HEALTH MANPOWER: ISSUES AND GOALS IN CANADA[1]

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If present trends continue, Canada will soon enjoy an adequate overall supply of manpower in the major health professions. Nevertheless, a number of important manpower problems will remain. This article discusses those problems and suggests a number of ways in which their impact could be reduced.

Introduction

Each of the countries of the Americas probably has a different set of problems and priorities in health manpower. One hopes, however, that there is sufficient common ground to enable us to learn by sharing our experiences, if for no other reason than to avoid repeating each other's mistakes.

To my knowledge, Canada does not have the answers to the really fundamental questions of health manpower. What is a reasonable level of service? To what extent might functions discharged by physicians be transferred to allied health professions? What impact might result from changing the organization of health care delivery or the system for remunerating physicians and dentists? To date, these questions have been left in abeyance, most of our attention being given to quantitative problems such as the supply, distribution, and combination of different types of health personnel.

Manpower Supply

Data on the supply of the major categories of health personnel show that overall supply in relation to population has been improving steadily.[3] Although ideal target levels of health manpower have not been set, one senses that we in Canada are now very close to these levels for most of the health professions. The physician-population ratio of 1:661 achieved in 1971 is much more favorable than that proposed by the Royal Commission on Health Services in 1964, but it still falls short of the goal of 1:600 set by the World Health Organization.

Using normative criteria for general practitioners and specialists of various types, the College of Family Physicians, the Royal College of Physicians and Surgeons, and the Public Health Association have estimated that the 1971 figures still reflect a shortage of about 1,300 doctors. Our relative supply of dental manpower (1:2,800) ranks well behind that of the United States (1:2,000), and we have only half as many dentists in relation to population as the Scandinavian countries (1:1,200-1:1,500). On the other hand, our supply of nurses appears to be more than adequate, even taking into account the proportion of nurses not actively engaged in professional work. In each of these professions, however, the overall supply figures mask inequities of geographic distribution as well as surpluses and shortages of personnel with specialized training.

Manpower Distribution

The uneven distribution of health manpower in Canada is a greater problem than actual supply shortages. There are still gross inequities between provinces and between regions in the

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[3] See W.S. Hacon, The Health Manpower Situation in Canada, in *Pan American Conference on Health Manpower Planning*, Pan American Health Organization, Washington, D.C., 1974, pp. 28-34 (PAHO Scientific Publication 279).

same province. For example, until recently the physician-population ratio in Newfoundland was only half the national average; and in Ontario the northern portion of the province is still 50 per cent less well-served with physicians than is the south.

Disparities in the distribution of dentists are even greater, with a four-fold difference between Newfoundland and British Columbia and very uneven regional distribution within most provinces.

Substantial progress has been made in rectifying these inequities—by providing special educational opportunities for individuals resident in underserviced areas and financial assistance for medical and dental students willing to practice there; by offering establishment-of-practice grants; and by guaranteeing an attractive level of minimum income during the initial years of practice.

Ontario, for example, has used these techniques with great success. Since 1969, 178 doctors and 55 dentists have been placed, respectively, in 95 and 53 communities that were identified as being underserviced. There are of course still many areas where the services of specialized physicians and dentists are needed, and this is also true of other specialized health personnel such as audiologists, speech pathologists, and rehabilitation therapists.

Redistribution of nurses according to need is handicapped by the limitations imposed on geographic mobility by marriage. As a result, there have been periods when nurses were unable to find employment in metropolitan areas, while shortages existed in smaller population centers.

Manpower distribution is further complicated by the differentiation of health manpower into generalists and various types of specialists. The process of specialization affects all professions, but its manifestations are most marked in medicine. Moreover, it has been pointed out[4] that during the past decade the number of Canadian physicians who are specialists increased by 70 per cent, as compared with an increase of 19 per cent for general practitioners.

However, in contrast with the situation in the United States, approximately half of the doctors in active practice in Canada have general practices, and a general career continues to be the choice of the majority of graduates of Canadian medical schools. This choice may have been encouraged by introduction of specific graduate training programs for family practice and primary medical care, which have expanded rapidly in recent years and which draw a large share of the best graduates of local medical schools. In some provinces, Government guidelines have been established to ensure that training opportunities in primary care will be available for 50 to 60 per cent of all medical graduates; lower priority has been assigned to the training of specialists, except where a demonstrated shortage exists.

Balancing Health Manpower Production

How to adequately balance manpower production in the medical specialties poses a much more complicated problem. At present, the output of specialists of a given type seems to be linked more closely with the prestige of the specialty and the momentum of the residency training program than with the need for its products.

