

Physician Workforce Planning: What Have We Learned?: Lessons for Planning Medical School Capacity and IMG Policies. The Canadian Perspective.

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SUMMARY

Recent developments in physician workforce planning in Canada

- 1. Has the adequacy of physician supply been recently assessed?** Yes, in numerous provinces.
- 2. What led to the reassessment?** Pressure from the medical establishment.
- 3. What processes were used for the reassessment?** Fact-finders' reports; expert panels; government commissions and stakeholder committees.

Methodologies for forecasting future supply, demand and/or need

- 1. What methods were used to forecast supply, demand and/or need? Any new advances in methodology?** Stock and flow models are commonly used for supply forecasts. There is growing interest in modelling the impact of changes in physician workload, productivity, different models of care, changes in the demand for services and measures of pure need. For example, Ontario's model accounted for targeted reductions in physician workload; the impact of more nurse practitioners and midwives; and accelerated demand for some services (e.g. joint replacement).
- 2. Who conducted the technical assessments?** Independent, academic research groups; medical associations; government departments; management consultants.
- 3. Was a process established to reassess the adequacy of the forecasts on a periodic basis?** There is growing recognition of the need to assess forecasts periodically, but progress in creating policy-making structures to do this has been slow.

Findings of the Reassessment of the Physician Workforce

- 1. What were the key findings of the reassessment?** The majority opinion is that there is a significant physician shortage in Canada. A minority argue that the focus should be on deploying existing resources more efficiently.
- 2. How do the findings compare with prior assessments?** Popular opinion conflicts sharply with the consensus of a physician surplus as noted in the 1991 Barer-Stoddart report.

3. If the results were different, why? Many factors intervened in the mid-1990s which had profound, unintended impacts on physician supply, including cost containment programs in the health sector and the lengthening of residency training.

4. What factors were viewed as having a major potential impact on future supply and demand and/or need? Aging of the population; greater participation of women in the workforce; expansion of new technologies.

New Programs and Policies

1. What programs were introduced following the reassessment? Increased medical school and residency positions. Increased IMG intake, through changes in licensing requirements; more residency spots for IMGs; facilitated entry for academic IMGs; and 'fast-track' programs to assess IMGs' skills and provide remedial training if needed. Lastly, repatriation programs to lure Canadian doctors in the US.

The Role of IMGs in Meeting Canada's Physician Workforce Needs

1. What role do IMGs play in meeting Canada's physician workforce needs?

To supplement the workforce; provide short-term relief to perceived shortages; fill specialties which can't attract Canadian graduates; work in underserved regions.

2. Is this role different than in the past? The role of IMGs now is similar to the pre-1990 era. In the 1990s, however, IMGs were discouraged from entering Canada.

3. What criteria are used when deciding to increase medical school capacity vs adding more IMGs? The principle of self-sufficiency in physician human resources.

Costs of increasing medical school capacity vs inflow of IMGs

1. What is the cost of increasing medical school capacity vs the inflow of IMGs?

Increasing medical school capacity costs more than increasing the flow of IMGs.

2. Was the cost and/or time needed for medical education considered in the policy discussion? Cost estimates were used during some policy discussions.

Physician Productivity

Were there recommendations to increase productivity? Generally no, although some may consider initiatives such as primary care reform and policies to encourage the use of information technology as efforts to increase productivity.

Recommendations to use more non-physician clinicians? Yes, although significant barriers still remain in the deployment of nurse practitioners and midwives.

Recommendations to reduce demand for physician services to meet future need?

None specifically proposed in the context of physician shortages, although initiatives such as teletriage programs and Ontario's universal influenza immunization program might be considered initiatives to reduce demand.

Recent developments in physician workforce planning in Canada

The adequacy of Canada's physician supply has undergone intense scrutiny over the past four years. Although there was initial skepticism of claims of a physician shortage, a near consensus among policy-makers has emerged, that the level of production in the 1990s has been inadequate. To that end, most provinces have dramatically increased their medical school enrolments^{1,2,3,4,5} by as much as 30%.

