



Psychiatric Human Resources Planning in Canada

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Introduction

In reviewing the various approaches to human resources (HR) analysis in medicine—and for psychiatry in particular—the strengths and caveats of each are highlighted. Despite its significant drawbacks, the most common starting point in assessing psychiatric human resources (PHR) is the psychiatrist-to-population ratio. Past estimates of both actual and recommended ratios are discussed, and a new recommendation for a Canadian

standard is made by adjusting for current information on male-to-female ratios and productivity in the profession. Dynamic factors that affect PHR are reviewed. Although both under- and postgraduate medical education has been undergoing significant expansion for about 10 years, it is not clear that postgraduate psychiatric training is growing at the same rate as other medical fields. Recommendations are made to assist the Canadian Psychiatric Association (CPA) in defining its role regarding PHR advocacy.

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Preamble

Interest in HR planning for the health care sector in Canada has paralleled the development of modern socialized medicine. Government's increasing involvement in organizing health care services has been associated with escalating pressures to rationally balance the competing interests involved. Responsibly using public resources and tax revenue, meeting the broad health care needs of the public, and respecting the autonomy of self-governing professions are examples of the various priorities relevant to this area. Against this background, and for physicians and medical care specifically, there are a host of related questions: What resources are needed to provide medical services? How many physicians do we need? What is their role in health care?

Although government may have a primary public duty to wrestle with these issues, there are other constituencies in the policy-setting process who also have an interest in medical-PHR planning. These include many professional groups and associations, advocacy groups, and the lay public, all of whom are interested in obtaining useful guidance around these questions. This Position Paper aims to contribute to this debate from the perspective of the CPA.

The CPA has recognized for some time that, despite previous efforts, many questions regarding PHR planning remained unanswered, impeding the development of national recommendations. In an attempt to move forward, in 2002 the CPA Board of Directors instructed the 10-member Council of Provinces to develop a background paper on PHR planning. The mandate included the following objectives:

1. To develop a framework for provincial and national PHR, consistent with the mental health needs of the population.
2. To list and describe the variables relevant to PHR planning.
3. To ensure that the discussion incorporates the evolving and significant multiple roles of psychiatrists.

The Background Paper¹ that emerged from this initiative was useful in promoting internal discussions at CPA; however, for various reasons, it was never released for external use. Nevertheless, the demand for a CPA-generated view of psychiatric resources has—if anything—increased, in concert with the expanding public awareness of mental health issues, the successes of psychiatric research, and more realistic acknowledgement from government regarding the extent of mental health problems. This Position Paper (henceforth referred to as the Paper) aims to build on the ground gained by its predecessor. The Paper is intended to provide background information for internal CPA use, represent

current CPA thinking to external stakeholders, and set the stage for continuing work in this area.

It needs to be stressed at the outset that, as the Paper will make clear, there can be no objective, universal answer to the question, How many psychiatrists do we need? Planning for health services such as psychiatry involves similar considerations as for other public works. Thus asking, How many psychiatrists do we need? is in some ways akin to asking, How many roads do we need? The answer depends on what the roads are for, how the community is organized, what kinds of activity occurs in the community, and so on. It is very difficult to define specific road needs for a given population, a priori, but much easier to state, Current and projected traffic patterns dictate a need for this kind of road, here, now.

This Paper aims to review the issues and factors relevant to PHR planning as it occurs at various times and places in Canada. Before focusing on factors impinging on psychiatric resource allocation issues—and for the benefit of external readers—the Paper outlines the nature of the resource itself (that is, psychiatrists). It then summarizes current views on HR issues from a general medical as well as more specifically psychiatric perspective. Finally, it draws together some practical recommendations in dealing with the PHR question on an ongoing basis.

The Definition of a Psychiatrist

Psychiatry is that branch of medicine “concerned with the biopsychosocial study of the etiology, assessment, diagnosis, treatment, and prevention of mental, emotional, and behavioural disorders alone or as they coexist with other medical or surgical disorders across the life span.”^{2, p 1} Psychiatrists, then, have trained as medical doctors and then have gone on to specialize in psychiatry.

For training, entry into medical studies in Canada requires prior postsecondary education; a frequent minimum standard is a bachelor's degree in science or a related field (3 to 4 years). A Doctor of Medicine (MD) degree (3 to 4 years) is conferred by provincially sanctioned, university-based institutions. After receiving their MD degree, prospective psychiatrists undergo a minimum of 5 years' additional accredited psychiatric training and become certified specialists through national examination. Special licenses for International Medical Graduates may be granted by provincial licensing bodies, independent of the foregoing, when training and skill can be assessed and attested to locally. The training requirements for psychiatry are set out by the Specialty Committee of the Royal College of Physicians and Surgeons of Canada (RCPSC). Postgraduate training programs are regularly reviewed and accredited on a national basis.²⁻⁴ From a PHR planning perspective, it is

important to note that the training of a general psychiatrist is a 10- to 15-year postsecondary education process and further training is required for subspecialization. Decisions affecting the postsecondary education environment in medical and psychiatric training will therefore impact the services available to the health care system and the general public at least a decade later.

Psychiatrists provide their services across the age range and in various treatment locations. Within their scope of practice are numerous subspecialty groups defined by distinct knowledge and skill sets such as child–adolescent psychiatry, forensic psychiatry, and geriatric psychiatry. All psychiatrists are trained to approach clinical problems using a range of models from various theoretical frameworks.^{2,4} These are used to “understand the social, demographic and cultural factors that are of relevance . . . and weigh the relevant influences of developmental, biological, social, and psychological factors in the presentation”^{5, p 7} of the patient. Psychiatrists are the only mental health professionals who may: conduct physical examinations; order and interpret laboratory tests; order electroencephalograms and brain-imaging studies such as computed axial tomography, magnetic resonance imaging, and positron emission scanning; and prescribe medication. The ability to clinically integrate medicine, psychiatry, neuroscience, psychology, and social science comprises a unique skill set that permits the psychiatrist to “arrive at a multidimensional formulation and diagnostic appraisal”^{5, p 7} which drives the biopsychosocial management plan. This integrative function implies that psychiatric services are most needed where patient problems are complex, severe, or requiring interventions from multiple domains.

As specialist physicians, psychiatrists typically provide secondary and tertiary services more than they do primary care. Psychiatrists may provide direct service to patients who are referred to them from others—often family physicians. They may also deliver care as part of a treatment team, or act as a consultant to other health care professionals or agencies. Similar to other medical–surgical teams, the degree of clinical responsibility undertaken by the psychiatrist occurs on a spectrum that includes assuming full responsibility as an independent professional for a patient’s care, delegating some responsibilities to other health care professionals, and being involved in systems of distributed responsibility. Managing responsibility along this spectrum is a natural concomitant of general psychiatric training, and it makes it possible to amplify psychiatric clinical productivity. Relevant to PHR planning, one psychiatrist working in a well-run clinical team can provide effective psychiatric input equal to many multiples of psychiatrists acting alone.

Psychiatrists are fundamentally trained as clinicians: physician specialists who can assess and treat people with mental illness. However, apart from clinical psychiatry, many psychiatrists have additional training and skills in domains such as education, research, administration, program planning, advocacy, and continuous quality improvement. Particularly important for psychiatrists—as for all specialist physicians in Canada—has been the RCPSC’s development of the Canadian Medical Educational Directions for Specialists (CanMEDS) framework for specialist education.⁶ This initiative formally recognizes the need not only for clinical knowledge regarding a medical field but also for appropriate skills in the areas of teaching, team relations, and various other professional roles. This broader reformulation of the medical specialist has implications for PHR planning because it recognizes that many psychiatrists will spend significant time (or whole careers) in nonclinical fields of work.

