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Finding a Sustainable Balance Point

International Review of Health Workforce Planning

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Ce document est aussi offert en français sous le titre :
État stable – Parvenir à un équilibre qui soit durable

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Government Services Canada, 2002
Cat. N° H39-622/2002
ISBN 0-662-66561-9

Steady State

Finding a Sustainable Balance Point

International Review of Health Workforce Planning

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Submitted:

August 30, 2001

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Executive Summary

Health workforce planning is the latest plank in health system reform being pursued by countries around the world. A main objective of health workforce planning is to have the right number and mix of health practitioners with appropriate skills in the right places at the right time, to provide quality services to those who need them. Historically, however, workforce planning has more often referred to less-than-perfect approaches to planning for physician ‘manpower,’ based on maintaining existing physician-population ratios. Less focus was placed on planning for nurses and other health providers.

In spite of recent health reform initiatives that emphasize “team,” the planning that has taken place has tended to continue a pattern of working ‘in the silos’ of profession-specific approaches. Less work has been done in the area of determining future requirements for physicians, nurses and other health providers overall. And as a result, past efforts have not proven to be as accurate, effective or as comprehensive as needed, or enough to inform decision makers and planners sufficiently to adjust to changing demographics and other patterns in both the population at large, as well as provider groups and changing models of health care delivery.

A lack of a more sophisticated, or systematic or modern approach has exacerbated the current context of “shortages” in many health professions in Canada and other countries. A number of other countries are pursuing the development of more modern approaches to health workforce planning. Information from these countries can inform the development of a national, systematic approach to identifying and planning for future health workforce to meet the needs of Canadians. As health systems become more complex and involve a widening array of kinds of health providers and practitioners, the need for improvement of approaches to planning becomes more compelling.

It appears that most countries are only now *beginning* the process of re-examining their approach to workforce planning. Many appear not to have made fundamental changes yet. A small number are moving to introduce or encourage the introduction of organizational structures to add some permanency to the workforce planning process and to avoid the reactive or self-serving products of the past. Some are also moving to embrace multiple modalities of workforce planning methodology and process. A smaller number are moving to incorporate planning for *all* of the workforce, including integrated planning, as well as review of the individual health providers and workers.

Workforce planning processes and methodologies are still dominated by an extensive focus on and experience with physician workforce planning. There is still a paucity of specific approaches or experience with nurse workforce planning and even less that is focussed on other health professionals or staff who work in the health system. At the same time, many of the processes and methodological approaches for physicians can be and have been applied to some extent to nurses and others. This is all the more important, given the focus upon primary health care reform and the evolution of vertically integrated health organizations, with their associated requirement to think more in terms of multi- or inter-disciplinary teams, as in many of the other countries reviewed.

Six country overviews provide illustrations of approaches to workforce planning organizational structures, methodologies and processes. The countries presented include Germany, the Netherlands and Australia where the national organizational structures are still focussed on physician workforce planning. And New Zealand, the United States and the United Kingdom represent countries making a commitment to looking at the total workforce and integrated workforce planning. Australia presents one of the more advanced examples of 'multi-modalities' of workforce planning methodology and process - although focussed exclusively on physicians at this point.

In Germany, the Federal Committee of Physicians and Health Insurance Funds has responsibility for making recommendations to the government. Based on agreement, guidelines are provided to the Regional/Local Associations of Panel Physicians and Regional Social Insurance Funds to determine the supply and need for physicians by general practice and by specialty per planning area. The initial level of review will determine if there is an oversupply (i.e. 10% more physicians by category than needed) or an under-supply (i.e. where there are 75% or less of the number of GPs required, and for specialists 50% or less than the required number). In both cases, additional assessments are carried out to confirm the initial finding. If an oversupply is confirmed in a given area, no new physicians will be allowed to join the Panel of Physicians for a given specialty. If an under-supply, a number of new physicians by category will be allowed to join the panel.

In the Netherlands, the government established a national organization in 1999 for physicians workforce planning called the 'Capacity Organization' to provide advice to the Minister of Health. The organization, funded by government, has a tri-partite composition with representation from the professional groups, the health insurance companies (Sickness Funds), and the training institutions such as universities. Bringing the three parties together to form the organization was considered to be a worthwhile exercise on its own. Using experienced research institutes such as NIVEL, the organization examines both supply and demand. It provided its first report to the Minister of Health in March 2001.

Australia established the Australian Medical Workforce Advisory Committee (AMWAC) in 1995 to provide reports to the Australian Health Ministers Advisory Council, and through that body, to the Health Minister's Conference. The committee works with a number of government agencies and department, national and state institutes, medical schools, medical colleges, various workforce agencies and physician organizations, including the Divisions of General Practice. Based on a strategic framework, AMWAC carried out a number of studies of all physicians and then by discipline. Various issues associated with workforce planning were examined, including immigrant physicians, trends in medical education, impacts of change on medical students, female participation, and various guidelines. Multi-modal methodologies have been applied to assess both supply and requirements as a foundation for establishing and implementing a plan of action to deal with surpluses or shortages by discipline or group of disciplines. Once in place, the Australian plan calls for a process for monitoring to ensure that recommendations are being put in place and for revisiting each group workforce plan at least every five years to account for unforeseen changes or problems with previous plans. Australia has also acknowledged that changes in organizational structure or policy changes that incorporate multi-disciplinary teams of providers, will also fundamentally change projections of supply and need. Also emphasized was the need to connect workforce planning to service planning, particularly given the direct connection between supporting infrastructure to some degree or other, for all specialist physicians.

New Zealand is emerging from a long period of rejecting central workforce planning. The government established the Health Workforce Advisory Committee (HWAC) in 2000 to coordinate workforce planning and is in the process of introducing new legislation to regulate health professionals. At this stage, the Committee will be taking a strategic view of the workforce required to deliver health services in the future rather than working out how many of each will be required in the future and trying to plan accordingly.

In the United States, the state governments are the major players in workforce planning. States hold responsibility for education, licensing, and regulation of practice for all health professionals, and regulation of private health insurance as well as administration of Medicaid. The federal government involvement has been in supply policies associated with Medicare, student assistance, construction grants and other institutional supports. The National Center for Health Workforce Information and Analysis provides support for various studies and guidelines as well as funding university based workforce centres. Three examples are presented of workforce studies for three areas: primary care physicians, nurses, and integrated workforce planning in Wisconsin.

The United Kingdom is in the process of moving to integrated planning for the whole workforce. Within this approach, there is a commitment to multi-disciplinary team work and supporting ways to maximize the contributions of all staff. Rather than a single workforce advisory body, the emerging structure includes a commitment at the local level for Primary Care Trusts and others to produce workforce plans for five year time frames. At the regional level, New Workforce Development Confederations will support and work with Health Authorities and National Health Service regional offices. Ultimately a National Workforce Development Board, supported by Care Group Workforce Development Boards will have responsibility for the proper integration of workforce issues with service development. The UK is also looking closely at information requirements to support workforce planning at the local, regional and national levels. The UK has already established a number of targets to increase physicians, nurses and allied health professionals. In addition, the National Service Frameworks have been in the process of developing a ten year vision of where particular services should go (e.g. for coronary heart disease, cancer etc.).

Canada has not yet achieved a comprehensive approach to health human resources, but is situated on the cusp of more focussed and concerted action. High level commitment has been shown in a variety of ways to improve health workforce planning capacity, including the F/P/T Ministers of Health in 1998 and the First Ministers in the September 2000 *Action Plan for Health System Renewal*, including an explicit agreement to collaborate on specific priorities, including the supply of doctors, nurses and other health personnel.

A first step to focus the action and future direction for Canada could include establishing a task force to examine development of a permanent National Workforce Planning Organization. It would have an appropriate budget and staff to operate on an on-going basis and appropriate representation, input and linkages. The new organization would be a focal point dedicated to building and refining a 'national' capacity for workforce planning in Canada. The potential this brings is for fewer dramatic shifts and improved quality, stability and sustainability for the health system – in short, a 'steady state' future for the Canadian health workforce.

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“Make up your mind how many doctors the community needs to keep it well. Do not register more or less than this number; and let registration constitute the doctor a civil servant with a dignified living wage paid out of public funds.”(George Bernard Shaw, *The Doctor’s Dilemma* (1911), preface)

Introduction

Health workforce planning is the latest plank in health system reform being pursued by countries around the world. Because health care is labour intensive, and health human resources represent over 70% of health care cost (Pong et al, 1996), there is increasing need to address planning for the health workforce in a more comprehensive way. The health system encompasses an increasingly complex human resource milieu as compared to other sectors of the economy, and is significant in terms of the sheer number and variety of professions, trades and functions that comprise and interact with this environment.

Anything that influences or changes the system at any level has direct and sometimes profound implications for those who work within it. Impacts on health human resources can directly influence the capacity of the health system to respond to needs and to deliver services. This becomes all the more important in view of the present context of reform and global efforts to refine and improve the performance of health systems. New or renewed areas of focus, such as the development of vertically integrated health organizations – such as Health Maintenance Organizations in the US, Primary Care Groups or Primary Care Trusts in the UK, Sickness Funds in the Netherlands/Europe, or integrated trials in Australia, etc. – and growing emphasis upon primary health care, require multi- or inter-disciplinary teams and approaches to service delivery. The way health workers are prepared, organized, deployed and remunerated affects their ability to provide quality care within the context of changing service delivery models and roles. In short, no plan of reform is achievable without taking human resources into account (Marriott Mable 1996).

To ensure the best use of precious system resources, it is important to any country to ensure that the health workforce is present in the ‘right’ number and mix, with the ‘right’ skills. They must be organized in the ‘right’ way to provide appropriate, timely quality services that meet the defined needs of the populations they serve. The problem in general has been to sort out just what is ‘right’ amidst a diverse set of possibilities, and then to determine how to achieve this. Any notion of what is *right* or *appropriate* is multi-dimensional because it bears a relationship to many different things, including what

is *needed* or *desired*, or what is *typical*, or *available* - and these relate to other aspects such as timing, cost, expedience, quality or other kinds and levels of targets as set locally, provincially or nationally.

To get it 'right,' governments, health organizations and more recently, planners have tried over time to anticipate or project health system needs with respect to health human resources, too often unsuccessfully. As a result, in general, *planning* has historically been reactive at best, very ad hoc and unscientific, responding to needs or issues in the system, rather than being able to effectively anticipate or project them. As health systems become more complex and involve a widening array of types of health providers and practitioners, the need for improvement of approaches to planning becomes more compelling.

Purpose and Methodology

The purpose of this paper is to present the results of a review of international literature on health workforce planning and to identify implications and lessons for Canada. It is hoped that this information will support a more fundamental goal—to develop an objective and reliable system for determining the required number and distribution of physicians, nurses and other health providers to meet the evolving health needs of Canadians over time.

The project entailed a three-phased approach. Phase 1 included a broad overview of international literature, government, and other web sites and contacts to determine where the most promising workforce planning policies and approaches might be. Phase 2 was directly based on the results of Phase 1, to conduct a more detailed and in-depth exploration of the literature, web sites and contacts of a smaller selection of 'most promising' countries and approaches. Phase 3 entailed the synthesis and analysis of information gathered, to identify and summarize most promising approaches and implications for Canada.

Key words were utilized to satisfy the information collection needs of the project such as "workforce planning," "manpower planning," "health human resources planning," and others. The process included keyword searches on computerized databases such as MEDLINE, Publine and other databases; identification of titles cited in the reference sections of studies; and examination of published bibliographies on these subject areas. Also accessed were 'grey literature' and other unpublished material through a variety of government, academic, and professional association contacts for the various jurisdictions under study. Selected key informants were identified with input from Health Canada, and some were contacted for subject areas and the countries selected for review.

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Despite growing interest in the subject at present, there is still a relative scarcity of useful articles on workforce planning or well-detailed information on approaches by different countries. It appears that most countries are still predominantly focussed on planning for the physician workforce and are still engaged in periodic examinations conducted by governments, professional associations, universities and other training institutes and others. Also, much of the even more limited workforce literature on providers other than physicians tends to focus on one discipline or another at a time, rather than broader approaches which include most or all of the health workforce in an integrated approach. A 'comprehensive' picture must be pieced together somewhat like a puzzle, to form a more complete view of options that might be involved in an integrated approach to health workforce planning.

Overview of the Paper

Section two *Background* presents some foundations for understanding workforce planning from an historical perspective, to provide lessons from the past. This is followed by an overview of *Definitions and Meanings* with respect to the health workforce and workforce planning. This includes a depiction of historical imbalances resulting in surpluses and shortages, and an introduction to mechanisms or policies used to address these imbalances. This is followed by a presentation of various *Issues and Implications* that are still present, which are the subject of recent and continuing efforts to restructure and reform both organizations and methodologies.

