

Doctors Today and Tomorrow

Planning British Columbia's Physician Workforce



A Policy Paper by BC's Physicians | July 2011



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The BCMA Council on Health Economics and Policy (CHEP) reviews and formulates policy through the use of project-oriented groups of practising physicians and professional staff.

Physician Workforce Project Group

Dr. Shelley Ross, Chair – General Practice, Burnaby
Dr. Menuccia Gagliardi – General Practice, Victoria
Dr. Gordon Hoag – Pathology, Victoria
Dr. Trina Larsen Soles – General Practice, Golden
Dr. Kevin McLeod – Internal Medicine, Vancouver
Dr. Conrad Rusnak – General Surgery, Victoria

BCMA Council on Health Economics and Policy (CHEP) Membership 2010–2011

Dr. Trina Larsen-Soles, Chair – General Practice, Golden
Dr. Andrew Attwell – Medical Oncology, Victoria
Dr. David Attwell – General Practice, Victoria
Dr. Sam Bugis – General Surgery, Vancouver
Dr. Brian Gregory – Dermatology, Vancouver
Dr. Jeff Harries – General Practice, Penticton
Dr. Alexander (Don) Milliken – Psychiatry, Victoria
Dr. Lloyd Opper – General Practice, Vancouver
Dr. Shelley Ross – General Practice, Burnaby
Dr. Alan Ruddiman – General Practice, Oliver
Dr. David F. Smith – Paediatrics, Vancouver
Dr. Joanne Young – General Practice, Vancouver

BCMA Staff Support

Jim Aikman, Director of Economics and Policy Analysis
Dr. Jonathan Agnew, Assistant Director of Policy
Cindy Myles, Policy Analyst
Karyn Fritz, Policy Researcher
Linda Grime, Administrative Assistant

The BCMA gratefully acknowledges the contribution of BCMA intern
Clark Funnell, UBC medical student 2013

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Executive Summary

Yogi Berra said it best: “It’s tough to make predictions, especially about the future.” In the realm of physician workforce planning, the proof of his statement lies in the cycles of shortages and surpluses of physicians in British Columbia over the years. No one seems able to get the right number, and perhaps—absent a crystal ball—no one ever will. It may be that the challenge of forecasting physician supply—an endeavor that requires consideration of multiple and difficult-to-measure variables—just does not lend itself to easy prediction.

However, good policymakers never let perfection be the enemy of the good. And if cycles of surpluses and shortages are an inevitable part of physician workforce planning, our goal should not be a futile effort to eliminate them, but rather to minimize them as much as possible. The central message of this paper is that the physician workforce planning process in British Columbia is too fragmented and too short-term in its focus to do so.

The nature of this flawed process is obvious to the multiple stakeholders influencing physician workforce planning, including the provincial government, health authorities, BCMA, universities, regulatory bodies, and medical community. Too often, each develops and implements their policies in isolation. The result compromises British Columbians’ access to timely, high-quality, and effective physician services. Moreover, the health care system continues to face growing pressures from the increasing complexity of patient case-mix, the resulting demand for more physician time and services, the ongoing evolution of the practice of medicine, and the changing demographics of the physician population. Fully 42% of BC’s physicians, for example, are 55 years old or older.

In this paper, the BCMA examines the challenges of physician workforce planning through the lens of the medical career lifecycle. Each stage—medical student, resident, practicing physician, and near-retirement—offers opportunities for stakeholders to improve current policy and understanding on the individual choices that physicians make about what, how, and where they practice. Doing so will align physician resource planning more closely with the population’s need for health care services. Some of these can be implemented immediately by the government. For example, an increase in the number of government-funded residency positions would add greater flexibility in the postgraduate training system and allow opportunities for re-entry and enhanced skills training for practicing physicians. Others will take longer. Among the most significant recommendations of the paper are:

- Establishing a multi-stakeholder provincial committee led by the BCMA, Ministry of Health, and the health authorities to direct and coordinate the development of physician resource plans and to identify short- and long-term physician resource priorities.
- Developing a provincial analytical framework for needs-based physician resource planning.
- Creating a provincial physician workforce database to form the basis of physician resource planning.

Physician workforce planning is not solely a technical exercise; it is also a value-driven one. The future need of physicians is influenced by the political and social choices that underlie the health care system, and how the future role of the physician is defined. There is no one ideal physician-to-population ratio or optimum number of physicians – other than the one that fully-informed British Columbians support. By adopting a more collaborative and comprehensive planning approach, both provincially and nationally, stakeholders can minimize unintended policy impacts, the mismatch between supply and needs, and costly duplication. This common goal should propel all stakeholders to work together thoughtfully and collaboratively to improve physician workforce planning, because what we prepare for now will be what we get later.

Recommendations

Recommendation 1

The BCMA, Ministry of Health, and health authorities should jointly establish a permanent provincial Physician Workforce Planning Committee to direct and coordinate the development of physician resource plans, and to provide advice about strategies and mechanisms to meet the requirements of the plans. Additional members should include representatives from appropriate stakeholder organizations including, but not necessarily limited to, the Faculty of Medicine, the College of Physicians and Surgeons of BC, and the Medical Services Commission.

Recommendation 2

The Physician Workforce Planning Committee should develop a provincial analytical framework for needs-based physician resource planning.

Recommendation 3

The Physician Workforce Planning Committee should coordinate the development of a comprehensive provincial physician workforce database to form the basis of physician workforce planning and the development of full-time equivalent methodologies.

Recommendation 4

The Faculty of Medicine, in consultation with the Physician Workforce Planning Committee, should determine undergraduate medical school enrolment, and enrolment should be informed by long-term physician resource plans.

Recommendation 5

The Medical Human Resources Planning Task Force, in consultation with the Physician Workforce Planning Committee, should ensure that postgraduate training positions be allocated among the specialties in relation to physician resource requirements, as reflected in long-term physician resource plans.

There should be adequate government-funded postgraduate training positions available to accommodate the following:

- Each year's graduating class through to certification and licensure.
- Specified numbers of licensed physicians currently practising in British Columbia who are qualified for re-entry or enhanced skills training.
- Specified numbers of International Medical Graduates who are Canadian citizens or permanent residents, and who are not currently fully licensed to practise medicine in British Columbia.

Recommendation 6

The Faculty of Medicine should consider strategies that support broad-based medical education and the provision of objective career information for medical students and residents.

Recommendation 7

Recruitment and retention programs should develop comprehensive and flexible incentives that address the professional and personal needs of physicians.

Recommendation 8

The Ministry of Health and the health authorities should ensure adequate resources and coordination for the development, implementation, and ongoing evaluation of physician recruitment and retention programs

Recommendation 9

The Ministry of Health and the BCMA, in conjunction with the health authorities, should develop strategies to support the retention of physicians who are nearing retirement.

Introduction

Better physician workforce planning is needed to ensure patients have timely and appropriate access to medical services in the future.

The issues of physician supply, mix, and distribution have permeated discussions of Canadian health care policy for decades. Stabilizing physician supply is not easy, and despite advice from many national and provincial task forces, the health care system continues to face cycles of physician shortages and surpluses.

Today in BC, timely access to physician services remains a challenge. Patients are waiting longer between GP referrals and appointments with specialists, and many are having difficulty finding a GP or accessing physician services in a timely manner. As well, practising physicians face increasing demands on their time because of the growing complexity of their patient caseload and escalating patient expectations. It is paramount that physician workforce planning be responsive to the changing health needs of the population.

Currently, physician resource planning is fragmented – in part because several different parties are involved in controlling and influencing policy. In an effort to illustrate that the relevant policies are, in fact, interdependent, this paper examines current supply and demand trends, workforce management policies, and avenues for promoting change throughout the medical career life cycle, from entry into medical school until retirement from practice. These topics are organized under the following sections:

1. **The Physician Workforce: Planning for the future** – Reviews the main approaches to measuring and forecasting physician supply and considers how to strengthen current methodologies.
2. **Educating Physicians: Training today for tomorrow's needs** – Describes the recent trends of medical undergraduate and postgraduate training programs and provides insight on how to improve physician resource policy in this area.
3. **The Current Workforce: Measuring supply and demand** – Profiles the current physician workforce and highlights issues related to supply and demand analyses, recruitment, and retention.
4. **Retiring Physicians: Responding to an aging physician population** – Describes physician retirement patterns and considers ways to support and retain physicians nearing retirement.
5. **Recommendations** – Offers suggestions for improving the management of the physician workforce.

I. The Physician Workforce: Planning for the future

Planning for the future supply, mix, and distribution of the physician workforce is an important component of designing the overall health care delivery system. Planning begins by counting physicians and forecasting future requirements – which is not an easy exercise. To project how many physicians will be needed, a provincial planning framework is required. Also needed are valid measurement tools and accessible, accurate, and reliable data on which to build effective policy.