Impetus for Assessment

The impetus for this scrutiny can be largely attributed to intense pressure brought on by Canada's medical establishment,^{6,7,8,9,10} including medical associations, academics and family physician organizations. In 1999, physicians reported increasing dissatisfaction with rising workloads,^{9,11} waiting lists for specialist services¹³ and concern over an exodus of physicians to the United States¹². Physicians claimed that physician shortages was only going to get worse, given the aging population and the imminent retirement of 'baby-boomer' physicians.⁶ Discussions of a serious physician shortage dominated the 1999 Canadian Medical Association (CMA) annual general meeting.⁶ At this meeting, the CMA's council acknowledged an inadequate level of production of domestically trained physicians and voted to advocate an increase in medical school enrolments. To bolster their position, the CMA commissioned a survey of the public, which reported that 61% of Canadians felt that Canada did not have enough physicians.⁶

Process for Assessment

Different processes of reassessment have been employed in different settings and points in time. One model is the '*fact-finder*' approach. In Ontario, fact-finder Dr. Robert McKendry toured the province, interviewed physicians, administrators and policy-makers, and reviewed data on physician supply. McKendry¹³ concluded that Ontario indeed had a significant physician shortage, and identified six specialties in particularly short supply. The strength of this approach was the qualitative nature of the research and the broad sampling of rank and file practitioners. The report, however, did not present any quantitative model to identify the exact number of desired physicians, but did suggest a rough estimate of 1000 additional physicians (out of a base of 20,000) that would be needed.

Royal Commissions and other Commissions are common, especially at the federal level. Both Senator Michael Kirby and former Saskatchewan premier Roy Romanow led commissions examining the overall state of Canada's health care system. Both had sections focussing on health human resources. Like McKendry, both relied on a variety of previously published sources and data as well as public consultations, submissions and, in the case of Romanow, commissioned papers. Interestingly, Kirby's Commission highlighted major concerns about the adequacy of Canada's physician supply,¹⁴ while Romanow remained skeptical that a physician shortage existed, arguing that existing resources were not being deployed to their maximal efficiency.¹⁵ The fact that two individuals with similar mandates working with similar information could arrive at different conclusions raises questions about the reliability of such processes and the influence of the individual's backgrounds and underlying beliefs on their conclusions.

Another model is the '**Expert Panel**'. The McKendry report was followed by the Ontario Expert Panel on Health Professional Resources, initiated by the Minister of Health.¹⁶ This body consisted of 15 individuals from different regions of the province, and included physicians in different specialties; nurses; administrators; academics; and analysts. *However, the individuals sat on the panel as experts and not as representatives of a particular stakeholder group*, such as the provincial medical or hospital association. Ministry of Health staff also participated in discussions of the Expert Panel at all levels. The Panel made sweeping recommendations on expansion of medical school enrolment, decentralization of medical education and greater use of non-physician providers (described in detail below). One similar model might be PEI's Advisory Committee for its Human Resource Supply and Demand Analysis includes a variety of government Ministries, institutions and regional health planners but excludes physician organizations.¹⁷

Interestingly, the Expert Panel model was greeted with some hostility from the Ontario Medical Association, which was excluded from the Panel's deliberations. Although the Expert Panel's recommended medical school enrolment increases were among the largest in Canada and similar in magnitude to those discussed at the 1999 CMA annual meeting, the OMA criticized the methods and felt that the physician shortage was vastly underestimated.¹⁸ Thus, *the advantage of the Expert Panel is that its recommendations are based on knowledgeable and relatively unbiased opinion, but the disadvantage is that it is harder to get buy-in from key interest groups.*

Perhaps the most common approach to assessing future physician supply is to create **stakeholder committees** with political interests directly represented. For example, in Alberta, the Physician Resource Planning Committee¹⁹ is co-chaired by a government and medical association representative, and includes delegates from the licensing college, associations of residents and medical students, planning regions, the public at-large, and other interests. Examples of stakeholder committees at the national level are Task Force I and II on Physician Supply.²⁰ Task Force I was a creation of the Canadian Medical Forum, composed of senior executives of several national medical stakeholder groups. Task Force I's 1999 report asked government, health authorities and educators to work together on health human resource policies in a coordinated and regular fashion. Task Force II, which had the support and participation of two Ministries of the federal government (Health Canada and Human Resources Development Canada), has broader stakeholder representation than its predecessor.

