Brunswick Pharmaceutical Society, brief submitted to the Royal Commission on Health Services, Final Submission, Fredericton, May 1962, p. 2.

While the average cost of drugs may be absorbed fairly easily by the average pocketbook, the incidence of heavy drug expenditures is rather unequal. Even the average costs referred to above may be a burden to large families in low income brackets. Also, where drug requirements fall in the higher range of drug prices, even the average pocketbook may be strained. There is, in addition, what may be called the catastrophic impact of drug costs, that is, the effect produced where prescribed drugs of more than moderate price must be used over a long period of time.

Fairly adequate information is available about the range and frequency distribution of drug prices. In 1957, Professor H. J. Fuller of the Faculty of Pharmacy of the University of Toronto undertook a prescription survey covering 182 pharmacies and 42,545 prescriptions. Of the total number of prescriptions 46.3 per cent were priced at $2 or less, 68.8 per cent were $3 or less, and 88.6 per cent were $5 or less. However, 1.1 per cent cost more than $10 each.[1]

In 1960, a similar study was conducted within the Province of British Columbia. The results were not greatly different, although there was a general upward shift in prices. Of the total number of prescriptions, 33.7 per cent were priced at less than $2, 58.5 per cent were under $3, and 84.7 per cent were under $5. Of the total 1.4 per cent cost $10 or more.[2]

We were also referred to an American study called the Abbott National Prescription Survey covering the year 1960. Of the total number of prescriptions, 34.8 per cent were priced at $2 or less, 59.2 per cent were priced at $3 or less, and 84.8 per cent were priced at $5 or less. Of the total 1.5 per cent were priced at over $10.[3] The results are remarkably close to those obtained in the same year in British Columbia.

The Pharmaceutical Association of Saskatchewan claimed that in its experience only a comparatively small proportion of the population accounts for a large proportion of all expenditures for prescribed drugs. The Association's views were supported by the results of a Health Information Foundation Survey in the United States in December 1960, which showed that of the total number of people surveyed:

61 per cent made no expenditures for prescribed drugs
26 per cent spent from $1 to $24 per annum
6 per cent spent from $25 to $49 per annum
4 per cent spent from $50 to $99 per annum
2 per cent spent from $100 to $199 per annum
1 per cent spent over $200 per annum.

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[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, Appendix K.
[2] The Pharmaceutical Association of the Province of British Columbia, *op. cit.*, Appendix B, pp. 7-8.
[3] The Saskatchewan Pharmaceutical Association, *op. cit.*, p. 13.

The Health Information Foundation also estimated that 15 per cent of the total population paid about 70 per cent of the total drug bill.[1]

The incidence of drug expenditures is to some extent predictable, particularly in average terms for certain age groups. On the other hand, it is difficult to foresee the incidence of very heavy drug costs, for serious illnesses may strike at random. The experience of Prescription Services Incorporated in Windsor, Ontario, (a voluntary prepaid drug plan about which more is said later) is that people over 65 use almost double the number of prescriptions per month used by the members of the plan as a whole. In addition, the average prescription cost according to the plan schedule for the older group was $4.25 as compared to the average prescription cost of $4.05 for the regular group.[2] A study of the pharmaceutical benefits provided for public assistance cases in Saskatchewan confirms that older people have a substantially higher utilization rate. It also indicates that on the average, females in the group utilized 20 per cent more prescriptions than the males.[3]

We conclude on the basis of the evidence presented to us that it is the unequal and generally unpredictable incidence of heavy drug costs that have given rise to the greatest concern on the part of the public, rather than what has been described as the "high costs" of drugs as such. This concern continues to prevail notwithstanding the fact that drugs are provided free or on an assisted basis to certain population groups by government and private agencies.

FINANCING OF EXPENDITURES ON DRUGS

Under the federal Hospital Insurance and Diagnostic Services Act, agreements have been entered into between the Government of Canada and the individual provinces which make provision for the supply of drugs as part of the insurance services.[4] According to the Canadian Pharmaceutical Association "The provision of hospital insurance has done much to eliminate health care costs of catastrophic proportions. However, the remaining elements of health care, including pharmaceutical services, still present a problem to many Canadians. This is particularly true for the indigent, for persons with limited income, and for those suffering from chronic illness which requires continuous costly therapy. The acute illness, resulting from

[1] *Ibid.*, p. 13.
[2] Transcript, *op. cit.*, May 10, 1962, Vol. 50, p. 9589.
[3] The Saskatchewan Pharmaceutical Association, *op. cit.*, Appendix A, p. 6.
[4] Research and Statistics Division of the Department of National Health and Welfare, *op. cit.*, p. 79.

injury or disease, may often deal a shattering financial blow to families who are quite able to support themselves under normal circumstances".[1] There are variations in the different provincial hospital services plans. For example, the major portion (approximately 90 per cent) of costs of drugs to in-patients in Ontario hospitals is covered under the all-inclusive hospital day rate. Most Ontario residents are members of the insurance plan operated by the Ontario Hospital Services Commission. The cost of drugs per patient-day in most Ontario hospitals ranges from 90 cents to $1.10.[2] In Saskatchewan, on the other hand, the hospital services plan covers the cost of a selected list of drugs supplied to hospital patients. This deficiency in coverage is said to have resulted in a heavy financial burden occasionally falling upon seriously ill patients.[3] Representatives of the Saskatchewan Branch of the Canadian Society of Hospital Pharmacists referred to patients with drug bills amounting to $50 per day which were not covered by the plan.[4] One patient, whose life was truly saved by treatment, was confronted with a bill for drugs of $1,500. Drugs which are chargeable to the patient amount to 20 to 25 per cent of the dollar volume of all drugs used in Saskatchewan hospitals. Examples mentioned to us of expensive drugs which fall in this category are hydro-cortisone, penbriton (a synthetic penicillin) and spontim (an antibiotic for bacterial endocarditis).[5]

Another important means, apart from the hospital insurance plans, by which users of drugs are relieved of some of the burden of paying for them, exists in the provision of drugs on an assisted basis to recipients of welfare payments by provincial governments. Although statistics are not available from all provinces, according to the Canadian Pharmaceutical Association, information received from the four western provinces indicates that an average of 3.7 per cent of the population of the West is in the welfare category defined to include recipients of allowances for the disabled, old-age assistance, blind persons allowances, child welfare, etc. This proportion ranges from a low of 1.8 per cent in Manitoba to a high of 5.2 per cent in Saskatchewan. The Canadian Pharmaceutical Association applied the average percentage to the population of Canada and concluded that there are in Canada some 670,000 individuals who are to some degree at least dependent on one level of government or another for health care.[6]

As indicated, the provision of pharmaceutical services to indigents appears to vary greatly from one province to another. There does not seem to be any standard method of determining need nor any standard criteria for

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[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 158.
[2] Ontario Branch of the Canadian Society of Hospital Pharmacists, *op. cit.*, p. 18.
[3] Transcript, *op. cit.*, January 24, 1962, Vol. 19, p. 4450.
[4] *Ibid.*
[5] *Ibid.*, p. 4451.
[6] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 135.

deciding upon what may be supplied.[1] According to the Canadian Pharmaceutical Association, "In the provinces of British Columbia, Saskatchewan, Manitoba and Newfoundland, financial provision for necessary pharmaceutical and other health care services to be provided to indigents, is made available by the provincial governments. In Alberta, Quebec, New Brunswick and Nova Scotia, these services are, in general, provided for hospital in-patients only. In Ontario, provision for pharmaceutical services provided to indigents is made by all municipalities down to the township level, and the municipalities are subsequently reimbursed in part by the provincial government. In Prince Edward Island, there appears to be no specific financial provision for health care services needed by the indigent population".[2]