Considerations in Medical HR and PHR Planning

Discussions of PHR generally presume a focus on defining the treatment and treatment resources required for a given population: it is a clinically focused exercise. It is useful, then, to be reminded of the many nonclinical roles that even general psychiatrists fulfill. These roles include positions in administration, research, education, and some forms of agency consultation. Perhaps even more than with PHR planning for direct clinical service, defining the appropriate resource levels for these roles is not possible without making many assumptions. This Paper focuses mainly on direct psychiatric clinical care services but acknowledges the importance of these other areas. It should be recognized that—whatever the amount of activity spent in them—the resources used in these domains do divert psychiatric clinical resources from patient care. Consequently, clinically driven PHR estimates will be an underestimate of this more global, true need for psychiatric resources.

For clinical medical services, per se, there is a tradition that bases medical HR analyses on practitioner-to-general population ratios. Such ratios are ostensibly useful because they are relatively easy to measure; however, there are many problems with this approach. First, the validity of recommended ratios in psychiatry is uncertain. For example, early recommendations of psychiatrist-to-population ratios were quite arbitrary, ranging from what was practicable to what seemed to be a consensus.^{7–11} Second, they neither take into account the wide range of expertise, roles, and services in which psychiatrists engage, nor the shifting epidemiologic, treatment, and outcome landscape.^{8,12} Third, although numerous recommended ratios have actually been achieved in various times and places,

there has never been any evidence of excess psychiatric resources.^{10,13} These significant caveats notwithstanding, psychiatrist-to-population ratios have an intuitive usefulness as a starting point in PHR planning at the population or whol-community level.

The problems with practitioner-to-population ratios in driving medical HR planning have led to the development of other approaches.^{11,14} These include benchmark, needs-based, and demand-based analyses. In a benchmark analysis,¹⁵ physician resources in a particular jurisdiction are compared with those of a benchmark region, the aim is to minimize the medical workforce without accruing adverse health consequences for the population of interest. In its favour is the feeling that a benchmark approach to medical HR planning is anchored more in a real-world, attainable standard of resource availability. However, some argue that variations in social and economic factors between regions erode the comparability and therefore the validity of benchmark analyses.¹⁶ For example, the medical service needs of Vancouver's east side are very different from those of other urban centres. Others question the premise that the best allocation of a medical resource is, by definition, the minimum medical resource. There may always be some jurisdiction that appears to function with ever-fewer medical resources, and it appears a dubious method to employ such moving and ever-shrinking yardsticks to drive resource allocation decisions.

A needs-based approach aims to identify the optimal level of medical resource according to what is required in the community.¹⁷⁻¹⁹ This approach requires detailed epidemiologic knowledge about who needs treatment, who specifically needs a physician's attention, optimal care and outcome maps for disease management, and current physician resources. While the advantages of an objectively defined model of medical service need are self-evident, many of the parameters required for this analysis must either be assumed with little data or they become increasingly complicated as one attempts their definition. In addition, the roles of the physician vis-à-vis other health care providers (and therefore HR parameters for physicians and others) are significantly shaped not just by clinical factors but by sociopolitical considerations as well (Appendix 1).

A demand-based analysis recognizes that the epidemiologically defined, so-called sick population is not the same as the so-called help-seeking population. This approach often uses current health care utilization data to estimate true service demand, but in so doing can reinforce undesirable aspects of existing service utilization patterns. Moreover, demand-based analysis downplays the fact that demand can be a function of service availability: if there is more service available, there will be more demand.¹⁵

In applying these 3 medical HR planning approaches to psychiatry, their strengths and weaknesses emerge in the mental health context. For example, identifying valid and reliable diagnostic criteria for mental illnesses is an unfinished project for psychiatry, making it difficult to objectively define diagnosis-based service needs. In addition, the current biopsychosocial understanding of mental illness implies that there are multiple and equally valid understandings of causal factors and avenues for intervention for people with mental illness. How these impact the role and therefore HR requirements for psychiatry—especially in the setting of the multidisciplinary mental health care team—is complicated by many sociopolitical considerations^{10,18,20-23} (Appendix 1).

With these various analyses having so many caveats, it is not surprising that psychiatric HR planning often proceeds from more pragmatic considerations. For example, British authorities have concluded that it is probably impossible to precisely define psychiatric resource needs.²⁴ PHR recommendations may therefore be based on conservatively maintaining or modestly increasing current staffing positions,²² ignoring the question as to whether these are optimal or even adequate. In this view, psychiatric staffing levels are determined not by how much the service is required but by how much the funding agency (that is, government) can afford.

Other jurisdictions have developed mixed approaches that use a range of parameters to plan mental health services. For example, the US Health Resources and Services Administration defines geographic areas of mental health professional shortage according to a graduated "core mental health professional"^{25, p 2} to population ratio. Ratio gradations depend on the mix of professionals available. The entire ratio scale can then be shifted if unusually high needs are present, as defined by specific levels of poverty, high youth or elderly populations, or elevated substance abuse frequency. Similar considerations are used to define staff shortages in designated facilities and community mental health centres^{25,26} (Appendix 2).

In the absence of one objective solution to the PHR question, it is sensible to employ the range of tools that bear on this issue.^{14,27,28} Judicious application of benchmark, needs-based, and demand-based principles may offer a more useful synthesis of PHR understandings than any one single approach, particularly as these are suited to different levels of analysis. For example, it is very difficult to document a definite or specific requirement for particular psychiatric services at a national level, whereas it is much easier to state how and why an additional psychiatrist is needed for a particular inpatient service or outpatient program. Thus broad application

of professional ratio data at the population level provides a rough picture of theoretically available psychiatric resources. How these are deployed may be refined through the use of epidemiologic-based estimates of service need on a community or regional basis. Because they are patient-near, needs and demands assessed at the local, clinical service, and individual patient levels provide the most specific and clinically immediate data on which to base PHR considerations. For each of these 3 approaches, there are 2 domains of interest:

1. Estimates of current parameters (for example, resources, needs, and demands).
2. Estimates of probable trends.

Estimates of Current PHR Parameters

Estimates of Workforce Size

All PHR analyses have a common need to assess existing psychiatric service resources. For many years, estimates of PHR were based on the counts of licensed psychiatrists in the various provincial jurisdictions. These data are already collected on a routine basis by provincial and national colleges. They are also obtained by other agencies (for example, the Canadian Medical Association [CMA], the Canadian Institute for Health Information [CIHI], and Scott's Medical Database) that review them for various purposes. As a first approximation, this information provides an indication of psychiatric resources available across the spectrum of all medical professional roles that call for a licensed psychiatrist. However, the use of college license data to estimate clinical service resources in particular is problematic. For example, the assumption that all licensed psychiatrists work on an equal, full-time basis leads to overestimation of available clinical PHR. There is also a small—but significant—number of psychiatrists who hold licenses in more than one jurisdiction. Conversely, there is a group of nonpsychiatrist physicians who work only in mental health and therefore are nonpsychiatrist contributors to psychiatric mental health care. Within the context of these 3 limitations, licensing data will continue to be an important component to PHR planning.

Various surveys have been used over the years to try and capture the actual activities of psychiatrists.^{29,30} Physician workload information has also been collected in sequential CMA surveys from 1997 to 2003. In 2004, the CMA joined with the RCPSC and the College of Family Physicians of Canada in a collaborative survey of all physicians' professional work activities to be done every 3 years.³¹ For psychiatry, the results of these National Physician Surveys (NPSs) indicate a mean workweek of 50 hours, of which about 37 hours are given to patient care (direct or indirect). These aggregate results are quite similar to those of many other clinical

specialties and also appear stable over 2 survey cycles. However, comparing these results to earlier efforts raises the issue of methodological consistency. For example, earlier data²⁹ suggested that the average psychiatric workweek was 46 hours, but a breakdown of specific work activity and more detail about the hourly distribution is not available. It is important for PHR planning to distinguish whether a profession's average work hours is being driven by many comparable practitioners or by very disparate subgroups of, for example, part- compared with full-time, or clinicians compared with educators. With a consistent 30% to 35% response rate, it is expected that the NPS will continue to provide standardized and robust data on these areas to permit comparisons over time.