The paper then moves to an overview of current workforce planning approaches in selected countries. The discussion within each country is organized in two parts. It begins by identifying some of the recently emerging workforce planning *Organizations* in Germany, The Netherlands and Australia, where the focus is predominantly on physicians. These are followed by New Zealand, The United States, and the United Kingdom (primarily England), where the focus is increasingly on *all* of the workforce with an emerging commitment to integrated planning. These illustrations serve to present the distinctions in national context and variations on organizational approaches.

The second part presents an overview of evolving and emerging variations in methodology and process approaches in the selected countries. This excludes The Netherlands, where other than reporting that they are planning based on various supply and demand approaches, detailed information on methodology is not available at this time. In the presentation of what is happening in Germany, Australia, and The United Kingdom, the overview is of their 'national' approaches. By comparison, the approaches of The United States and one additional example from Scotland provide examples of specific workforce planning studies or exercises.

Implications and recommendations for a possible strategy for Canada are then presented to conclude the paper.

Background

Post World War II to the Present

As of the mid-1900's, any 'workforce' planning activity that occurred was sporadic, with a predominant focus on physicians rather than other health providers. A shortage-to-surplus-to-shortage cycle that had evolved post-World War II was the norm. This was to some extent a multi-national phenomenon including western European countries, the US, Canada and others, regardless of whether the country had a publicly funded/social health system or a privately funded market system. The initial identification of a shortage of physicians was more often the result of a 'sense' or perception of a problem rather than exhaustive study. Coordination was lacking and studies throughout this period and even up to today, have been primarily 'one at a time' and 'one of a kind' reports, usually led and/or funded by one of the major stakeholders – government or corporate medicine (the professional physician associations) – or less often, by the Universities or Medical Schools. The focus during this period was on augmenting supply by increasing numbers of training positions and even the number of medical schools (Rosenthal, Butter and Feld 1990, Doan 1990, Maynard 1990 & 1995, Ginzburg 1990).

This ultimately led, through studies and experience within systems over time, to a realization that all western countries appeared to be moving to a surplus of physicians. Again, while studies were more frequent, they were still uncoordinated, ad hoc, infrequent and championed by one or more of the major stakeholders - all, including government, with 'vested' interests. Various assessments were carried out, depending to a great extent on physician/population ratios and some international comparisons. Political momentum and the interests of physician organizations, university medical schools and some politicians still favoured producing more physicians. In general, the time frame from first identification of a problem to taking some action was often a decade or more. In some countries, such as Italy and Mexico, the issue of 'surplus' physicians continues. For most other Western European countries, US and Canada, the major strategy to correct the 'surplus' issue was to reduce student intake and even to close some medical schools. Canada, for example, reduced medical school enrollment by 4% in 1984 and by a further 10% by 1993. Once again, but not surprisingly, in keeping with cyclic patterns, many countries are now facing a 'shortage' again.

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A Legacy of Issues

A consistent experience of this period has been that various approaches to assessing and predicting the required 'number' and types of physicians for the future too often proved to be wrong as compared to what actually transpired. In general, processes of workforce planning or management were absent or were not effective. This was due to a number of factors. Organized and coordinated planning was insufficient or non-existent. Planning, when it did occur, was often ad hoc, and was influenced and/or funded by one or the other of the major stakeholders. Governments, medical or other health professional schools tended to think about their own perspective, or one profession at a time, and as expressed by Davies (2000) when referring to the UK, "doctors planned for doctors, nurses for nurses and so on." This was true of all countries examined. There appeared to be little or no cooperation or collaboration among the major stakeholders in the process - and in many cases they were adversaries with competing interests. Over all, studies or assessments were infrequent and inconsistent in approach - so that no fine tuning or adjustments for changes in the total environment were accounted for over time.

In addition to this, politics played a large role in perceptions and created delays in action. Governments and politicians didn't want to lose the image-promoting perks associated with building up medical schools and producing more physicians. This was reinforced by public pressure and some resistance to reductions in access to training positions, considered highly desirable and preferential career options. Corporate medicine moved to protect its own self-interest. Interestingly, the positions, strategies and tactics taken varied depending on the nature or context of the country in terms of how physicians were employed (government post, contracted, employees or self-employed).

Corporate medicine in countries with system controlled posts moved to either increase the number of 'posts' and reacted to the numbers of physicians in the system based on whether there were too many for available posts (therefore cut back), or if too few, to advocate increases. Where a fee-for-service environment existed, the tendency was to resist large increases in numbers as it was felt that it would create too much competition, and reduce income for those in practice - with the caveat that if populations and/or economies were growing it would work out. At the same time, Universities'/Medical Schools' survival instincts reinforced resistance to dramatic reduction of training positions, and stronger resistance to closure (Doan1990).

The expansion of graduates post WW II for several decades was due in part to rosy expectations about growth in the future economy and populations. Therefore the outlook anticipated a continuing 'demand' for services from a growing population, coupled with a continuing capacity to pay for the expansion. The policy, or practice, of focus on 'input' (e.g. training positions) demonstrated an inadequate appreciation of the lag time of six to

ten years to produce new physicians, during which many things could and did change within society and the profession. In areas of mal-distribution (e.g. excess in urban versus shortages in inner city, rural, isolated, etc.), a policy of relying on creating surpluses of physicians to create a 'spill over' effect didn't work.

Mexico still demonstrates the weakness of that approach, with a continuing 'surplus' resulting in under-employed and unemployed physicians in urban areas, and yet rural and isolated areas are still in great need of physicians. Mal-distribution remains a major problem in most environments today (Rosenthal, Butter and Feld 1990, Frenk 1990). A similar approach to over-production of supply to 'fill-in' shortages in certain disciplines also failed (AMWAC 2000, Klein 1990). Population to physician ratios were often more the result of lobbying by professional organizations and therefore of dubious validity. Maynard (1995) presents the example of the British Medical Association ratio of 1 physician per 1,700 patients, and the implications of higher GP to population ratios. A ratio of 1/3,000 would have resulted in a need for 13,000 fewer GPs and the potential to purchase 27,823 nurses. A ratio 1/4,000 would have resulted in a need for 17,000 fewer GPs and the potential to purchase 39,338 nurses. Maynard goes on to recommend sensitivity analysis to examine various ratios (not just one) and further advocated the need to move beyond just looking at doctors.

There was a lack of sophistication in the process. For example, various aspects of change were not adequately taken into account, such as: in populations (or the emergence of population-based thinking, or correlation with supply of providers), professional dynamics, professional productivity, health system reform and organizational alternatives, potential changes in working patterns or multi-disciplinary teams in an integrated approach. In international comparisons, there was a lack of appreciation or recognition of the distinctions in 'context' of different jurisdictions. As such, while gross or macro assessments of numbers can be instructive in broad terms regarding supply of physicians for given populations, applying such information precisely without appreciation of local realities can lead to gross errors.

For example, the working hours for physicians may vary in different settings, leading to different conclusions across jurisdictions. The legal context in Germany provides another kind of example. Germany faces a major challenge to implementing controls over provider numbers. This is due in large part to a post-Nazi democratic constitution which enshrined rights of individuals to make choices, including that of choice of access to education, and choice of career, without interference from the government. Because of this, attempts to control the number of students in medical school poses a particular challenge.

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Even the more limited methodologies that were used, such as ratios of physicians per unit of population (per 1,000, or 10,000 or 100,000) didn't account for variable, changing or emerging factors such as mix of full and part-time; numbers of men and women (or emerging today, men and women physicians who want a more balanced work and personal life), variances in working weeks, etc. (Klein 1990). And finally, there was a persistent absence of consistent and reliable data—always acknowledged but until recently—little done about it. And there was little to no focus on nurses, other health practitioners or health workers.

Understanding the Health Workforce and Workforce Planning

This section of the paper moves beyond the historical context and lessons to an overview of basic foundational information. This includes an overview of what constitutes 'the workforce,' a discussion and definition of workforce planning and associated concepts, and finishes with a discussion of some of the system and policy issues that countries still strive to overcome.

The Changing Health Workforce

The health workforce represent an increasingly diverse aggregation of individuals and groups who work in a wide variety of settings. It is particularly important to understand this, given the implications of the movement toward planning for the 'total' workforce—both in terms of each profession or trade and in terms of integrated or blended workforce planning.

Many influences have shaped the health workforce, including recent trends. Fiscal constraints represents one major example. The shift away from institutional care toward community-based service delivery models is another. Increased emphasis on individual and community responsibility as well as prevention and health promotion, hold implications which transform health care organizational behaviour, and require new channels of communication and information. The resurgence of a primary care focus and the emergence of new technology raise questions regarding what is "medically necessary" and expose the present limits of health care professionals' training and experience. Gaps and barriers are being uncovered in present methods of funding, administration, training and service delivery. At the same time, with changes come opportunities and new roles for health human resources, opening the door to a future where the *services provided* may become more important than *which practitioners* may

provide them. Functions previously exclusive to one group might, through system reform, be performed by others, and there might be a wider group of 'first points of contact' for access by consumers to the system. All of this has implications for workforce planning.

For a group which represents a significant portion of the health care expenditure, the health workforce is not necessarily well known or understood in the aggregate. It is important to begin with a fundamental (if not exact) appreciation of its magnitude. This is not easy, because 'health human resources' or 'health workforce' does not denote one fixed group. The meaning differs according to the diverse perspectives of stakeholders, and definitions vary as to which classifications and levels of health care professionals are included. The terms by which health human resources are addressed can influence an understanding or appreciation of their roles, and often set the conditions under which they must operate. Inconsistency and uncertainty of definition and professional typology across the health system, perpetuate a lack of clarity which impedes any examination of health human resources in the aggregate, to properly assess them from a national perspective.

The World Health Organization has used the term 'human resources for health' to refer to "all who contribute to the health system's objectives, whether or not they have formal health-related training or work in the organizational health sector" (WHO 2000). At this stage, there is no expanded typology presented in the literature to encompass this very broad and inclusive approach. Most approaches tend to focus on direct care givers, with a particular emphasis on those most readily recognized in the system (e.g. physicians, nurses, etc.). Others categorize providers with a high degree of self-direction and direct care (e.g. physicians, dentists, etc.) separate than those who are considered to be supportive or 'complementary' (e.g. nurses, dental assistants), or those who can 'substitute' for a primary care provider (e.g. nurse practitioner, midwife, dental therapist, etc.). However presented, the meaning of such classifications blurs for example, in isolated areas, where nurses operating in expanded roles provide many 'medical' services.

Health human resources have also been classified according to whether or not they are regulated or recognized. In Canada, for example, 37 regulated professions are recognized for the purpose of the Agreement on Internal Trade, but only 12 are recognized in all provinces (Health Canada 2000); and when the Territories are included, only nine professions are recognized. Modes of funding create inconsistency across the country in terms of which professions are funded predominantly through the public single-payer system, versus private multiple-source funding. The majority of the widely recognized professions, including physicians and nurses, are predominantly funded through the public single-payer system, either directly or indirectly through a recognized employer (e.g. hospital).

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Dentists are another example of a widely recognized and consistently regulated profession, but they are funded predominantly from the private sector (with the exception in most provinces, of some in-hospital care). Many regulated professions practice totally outside the publicly funded environment, such as Naturopathic Physicians. Some providers unique to the First Nations environment are not yet afforded formal recognition by provincial jurisdictions, and thus can't practice in the rest of the system. Under such varying conditions, as the labour force has evolved over time, different approaches have developed in training, licensing, notions of competency, and regulation of practice. These variations in patterns of regulation, recognition and remuneration, present particular challenges to reform of the health system and to proper management of health human resources.

Because no one system adequately or consistently captures the full array of human effort in health systems, the following points simply summarize the types of groups associated with health human resources in Canada. It is only intended to serve as a generic foundation from which to appreciate the diversity of the workforce landscape. It reflects the broader approach to typology suggested by the World Health Organization, with representative examples of human resource groups in each category.

