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Canada

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Abstract

Health care reform is an essential and continuous process as a nation's medical system adjusts to meet changing needs in the population. It has been recognized that the Canadian health care system is in need of revolutionary change. Many other countries have had similar experiences to Canada in both resource shortages and reform process.

The population of Ontario is growing and becoming older. Older persons place greater demands on the health care system. At the same time the Ontario physician workforce has decreased in size, increased in age and has more female entrants. Elderly physicians reduce their workloads as they reach the age of 65 years. Female physicians take on lower workloads than male physicians, especially in the early part of their careers. Over the past eight years there have been less entrants to Family Practice and more to specialty services. As well, in the past five years nearly 60 percent of Family Practice physicians have reduced their scope of care by limiting their practices. Taken together these observations demonstrate that while there is an increased need for primary and secondary care physicians there has also been a concurrent reduction of the number of physicians both in terms of census and also in terms of workload.

In the past decade the Universities of Ontario have increased tuition fees significantly with respect to the other provinces. Financial pressures and control of hours (lifestyle control) may further limit the intake of post-graduate Family Practice physicians. Reversing these trends will require increasing the physician workforce and the development of programs to encourage entry into primary care.

1.0 Introduction

Health care in Canada is undergoing a prolonged period of reform. As the population increases in size and becomes older, concomitant expenditures on health care have not kept pace [1]. Costs of services and non-durables such as pharmaceuticals have increased dramatically resulting in less money available to increase the accessibility of service. The Federal payments have been reduced through the 1990's and provinces have either had to increase expenditures or allow services and infrastructure to suffer the loss of revenue [1]. Much of this shift in funding has resulted in antagonism between the Federal and Provincial Governments as the debate over who should pay for health care continues [2].

Health care is changing in western countries. More emphasis is placed on care outside of hospitals, with greater decentralization from the hospital centered care pattern as well, primary care is perceived to hold a key role in keeping the system efficient [2-5]. As well, demographic changes show a population that is more mobile, living longer and becoming more consumerist [1].

Investment in reform of the Canadian health care system should consider the needs and wishes of all the stakeholders. This is essential since concerted efforts across groups will be necessary for successful reform. The Federal and Provincial Governments are charged with the task of working with these stakeholders to gain efficiencies and correct some of the past neglect. In his commissioned report on the status of health care Roy Romanow outlined the commissions recommendations for the reform of Canadian health care [1].

Some of the key features of the report are:

- The establishment of a new Canadian Health Covenant to guide Canadian funds into the appropriate services.
- The creation of a new Health Council to ensure collaboration between the federal, provincial and territorial governments.
- The modernization of the Canada Health Act to include accountability to the consumer, portability within Canada only and the inclusion of funding for diagnostic services and primary home care.
- Changes to suppress the further development of privatized diagnostic services and a movement away from non-universality facilitated by private insurance.
- Reform the cash transfer system and make it more predictable.
- Develop five new transfer funds to develop rural access, primary care, diagnostic services, primary home care and catastrophic drug funding.
- Changes to allow for the development of a universal patient record and accompanying changes to the Criminal Code to ensure privacy.
- Additions of systems to facilitate benchmarking from data obtained by the Organization for Economic Development and Co-operation.

Within the context of primary care recommended changes include:

- Strengthening primary care with four fundamental ideals, continuity of care, early detection and action, better information on needs and outcomes, and incentives for health care workers to participate in primary care treatment.
- Shifting focus towards prevention rather than treatment.
- Updating Canada's immunization strategy.

Six obstacles to primary care enhancement and reform were outlined:

- The historical development and investment of our health care system in hospital based care.
- Protectionist behavior of specialists and the further movement towards specialist training rather than primary care training.
- A lack of good health information with which to base decisions.
- The need to change the passive nature of patients in their own care.
- A lack of programs for wellness and prevention.
- The silos in which our health care system now functions.