Methodologies for forecasting future supply, demand and/or need

Types of Analyses

Analyses of the adequacy of physician supply may be classified as follows:

- supply vs demand / need analyses
- among supply analyses, we may examine:
 - head count of physicians
 - service output of individual physicians, which is a function of:
 - workload (hours worked)
 - productivity (services provided per unit of time)
- among demand analyses, we may consider:
 - utilization analysis vs need analysis
 - factors driving need
- more complex models examine the impact of different models of care on physician human resource requirements

Stock and flow analysis is the mainstay of modelling the future supply of physicians. In this analysis, information is gathered about the current number (stock) of physicians at different stages of their career and in different specialties. Stages may include postgraduate training and active practice at different age categories. Empirical data is gathered on the rate of flow in and out of each stock, or between stocks. Examples would be the retirement rate, rate of migration to the US, or the natural movement of a physician from one age group to the next. Future physician supply is estimated based on what would happen to those stocks if those flow patterns continued over time. Scenario analysis would examine the potential impact of changes in those flow rates in the future (e.g. the impact of an increased retirement rate in the future).

The CMA's Physician Resource Evaluation Template (PRET) model was created in the mid-1990s and has been widely used for physician supply projections.²¹ Alberta's Physician Resource Planning committee uses its own stock and flow model entitled the Alberta Physician Resource Projection model.¹⁹ Both are spreadsheet-based tools. In Ontario, the Institute for Clinical Evaluative Sciences is using the iTHINK stock-and-flow modelling graphical software to model more complex types of physician states and flows.

Physicians may vary in service output, with females and older physicians providing fewer services on average. Fee-for-service billing patterns are used to determine relative differences in service output among different physicians. A formula, developed by the Canadian Institute for Health Information, assigns physicians a full-time equivalent (FTE) weight based on their fee-for-service billings relative to the middle 40th to 60th percentile for their specialty.²² Total FTEs in the workforce is estimated by summing total physician head counts in each age-sex category and assigning an average FTE weight for each age-sex group (e.g. 0.8 for 35 year old females vs 1.1 for 45 year old males).

The Expert Panel explored other measures of service output.¹⁶ It identified 'sentinel services' which core services provided within a specialty. It then examined the

number of such services performed per physician per year. The Panel examined changes in workload, and observed a 2% increase in service output from 1995 to 1999. Given complaints from the profession about excessive workload, the Panel modelled the ideal scenario that service output would be brought back to its 1995 levels, except in selected areas where productivity improvements were anticipated.

Service output is a function of hours worked and productivity. This is a growing area of interest among planners, but work is in its infancy. Physician hours have been tracked over time through various physician surveys^{23 24} but this data has yet to be systematically incorporated into planning models. The Expert Panel did consider model future productivity improvements in selected surgical specialties where one might expect, as with other new services, that the time taken to perform a service might decrease with more experience.

On the demand side, modelling efforts often use utilization as a basis for comparison. Pure utilization models assume that the per capita current utilization rates will continue over time. Future utilization will increase as the population grows. Adjustments for changing demographics may also be performed by examining utilization rates in different patient age-sex categories and then modelling increases based on projected population growth in different these age-sex categories. Utilization measures, however, fail on two fronts. First, they capture inappropriate services, where there is no demonstration of need (i.e. no medical benefit). Second, they do not reflect instances where a service is needed but is not being provided, either due to barriers to access or insufficient resources. Until appropriateness data are systematically collected in Canada, true measures of need will not be available.