Counting Physicians

At the most basic level, physician workforce planning requires an accurate count of physicians. The most widely-used method of measuring physician supply in BC is simple head counts. The College of Physicians and Surgeons of BC, the Medical Services Plan, the BCMA, and individual health authorities and hospitals all have rosters and databases of physicians, making it easy for analysts to generate lists of head counts.

However, such ease comes at a price. The assumption on which head counts are based – that one physician is equal to any other physician, at least for the purpose of physician resource planning – is flawed. Practice patterns, level of practice intensity, and even hours worked can vary enormously among physicians. When these variations are ignored, head counts are poor estimates of the “real” number of physicians.

Some of the shortcomings of using simple head counts can be addressed by calculating “full-time equivalents” (FTEs). The FTE method assigns a single value to each physician, which quantifies a physician’s practice relative to what is considered a full-time load. There are three approaches used in Canada for calculating physician FTEs (Task Force Two, 2005):

- The fee-for-service FTE model used by the Canadian Institute for Health Information applies a set of national specialty specific benchmarks that are based solely on fee-for-service clinical billings.
- Alternative payment plan FTE models use a variety of methodologies to measure the proportion of physician payments that are not reimbursed on a fee-for-service basis (e.g., salary, sessional, population-based funding, blended).
- The hours worked per week FTE model weighs physician counts in relation to hours worked per week as reported on physician surveys.

The fee-for-service FTE model is the most commonly used approach of these three because billing data are readily available and regularly updated. However, this model underestimates physician supply because it does not capture recent changes in practice patterns such as the growing movement toward non-fee-for-service physician payments. Alternative payment plan FTE models can help capture the diversity of physician practice, but a major limitation to them is the lack of a standardized methodology in Canada.

The hours worked per week FTE model has the potential to capture, in a standardized manner, the workload of physicians under all types of payment arrangements and could facilitate comparisons with other health care providers. However, this model has limited ability to verify the accuracy and consistency of self-reported data on working hours. As well, productivity is not taken into account.

None of the three approaches measures an outcome-based practice approach, quality, effectiveness, or efficiency.

Another consideration when trying to accurately count physicians is the need to identify “functional specialties.” Functional specialty refers to the clinical services and other professional activities actually performed by an individual physician, as opposed to his or her certified specialty (i.e., College of Family Physicians of Canada and Royal College of Physicians and Surgeons of Canada certification held by the physician) (Task Force Two, 2005). For example, a certified internist may actually, in fact, provide mostly cardiology services.

Functional specialties can be influenced by wider health care trends such as the growing and evolving body of clinical knowledge, emerging specialties or subspecialties, new technologies, population demographic trends, and changes in population health needs. Calculating functional specialties is important because the information captured can be used to eliminate the problem of overestimating services available, which happens when it is assumed that physicians are providing a comprehensive range of services in their certified specialty. For example, functional specialty analyses would capture the information on certified GPs who work mainly in hospital emergency rooms, or certified physicians who spend a significant amount of time in clinical teaching and research.

Functional specialty analyses quantify how much of physicians’ work time is devoted to direct patient care and, within that time, what types of direct patient care they are providing. Functional specialty can be quantified using two main sources of information: administrative data on health care provision (e.g., peer review of clinical activity, billing data, diagnostic codes) and survey data (e.g., from the National Physician Survey). Calculating functional specialties accurately depends on several factors, including the availability of funding, consistent data, and objective classification schemes.

Figure 1 summarizes the advantages and disadvantages of the different approaches to counting physicians.

Figure 1: Methodologies for Measuring Physician Supply – Advantages and Disadvantages

Methodology	Advantages	Disadvantages
Head counts	<ul style="list-style-type: none"> • Easy to construct and analyze 	<ul style="list-style-type: none"> • Does not account for workload differences among physicians • Does not measure outcomes, effectiveness, or efficiency
Fee-for-service FTEs	<ul style="list-style-type: none"> • Billing data are readily available and updated 	<ul style="list-style-type: none"> • Does not capture non-fee-for-service physician payments • Does not measure outcomes, effectiveness, or efficiency
Alternative payment plan FTEs	<ul style="list-style-type: none"> • Helps capture the diversity of physicians’ practices 	<ul style="list-style-type: none"> • No standardized national methodology • Does not measure outcomes, effectiveness, or efficiency
Hours worked per week FTEs	<ul style="list-style-type: none"> • Captures workload under all payment types 	<ul style="list-style-type: none"> • Tends to rely on self-reported data • Does not measure outcomes, effectiveness, or efficiency
Functional specialty analyses	<ul style="list-style-type: none"> • Helps prevent overestimating available physician services 	<ul style="list-style-type: none"> • May have issues related to cost, data availability, data consistency, and classification schemes

Forecasting Physician Supply

Forecasting how many physicians will be required in the future is fundamental to overall workforce planning. Three different approaches have been used in Canada to model physician supply and demand: supply forecasting, utilization forecasting, and needs-based planning. Each approach has advantages and disadvantages, which are considered below and summarized in Figure 2.

Supply forecasting, or stock and flow analysis, is the most common approach for forecasting physician supply (Chan, 2003). In this method, data on the current number (i.e., stock) of physicians are collected. Based on this initial starting point, numbers of additional personnel are generated, taking into account physician increases (i.e., new medical graduates and residents, immigration), decreases (i.e., deaths, retirements, emigration), and projected population growth. Using the physician-to-population ratio as the planning tool, scenario analyses can then be performed to examine the potential impact of changes in certain variables (e.g., what happens if the rate of retirement increases).

Note, however, that the usefulness of supply forecasting is limited because the projections are based on the assumption that the physician-to-population ratio must either stay the same or be higher in the future to meet population health care needs. As well, the projections do not account for external factors that can affect the demand for physician services such as population demographics or disease prevalence. One widely-used supply forecasting model is the Canadian Medical Association's Physician Resource Evaluation Template model (Buske, 2010d).

Utilization forecasting is similar to supply forecasting, but it also takes into account the patterns of service delivery and utilization of health services (Task Force Two, 2005). In this analysis, current physician supply is estimated using per capita ratios in head counts or FTEs. These ratios are projected into the future, based on changes of physician flow rates and population growth. Adjustments for changing demographics may be performed by examining utilization rates in different patient age-sex categories and then modeling increases based on projected population growth in these categories.

However, utilization measures are limited because they do not indicate whether physician supply is appropriate relative to the needs of the population, and they assume the level, mix and distribution of physicians remains constant over time.

Needs-based planning estimates the health needs in the population by using disease prevalence or other health-related indicators (Task Force Two, 2005). This approach begins with the premise that the current distribution of physicians may not necessarily reflect the distribution of health care needs in the population. Although there is a growing consensus among decision-makers that planning for physician resources should be based on the population's health care needs, few attempts have been made to translate these needs into physician resource requirements because of a limited knowledge base and methodological challenges (Canadian Nurses Association & Canadian Medical Association, 2007). One recent example is the development of a population needs-based physician simulation model in Ontario, which compares needs to the supply of physician services by using number of hours of care needed and provided, quantifying the variance, and converting the variance into a head count by applying the average number of hours worked per year (Ontario Ministry of Health and Long-Term Care and Ontario Medical Association, 2010).

Some drawbacks of needs-based planning are the limited available data, lack of a "gold standard" method for translating need into physician requirements, and difficulty of prioritizing the population's health needs, which can be an intricate and value-driven exercise.

Figure 2: Forecasting Methodologies – Advantages and Disadvantages

Methodology	Advantages	Disadvantages
Supply forecasting	<ul style="list-style-type: none"> • Easy to understand and construct 	<ul style="list-style-type: none"> • Supply projections assume that the physician-to-population ratio must stay the same or increase in the future • External environment is not considered
Utilization forecasting	<ul style="list-style-type: none"> • Takes into account some measure of actual service delivery beyond head counts 	<ul style="list-style-type: none"> • Does not indicate whether physician supply is appropriate relative to population health needs • Assumes level, mix, and distribution of physicians remains constant
Needs-based planning	<ul style="list-style-type: none"> • Level and distribution of needs in the population used explicitly as a determinant of physician requirements 	<ul style="list-style-type: none"> • No “gold standard” method for translating need into physician requirements • Difficult to prioritize population’s health needs

In BC, physician resource planning occurs at the regional level. Region-wide physician human resource plans are developed by the various health authorities to assist with their recruitment efforts, as required under the Health Authorities Act (K. Phipps, personal communication, November 22, 2010; J. Prince, personal communication, October 21, 2010; T. Ward, personal communication, November 2, 2010; B. Warren, personal communication, October 21, 2010). However, these plans have several shortcomings. First, the comprehensiveness, methodologies, and level of implementation of these plans vary by health authority. Second, there is limited or no planning for GP resource requirements. (The Northern Health Authority is addressing this latter issue by developing a planning model for community-based care in conjunction with clinical department service delivery plans.) Finally, the Ministry of Health does not currently forecast provincial physician resource needs or coordinate regional physician resource planning efforts; however, it is currently engaged with health authorities in planning for future population needs in condition/disease groups (e.g., chronic diseases) and assessing its impact on future service delivery and health human resource requirements including physicians (J. Higgs, personal communication, January 26, 2011).