While the NPSs are an important component in medical HR data collection, it remains difficult to translate self-reports of hourly workload into standard workforce size estimates. For example, reports of hours worked tend to ignore significant variability in service productivity per hour.³² Progress in estimating the size of the clinical psychiatric workforce in Canada parallels the evolution of the CIHI methodology. During the past 10 years, CIHI has developed measures of actual physician output based on provincial health care billing data, which yield estimates of psychiatrist numbers in terms of Full-Time Equivalents (FTEs).³⁴ Note that this analysis is based on fee-for-service (FFS) information and so does not capture work performed under other forms of remuneration. This is important for psychiatry because of significant regional variations in the amount of clinical work that is done under other arrangements such as sessional billing, contracts, or salary. More recently there have been efforts to supplement CIHI's FFS information with that from physicians working under Alternative Payment Plans (APPs) because of the popularity of these payment schemes in certain areas of Canada.³³ Unfortunately, psychiatry-specific APP data have not been available to this point. Also missing in CIHI datasets are specific data on psychiatric subspecialties (that is, forensic, child-adolescent, and geriatric).

Overall, then, there are numerous approaches to assessing the psychiatric workforce. Each is suited to a particular purpose and each has significant caveats. This is highlighted in Table 1 where licensing data are shown with FFS-derived measures. As might be expected, in any particular jurisdiction the number of licensed psychiatrists is greater than the number of psychiatrists working on an FFS basis. This discrepancy reflects the many psychiatrists who are paid for clinical work by non-FFS avenues, and those who are engaged in nonclinical work entirely. In most provinces, there are more functional psychiatrists (based on FTEs) than there are FFS psychiatrists. This partly reflects the part-time clinicians who cumulatively contribute to the

Table 1 Numbers of psychiatrists in Canada, 2005/2006: 2 Measures

Province	Licensed psychiatrists, <i>n</i> ^a	FFS psychiatrists, <i>n</i> ^b	FTE psychiatrists, <i>n</i> ^c	Population per licensed psychiatrist, <i>n</i> ^d	Population per FTE psychiatrist, <i>n</i> ^e
BC	606	488	453.21	7 378	9 396
AB	312	310	364.13	11 021	8 980
SK	72	35	40.59	15 729	24 399
MB	149	112	120.43	8 127	9 745
ON	1740	1383	1690.82	7 126	7 430
QC	1040	552	843.37	7 373	9 014
NB	37	18	25.14	20 864	29 495
NS	118	41	41.82	7 874	22 306
PE	8	ds	ds	23 026	—
NL	57	20	26.53	8 869	19 397
NT	1	ds	ds	21 263	—
TOTAL	4140	2960	3606.04	7 887	8 925

^a CIHI³³, Table 2.0
^b CIHI³³, Table 6.1
^c CIHI³³, Table 5.1
^d CIHI³³, Table 2.3
^e CIHI³³, Table 7.1
ds = data suppressed for confidentiality

FTE count but who are not captured in the FFS definition (column 2), and the fact that—for a significant proportion of psychiatrists billing more than \$60 000—their output exceeds one FTE.

Psychiatrist-to-Population Ratios

Also shown in Table 1 are population-to-psychiatrist ratios under 2 measures of psychiatric resources. In general, the greater number of licensed psychiatrists compared with FFS psychiatrists leads to higher population-per-FTE psychiatrist figures.

At a population level, note that CIHI estimates of population per psychiatric FTE compare relatively favourably with prior literature on PHR planning. For international perspectives, this literature frequently looks to the experiences of The United Kingdom, Australia, and the United States, where, despite significant differences in how health care is organized, there is sufficient common cultural ground to justify comparisons. Historical estimates of actual psychiatrist-to-population ratios range from 1:70 000 (in Britain and Australia, pre-1960) to 1:7100 (in the United States, 1982). In the era of modern PHR planning, the range of ratios thought to be optimal is much narrower.⁹ A frequently cited figure has been 1:10 000 in the United States,

Canada, and Australia, with various authors and bodies refining this both upwards (1:13 500 in Australia; 1:25 000 in the United States) and downwards (1:6500 in the United States).^{9,17}

In Canada, between 1985 and 1989, there was a major joint effort by the CMA, the RCPSC, and the CPA to arrive at a more rational ratio recommendation. This process used the psychiatric service supply in 1986 as a standard. Although it incorporated some information on practice profiles, this estimation of the psychiatric service supply was derived primarily from validated licensing data and from information regarding the general practitioner group who were functioning as psychiatrists.¹¹ The outcome of this work was a recommended ratio of 1 psychiatrist per 8400 general population, and the CPA continues to advocate this figure.³⁵ Interestingly, Canadian studies have indicated actual ratios of 1:10 883 in 1980, and 1:9498 in 1987. Current CIHI FTE data yield a national ratio of 1:8925 (Table 1).

These data suggest that the estimated clinical psychiatrist-to-population ratio in Canada is increasing over time. In some jurisdictions this ratio is apparently approaching the level advocated by numerous groups, including the CPA. With a target ratio of 1:8400 and a

population of about 33 million, the current estimated need in Canada is for 3929 FTE psychiatrists. CIHI data suggest that Canada has an overall deficit of about 300 clinical psychiatrist FTEs at present. However, it is clear that physician-to-population ratios are only an initial, rough estimate of existing and optimal medical resource levels and their appropriate use hinges on an awareness of their limitations.¹² This is particularly important for psychiatry because the current FTE ratio target was based largely on 1986 licensing data. Nonetheless, to achieve 1 clinical FTE psychiatrist per 8400 general population it is necessary to have more than 1 licensed psychiatrist. Adjusting for this discrepancy is discussed on page 14 (Recommended Ratio: An Updated Adjustment).

Estimates of Service Need and Demand

Although potentially more valid for objectively planning PHR requirements, estimates of service need and service demand are difficult to specify (Appendix 1). A major aim of clinical epidemiology research is to more precisely define psychiatric clinical service need, and the amount of assessed service need is significantly affected by the definitions and methodologies used. For example, community illness rates based on the Diagnostic and Statistical Manual of Mental Disorders (DSM) or the International Classification of Diseases (ICD) criteria yield different results, compared with symptom or impairment measures. The large literature that examines the question, What is the definition of a psychiatric case?, demonstrates that this has long been an area of academic research.^{36,37} However measured, though, psychiatric illness and need for care are also partly determined by socioeconomic variables. This implies that at least some PHR needs can be addressed not only through the psychiatric workforce but also by socioeconomic interventions as well.

Finally, the notion of need for mental health care has a complex relation to the notion of need for a psychiatrist. Part of this relation is a function of illness severity and complexity, but it is also influenced by the availability of a spectrum of mental health care services and nonpsychiatric mental health professionals in the community.³⁸ Consequently, the most appropriate position for the CPA is to actively support continued development of evidence-based methods to assess the need for psychiatric care in the community. To be clinically useful, such methods need to incorporate best practices and relevant program standards, as articulated by the CPA.

Assessing service demand is a subject of active current interest for government, organized medicine, and private lobby interests. Some argue that, because providing more service can seemingly create more demand, indicators of extant demand are better at assessing true

unmet need. In addition, these can be relatively easy to assess. Relevant parameters include wait times to receive service; length of wait-lists; differential access to emergency, acute, and elective services; complaint registries; and so on. Unfortunately, although mental illnesses are increasingly recognized as a major public health issue, they have not been part of government wait times initiatives to this point.³⁹ The NPS has gathered some data on wait times for urgent referral.³¹ From 2004 to 2007, it appears that the proportion of psychiatrists who could see an urgent new referral in a week or less increased from 44% to 49%. This positive news is counterbalanced by data from other medical specialties, where 60% to 80% of specialists are able to provide urgent care in that time frame. Psychiatry is a clear outlier in NPS wait time data. Other initiatives—such as the CMA’s Wait Time Alliance—are in their infancy, yet preliminary data indicate that many psychiatrists are now working to their absolute capacity, unable to see new referrals, and expect wait times to increase over time.⁴⁰

It would appear that there are many opportunities to build on current efforts to develop service demand measures to help evaluate PHR issues. More systematic assessment of a wide range of parameters would be of interest, including:

1. Occupancy levels and wait times for specific outpatient, emergency, and inpatient psychiatric services.
2. Time to first follow-up appointment, postdischarge from hospital.
3. Travel distances or travel times for accessing–providing service within a service area.
4. Frequency of accessing psychiatric service in an adjacent service area.
5. Incidents (for example, acute admission–readmission, and adverse clinical events) occurring while waiting for service.
6. Incidents occurring shortly after discharge from a service.
7. Psychiatrist parameters (burnout and dissatisfaction; recruitment and retention).
8. Patient (dis)satisfaction.
9. Use–diversion of people with mental illness to social services and support agencies.
10. Use–diversion of people with mental illness to parallel service systems (Legal and Corrections).
11. Adherence to recommended program standards of professional care.