Few have confidence in detailed forecasting of manpower needs; however, attempts are now being made to identify areas of relative overproduction and underproduction. Responsibility for making the painful adjustments to correct imbalance rests primarily with the individual medical schools, which in Canada have primary responsibility for graduate medical education. Looking ahead to the problems which will be associated with specialization in the other health professions and in health technologies, the principle of adding on specialized training after completion of the basic education program provides an important hedge against errors in forecasting manpower needs and against unpredictable changes which can suddenly make certain specialties obsolete.

[4] *Ibid.*

The major problem now on the horizon for Canada's more affluent provinces is a large possible surplus of nurses and physicians. The oversupply of nurses will probably be only short-lived, since the rapid expansion of nursing enrollment has been curtailed and new professional opportunities in fields such as primary care have opened up. The possibility of a surplus of physicians will certainly be viewed as a blessing by the public, but it could turn out to have several disadvantages, the most important of which is its impact on the cost of health services. Also, there is some evidence that a surplus of doctors may lead to unnecessary procedures or services and to a dilution of specialty practice which could adversely affect the quality of services delivered. Furthermore, in some communities with an oversupply of surgical specialists, one suspects that either unnecessary procedures will be carried out or else "disuse atrophy" of the physicians' special skills will occur; neither prospect is pleasing.

The surplus referred to arises from the expanding enrollments of our own medical schools, coupled with increasing immigration of foreign medical graduates. The extent of immigration is such that, in nearly all provinces during the past three years, a majority of newly registered physicians have received their basic training in other countries. An increasing proportion of our supply of dentists is also coming from outside Canada. The flow of nurses from other countries is a smaller contributory factor in the current oversupply situation.

Overproduction and Immigration

The potential surplus physician problem is well-illustrated by the current manpower forecast for the Province of Ontario. There the physician-population ratio has been improving rapidly over the past few years, mainly because of the large influx of medical graduates from other provinces and other countries. By 1972 this ratio had reached 1:613. The sources of Ontario physicians registered in 1972 are shown in Table 1.

The provincial manpower goal has been to reach a position of self-sufficiency in terms of medical manpower production. Accordingly, the five Ontario medical schools have been encouraged to increase their enrollments. However, allowing for attrition at the present rate, and assuring no net gain or loss from immigration or emigration, an annual rise in the number of physicians equivalent to the output of the five Ontario medical schools would increase the physician-population ratio to 1:587 by 1976 and 1:551 by 1980 (see Table 2). Moreover, if immigration continues at the current level the ratio would reach 1:506 by 1980. And if enrollment of Ontario medical schools is increased so as to graduate 860 physicians per year, as advocated in 1972 by the Task Force on Future Arrangements for Health Education, then the ratio would reach 1:495 by 1980 and continue to rise rapidly thereafter. Since action on manpower planning in Canada is taken at the provincial level, Ontario is faced with the

TABLE 1–Production and migration of physicians in Ontario in 1972.

		No. of physicians
Gains:		
From Ontario medical schools	415	
From other Canadian provinces	164	
From other countries	501	
Total		1,080
Losses:		
From attrition and emigration		558
Net increase in physicians in 1972		522

TABLE 2–Projections of physician-population ratios in Ontario, 1972, 1976, 1980.

	1972	1976	1980
Zero net migration	1:613	1:587	1:551
Net migration at 1972 level	1:613	1:551	1:506
Net migration at 1972 level + increased annual output of 860 physicians	1:613	1:551	1:495

difficult choice of holding back production, curtailing registration of foreign medical graduates, or accepting the consequences of a large physician surplus before the end of the decade.

All across Canada there is strong public pressure to increase enrollment in our medical schools. In the absence of firm figures on manpower need, this pressure is heightened by the widespread public belief that physicians are in short supply and by the large number of well-qualified applicants who cannot be accommodated in the medical schools. Indeed, with so many of our own bright students being denied admission to medical school, it is difficult to justify importing large numbers of physicians trained in other countries. Apart from the manifest disservice to those other countries, we must examine the effects of this policy on our own manpower objectives. We are concerned, for instance, about maldistribution of physicians and underrepresentation of women, native peoples, and ethnic groups; but any innovative or remedial approaches which we may devise will be negated if the majority of new physicians registered each year have been trained in other countries.