Availability of Physician Workforce Data

When developing their physician resource plans, health authorities are challenged by the lack of high-quality data and by having no provincial planning framework to guide regional efforts. In fact, physician workforce planning, in general, is hampered by incomplete data, methodological challenges, and inadequately developed conceptual frameworks (Ontario Medical Association Human Resources Committee, 2007). Currently, health authorities maintain their physician resource plans largely by using hospital physician databases, supply and demand data, and input from the clinical departments, medical directors, and medical advisory committees. Provincial, regional, and national databases report different numbers of physicians, and none has been able to provide comprehensive, consistent information on the services physicians provide or on their workload.

Key Considerations

No perfect methodology exists for forecasting physician supply. Simulating future physician resources is not an exact science and the results will never be completely accurate. Nevertheless, the value of physician resource projections is to identify the current and emerging trends to which policymakers need to respond. In BC, the methodologies of using simple head counts and utilization forecasting can be strengthened by considering the following:

1. *As a complement to simple head counts, using robust FTE methodologies and functional specialty analyses would provide a more accurate depiction of physician supply.*

The use of simple head counts for analysis and planning, as already stated, implies that all physicians are equal in terms of their capacity to provide services. However, the “service output” varies among physicians because of different workloads and practice activities. Physicians may be semi-retired, working part-time, or participating in a mix of clinical, teaching, administrative, and research activities within their practice. The conventional approach to measuring service output (e.g., clinical billings) may not be comprehensive enough in light of the growing shift toward alternative delivery models, alternative payment mechanisms, and outcomes-based practice. In the future, FTE measurements should use flexible data collection methodologies to obtain information on a variety of activities, regardless of mode of payment, and new service output measures that relate to quality and outcomes.

As well, if effective workforce planning is to occur, then the services that physicians actually provide must be identified. Reports show that there are significant variations in scope of practice among GPs and specialists; fewer GPs are providing obstetrics, anesthesia, advanced procedural skills services, and hospital inpatient care, and some physicians are providing services in a subspecialty within their certified specialty. To determine how much of physicians’ work time is devoted to direct patient care and the types of care they are providing, functional specialty analyses must be carried out.

2. *A provincial analytical framework is needed to ensure that forecasting methods incorporate needs-based planning.*

Current physician workforce planning is largely based on utilization patterns, the supply of physicians, and budgetary capacity rather than on population health needs. The recurrent cycles of over- and undersupply of physician resources can be traced, in part, to the shortcomings of utilization-based planning. Developing the capacity for needs-based planning requires a provincial analytical framework to direct and organize decision making, and more comprehensive and standardized data (see below).

3. *Effective physician workforce planning requires accurate, accessible, and standardized data.*

Currently, efforts to reconcile physician databases across the province are limited. As a result, it may be difficult to obtain an accurate number of practising physicians, which in turn leads to inaccurate supply projections. Regardless of the forecasting methodology implemented, measurement tools must be able to consistently quantify the supply of physicians, and consistently evaluate historical, current, and future supply projections in the province. Further developments in forecasting methodologies will also benefit from more comprehensive data on factors and variables, such as demographics and disease prevalence; valid physician workforce indicators, such as FTEs and functional specialties; and the identification of appropriate evaluation outcomes of forecasting methodologies used.

II. Educating Physicians: Training today for tomorrow's needs

The medical education and training system, both undergraduate and postgraduate, has a direct impact on the future supply, mix, and distribution of physicians. Over the past decade, the undergraduate enrolment size and residency program have more than doubled. This trend is welcomed, but more opportunities for practicing physicians to retrain and enhance their skills are needed. Furthermore, the allocation of residency training positions requires closer examination to ensure that the future mix of physicians will meet the health needs of the population.

Undergraduate Medical Education

The undergraduate enrolment size for medical school is determined by the provincial government. In 1992, the provincial governments collectively decided to reduce undergraduate enrolment by 10% (Barer & Stoddart, 1992). That decision was reversed in the late 1990s, and since then the number of undergraduate first-year spaces at Canadian medical schools has increased steadily. Between the 2000/01 and 2009/10 academic years, first-year enrolment at the University of British Columbia (UBC) increased from 120 to 256 students (Bates, 2008). This increase coincided with the introduction of a distributed learning model, which expanded pre-clerkship education to the University of Victoria and the University of Northern British Columbia. The opening of another regional campus in Kelowna is planned for the fall of 2011, which will increase total first-year enrolment in BC further to 288 students.

Postgraduate Clinical Training

The increase in BC's postgraduate training capacity has focused on matching the size of the graduating medical class and ensuring an adequate number of residents in major specialty programs at the distributed sites to support clerkship education of third- and fourth-year students in the undergraduate program (Webber, Rungta, & Sivertz, 2008). Since 2004, two general principles were used to guide the allocation of new residency positions: first, the positions were split between family practice and the Royal College specialties at a ratio of 40% to 60% (as agreed to nationally by all the Canadian medical schools), and second, the initial increases would go to major specialty programs (see Figure 3).

Figure 3: Quota Overview – University of British Columbia in First Iteration R-1 Match, 2011

	Quota	International Medical Graduates Quota
Anatomical Pathology & General Pathology	4	
Anesthesiology	10	1
Cardiac Surgery	1	
Community Medicine	2	
Dermatology	3	
Diagnostic Radiology	7	
Emergency Medicine	5	
Family Medicine	103	13
General Surgery	8	
Hematological Pathology	1	
Internal Medicine	40	2
Medical Genetics	1	
Medical Microbiology	1	
Neurology	5	
Neurology – Pediatric	2	
Neuropathology	1	
Neurosurgery	2	
Obstetrics & Gynecology	8	
Ophthalmology	3	
Orthopedic Surgery	5	
Otolaryngology	2	
Pediatrics	13	1
Physical Med & Rehab	2	
Plastic Surgery	2	
Psychiatry	20	2
Radiation Oncology	2	
Urology	3	
Total	256	19

Source: Canadian Resident Matching Service, 2011

The planning of BC's residency training programs is determined by the Medical Human Resources Planning Task Force, which is co-chaired by the Dean of Medicine and the Assistant Deputy Minister of Health, and includes representation from all the health authorities and the Faculty of Medicine. Recommendations are made to this committee by an internal Resident Allocation Committee consisting of department heads and the Associate Dean for Postgraduate Medical Education (E. Webber, personal communication, January 28, 2011).

The percentage of Canadian medical school graduates choosing family medicine as their first choice decreased from around 40% in the early 1990s to 26% in 2004, but it has recently increased to 33% in 2010 (Canadian Resident Matching Service, 2010a; Task Force Two, 2005). The percentage of UBC graduates who chose family medicine as their first choice of residency in 2010 was 30% (Canadian Resident Matching Service, 2010b), and the percentage of family medicine R1 positions filled at UBC in 2010 was 95.9%, which is higher than the Canadian average of 84.5% (Canadian Resident Matching Service, 2010a). Other specialist vacancies after the first iteration R1 match at UBC in 2010 include pediatric neurology, neuropathology, cardiac surgery, hematological pathology, medical biochemistry, medical genetics, neurosurgery, and psychiatry (Canadian Resident Matching Service, 2010d).

International Medical Graduates

International Medical Graduates (IMGs) who wish to practise in BC must have certification either from the College of Family Physician of Canada or the Royal College of Physicians and Surgeons (RCPSC) of Canada, which in most cases requires completion of an approved residency training program within Canada. IMGs in BC may apply for residencies:

- In the first iteration of the Canadian Resident Matching Services (CaRMs) through the BC-IMG program; or,
- In the second iteration of CaRMS on their own.

It is difficult for IMGs to gain access to residency training. In 2010, across Canada 18% of IMG applicants^a were matched in the first iteration compared to 96.3% of Canadian medical graduates (Canadian Resident Matching Service, 2010c). Currently, 19 residency positions are available in the BC-IMG program, with 13 in family medicine and 6 in RCPSC specialties. The size of the IMG residency program is planned to increase by 8 positions per year beginning in 2012, until it reaches 58 positions in 2016 (S. Anderson, personal communication, June 1, 2011).