- ✧ **Consumers/Users:** Patients who exercise self-care and their families who provide an enormous amount of voluntary care
- ✧ **Non-professional health resources:** Volunteers and other community supporters (religious leaders/clergy)
- ✧ **Regulated direct health care providers** and other professionals: examples include Physicians, Nurses, Physiotherapists, Dentists, Chiropractors, Audiologists, Optometrists, Pharmacists, Nursing Assistants, Dieticians, and Psychologists (see the Appendix for some examples of regulated professions)
- ✧ **Providers unique to environments** such as First Nations: National Native Alcohol and Drug Abuse Program (NNADP) Workers, Community Health Representatives, Dental Therapists
- ✧ **Supporting health care providers/professionals:** examples include Pathologists, Radiologists, Laboratory Technologists, Dental Hygienists
- ✧ **Non-Regulated/Alternatives:** examples include Health Care Aides, Herbalists, Elders, Iridology, Homeopathy, Shiatsu, Reflexology

In addition, there are others in the health workforce who may not participate directly in treatments, but are nonetheless part of the infrastructure of support and influence decision-making in the health care system, such as:

- ✧ **Information Technology:** personnel to support the development, management, training and on-going maintenance of information systems, related hardware and software, etc.
- ✧ **Administrative/Management:** health care executives, health care financial officers and staff, health care human resource officers, etc.
- ✧ **Support or 'Hotel' Functions** of institutions and home care: maintenance, food service, housekeeping/custodial, administrative, etc.
- ✧ **Academic/Education:** teachers/administrative staff involved in health education/health promotion in universities, community colleges, other training institutions, etc.
- ✧ **Academic/Evaluative:** representatives of the health provider community who do research evaluation, in addition to, statisticians, economists, health policy and systems/organizational design, health geographers, etc.
- ✧ **Government:** the human resources of federal, provincial health ministry and other departmental bureaucracies, regional health boards, etc.

The above presents a more complete portrayal of the magnitude of health-related human resources than is traditionally presented in this area. A more precise system to identify and quantify the sub-groups of health human resources, using common terms, measures and values, would serve at all levels to build a stronger foundation of data to support more effective and balanced planning and management. According to the World Health Organization, ensuring a supply of associated professionals adequately trained for health issues, such as economists, statisticians, administrators, managers and accountants – is a systemic problem and has called for strategies to be developed to address this. In any case, it is important to keep this larger menu of health human resources in mind when considering questions associated with policy, planning, management, and education of the health workforce, as the implications affect a broader group than is typically acknowledged (Marriott and Mable 1996).

Health Workforce Planning

Definitions and Various Meanings

The importance of workforce planning can be understood in terms of its role in anticipating the total workforce required for emerging integrated health organizations and planning, in keeping with changes in health services, organizational and systems reform. The associated implications and policy options for management reinforce both the importance of managing imbalances and the limitations to date on policy mechanisms to carry that out. To understand the implications, it is useful to begin with various interpretations of workforce planning.

Workforce planning has been defined as “the process of estimating the number of persons and the kind of knowledge, skills and attitudes they need to achieve pre-determined health targets and ultimately health status objectives” (Hall 1978). Another definition presents a broader perspective reflective of the direction of health care reform. It casts workforce planning as “integrated health human resource planning that involves determining the numbers, mix, and distribution of health providers that will be required to meet population health needs at some identified point in time” (O’Brien-Pallas et al 2000). From a perspective highlighting multi-cultural priority, in the US, the objective of workforce planning has been presented as “The ability to provide essential health care services to all Americans [which] depends upon the proper supply, racial/ethnic composition, specialty mix and geographical distribution of physicians and other health professionals” (COGME 2000).

The fundamental purpose of workforce planning, as simply expressed in the UK is to “ensure that there are sufficient staff available with the right skills to deliver high quality care to patients” (Department of Health 2000). Further, it should answer the basic question: “Is the supply of health care workers adequate to meet the health care needs of the population to be served?” (HRSA 2000). Australia adds the following delineation: At the macro level it involves estimating the numbers of health human resources required to meet (but not exceed) future population requirements in order to achieve a balancing of supply and requirements. At the micro level it includes determining the functions and task assignments of the workforce (AMWAC 2000). A large part of this now includes ensuring that the health workforce has the skill mix for high quality care and also whether there is an adequate reflection in the workforce of the cultural and racial makeup of the population served (HRSA 2000). This reflects an appreciation that planning should take into consideration workforce characteristics in terms of the level and timeliness of their skills, and capacity to reflect or to understand the characteristics of the population they serve.

Workforce planning is increasingly expressed in broader terms beyond just counting numbers or types or locations, to include consideration of when and how they are or will be *produced* (i.e. universities/colleges and training programs), as well as how they are or will be *managed* (i.e. brought into place and maintained, or recruitment/retention, their roles or functions within existing or new organizational models, remuneration policy, team/interdisciplinary, etc).

Planning can also be applied to more specific situations or particular contexts such as:

- ✧ The present supply and needs or the future supply and needs;
- ✧ Different health care settings (e.g. hospitals or long-term care facilities);
- ✧ Individual professions or occupations (e.g. nurses or dentists);
- ✧ Different delivery systems (e.g. acute care or mental health);
- ✧ Specific target populations (e.g. the elderly or children);
- ✧ Specific health problems (e.g. AIDS or heart disease);
- ✧ Specific policy initiatives (e.g. expanding access to primary care) (HRSA 2000).

There are other major influences which add to the multi-dimensional nature of planning. The first is that workforce planning does not take place in a vacuum - the health systems and populations served present a dynamic environment of continuously evolving and overlapping issues, needs and goals which do not wait for planners to address them. This contributes to the complexity and the 'catch up' nature of planning to date, within evolving circumstances, as stakeholders try to move themselves out ahead of the issues and targets, to better anticipate them. In addition, the kinds of information needs such as identified above appear to be and in many ways may be concise terms (nurses, workforce, delivery system, policy), but they don't just 'boil down' to simple 'numbers.' They are in fact embedded with or underpinned by many sub-elements and variables which have eluded precise or timely documentation or assessment, for a variety of reasons.

Another contributor to complexity is that there are many different stakeholders who are, have been or may be involved in influencing the workforce planning process in all jurisdictions, including those within and outside of traditional health care boundaries. Inter-sectoral stakeholders can include: professional associations, medical schools and other health provider training institutions and faculty, government agencies including ministries of health, hospitals, other health employers and the publicly funded health system. Intra-sectoral stakeholders can include: national and provincial/state

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governments, universities/colleges, parents, students, unions, political parties, the insurance industry (for supplementary and non-insured areas in Canada) (Rosenthal, Butter and Feld 1990, and Doan 1990), to which should be added *citizens*.

The Process

Health workforce planning can be depicted simply as a search for balance in the 'equation' between supply and demand for health services. Both 'sides' of the equation reflect many sub-elements which are perpetually evolving over time, in accordance with changes in the character and availability of resources on one side, and population health 'needs' or goals on the other. Both must operate within larger systemic targets or parameters. Basic steps of workforce planning in the simplest terms involve an *analytical* phase, followed by the development and implementation of a *plan of action*, followed by an *evaluation* and *monitoring* of the workforce environment, to provide input for *refinement* or *changes* over time.

The analytical phase for supply examines and projects both current and future workforce supply, of which there are two major inflows - new graduates and immigrants from other countries and three outflows - retirements, deaths and emigration to other countries. The analysis determines current supply by discipline, nationally, provincially, regionally or in specific geographic areas designated by combinations of population and/or economic status or other population identifiers. Estimates are based on the current workforce and the expected number of graduates, adjusted for average hours worked by different age and sex cohorts and expected age of retirement. The projection of supply is based on the current situation and is done by taking the current workforce and adjusting it for likely exits (e.g. retirement) and expected entries (e.g. of new graduates).

The analysis of current and future workforce requirements to meet population 'need'/demand is more subjective involving a number of measures. Projecting involves the adequacy of the current workforce and likely trends in requirements. The future supply and requirements are then examined to determine whether there is a surplus or shortage and from there, determine what steps to take to bring the workforce into balance with population need (AMWAC 2000; Horvath, Gavel and Harding 1998).

Recent moves include an ability to look at each specialty within physicians as well as growing recognition of both the implications and need to include nurses and others health professionals in the planning process. In keeping with health systems reform, there is also a growing appreciation of the implications of introducing multi/interdisciplinary teams associated with primary health care organizations and vertically integrated health care organizations, which are the organizations increasingly responsible for a range or the 'full

continuum' of services for the populations they serve. The reference to *integration* of workforce planning refers primarily to planning for all the health workforce within the context of a multi/interdisciplinary workforce policy. However, it can have many meanings with implications for workforce planning. For example:

- ✧ between workforce and service/business planning at Trust level;
- ✧ between different groups of health care workers;
- ✧ towards an integrated workforce of multi-disciplinary teams;
- ✧ also implies addressing the interface between primary and secondary care in health;
- ✧ between health and social care;
- ✧ between professional education and vocational training (Edmonson 1999).

Implications of Surpluses/Shortages

The goal of attempting to achieve a 'balance' is particularly critical given the implications of surplus and shortages. While most of the literature deals with this in terms of physician surplus and/or shortage, many of the implications could also apply to other health providers in the system. Surpluses encourage 'competition' for patients, which some believe may undermine the prestige and authority of the profession and may lead to provision of unneeded services and other practices which are ultimately detrimental to the welfare of patients. The production of 'excess' providers [e.g. beyond what is needed] using public funding leads to 'unnecessary' education/training costs, with heavy public cost in all countries including the US. This in turn, raises total health system costs. It may also impede access. Physicians will be either unemployed, under-employed, or working at tasks other than those for which they received lengthy and expensive education and training. The workforce may not maintain skills because of insufficient consultation rates. The potential for over servicing of patients increases when physicians and others on fee-for-service may respond to surplus situations by simply generating more activity (e.g. scheduling more patients for more frequent visits)—the so called 'elasticity' effect. This all could lead to potentially higher costs as well as poorer health outcomes for the population.

Conversely, shortages mean that patients may not be able to receive needed services, or will wait in long waiting lines for services. Less or little time would be available for each person as well as consideration of aggregate group issues. Health care professionals and associated practitioners and staff would be overworked. As shown by trends, physicians could be increasingly unwilling to settle in areas of great medical needs

(e.g. rural/remote, inner city), which exacerbates the differences in access to physicians (e.g. poor versus rich) for different populations. Because of the inflationary aspect of increased financial incentives or other measures offered by some localities to entice physicians, this kind of situation could similarly lead to the potential for higher costs as well as poorer health outcomes for the population (The Centre for Health Professions 1997, Klein 1990, AMWAC 2000). In the end, both scenarios present similarly negative potential implications for system costs and patient care.

Mechanisms and policy options to address workforce imbalances

There are a limited number of policy levers and mechanisms to deal with workforce imbalances including surplus, shortages and mal-distribution. What follows are a few examples for each.

Examples for dealing with surplus include:

- ▲ encouragement of use of substitute professionals [to reduce demand on higher cost practitioners]
- ▲ encouragement of self-management of care needs through information provision or other strategies
- ▲ reduction of demand through changing consumer expectations
- ▲ reduction of enrollment in universities and residency programs in general
- ▲ reduction of education intakes and flow of foreign providers

Examples for dealing with shortages include:

- ▲ increase remuneration for health care providers in areas of shortage
- ▲ increase/introduce recruitment/retention bonuses
- ▲ introduce retraining incentives to re-skill professionals to skill areas of short supply
- ▲ introduce mobility incentives to encourage relocation to geographic areas of short supply
- ▲ increase education intakes
- ▲ increase flow of foreign providers into the workforce
- ▲ facilitate re-entry through retraining programs, job redesign to make more attractive etc.
- ▲ increase use of technology to expand available provision (e.g. telehealth).

Examples for dealing with mal-distribution:

- ▲ expand opportunities for education in under serviced areas;
- ▲ increase enrollment of under-represented minorities in school and residency programs; (The Centre for Health Professions 1997, Duckett 2000).

Continuing Issues and Implications for Workforce Planning

As more attention is increasingly being paid to other health workforce participants beyond physicians, health workforce planners in many countries continue to face a number of issues and challenges in the developing field. They present obstacles to both workforce planning and larger strategies of system reform. Addressing these is, in part, what drives the current move to reform workforce planning itself. The politics surrounding health workforce issues have been rampant (Osterweiss et al 1996). Schroeder (1994) outlined numerous potential obstacles to workforce reform including:

- ◇ “Attitudes:
 - ▲ Concern about precision of projections
 - ▲ Desire to let market forces work
 - ▲ Distrust of government
 - ▲ Distaste for regulation
 - ▲ Academic medicine’s resistance to change
- ◇ Details and logistics:
 - ▲ The transition phase
 - ▲ As many losers as winners?
 - ▲ Loss of residency positions
 - ▲ Parents lobby.”

In addition, hospitals fear the loss of medical resident positions (as illustrated in New York State), which “represent a source of captive, available, and inexpensive labour, which if removed could cost the state \$750 million a year to replace. A reduction in specialty residency positions ultimately may chip away at the specialty expertise that has served NY well in drawing top notch doctors and leading the way in medical breakthroughs. The loss of residency slots is further exacerbated by the recent trend in limiting residents work week to 80 hours or less.”