In addition to the government sponsored hospital insurance schemes and arrangements for the care of indigents there is a third important method by which some users of drugs are assisted in meeting the cost of drug purchases. This involves the private insuring agencies and companies writing health care policies. Such health care policies, which may be written for individuals or for groups of individuals, now frequently extend their coverage to include drug expenditures. The policy holder is reimbursed for payments he has made for drugs after submission of the necessary claim forms. The deductible principle is used and the policy holder often must underwrite himself the first $50 per year which he spends on drugs. These policies usually include a co-insurance provision under which the policy holder must pay for a percentage of the cost of the prescription.[3] In 1960 there were apparently about 2,000,000 persons who had major medical insurance but it is not known how many of these were eligible as well for drug benefits.[4] Recently a few voluntary non-profit plans have also widened their coverage to include provision for drug benefits. Among these is the plan of the Ontario Blue Cross which has the deductible feature.[5] The Canadian Pharmaceutical Association expressed the opinion that while insurance with a deductible provision protects the individual under normal circumstances against unpredictable burdensome expenditures, it "entails an intolerable burden where such expenditures must be paid by recipients over a relatively short period of time".[6]

A number of the submissions which were made to us referred at some length to an insurance scheme covering drugs alone, operated by Prescription Services Inc., a company which was organized by a number of retail druggists

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[1] *Ibid.*, p. 137.
[2] *Ibid.*, p. 136.
[3] *Ibid.*, p. 111.
[4] Estimates of the number of persons covered by major medical insurance vary (see Chapters 10 and 18).
[5] Research and Statistics Division, Department of National Health and Welfare, *op. cit.*
[6] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 183.

in Ontario. The operations of this organization throw a good deal of light upon the problems associated with the financing of drug expenditures by a private agency. For this reason we believe its experience deserves careful consideration.

Prescription Services Inc. was incorporated in July 1957.[1] It began its operations in Windsor and Essex County in Ontario, but it now has 650 member pharmacies in various parts of the province.[2] Individual subscribers to the Green Shield Plan make regular premium payments, and they are then eligible to obtain the drugs they require from any member pharmacy by payment of 35 cents per prescription. Prescription Services Inc. undertakes to reimburse member pharmacies for drugs compounded or dispensed to subscribers and their dependants according to an agreed-upon schedule of prices less a 10 per cent deduction for administrative costs, and less a further reduction if necessary to keep the Plan solvent.[3] This further reduction at the present time amounts to 10 per cent.[4]

After the first 15 months of operations, it was recognized that the Plan was not self-sustaining and that the premium rate structure would have to be increased.[5] According to Prescription Services Inc., the reason the original premium rates represented such a wide error is that none of the surveys that had been made adequately took into account the increase in utilization which would occur when the impact of drug costs was reduced through the averaging effect of a monthly premium. (The Green Shield Plan, of course, does not aim at reducing total drug costs, but simply averages out over time and over the whole membership the payments for drugs made by individuals covered by the Plan.) Neither did the survey, and therefore the rates, take into account the fact that age and sex serve to differentiate persons with respect to utilization of drugs more than any other characteristics.[6]

Enrolment since inception of the Plan has been upon a group basis only. The group may be associated for any reason so long as it has no direct relation to health. In order to avoid insuring only poor risks, the Plan originally required that a high proportion of the group be enrolled.[7] After the first 15 months of operation when the Plan gave notice of its intention to raise the premium rates, individuals covered by the Plan were given the opportunity to opt out, and approximately 17 per cent did so. In nearly all

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[1] Research and Statistics Division, Department of National Health and Welfare, *op. cit.*

[2] Prescription Services Inc., brief submitted to the Royal Commission on Health Services, Toronto, May 1962, p. 27.

[3] *Ibid.*, p. 7.

[4] *Ibid.*, p. 26.

[5] *Ibid.*, p. 38.

[6] *Ibid.*, p. 9.

[7] *Ibid.*, p. 23.

cases, according to Prescription Services Inc., the individuals making up the 17 per cent who left the Plan were healthy people.[1] This, of course, necessitated a further increase in the per capita costs of operating the Plan.

Notwithstanding the increased premiums, and the provision of the additional 10 per cent reduction in the amount by which pharmacists are reimbursed, the Plan has continued to face financial difficulties. The pharmacists who organized the Green Shield Plan originally provided a loan fund of over $11,000. Subsequently the Ontario Retail Pharmacists Association made a donation of $3,000 to the Plan and individual pharmacists donated approximately $18,000 over a three-year period. Without this financial assistance "the plan could not have operated since its actual fiscal operations outside of loans and donations have been continuously at a loss".[2] The financial problems facing the Plan do not mean that it has provided extravagant benefits. As we have already pointed out there is a 35 cent prescription fee which the operators of the Plan believe deters the extension of the prescribing practice of physicians to what are usually non-prescription items "most of which cost 35¢ or less, as for instance, castor oil, household medicine chest items, etc.".[3] In addition to the 35 cents prescription fee there is a quantity limitation which prevents the stock-piling of drugs or their resale for cash.[4] Although it is said that only 2.5 per cent of the normal volume of prescribed drugs is excluded from the Green Shield Plan,[5] there is at least one important drug, namely insulin, which is excluded because of high frequency of use.[6]

At the time of the presentation of its brief in May 1962 by Prescription Services Inc., the Green Shield Plan had 1,500 subscribers only.[7] It had no current intention of extending the Plan beyond the Province of Ontario.[8] The hope of the operators of the Plan is that a substantial increase in the number of subscribers may take place which will result in a rate reduction. This is thought to be particularly likely if the Green Shield Plan becomes one of the fringe benefits provided under labour union contracts. In these circumstances, simple administrative efficiency would require that 100 per cent of the bargaining unit enrol, thereby ensuring a broad range of healthy persons to balance those who have a more active need of drugs.[9]

Evidence presented to us suggests that druggists outside Ontario do not look upon the Green Shield Plan as providing any kind of pattern for the future. For example, the Pharmacy Association of the Province of British

[1] *Ibid.*, p. 40.
[2] *Ibid.*, p. 22.
[3] *Ibid.*, p. 34.
[4] *Ibid.*, p. 29.
[5] *Ibid.*, p. 34.
[6] *Ibid.*, p. 28.
[7] *Ibid.*, p. 43.
[8] *Ibid.*, p. 49.
[9] *Ibid.*, p. 11.

Columbia expressed the opinion that Prescription Services Inc. is not economically capable of standing on its own merits because it has no popular appeal. Most people do not think of heavy drug costs as the kind of disaster which they should be insured against. The Plan is not attractive because the premium cost is close to the average cost of prescription drugs to Canadians. In other words, the Plan does nothing to lower drug costs. The appeal of the Green Shield Plan therefore is limited to those who are poor insurance risks.[1] The Saskatchewan Pharmaceutical Association expressed a similar view. They particularly stressed the fact that the limited number of participants in the Green Shield Plan means that the Plan is loaded with higher risk groups with the result that prescription costs under the Plan are about double the average for the country.[2]

Perhaps the most persuasive evidence that a substantial need exists for a different method of financing the public's drug requirements is seen in the experience of substantially increased utilization wherever drugs have been supplied as part of a government health service.