In addition, for more than 25 years UBC has provided residency education to foreign-sponsored residents who return to their countries of origin on completion of their medical training. The program directors and faculty members in each specialty or sub-specialty residency program decide if they have the resources and capacity to train these residents in addition to their cohort of Canadian medical graduates and IMGs. With greater priority being placed on training Canadian medical graduates and IMGs as residency programs expand, the number of foreign-sponsored residents has declined over the past five years (Jamieson, Webber, & Sivertz, 2010).

Re-entrants

Re-entry trainees are doctors who are qualified as GPs and who are undertaking specialization training after a period of time in general practice. The percentage of re-entry trainees in the total Canadian exit cohort from RCPSC specialty programs decreased from 25% in 1992/1993 to 6% in 2008/09 (Canadian Post-M.D. Education Registry, 2009-2010a; Jamieson, et al., 2010).

The routine path of re-entry to training programs ended when the one-year rotating internship was eliminated in 1994. As a result of that change, all the postgraduate positions were filled by graduating medical students, who now must complete a minimum of two years of training. To increase flexibility for re-entry training, UBC created a re-entry residency program in 2001, but this program was not widely known by practising physicians, and applications and admissions to the program were limited (Jamieson, et al., 2010). Consequently, between 2001 and 2009, the total

^aIMGs from Alberta and Manitoba are not included or identified by CaRMs. Alberta uses its own internal process to match IMGs to residency positions in Alberta. Manitoba makes no distinction between IMGs and Canadian medical graduates applying to CaRMS thus they are treated as one combined pool of residents in CaRMS.

number of re entrants exiting BC postgraduate training programs (i.e., family medicine and specialty) changed little, from 18 to 21 (Canadian Post-M.D. Education Registry, 2002, 2009-2010b).

Physicians who were potential candidates for UBC's re-entry program voiced concerns about the availability of part-time training, a return-of-service financial package, and the ability to train in regional centres (Jamieson, et al., 2010). Due to the significant expansion of the residency program and the need to match the number of R1 positions with graduating medical students, there are currently almost no re-entry positions (E. Webber, personal communication, January 28, 2011).

R3 Enhanced Skills Program

Since 1995, the Department of Family Practice at UBC has made available a number of government-funded residency positions for practising general practitioners and specialists for the purpose of developing specific advanced skills to meet an identified community need. Generally, a flexible program is offered to accommodate the goals and objectives of the physician. Typically no certification will follow the completion of the Enhanced Skills Program, and training can range from 2 to 12 months. Over the past 15 years, the program has expanded from 4 to 35 residents training within an academic year (P. Newbery, personal communication, February 22, 2011). Demand for the program continues to grow: applicants were turned down for the first time for the upcoming 2011/2012 training period.

Key Considerations

Although significant strides have been made to increase the number of medical graduates, more work is needed to meet future needs. The following points should be considered:

- 1. The population's future need for physician services should be explicitly incorporated into the decision to allocate postgraduate training positions.***

Faculty leadership is very focused on the challenges of increasing enrolment while maintaining high-quality education, which may, at times, come at the cost of ensuring that the mix of physicians continue to meet the population's health care needs. The creation of the Medical Human Resources Planning Task Force was an attempt to bridge decision making between the health authorities, who are responsible for physician workforce planning; the Ministry of Health, who provides postgraduate funding; and the Faculty of Medicine. However, the allocation of postgraduate training positions across the spectrum of health care disciplines remains a subjective process driven by self-reported data on need (i.e., appraisals of clinical training capacity and employment opportunities by members of the Resident Allocation Committee). As a result, the allocation of postgraduate training positions may be too heavily influenced by academic priorities (i.e., number of residents required to maintain budgets, training programs and support research), lobbying from larger clinical programs, and a reliance on residents to cover hospital on-call. Greater coordination between physician resource planning and the medical education system is needed so that the population's health care requirements and available job opportunities are better matched to the residency positions offered.

2. *Strategies are needed to increase the supply of generalist physicians.*

The trend toward specialization and sub-specialization, resulting from an explosive growth of scientific knowledge and technologies, has come at the expense of a more holistic perspective and appreciation of the role of generalism. Generalist physicians are vitally important to an effectively functioning health care system, but they are lacking in numbers in BC, with critical shortages in generalist internal medicine and general surgery for example (J. Prince, personal communication, October 21, 2010; T. Ward, personal communication, November 2, 2010; B. Warren, personal communication, October 21, 2010).

Many reasons have been suggested for the declining interest in generalism including a reduced role and stature of generalists within the health care system, particularly in major urban centres, the lack of generalist physicians as faculty in tertiary-care teaching settings, the inadequate reward and recognition for general expertise, and an early and inflexible career decision-making process that favours sub-specialties as a career choice (Task Force Two, 2005). (The last is attributed to the abolishment of the rotating internship that permitted residency selection at a later stage in medical training, as well as reduced opportunities for re-entry and program switching).

3. *How and why medical students and residents choose specialties needs to be better understood.*

There is considerable debate over what factors influence the professional choices of medical trainees because the career preference of Canadian medical graduates has an important impact on the mix of practising physicians. Recent survey data showed a mismatch between student career choice at medical school entry and the current specialty mix of physicians in Canada, particularly in urban family medicine and psychiatry (Scott, Wright, Brenneis, & Gowans, 2009).

The cost of tuition, debt loads, perceived lifestyle, and concerns about burnout and stress are some of the more common issues raised as key influences. But primary research with medical students indicates that there are a number of other factors guiding career decisions. It appears that most students are strongly influenced in their choice of clinical field during residency by the guidance of role models both inside and outside the medical education system. As well, formative experiences, personal interests, and intellectual curiosity also influence the choice of specialty, although there is limited evidence on how strong these factors are (Task Force Two, 2005).

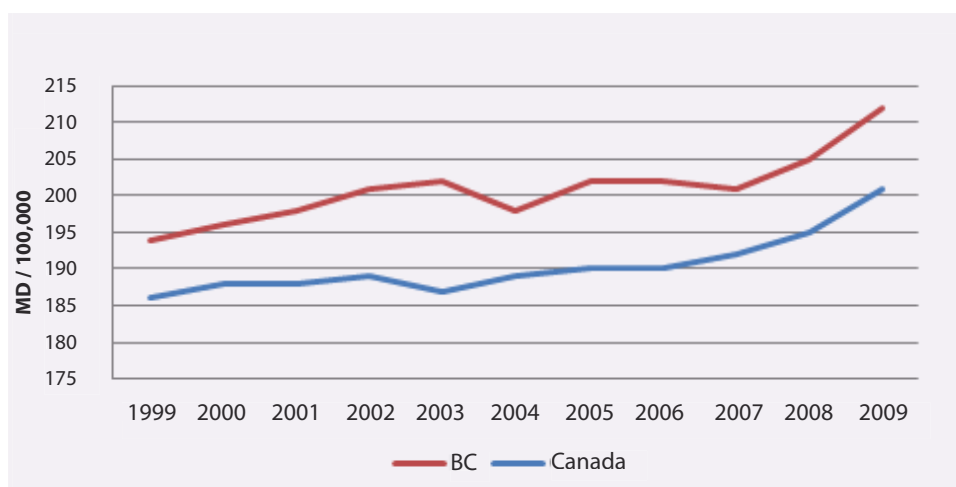
III. The Current Workforce: Measuring supply and demand

Several factors – an aging profession, intergenerational differences in workload expectations, and growing demand for health services – will continue to challenge efforts to maintain an adequate supply and mix of physicians. More robust and coordinated workforce management policies are necessary to ensure that the supply of physician services meets future demand.

Physician Supply in BC

In keeping with the national trend, the total number of physicians in BC has increased over the past decade^b. This increase is due to a number of factors, including having larger graduating classes from medical schools and hiring more foreign-trained doctors. Using data collected by the Canadian Institute of Health Information, the total number of BC physicians per 100,000 population increased at 9.3% between 1999 and 2009 (see Figure 4). Internationally, however, Canada’s 2.3 practising physicians per 1,000 population continued to remain well below the OECD average of 3.2 in 2008 (OECD, 2010).

Figure 4: Physicians per 100,000 Population, BC and Canada



Source: Canadian Institute for Health Information, *Supply Distribution & Migration of Canadian Physicians*, various years.

Physician headcounts must be considered in the context of other factors, including changing demographics and practice patterns, which to a certain degree can be captured in FTE counts. However, a standardized methodology for calculating physician FTEs based on all payment arrangements is lacking in BC.