In this last point no issue was raised over the reciprocal communication between specialist care and primary care and how they could better interface. As well a role for

specialist – primary care communications was not alluded to in the barriers of health information. Much of this report deemphasizes the role of the hospital and specialists. This is apparent in the report however; specialized care and hospitals are essential to many treatments and cannot be ignored. Some of the key stakeholders that would likely oppose these plans will be discussed below.

This report acknowledges the need to make primary care a corner stone of health care and to encourage physicians to enter primary care practice.

2.0 Purpose

According to Statistics Canada over 13 percent of the population has experienced difficulty in obtaining access to primary care [6]. The purpose of this thesis is to critically explore the issues that affect the current state of physician workforce in Canada and more specifically in Ontario. To determine whether there are shortages of physicians and how the demographic changes of the physician workforce affects the delivery of care in the province.

3.0 Methods

Data was gathered from the literature and from domestic and international sources including government data, the Association of Canadian Medical Colleges, The Ontario Physicians Human Resources Data Centre (OPHRDC), The Canadian Medical

Association databases including the Southham Medical Database, The Royal College of General Practitioners, The Royal College of Physicians, The Finnish Medical Association, and Health Workforce Australia.

The stakeholders in Ontario's health care system are identified and their positions and interests are outlined since each has contributed to the current state of Ontario's physician workforce either directly or indirectly. A comparative study of health care in selected Western Nations is presented to identify differences in the delivery of care, reform changes, cultural expectations and current trends. This will help to illustrate both common issues as well as differences in health care that may have influenced Ontario's physician workforce trends. Demographic trends and developments in health care in Canada and Ontario are also presented to outline domestic issues that may affect the delivery of care in Canada and Ontario. Comparisons in enrollment patterns of post-graduate training programs were made across Canada. To determine whether tuition rate changes have affected post-graduate training in Ontario a comparison was made with trends in other provinces. As well within Ontario, the physician workforce within the specific health care regions were studied to determine if all the regions had undergone the same changes in physician workforce. This will help to determine whether there is a difference in physician workforce between rural and urban settings.

4.0 Stakeholders in Canadian Health Care:

The study of any system or problem requires an understanding of the participants, their influence and their motivations. Failing to appreciate what the various interest groups value will diminish the overall understanding of the problem.

The key stakeholder in Canada's health care system include:

- The consumer, who at multiple levels can be a patient, taxpayer or voter.
- The governing bodies including the federal, provincial and community governments.
- The physicians, who at times are represented by their Colleges and Associations, their associated institutions including, universities, hospitals, community health centres, or private practices.
- The allied health professionals and their representative organizations similar to the physicians.
- The hospital administration represented by the provincial hospital associations.
- The universities that contain medical schools.
- Communities that depend upon the hospitals for economic wellbeing.

Other groups such as private industry that supply health care cannot be neglected however; they do not play a significant role in terms of influence as they would in some other countries such as the United States.

The discussion of stakeholders for this paper will center on the consumer, the physician, government and the hospitals and universities, as they are most influential in effecting change in primary care.

4.1 The consumer:

A study on the Canadian consumer perception to health care was undertaken by Statistics Canada in 2001 [7]. This survey has provided valuable information regarding the perceptions and experiences of Canadians within our health care system. The participants were asked about their experiences with accessibility to the system, when and where first contact occurred, wait times and impact of wait times on their mental and physical wellbeing. The results of the poll are important as they point out the level of participation of Canadians with a primary care physician and also their concerns with the current system. Moreover, the survey helps to identify from the perception of the consumer the weaknesses within the system.

On average 87.7% of Canadians were found to have a regular physician. The lowest province was Quebec at 75.9% and the highest province was New Brunswick at 94.6%. The general satisfaction rating was taken for those with family physicians. At one extreme 53% reported their care was excellent and at the other extreme 6.7% perceived their care to be fair or poor. For the balance of the citizens that did not have a family physician the reasons included a disinterest in finding one or availability and access. The

indifference of a small but significant percentage of Canadians that do not have physicians is problematic as these individuals are likely to miss out on preventative care and will seek out more expensive emergency services for care.