Under New Zealand's scheme, between the years 1943 and 1960, the number of prescriptions dispensed per capita rose from 2.1 to 5.9 per annum. At the same time the average price of each prescription more than doubled. These increases occurred while more stringent limits were being imposed on the duration of treatment to be provided by the individual prescription. At first there was no limit; then a limit was imposed so that prescriptions should not provide for longer than 15 days' treatment; this was later reduced to 10 days, and it was again reduced to the current 7 days.[3] Drug benefits as a proportion of expenditures on all health benefits in New Zealand have nevertheless, gradually risen from 24.5 per cent in 1950-51 to 29.9 per cent in 1959-60.[4]

In Australia, pharmaceutical benefits are limited to a list of "life-saving" drugs. Nevertheless, 70 to 80 percent of all prescriptions are said to be covered by the Plan.[5] Utilization rates have increased from 1.09 in 1953 to 2.40 in 1960, while at the same time the average price per prescription has increased by 36.7 per cent over this seven-year period.[6]

Under the National Health Service in Britain, between 1949-50 and 1957-58 the average price per prescription approximately doubled, while the

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[1] The Pharmaceutical Association of the Province of British Columbia, *op. cit.*, p. 19.

[2] Transcript, *op. cit.*, January 24, 1962, Vol. 19, p. 4403.

[3] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 180.

[4] *Ibid.*, p. 169. It may be noted that the percentages given above are much higher than the general estimates made by the World Health Organization referred to earlier. (Quoted in the brief submitted to the Royal Commission on Health Services of the Saskatchewan Pharmaceutical Association, *op. cit.*, p. 14.)

[5] Research and Statistics Division, Department of National Health and Welfare, *op. cit.*

[6] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 181.

average number of prescriptions per capita was held constant at 5.29 per annum perhaps because the contributory fee was twice increased during the period.[1]

In Norway, early experience with the provision of drug benefits resulted in costs which made it impossible to underwrite the provision of all drugs. Consequently, at the present time the sickness funds pay only for a limited number of drugs required for long-term illnesses. There is however, some government control over the importation, advertising, distribution and prices of drugs and the profits thereon.[2]

In general, according to the Canadian Pharmaceutical Association, in Britain, Australia, New Zealand, Norway, Denmark and the Netherlands the proportion of direct participation by the patient in the payment for each prescription has had to be increased over the years of the country's experience with its health plan. All reports indicate that each programme has experienced rising annual drug bill costs.[3] At this point the following comment from an article in the Canadian Medical Association Journal is pertinent.

> "VIRTUALLY since the beginning of the National Health Service in Great Britain the amount paid out on drugs has caused great agitation in many circles, and to the end of economical prescribing there exists a considerable official team to give the doctor advice and criticism."[4]

The more limited experience we have had in Canada points in the same direction. The brief presented to the Restrictive Trade Practices Commission by the Government of Saskatchewan reports a great increase in the average expenditures for drugs and appliances per welfare beneficiary under the provincial health schemes. Between 1949-50 and 1958-59 such expenditures increased from $6.24 to $20.51 per capita for recipients of old age pensions, from $2.67 to $7.42 per capita for recipients of mothers' allowances, and from $5.86 to $13.32 per capita for recipients of blindness allowances.[5] In their submission to us the Saskatchewan Pharmaceutical Association included the following comment: "Utilization of the pharmaceutical benefits of the health program has shown a persistent and gradual increase over the years. In the year ending March 31, 1950 an average of 3.5 prescriptions were paid for on behalf of each eligible beneficiary in Program I. During the year ending March 31, 1959 (nine years later) this

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[1] See Ross, T. M., "An Analysis of Pre-Payment of Prescriptions and the Green Shield Plan", as quoted in Nova Scotia Pharmaceutical Society, brief submitted to the Royal Commission on Health Services, Halifax, October 1961, p. 19.

[2] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 170.

[3] *Ibid.*, p. 172.

[4] From an article "Prescribers' Journal", Canadian Medical Association Journal, July 1961 issue, quoted in Report of the Restrictive Trade Practices Commission, *op. cit.*, p. 254.

[5] Restrictive Trade Practices Commission, *op. cit.*, p. 389.

figure had risen to 7.3—more than double. At the same time, more than 30% of the eligible population failed to receive any prescriptions at all."[1] Conditions elsewhere in Canada appear to be somewhat similar. We were told by the Manitoba Pharmaceutical Association that the experience under the Manitoba Medicare Plan has been that the cost of free medication under that plan has far exceeded what was anticipated.[2] The New Brunswick Pharmaceutical Society pointed out that the drug utilization rate in New Brunswick was less than half what it was in Britain or New Zealand, and it concluded that the rate under any national health scheme would therefore increase.[3]

Considering the possibility of the inclusion of drug benefits in a national health service, the Canadian Pharmaceutical Association estimated that increases in the utilization rate and changes in other factors in three years' time might mean that "the total cost of providing for pharmaceutical services under a comprehensive program will approximate $313,500,000".[4] Looking at the same problem, Prescription Services Inc. calculated that the drug costs for its subscribers average $1.56 per person per month or $18.72 per year. For 19 million people this would amount to over $350,000,000 per year as a national drug bill.[5] It should be recalled, however, that Prescription Services Inc. does not deal with a representative population, but includes a higher than average proportion of people with more active need for drugs.[6]

Nevertheless, potential increases of this order of magnitude in the total cost of the national drug bill raise inescapable questions about the possibility of waste. In their representations to us the Ontario Retail Pharmacists Association argued that the experience of Prescription Services Inc. indicates that many people are unable to get prescriptions filled because they cannot afford them. The Association said that per capita utilization of drugs under a national health programme can be expected to increase not because people use more drugs but because they can then use the drugs they need.[7] The same view was expressed by the President of the Saskatchewan Pharmaceutical Association who said: "I am not inclined to think there are many abuses, that the reason for the increased cost that we mentioned in our Saskatchewan plan was that people became gradually aware of the benefits they could derive from this plan and began to make

[1] The Saskatchewan Pharmaceutical Association, *op. cit.*, Appendix A, p. 5.
[2] Transcript, *op. cit.*, January 18, 1962, Vol. 15, p. 3713.
[3] New Brunswick Pharmaceutical Society. Final Submission, *op. cit.*, p. 6.
[4] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 188.
[5] Transcript, *op. cit.*, May 10, 1962, Vol. 50, p. 9586.
[6] We estimate that the nation's prescribed drug bill assuming universal coverage and including patient contributions to the costs of prescribed drugs would amount to $234 million in 1966 and $361 million in 1971 (see Table 20-15).
[7] Transcript, *op. cit.*, May 10, 1962, Vol. 50, p. 9570.

use of them, and I don't think for a minute it was a frivolous use at all. I think these were people who had refrained from seeking medical attention or refrained from getting prescriptions because they didn't feel they could afford them".[1] Some qualification of this view may however be required. The Canadian Pharmaceutical Association stated that "it must be recognized that there is an economic barrier and/or natural reluctance which is not related entirely to the financial circumstances of the individual and which causes resistance towards the assumption of the costs of health care services. . .".[2]