A Possible Solution

Regional Manpower Quotas

In my view, this problem cannot be solved by curtailing production or rigidly restricting immigration. Instead, each province should first establish a manpower objective; any guidelines restricting career choice by geographic location or specific fields of practice which are applied to physicians trained in that province should also apply to registrants from other jurisdictions. Secondly, in keeping with the manpower guidelines chosen, an upper limit for the number of general and specialist physicians should be established for the various districts or regions of the province; both Canadian and foreign medical graduates would then be eligible to apply for vacancies in the system and would be selected on the basis of their professional qualifications. This approach places whatever controls are needed at the level of manpower utilization rather than at the level of production, thereby obviating the need for detailed long-range manpower forecasts, which are notoriously unreliable.

Manpower Pools

How do we achieve greater flexibility in the use of our manpower, so as to respond to changing health needs? Our response is limited by two major impediments. The first is the tendency to divide up health services into a series of types, each type identified with a single health profession. The second is the lack of any organization for ambulatory care within which to promote interaction and teamwork among different health workers.

It is no longer realistic, I contend, to think of health manpower in terms of single professions. Health manpower must be considered a network of resources that have a substantial potential for substitution or conversion of functions in order to cope with unpredictably changing health needs. Oversupply in one profession should be harnessed to meet a shortage in another; for example, in the case of Canada's nurse-practitioner program advantage was taken of a surplus of nurses to meet a deficiency in the delivery of primary medical care.

Transfer of functions between different health professions should be possible on either a formal or informal basis. This will be greatly facilitated when an organizational framework is developed for services delivered outside an institutional setting. But such a transfer also requires a positive attitude on the part of the various professions toward sharing responsibility and promoting teamwork in the delivery of health care. The development of this attitude is accepted now as an important educational objective by most health science centers in Canada, and a variety of approaches to the coordination of educational programs for the different health professions have been undertaken. Coordination of these programs may make it possible to achieve several important objectives: greater compatibility in the func-

tions of the personnel trained; a more rational approach to manpower production in terms of the number produced and type of training provided; greater conformity of standards and portability of credentials; broadened career opportunities and occupational mobility; and more efficient and economical deployment of educational resources through shared use.

Education

One of the critical considerations in manpower planning is the ability of educational institutions to respond to changing health manpower needs. Two types of responses should be distinguished, and these can be likened to the coarse and fine adjustments on electronic equipment.

"Coarse adjustments" involve major changes in the size or orientation of a professional program or the establishment of a new professional school. The process of planning, negotiation, and preparation of resources is very time-consuming; and the interval between acceptance of the concept and appearance of the first graduating class is rarely less than six or seven years and often longer. Another decade may pass before the number of graduates is sufficient to make an impact on the health service scene. "Coarse adjustments" involve fundamental changes and major allocations of resources. They are appropriate responses to long-range manpower goals about which there is reasonable certainty.

The second type of response, which has been labeled "fine adjustment," involves changes which are not so extensive in magnitude or direction and which may be achieved by adaptation of existing manpower resources. The response mechanism operates through continuing education or short programs of recurrent education for individuals who have already obtained their basic professional qualifications. The time-frame of response is much shorter, allowing significant results to be achieved within two to three years.

In the past we have tended to rely primarily on "coarse adjustments" to meet changing health needs. As we approach self-sufficiency of manpower production in the major health professions, however, it may be more appropriate and expedient to utilize "fine adjustments."

For example, in our nurse practitioner programs experienced nurses are given the equivalent of six months' additional training to prepare them to work with physicians delivering primary care in an ambulatory setting. An important need is being met without the problems and delays associated with the introduction of a new professional entity such as the "physician assistant."

In the same vein, a need for personnel to assist patients with behavioral, social, and mental health problems has been met in one region by offering a special part-time program in which nurses, doctors, ministers, social workers, teachers, and other professionals improved their administrative, supervisory, and therapeutic skills and increased their awareness of community resources. By training health professionals who were already employed in situations where their new skills could be effectively used, and by operating the educational program on a part-time basis, the new needs have been met rapidly and without removing the trainees from the setting of their employment or practice.

A further example involves the training of individuals skilled in the techniques of evaluating health services. Instead of relying on the creation of a new discipline, individuals who were fully qualified in their own health professions or clinical specialties have been given a short period of additional training in epidemiology, biostatistics, and other subjects. In this way, new skills have been brought to bear on the existing problems very quickly, and by preserving the connections with their profession or specialty the trainees have enhanced their acceptability as evaluators and agents of change. It is reasonable to predict that programs training existing health personnel for new functions will become an increasingly important part of the responses by educational centers to the changing needs of the health services system. This will involve a major

change in emphasis, from formal full-time programs of professional education at the undergraduate and graduate levels to programs of continuing and recurrent education.