First contact for care was primarily with a family physician however, the necessity for access to care on a 24/7 basis means that patients would also seek care from walk-in clinics and emergency departments at hospitals. It was estimated that 4.3 million (13.4 %) Canadians had difficulties getting access to first contact services and 1.4 million Canadians had difficulties accessing specialized services. Long wait times and after-hours accessibility were identified as significant problems. Disturbingly, the wait time for specialized services such as cardiac or cancer related surgery left 46.4% of patients untreated for more than one month. The wait period resulted in stress, pain and anxiety for 20% of the referred patients. The respondents also cited adverse health developments due to the wait. These observations illustrate a need for improved access to primary care and shorter wait times for both primary care and specialized care. Patient rights in some countries include the right to be treated for pain [8]. Extended wait times resulting in diminished health pain indicates a need to prioritize referrals and improve capacity or the use of existing services.

With respect to the reform process of the Canadian health care system, the citizens are under the impression that there is an imbalance of influence by politicians and that the physicians are underrepresented [9].

4.2 Government:

The federal government through the 1990's was under pressure to reduce the deficit. In order to do so, some federal transfer payments to the provinces were reduced. This put pressure on provincial governments to either increase their funding or allow services to dwindle [2]. Variable funding has been disruptive on the modernization and development of infrastructure in Ontario. As well, the federal-provincial antagonism has not been conducive to a co-operative environment.

The province of Ontario in 1996 began the systematic restructuring of hospitals through the Health Services Restructuring Commission (HSRC). This undertaking focused on the hospital centric nature of health services and was commissioned to reduce plant capacity in Ontario. This was the first province wide undertaking and as disruptive as it was, hospital services have been consolidated throughout the province. There has been little to show in terms of evidence that the projected savings would be achieved.

The federal government commissioned Roy Romanow to comprehensively review health care services in Canada and make recommendations based on the findings [1]. As will be seen later similar initiatives have been undertaken in other countries. Romanow's commissioned report is an analysis of the system with recommendations and there is no provision to hold the government to act upon it [10, 11]. The government may either adopt or ignore a commissioned report or specified parts within it.

4.3 Physicians:

The colleges and associations both regulate and represent the physicians of Canada.

Within Ontario, the setting of fees is negotiated between the provincial government and the Ontario Medical Association (OMA). Historically, health care arose from a hospital based system and hospital derived procedures are reimbursed at higher levels than patient visits.

The OMA has partnered with the Ministry of Health and Long Term Care (MOHLTC) to pilot a primary care program to test primary care compensation reform [12]. In 1998, two methods of reform were considered in the regions of Hamilton, Chatham, Paris, Wawa and Kingston. The OMA has proposed funding and payment for primary care services through reformed fee for service (RFFS) incorporating capitation funding and fee for service payments.

The OMA acknowledged that primary care medicine was a strategic change to the delivery of health care. The goals of this program were similar to the goals of the Romanow Commission [1]. In it were targets of improved access, improved quality and continuity of care, increased patient and provider satisfaction with the health care system and increased cost-effectiveness of health care services. The fundamental unit of this program is the primary care network in which a physician will enroll patients and coordinate primary care services. Key to the program is the use of population based

funding, enrollment of patients, improvement of access, co-ordination of care and evaluation.

Physician compensation in the program is based upon population; either population based payment arrangements or needs based dependent on age and sex. No other defined criteria were listed such as socio-economic status, or aboriginal population size.

Reformed fee for service is a capitated system developed by the OMA which establishes a benchmark threshold maximum payment for a given physician group.

Physicians within the primary care network are responsible for around the clock coverage in order to improve access. Some of this coverage may be by telephone, which still leaves the patient to seek care at an emergency room if necessary. The OMA website has reported a reduction in visits to the emergency room with participants in the program however both physicians and patients have expressed that they have mixed feelings about the after hours telephone system.