Projections by the Canadian Medical Association suggest that the existing BC physician-to-population ratios and FTE-to-population ratios (based on hours of direct patient care) should continue on a slight upward trend over the next ten years, assuming that retirement rates, postgraduate exits, migration rates, and characteristics of the physician pool

^bSeveral physician databases may be used for tracking the overall number of active physicians in BC including the Canadian Medical Association Masterfile, the Medical Services Plan fee-for-service database, the College of Physicians and Surgeons of BC, and Scott’s Medical Database. Making comparisons of physician counts from different databases can be difficult due to the variations in scope and the inclusion and exclusion criteria applied by each source, as well as the timing of their data collection.

remain unchanged (Buske, 2010d). However, when these crude ratios are adjusted for the demographic shifts of the populations, the projections are less optimistic: head counts per population would increase at a lower rate and FTEs per population would more or less remain constant. Nevertheless, supply issues such as the uneven regional distribution of physicians, particularly in rural settings, and the under-representation of physicians in certain specialties, are likely to remain problematic in coming years.

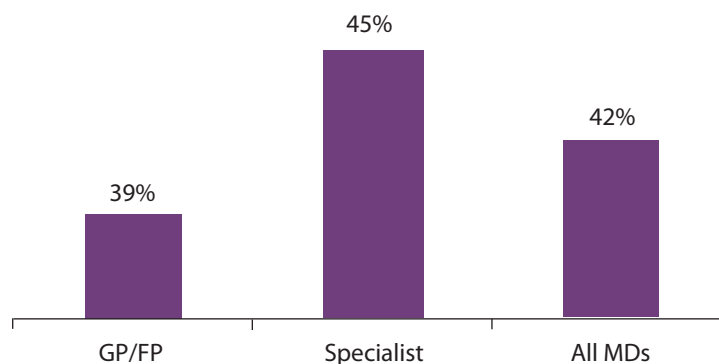
Supply Factors

Several factors and trends can affect the supply of, and demand for, physicians. Some of these are described below.

Physician demographics

In 2009, the average age of the BC physician workforce was 49.6 (Canadian Institute for Health Information, 2010). In 2010, 42% of all BC physicians were 55 years old or older (see Figure 5), and certain specialties had a majority in this age group, including dermatology (57%), clinical immunology/allergy (56%), internal medicine (52%), and general/clinical pathology (51%) (Buske, 2010a).

Figure 5: Percentage of Physicians 55 years and older, BC, 2010



Source: Canadian Medical Association Masterfile, 2010

The number of female physicians in the workforce has been steadily increasing over time. Between 1979 and 2009, the percentage of female physicians in the BC workforce has increased from 11.9% to 32.9% (Canadian Institute for Health Information, 2010). Traditionally, there have been more female GPs than female specialists, and this trend continued in 2009, with 37.3% of family medicine physicians and 27.5% of specialist physicians being female.

Parental responsibilities have a significant impact on the average number of hours worked per week, especially among female physicians. In 2007, for example, Canadian female physicians with children younger than five years old worked on average 12.9 hours less per week than their male counterparts, excluding call. This gap narrows for female physicians with children over 10 years old, with females working 5.9 hours less than males. When there are no children dependants, female physicians work similar hours to male physicians (females working 1.3 hours less per week than males) (College of Family Physicians of Canada, Canadian Medical Association, & Royal College of Physicians and Surgeons of Canada, 2007).

Physician migration

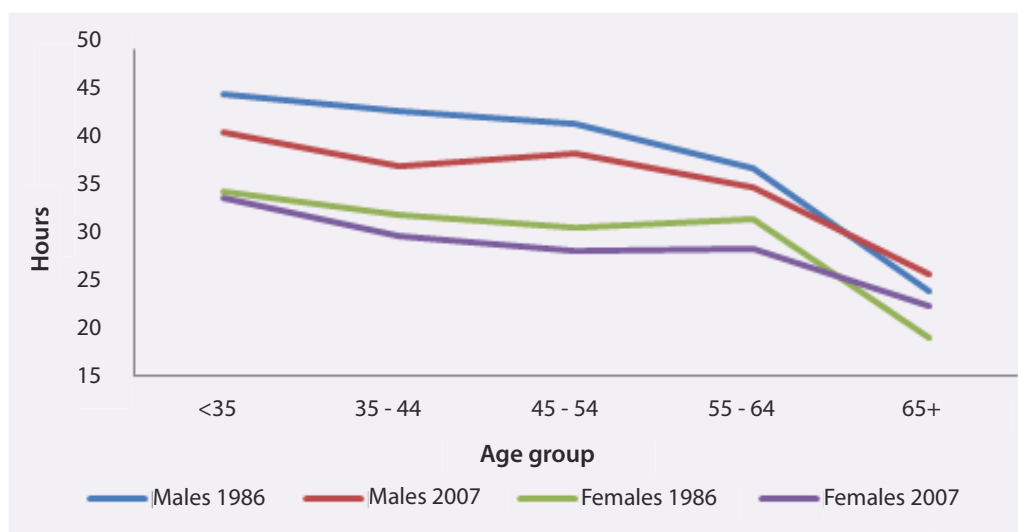
Gaining physicians through international migration can occur in two ways: either physicians who were previously in Canada return after working abroad, or internationally-trained physicians immigrate to Canada. Conversely, Canada can lose physicians through emigration. Over the last three decades, overall net immigration was highest between 2000 and 2009; during this period BC had a net gain of 978 physicians, largely due to the significant increase in the number of new IMGs compared with the previous two decades (Canadian Institute for Health Information, 2010).

Physicians can also be lost or gained through interjurisdictional migration. Physician interjurisdictional migration data shows that BC, Prince Edward Island, Ontario, and Alberta gained more physicians than they lost in all three past decades, while Newfoundland and Labrador, Nova Scotia, Quebec, Manitoba, Saskatchewan, and the Northwest Territories lost more physicians than they gained (Canadian Institute for Health Information, 2010). Between 2005 and 2009, net gains in BC ranged from a low of 26 physicians in 2007 to a high of 117 physicians in 2005. In 2009, BC gained 93 physicians through interjurisdictional migration.

Changes in workload

Physicians are engaged in a variety of tasks throughout their work week, including patient care, teaching, research, administration, and continuing professional development. Over the past 20 years, a decline in self-reported hours of direct patient care (excluding call) has been observed for both sexes and across all age groups except for those over 65 years of age in BC (see Figure 7) (Buske, 2010b). The changes in age distribution appears to also have an effect on the supply of physician services: Watson and colleagues found declines between 1993 and 2003 in average service volumes provided by successive cohorts of younger physicians, but increases among older physicians (Watson, Slade, Buske, & Tepper, 2006).

Figure 6: Average Weekly Direct Patient Care Hours (excluding call), BC, 1986 & 2007



Source: 1986 CMA Physician Resource Questionnaire, 2007 National Physician Survey

The average total hours worked per week appear to have remained fairly stable between 1997 and 2007 in BC for both sexes, thus suggesting that the fall in direct patient care hours arose from a reallocation of physician time among professional activities (Buske, 2010c). Recent survey data have shown that average hours spent on teaching and non-direct patient care (e.g., charting, phone calls, talking to family members) have increased (College of Family Physicians of Canada, Canadian Medical Association, & Royal College of Physicians and Surgeons of Canada, 2004; College of Family Physicians of Canada, et al., 2007).

Overall, approximately 9 out of 10 undergraduate medical students and second-year residents ranked work-life home-life balance as the most important factor underlying their professional satisfaction (Royal College of Physicians and Surgeons of Canada, 2009). Yet so far, total weekly work hours vary little across age groups. In 2007, BC physicians 44 years old and younger reported on average slightly fewer weekly work hours (excluding on-call) than their older colleagues up to age 65 years and over (College of Family Physicians of Canada, et al., 2007). Given that the future generation of physicians places great emphasis on being able to balance work life with home life, it will be important in coming years to keep a watchful eye on the future practice patterns.

In the BCMA's 2010 Membership Survey, the most often-cited professional challenge was "workload/lack of time." Overall, Canadian physicians who are satisfied with their work-life home-life balance average 48 hours per week (excluding on call), while those who were dissatisfied average 59 hours per week. The absolute volume of hours worked is not always a cause of dissatisfaction, but it does appear to be an influence among the majority of physicians in the community.

Practice settings

For a number of reasons, the delivery of physician services is likely to continue its shift away from solo practices toward group and interprofessional practice settings. Younger physicians prefer group settings, and health authorities are increasingly interested in promoting interprofessional teams to address human resource issues and the rising demand for health care. According to the National Physician Survey (2007), the percentage of BC physicians under the age of 35 in group practice was 66%, while the average for all BC physicians was 48%. The survey also showed that, on average, 22% of the BC physicians were in an interprofessional practice, which included other physicians and allied health professionals with their own caseloads.