In summary, psychiatric service need and demand have proven to be very complex constructs, requiring ongoing research to define them in useful ways. Part of the

Year	Age, years					Total n (%)
	<35 n (%)	35–44 n (%)	45–54 n (%)	55–64 n (%)	>65 n (%)	
1995 ¹² Women	180 (50)	873 (39)	810 (29)	612 (16)	346 (14)	2821 (29)
2002 ⁴² Women	300 (54)	933 (49)	1314 (35)	911 (26)	495 (15)	3953 (35)
2007 ⁴² Women	293 (49)	804 (54)	1316 (44)	1093 (29)	714 (17)	4232 ^a (38)

^a Total includes those for whom sex was unreported

difficulty is that their definition and assessment are fraught with numerous professional, social, and political assumptions, many of which are quite arbitrary or subjective (Appendix 1). Much work in the past has focused on assessing psychiatric service need, while demand indicators have received attention more recently. There are indications that psychiatrists are less able to accommodate urgent patient referrals than other medical specialties. Although it has been difficult to develop valid and reliable measures for basic PHR parameters, these remain essential to PHR planning efforts. The CPA endorses the continued development and use of tools to assess both psychiatric service need and demand.

Estimates of Probable Trends

Developing the technologies that are needed for measuring PHR planning parameters is ongoing work. In the meantime, it is possible to examine the dynamic factors that affect how these parameters—whatever their present true value—change over time. Thus, while there may be a debate about the extent of current psychiatric resources and requirements for them, there is useful information about how these are likely to change in the near- and medium-term.

Psychiatric Workforce: Productivity Factors

As the issue of licensed, compared with FTE, psychiatrist resources illustrates, productivity differences between various groups can be important in (clinical) PHR considerations. Therefore, identifying demographic factors associated with clinical productivity is of interest. Unfortunately, psychiatric-specific data on FTE productivity and demographic factors are limited, though aggregate information on physicians has been presented.⁴¹ These data are based on the Activity Ratio (AR), or FTE per physician, which typically ranges from 0.6 to slightly greater than 1.0. The AR is influenced

by numerous variables including sex and age. For example, the AR for women physicians is consistently found to be 75% to 80% of men. Age shows a curvilinear relation, with maximal productivity in people aged between 40 and 60 years, while age–sex patterns show that sex differences in productivity attenuate at the extremes of practice life. Despite generational stereotypes, available data do not support the notion that younger cohorts work remarkably less than their older colleagues, at least during the decade from 1989 to 1999. Also important is evidence that medical specialties (such as psychiatry) tend to have a flatter age–productivity profile relative to surgical specialties, maintaining relatively more productivity into the seventh decade (people aged 60 to 69 years).⁴¹ It would be of interest to investigate whether PHR planning requires psychiatry-specific data analysis on these factors or whether it can be reasonably modelled after the aggregate medical specialty group.

With the above information in mind, there are 2 trends of interest in the age–sex distribution of Canadian psychiatrists over time (Table 2). First, psychiatry shares with many other medical fields an increasing proportion of women during the past 15 to 20 years, and this trend is working its way through the age pyramid. The proportion of psychiatrists aged 56 years and older who were women rose from 15% in 1995 to 25% in 2007; and the proportion of psychiatrists aged 44 years and younger who were women rose from 40% to 53% during the same period. If the proportion of women entering psychiatry is reaching a stable plateau of 50% to 60% as it appears, then this will be the eventual sex ratio in the field. Such a proportion of women in psychiatry may impact FTE clinical output, particularly during the age window of maximal productivity. If sex patterns of psychiatric practice are similar to those of other medical specialties, there may be a need for 10% to 15% more psychiatrists than at

present to maintain current clinical FTE activity (Recommended Ratio: An Updated Adjustment).

For age, from 1995 to 2007, the proportion of psychiatrists in their peak years of productivity (45 to 65 years) rose slightly from 50% to 56%. This is in contrast to the shrinkage of psychiatrists in younger cohorts (44 years and younger), which decreased from 37% to 25% during the same period. How this will impact productivity for psychiatry as this group ages is unclear.

Finally, productivity considerations in PHR planning will be impacted by the advent of APPs. There are advantages and disadvantages in grouping together a host of clinical and nonclinical psychiatric functions for the purposes of remuneration. Note that, because of their broader aims, APPs will appear less productive and efficient if judged solely by their clinical service output. Conversely, there have been concerns that—even for the clinical portion of their mandate—APPs do not have the same incentives to produce clinical service as FFS systems. The net result of these various cross-currents will be of ongoing interest.

Psychiatric Workforce: Exit Factors

The largest exit factors for the psychiatric workforce are those that operate at the end of professional life. Owing primarily to retirement patterns, these reflect the age structure of the profession. Data for all Canadian physicians document the increase in average age in recent times, from 47 years (1998) to 50 years (2007), a trend that holds for both sexes.⁴³ For the population of psychiatrists, the increasing proportion of older groups is shown in Table 2. Importantly, psychiatrists aged 66 years and older have risen from about 12% of those in 1995 to about 17% in 2007. The size of this age class is likely to increase even more during the next 10 to 20 years as the large cohort of current peak earners transits into that demographic group. At that point, there is likely to be a significant bubble of clinicians who are in various stages of retirement. The importance of this will hinge on the numbers and proportions of young psychiatrists entering professional life during the next 1 to 2 decades (Entrance Factors).

In 1999, the CMA Task Force on Physician Supply in Canada⁴⁴ reported that 3.5% of physicians retire, die, emigrate, or otherwise leave practice each year. How this relates to the realities of psychiatric retirement over time is unknown. Data from Australia suggest that only a minority (18%) of psychiatrists retire before age 65, but projections indicate that 25% to 62% of the current psychiatric pool there will retire between 2015 and 2025.^{45,46} The corresponding figures for Canada have yet to be formulated. While many psychiatrists remain in the workforce beyond age 70 in Australia,⁴⁵ anecdotal information suggests that few psychiatrists in Canada

remain clinically active at this stage (Suzane Renaud, 27 August 2009, personal communication).

The impact of retirement on PHR planning will also be affected by developments in the culture of retirement itself. Perhaps the most so-called cognitive of medical specialties, psychiatric practice can potentially continue long after physicians in other fields have retired. From a broad perspective, the concept of retirement is one that evolves in concert with socioeconomic and cultural conditions. Thus, for example, it may be that the post-World War II, Western model of retirement at age 65 will fade, both as a practical goal for many and as a cultural norm. As a result, the psychiatric resource retirement curve may become progressively delayed and steeper, compared with prior psychiatric cohorts, or with that of other medical specialties, and that—again—sex differences in the retirement process may emerge as significant.

In summary, it is expected that the psychiatrist population will generally age over the coming decades, as will the larger group of physicians generally. It will be of continuing importance to track not only the changing demographics but also the work and retirement patterns that are likely to accompany them.