There are, we believe, at least three other considerations which bear on the size of the bill which would have to be faced if prescribed drugs are treated as a health service benefit. We were reminded that there are many sources of medication presently available to the consumer other than the retail pharmacies. The most important among these are physicians who make drugs available to their own patients, the hospital pharmacies, various government agencies, various voluntary agencies, private nursing homes, industrial dispensaries, and others. The Canadian Pharmaceutical Association commented that "it must be assumed that the initiation of a comprehensive program would relieve many of these agencies from the obligation of supplying medication".[3]

An important and direct but perhaps not obvious additional influence on the consumption of drugs arises out of the simple availability of drugs and of doctors. To illustrate, in Saskatchewan in 1961 there were 5,427 prescriptions dispensed per 1,000 persons in rural locations and 7,418 prescriptions dispensed per 1,000 persons in cities.[4]

The third consideration is that "a physician is most disposed to prescribe the needed drug without regard to cost when he knows that it will not entail economic hardship upon his patient to have it dispensed".[5] There is evidence that at least with respect to some high-priced drugs the same doctors will prescribe a greater quantity per prescription where they are treating patients for whom a third party pays the cost of medication than when they are treating patients who must pay for the drugs themselves.[6] In addition, it has to be recognized that under a prepaid prescription plan some people may see a doctor and receive a prescribed medicine when in other circumstances they would buy non-prescription preparations.[7]

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[1] *Ibid.*, January 24, 1962, Vol. 19, p. 4412.

[2] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 178.

[3] *Ibid.*, p. 178.

[4] Research and Statistics Division of the Department of National Health and Welfare, *op. cit.*, p. 114.

[5] The Ontario Retail Pharmacists' Association, brief submitted to the Royal Commission on Health Services, May 1962, p. 42.

[6] New Brunswick Pharmaceutical Society. Final Submission, *op. cit.*, p. 6.

[7] The Saskatchewan Pharmaceutical Association, *op. cit.*, p. 12.

Some countries have tried to keep within tolerable bounds the bill for drugs which the public purse is compelled to meet, by limiting in some way the drugs to be supplied under the national health service. In this connection the Hinchliffe Report on the cost of prescribing in Britain compared the Australian, Danish, and New Zealand plans. The findings of the Hinchliffe Committee were said by the Faculty of Pharmacy of the University of Toronto to indicate that the plans mentioned were administratively too complex, and in the case of Australia, the list of permitted drugs was too limited to provide a full range of clinical treatment.[1]

The more common method of keeping within tolerable limits the drug costs which have to be paid for out of public funds is to require direct participation by the patient in the payment of each prescription. This has two effects. It accomplishes a sharing of the total costs, and to the extent that it encourages responsible use it reduces total costs. In the opinion of the Canadian Pharmaceutical Association direct participation by the patient in the payment of the prescription can have a significant effect in deterring the over-utilization which arises from the prolonged consumption of drugs which are no longer required to meet a specific disease-diagnosis.[2] The Association also expressed the opinion that a nominal deterrent charge probably does prevent abuse particularly in relation to low-cost items which are not usually prescribed, such as household medicine chest articles.[3]

The Canadian Pharmaceutical Association points out, however, that increases in prescription fees charged to patients in Australia and Great Britain appear to have had the effect of stimulating the prescribing of larger quantities per prescription. Australia introduced a fee of five shillings per prescription in March 1960, and the drug utilization rate increased 20 per cent in that year over the previous year. In Great Britain the prescription fee payable by the patient was increased from one shilling to two shillings in March 1961.[4] Notwithstanding this experience, as indicated above, a prescription fee payable by the patient is commonly employed by those countries in the western world which include drugs in their health care programmes.

In Sweden there is one list of drugs which are provided free of charge to the patient. There is a second list for which the patient pays the first three Crowns of the cost of the prescription plus half of the remaining

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[1] Transcript, *op. cit.*, May 14, 1962, Vol. 52, p. 9944.
[2] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 176.
[3] *Ibid.*, p. 182.
[4] *Ibid.*, p. 181.

cost.[1] In Denmark pharmaceutical benefits cover 800 drug items. The insured pays the pharmacist and is reimbursed by the plan for three-quarters of the purchase price.[2] In France the health plan provides an extensive list of drugs as a benefit. The patient pays for the medicine and is reimbursed for a proportion ranging from 70 to 100 per cent of the purchase price.[3] In Germany 85 per cent of the population is covered under the health plan. There is an unofficial list of prescribed drugs which may be claimed as a benefit, although the doctor is free to prescribe what he considers necessary, with payment subject to approval of the fund. There is a direct charge to the patient of 0.50 Deutschemarks per prescription.[4]

As implied above, there is sometimes controversy over the question of whether or not a direct payment by the patient does in fact deter over-utilization. Apart from what seems to us to be the inescapable logical inference that it should have a tendency to discourage waste, and apart from the wide-spread use of such a payment in other countries, experience in Canada also appears to support the same conclusion. It was indicated to us that in British Columbia, welfare recipients pay nothing for drugs and the utilization rate is 10 per person per year compared with 2.9 per person per year for the population as a whole. In Saskatchewan, welfare recipients pay 50 per cent of the cost of drugs and the utilization rate is 6.7 per person per year compared with 2.7 per person per year for the population as a whole.[5] In other words, while the utilization rates are similar in the two provinces for the population as a whole, there is a substantial difference in the utilization rates for the welfare groups. While the welfare group in Saskatchewan embraces a wider section of the population we do not think this reduces the significance of the comparison.

The Government of Manitoba suggested to us that "any extension of health insurance programmes be designed to include coverage for drugs outside of hospitals with an appropriate deterrent factor".[6] While we agree with the principle of an extension of a prepaid health services programme to include drugs and a patient contribution, we do not look at such a contribution as a deterrent factor. Rather, we look at such a contributory payment by patients as a means of encouraging responsible use of prescribed drugs.

We conclude (a) that expenditures on prescribed drugs are a major factor in the health bill of the average Canadian and impose on many a

[1] Research and Statistics Division of the Department of National Health and Welfare, *op. cit.*, p. 164.

[2] *Ibid.*, p. 167.

[3] *Ibid.*, p. 171.

[4] *Ibid.*, p. 172.

[5] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 138.

[6] The Government of Manitoba, brief submitted to the Royal Commission on Health Services, Winnipeg, January 1962, p. 50.

burden that the individual cannot carry, and (b) that the average consumer of pharmaceuticals can without hardship contribute a reasonable amount for each prescription, special circumstances excepted, thus reducing the costs of a prepaid drug programme.[1]

QUALITY OF DRUGS

The Food and Drug Directorate of the Department of National Health and Welfare is the primary government agency concerned with the quality of drugs in Canada. This agency administers the Food and Drugs Act. Contrary to what is often assumed, this Act does not provide for Government approval of any drug. The method employed is to make it an offence to do or not to do specific things. Any drug or medical device not violating the Act or regulations made thereunder may be sold. As a constitutional matter the Federal Government has jurisdiction in this field because of its responsibility for criminal law. The Food and Drug Directorate exists to detect those who commit offences, and to seek remedies. The usual remedies are prosecution of the company or seizure of the product which offends against the law. Seizure is thought to be the more effective of the two remedies.[2]

The Food and Drug Directorate does not guarantee that every drug marketed has been approved or found satisfactory in any way. However, because prevention of an offence is thought better than any remedy, the Directorate does advise manufacturers and others as to whether a new product, label, or advertisement is likely to be in violation of the Act.[3] In these circumstances the manufacturer must continue to accept full responsibility for his product.