Interprofessional practice

The growth in the number of allied health professionals, the lack of timely access to physicians, the desire to contain costs, and the need for improved chronic disease management have all led to a growing interest in integrating non-physician providers into the health care system. This trend has implications on the organization and financing of service delivery, scopes of practice, and ultimately future physician supply needs.

Technology

Information technologies (e.g., electronic medical records, telehealth, telemedicine, teleradiology, wireless handheld technology) will likely enhance operational efficiency and allow physicians to have more time to provide patient care. However, technology can do more than increase efficiency; in some cases, incorporating new medical technology (e.g., diagnostic and intervention knowledge, pharmaceuticals, equipment) may qualitatively change the role and scope of providers, reduce the number of physicians required to perform certain services, and lead some physicians to assume more specialized roles (e.g., medical genetics).

Demand Factors

The aging population presents significant challenges to the medical profession. Seniors make up the fastest-growing age group and, according to recent projections from Statistics Canada, those 65 years and older will reach around 24% of the BC population by 2031 (Statistics Canada, 2006). The aging population is a driver of demand because the need for health services typically rises with age. This can be demonstrated by the strong correlation between increasing per capita health spending with age: the final one-third of the life cycle is characterized by average per capita spending almost doubling in every subsequent 10-year age group (Ramlo & Berlin, 2010). Chronic diseases, which are more common in older populations, consume approximately 80% of the combined physician payment, Pharmacare, and hospital care budgets (Ministry of Health Services, 2011). The prevalence of chronic disease may increase 58% over the next 25 years and be a significant driver of demand for health services.

Increased patient access to health information and expectations for new medical treatments and technologies continue to exert pressure on the demand for physician services (Di Matteo, 2005). There are more baby boomers than people in other generations, and they are more affluent and independent than previous cohorts of elderly health care consumers. Consequently, they bring to the health care marketplace relatively high expectations about healthy aging and consumer-orientated health care. For instance, the demand for certain types of care such as joint replacements, cardiothoracic surgery, ophthalmology, urology services, and diagnostic procedures may increase as the baby boomers age (Denton, Gafni, & Spencer, 2003). Health technology innovation and utilization are not independent of demographic changes and will continue to have an impact on physician practice patterns.

Current Workforce Management Policies

The workforce management policies that specifically target physicians currently in practice focus on recruitment, retention, and licensing standards.

Recruitment and Retention Policies

The majority of physician recruitment and retention incentives are provincially funded and developed through joint BCMA-government committees targeted to GPs, specialists, and rural physicians. The main objectives of these policies are to address geographic and specialty distribution. Most of the initiatives involve financial incentives such as premiums, income supplements, practice supports, new fee items, debt assistance, and supports for continuing medical education and locum coverage.

BC health authorities use a multi-pronged approach to recruit physicians in their jurisdictions: advertisements in medical journals, attendance at recruitment fairs and conferences, word of mouth, advertisements and notices on the Web (e.g., on health authority and professional websites, through email and social media), and information by direct mail and Health Match BC (J. Prince, personal communication, October 21, 2010; T. Ward, personal communication, November 2, 2010; B. Warren, personal communication, October 21, 2010).

Licensing Standards

The College of Physicians and Surgeons of BC establishes the standards that physicians must meet in order to obtain a licence to practise medicine in BC, which of course affects the flow of incoming physicians into the province. Recently, all provincial and territorial colleges of physicians and surgeons agreed upon a national common standard for GP

licences, with the plan to use that model for specialists in the future (Sylvain, 2010). It has been recommended that physicians holding a restricted or provisional licence be granted a similar licence if they are approved for licensure in another province, therefore enabling freer interprovincial migration of these physicians. Thus, the common standard will have no real impact on graduates from Canadian medical schools; rather, it is intended to standardize how the colleges handle IMGs.

Key Considerations

The growth in physician head counts is a welcome trend, but as argued in an earlier section, the physician-to-population ratio is perhaps the crudest measure of physician supply. When the key factors that influence supply and demand of physicians are taken into account, it becomes clear that analyses need to be more robust, and that distribution challenges remain. To improve the management of the physician workforce, these key points should be considered.

1. Analyses of the physician supply and demand need to take into account variables other than population growth and physician head counts.

The complex dynamics of the physician workforce underscores the difficulty of adequately analyzing physician supply and demand. The current supply and demand analyses need to move beyond the use of simple head counts to more robust measures.

The supply of physician services is a function of how many doctors are available, how many hours they work, and how much service they provide for the hours worked. The demand for physicians depends on factors such as population size, prevalence of disease, and patient expectations.

Furthermore, other factors that affect physician productivity should also be considered. These include the use of technology, the support of other health providers, and available equipment and buildings.

2. Physician supply is affected both directly and indirectly by a multitude of interdependent workforce management policies.

An effective analysis of the physician supply and demand requires understanding that workforce management policies are interdependent. Such policies include medical school intake, licensing and professional regulation, immigration, and wages that are negotiated between medical associations and government. It is important for planners to consider both those policies targeted directly at managing physician supply and other policies and events that may affect supply indirectly.

A broad, fragmented network controls and influences the management of the physician workforce. It is made up of people and organizations at the federal, provincial, and local levels, politicians and government bureaucrats, professional associations, licensing authorities, educational institutions, and medical communities. However, currently there is no mechanism to ensure that the policy incentives developed by this network are consistent. The attempt to manage the problems of geographic distribution highlights this problem. Distribution is affected by various factors, such as how medical students are selected, what educational influences they are exposed to,

their financial situation, and their personal and professional lifestyle choices. Policy initiatives aimed at correcting distribution have tended to target these factors separately without fully considering the interdependence of distribution problems and the issues of overall supply, IMGs, remuneration, and broader health resource issues such as scope of practice.

3. *Innovative strategies are needed to ensure that recruitment and retention strategies are comprehensive and effective.*

Although a strong foundation of financial incentives has been developed, the competitive environment for physicians calls for innovative strategies to be developed to ensure that recruitment and retention programs are comprehensive and effective. Simply increasing the number of physicians will not necessarily result in decreased competition for physicians, because new recruits will not be replacing retiring physicians on a one-to-one basis (due to increased specialization and different workload expectations). A better understanding is needed of all the factors that influence recruitment and retention, such as workload, compensation, practice environment, and access to continuing medical education. Ongoing monitoring of processes and outcomes will help to develop more robust strategies.

Furthermore, greater emphasis needs to be placed on retention, as recruitment is simply not enough. Systematic reviews of rural physician practices highlight this point: after recruits pay off their loans (provided to them as a recruitment strategy), they often leave because they and their families are not prepared to live in a rural area permanently (ELM Group: Quality in Healthcare, 2008).

IV. Retiring Physicians: Responding to an aging physician population

Large proportions of the physician workforce are nearing retirement, which will inevitably influence physician supply and workforce planning. However, a greater understanding of the extent of physician retirement is needed, and its potential impact should be examined from a broader perspective that includes changing practice patterns. Such an examination may help BC develop financial incentives and other work opportunities that support retention of older physicians.

Current Situation

In the late 1990s, close to 1,000 Canadian physicians retired each year. This figure dropped to fewer than 600 annually in the following decade (Canadian Collaborative Centre for Physician Resources, 2010). According to the BCMA 2010 Membership Survey, 21% of respondents plan to retire within the next 5 years, and 46% plan to retire within the 10 years.

Physicians tend to retire gradually, scaling back on their time and responsibilities before entering full retirement. According to the National Physicians Survey (2007), 47.6% of BC physicians who were 65 years old or older reported having scaled back their working hours over the previous two years. A study on the patterns of practice in the 65 years old and over fee-for-service GP population in Ontario found that older physicians were less likely than their younger counterparts to practise obstetrics, provide emergency room services, do house calls, or perform minor procedures (Chan, Anderson, & Theriault, 1998). The BCMA 2010 Membership Survey found that 86% of respondents stated that they plan on retiring gradually, either through cutting back on hours, cutting back on services provided, or both.

Retention payments based on length of continuous service exist in a number of Canadian provinces. Starting in 2010, BC physicians are eligible to receive an annual length-of-service benefit that can be deposited into an RRSP or individual pension plan if they have practised for a minimum of one year. The benefit rates vary depending on years of practice; the maximum amount is received after 20 or more years of practice (\$3,430 in 2010). To encourage long-term retention of physicians, Saskatchewan, Manitoba, Alberta, and Ontario offer physicians who practise for a defined period of time annual entitlements that will be paid to them at designated intervals (Alberta Medical Association, 2010; Doctors Manitoba, 2010; Ontario Medical Association, 2007; Saskatchewan Medical Association, 2010).