Psychiatric Workforce: Entrance Factors

In the current era, the factor with perhaps the most direct impact on medical HR has been changes in the number of Canadian medical graduates and postgraduate trainees. Data on these groups have been collected and maintained in Canada by numerous organizations and consortia. The Canadian Post-MD Education Registry (CAPER) is comprised of educational, licensing, professional, and government groups; together they monitor the statistical landscape of postgraduate education in Canadian medicine. The Canadian Resident Matching Service (CaRMS) maintains data on the transition from undergraduate to graduate programs. The Association of Faculties of Medicine of Canada (AFMC) focuses on undergraduate medical education. The following section addresses these various groups in this temporal order of their effect on PHR.

The Practice Ready Cohort (PRC) is that group of trainees who are completing postgraduate studies and eligible to begin practice in their field of medicine. CAPER data from 2000 to 2008 show that nonpsychiatric Medical Specialties have produced a fairly constant proportion of new practitioners over this time (Table 3a). Family Medicine's output has shown a relative increase, from a low of 37.8 to a recent high of 44% of the graduating cohort. This increase has apparently occurred at the expense of Psychiatry and Surgical Specialties. Psychiatry's decrease from 7.4% to 5.2% of PRC represents a decrement of about 45 new psychiatrists in 2008 relative to a constant 2000 discipline distribution.

Table 3a Practice entry cohort: by field of post-MD training^a

Field	Year									
	2000 <i>n</i> (%) ^c	2001 <i>n</i> (%) ^c	2002 <i>n</i> (%) ^c	2003 <i>n</i> (%) ^c	2004 <i>n</i> (%) ^c	2005 <i>n</i> (%) ^c	2006 <i>n</i> (%) ^c	2007 <i>n</i> (%) ^c	2008 <i>n</i> (%) ^c	2008 adjusted ^b <i>n</i> (%) ^c
Psychiatry	124 (7.4)	106 (6.5)	106 (6.7)	111 (7.0)	108 (6.5)	108 (6.1)	110 (6.1)	91 (4.8)	109 (5.2)	154 (7.4)
All medical specialties ^d	561 (33.5)	568 (35)	535 (34)	542 (34.3)	587 (35.2)	631 (35.8)	631 (35)	655 (34.9)	695 (33.3)	698 (33.5)
Family medicine	657 (39.2)	644 (39.6)	614 (39.0)	614 (38.8)	631 (37.8)	675 (38.2)	713 (39.5)	787 (41.9)	917 (44.0)	817 (39.2)
Surgical specialties	288 (17.2)	271 (16.7)	291 (18.5)	278 (17.6)	299 (17.9)	296 (16.8)	288 (16.0)	290 (15.5)	299 (14.3)	358 (17.2)
Total ^e	1676 (100.0)	1625 (100.0)	1574 (100.0)	1582 (100.0)	1669 (100.0)	1765 (100.0)	1803 (100.0)	1877 (100.0)	2084 (100.0)	2084 (100.0)

^a CAPER^{47,48}: Table I-7i
^b 2006 PRC, adjusted to the field distribution of 2000
^c Percent of all postgraduate practice entry trainees in that year
^d Psychiatry excluded
^e Includes other fields not listed (for example, Palliative and Laboratory specialties)

Table 3b Total numbers of residents^{a,b}

Field	Year									
	2000/ 2001 <i>n</i> (%) ^c	2001/ 2002 <i>n</i> (%) ^c	2002/ 2003 <i>n</i> (%) ^c	2003/ 2004 <i>n</i> (%) ^c	2004/ 2005 <i>n</i> (%) ^c	2005/ 2006 <i>n</i> (%) ^c	2006/ 2007 <i>n</i> (%) ^c	2007/ 2008 <i>n</i> (%) ^c	2008/ 2009 <i>n</i> (%) ^c	2000/2001– 2008/2009 Increase (%)
Psychiatry	527 (8.2)	521 (8.1)	528 (8.1)	526 (7.6)	544 (7.4)	559 (7.2)	578 (6.9)	640 (7.2)	676 (7.1)	28.3
All medical specialties ^d	2725 (42.6)	2804 (43.3)	2882 (44.0)	3026 (43.9)	3225 (44.1)	3413 (43.9)	3671 (44.1)	4017 (44.9)	4240 (44.9)	55.6
Family medicine	1484 (23.2)	1454 (22.5)	1466 (22.4)	1549 (22.5)	1669 (22.8)	1833 (23.6)	2007 (24.1)	2068 (23.1)	2173 (23.0)	46.4
Surgical specialties	1530 (23.9)	1547 (23.9)	1514 (23.1)	1586 (23.0)	1635 (22.3)	1696 (21.8)	1768 (21.3)	1893 (21.2)	2019 (21.4)	32.0
Total ^e	6399 (100.0)	6470 (100.0)	6556 (100.0)	6888 (100.0)	7317 (100.0)	7766 (100.0)	8317 (100.0)	8942 (100.0)	9439 (100.0)	47.5

^a CAPER^{47,48}: Table I-1
^b Regular ministry-funded
^c Percent of all residency positions that year
^d Psychiatry excluded
^e Includes all fields not listed (for example, Laboratory Medicine)

This trend is more evident for the total number of ministry-funded program residents. (Ministry-funded positions do not include trainees funded by foreign governments or the military, and therefore tend to reflect the trainee pool that will potentially work in the public health care system.) Table 3b shows total residency program distribution during this time. Note that the total residency pool increased by 47.5% during this

period and that increases in the number of trainee positions ranged from 32% (for Surgical Specialties) to 55% (for other Medical Specialties). However, there was only a 28.3% increase in residency positions for psychiatry. Thus residency positions in psychiatry are increasing at a slower rate relative both to other medical fields and to the total residency pool. From another perspective, Psychiatry's share of total residency

positions in any given year fell from 8.2% (in 2000/2001) to 7.1% (in 2008/2009)—equivalent to about 100 residency positions—while other Medical Specialties increased their presence. In this sense, psychiatry appears to be losing market share in the domestic postgraduate training resource environment.

Other considerations appear to be of lesser concern. For example, the sex ratio for people entering practice during this time remained relatively constant at 40% men to 60% women, which is fairly similar to the figures for family practice and for the medical profession as a whole^{47,48} (Table I-7i from both references 47 and 48). Nonministry-funded positions include those funded by the military or by foreign governments, and these seem to be constant during this time for psychiatry as well (15% to 17% of total residency positions). These rates are among the lowest for medical specialties^{47,48} (Table I-7i from both references 47 and 48), suggesting that they are not a limiting factor in the allocation of psychiatric training resources. Finally, in comparing Tables 2 and 3, it appears that the PRC for psychiatry (about 100 new psychiatrists annually) may have difficulty compensating for retirement attrition over the coming decades.

The residency position pool for all postgraduate programs is greatly influenced by upstream changes in medical school enrolment that have occurred during the past 30 to 40 years (Table 4a). These changes are a good example of how political and economic factors—rather than epidemiologic or clinical considerations—can determine HR in medicine. After steady increases in medical school enrolment over many decades reached a maximum of about 1885 students during 1980 to 1984, provincial government policy initiatives throughout Canada led to a sustained contraction in medical school sizes. This continued for almost 20 years, when a nadir matching 1970 levels (1577 students) occurred in 1997/1998.⁴⁹ After the problems with this policy became evident, efforts were made to undo its effects. Within 4 years, medical school enrolment had revisited the previous maximum, and by 2007 exceeded it by 30% (Table 4a). Medical school expansion is expected to continue, with a consistent 50% to 60% proportion of women MD graduates.^{50,51}

How this increased medical school population translates into psychiatric trainees and then into psychiatrists is of interest. Table 5 shows a summary of data beginning in 2002, when people representing the first increases in medical school enrolment from the 1990s were graduating.⁵² Compared with prior years, when 6% to 6.5% of graduating students applied to psychiatry, after 2002 this figure shrank to between 5% and 5.5%. On the positive side, this rate was maintained, even though the total pool of first-year residency positions doubled from 1260 to 2595 between 2002 and 2007. After each

CaRMS first-iteration match, during these years a significant proportion of psychiatric positions remained vacant, although this fraction may be decreasing over time. Again, this is in contrast with the first-iteration match vacancies in prior years, which was about 10%.¹

Psychiatry's CaRMS data are also shown in relation to that of other comparable groups: family medicine and the remaining Big 5 specialties (Table 5; columns 1 to 4). Most groups maintain a quota that is a fairly constant proportion of entry positions during the years shown. However, for psychiatry and general surgery there may be trends toward slightly fewer positions relative to the whole pool, perhaps partially explained by the addition of subspecialty positions in various other fields to the pool over time. Note that these observations are consistent with the findings in Table 3b, where psychiatry's numeric increases in total residency program positions during all years of training are nevertheless proportionally smaller than the increases seen in other fields.