All non-enrolled patients can still be billed fee for service, as can obstetrics, emergency services and surgical assistance. This serves as an incentive to provide these underrepresented services. Conceivably this could be counter-productive since there is potential for motivation to capture fee for service from non-enrolled patients in order to supplement the benchmark threshold maximum payment. Physicians could enroll the number of patients they need to obtain the benchmark threshold maximum payment and

then stop recruiting patients. As well there may be a conflict in allotting time to the enrolled patients in lieu of fee for service work.

The second payment system is global capitation. The capitation rate and the list of enrollees are used to determine payment. This payment is made monthly regardless of the services provided. What isn't addressed is how the patient is protected in such a system to ensure equitable care and adequate response time.

On average 2,200 patients per physician were to be enrolled. For those physicians with more than 2,200 patients a maximum of 2,500 will be allowed. To date outcomes have not been published for this program although the OMA website has recorded some observations.

Physicians were permitted to obtain information technology (IT) solutions for their practices although there was no standardization or even a preferred vendor. The MOHLTC provided them with funding to obtain consultants. Even within the same primary care network more than one type of IT system was in use. Physicians did note however that they were taking advantage of some aspects of IT such as preventative reminders. Seventy percent of the physicians did not think their practice behaviors had changed since they joined the program. Similarly patients did not notice a difference however, both patients and physicians noted that the major differences were IT support and the after hours access.

In terms of patient satisfaction, there was reasonable acceptance of the program although patients noted that the quality of their care related to the physician approach to their profession and could not really discern an impact from the program other than the after hours service.

4.4 Hospitals and Universities:

Both of these institutions are interrelated although they often are not working in concert. Health care in Ontario and Canada, in general, developed around hospitals, the universities were responsible for the training and education of the specialists that populate the hospitals. Since teaching hospitals support specialist oriented care there is little to drive the movement towards primary care [13, 14].

Within Ontario tuition has been increasing through the mid 1990's to date at a rate far higher than any other province. This has raised the question of whether the tuition hikes is influencing enrollment and choice of post-graduate career selection [15, 16].

The Ontario Hospital Association (OHA) is comprised of administrators representing the hospitals of Ontario. This organization is the united lobby group for hospitals within the province and is naturally centrist to hospital services. Not surprisingly, the OHA recommends that private insurance cover non-hospital care and that the government focus its funding upon the hospital and the specialist system [17]. This is contradictory to the

recommendations in the Romanow report, which appears to be oriented away from private funded care [1].

5. 0 Primary Health Care and Reform Initiatives in Selected Western Countries:

Canada is not unique in its initiatives to control health care expenditures through reform. Many countries are attempting to remodel their health care systems to more efficiently allocate resources and for one reason or another wish to maximize the use of primary care physicians [18-27]. An understanding of the health care systems in other countries may highlight solutions to some of issues of health care as outlined by Romanow [1].

Five countries were selected for study on the basis that each has some degree of socialized medical services, all embrace western medical practices and have undergone reform. As well, the countries studied all have a primary and secondary care structure similar to that in Canada.

In the countries examined, the primary objectives appear to be to provide a basal level of care with uniform standards and universal access [3, 28]. Another common thread is an increase in the rights and responsibilities [29-31] of the general population to take part in their care, as well as a movement towards population based funding[32-36], market driven forces [37-39], a reduction in unrestricted accessibility to secondary care [40-43], and the use of health care teams [44-47].

In the analysis of each country some the issues that were considered, where applicable included:

- The organization and funding of general practitioners.
- The degree of private and public funding.
- How much autonomy is given to the patient in choosing a physician.
- The utilization of multidisciplinary teams and alternate care providers.
- The establishment of universal standards.
- The establishment of evidence based medical guidelines.
- The rights and responsibilities of patients.
- A movement towards competitive market forces or a removal of monopolies.
- The role of government in driving change.
- The forms of capitation in use.
- Collaborative environments through infrastructure changes or a team approach.
- Barriers to multidisciplinary care.
- The boundaries between primary and secondary care.
- Initiatives for preventative medicine.
- Approach to governance.
- Specific limitations to public subsidized care such as income and age.
- The education system for training physicians.
- What spurred change in the first place?