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From a policy perspective, health human resources and workforce planning have been only weakly linked to national health policies and population health needs (O'Brien-Pallas et al 2000). The same relates to linkages with larger planning for services. A focus on services rather than just focussing on specific health providers may lead to different conclusions in terms of who or which provider or set of providers should be providing that service. As illustrated by Mirvis (1999), "Perhaps we need a different view of the problem—instead of generalists—look at 'generalist care', i.e. coordinated care including preventive and wellness measures."

There are also issues associated particularly with providers. Rosenthal, Butter and Feld (1990) point to the tendency to view physicians in "splendid isolation" from all other types of health human resources—particularly those with the skills and capacity to be complementary and substitutable. They point to the need to move beyond planning for each profession and specialty in isolation from the others, to move toward a more holistic approach. At the same time, accepting other professionals and their potential roles presents other challenges. There are legal constraints and questions regarding which group can handle certain activities. The area of prescribing drugs has presented major issues, given its traditional positioning within a physician's role. In the present environment involving high tech requirements for many nursing tasks, the 'traditional' physician's prescribing role may be unnecessary, particularly as related to minor drugs.

In addition, professions have at times resisted acceptance of other professions' roles. Using the nurses as an example again, one can illustrate countless examples of an historical resistance by medical staff to certain tasks being delegated to nurses. This pattern, however, is not confined to just physician resistance. It applies to some extent to all the health professional hierarchies and 'pecking orders' within and among health professionals. "Examples continue to exist primarily between doctors and nurses, nurses and the professionals allied to medicine - physiotherapists, occupational therapists, etc., and between the various allied health professionals" (Gill 1996).

The time it takes to educate professionals also has to be factored into workforce planning—particularly given the long lead time for physicians and particularly specialist training. Sweden has used a 13 year planning horizon while Australia looks at 10 years with adjustments per discipline/specialty (AIHW 1996). Given this length of time, predictions of what providers are needed could change due to unforeseen circumstances. Many professionals would like to 'change' their selection of speciality, but the absence of flexibility in career pathways makes it difficult to switch training paths without having to start their training afresh. In addition, in rural areas, there is a need for generalists with 'additional' skills in select specialty areas (Edmonson 1999).

The attitudes of professions are also changing in terms of a desire for a more balanced life, including time with family and for other interests outside of work. As expressed by Saltman (1995), "Despite our beliefs about ourselves and the expectations of our patients, no GP is a human night-and-day doctoring bank. All of us need our time off." This has implications for 'working hours' per professional, and demand for more flexibility in terms of options for new working arrangements such as job sharing, and permanent part-time (AIHW 1996).

The average age of the workforce is advancing and there is a trend toward earlier retirement (AIHW 1996, Buchan and Edwards 2000). This applies to physicians and nurses. In the case of nurses, some of this may in part be the result of the lay off of nurses with less seniority and therefore younger during the restructuring and downsizing in the hospital and other sectors in the mid-nineties around the world. In turn, this also means that, except for those who left their respective countries, there are nurses in the community who may be encouraged to return, with the right incentives. And finally, there is still a chronic problem in many jurisdictions with mal-distribution of providers. Inner city as well as rural and remote populations are often unable to access a physician, and nurses are filling the primary health care provider role in many cases.

Access to timely, appropriate and good quality information is still a problem in many jurisdictions. It is necessary to support the analysis of supply, demand, requirements and other aspects associated with workforce planning (de Roo 1990). Information relates to more than data or numbers. It also relates to an appreciation of the implications of other dynamics that can influence health workforce planning such as the implications of new institutional arrangements (Rosenthal, Butter and Feld 1990, Klein 1990). This would include understanding the workforce implications of emerging primary health care and vertically integrated health organizations (i.e. organizations responsible for all health services for a defined population), which encompass imperative for multi/inter-disciplinary teams and alternative forms of funding and remuneration, such as capitation.

Also associated with evolution of new organizational arrangements is the need to incorporate population enrollment/rostering linkages into policy and methodology. For example, variations include enrollment or rostering with an organization versus enrollment with a given provider. In this context, the potential complication and need for clarity relates to whether patients are enrolled and cared for by systems or groups of providers, rather than by a single physician. These systems may also include nurse practitioners, clinical pharmacists, patient educators, etc.. In such a system, it would be difficult, if not impossible to assign the role of primary provider to any one person or to any one specialty (Mirvis 1999, Marriott and Mable 2000 and 2001).

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There are other implications regarding enrollment or rostering policy. If the only option is enrollment to 'one' (usually physician) provider, this may create or reinforce existing barriers against nurses and others to practice independently according to their training, scope or potential, forcing others to be 'supervised' (entailing perhaps unnecessary time or efforts in supervision by physicians or others). It may also deny the rights of citizens to seek care from other providers in the organization, such as Nurse Practitioners, in addition to their choice of physician.

In addition, there are issues associated with international recruitment and health professional migration and the impact that they have on workforce planning. These relate to policy associated with both foreign trained physicians as part of the new supply, and the ethical issue of recruiting health professionals from other countries. There are a number of ethical dilemmas concerning recruitment from less developed countries and the rights of individuals to migrate if desired (Bundred and Levitt 2000). These expose other issues of recruitment and more importantly, retention, illustrated by a recent UK study of graduates showing a lack of commitment to practising medicine in the UK (Jinks, Ong and Paton 1998). As a result, the UK is actively recruiting elsewhere (as are other countries), except that they are promising not to take up physicians without the agreement of the other country. Canada has also pursued and experienced active recruitment of both physicians and nurses to and from Canada.

Finally, there are a number of persistent issues associated with methodology and process. For example, the models for determining workforce supply, need and demand are imperfect and characterized by a number of problems. Some of these problems as presented by Edmonson (1999) include, for example, a tendency to behave as if planning was an isolated function separate from the rest of management. Health workforce planning and planning for health services has been "compartmentalised" or "isolated" with workforce planning often done after service planning rather than as an integral part of it. There has also been a narrow focus on "numbers-based" quantitative analysis. And frequently, methodology has been influenced by an implicit view that the future could be simply predicted by a process of extrapolation from the present. As a result, workforce planning presented highly variable quality with regard to standards and processes (Edmonson 1999).

Needs-based planning relies on panels of experts to estimate the per capita number of physicians needed to treat the diseases managed by a given specialty. According to Goodman et al (1996) experts are "required to have detailed knowledge of the efficacy of individual medical services for specific conditions, such as tonsillectomy for tonsillar hypertrophy or a physician visit for hypertension. Yet, the efficacy of most medical services and the productivity of physicians in delivering these services is uncertain." Demand-based planning uses current utilization as a proxy for patient demand and as an

indicator of physician requirements. The problem with it is that it perpetuates current utilization patterns without regard to patient or population outcomes and ignores the evidence that, at least in non-capitated health care markets, an increased supply of medical resources leads to increased utilization (Goodman et al 1996).

This occurs as a result of what has been referred to as 'physician practice elasticity,' which simply means that when there are fewer patients, physicians on fee-for-service can schedule more visits to ensure their income is protected. Both Needs-based and Demand-based planning are sensitive to assumptions about physician effort, utilization patterns, the effects of managed care or other equivalent models that are vertically integrated that tend to have groups, multi-disciplinary teams and use non-physician providers such as nurse practitioners and physician assistants (Schroeder 1996).

Benchmarking offers an alternative to these planning methods. Comparing physician resources with a benchmark health plan or region provides a guidepost that does not depend on a hypothetical optimal physician level but depends on a real-world and attainable health care system. But benchmarking is not without its limitations. For example, it is not intended to identify populations with inadequate access to basic medical services. And there is no agreement regarding the amount of work that constitutes a full-time equivalent clinically active physician (Goodman et al, 1996). As well, a key challenge has been the lack of easily accessed clinical, administrative and provider data bases to conduct complex modelling activities, such as health need and health system and caregiver outcome data, and management information systems which reflect utilization and costs (O'Brien-Pallas et al 2000).

A discussion such as this cannot be completed without calling particular attention to nurses and other health providers, for at least two reasons. So much more is known about the physicians, as illustrated in this document. And now that nurses are finding more areas to practice given the trend to more emphasis on community services, more attention is being paid to this profession than ever before. This is particularly true in terms of implications for workforce planning and associated issues and challenges that will need to be overcome. In Australia, for example, universities have been making independent decisions about curriculum and appearing to disregard the National Review of Nursing Education. In addition State and territorial governments are making independent decisions about the structure of nursing with relatively weak national coordination policies.

The nursing workforce is increasingly segmented into sub-specialties such as midwife, emergency nursing, intensive/critical care nursing, nurse anaesthetists in the US, etc. (Duckett 2000). This suggests that there is the potential to identify work groups for planning, as is presently the case with physicians, to be incorporated as a sub-set of workforce planning. At the same time, a major issue for nursing in all jurisdictions is

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clarification of the roles of nursing, such as to what extent will they function as substitutes or work in complementary practice with physicians. Opportunities in this area are greater where nurses have, for example, independent prescribing rights, or capacity to refer patients. Without clarity in this area, it is difficult to determine how many nurses will be required from a workforce planning perspective. And in turn, evolution in this area impacts on workforce planning for physicians.

Another complication for nursing, particularly for those with expanded roles, is how to pay them. While fee-for-service represents a traditional mode of payment for independent providers, in the present environment the trend is away from this, as it is not a pre-requisite and increasingly appears not to be the favoured option. In addition, legal recognition and protection for nurses with expanded roles, such as nurse practitioners, must be considered as part of the introduction or reinforcement of this direction. And finally, as it is with many health professionals, the nursing population is aging, which points to a potentially very serious problem in many jurisdictions. Already in many countries, there appears to be a shortage of nurses. As a result, more countries are paying additional attention to nursing. For example, ministers of health at the WHO European regional conference on Nursing and Midwifery in Munich formally demonstrated this, proclaiming a strong commitment to strengthen nursing and midwifery (WHO 2000).

Among other supports, ministers dedicated commitment to the development and dissemination of comprehensive workforce planning strategies to ensure adequate numbers of well educated nurses and midwives. In addition, WHO will be reviewing information on national efforts for health workforce planning, and will identify and disseminate information on models appropriate to different health systems. Similarly, technical assistance will be provided to ensure enhanced human resource relevance to the actual needs in the health services and populations. This is a major step, given that a number of European countries have not actively carried out nursing workforce planning on a national scale, as has been the case with physicians.

There is a similar inattention to and lack of good information on other health professions, as it would relate to or support planning. There are occasional or isolated profession-specific papers on one or other aspect of workforce planning - often lacking detail. For example, it is known from selected information that the UK has a shortage of physiotherapists and will be recruiting abroad, as the number of new graduates won't meet demand/need (Buchan 2000). In addition, optometrists in the US carried out a study to confirm that they, along with other eye care professionals are in a surplus nationally. An interesting conclusion of this particular study provided an explicit example of professional self interest, documenting the professional call to stimulate *demand* to correct their surplus 'problem' (White, Doksum and White 2000). A small number of studies in the US examine dentists, pharmacists and other professionals.

Part of the problem relative to other professionals has been the extent to which they have been in a relatively weak or subordinated position relative to physicians and nurses. Duckett (2000) has suggested that this is due to the relative political and social status of physicians and the numbers and increasing power of the nursing profession. The main challenge for workforce planning in the area of 'other' health professionals will be bringing them into the forefront of processes, and establishing better information as well as appropriate appreciation of their place within and contribution to health care.

Review of Current Workforce Planning Approaches

Introduction

The purpose of this section is to present an overview and select country examples of workforce planning organizations, planning methodologies and processes. The literature reflects a growing sophistication of appreciation and understanding of what is now considered to be the relatively new *field* of health workforce planning. Although some academics engaged in presenting more sophisticated approaches in the 1970's, it appears that their work was not taken into account or was mostly ignored by the stakeholders in practice. By the mid to late 1980's, additional sophistication was finding some expression in the literature and in government studies. Efforts to actually reform and refine approaches on a national scale in some countries didn't really begin to start to take hold until the mid to late 1990's.

It is this latest phase that is still emerging and evolving at different rates and forms of expression today that will provide a richer environment for sharing and comparison over time. What is emerging is an enhanced appreciation and expansion of workforce planning reform and evolution on two fronts. The first, as presented in this section, is that some countries are moving to put in place permanent workforce planning *organizations* supported by the participation and contribution of employers, health professionals and others. This is part of an expression of political will and a commitment to an on-going, as opposed to intermittent, process. On the other front, there is a movement to greater sophistication in methodology and processes that incorporate multiple modalities of analysis and planning. To further reinforce this direction, governments are putting a priority on the development of information systems to support the process.