Table 5 also provides information on how well the various fields attract applicants. Generally, the distribution of sought-after first-choice positions parallels the distribution of positions quite closely (Table 5, columns 1 to 4, compared with columns 5 to 8). Note that small differences in percentages here can translate into significant oversubscription of positions (Table 5, columns 9 to 12). For example, although only 6.6 of applicants listed pediatrics as a first choice in 2002, pediatrics was allotted only 5.5% of positions, leading to an oversubscription of 107%. This occurs sporadically for internal medicine and general surgery, while obstetrics and gynecology, and pediatrics appear to be more consistently oversubscribed. Overall, psychiatry resembles internal medicine and perhaps general surgery in the percentage of their quota sought as a first choice (around 80%). However, filling the remaining 20% of spots appears to be harder for psychiatry as the vacancy rate after the first-match iteration is completed (that is, the first round of offers and acceptances—a process that can incorporate many applicants' second choices) is consistently high, similar to family medicine (Table 5, columns 13 to 16). This implies that psychiatry does relatively well as a first choice career, but not so well as a second choice.

Some have cautioned that letting recent increases in medical school enrolment take care of psychiatric shortages is too complacent, and that an active focus on recruitment–retention is needed.²³ Some information on these factors is contained in CaRMS datasets and a more detailed analysis would be of interest, particularly in view of the recent focus on stigma associated with mental illness and professionals working with it. For PHR planning purposes, it is important to track data on medical undergraduate career choice, in-training career

Year	Enter <i>n</i>	Total enrolment <i>n</i>	Women %	Exit <i>n</i>	Women %
1970/1971	1452	5424	17.8	1133	13.5
1971/1972	1601	5852	19.9	1278	17.3
1972/1973	1763	6325	22.0	1328	17.1
1973/1974	1773	6759	24.1	1560	20.0
1974/1975	1779	7012	26.1	1544	22.3
1975/1976	1807	7209	28.3	1714	24.7
1976/1977	1819	7262	30.3	1691	27.1
1977/1978	1826	7308	31.6	1755	29.4
1978/1979	1829	7309	33.3	1760	30.9
1979/1980	1854	7347	34.5	1742	32.3
1980/1981	1887	7387	36.2	1765	33.4
1981/1982	1881	7436	37.5	1756	35.6
1982/1983	1882	7492	39.2	1794	36.6
1983/1984	1887	7484	40.8	1773	36.8
1984/1985	1858	7473	41.8	1835	40.4
1985/1986	1812	7350	42.6	1758	41.6
1986/1987	1803	7301	42.8	1766	42.0
1987/1988	1744	7206	43.7	1781	40.5
1988/1989	1786	7124	44.4	1722	44.2
1989/1990	1780	7072	44.0	1708	44.0
1990/1991	1791	7110	44.4	1704	44.8
1991/1992	1775	7128	44.5	1749	43.8
1992/1993	1604	7041	45.8	1702	42.5
1993/1994	1683	6916	47.7	1686	44.3
1994/1995	1651	6820	48.7	1739	45.5
1995/1996	1613	6634	50.6	1685	50.0
1996/1997	1598	6451	50.6	1577	50.3
1997/1998	1577	6435	50.4	1604	48.4
1998/1999	1581	6392	50.9	1594	52.6
1999/2000	1634	6388	50.6	1578	49.6
2000/2001	1763	6559	52.0	1537	50.2
2001/2002	1921	6937	54.5	1543	50.1
2002/2003	2028	7392	56.5	1663	52.1
2003/2004	2096	7808	58.0	1756	53.4
2004/2005	2193	8236	59.1	1875	59.6
2005/2006	2380	8687	58.5	1958	58.9
2006/2007	2460	9151	58.2	2046	58.7
2007/2008	2596	9640	58.0	2123	56.8
2008/2009	2660	10 148	58.1	2344	57.3

^a CanMED⁴⁹⁻⁵¹

Table 4b Medical school enrolment and psychiatric residency

Year	Medical school enrolment ^a					Psychiatry residency			
	Enter <i>n</i>	Total enrolment <i>n</i>	Women %	Exit <i>n</i>	Women %	Enter <i>n</i>	Total <i>n</i> ^c	Exit <i>n</i> ^c	Women %
2000/2001	1763	6559	52.0	1537	50.2		527	124	60.5
2001/2002	1921	6937	54.5	1543	50.1		521	106	57.5
2002/2003	2028	7392	56.5	1663	52.1	78	528	106	57.5
2003/2004	2096	7808	58.0	1756	53.4	81	526	111	56.8
2004/2005	2193	8236	59.1	1875	59.6	87	544	108	63.9
2005/2006	2380	8687	58.5	1958	58.9	90	559	109	57.8
2006/2007	2460	9151	58.2	2046	58.7	126	578	110	51.8
2007/2008	2569	9640	58.0	2123	56.8	138	640	91	62.6
2008/2009	2660	10 148	58.1	2344	57.3	116	676	109	57.8

^a CanMEDS⁴⁹⁻⁵¹
^b CaRMS
^c CAPER^{47,48}; Table I-7i

satisfaction, trainee loss and attrition, and subsequent career changes out of psychiatry. With significant variation among medical schools in the proportion of graduates applying to psychiatric residency, it may be useful to study those programs that are more successful in attracting medical student interest in psychiatry. Conversely, psychiatry appears to be among the top few fields that attract people who switch fields over time,⁵³ consistent with the traditional impression that psychiatry becomes more attractive as physicians gain experience in medical practice. It appears, then, that there may be opportunities for optimizing the training trajectory for the psychiatric residency process, perhaps in conjunction with renewed attention to physicians who switch into psychiatry after beginning training elsewhere or after years of practice.

Finally, Table 4b attempts to summarize these threads by bringing together information on medical school admission, graduation, entry into psychiatric residency, the residency population, and residency completers. Unfortunately, CaRMS data are only available from 2000 to 2001. Note that, McMaster University and the University of Calgary's 3-year programs notwithstanding, the medical school entry population would generally be expected to enter the CaRMS match for psychiatric residency 4 years later, and would exit residency 5 years after that. Data on these various training phases suggest that psychiatry is often associated with a higher percentage of graduating women specialists, compared

with those who emerged from medical school 5 years prior. In addition, it appears that significant increases in medical school enrolment and graduation have not translated as yet into increased numbers of new psychiatrists.

In summary, there has been a marked increase in medical school output since national enrolment expanded in the late 1990s. This expanded medical school cohort began graduating into comparably increased postgraduate training programs in 2001/2002, and then entered psychiatric practice in 2005/2006. The numbers of psychiatric training positions are increasing significantly, and will do so at least until currently confirmed expansions have worked their way through residency programs—in about 2020. Nevertheless, there are indications that psychiatry may be losing market share of postgraduate training resources relative to other major medical fields. Psychiatry seems to have reasonable success in attracting trainees as a first career choice. However, it may not be as strong as a second or subsequent selection in the CaRMS match process. Finally, psychiatry may be relatively attractive to physicians and trainees who have experience in other fields. Thus there are indications that—for optimizing HR training efficiency—the medical school experience and transition to residency may be target periods for further study. Confirmation of these observations and monitoring of these data will be important for understanding future PHR trends.