Before a manufacturer can put a new drug on the market he must comply with various regulations under the Food and Drugs Act. No one may sell a new drug to the public unless a notice of compliance has been issued by the Department in respect to such drugs and no such notice is issued unless a new drug submission including all the required information has been filed and found satisfactory. The information required includes a complete description of all experiments, tests, controls, and clinical trials necessary to establish the safety of the drug. Not only every new drug but every new preparation of it (i.e., by another supplier) must be cleared by the Food and Drug Directorate. This requires a new submission and a new

[1] See also Chapter 2, Recommendation 58.
[2] Restrictive Trade Practices Commission, *op. cit.*, p. 156.
[3] *Ibid.*, pp. 160 and 161.

notice of compliance. Because the procedure may be long and expensive, this requirement may be a significant barrier to small manufacturers.[1] To indicate the importance of this particular responsibility, it may be noted that the Food and Drug Directorate in one year has reviewed as many as 180 new drug submissions, many of them containing several hundred pages of data.[2]

The provincial pharmacy acts supplement the Food and Drugs Act in providing for a listing of drugs which may be sold only on prescription.[3] There are specific regulations under the Food and Drugs Act also, pertaining to the labelling of drugs, designed to inform the physician, the druggist and the public about their safe and proper use. Quality standards are established for some drugs in the regulations, and a schedule to the Act also contains a list of official compendia which set standards for other drugs.[4] When a standard has been prescribed in the regulations, or in any of the compendia, the sale of drugs not conforming to this standard is prohibited. Among the basic qualities demanded by the law are that the drug must have the composition claimed for it, the medication must be contained in such a way as to be wholly available to the consumer of the drug, it must be free from harmful extraneous substances, and its potency must have certain stability.

The powers of inspection under the Food and Drugs Act are broad. Their use, however, is discretionary except that a minimum amount of inspection is required to be carried out in connection with certain matters. For example, no Schedule E drugs (which include organic arsenicals used in the treatment of syphilis) may be sold unless each batch is deemed "not unsafe for use".[5] These drugs are less important than they once were having been replaced to some extent by antibiotics. The sale of injectable antibiotics is prohibited unless the premises, processes, and conditions of manufacture are such as to ensure that they are not unsafe for use. The Department issues a licence on a yearly basis after the procedures, premises, and records of the manufacturer have been subjected to critical examination.[6] Schedule H contains the drugs Thalidomide and Lysergic Acid Diethylamide which may not be sold at all to the general public, and only to special groups of experts for investigational purposes. Most drugs are subject only to a general prohibition against manufacturing or storing under unsanitary conditions, and against selling drugs so manufactured or stored, or any adulterated drugs. The Food and Drug Directorate has authority to inspect at any level of distribution, including retail, but with its limited staff it pays most attention

[1] *Ibid.*, p. 165.
[2] The Canadian Pharmaceutical Association, Inc., *op. cit.*, Appendix D, p. 5.
[3] Research and Statistics Division, Department of National Health and Welfare, *op. cit.*, p. 31.
[4] The Canadian Pharmaceutical Association, Inc., *op. cit.*, Appendix D, p. 4.
[5] Restrictive Trade Practices Commission, *op. cit.*, p. 154.
[6] The Canadian Pharmaceutical Association, Inc., *op. cit.*, Appendix D, p. 2.

to manufacturers of prepared dosage forms.[1] About 450 inspections of drug plants are carried out each year.

In addition to plant inspection, of course, a major programme of laboratory testing is carried on. In a three-year period ending in 1960, 11,290 samples of drugs were subjected by the Directorate to laboratory tests. Of these, 4,479 samples tested were for enforcement of the Opium and Narcotic Control Act. A significant portion of the time of the Food and Drug Directorate's drug analysts is therefore taken up in the administration of this Act. Of the remaining drug samples tested, 2,923 were vitamin, and vitamin and mineral preparations, 710 were depressants and stimulants, 394 were systemic disinfectants, 358 were analgesics, 314 were hormone and hormone-like substances, 227 were autonomic drugs, 135 were diuretics, 112 were anaesthetics and the rest were a miscellaneous group including cardiovascular agents, antihistamines, etc.[2] In his evidence before the Restrictive Trade Practices Commission, Dr. C. A. Morrell indicated that with respect to the laboratory tests made in 1960, 30 per cent of the pharmaceutical samples examined were unsatisfactory (for example, there might be a variation in potency but within tolerable limits), but only 5 per cent were objectionable to the point that they had to be withdrawn. It should, of course, be borne in mind that drug inspectors examine mainly those drugs which they have some reason to suspect.[3]

The function of the Opium and Narcotic Control Act is to provide for the domestic control of the legitimate trade in narcotic drugs, and in co-operation with the Department of Justice to suppress the illicit traffic in narcotics. Manufacture in Canada is prohibited but provision is made for handling by wholesalers under a licensing and audit system. A complete record is available of the source, distribution, and the legitimate sale of these drugs.[4]

Imported drugs are also inspected on a sampling basis. In those custom ports where there are no drug inspectors, the Food and Drug Directorate is notified by customs inspectors of shipments of drugs coming into the country. These shipments are held until a release is obtained from the Food and Drug Directorate. It is not necessary to seize imported drugs or to prosecute the supplier because entry of the drugs can simply be refused.[5] In the past the Food and Drug Directorate has sent an inspector overseas, to Italy, for example, to look at various pharmaceutical manufacturers located there.[6]

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[1] Restrictive Trade Practices Commission, *op. cit.*, p. 155.

[2] The Canadian Pharmaceutical Association, Inc., *op. cit.*, Appendix D, p. 4.

[3] Restrictive Trade Practices Commission, *op. cit.*, p. 157.

[4] Research and Statistics Division of the Department of National Health and Welfare, *op. cit.*, p. 26.

[5] Restrictive Trade Practices Commission, *op. cit.*, pp. 162 and 163.

[6] *Ibid.*, p. 155.

The Canadian Pharmaceutical Association told us that "the degree of quality control of drug products that is mandatory under present Regulations of the Food and Drugs Act is not such as to give sufficient assurance to the pharmacist that any given batch of the products of all manufacturers will meet the required specifications".[1] We were told by the Saskatchewan Pharmacists Association that pharmacists will not risk supplying generic drugs unless convinced of their purity and potency. Physicians were said to be similarly reluctant to prescribe generic drugs. The Association said that the situation was not likely to change until the Food and Drug Directorate "can give assurance that all drugs not only meet required standards but that the manufacturing care and techniques of every licensed manufacturer are adequate".[2] The New Brunswick Pharmaceutical Society expressed a similar view.[3] On the other hand, the Canadian Pharmaceutical Manufacturers Association took the position that it would be virtually impossible for the Food and Drug Directorate to check every batch of drugs. A minimum of 76,000 batches of drugs are said to be placed on the Canadian market by major companies each year without including what is supplied by importers or small regional companies.[4]

There is no doubt that the problem is a difficult one. Available information indicates that savings by the purchase of drugs under their generic names have been realized chiefly by government or institutional buyers who purchase large quantities and who are able to test the quality of these drugs.[5] There are, however, at least two hopeful elements in the situation. In his evidence before the Restrictive Trade Practices Commission, Dr. C. A. Morrell made some significant comments on one of them. He indicated that quality control requirements for any particular company depend upon the number of products being manufactured, and the danger or potency inherent in them. Companies making a limited line of products, none of which are of a dangerous character, have no need for the same quality control requirements as a large manufacturer with several hundred products, some of which will certainly be dangerous. Dr. Morrell further expressed the opinion that in order to adequately test and check drugs in Canada the Food and Drug Directorate would have to triple its staff of inspectors and laboratory personnel.[6]

The evidence given to the Restrictive Trade Practices Commission was that some foreign firms, as a matter of courtesy, allow the inspectors of the Food and Drug Directorate to visit their plants, but only with respect to

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[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 38.
[2] The Saskatchewan Pharmaceutical Association, *op. cit.*, p. 18.
[3] New Brunswick Pharmaceutical Society, Final Submission, *op. cit.*, p. 10.
[4] Canadian Pharmaceutical Manufacturers Association, *op. cit.*, p. 75.
[5] Green Book, *op. cit.*, p. 222.
[6] Restrictive Trade Practices Commission, *op. cit.*, pp. 156 and 157.