Historically much of the funding of health care was provided to hospitals, the emphasis on primary care varies from country to country.

Primary care can be considered the care provided by a general physician or in some cases a physician with specialized training in internal medicine or family medicine. Focus is on the diagnosis of general health problems as well as nutritional and lifestyle assessment [48-50] and patient safety issues such as domestic abuse [51]. Treatment of general problems and the management of care also is the responsibility of the primary care provider. Primary care also encompasses population health, sickness prevention or preventative medicine [52]. The United States underwent significant reform in the 1970's and 1980's and have implemented innovative systems such as health maintenance organizations [53]. Health maintenance organizations, however, sometimes distort the role of the primary care physician to suit economic pressures [53]. In all countries studied, primary care providers may work individually, in group practices, in practices with secondary care specialists, or in teams with other allied health workers.

Several underlying themes were common to most countries undergoing reform. Many of the reforms subscribed to fundamental principles of change management theory: The timeline for implementation of major change appears to be two years [19]. After this period of time change was either entrenched or was lost due to lack of acceptance or commitment. The success of these reforms appears to hinge on the political agenda of the subsequent governments [54].

Pilot projects are not common [55, 56] and change appears to be universal in the countries studied, even if it is not consistent across the established health care programs. The lack of consistency leads to pluralism, which increases the complexity of the system and can hinder or confound change initiatives [57-59]. Surprisingly, the support of physicians while welcomed appears not to be considered to facilitate change [56, 60-62]. Although one would expect that the cooperation and support of the care providers would be crucial to effective reform of a medical system it appears to be absent although physician workforce concerns, especially primary care physicians has been well studied [63-72]. Most European countries have not attempted to gain consensus when reforming health care programs and change has been driven by the governments in power and not by the other stakeholders [18, 73, 74]. The United States is somewhat different however since health care providers are often guided by market forces [19, 28, 75, 76].

Who are the stakeholders in these countries and what part do they play in reform? In the most direct fashion, the patient and physician, then followed by the general population have the most to lose or gain from health care reform. However the government reform initiatives by necessity are directed at the existent insurance funds with consideration but not necessarily direct input from the general population, at least not at the reform stage [19, 27, 77-79]. This illustrates one of the significant problems of government or centrally sponsored health care programs, namely the perceived lack of sensitivity to the wishes of the consumer [80, 81].

The physician's role in reform in some cases is crucial and in other situations very minor [21, 56, 82]. In some instances physicians have driven reforms through the use of evidence based medicine and consensus guidelines [83-85]. The use of such guidelines is intended to bring best-practices to the care and treatment of patients through epidemiological studies of outcomes. Critics of these guidelines often refer to how they are not applicable to complex cases or how they take away from the art of medicine. Allied health workers such as nurses, physiotherapists, pharmacists and paramedical workers are often underrepresented in reform and this appears to be an area that can lead to conflict especially when defining their role in the reformed system as well as their participation in multidisciplinary teams [86, 87].

Other features that are considered in reform include access to care and equality. Countries with universal coverage appear to maintain access and equality to varying degrees [34]. Canada is well poised to maintain equality. Issues that threaten equality include the levy of user fees, which punish low-income individuals [88], and programs that are difficult to access from remote locations [89, 90]. It is recognized that the utilization of various technologies can leverage this latter point bringing specialized care to remote locations [91, 92].

With respect to the insurance plans, sickness funds and health care systems, vertical integration has been implemented in some cases to obtain efficiencies and cost savings [93-95].

Other common threads or trends in reform in the countries studied over the past 20 years include the participation of citizen and physician boards in the governance of the various health plans [96-99], and the free choice of the citizen in the participation of programs or the selection of a physician. In many cases though patients are still rostered into various health care programs or assigned a physician with little control over their choice [100]. Assignment of patients to a physician often numbers in the thousands [101] and there are targets to be met with respect to the length of time between approach by the patient and visit [102, 103]. This can lead to compressed contact times and increased workload for the physician. The creation of physician work groups also seems to be common to some programs. A spoke and hub organization with proportionality between the primary care provider and secondary care providers is a logical approach to resource allocation within districts [104]. Some efforts have also made effort to develop multidisciplinary teams with a focus on intermediary organization [105].