Various approaches have been taken to add more 'needs-based' thinking. Earlier approaches examined the relationship between utilization and risk factors for development of disease. These efforts, described in the Canadian literature as 'needs-based planning', are intended to allow planners to take into account the particular characteristics of a region in determining resources.^{25 26} However, they are ultimately utilization-based and still suffer from the limitations noted above. Furthermore, the specification of risk factors in these models has been crude (e.g. socioeconomic status or standardized mortality ratio for a particular region).

A somewhat different method is the Access Modelling approach used by the Ontario Expert Panel.¹⁶ This method takes into account current utilization levels, qualitative information about waiting time to see specialists or access services and other evidence about barriers to access or inappropriate care. It then challenges policy-makers to set target levels of utilization for different types of services. Such efforts are analogous to year-to-year moving sales targets for manufacturing companies who must plan their production schedules according to their best read of the marketplace.

More complex modelling efforts examine the impact of non-physician human resources. The Expert Panel¹⁶ examined evidence that suggested that a family physician working with a nurse practitioner could increase his patient load by 25 to 33%, and used these figures in various scenarios of increases in production of NPs. A similar analysis was conducted with midwives.

In response to the interest in modelling health human resources among policy-makers, the Canadian Health Services Research Foundation's 2002 and 2003 grant competitions included health human resource planning as one of its key themes.²⁷ The CHSRF has already funded a variety of projects which focus on demand and need based planning as well as models examining the impact of different models of care on HHR requirements. These grant competitions require the participation of policy-makers as partners in the project and also require matching funds from governments or other stakeholders.

Who conducted the assessments?

There are many different agents who conduct technical assessments of physician human resources:

a. independent, academic researchers. Many of these are affiliated with one of a number of health services research organizations in several provinces and the national level.* These organizations typically receive most of their funding from provincial governments, and have a mandate to produce independent, objective research on key health policy issues of relevance to stakeholders.

b. Stakeholder groups, such as physician organizations. Such groups may use the results of their analysis to lobby for more physicians or better working conditions.²⁸

c. In-house government researchers. One example at Health Canada (the federal health department) is its Applied Research and Analysis Directorate, which has recently developed its own stock-and-flow models for physician resources.²⁹

d. Management consultants. PEI, for example, has engaged private consultants to do the analysis for its HHR plan.¹⁷

In some cases, assessments were generated without any specific request from policy-makers for the analysis. The impetus for doing the assessment may be scientific curiosity on the part of the academic researchers or, as noted above, the desire of stakeholders to use the analysis to lobby for change. In other cases, reassessments of physician supply were requested and sponsored by government policy-making committees.

Interestingly, these committees requested analyses from all three types of analysts, including stakeholder groups who might be perceived as biased by government, and government staff who might be perceived as biased by stakeholders. The Expert Panel in Ontario¹⁶ relied primarily on an independent research group (the Institute for Clinical Evaluative Sciences) but also used the CMA's PRET model for predicting future physician stock. The difference, however, was that the assumptions used in the modelling were ultimately controlled by the Expert Panel. In doing so, the Expert Panel recognized the technical merit of the CMA's work while retaining control of the modelling process. Similarly in Alberta, the project team carrying out the analysis

* These include: the Institute for Clinical Evaluative Sciences; Groupe de Recherche Interdisciplinaire de Santé; Manitoba Centre for Health Policy; the former Saskatchewan Health Services Utilization and Research Council; and the British Columbia Centre for Health Services and Policy Research. At the national level is the Canadian Institute for Health Information.

was predominantly composed of government staff, but the Physician Resource Planning Committee was ultimately responsible for modelling assumptions.¹⁹

Was a process established to reassess the adequacy of the forecasts on a periodic basis? (Will there be an effort to systematically track supply and demand?)