Schedule C and D drugs has the Directorate authority to inspect "the premises in which drugs are manufactured and the process and conditions of manufacture therein". The significance of this handicap in relation to foreign sources of supply is suggested by the evidence of Professor J. L. Summers of the University of Saskatchewan, who said "no knowledgeable person in the field of pharmacy could walk into a plant and spend a day with them and not learn more and know more about the quality of the product which they produce than analytically, by testing they could learn in five years".[1] There does not appear to be any obvious reason why inspection abroad, given adequate staff, should not be increased. Authority was provided in the Regulations under the Food and Drugs Act in March, 1963, for inspection of manufacturing facilities and control of drug manufacturing.

The Canadian Medical Association stressed that from the point of view of the medical profession the most urgent needs were:

"a) to provide a means of assuring the doctor that his prescription does in fact contain the stated type and quantity of active drug even if the generic name is used and no manufacturer specified, and

"b) to provide information on new drugs relating to an objective appraisal of their efficacy and toxicity by an unbiassed body of experts before they are released for general use."[2]

The Canadian Medical Association recommended that:

"The responsibilities of the Food and Drug Directorate should be extended to provide quality control of all drugs offered for sale and authoritative information on new drugs."[3]

DRUG ADVISORY COMMITTEE

The problems touched upon in the previous section emphasize the importance of the role of the Food and Drug Directorate of the Department of National Health and Welfare and the Canadian Drug Advisory Committee. Among the responsibilities assumed by the latter organization which was formerly known as the Canadian Committee on Pharmacopoeial Standards is the appointment of subcommittees to advise the British Pharmacopoeia Commission on various subjects. One of these subcommittees deals with nomenclature.[4] When a manufacturer presents a new drug submission for

[1] *Ibid.*, p. 494.

[2] The Canadian Medical Association, brief submitted to the Royal Commission on Health Services, Toronto, May 1962, p. 36, para. 100.

[3] *Ibid.*, p. 100, para. 244.

[4] Restrictive Trade Practices Commission, *op. cit.*, p. 15.

consideration by the Department of National Health and Welfare he is asked to supply a "proper name" for the product. The nomenclature subcommittee is important in avoiding conflicts with names in other jurisdictions. It may also help to see that a non-proprietary name is devised as quickly as possible after a drug has been made known to the medical profession, which is important, given the extent to which habit may determine whether a non-proprietary or brand name is likely to be used in prescribing.[1]

The most important contribution which the Canadian Drug Advisory Committee can make to the objective of ensuring that the Canadian market is supplied with drugs of dependable quality was described by Dr. Mark Nickerson, Head of the Department of Pharmacology and Therapeutics at the University of Manitoba in his evidence before the Restrictive Trade Practices Commission:

> " 'DR. NICKERSON: . . . I think there is only one really satisfactory solution, and that is that we have to reach a position where any drug that goes on the market in Canada at least meets certain minimum specifications. The Canadian Drug Advisory Committee, of which I am a member, has drawn up with the Food and Drug Directorate a new set of regulations which involves recording the source of drugs, imported or not imported, and specific tests, and I think if the Food and Drug Directorate, if it did have adequate resources, or were given the adequate resources to carry this through, it would give reassurance that drugs on the market are up to standard, but I can see no real solution to the generic name promotional problem without having some basic assurance of these minimum specifications.'
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> 'THE CHAIRMAN: With regard to the suggestions you made for variation in the methods followed by the Food and Drug branch, do you feel that these suggestions will assure reasonable accuracy of the drug available to the Canadian market?
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> 'DR. NICKERSON: I feel that they will, or at least will go a long ways in this direction. The one thing I don't know about from my own personal experience is the extent to which the Food and Drug Director at the moment has the facilities to carry them out. This might possibly require more personnel.
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> 'THE CHAIRMAN: Do you think you could say it would be quite impossible to undertake the thorough testing of every batch of drugs that comes out on the market?
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> 'DR. NICKERSON: Yes. This is the reason the advertising [advisory] committee made the suggestion, that they will require analytical data, information of sources of raw material that went into the manufacture and provide also, when the Director feels necessary, for inspection of the facilities, and although it may still be a lot of work, I think it is more feasible to check records and analyses, and so on, than it is to do the actual testing of all drugs and so.' "[2]

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[1] *Ibid.*, p. 492.

[2] *Ibid.*, pp. 172-173.

The Drug Advisory Committee referred to above is composed of representatives of the medical and pharmaceutical professions and the drug industry. We conclude that there is need to strengthen the arrangements for consultation between the Food and Drug Directorate of the Department of National Health and Welfare, and the health professions and the drug industry. In particular we believe that (a) representation should be broadened, (b) the area of responsibility should be extended to enable the Committee to assist the department more effectively in its work concerning the quality and efficacy of drugs, and (c) adequate staff and other needed resources should be provided.[1]

PHARMACOPOEIA AND NATIONAL DRUG FORMULARY

The necessity for legal standards to define the specifications, establish the purity and regulate the strength of drugs is recognized by a number of countries. Such standards are set forth in "Pharmacopoeias" which contain lists of drugs with descriptive tests and formulae for preparing them. Many nations have national pharmacopoeias, e.g., in the United Kingdom, the British Pharmacopoeia—in the United States, the United States Pharmacopoeia—in France, the Codex Medicamentarius Gallicus (Codex Français)—in Germany, the Deutsches Arzneibuch (Pharmacopoeia Germanica), etc. Efforts have been made for a number of years to establish an International Pharmacopoeia. A start was made in Brussels in 1902 by the establishment of the International Conference for the Unification of Potent Remedies and the efforts were continued by the League of Nations and later by the World Health Organization by the establishment of an International Pharmacopoeial Committee which published the first volume of the International Pharmacopoeia in 1950 in three languages, English, French, and Spanish. A second volume was completed in 1955 and a supplement in 1959.

In Canada there is no national pharmacopoeia as such. However, authority is provided in the Food and Drugs Act to establish by regulation, standards of composition, strength, purity, potency, quality and other properties of drugs, and this has been done for a number of preparations. In addition, the British Pharmacopoeia, the United States Pharmacopoeia, the International Pharmocopoeia, and Codex Français have been recognized as official texts on drugs in a schedule to the Food and Drugs Act.