General practitioner control over access to specialized care appears to have a unidirectional connotation [106, 107] with little regard to the return of the patient to primary care. Capitation is common in health care systems [108-111]. The electronic chart or record seems to be underdeveloped in limiting health care inefficiencies and there was no evidence that the systems safeguard against patient misuse or physician directed redundant procedures.

In keeping with the current trend to support patient rights and physician / institutional responsibilities more attention is paid to quality assurance practices [112-114]. These

include continuing medical education [115], accreditation [116], planning and evaluation [117], information technology development [118-121], specialized training for rural practice [90, 122], recertification [123], incentives for preventative care [124, 125], access of the general population to health information and decision making [126], again group or multidisciplinary practices [127], and very importantly a disease management approach [128-130]. This is very important, as much has been learned from evidence-based medicine in regards to what should be expected in the care and outcomes of various procedures or ailments [116, 131-134].

The United States has been on the forefront of this approach with the introduction, for better or worse of diagnosis-related groupings (DRG's) in the early 1980's [135, 136]. Adoption of DRG's has had a profound effect on hospital revenue generation. Insurance companies, Medicare and Medicaid became the price setters for service. Hospitals were forced to rethink the length of stay and approach to care for specific diagnosis. The shift was directed to short stay and ambulatory care and technology was developed to support this. Hospital bed numbers were significantly reduced as hospitals had incentives to discharge patients earlier. Hospital bankruptcies occurred, as some were incapable of responding to the change or served primarily under insured individuals. Since then other trends in the US hospital system that bear consideration to this paper include the acquisition of physician practices by hospitals to ensure a stream of revenue through insured patients [137-139], the evolution of the Medicare and Medicaid patients as revenue generators [140-142], and the consolidation of hospital systems [143]. In the first instance the acquisition of physician practices was a financial failure as in many cases

there was no financial incentive to have the physician maintain an active and busy practice after becoming a 'salaried' employee. Once shunned and deterred from visiting private institutions, Medicare and Medicaid insured patients are now a significant source of revenue for hospitals. Hospital system consolidation has had mixed successes as had vertical integration of providers and insurers [144].

Other notable features that should be considered include the degree of allied health support to the primary care provider, primary care and secondary care provision in rural areas, how technology is used to leverage change, how medical services are purchased or acquired, payment schemes for these services and other cost reduction strategies. As well, the education of physicians and the flow of these physicians into post-graduate career choices is important.

5.1 Finland:

Finland has three major focuses in central planning with respect to health care, namely, environmental health, primary care and hospital based services [145-147]. While central planning plays a significant role in Finnish health care, provision is managed at the municipal level [148]. The allocation of resources and the adoption of expensive technologies such as diagnostic imaging and informatics remains under the control of the central government [146].

Prior to 1993 funding was structured such that at the municipal level there was disincentive to reduce costs. Subsidies from the central government were cost sensitive. This changed in 1993 with the introduction of per capita block funding similar to the diagnostic related grouping of the United States [149]. The per capita block funding was structured by population size and density, age, morbidity, land area and the financial capacity of the community [149, 150].

There are 455 municipalities that receive funding for health care from the central government [145]. Each acts as the local authority for health care and negotiates for and acquires hospital and specialized care. Citizen boards and elected councils govern the municipality health services [148]. In addition to the funding of hospitals, the responsibilities of municipality health care also includes health education and family planning, maternal and child clinics, school and occupational health services, dental care, medical care for all residing in the district and urgent care for non-residents, home nursing services, psychiatric services, and ambulance services. In theory this should apply market forces to the delivery of health services however in many cases options for switching services are non-existent [145, 150]. Presently, municipality control over health care resource allocations may improve market forces [149, 151]. The central government now permits consolidation of municipality health care systems and the formation of primary health care centres [149, 151]. The municipalities are free to purchase services from the private sector bringing some competition into the picture. The hospitals are organized on a geographic basis. There are 21 hospital districts and the teaching hospital of Helsinki which functions as a separate district [145].