Quebec has perhaps the best established process for periodic reassessment of physician supply. Its Table de Concertation Permanente Sur la Planification de l'Effectif Médical au Québec is composed of major stakeholders including government, medical associations, regulatory colleges, certification bodies, hospitals, students and residents. It provides recommendations on three year cycles pertaining to global physician resource planning and geographic distribution.³⁰

Elsewhere in Canada, there is interest but limited progress in establishing periodic reviews of the adequacy of physician supply. The Ontario Expert Panel recommended that there be a Health Human Resources Advisory Panel (HHRAP) which would have on-going responsibility for monitoring the physician workforce and make policy recommendations. This entity, however, has yet to be created. Alberta's Physician Resource Planning Committee has also suggested an annual review of physician planning models.¹⁹ Saskatchewan has recently created a Health Human Resources Council to address human resources issues in a coordinated fashion.³¹ At the national level, the Advisory Committee on Health Human Resources has the mandate to examine workforce issues periodically, but has not, to date, provided or sponsored comprehensive physician human resource planning models for use at the national level.

Findings of the Reassessment of the Physician Workforce

Key findings of the reassessment

Most formal reassessments recognize the need to increase physician supply, including the McKendry Report, the Expert Panel, Alberta's Physician Human Resource Plan and the Kirby Commission. Some provinces appear to have increased physician supply, even in the absence of published data from formal reassessments.

Some analysts believe that while the physician community have legitimate concerns about working conditions, the first answer lies in using existing human resources more efficiently, and increasing physician resources should undertaken afterwards.³² The Romanow Commission similarly refrained from endorsing a large scale increase in physician human resources, arguing instead for a better planning process, more team-based, interdisciplinary models of care and greater incentives to practice in underserved areas.¹⁵ The reluctance of these analysts to advocate for more physicians places them in the minority, given the now widespread policy direction to increase physician numbers rapidly.

Differences from Previous Assessments

The 1991 Barer-Stoddart report³³ asserted that the supply of physicians was growing more rapidly than growth of the population for over two decades without any justification. Stakeholder consultations (including many physician groups) suggested broad consensus of physician surplus. Barer-Stoddart proposed multiple solutions for addressing the physician surplus, including use of non-physician practitioners, primary care reform. However, only two recommendations accepted: a 10% cut in medical school enrolment and reductions in IMG intake. These findings contrast sharply with the current climate of substantial medical school enrolment increases. Many physicians now blame Barer and Stoddart for Canada's physician workforce problems.⁶

Reasons for Differences from Previous Assessments

Why did Canada move from perceived surplus to perceived shortage in just a few years? A number of factors intervened in the mid-1990s which resulted in a major decline in the net inflow of doctors into the practice pool. First, at the same time that medical school enrolments were cut, the length of postgraduate training increased. In 1993, the option to start practice after one year of postgraduate training was eliminated and primary care physicians had to do a minimum two year family medicine residency.³⁴ Secondly, the ratio of specialists to family physicians in entry-level postgraduate training positions rose from 50/50 to 60/40 in many provinces.³⁵ The rationale for this was that there was felt to be a temporary relative oversupply of family physicians. However, this policy continued without any review from the 1993 onwards. The net result of a sudden increase in training is that certain years pass where the input into the practice pool is diminished while doctors take extra training, yet the physician pool continues to be drained due to attrition. None of these policies was recommended specifically by Barer and Stoddart.

According to a CIHI analysis,³⁶ 5093 fewer physicians entered practice in Canada than what would have been expected if the inflow rate into the practice pool remained at its pre-1993 levels. 25% of this decline can be attributed to increased length of training; 22% to fewer foreign physicians entering the system; and 17% to increased retirements. The reason for increased retirements is not entirely clear. In some provinces, retirement packages may have encouraged physicians to leave. Such measures reflected the consensus at that time of a physician surplus, although the cumulative impact of all measures taken to reduce excess physician capacity was not assessed. Furthermore, one may speculate that the mid-1990s, deficit-cutting plans which led to billing caps and fee reductions for physicians may have encouraged many doctors to leave practice. During this same period, Canada experienced a surge in migration to the USA, although in the late 1990s, as these policies were repealed, net migration diminished.