Emerging Organizational Structures for Workforce Planning

In some countries, permanent workforce advisory organizations and associated supports are emerging after a long period of leaving workforce planning up to the various professional associations, occasional government studies, or the market. These organizations are charged with an on-going responsibility for workforce planning, evaluation and monitoring and the provision of advice to government, and the engagement of a broad partnership of stakeholders and participants to provide input. This is a recent movement that in some cases continues the emphasis and focus on physicians, such as in the Netherlands, Australia and Germany.

Other countries are beginning to take a more expansive approach. The UK has proposed new directions and consultations as of 1998. It is now in the process of revamping its workforce planning to be integrated and holistic with new organizational structures and obligations to support planning for the total health workforce. Similarly, New Zealand is moving to an integrated and holistic approach with the establishment of its Health Workforce Advisory Committee in 1999. And the Federal Bureau of Health Professionals in the United States has established guidelines for State governments to establish some form of central workforce advisory body to look at the total health workforce.

Methodologies and Processes

Methodologies and processes are emerging for workforce planning which are 'multi-modal,' and apply and refine a mixture of approaches to measurement and analysis. They represent attempts to respond to past failures, and to find the 'magic bullet' approach to determining and projecting supply and requirements and future needs (AMWAC 2000). Most of the experience depicted in the literature is with physician workforce planning studies and processes, although many principles and concepts appear to be transferable to other health professionals.

The relative scarcity of 'national' examples of workforce planning for nurses and other health providers may be due to the fact the historically they have been employees of hospitals, long term institutions, public health or within physician owned/managed primary care or specialists practices. The responsibility for planning and signalling shortages/surpluses was to a great extent the responsibility of these organizations (particularly hospitals). The movement toward primary health care reform and to vertically integrated health organizations, with group practices and multi/inter-disciplinary teams, including nurses and others, is serving to highlight these professions more and to support the notion of integrated holistic planning over time.

To supplement national initiatives, the World Health Organization (WHO) is contributing to the refinement of methodologies and processes through the commissioning of various studies and discussion papers (Adams 2001). WHO has also made available a 'Toolkit' prepared by Thomas Hall, including information on microcomputer spreadsheet models for developing 10 to 30 year projection scenarios for workforce supply and requirements (Hall 2001).

Overview of Selected Countries

What follows is an overview of select countries including Germany, The Netherlands, Australia, The United States and the United Kingdom. Where applicable, each will begin with an overview of their organizational arrangements followed by an overview of their methodologies and process in workforce planning. Two exceptions to a detailed discussion of methodology and process in planning are the Netherlands where the details of approaches are not available at this time, and New Zealand, where they have yet to initiate looking at workforce numbers.

Germany, The Netherlands, and Australia have national organizations in place only for physicians at this time. The intent in New Zealand, and the direction in the United States and the United Kingdom is to look at total workforce and integrated planning. National planning overviews are presented for Germany, Australia and the United Kingdom. Some examples of a study or workforce planning are presented for the United States including one for physicians, one for nurses and one example of an integrated planning exercise in Wisconsin. In addition, an integrated planning exercise for Scotland is presented as part of the discussion of UK methodology and process.

Germany

Organization:

Germany serves to illustrate a context with specific challenges that are different from Canada. The German post-war constitution stressed individual rights and limited rights of intervention and regulation by the state. One right included the right to free choice of an occupation and corresponding educational opportunities. This meant that the government was not able to approach workforce planning by controlling the number of students in medical schools at university (Bussche 1990). One result has been a tendency to overproduce physicians. The government response was the Health Reform Law of 1993 to restrict the budgets on spending for physicians and limit the number of physicians based on strict population to physician ratios (Weil and Brenner

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1997, Schneider and Spat 2001). In short, controlling the right to employment in a panel of physicians.

The Government Ministry of Health receives advice, at the Federal level, from the Federal Committee of Physicians and Health Insurance Funds. At this point in history, there is no counterpart for nursing or other health professionals in Germany. But given the Munich accord, to support nurses more and develop workforce planning for nurses, this may change in the future. The Committee is responsible for establishing the guidelines for medical workforce planning to be carried out at the regional/local level. The policy mechanism is to limit the number of approved provider reimbursement numbers available for physicians by municipality (Weil and Brenner 1997). The Federal workforce plan at level 1 (to be described under methodology and process) operates under the following guidelines:

- regulations on workforce planning—with emphasis on how to determine the content of workforce plans and the delimitation of planning areas;
- standards, basis and procedures for the determination of the general degree of supply of medical care and oversupply;
- standards of determination of special need related to quality aspects as a precondition for granting exemptions from admission restrictions (i.e. admission or acceptance of application to work in a panel of physicians);
- standards, basis and procedures for the determination of impending or existing under-supply; and,
- standards of a balanced provision structure for general and specialist medical care.

Based on these guidelines, the Federal Committee establishes the doctor/patient ratios per specialty, including General Practitioners, and submits these to the Ministry of Health. The German Federal Ministry of Health can and has demanded revisions to these guidelines where they feel they do not meet the budgetary and health need requirements of the system. Currently the government is insisting on the use of 1990 numbers as the 'authoritative' reference point. Based on agreement, the guidelines are then passed to a 'local' or regional Associations of Panel Doctors and Regional Federations of Social Insurance Funds. Plans are developed every three years (Schneider and Spat 2001).

Methodology/Process

Regional/Local Associations of Panel Physicians and Regional Social Insurance Funds participate in workforce planning based on the guidelines concerning the number and ratios of doctors provided by the Federal Committee and approved by the German Federal Health Ministry.

For planning purposes, Germany is divided into four types of regions which are in turn divided into 10 planning categories. They include:

- Agglomerated areas: regions with large conurbation and towns with populations of 300,000 inhabitants and/or with a density of 300 inhabitants per square kilometre. Planning categories 1 to 4.
- Urban areas: regions with a smaller density and population of from 100,000 to 300,000 inhabitants and partly characterized by very rural surroundings and/or a density of 150 inhabitants per square kilometre. Planning categories 5 to 7.
- Rural areas: characterized by rural surroundings. Planning categories 8 and 9.
- Special areas: applies to towns that are administrative districts as well as administrative districts for the Rehear area only. Planning category 10.

There are two levels in the process. In the first level, the general or current doctor / population ratio is determined using the current populations and numbers of doctors by specialty (including General Practitioners) per planning category. The 'established' ratios for given specialists and general practitioners are then applied to the population in the planning area to determine the number of physicians "needed" by specialty to serve the population. The process then examines the actual number of general practice and specialist physicians per planning category by dividing the actual number of physicians by GP/specialty by the need with 100 representing the correct amount. Initially under supply is considered to be when there are 75% or less of the number of GPs required and 50% or less for specialists. An oversupply is when the percent of physicians of any category are 10% or more over the required number.

In the second level of assessment, the regional committees examine the results and carry out additional examinations. In the case of under supply, the committees carry out additional assessments to further guide their recommendations concerning admission of additional physicians to the panels. For physicians, they look at the areas of activity, productivity, age structure of the physicians, the structure of the medical practice and whether there are any

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specially authorized physicians. They then look further at the population numbers, age structure, demand for services, and other factors.

In the case of oversupply, they determine the number of physicians working as psychotherapists, select admission patterns in two areas, special needs, the level of group practice, and profiles of ambulatory surgery. If the determination does not change the earlier assessment, additional physicians will be blocked from joining the physician panel in the given specialty or general practice.

The Netherlands

Organization and Process

In the Netherlands there was no comprehensive government medical or general workforce planning as of 1989 and the early 1990s. Professional associations for the various medical specialists formulated their own policy on the number of doctors to be trained for their respective specialties. Training positions for general practitioners and physicians in nursing homes were determined by the government. The organizations responsible for hiring public health physicians had responsibility for both determining the number of training positions and the financing of those positions (van der Velden 2001). This changed with the introduction in 1999 of what is known the Capacity Organization (or Capacity Body) for physician workforce planning.

The organization, funded by government, has a tri-partite composition with representatives from the professional groups, the health insurance companies (Sickness Funds), and the training institutions (i.e. academic institutes such as universities and the affiliated hospitals). The three participating organizations are responsible for establishing the model—a process of bringing together partners is considered to be as important as the outcome in the view of its Director (Leliefeld 2001). The Capacity Organization provides physicians workforce advice on an annual basis regarding the number of doctors to be trained. The Capacity Body uses experienced research institutes like the Netherlands Institute for Health Services Research (NIVEL), to examine both supply and demand within the health system with 10 to 20 year planning horizons.

The first reporting commenced March 2001 with recommendations, supported by government to increase the number of medical students admitted to universities, increase the number of training positions for general practitioners and additional funding has been set aside for training medical specialists (van der Velden 2001). NIVEL also conducts various studies for health professions

and has a registers of practising and recently qualified health practitioners including GPs, midwives, physiotherapists, and medical specialists (NIVEL 2001).

Nursing and other health professional workforce planning is still handled at the national level by both the Departments of Health and Education in terms of establishing numbers of training slots. In addition, for nurses, there are several regional “planning committees” that include the participation of the training schools and hospitals along with other parties (van der Velden 2001).

Australia

Organization

In Australia, the primary focus of recent efforts is still on physician workforce. The Australian Medical Workforce Advisory Committee (AMWAC) was established in 1995. AMWAC reports to the Australian Health Ministers Advisory Council (AHMAC) and through that body to the Australian Health Minister’s Conference. The Committee works with a number of stakeholders including: the Institute of Health and Welfare, especially on data issues, the Health Insurance Commission, Departments of Immigration and Multicultural Affairs, Department of Education Training and Youth Affairs, the Commonwealth Department of Health and Aged Care, State and Territory Health Authorities, University Medical Schools, Medical Colleges, Divisions of General Practice and State and Territory Rural Workforce Agencies.

AMWAC’s first task was to produce an overall strategic framework for its work. From that point, as will be discussed under methodology and process, it focussed on all physicians and then on each discipline as well as specific subject areas of importance including immigrant physicians, trends in medical education, impacts of changes on medical students, female participation, development of guidelines for sustainable specialist services and other special subject areas (AMWAC 2000). AMWAC’s broad view of the workforce for 2010 was as follows:

“The health workforce is mobile, multi skilled and motivated. It has a primary care focus, supported by other types of services. The workforce is well educated and involved in continuing education, training and re-skilling. Much of the workforce is part time, and some engage and disengage in particular services as required.

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They are employable, rather than employed for life” (Horvath, Gavel and Harding 1998).

Methodology/Process

In Australia, the focus has been on refining physician workforce planning using a multi-modal approach to blend a number of methodologies and create various options and scenarios for the future.

AMWAC uses a computerized software model designed by van Konkelenberg (1995) for its workforce planning. On the supply side, the model takes into account any shortfall in the current workforce, expected entrants to the workforce, those leaving and then converts the numbers of doctors to a full time equivalent figure using the average hours worked per week by age and gender. On the requirements side the computer model looks at the likely trend in demand for services based on growth estimates (e.g. population growth, and other needs based indicators) selected for use with the respective discipline. Both supply and requirements are then projected over a 10 year period using a range of demand side growth estimates and supply side scenarios (e.g. doctors working fewer/more hours per week, increases/decreases in the number of overseas doctors entering the workforce).

With the support of this computer software system, the AMWAC process is summarized as follows:

- Expert panels are used to advise on selection of measures and the future impact of advances in technology, evidence based decision making, as well as financial and health service organization reform on utilization and productivity.
- Assessing supply begins with the selection of groups within the physician community to be examined based on such known problems of mal-distribution, shortage, oversupply, etc.—and continues with further refinement of the definition of the group (i.e. Oncologists, to include both medical Oncologists and Haematologists).
- Once identified and defined, the characteristics of the group are developed including the number of them, age/gender profiles, geographic locations of practice, and number of services by geographic area.
- Productivity is measured at this time by looking at average hours of work per week and number of patients seen until better productivity measures are available.