Quality

It would be a tragic mistake for our notions of health manpower planning to be concerned only with quantity. The matter of quality is of vital importance. Most of us believe that the caliber of students attracted to medicine and the nature of their initial program of professional education play a significant part in determining the quality of health services which they will offer in practice. However, these impressions are subjective; in fact, we have very little knowledge of what makes a good doctor or dentist, and we have few quantitative measures of either the quality of health care or the quality of professional education. To justify our expensive system of education on the basis of the quality of the product we must know what determines quality, so that in making changes within the constraints of limited resources we can select wisely what to retain and what we can afford to discard.

It is certainly no longer reasonable to expect that the initial program of professional education will be adequate for a lifetime of practice. No matter how good the initial program is, all health personnel will depend to an increasing degree on continuing education to keep abreast of new knowledge and changes in the patterns of disease and disability. There are serious shortcomings, however, in our current approach to continuing education. First, our emphasis tends to be on recent advances in knowledge, whereas current evidence suggests that deficiencies in basic information and techniques are more important factors contributing to substandard performance. Secondly, we depend primarily on didactic techniques for a type of education that might be provided better by a problem-solving approach in the practice setting. And finally, since continuing education programs are voluntary and paid for by the practitioner, they tend to miss those who need them most.

To be successful, a program of continuing education must be associated with a system for monitoring the quality of professional services rendered. Without such a mechanism, it will be difficult to identify the individuals whose performance is substandard, or to learn about the more general defects in our health system and educational programs which contribute to poor quality of performance.

Two important public priorities emerge here. The first is the priority need for introduction of a system to regularly review the professional performance of all physicians and possibly other health professionals as well. Where a performance record is unsatisfactory, examination for renewal of certification or licensing should be required. The second priority for public action is the need to recognize the significance of continuing education in relation to quality control of health services, and to provide funding for such programs on a basis comparable to that for full-time professional education.

Conclusions

Canada is now approaching a point where it will enjoy an adequate overall supply of manpower in the major health professions, although in dentistry there is still some distance to go. On the quantitative side, the chief problems which remain are the geographic distribution of health manpower and, in the case of physicians, the balance in the supply of generalists and specialists of different types.

The inequities of health manpower distribution are such that serious shortages exist in some provinces and regions, while others simultaneously face a problem of actual or impending oversupply. To date, the principal mechanism used for overcoming shortages has been supersaturation-spillover, a relatively ineffective and prohibitively expensive approach. Incentives and return-of-service bursaries have been used successfully in some provinces as a short-term measure to meet underserved areas' needs for physicians and dentists. In the long run, however, a method is required which will avoid

oversupply as well as deal with shortages, a point which is especially important in the case of physicians.

One possible solution would be to establish upper limits or quotas on the number of physicians, broken down by geographic region and by the various types of general or specialty practices. The upper limits should be set in accord with guidelines developed by a manpower advisory council, and these guidelines should be subjected to regular review.

To implement these manpower limits, all physicians would be required to apply for practice privileges to a regional or district health services council, much in the way individuals apply to a hospital board at the present time. The individual region should retain some authority to substitute one type of manpower for another or to exceed its limits through financial trade-offs with other health resources, in relation to local needs.

This approach would require a better definition of regional authority and might prove difficult to apply in a very large metropolitan area. Nevertheless, it is to be preferred over attempts to restrict manpower through licensing for two reasons: first, licensing deals with minimum acceptable qualifications, and in a situation of oversupply the basis of selection should be the highest standard of qualifications; second, since licensing is normally related to a large jurisdiction such as a whole province or country, it is not possible to influence regional geographic distributions within that jurisdiction by this means.

Another approach would be to limit the number of physicians whose services would be classed as "insured benefits" under the government-sponsored health insurance plan. This approach, however, might be in conflict with the Medical Care Act, which requires as a condition of federal financial participation that each province include as insured benefits all physicians' services that are medically necessary.

Costs

Rapidly escalating cost is a serious problem facing those responsible for the administration of health services in most Western countries, and one of the most important multipliers of health costs is the number of physicians practicing in the system. The costs attributable to a physician are not only his remuneration, but also a sum in excess of that amount reflecting expenditures in the system which result from his professional decisions. Furthermore, in the absence of financial barriers to physicians' services, both the volume of services rendered and the cost per service relate to the number of physicians in practice. A surplus of doctors therefore would increase the cost of health services without necessarily raising our state of health.