Factors viewed having major potential impacts on future supply and demand and/or need

Aging of the population is very commonly cited as having a major impact on future needs, although some analysts question the significance of this factor.³⁷ Greater participation of women in the workforce, who tend to work fewer hours, is frequently cited as having an impact on future supply. Some believe that young physicians are unwilling to work the same hours as their counterparts in previous generations, although this has never been demonstrated empirically. Expansion of new technologies is also predicted to have a major impact, in selected instances, driving the need for more physicians.¹⁶ However, impacts can be in either direction. New services could increase demand, but new technologies could also improve efficiency and increase supply. Other issues cited include the increasing knowledgeability of the future elderly population who may have greater expectations and demands for health care.²⁸ Lastly, one possibility is that changes in disease and risk factor prevalence (e.g. rising prevalence of obesity and diabetes) will increase demand. However, it is not clear how improvements in population health in other areas (e.g. reduced smoking and overall improvements in cardiovascular mortality) may decrease demands elsewhere.

New Programs and Policies

As noted above, almost all provinces have announced increases in medical school enrolment. In Ontario, the planned increase was 30%. Two provinces, Ontario and BC, have established new northern medical schools with the aim of training physicians in rural and remote communities in addition to increasing overall physician supply.^{38 39}

Many provinces have also moved to increase the intake of international medical graduates. Some entry requirements have been eased in Saskatchewan⁴⁰ and for oncologists,⁴¹ although many physicians leaders disagree with this approach.⁴¹ In Ontario, there are several streams available.⁴² Physicians who arrange academic appointments with a university may enter directly into practice. Those with recent practice experience may participate in a number of programs where the physician will be evaluated over several months and either be deemed competent to practice or offered the opportunity of completing some additional years of postgraduate training to upgrade his/her skills. Alternatively, the Ontario IMG program provides opportunities for physicians to repeat their entire residency training. Nine months of pre-residency clinical training is also required. The fast-track programs are relatively new while the other initiatives represent major expansions of previous programs.

Ontario has also instituted a repatriation program for Canadians who have done a postgraduate training program in the United States which is shorter than its Canadian equivalent. This program allows them to take additional training in Canada if needed to meet certification requirements.

The Role of IMGs in Meeting Canada's Physician Workforce Needs

IMGs are a staple of the physician workforce in Canada, accounting for one-quarter of the workforce.⁴³ Yet, there is recognition that Canada should not rely excessively on IMGs to meet its needs. The 1999 CMA annual general meeting, the first preference to expanding physician supply was by increasing domestic production.⁶ The 1994 National Ad Hoc Working Group on Physician Resource Planning (NAWG) adopted the guiding principle that Canada should have 'self-sufficiency in the production of physicians to meet the medical needs of the population'.⁴⁴ The Ontario Expert Panel, Kirby Commission and many others have reiterated this statement as a guiding principles.

Despite these statement of principles, IMGs have helped fill certain niche shortages in the past. In the early 1990s, it was noted that IMGs occupied some postgraduate positions which were less attractive to Canadian trainees.⁴⁵ The plethora of expanded IMG programs as described above suggests that IMGs play an important role in short-term expansion of the physician workforce, given that medical school enrolments do not have an impact until several years later. A third role is in meeting the needs of underserved communities. IMGs willing to serve such communities are given preference in some of the Ontario programs noted above.⁴² South African family physicians are particularly prevalent in rural Saskatchewan. This raises the ethical issue of serving Canada's needs at the expense of developing nations. The high commissioner of South Africa has issued an appeal in the Canadian Medical Association Journal to stop the poaching of its best talent.⁴⁶

The current role of IMGs may be considered similar to the role occupied in pre-1990 era. The 1991 Barer-Stoddart report, however, recommended major reductions in IMGs in order to address the perceived surplus of that era. Subsequently, a number of measures were introduced.⁴⁵ In particular, visa trainees were IMGs sponsored by their home governments who did Canadian postgraduate training. Although they were supposed to return home, many stayed in Canada instead. In the mid-1990s, repatriation agreements were more strictly enforced. Other measures included requiring immigrants to sign a stronger declaration agreeing that there is no guarantee of medical practice in Canada, and closure of the Medical Council of Canada's overseas testing facilities.