- Current and also future supply based on the current scenario looks at both future increases due to new graduates and immigration and losses due to retirement, death, or other temporary or permanent withdrawal from the active service providing workforce.
- Requirements (Population Demand/Need) are determined through a number of approaches including:
 - Doctor/population ratios—used mainly for describing trends over time. In the future it is recommended that ‘full-time equivalents’ be used to provide for more sensitivity in reflecting changes in practice styles, average weekly hours worked, etc.
 - Needs-based measures—to link workforce supply to estimates of population health need, as evidenced by population growth and patterns of morbidity using a range of epidemiological and expressed need indicators. It is recognized that there are still some refinements required to accommodate assumptions about utilization and future decisions on financing. To compensate for these issues, surveys of physicians, consumer support organizations, health authorities, and referring doctors are used to produce complementary information by geographic location.
 - Bench marking of international or between geographic areas to assess workforce supply.
 - Health services targets using health service facility targets of workforce needs based on best practice guidelines to determine the number of essential support staff available now and in the future for a given medical service.
 - Economic demand-side measures—for estimates of the future economic demand for medical services based on an analysis of current level of utilization, population demographics and socioeconomic attributes.
- Based on these studies of supply and requirements—project the levels of workforce by group (e.g. GPs, paediatricians, dermatologists, oncologists etc.) to meet projected requirements. (See further discussion of Australia’s approach to determining future need for specialists below.)
- Establish a plan to address any shortages or surplus to achieve a ‘balanced’ workforce within 10 years. Policy options include:
 - project the adjustments required in training programs
 - increase or decrease the number of overseas doctors entering the workforce

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- measures to increase workforce productivity
- use of complementary staff or substitutes
- Once in place, the Australian plan calls for a process for monitoring to ensure that recommendations are being put in place and for revisiting each group workforce plan at least every five years to account for unforeseen changes or problems with previous plans.

Australia also conducted discipline specific analysis for all the physician specialties. The approach is essentially as already described above. There were, however a number of additional points raised. For example, when projecting needs for specialists, it is important to keep in mind trends and additional indicators that relate to particular specialties. For example, birth rate and fertility rate for obstetrics, aged care assessments for geriatric medicine, the prevalence of injury for rehabilitation medicine, and incidence of cancer for radiation oncology. Horvath, Gavel and Harding (1998) also pointed out the need to consider available supporting infrastructure. While this is a factor to some degree for all the workforce, it has particular significance for some specialists. For example, emergency medicine, intensive care and radiation oncology were presented as examples where the trends and future population needs are 'not likely as important as likely future infrastructure; there being no point in having workforce greater than available infrastructure.'

What is not clear in the Australian approach, is how or whether they take into account the service contribution of what they call "Hospital Non-Specialists" including specialists in training or what would be referred to in Canada as Residents.

In the 1998 report on "Sustainable Specialist Services: A Compendium of Requirements" AMWAC presented a number of situational factors influencing population catchment areas that should be considered in supporting specialists' services:

Demand side	Supply side
<ul style="list-style-type: none"> • population profile (age, gender, morbidity, and socio-economic status) • level of private insurance • remoteness from an urban or regional referral centre • the quality of existing transport systems • established referral patterns • attitudes and expectations of patients regarding a particular specialist service • attitudes and expectations of referring doctors regarding a particular specialist service 	<ul style="list-style-type: none"> • number of appropriately skilled primary care practitioners • the number of similar and associated medical and surgical specialists resident in an area • the availability of appropriate facilities and support services, including the availability of hospital facilities.

The report pointed out the importance of a supporting infrastructure for all specialists. For many specialists, this means access to an appropriate level of hospital beds, operating theatres, delivery suites, day surgery units with appropriate diagnostic and surgical equipment along with appropriately trained nurses and other health professionals. With this as a foundation, they examined populations required to support various specialists within the more traditional health system structures:

- Rural areas with population catchment areas between 10,000 and 20,000 are large enough to support local specialist services in general surgery and anaesthesia, provided there is a district hospital, with required support and pharmacy and pathology, diagnostic radiology, operating theatre, intensive care unit, coronary care unit etc.
- 20,000 to 60,000—ob/gyn, paediatrics, psychiatry, orthopaedic surgery, geriatric medicine and pathology
- 50,000 to 80,000—ENT surgery, dermatology, rehabilitation medicine, neurology, and thoracic medicine
- specialist services may also be involved in provision of outreach specialist services and consultancy services to GPs and specialists in smaller rural communities

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- 80,000 and above—urology, diagnostic radiology, cardiology, intensive care medicine, nephrology, medical oncology, and radiation oncology.

It was indicated that it may be possible to provide a number of specialist services through a variety of specialist outreach programs such as regional specialist clusters, urban based teaching/research hospital teams visiting remote areas, or regional hospital based centres as specialist service hubs.

In light of international trends and current organizational trials, they also acknowledged the possible influence of new organizational and funding arrangements including either regional purchasers of services or vertically integrated health organization growing out of groups of general practitioners as purchasers or brokers of specialist services (AMWAC Sustainable Specialists 1998).

It is important to note that the underlying assumptions in the Australian model are that there will be no radical changes in the current national health structures over the 10 year projection period and that estimates concerning population growth, training programs, overseas doctor immigration and patterns of work and organization remain static. They acknowledge that any change in the use of other health care providers, a move to multidisciplinary teams and or adoption of enhanced primary health care and coordinated trials of vertically integrated health care organizations for elderly and others currently being tested in Australia would change the number and mix of physicians (AMWAC 1998 and 2000, Marriott and Mable 2000). In addition, workforce planning would also have to move to one that examined all the health workforce, and not just physicians. In the short term, however, there is a recommendation to establish a workforce advisory committee for nursing.

New Zealand

New Zealand had discontinued workforce planning in 1989 (AIHW 1996), and still rejected any central planning for a variety of reasons including history or error in favour of leaving it to the market and employers as recently as 1998 (de Raad). However, with a new policy direction in favour of strengthening primary health care and embracing interdisciplinary teams, the health minister established a Health Workforce Advisory Committee (HWAC) to coordinate the workforce and is in the process of introducing new legislation to regulate health professionals (King 2000, Goddard 2001).

According to the New Zealand Ministry of Health (Goddard 2001), “it is proposed that the committee will take a strategic view of the workforce required to deliver health services in the future rather than working out how many of each will be required in the future and trying to plan accordingly.” HWAC is accountable to and reports to the Minister of Health. Its key tasks are to provide an independent assessment of the current workforce capacity and foreseeable workforce needs to meet the objectives of the New Zealand Health and Disabilities Strategies. Its advice will consider what is currently known about the workforce (patterns of excess/shortages or other imbalances) and what type of workforce is required for the future (HWAC 2000).

The United States

Organization

The US stands out from the other countries with its mixture of publicly funded programs for the elderly and poor, and a private market for others. Historically, both federal and state governments have had a role in developing policy to shape the health care workforce. As stated by Tim Henderson (2001), “The need for government involvement in this area persists as the private market typically fails to distribute the health workforce to medically under served and uninsured areas, provide adequate information and analysis on the nature of the workforce, improve the racial and ethnic cultural diversity and cultural competence of the workforce, promote adequate dental health of children, and assess the quality of education and practice.”

State governments are the major players in workforce issues and planning given their responsibility for financing and governing health professions education; licensing and regulating health professions practice and private health insurance; purchasing services and paying providers under the Medicaid program; and designing a variety of subsidy and regulatory programs providing incentives for health professionals to choose certain specialities and practice locations (Henderson 2001, Biviano 2001).

Federal government policies to improve or increase access to health services tend to fall into three categories: supply policies related to its medicare and other service reimbursements/payments; direct supply policies such as student assistance, construction grants and other institutional supports, and workforce geographic distribution programs to deal with mal-distribution (Osterweiss et al 1996). At the federal level, the Department of Health Resources and Services Administration (HSRA) is responsible for the Bureau of Health Professions and

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within that the National Center for Health Workforce Information and Analysis. The Center funds a number of studies and four regional based university workforce centers at the University of California at San Francisco, University of Illinois at Chicago, University of Washington and the State University of New York at Albany. Other centres are planned. In addition the Council on Graduate Medical Education (COGME) is also engaged in workforce planning and providing advice to both the HSRA, the Senate Committee on Health, Education, Labor and Pensions, as well as the House of Representatives Committee on Commerce.

The federal government has produced a workforce data and resource guide for State governments. The goal is: “to promote the development of a health workforce that has the number and types of health workers needed to take care of Americans” (HRSA 2000). The guide presents a number of organizational options for State governments to consider. They begin with a recommendation concerning the maintenance of a basic set of health personnel data— ideally with all states collecting their data using standard definitions in order to allow multi-state comparisons and shared analysis.

Several classes of data are recommended as needed in a minimum data set with each collected or compiled for a number of recent years so that trend data will be available on which to base projections. The most important classes of data suggested are:

- Counts of licensed health professionals—several years, if possible active practising as well as those simply licensed to practice.
- Counts of other health workers—for several years—more difficult as may not be licensed and their associations may not have effective collecting of data system.
- Counts of new personnel—eg new licensees, provide important insights about the attractiveness of the various health professions and occupations and whether they are growing or shrinking. If possible—disaggregated by source of personnel (i.e. in-state, out-of-state, recent graduate etc.).
- Numbers of personnel employed by hospitals and other types of health care facilities—at least year by year. Info from hospitals should be easy but more difficult from other sources such as doctor’s offices. The best data will be for nurses.

- **Educational Pipeline Data:** Numbers of students enrolled in and graduated from health care education and training programs—a critical component of pipeline for new personnel.
- **Health Worker’s Salaries:** Average salary levels for different health professions, occupations, and specialties in different employment settings. Should be available for certain types of personnel such as nurses, physician assistants, physical therapists, occupational therapists, and radiation technologists and, depending on local circumstances, could compile separation tabulations for nurses such as emergency room nurse, psychiatric nurses, and nurse specialists.
- **Population Data:** Population counts with 10-year age breakouts for different political subdivision (e.g. cities, counties)—a critical reference—to estimate the demand/requirements for health care services. They can also project future demand/requirements for health care.
- **Health Facilities Data:** Numbers of beds in hospitals, nursing homes, and mental health facilities, and units of service for home health agencies and ambulatory care facilities. Can be used in a variety of ratios in models to project future demand/requirements for health workers. Information about openings and closings of facilities or services can be particularly important for health workforce planning and policy making.
- **Health Care Expenditure:** Expenditures on health care for different kinds of service providers. Financial data should be compiled from health care facilities, including acute care hospitals, long-term care providers, and outpatient providers. These data can be used in a variety of ratios and other models to estimate workforce requirements.

In terms of what supporting organization that a State could put in place, they recommend a number of options depending on budget and other considerations.

- **Establish a Health Workforce Advisory Council.** A standing advisory council could promote understanding of common issues, facilitate the development of cooperative data collection programs, and help coordinate data collection and analysis.
- **Establish a Small Health Workforce Data Unit.** The assignment of a small staff would provide a locus for workforce planning and could help state agencies to define and address basic policy questions.

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- Establish an Office of Health Workforce Planning. This is seen as the ideal approach. Professional staff in the Office would be available to respond to urgent or emerging health care problems involving supply/demand. A full office would allow the state to carry out a number of activities including:
 - surveys of health facilities, health care practitioners, and related educational programs to maintain current information for planners and policy makers
 - reports on the status of the health workforce in the state produced on a regular biennial or triennial basis
 - a quarterly newsletter summarizing current issues and programs related to health workforce
 - an annual action agenda which indicates the major health workforce priorities for the coming year
 - creation of standard definitions and protocols for basic health workforce terminology to facilitate communication and analysis
 - special studies related to current executive and legislative issues and initiatives
 - models to project future health workforce supply and demand
 - obtaining consensus on responses to critical health workforce issues
 - other

And finally, the report recommends the development of an electronic network through which a number of organizations could share workforce data and files. While acknowledging that the initial investment can be high, once in place it could greatly facilitate the collection, sharing and analysis of health workforce data (HRSA 2000).

Methodology/Process

What follows is a presentation of an approach to forecasting primary care physicians followed by comment on projecting future supply of nurses, and finally an example of interdisciplinary workforce planning exercise in the state of Wisconsin.

Primary Care Physicians

What follows is an overview of the methodology used by Libby and Kindig (2000) in a study funded by the HSRA to estimate primary care physician needs for under-served Americans that incorporated the following elements in its approach:

- Supply of physicians and information on population and rural-urban continuum codes was determined using the Bureau of Health Professions 1997 Area Resources File (ARF) with care taken to define what 'specialists'/designations would be recognized as 'primary care physicians (e.g. GP, FP, General Internal Medicine, General Paediatrics and General Ob/Gyn).
- 'Requirements' were estimated for each of five distinct county types: Metro-Core, Metro-Fringe, Small City, Rural, Sparse. Two sources for determining what is needed by populations included:
 - Expert panel survey of opinions on number of generalist physicians per 100,000 required to provide (a) an adequate level of physicians 'by county type,' and (b) a minimal level of physicians by county type.
 - Previous COGME recommendations of 60 to 80 generalist physicians per 100,000.
- Future Need was determined by comparing the various estimates of what is required (i.e. expert estimates, high and low of COGME) with the existing per county to determine surplus/shortage per county and ultimately for the nation. They further refined the 'future' based on applying this methodology to six future scenarios. The Status Quo - meaning a continuance of health insurance/system as is would require an increase of 10.4% , and when compared to this as a base of increase, the following scenarios produced requirements for additional or fewer physicians:
 - A Baseline Insurance Projection to estimate expected growth of managed care market would lead to an additional 1.1%.
 - A high managed care penetration would lead to further decrease in future needs of an additional 1.7%.
 - Universal coverage (like Canada) would lead to an additional increase of 9.9% due to assumption of higher demand by those who did not have adequate access previously.