As noted earlier, in several of the larger Canadian provinces with a rapidly increasing physician to population ratio, the prospect of a significant surplus of physicians is imminent. In Ontario, for example, unless controls are introduced it is possible that 300 to 400 more physicians than are needed will be added to the system each year, resulting in an annual cost increase of about $60 million dollars. If there is no limit to the number of physicians who may register in a province, and no more efficient mechanism to achieve distribution by location and by type of practice than the supersaturation-spillover method now in operation, then the escalating costs arising from surplus physicians will almost certainly negate attempts to achieve economies in the hospital sector through control of physicians' incomes or cut-backs in other areas of expenditure.

Manpower Quotas

The introduction of manpower limits or quotas, therefore, is not only an important measure for achieving optimal geographic distribution of general practitioners and specialists in relation to need; it is also a key factor in solving the problem of cost control. In addition, by placing the controls on manpower at the level of utilization they provide a more tangible basis for forecasting manpower requirements. This is of value to the individual and to

educational planners, particularly at the level of postgraduate medical education.

At the same time, manpower limits or quotas obviate the need to introduce arbitrary restrictions on immigration which are politically unpalatable and professionally undesirable. With respect to immigration, the objective should be to eliminate massive shifts of highly trained personnel between countries, but at the same time to preserve the opportunity for a reasonable level of international movement and thereby avoid the dangers of parochialism.

Manpower Quality

Turning to the qualitative side of health manpower planning, three general themes have emerged. The first is the need to integrate health manpower into a single resource pool, and thus reduce the degree of compartmentalization of individual professions which hinders both transfer of functions and application of surplus manpower in one area to a deficiency in another. This integration may be achieved through better coordination of educational programs for the health professions, and by providing an organizational framework in which the different health professions can work as a team in the delivery of health care.

The second theme is the need for greater reliance on "fine adjustments" to the process of health manpower education in responding to the changing needs of the health care system. This involves introducing short programs of continuing and recurrent education designed to adapt or extend the function of existing health personnel, instead of creating new professions to meet each new service need. A specific objective here is avoiding a proliferation of health professions which further limits flexibility in planning, production, utilization, and regulation of the health professions.

The third theme is the need for mechanisms to maintain or upgrade the actual quality of health services delivered by practicing health personnel. This matter of quality may in the long run be more important than some of the quantitative considerations. The principal vehicle for meeting this need will be programs of continuing education. These programs require a change in educational approach, increased attention from our educational centers, and full financial support from government. However, even with improved programs a major impact on the quality of health care is unlikely unless continuing education is linked to a process of periodic review of professional competence on which continuing certification or licensing depends.

Planning and Coordination

Health manpower is probably the most important single resource of a health services system. Careful planning in relation to both the quantity and quality of health manpower planning must not be considered in isolation. It should be closely linked with consideration of policies concerning organization of health services, cost control, and regulation of the health professions through licensing and disciplinary mechanisms. These are interrelated sectors of activity; changes in one sector may have serious consequences for another, and these consequences must be recognized at the time the policies are formulated.

Under the federal structure which exists in Canada, the provincial governments have primary responsibility for both the system of health services and the educational system. Health manpower planning is an important consideration in both systems; however, few provinces have the resources to carry out this planning on a comprehensive or continuing basis. By analogy, just as each of the provinces have been unable to devote sufficient resources to keep up with all the important aspects of health manpower planning on a continuing basis, so countries such as the member nations of the Pan American Health Organization may find it advantageous to coordinate their planning efforts, exchange information, and study special problems conjointly.

SUMMARY

Canada is now approaching a time when it will enjoy an adequate overall supply of manpower in the major health professions. Nevertheless, a number of major problems will remain. If present patterns persist, health manpower will be unevenly distributed in many places; production of various kinds of personnel will sometimes be unbalanced and out of tune with actual health needs; growing medical school enrollments will be likely to yield a costly surplus of physicians; and large-scale immigration will probably add to this oversupply.

For those seeking solutions to these problems, this article suggests a number of possible actions. These include establishing regional manpower quotas, transferring functions from one health specialty or profession to another in response to existing needs, and placing greater emphasis on continuing education.

In providing a basis for actions of this kind, careful health planning can play a vital role. Clearly, such planning must not be considered in isolation. It should be closely linked with development of policies concerning organization of health services, cost control, and regulation of the health professions through licensing and disciplinary mechanisms. All of these are interrelated sectors of activity; changes in one may have serious consequences for another, and these consequences must be recognized at the time the policies are made.