Key Considerations

The issue of physician retirement is receiving increased attention as a growing number of physicians are aging. An assessment of the effect of physician retirement on workforce planning should consider the following points:

1. A greater understanding of the extent of physician retirement is needed.

The literature on physician retirement in Canada is sparse. Much of the discussion is based inferentially on the aging physician population. Estimates of retirement rates differ depending on the data source used. Some databases, when tracking the numbers leaving practice, do not differentiate between retirement, death, moving to part-time practice, and other reasons. Because there is no clear-cut, consistent definition of retirement for physicians and there are differences in how retirees are counted, there are no authoritative estimates of physician retirement numbers (Pong, 2011).

2. *The potential impact of an aging physician workforce should be examined from the broader perspective of changing practice patterns, rather than from the narrow focus of retirement numbers.*

Physician resource planning should not focus solely on head counts, but should also consider the changing practice patterns of aging physicians. If retirement is understood to mean complete cessation of medical practice, it should be seen as the end point of a continuum of changes in medical practice as a physician ages. Prior to full retirement, many other changes in medical practice can occur, such as a reduced workload and a narrowed scope of practice, which have implications for medical care provision and physician workforce planning. For instance, special populations such as rural residents may be significantly impacted because rural GPs tend to have a broader scope of practice than their urban counterparts (Pong & Pitblado, 2005).

3. *Concerted efforts are needed to retain and support physicians nearing retirement.*

Physician workforce management policies have focused largely on increasing medical school enrolments, expanding postgraduate programs, and recruiting. But there are limited concerted efforts in BC to retain older physicians especially for those specialties where a majority are nearing retirement. The annual length of service benefit in BC recognizes years of service, but may not necessarily encourage retention. Targeted financial incentives and strategies that encourage other work opportunities beside full-time clinical practice need to be made available in order to keep older physicians in the workforce and make best use of their expertise and experience.

V. Recommendations

A comprehensive approach to managing physician workforce is required to ensure that patients have timely access to physician services. Currently, a broad network of fragmented control and influence exists over physician workforce management policies. The linkages and interdependencies between policies are apparent, yet there are few mechanisms to ensure that policy incentives are aligned or consistent. Given the level of complexity facing physician workforce management, there is no simple way to address physician supply issues. Nevertheless, improvements in physician workforce management can be achieved if all stakeholders are willing to commit to a coordinated examination of the issues affecting the medical career life cycle, and to not fall back on the status quo.

The BCMA presents nine policy recommendations to improve the management of the physician workforce in the areas of planning, education and training, recruitment and retention, and retirement.

Recommendation 1

The BCMA, Ministry of Health, and health authorities should jointly establish a permanent provincial Physician Workforce Planning Committee to direct and coordinate the development of physician resource plans, and to provide advice about strategies and mechanisms to meet the requirements of the plans. Additional members should include representatives from appropriate stakeholder organizations including, but not necessarily limited to, the Faculty of Medicine, the College of Physicians and Surgeons of BC, and the Medical Services Commission.

Effective physician workforce planning must take into account several factors: the necessary timeframes for producing and retraining physicians in the context of the medical career life cycle, the variety of organizations that have a legitimate interest in physician workforce planning, and the need to adjust for changing supply and demand factors. Therefore, it is important that a provincial process be in place to support physician workforce planning at the regional level to ensure coordination, standardization, and implementation.

The BCMA recommends that a permanent provincial Physician Workforce Planning Committee be jointly established by the BCMA, Ministry of Health, and health authorities to direct and coordinate the development of physician resource plans, and to provide recommendations about strategies and mechanisms to meet requirements of the plans. Additional members should include representatives from appropriate stakeholder organizations including, but not necessarily limited to, the Faculty of Medicine, the College of Physicians and Surgeons of BC, and the Medical Services Commission. Ongoing responsibilities of the Physician Workforce Planning Committee should include:

- Providing physician resource projections that identify BC's short- and long-term needs.
- Ensuring that long-term physician resource plans include a built-in evaluation component and mechanism to allow for "mid-course" corrections, as appropriate.

- Evaluating health authorities' physician resource planning targets and strategies annually and recommending changes as required.
- Identifying short- and long-term physician workforce priorities and strategies to obtain priority physician resources.

It is clear that the multiple and sometimes conflicting interests of the various stakeholder organizations engaged in physician workforce planning need to be balanced against efforts to improve physician resource planning. Issues of political interests, territorial and professional advocacy, and financial accountability all become very real in planning physician resources. Nevertheless, the productive interplay between different stakeholders needs to be fostered through a structured, collaborative approach early in the process. Each stakeholder has a unique role in workforce planning, and understanding physician resource needs through these various perspectives will allow for better outcomes.

Recommendation 2

The Physician Workforce Planning Committee should develop a provincial analytical framework for needs-based physician resource planning.

A provincial analytical framework for translating population health needs into physician requirements is needed. Physician workforce planning is generally based on estimating the effects of demographic change on the supply of and demand for physician services. However, this practice assumes that the relationships between age and needs and between the numbers of physicians and the quantity of services provided are independent of other factors and constant over time. An extended analytical framework that builds on traditional forecasting methods (e.g., supply based, utilization based) and incorporates health care needs and service provision can be composed of four distinct elements (Birch et al., 2009):

- **Demography:** The size and age distribution of the population being served.
- **Epidemiology:** The different levels of need independent of the demographic mix of the population.
- **Level of care:** The amount of services required to address a given level of need.
- **Productivity:** The average amount of services produced per provider.

In the traditional approach, by overlooking the influence of epidemiology, level of care, and productivity, each of these elements is implicitly assumed to be equal across communities and constant over time. By incorporating these elements into an analytical framework, any changes in these variables can be accommodated into the planning process. Moreover, each of these three variables can be influenced to varying extents by carefully considering their determinants. For instance, in the case of epidemiology, policies that prioritize prevention might be used to reduce the

incidence of certain conditions and therefore change the level and distribution of population health needs. The level of care for any particular need group will be determined within the economic and political context of the health care system and as it relates to prevailing or desired standards of service delivery. Productivity considers a variety of factors including the intensity of work (proportion of paid hours given to patient care), how work is organized, technological inputs, and inputs of allied health care professionals.

Recommendation 3

The Physician Workforce Planning Committee should coordinate the development of a comprehensive provincial physician workforce database to form the basis of physician workforce planning and the development of full-time equivalent methodologies.

Physician workforce management would benefit from accessing more and better information. To avoid unrealistic expectations that information alone would create policies or solve problems, efforts to improve the amount and dissemination of information must be focused, and potential barriers such as inadequate resources and data privacy need to be addressed. Broader collaboration and consultation with other stakeholders is needed to emphasize the coordination of existing data sets and the identification of information gaps.

Having a minimum physician data set incorporated within a provincial physician workforce database would be useful, as it would help identify the priority information needed to form the basis of effective physician workforce management. For example, improving the information available on the workload and productivity of physicians would help in developing comprehensive full-time equivalent methodologies. Although the proposed database is supply-focused, the minimum data requirements to determine population health needs must also be considered as part of an overall physician workforce planning strategy.

Recommendation 4

The Faculty of Medicine, in consultation with the Physician Workforce Planning Committee, should determine undergraduate medical school enrolment, and enrolment should be informed by long-term physician resource plans.

Undergraduate medical school enrolment is an important influence on the future supply of physicians, but changes in undergraduate enrolment should not be driven by government mandates to meet current needs. Rather, enrolment should be determined by the Faculty of Medicine in consultation with the Physician Workforce Planning Committee, and be informed by long-term physician resource plans. The process of educating physicians is, by its very nature, a long-term enterprise. Ideally, changes in undergraduate admission levels will take a minimum of 6 years and for some specialties up to 11 years to have an impact on physician workforce needs.

Recommendation 5

The Medical Human Resources Planning Task Force, in consultation with the Physician Workforce Planning Committee, should ensure that postgraduate training positions be allocated among the specialties in relation to physician resource requirements, as reflected in long-term physician resource plans.

There should be adequate government-funded postgraduate training positions available to accommodate the following:

- Each year's graduating class through to certification and licensure.
- Specified numbers of licensed physicians currently practising in British Columbia who are qualified for re-entry or enhanced skills training.
- Specified numbers of International Medical Graduates who are Canadian citizens or permanent residents, and who are not currently fully licensed to practise medicine in British Columbia.

Effectively managing the postgraduate medical training system is key to ensuring that the mix of physicians is appropriate to meet the future medical needs of British Columbians. In the short term, postgraduate programs will continue to grow with the expansion of the medical school in 2011. Therefore, it is vitally important that the Medical Human Resources Planning Task Force, in consultation with the Physician Workforce Planning Committee, works toward ensuring that the mix of training positions meets the future specialty requirements as set in long-term physician resource plans.