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- Equal Access and Universal Coverage - like the previous scenario, but with improved access, and therefore increased staffing would require an additional 12.3%.
- Doubling the use of non-physician providers such as nurse practitioners, physician assistants, etc. resulted in a 'decrease' in the baseline status quo of 12.6%.
- This served to demonstrate the impact of varying future scenarios regarding the organization, funding, and coverage provided in the health system as well as changes in population size and composition.

Nurses

The National Advisory Council on Nursing Education and Practice examined a number of approaches to determining the future supply and requirements in its report to the Department of Health and Human Services on the Basic Registered Nurse Workforce. A number of assumptions were made about nursing in the future, as follows:

- The hospital will remain the major employer.
- RN practice roles are substantially changing.
- More technically advanced procedures are being provided in nursing homes.
- Nurses will focus on primary care and health promotion.
- More nursing care is given within the community.
- The number of nurses in home health care will show rapid expansion.
- Expansion of country's older population will require more nurses to manage chronic conditions.
- Future role to manage care along a continuum.
- Work as peers in interdisciplinary teams.
- Integrate clinical knowledge with knowledge of community resources.
- To better serve the population of the future, more cultural sensitivity is required as the diversity of the population increases.

Part of the picture of the future was that there would be a shift from the emphasis on hospital-based care to community-based care, coupled with increased

complexity of acute care. As a result it was determined that the educational mix of the registered nurse workforce needs to be altered.

A number of modelling activities were carried out to examine and project the future supply of and requirements for registered nurses. To project future supply, a model was used that captured the age-specific dynamics of the flow of nurses in and out of licensure (including studies of first-time licensees and those engaged in post-graduate studies). The effort also looked at flows in and out of the workforce, and their state-to-state migration. Data were developed for each state on:

- the population of nurses - all those with licenses to practice on a given date;
- the supply - all those employed or available for employment (if sufficient positions are not available at the time being considered); and
- the full-time equivalent supply that expresses employment independently of full- or part-time status. The derivation of full-time equivalent used a national sample survey to identify those nurses working full-time, those part-time and the number of scheduled hours for each nurse. Ratios were then developed for each age group cohort who were working full time and a “full-time equivalent” for those who were working part time.

The US summary is an aggregate of state data.

To establish projections of the future requirements for Registered Nurses, information was developed on a state- by-state basis. A number of requirement projection models have been used in the past, including the Historical Trend-Based Model, the Nurse Demand Model, and the General Services Demand Model. At present, the Nursing Demand Based Requirements Model (NDBR) is the latest modelling effort to determine the future requirements for nursing personnel. It was developed by the Division of Nursing (within the US Bureau of Health Professions) to build upon the General Services Demand Model, and incorporates nurse utilization per provided services. It also allows users to access both geographic and nursing employment (or health care services) sector detail, coupled with the ability to make changes in the model’s inputs to generate a variety of scenarios. In its present iteration it forecasts solely the requirements for full-time equivalent registered nurses. Future work will extend the model to the total nursing personnel workforce covered by the earlier nursing requirements models.

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In the current approach, the health care system is partitioned into a variety of health care sectors based on availability and consistency of data to measure the level of services and personnel resources required. Sectors include: hospitals, nursing homes, ambulatory care, public/community care, nursing education, all other. Socio-economic and health status measures were considered to measure the growth behaviour of each of the health care sectors and changes in nursing utilization rates. Health status variables included numbers or levels of disabilities, death rates, and changes in morbidity/mortality rates. Economic well-being of the population or sub-groups within the population was measured through such variables as per capita income, cost of living indices, changes in rates or in total earnings. And as appropriate to the US environment, insured or uninsured status was also considered.

Trends in demographic characteristics were measured including gender, race, age groups, and residence in rural or urban areas. Full-time equivalent RNs were then derived by relating the total number of RN hours worked in the health care sector to the average number of scheduled hours, without regard to leave, of an RN employed full-time in that sector. Forecasts were developed on a state-by-state basis and then aggregated to the US as a whole (National Advisory Council on Nurse Education and Practice 2000).

Interdisciplinary

The Consortium for Primary Care in Wisconsin provides an example of integrated planning for the total health workforce associated with primary care. The Consortium established an interdisciplinary team referred to as the Workforce Forum, made up of representatives from the physician, nurse and physician assistant schools and educational programs, employers, insurers, providers, managed care organizations, state agencies, and underserved communities. Nurses formed a significant leadership role in this exercise. Part of their exercise was to establish an accurate demographic picture of where primary care professionals were practising and an accurate projection of future supply and demand.

The workforce took advantage of the Integrated Requirements Model (IRM) Version 1.5 software developed by the Bureau of Health Professions to integrate planning for different types and mix of providers employed in the various health care settings. The IRM links information of health insurance coverage, together with information about the utilization of different providers under different types of coverage, and estimates the number of providers required to satisfy the population's primary care needs. The model features a Windows-based graphical user interface that allows users to generate multiple projections

scenarios by adjusting the model's assumptions about future trends in population and health care organization. Six scenarios are distributed with IRG - and the Wisconsin forum developed a seventh. They are:

- Status Quo—insurance and staffing held constant
- Baseline Insurance Projection—best estimates of future HMO penetration
- High Managed Care
- Universal Coverage—100% of population
- Equal Access with Universal Coverage—above with improved access
- Double Non-physician Provider (NPP) use
- Double Non-physician use with equal access and universal coverage

Based on this they were able to present the number of each type of primary care provider required for each of the seven different scenarios played out with Wisconsin data, projected forward from 1995 to 2005 (Riportella-Muller et al 2000).

The United Kingdom

Organization

The UK is in the process of moving to integrated planning of the whole workforce—doctors, nurses, physiotherapists, ambulance staff, pharmacists and others (Davies 2000) as part of their plan to have “a quality workforce, in the right numbers, with the right skills and diversity, organised in the right way, to deliver the Government’s service objectives for health and social care” (Department of Health 1998). A commitment was made at this time to put in place an annual workforce plan and the planning and management capacity required to support this strategic direction.

The House of Commons Health Select Committee re-affirmed this direction in March 1999 within a set of principles including among others that: “Planning should cover the whole health care workforce, looking across sectors (primary, secondary and tertiary), employers (public, private and voluntary) and staff groups (nurses, doctors, dentists, other professions and other staff) and should take account of evolving roles”. Commitment was made to transform the workforce as follows:

- “*team work* across professional and organisational boundaries;

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- *flexible working* to make the best use of the range of skills and knowledge which staff have;
- *streamlined workforce planning and development* which stems from the needs of patients not of professionals;
- *maximising the contributions of all staff to patient care*, doing away with barriers which say only doctors or nurses can provide particular types of care;
- *modernising education and training* to ensure that staff are equipped with the skills they need to work in a complex, changing NHS;
- *developing new, more flexible, careers* for staff of all professions and more;
- *expanding the workforce* to meet future demands” (Department of Health 2000).

Workforce plans are to be developed on a multi-disciplinary basis, focussing on services to delivered and looking across primary, secondary and tertiary care. Rather than a single workforce advisory body, the emerging structure, initially proposed in *A Health Service of all the talents: Developing the NHS workforce* (2000) includes the following:

Local Level

All NHS Trusts, including Primary Care Trusts are expected to produce workforce plans for their own organizations that take into account expected retirements, planned service changes, and skill mix changes. Plans are to cover a 5 year time frame. Health Authority executives are to assume responsibility for local workforce planning and development in support of and aligned with service planning through the Health Improvement Programmes (HimP).

Regional Level

A total of 24 Workforce Development Confederations will be established to take the lead on developing integrated workforce planning for health care communities based on assessments of future requirements for skills and competencies. To meet their mandate, they will work closely with Health Authorities and the Health Improvement Programs. They will also support both Health Authorities and Trusts in the development of workforce planning skills. It will also be their responsibility to ensure that national, regional and local service plans are reflected in workforce plans. The Confederations will also have overall responsibility for commissioning and managing education and training for all

professional staff as well as working with key professional groups to ensure the delivery of adequate numbers of properly trained staff.

In addition, each NHS Regional Office will be strengthened with the appointments of Directors of Workforce Development to whom postgraduate deans of medicine and other would report. They will be responsible for the management of a budget encompassing the currently separate funding streams—service increment for teaching, medical and dental education levy and non-medical education levy. They will also work with confederations built on the foundations of education consortia and local medical workforce advisory groups.

National Level

A National Workforce Development Board, supported by Care Group Workforce Development Boards will be responsible for ensuring the proper integration of workforce issues with service development, incorporating the work of existing uni-professional groups. The NHS chief executive officer will chair this Board. It will incorporate existing groups including the Advisory Group on Medical Education, Training and Staffing, the Specialist Workforce Advisory Group, the Medical Workforce Standing Advisory Committee and the national advisory groups for non-medical professions (Edmonson 1999, Queen Margaret University College 2000, Department of Health 2001).

Related Initiatives

Reliable, and relevant and timely information is cited as a major area of concern in the UK as elsewhere. A major strategic initiative is a comprehensive review of information requirements to support the new integrated approach to workforce planning.

Regarding nursing, and to some extent other health professionals, there are a number of issues including the perceived shortage, the aging of the profession and the reduction in the number of nurses staying in the UK. One suggested contributor to today's shortage was the employee downsizing reaction of employers to the market forces, restructuring and reform of the early 90s (both lay off and influence on intake to training programs) (Buchan and Edwards 2000). This may be one of the contributors to the average age of those employed in the system as their seniority would have left them in place while younger nurses would face lay off and fewer entered the workforce than were actually needed. In addition, there is also a population of nurses in the community who may be interested in returning.

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A novel approach to encourage former nurses to return to work was implemented by a consortium of Trusts and Health Authorities. The initiative partnered with Directors of nursing, universities and others to support a public information campaign that involved radio and television, setting up information locations and a road show bus. Those who expressed interest in returning were provided with options for immediate return or tailored courses, including in-home programs (Duguid 2000). In addition, specific targets have been set for the nursing workforce in England by 2004. One goal is that by 2004, there will be 20,000 more nurses working in the system. Another goal is to increase the number of nurses, midwives and health visitors being trained each year by 5,500 (more than were trained in 2000) (Queen Margaret University College 2000).

Methodology/Process

The UK has been undergoing change in its approach to workforce planning as a result of both its relationship with the European Union and its own health system reform. Approximately 7 years ago, it brought specialist medical training in line with European regulations on free movement of labour—with the Higher Specialist Training (HST) to an average of 5 years varying by specialty. Completion of this phase leads to a Certificate of Completion of Specialist Training (CCST) and from that eligibility for a consultant (specialist) position. All HST training positions were assigned a National Training Number (NTN) to enable Post Graduate Deans to keep track of trainees and to facilitate workforce planning.

Workforce planning was, until April 1, 2001, done by the Specialty Workforce Advisory Group (SWAG) consisting of workforce planners, postgraduate deans of medicine, GP representatives, hospital managers, the British Medical Association, junior doctors, supported by a secretariat within the Department of Health (Workforce Development). The process was as follows:

- In a series of detailed bilateral meetings, SWAG took evidence each year from the Royal Colleges, Trusts, Regional Offices (civil service) on the predicted need for consultants in that particular specialty in 5 years time (training lead time).
- Demand/Need was based on a combination of specialist/population ratios for some specialties, medical technology changes, impact of skill mix, service reconfigurations and other measures.
- This demand scenario was then assessed in relationship to the known and projected supply existing from the NTN profile, with allowances for delays in training for flexible trainees, uptake of additional study &

research years, overseas trainees returning abroad and other supply sources to determine surplus or in this case, shortage.