Besides a national pharmacopoeia, a number of countries have another standard work on drugs called a "Formulary" or a collection of

[1] See Chapter 2, Recommendation 61.

recipes, formulae and prescriptions. For example, in the United States there is the National Formulary supplementing the United States Pharmacopoeia in the promotion of standardization of the names and formulae of extensively used drugs not described in the United States Pharmacopoeia. In other countries the formulary type of text is termed a Codex, e.g., The British Pharmaceutical Codex. These standard compendia are recognized as official texts on drugs providing standards and tests of identity, purity and quality of drugs to ensure, as far as possible, uniformity in physical properties and active constituents. In addition, they standardize the names and formulae of extensively used drugs. As in the case of the Pharmacopoeia, a Schedule of the Food and Drugs Act recognizes the above texts as official standard compendia on drugs in Canada.

At the present time Canada is without any comprehensive national standard compendium on drugs. A number of years ago efforts were made to establish a national compendium on drugs in Canada under the title of The Canadian Formulary. This text was originally compiled and published in 1905 under the authority of the Ontario College of Pharmacy, and continued to be the property of that organization through five revisions until 1929 when the title was transferred to the Canadian Pharmaceutical Association. The last revision of the Canadian Formulary was undertaken by the Canadian Conference of Pharmaceutical Faculties for the Canadian Pharmaceutical Association, and the last edition (the seventh), published in 1949, consists of approximately 130 formulae of selected preparations. Many of the extemporaneous types of preparations included in previous revisions were omitted from the seventh revision. It is now out-of-date and rarely referred to as a standard work on drugs in Canada.

Evidently brand names may fulfil a useful function with respect to pharmaceutical compounds. Each active ingredient may have its own generic or chemical name, but there may be no non-proprietary name for the mixture itself. In such circumstances the mixture is more easily described by a single brand name, than by a list of all its active ingredients. The Restrictive Trade Practices Commission concluded, however, that brand names applying to single drugs and to the few "official" compounds that exist, although perhaps having considerable commercial value, from a medical and social point of view, are of doubtful value. We agree with the Commission's conclusions that brand names for such drugs increase the multiplicity of names and the risk of confusion; they tend to raise expenditures on advertising since most are individually promoted; and they tend to displace proper names and reduce competition by preventing the dispensing of other preparations of the same drug.[1]

[1] Restrictive Trade Practices Commission, *op. cit.*, p. 496.

The more general use of generic names to designate drugs is restricted by the fact that for a large proportion of them no such names exist or, in some cases, can be given. To illustrate, a survey was conducted in 1960 by Prescription Services Incorporated of Windsor which analysed 889 prescriptions which had been filled consecutively in two different time-periods. Of the total number of prescriptions 5 per cent were extemporaneously compounded; 7 per cent were filled using generic name products, and 88 per cent were written for brand-name products. The 88 per cent figure may be further broken down as follows: 42 per cent of the total number of prescriptions contained more than one medicinal ingredient; 28 per cent were single ingredients which could be procured under a generic or a brand name; 14 per cent were single ingredients for which no other brands were available; and 4 per cent were single ingredients which could be procured under more than one brand name.[1]

Although the most impressive gains to a hospital from the use of a formulary system may derive from a listing of generic drugs, under such a system, of course, brand name drugs are listed also. Basically a hospital formulary is gathering together in a book descriptions of pharmaceuticals which reflect the clinical judgment of the medical staff. Under the formulary system in hospitals a medical staff member agrees that when he prescribes by a proprietary name the hospital pharmacist is authorized to dispense the same drug under its non-proprietary name or under a different brand name. A pharmacy and therapeutics committee, made up primarily of medical practitioners, studies and selects drugs which members consider are most useful for the treatment of the patients. In practice it is said to be essential that the consent of each person authorized to write a prescription be obtained prior to the introduction of a formulary system.[2]

Hospital formularies are widely used across Canada. This is indicated by a hospital pharmacy survey conducted by the Faculty of Pharmacy of the University of Toronto in 1957 which brought 314 replies from hospitals located in different parts of the country. Of this total 71 hospitals reported that they maintained an up-to-date formulary; 94 hospitals reported that they had a drug list which was kept current; 53 stated definitely that a formulary was not kept up-to-date; 29 indicated that a drug list was not kept current; and a number did not reply to this question.[3]

For the physician, the hospital formulary is an educational tool. An effective formulary lists the generic name of the drug and the comparable

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[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 39.

[2] Summers, Professor J. L., University of Saskatchewan, quoted by the Restrictive Trade Practices Commission, *op. cit.*, p. 472.

[3] Canadian Society of Hospital Pharmacists, *op. cit.*, p. 24.

brand names. It also gives the physician information about the number of agents with similar therapeutic action which may be available in the hospital. It attempts to suggest good medications and to guide the physician in his choice of drugs. While the formulary system may restrict the physician in his choice of *brand,* it may therefore also assist him in choosing the brand. It does not in any event limit the availability or his choice of the *drug.*

Apart from its effect in improving health care, a hospital formulary is an economising device because it decreases duplication. This has the important result of reducing the inventory that has to be carried and permitting larger purchases of the same drug at one time. The impact of this has been described by the Canadian Pharmaceutical Association as follows:

> " 'This system works to effect reduced costs to the hospital. From the manufacturer's point of view, the formulary system tends to substantially reduce, in hospitals and government institutions, or, indeed, eliminate the normal protection afforded his brand name. With sales made to hospitals under the tender system and the elimination of brand name protection, the manufacturer is forced into an extreme competitive field, price-wise, . . . ' "[1]

We discuss later the rather large expenditures made by drug companies for purposes of product differentiation. The formulary system tends to undo the effect of this expenditure and one would expect that such expenditure would therefore be reduced.

A number of provinces have attempted to develop a drug formulary. In Saskatchewan, for example, regional hospital councils composed of a number of hospitals in a fairly well defined locality have established a pharmacy consulting service which provides for joint purchasing of drugs, and for the establishment of hospital formularies.[2] In addition the Saskatchewan College of Physicians and Surgeons has a pharmacy committee which in collaboration with the Department of Public Health regulates some of the drugs that are listed on the free list under the Medicare programme.[3] In 1959 a hospital pharmacist was engaged by the Manitoba Hospital Services Plan to assist hospitals in improving purchasing practices and in the preparation of formularies. A survey conducted in Manitoba in 1961 revealed that less than 20 per cent of prescriptions under the medicare programme were written with the use of the formulary which is issued to medical practitioners. Recent trends indicate that physicians are using the medicare formulary to a greater extent. We were told that the Associated Hospitals of Manitoba have been

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[1] Restrictive Trade Practices Commission, *op. cit.*, p. 487.

[2] Saskatchewan Branch of the Canadian Society of Hospital Pharmacists, brief submitted to the Royal Commission on Health Services, Regina, January 1962, p. 8.

[3] Transcript *op. cit.*, January 24, 1962, Vol. 19, p. 4453.

studying the possibility of adopting group purchasing methods, but that the success of this programme was thought to depend largely on the establishment of an acceptable formulary.[1]

According to the Canadian Society of Hospital Pharmacists, "the most important determining factor in the decision of any hospital to prepare a hospital formulary is the length of time required for the production of same. The selection of the therapeutic agents to be included requires numerous meetings with the members of the Pharmacy and Therapeutics Committee. The preparation of a monograph for each drug requires many hours of research and checking on the part of the pharmacist plus considerable clerical work in the reproduction of this material in a form suitable for review by the Pharmacy and Therapeutics Committee and acceptance by the medical staff. If the book is to be printed, further delays are entailed in the rechecking and proofreading of the material. The formulary is therefore usually somewhat out of date before it is completed and immediate revision becomes necessary".[2]

In these circumstances, it is understandable that in their representations to us the Canadian Society of Hospital Pharmacists recommended that a "Canadian hospital formulary service, on a subscription basis, be established by pharmacists in Canada", with certain government assistance.[3] We are informed that an American formulary service already exists under which an original formulary may be purchased for $15 and which may be kept up-to-date with a subscription of $5 per year. The Pharmacy and Therapeutics Committee of any hospital subscribing to the service may then select those monographs which they wish to have in their own formulary.