Costs of increasing medical school capacity vs increasing the inflow of IMGs

Direct comparisons of the cost of increasing medical school capacity vs IMGs were not performed in the documents reviewed in this paper. Nonetheless, it is obvious that Canadian taxpayers do not need to subsidize the cost of undergraduate medical education, in the case of IMGs. Medical school tuition was approximately \$10,000 in Ontario in 1999, which represents only one-third of total costs.⁴⁷ Hence, governments may save up to \$80,000 over the course of a four-year program per student by bringing in an IMG, even if that individual needs to repeat all of his or her postgraduate training. These savings to governments may diminish, however, as tuitions continue to rise and the proportion of medical education paid by government continues to decline.

The Ontario Expert Panel¹⁶ did produce detailed cost estimates over a 14-year span for additional medical school positions and increased IMG intake. However, the relative mix of these two policy levers was determined on the basis of guiding principles and existing constraints in medical school training capacity rather than the relative costs of the two options.

Physician Productivity

Reduction in demand was mentioned as a policy goal in the Ontario Expert Panel's report¹⁶ but specific recommendations were left for future deliberations.

New Brunswick and Ontario have instituted a teletriage program whereby patients with a symptom or medical problem can call a toll-free number to obtain advice on whether to go to the emergency department, wait to see a family doctor or self-treat. It is not yet clear whether or not this program has increased or decreased utilization of physician services. The program was not specifically promoted as a potential solution to problems with access to physician services but as part of an overall strategy to better allocate resources in the system. Ontario introduced a universal influenza vaccination program in 2001⁴⁸. One of the implicit goals of this program was to reduce the pressure on emergency departments in the busy winter season.

'Primary care reform' describes a variety of efforts to change the way family doctors practice, to improve the efficiency of their use and provide better service to patients. Different reform packages may have any combination of the following components: a shift away from pure fee-for-service reimbursement; group practice; bonuses for providing comprehensive care outside the office and after-hours call coverage; information technology to support working in a group; and use of non-physician providers such as nurse practitioners. Progress on primary care reform has been slow.⁴⁹

Most provinces now have nurse practitioner training programs.⁵⁰ There is still considerable reluctance to embrace NPs among fee-for-service physicians, given the fear that a salaried NP will look after lower acuity conditions, leaving the physician to bill fee-for-service for complex cases which are relatively underpaid. A recent Ontario study found that even in primary care settings where NPs are established, their skills to be underutilized.⁵¹ Explanations for the findings include medico-legal issues related to shared responsibility, lack of interdisciplinary education and lack of familiarity among physicians with the scope of NP practice.

Since the 1990s, legalized midwifery programs have been established in several major provinces in Canada^{52 53 54 55}. Initial reaction from the physician establishment has been mixed,⁵⁶ but at present they have gained official recognition from groups as an important health care partner by the Society of Obstetricians and Gynecologists of Canada.⁵⁷ Administrative barriers, such as hospital policies which limit their scope of practice, still exist which need to be addressed.⁵⁸

Conclusion

The consensus on the state of the Canadian physician workforce has lunged back and forth from perceived surplus to perceived shortage. Planning cycles have tended to be infrequent and ad hoc. Policy-makers are beginning to learn from these mistakes and are making some progress in developing planning structures to monitor the workforce more frequently and make micro-adjustments to supply to respond to the ever-changing practice environment. Information on the demand side of physician human resource modelling has also improved, and non-physician providers are gradually making their way into the system. Progress on all these fronts, however, remains slow and there is the danger that if health human resource issues get displaced from the policy agenda by other health care issues, then the recent momentum gained will be lost.

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