- The resultant number is the number of trainees who will be needed to take up training positions (NTNs) this year;
 - if this number is more than the current number available, then additional NTNs need to be created
 - if less, then NTNs need to be removed.
- To avoid dramatic seesaws by creating and removing NTNs each year (with consequent service implications), targets were smoothed over a few years, with gradual growth or reductions.
- SWAG then aggregated all the individual specialty growth predictions and these were submitted to Ministers for funding consideration.
- Funding for HST places is through the central Medical and Dental Education Levy (MADEL), which funds half the trainee's salary which will probably be going up to 100% funding next year according to Julia Moore of the Department of Health (2001). Additional funding could not always be found for all the growth recommended by SWAG, so training places would need to be adjusted, or monies moved from training places being removed.

While gaining in respect, the process was not without planning problems. Those physicians who complete their training are expected to 'vacate' those slots when their training is complete. If there is no 'position' for them at this time, unemployment is a real possibility. With the NHS perceived as a monopoly player, this also poses a political as well as workforce problem. In addition, several of the specialties have grown very fast and expect to fuel a 10 % per annum expansion which is not sustainable in the long term (Moore, 2001). To correct this would require pulling out trainee numbers, which is very difficult as it impacts on current service provision and is rarely supported by relevant Colleges or understood in the face of perceived current shortages. One solution would be flexibility in training to allow trainees to change specialty by moving 'sideways' into a new stream—but this option is not in place at this time. And finally there are currently mismatches between the establishment of resident positions (SHOs) based primarily on service needs in the hospitals rather than the number of trainees required over time to satisfy the specialist positions that are needed (Moore 2001).

The current situation is just emerging as a result of health system reform and the new direction for health workforce planning. As described under *Organization*

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above, the new organizational structures are being put in place to support an integrated, holistic process for the total workforce within a policy of a multidisciplinary approach. At this early stage, workforce numbers, for specialists, were predicated mainly on what was achievable over the next three years (as an optimistic estimate) based on the Health Specialist Training positions that are currently in place plus a target for overseas recruitment. The distribution between the various specialties will be informed by the emerging Care Group plans.

In addition, National Service Frameworks (NSFs) have been in the process of development of the past two years. The Frameworks set out a ten year vision of where a particular service should go (e.g. coronary heart disease, services for the elderly, cancer, etc.). They are not intended to be prescriptive. Rather they are intended to begin to give some shape to the overall direction of service development, within which health workforce planners will plan. For example, the emerging Care Group Workforce Groups will refer to these Frameworks to assess workforce demand across the specialties and other health professionals (medical, nursing and allied health professionals).

Nursing target numbers are based, in part, on what was achievable during a three-year spending period. And in turn, this work will be supported by the work of the local Workforce Confederations assessing service developments in the field. There are a number of concerns, mentioned previously, about the predicted retirement rates and the capacity of nurse training to produce the required numbers. As a result, more effort is being focussed on retention of current staff, and on flexible working hours and pensions (Moore 2001).

Nursing plan in Scotland

In Scotland, there is one example of an approach to nurse workforce planning that integrates service and workforce planning using a “bottom-up approach involving all health service employers—the Student Nurse Intake Project (SNIP). In this planning process a simple computer spreadsheet is used, taking into account future service plans and assessment of demand, each employer determines an indicator of their probable future requirement for nurses over the next 5 years. This information is then aggregated to national level (Scotland) and used with other information (retirement rates, turnover rates, etc.) to inform decisions on the number of nursing students required to be educated in preregistration nurse education. Estimates of future demand for nurses from private sector employers are also factored into the assessment (Buchan 1994).

Implications and Possible Approaches for Canada

Canada's experience with health workforce planning has tended to parallel the major themes and implications that were presented earlier as background of this paper. At present, reviews of physicians and nurses as isolated studies still tend to be the pattern. There is an opportunity now to learn from our own and others' experiences. The workforce issues that have been associated with policy, practice, societal elements and the professional milieu, as well as with approaches and methodologies as summarized, should serve to inform future directions and progress in terms of what *not* to do, what needs to be corrected, and what might be done.

It appears that Canada would benefit from a vision, framework and definition as well as a more permanent and on-going organization and process to plan for and monitor the health workforce. There is great need at present for a good national picture and understanding of workforce patterns across Canada as well as between it and elsewhere. There are a number of reasons to do this. For one, international agreements and trends as well as internal national agreements are posing increasing impacts on the Canadian workforce. Immigration in and out of the country is a reality, and mobility within the country across provinces and territories is not just a reality, but a right of Canadians to seek employment anywhere in the country.

The mobility of health professionals is reinforced by the 1994 *Agreement on Internal Trade (Chapter 7)* concerning labour mobility within Canada, which asserts that "Governments are improving the ability of Canadian residents to work anywhere in the country. The federal, provincial and territorial governments have agreed to remove barriers to interprovincial trade and ensure the free movement of persons, goods, services and investments. The objective of the Labour Mobility Chapter is to enable workers qualified for an occupation in one part of Canada to have access to employment opportunities in that occupation in any other province or territory" (HRDC 2001). This would strongly imply that provincial or territorial planning should not be done in isolation of these realities. Planning efforts should be supported and refined with input from a capacity to plan for and monitor workforce at all levels – on a national, provincial/territorial and regional basis. This in turn requires better information.

Canada does have some data available – mostly on physicians, some on registered nurses and minimal to none on other nurses or allied health professionals – in such resources as the Canadian Institute for Health Information (CIHI 2001). At the same time, there is much work yet to be done in the area of constructing and refining more consistent and accessible data resources and linkages across the country. With well integrated information, any special studies carried out at the provincial or territorial level would be

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enriched by access to a more comprehensive resource for input, information and support. More research is required in the area of health human resources to better understand their circumstances, needs and possibilities. This was reinforced by a recent cross-country consultation summarized in the paper *Listening for Direction* (Gagnon and Menard 2001), which identified health human resources as *the* priority theme in need of research.

Present reform strategies plus some independent evolution of scopes and patterns of practice are pressing the need for a more comprehensive and organized approach to health workforce planning. Primary health care reform is now a major international focus and in Canada is a national as well as provincial/territorial priority. This brings to the forefront the same kinds of realities that other countries are addressing or are preparing to incorporate into their thinking. More physicians have been moving to work in groups than ever before, and there is increasing work in multi- and inter-disciplinary teams of physicians, nurses, dieticians, social workers, and other health professionals working within the same organizations (Mable and Marriott 2001). A better understanding is warranted of the implications and the opportunities that these developments represent.

Canada has not yet achieved a comprehensive approach to health human resources, but is situated on the cusp of more focussed and concerted action. An increasing population health focus has been reflected in program design as well as in the development of clinical practice and other guidelines to improve responses to the needs of particular populations (e.g. diabetics) – propelling the system to greater functional integration and collaboration. Some health organizations are taking greater steps by investigating the potential of vertically integrated health organizations to assume responsibility for the full continuum of health services, with significant implications for health professionals. This all strongly indicates, as concluded in other countries reviewed, that it only makes sense to plan for the *total* workforce in an *integrated* and *systematic* fashion on an *on-going* basis—not just for one profession in isolation at a time.

Canada has indicated its commitment in a variety of ways to improve capacity to determine the right number and mix of providers with the right skills in the right place to meet the needs of the population. In their September 1998 Ministers' meeting, the F/P/T Ministers of Health agreed on future directions and key priorities, including collaboration on health human resource planning. In a 1999 meeting in Charlottetown, they indicated concrete progress in this area (Health Canada 1999). The First Ministers further endorsed this direction in the September 2000 *Action Plan for Health System Renewal*, with their agreement to collaborate on specific priorities, including the supply of doctors, nurses and other health personnel. This is in addition to providing “more effective information sharing within and across jurisdictions” (CICS 2000).

A good step toward focussing action would be to establish a task force to develop a permanent National Workforce Planning Organization (NWPO), with an appropriate budget and staff, to operate on an on-going basis. The organization could have representation or input into its governance by the federal, provincial and territorial governments, as well as key professional and educational institution stakeholders and citizens. It should probably be a somewhat offset organization with a clear mandate for objectivity, to avoid the past problems of 'self-interest' that have been characteristic of stakeholders in general, including governments. The mandate should be defined in explicit terms relating to objective integrated workforce planning, with responsibility for on-going monitoring and studies as fitting with national, provincial, regional and local patterns.

The organization could have the support of a central advisory committee and could develop special purpose committees as required. It could build linkages and partnerships with any other permanent organizations or staff within the federal, provincial and territorial governments, that have responsibility for workforce planning. It could also link to health services planning and research bodies. The task force and ultimately, the NWPO could have responsibility to carry out a number of tasks including, but not limited to the steps which follow.

- ✧ Establish a vision for the organization and its mandate.
- ✧ Establish a fitting 'definition' for workforce planning—appropriately linked to and providing a contribution to various aspects of provider 'supply' (education, training, immigration, migration, etc.) and workforce management (e.g. effective organization; recruitment, and retention, etc.).
- ✧ Establish a framework for national, provincial, regional, local and special focus workforce planning (e.g. related to special populations, sectors, policy initiatives, etc.).
- ✧ Develop a number of future scenarios for Canada's health system.
- ✧ Carry out a comprehensive review of 'data requirements' to support workforce planning nationally with the capacity to carry out cross-comparisons and analysis and to focus at national, provincial, regional and local geographic areas within Canada. A particular challenge in this area will be to resolve the problem of 'linking' provincial and territorial data.
- ✧ Work on creating guidelines and standards for information collection.
- ✧ Identify policy requirements and options.

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- ✧ Create appropriate linkages to ensure that workforce planning is informed and guided by an explicit link to health policy, organizational evolution and health services planning.
- ✧ Ensure that workforce planning is appropriately linked to and supportive of broader health human resources planning and management.
- ✧ Develop good information and understanding of individual health professions in addition to the capacity to address them within an integrated planning approach.
- ✧ Develop and implement multi-modality methodologies and processes based on the emerging and evolving experiences in other jurisdictions as well as Canadian leading edge thinking.
- ✧ Consider a fund to support research and/or encourage existing research funding agencies to focus on workforce to provide additional assessments and evaluations of approaches and performance of the Organization as well as contribute to refinement of approaches.
- ✧ Establish a process for on-going monitoring of workforce with capacity to flag and respond in a timely fashion to new or changing circumstances that arise.
- ✧ Establish an internal information system as well as an electronic network for partners and users to create a real time 'connectivity' for operations and communications.

If established, such an organization could become the focal point for workforce planning in Canada, and would be an important contributor to improving Canada's health system. The potential this brings is for fewer dramatic shifts and improved quality, stability and sustainability for the health system – in short, a 'steady state' future for the Canadian health workforce.

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Appendix

Inter-Provincial Survey of Health Professions Regulated by Legislation
 Health Canada, Health Promotion and Programs Branch
 February 2000

Profession	B.C.	Alta.	Sask.	Man.	Ont.	Que.	N.S.	P.E.I.	N.B.	Nfld.	N.W.T.	Nunavut	Yukon
Dental Hygienists	✓	✓	✓	✓+	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dentists	✓#	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Licensed Practical Nurses/Nursing Assistants	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Physicians**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Optometrists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pharmacists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Registered Nurses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Denturists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Psychologists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chiropractors	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ophthalmic Dispensers/Opticians	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Physical Therapists/Physiotherapists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Occupational Therapists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dental Technicians/Technologists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dietitians and Nutritionists	✓	✓	✓	✓	✓=	✓	✓	✓	✓	✓	✓	✓	✓
Social Workers	✓#	✓	✓	✓	✓+++	✓	✓	✓	✓	✓	✓	✓	✓
Certified Dental Assistants	✓#	✓	✓	✓+	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chiropractors/Podiatrists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Medical Radiation Technologists	✓	✓++	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hearing Aid Practitioners/Acousticians	✓	✓	✓	✓+	✓	✓	✓	✓	✓	✓	✓	✓	✓
Medical Laboratory Technologists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Respiratory Therapists	✓+	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Speech Language Pathologists and Audiologists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Emergency Medical Technicians-Paramedics/Ambulance	✓	✓	✓+	✓	✓+	✓	✓	✓	✓	✓	✓	✓	✓
Naturopathic Physicians	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dental Therapists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Midwives	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Psychiatric Nurses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Osteopathic Physicians	✓=	✓=	X	✓=	✓	✓	✓	✓	✓	✓	✓	✓	✓
Acupuncturists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Massage Therapists	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Certified Combined Laboratory Technicians	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

== Reg. By College of Phy./Sur.
 *** Under review
 # Reg. Under Dentists Act
 == = Ost. Act Repeated

= Dieticians-Yes; Nutritionists-No
 ** Includes both Family Physicians and Specialist Physicians
 + + + Self-Regulated under Ministry of Com. & Social Ser.
 + + Included Electroneurophysiologists

^ Legislation forthcoming
 X Leg. To Be Repeated
 + Not Self-Regulating
 # Reg. Under Social Workers Act