Table 5 Selected summary: CaRMS discipline choices, first iteration, 2002–2009^a

Field	Total positions available to the field %					Total first choices made by applicants %			
	2002	2005	2007	2009		2002	2005	2007	2009
Psychiatry	6.4	6.0	6.0	5.5		5.2	5.2	5.2	5.1
Internal Medicine	13.7	14.2	15.2	15.1		13.5	16.3	14.3	13.7
General Surgery	5.2	4.8	4.1	4.2		5.0	4.3	5.6	3.9
Obstetrics and Gynaecology	4.1	3.8	3.52	3.7		3.4	4.6	4.9	5.4
Pediatrics	5.5	5.4	4.79	4.9		6.6	7.0	6.3	5.8
Family Medicine	38.7	38.3	38.5	38.9		29.6	27.9	28.9	31.6
Field	Field's quota sought as first choice %					Field's quota vacant after first iteration %			
	2002	2005	2007	2009		2002	2005	2007	2009
Psychiatry	72.5	81.1	75.2	82.5		25.6	16.7	16.7	14.1
Internal Medicine	87.8	108.0	82.7	80.4		7.4	1.4	8.4	15.5
General Surgery	86.2	84.5	119.0	84.3		3.1	2.8	0.0	15.7
Obstetrics and Gynaecology	74.5	110.0	123.0	133.0		22.4	6.9	0.0	0.0
Pediatrics	107.0	124.0	116.0	104.0		5.6	2.5	4.5	3.9
Family Medicine	67.8	67.8	65.9	72.5		22.3	18.9	20.4	15.2
^a CaRMS ⁵²									

Miscellaneous Factors

There are numerous factors that impact PHR that are beyond detailed examination here but which may be useful to monitor over time. Within the profession, these include the development of subspecialty areas such as child–adolescent, geriatric, and forensic psychiatry. Geographic distribution of psychiatric resources is an ongoing concern. Finally, it will be important to consider how psychiatric careers are shaped as the CanMEDS framework solidifies.

Recommended Ratio: An Updated Adjustment

While it is important to review the dynamic factors that influence PHR, the field requires more immediate and concrete guidance about PHR. At the macro level, this starts with the psychiatrist-to-population ratio. As

discussed above, 2 of the most pertinent variables that impact prior ratio recommendations, and for which adjustments are possible, are sex and FTE estimates.

The current clinical psychiatrist-to-population ratio accepted by the CPA is 1:8400, primarily based on license data reflecting the 1986 status quo and equal productivity for men and women. Both of these assumptions likely lead to an underestimate of true clinical service requirements for Canada. To adjust for sex, a 1:8400 ratio in a general Canadian population of 33 million translates into a supply of 3929 psychiatrists. For a female proportion of 50% (a conservative estimate) who are working at 0.8 FTE, an adjusted supply of needed psychiatrists is:

$$\begin{aligned}
 3929 \text{ FTEs} &= \text{males} + \text{females} \\
 &= \text{males} + (0.8 \text{ males})
 \end{aligned}$$

At a sex ratio of 50%, 4366 psychiatrists (2183 male + 2183 female) are needed to provide 3929 FTEs.

Table 1 may provide information to adjust for the use of license data as an FTE measure. To achieve 3929 FTEs, one requires:

$$4366 \quad (4140/3606.04) = 5012 \text{ licensed psychiatrists}$$

This corresponds to a general population ratio of 1:6584 to meet 1986 psychiatric service levels.

Adjustments for other, more dynamic, parameters such as age distribution and retirement patterns of psychiatrists are of interest but require more sophisticated modelling on an ongoing basis, as does the assessment of psychiatry's recruitment patterns. For PHR planning, it may be more important to refine measures of clinical FTE activity that can incorporate the many clinical service and remuneration arrangements currently in use.

Conclusion

Rational analysis of PHR planning begins with a clear recognition of the psychiatrist's training, roles, and unique integrative contribution to mental health care. Next is the acknowledgement of the many factors and models involved in PHR planning, and that different approaches suit different levels of analysis.

Psychiatrist-to-population ratios have been a traditional entry into PHR studies. Their many drawbacks and limitations are well known, yet they remain a useful starting point in PHR planning at the whole population or national level. After establishing a practical level of psychiatric resources, it is possible to then apply more detailed, local analysis using needs- and demand-based methods. Throughout this process, it is necessary to take into account the many roles and subspecialty areas of psychiatric work.

PHR analysis continues to evolve. Standard methods to measure the basic parameters involved are still unavailable and will require research to develop. Data that are consistent and comparable throughout the country on the clinical output of psychiatrists under the various modes of remuneration and across practice settings is needed. There is considerable work to do in generating definitions of service need that make sense both from clinical and from epidemiologic perspectives. Recent interest in demand-based analysis in particular will call for improved measures of unmet need. While the ability to define and measure these parameters develops, it is essential to continue data collection to make best estimates of where we are and where we are likely headed. PHR analyses need to be evidence-based where possible, but—because of their complexity and the need for ongoing guidance—cannot be evidence-bound.

Current data indicate that most jurisdictions in Canada continue to experience a deficit of psychiatrists. To meet

the CPA recommended ratio of 1 clinical psychiatric FTE per 8400 general population, we need a licensed ratio of 1:6584, or 5012 psychiatrists, for Canada's current population.

Unlike other public services, such as infrastructure, which are managed on an election-cycle schedule, PHR planning and changes in all of the factors affecting it occur on a much longer time scale, requiring a 10- to 15-year time horizon for effective management. Social and demographic changes will impact psychiatric resources through increasing retirement rates. It is unclear whether this will be offset by expected increases in the training of new psychiatrists, in part because of the evolving practice environment. Future psychiatric resources will be involved in subspecialty areas of practice, and in a spectrum of settings, services, and care models such as shared care, primary care networks, telehealth, and APP arrangements. Third-party activity and nonclinical roles—existing and new—that psychiatrists are asked to fill will also impact how psychiatric resources are distributed.

Finally, it is clear that PHR planning is an iterative process with evolving methodologies, progress in psychiatric research, and shifting sociopolitical contexts in which these occur.

Recommendations

Principles

1. PHR planning reflects the ultimate goal of providing timely access to appropriate and effective psychiatric care to Canadians in all regions who require it.
2. Generating PHR takes significant time and expense, and planning for these resources requires a commensurate analytic time frame. Efficient deployment of resources involves optimizing the use of psychiatry's unique integrative skills in providing direct and indirect clinical service as well as performing nonclinical roles.
3. To meet mental health service needs in the Canadian context, Canada should not rely on international sources of psychiatrists, but have as its priority the generation of necessary PHR through training local graduates.

Current Position

4. Subject to review in the light of evolving knowledge, the CPA advocates for a psychiatric service level that corresponds to a clinical psychiatric FTE-to-population ratio of 1:8400 and a licensed psychiatrist-to-population ratio of 1:6584. This ratio is most appropriate for PHR planning in large population (for example, national and provincial) contexts.

Approach to PHR Planning

5. The CPA endorses a multifactorial approach to PHR planning that applies to macro, intermediate, and local levels of analysis.
6. The CPA supports and advocates for research and development of technologies and standard methods to assess parameters relevant to PHR planning. These include measures of psychiatric professional activity and output (both clinical and nonclinical), the epidemiology of mental illness, and measures of mental health care need and demand.
7. As part of a sustainable strategy to participate in PHR planning, the CPA will collaborate with other organizations involved in medical HR planning, such as CMA, CaRMS, CIHI, RCPSC, and AFMC, to monitor information on:
 - a. The educational cycle from medical school through psychiatric residency to the completion of training.

- b. Psychiatric practice profiles throughout the career path, including the retirement phase, and under the full range of practice environments (for example, settings and remuneration).
 - c. The impact of relevant demographic variables and trends on the above.

Professional Advocacy

8. Strategies should be developed consistent with the CPA's mandate to:
 - a. Attract, train, and retain practitioners in clinical psychiatry.
 - b. Facilitate psychiatry's involvement in nonclinical professional roles, such as administration, education, research, and medical leadership.
9. The CPA should advocate for strategies aimed at ensuring that there are adequate postgraduate training positions to meet current and projected future needs for psychiatric service in Canada.