Given the fact that there are communities where a single hospital exists, operating on a formulary system, it is difficult to see that practising physicians would have serious objection to the use of a formulary outside the hospital when they do not object to such use inside the hospital. A national drug formulary was strongly endorsed by the Ontario Branch of the Canadian Society of Hospital Pharmacists who thought it would be "workable", "a wonderful guide . . . to the smaller hospitals in Ontario", and likely to reduce the cost of drugs and provide better patient care.[4] We were told by the Canadian Pharmaceutical Association that it believes "that within this free-enterprise system a certain measure of necessary control can be introduced which will react against excessive duplication of drug products. Appreciable reduction of prescription inventories which, at the

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[1] The Government of Manitoba, *op. cit.*, p. 49.
[2] Canadian Society of Hospital Pharmacists, *op. cit.*, p. 25.
[3] Transcript, *op. cit.*, May 18, 1962, Vol. 56, p. 10718.
[4] *Ibid.*, p. 10733.

same time, will maintain the physician's freedom to select the drug of choice and rely on the pharmacist's competence to supply it, can be expected to reflect economic advantages to the patient".[1]

We conclude that it is essential for the orderly development of drug services as part of an over-all health care programme that Canada should have an adequate, comprehensive and up-to-date national drug formulary.[2]

DRUG INFORMATION SERVICE

As we mentioned earlier the Canadian Medical Association indicated that the most urgent need is the assurance to the medical profession that the quality of the drug prescribed is satisfactory.[3] The Association expressed the opinion that facilities and qualified personnel were lacking to carry out adequate pre-marketing evaluation of new drugs at the clinical level. The Association recommended that the necessary authority and finances be provided for expansion of the work of the Food and Drug Directorate. It commented "it is our view that the proposed information service would command the ready cooperation of Canadian talent in pharmacy and pharmacology, in research and clinical investigation and in medicine".[4]

We discussed earlier the problem of ensuring that the Canadian market is supplied with drugs of dependable quality. With reference to the provision of information about efficacy and toxicity, the evidence before the Restrictive Trade Practices Commission is that medical practitioners generally have difficulty in keeping up with developments in the drug field.[5] In this connection there appear to be two dangers. On the one hand physicians may accept promotional claims which have not been sufficiently established, and on the other a really effective agent may be overlooked in the mass of information which physicians presently receive. Evidence given to the Restrictive Trade Practices Commission indicates that the time required to keep up with the literature on new drugs also presents a problem to some pharmacists.[6]

A government-sponsored information service might be generally welcomed across the country. The Government of Manitoba, for example, recommended that "increased national services be provided for evaluating

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[1] The Canadian Pharmaceutical Association, Inc., *op. cit.*, p. 87.
[2] See also Chapter 2. Recommendation 62.
[3] The Canadian Medical Association, *op. cit.*, p. 36.
[4] *Ibid.*, p. 37.
[5] Restrictive Trade Practices Commission, *op. cit.*, p. 207.
[6] *Ibid.*, p. 209.

the efficacy and quality of drugs and the distribution of information in this regard to medical practitioners, and pharmacists".[1] The Saskatchewan Pharmaceutical Association supported the idea of a government-sponsored monthly bulletin providing the latest authoritative information available on new drugs, and also the provision of an additional service under the same auspices which would answer specific questions at the request of any physician or pharmacist.[2] In their submission to us the Canadian Federation of Agriculture recommended the institution at government expense of such an information service.[3] In their report the Restrictive Trade Practices Commission indicated that they had received many submissions which stressed the need for a publication which would make an objective and critical appraisal of new drugs, and which, it was suggested in most cases, should be government-sponsored.[4]

The favourable reaction of the drug manufacturing industry to these proposals is suggested by the following quotation from a statement by the representative of a leading drug company:

> "'...In this regard, we would be in favour of an official bulletin or other regular publication designed to acquaint doctors and hospitals and drug purchasing agencies with information on the latest developments in the drug industry. We feel that such a publication is, in fact, long overdue and we would be prepared to give active support to its publication.
> 'We have made some preliminary investigations along this line and we have received encouraging expressions of support from members of the medical profession and the industry itself. We feel that in order to be sufficiently authoritative, the publication would have to bear the stamp of approval of the medical profession, preferably of the Canadian Medical Association, as well as the government. In this regard the Food and Drug Directorate has already facilities at its disposal to enable it to contribute substantially to the formation of an organization to publish this type of review. We feel that the major ethical manufacturers would be more than happy to submit materials and results of clinical investigations to the publication.
> 'Should this step prove successful, this co-operative organization could possibly extend its activities to a wider field including the review of product claims, the establishment of improved standards of purity and quality, reports on clinical tests and other matters of interest to the industry.' "[5]

Such an information service is already operating in Britain. There the Ministry of Health, every two months, issues free to medical practitioners the Prescribers Journal, whose aim is to provide the physician with early and reliable information about new pharmaceutical products and the results of

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[1] The Government of Manitoba, *op. cit.*, p. 49.
[2] Transcript, *op. cit.*, January 24, 1962, Vol. 19, p. 4431.
[3] The Canadian Federation of Agriculture, brief submitted to the Royal Commission on Health Services, Ottawa, March 1962, p. 10.
[4] Restrictive Trade Practices Commission, *op. cit.*, p. 250.
[5] *Ibid.*, pp. 250-251.

clinical trials. In an article commenting upon this service the Canadian Medical Association Journal has pointed to one inescapable problem: a journal either publishes quickly and risks inaccurate and perhaps misleading information, or it waits for a longer assessment and consequently publishes late.[1]

In this discussion we have alluded so far to the effect of improvements in the dissemination of information about new drugs on improvements in health care. The possible effect on cost to the patient might be even more significant if the information service was able to provide medical practitioners generally with greater confidence in prescribing some at least of the lower cost drugs. In addition the development of an effective alternative method of disseminating information about new drugs might be expected to reduce the volume of expenditure on advertising and promotion presently undertaken by Canadian drug manufacturers. We consider this a desirable objective in the interest of reducing costs and prices of drugs.

We conclude that a periodic, current and reliable Drug Information Service would assist the medical and pharmaceutical professions to provide a more effective health service, and that over the long term such a service might contribute to reducing drug costs and prices.[2]

In this chapter we examined the special nature of drugs as a commodity with particular reference to prescribed drugs and the industry supplying them. We have more to say about the drug industry, and we do so in Chapter 16 where we deal with manufacturing, importation, distribution including advertising, foreign control of the industry and research and product development. Then, in Chapter 17 we deal with drug costs and prices, including patents, trade marks, tariffs and pricing practices. Our recommendations arising out of the conclusions stated in these three chapters will be found in Chapter 2.

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[1] *Ibid.*, p. 256.
[2] See Chapter 2, Recommendation 62.