The postgraduate training system should be sufficiently flexible to enable medical students to make informed career choices, accommodate resident program changes, and allow additional positions for re-entry, IMGs, and enhanced skills training. Allowing for flexibility in training choices would help address the concern among students that choosing a specialty early in their education may lead to unsatisfactory decisions. Having an adequate supply of re-entry and enhanced skill training positions is vital for physicians to expand their skill set or make the transition to another discipline, which in turn affects professional satisfaction, long-term retention, and the sustainability of health care programs in some communities.

Another essential component of the postgraduate training system is ensuring capacity at training sites to handle the number of residents. At the start of the expansion process almost all residency programs felt they had both the need and capacity to educate more residents. Currently, however, most department heads feel that their residency programs are at or near capacity (Webber, et al., 2008). A sustainable expansion of UBC's postgraduate training programs will require adequate resources and support for clinical faculty, as well as an examination of clinical teaching methods to ensure the most effective use of clinician teachers and clinical settings.

Recommendation 6

The Faculty of Medicine should consider strategies that support broad-based medical education and the provision of objective career information for medical students and residents.

Choosing a practice discipline can be one of the most difficult aspects of physician training. Exacerbating this challenge is the vast array of available specialties, timing of choices, the influence of student debt, as well as practice considerations such as lifestyle and physician resource needs. The rapidly changing face of medical practice and the limited amount of information and time available to consider options are also contributing factors.

Although the factors influencing choice of practice specialty are complex and not fully understood, having objective information and broad clinical experience early in the medical training process has been identified as critical to helping students and residents in making that choice (Canadian Medical Association, 2009). An undergraduate curriculum should ensure that students enjoy a broad range of clinical experiences and elective opportunities before they have to choose a specific discipline.

Advancing a core competency model for postgraduate training could identify competencies that would serve a generalist basis for professional streams. Furthermore, improved access to objective career information for students and residents, such as long-term physician resource plans, employment opportunities, characteristics of practice, population health profiles, and emerging developments (e.g. quality assurance, licensing) would greatly inform their specialty choice decisions.

Recommendation 7

Recruitment and retention programs should develop comprehensive and flexible incentives that address the professional and personal needs of physicians.

Managing the problem of geographic distribution requires designing and implementing a systematic, coordinated set of initiatives aimed at the whole physician life cycle. Current attempts to improve distribution have concentrated largely on increasing physician supply at distributed education sites, developing non-urban training sites, and providing financial incentives. Great strides have been made in using the medical education system and financial incentives to attract physicians to practise in rural settings; however, the possibilities of using a greater variety of incentives have not been exhausted.

While financial incentives remain important, there is increasing evidence that non-financial factors are strong determinants of where physicians choose to locate their practice (Joint Standing Committee on Rural Issues, 2008). These include issues of work-life home-life balance and personal factors such as opportunities for spousal employment and education for children. Furthermore, the factors that influence the initial decision to move to a location may not be the same factors that affect the decision to stay for the long term.

Comprehensive and flexible recruitment and retention incentives should consider the following factors:

- **Work-life home-life balance:** Strategies to manage workload demands include flexible working arrangements, enhanced locum and on-call coverage, job-share opportunities, practice supports (e.g., overhead supplements, technology funding), parental leave benefits, and availability of part-time work.
- **Professional infrastructure and resources:** Limited availability of clinical and physical resources such as collegial support, appropriately staffed and resourced programs, up-to-date technology and procedure rooms can contribute to a physician deciding to leave a practice and can impede recruitment, especially if the stability and sustainability of programs and services are weakened.
- **Community involvement:** The community itself can play an important role in informing prospective physicians and their families of spousal employment prospects, educational opportunities, and cultural and lifestyle options. The involvement of local physicians is essential to assess whether potential recruits will adequately address the medical needs of the community.
- **Professional development:** Professional development supports can help practising physicians develop and maintain skills and attract new recruits. Strategies include bursaries for physicians to retrain, forgivable loans to medical students and trainees, residency training support, enhanced continuing medical education funding, and locum coverage to support educational and training leaves.
- **Critical mass of physicians:** It is important to strive and budget for a critical mass of physicians required to provide an acceptable level of services for a given geographic region, either in terms of the mix of specialties, or in the number of physicians in any given specialty. In rural and remote settings, physician critical mass requirements may be larger to address retention needs. Alternatively, these considerations may lead to the decision to not provide elevated secondary or tertiary specialty services in some areas.

Recommendation 8

The Ministry of Health and the health authorities should ensure adequate resources and coordination for the development, implementation, and ongoing evaluation of physician recruitment and retention programs.

Successful implementation of physician recruitment and retention plans requires an adequately resourced infrastructure, active engagement with physicians and other relevant stakeholders, ongoing evaluation, and careful consideration of retention strategies.

Currently, the infrastructure at the health authority level for recruiting and retaining physicians varies in terms of coordination and resources, which in turn impacts their level of success in recruiting physicians. A properly resourced recruitment and retention infrastructure would help ensure that the department heads and medical directors, who are instrumental to the process, are adequately supported to develop physician resource plans. It would also help establish

a timely process for recruiting and providing legal and administrative clarity when needed. Potential recruits have been lost because they have had to wait too long for a letter of offer, or because they weren't provided with full understanding of expectations and resources available at the outset.

A collaborative process with internal and external stakeholders would help to create an environment that diminishes the need for health authorities to compete against each other for limited physician resources. Recruitment and retention strategies within and across regions could be aligned and integrated. At the same time, supporting clinical groups to recruit and retain physicians will help contribute to the long-term stability of physician resources.

Given the high level of competition for physician resources, more focus needs to be placed on retention strategies. Successful recruitment does not necessarily lead to retention success; thus, recruitment and retention strategies cannot be addressed in isolation and they require similar investments.

The challenges of recruiting and retaining physicians require ongoing evaluation to ensure that strategies are robust. For instance, annual performance reviews with defined performance targets (e.g., vacancy match rates, retention rates, physician workloads, professional satisfaction) would help determine whether the previous investment in infrastructure and recruitment and retention strategies was effective or if it needed to be adjusted to reflect changes in redesign initiatives, the environment, or population health needs.

Recommendation 9

The Ministry of Health and the BCMA, in conjunction with health authorities, should develop strategies to support the retention of physicians who are nearing retirement.

To minimize the attrition of the baby boom generation of physicians in the coming years, policy approaches should focus on flexible working arrangements that support reduced workloads and provide enhanced financial incentives to remain in the workforce.

Strategies that support reduced workloads may include enhanced locum support, group practice, reduced call duties, and opportunities for part-time practice. Some physicians, for a variety of reasons, do not have adequate pensions and/or post-retirement income but may wish to continue working at reduced service levels. For example, centrally managed, region-wide locum pools can contract older (and younger) physicians to provide ongoing flexible coverage. This arrangement could provide older physicians with the opportunity to continue to work at reduced hours without having to make a definitive break from clinical work and risk the loss of income. For those physicians who want to make the transition out of clinical work, non clinical opportunities should be explored such as mentoring younger physicians, taking on teaching and/or research roles, and participating in medical administration.

Enhanced financial incentives that reward length of service may help retain older physicians. Strategies could include increasing the maximum amount of the length of service benefit, extending the practice timeframe eligible for the length of service benefit, restructuring pension plans to encourage more time in practice, and providing grants to cover overhead expenses.

Conclusion

The challenges facing physician workforce planning are not new. However, the complexities of those challenges and the linkages between them throughout the medical career life cycle have not been fully acknowledged. Minimizing the cycles of physician surpluses and shortages will require careful consultation and coordination, with particular attention being paid to the expected impacts of policy throughout the medical career life cycle, the future health needs of the population, the changing physician demographics, and the individual choices that physicians make about what, how, and where they practice.

Addressing these challenges ultimately requires leadership and a commitment to change from all parties. The creation of a provincial multi-stakeholder physician resource planning committee, along with a province-wide planning framework and workforce database, will form a structured collaborative process to direct and clarify the physician workforce planning agenda and increase the capacity for physician workforce management. Because no one community, level of government, university, health care delivery organization, or professional organization can independently address the challenges in the physician resource sector, meaningful change requires partnerships to be formed between stakeholders, with the aim of finding cooperative solutions that reconcile, to the degree possible, competing professional and political ideologies.

Physician resource planning is not solely a technical exercise; it is also a value-driven one. The future need of physicians is influenced by the political and social choices that underlie the health care system, and how the future role of the physician is defined. There is no one ideal physician-to-population ratio or optimum number of physicians – other than the one that fully-informed British Columbians support. By adopting a more collaborative and comprehensive planning approach, both provincially and nationally, stakeholders can minimize unintended policy impacts, the mismatch between supply and needs, and costly duplication. This common goal should propel all stakeholders to work together thoughtfully and collaboratively to improve physician workforce planning, because what we prepare for now will be what we get later.

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