Appendix 1

Issues in HR Planning in Health Care

There are grounds for believing that, at least in theory, making specific statements about HR needs and planning in health care ought to be possible. The 2 basic parameters needed to address the HR issues are:

1. An assessment of the population's care needs.
2. The size of the workforce necessary to deliver care to the population needing it.

Unfortunately, the complexity of both these parameters is such that making specific statements about them is probably not possible.

Assessing the general population's need for a particular health care service is a central and ongoing focus of epidemiologic research. While there are examples of practical recommendations that emerge from epidemiologic analysis in other medical fields (for example, planning of vaccination services and the role of the annual physical examination), for mental health and psychiatry there are particular complicating factors. First, it has been difficult to develop a clear method for identifying those who need care. Indeed, case definition has been a major thread in psychiatric epidemiologic research for many decades. The many technologies developed here include self-report measures, symptom checklists, and structured interviews, as well as the evolution of illness definition by explicit criteria (for example, DSM or ICD systems). Although these efforts have furthered our understanding of the distribution of distress and symptomatic conditions in the general population, the result is a spectrum of measurement methodologies yielding a range of estimates of mental pathology.^{35,36} All of these approaches have their strengths and weaknesses, and no one approach serves all purposes.

It is obviously difficult to develop a picture of health care service requirements if there are multiple views on how to assess service need and many different thresholds for defining a case. However, this is not the only difficulty. Whatever one selects as an objective definition it is unclear how this actually relates to health care service need or use. For example, many people who meet diagnostic criteria for a particular mental illness do not seek or wish treatment^{38,54}; conversely, a significant proportion of those actually seeking mental health care services do not conform to usual definitions of caseness.⁵⁴ Help-seeking itself, then, is itself a standard of case definition. While less objective in some ways, this standard is arguably more relevant for service and HR planning purposes because it reflects true service demand. Such an approach to health care service planning has led to some currently popular analyses such as wait-list or wait time initiatives that attempt to assess service demand.

Even if there was a more solid agreement about defining who needed clinical care, there are additional complications

in estimating population needs for specifically psychiatric care.^{17,22} These complications arise from the necessary sociopolitical context of socialized medicine and from the complex nature of mental illness. Thus the epidemiology of appendicitis can be translated directly into estimates of the demand for physicians' appendectomy services because only physicians who are legally sanctioned to perform surgical procedures are able to do that work. However, for many mental illnesses there is a complex web of biopsychosocial factors important both for etiology and for treatment. Consequently, there are various health professionals who can play a role in treating the patient. Important questions arise: Who decides which professionals may participate in the treatment of people with mental illness? How do we decide which patients need specifically to see a psychiatrist and which patients may be managed by mental health service provider or by a family physician? The complicated relation between the patient and the spectrum of mental health professionals is compounded by even broader social policy issues. For example, the number of psychiatrists needed in a community will be influenced by the availability of a range of support services and facilities (for example, crisis supports, homeless shelters, and social welfare or unemployment programs) that mitigate personal decompensation in response to stress.^{10,13,17,20}

These kinds of social policy issues are inextricably linked with political processes that are typically quite far from clinical considerations. Internationally, one example of the politicization of mental health treatment was famously demonstrated in the *Psichiatria Democratica* movement in 1970s' Italy, which led to a legislated and ideologically driven overhaul of mental health services. A more local instance of the effect of sociopolitical process on health care in Canada was the influence of the Barer-Stoddart Report⁵⁵ in reducing the availability of trained physicians in the belief that this would address concerns about health care costs. These exemplify how nonclinical issues affect the amount, setting, and kind of psychiatric work done.

In summary, it is probably impossible to objectively quantify the psychiatric resources necessary to serve the mental health issues affecting a population. There are estimates of need and estimates of demand, each of which necessarily hinge on a host of assumptions. In addition, the need for psychiatric resources is heavily impacted by the larger health care service environment, the availability of ancillary services and infrastructure, roles played by other health care professionals, and the sociopolitical contexts and agendas of various levels of government. Much research on psychiatric HR planning has been done during the past 50 years, yet it remains true that "estimating psychiatric manpower requirements is inherently a subjective process cloaked in a shroud of objectivity."^{17, p 670}

Appendix 2

US Health Resources and Services Administration: Health Professional Shortage Area (HPSA) Designation for Mental Health^{25,26}

In 1990, the US HRSA redefined its approach to mental health service needs by expanding the analysis from psychiatric HPSA to mental health HPSA. As a result of this process, there emerged the concept of the “core mental health provider”^{25, p 2} which includes psychiatrists, clinical psychologists, clinical social workers, marriage and family therapists, and psychiatric nurse specialists. These groups are not viewed as equivalent or interchangeable, but they do form the basis for defining various professional-to-population ratios. These ratios are then subject to modification according to defined criteria that try to reflect need and demand. Note that these ratios define a minimum standard of professional resource levels, useful for administrative purposes. They do not attempt to describe optimal or recommended levels of service. This is one of the few approaches to mental health HR planning that attempts an explicit synthesis of current methods that incorporate important PHR variables and therefore is presented here.

The following is an incomplete and brief overview of the HPSA Guidelines, and the reader is encouraged to consult the references cited for a more detailed description.

Criteria for HPSA Designation in Mental Health

A. Geographic areas of need, defined by:

1. One of:
 - i. Population-to-core professional ratio greater than 6000:1, and population-to-psychiatrist ratio greater than 20 000:1
 - ii. Population-to-core professional ratio greater than 9000:1
 - iii. Population-to-FTE psychiatrist ratio greater than 30 000:1

or

2. If the geographic area has unusually high needs, then one of:
 - i. Population-to-core professional ratio greater than 4500:1, and population-to-psychiatrist ratio greater than 15 000:1

- ii. Population-to-core professional ratio greater than 6000:1
- iii. Population-to-FTE psychiatrist ratio greater than 20 000:1

Note. A geographic area is deemed to have unusually high needs if one of the following is met:

Twenty percent of population have incomes below poverty level

The youth ratio (number of children aged 17 years and younger to number of adults aged 18 to 64 years) exceeds 0.6

The elderly ratio (number of people aged 66 years and older to number of adults aged 18 to 64 years) exceeds 0.25

High rate of alcoholism (rates in the worst quartile for region, state, or nation)

High rate of substance abuse (rates in the worst quartile for region, state, or nation)

B. Population in need, defined by:

1. Population group with barriers to access, and one of:
 - i. Population-to-core professional ratio greater than 4500:1, and population-to-psychiatrist ratio greater than 15 000:1
 - ii. Population-to-core professional ratio greater than 20 000:1
 - iii. Population-to-FTE psychiatrist ratio greater than 20 000:1

C. Facility in need, defined by:

1. State or county mental hospital with:
 - i. Average daily census of more than 100 patients
 - ii. More than 300 workload units per FTE Psychiatrist

Note. Total workload units = Average daily census + 2 number of annual inpatient admissions + 0.5 number of outpatient or day patient admissions
2. Community mental health centre with:
 - i. More than 1000 visits annually per FTE core mental health professional, or
 - ii. More than 3000 visits per FTE psychiatrist, or
 - iii. No staff psychiatrist present

Appendix 3

PHR Websites

Association of Faculties of Medicine of Canada (AFMC)
<http://www.afmc.ca/publications-statistics-2006-e.php>

Canadian Institute for Health Information (CIHI)
http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=hhrdata_physicians_e

Canadian Medical Association (CMA)
http://www.cma.ca/index.cfm/ci_id/16959/la_id/1.htm#1

Canadian Post-MD Education Registry (CAPER)
http://www.caper.ca/index_en.php

Canadian Resident Matching Service (CaRMS)
http://www.carms.ca/eng/operations_R1reports_e.sht

National Physician Survey (NPS)
<http://www.nationalphysiciansurvey.ca/nps/home-e.asp>

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