The central government decides what hospital district a municipalities joins. Each hospital district is responsible for hospital services in its area. Funding for the hospital district is then controlled through transfer payments and other funds to the municipality that negotiates services [145].

Approximately 10% of health care costs are derived from user fees. A co-pay is also collected at visits unless the patient is under the age of 15 or the service is related to obstetrics, child health or preventative medicine.

With respect to the primary care provider – patient interaction there was a lack of continuity [152]. When primary care providers are disconnected from the patient, primary prevention and total patient care, or wellness, as well as follow up care suffer [153-156]. ‘Emergency department syndrome’ ensues with the patient’s direct problem dealt with at the visit with no emphasis on prevention and variable follow up care. Often follow up care was with a different physician. The patient did not have the right to demand to see the same physician. In essence the operation functioned as a large health maintenance organization. There was little chance of the patient having multiple encounters with the same physician [152]. There was pressure to tap into sickness funds, the central insurance plans to fund private physician visits. This redirected resources away from the municipalities, which further weakened the system. When patients do visit private physicians they can then apply to the national sickness insurance funds for partial reimbursement [145].

A pilot of primary care with emphasis on continuity of care was undertaken. Some of the changes to the system that were necessary to establish the program was the placement of the responsibility to obtain a physician upon the patient, the development of a team approach to primary care and the autonomy of teams to pick and choose each other [145]. The goals for this project were to reduce costs, increase productivity and improve the effectiveness of service, which would likely feed back and further enhance the two other goals [100]. Changes to the management of the physicians groups with increased autonomy were thought to improve job satisfaction, which was not felt when physicians were seeing patients on a randomized basis [100, 157].

The citizens enrolled in the program were required to obtain a physician and have an initial visit to get acquainted. Physicians in the program were required to see a patient within three days of a request for an appointment [147]. This target for turn around time while desirable for reducing visits to urgent care facilities is accompanied with the need to turn over patients at a fast pace assuming the practice is busy. By 1996 40% of the population had a personal physician and this increased to 50% by 2001 [145]. Typically physicians have a patient base numbering around 1500 to 2500.

A very high 90% of the population was satisfied with their primary care physician [158, 159]. Another indication of the success of the program was that the productivity levels of the physician participants were equal to their private physician counterparts [149].

The health centres have in some instances adopted a team approach to care. Some of the teams are multidisciplinary [157, 160-162]. All physicians in the health centres are salaried except for the physicians that participate in the personal physician program [145]. Those physicians that participate in the private physicians fund receive 60% of their income as basic salary, 20% from capitation payments that are adjusted to defined parameters set by the municipalities, 15% from fee for services and 5% from local allowances [145].

The general practitioner in the personal physician program functions essentially as a gatekeeper to secondary care except in circumstances where urgent specialized care is needed. There appears to be no cohesive system to regulate the flow of patient to and from the specialist and some negative aspects of gatekeeping are perceived by the patient and the physicians. Some of these include limiting access [60, 151, 163] and the retention of patients by specialists once referred.

The use of electronic guidelines for diagnosis and treatment plans has been available for primary care physicians since 1989 [146, 164-166]. Access to the databases is rapid. This program while not adopted by all physician groups but has been considered successful by those that have adopted it and their patients [164, 167, 168]. Such electronic guidelines can leverage rational treatment that has been derived from evidence based medical practices. Some issues exist with the adoption of practice guidelines however. Bias can occur when the guidelines have been influenced by the interests of specific groups [169]. Rather than a means to guide therapeutic course the guidelines when adopted at the level

of funding often can lead to barriers for reimbursement and a limitation in service provision. Another finding that appears to be important for the implementation of these guidelines is the education of the physicians as to why they are effective. Often that is not evident in the one-on-one patient encounter. The electronic guidelines could likely be used to reduce the bias for irrational or ineffective care and in many instances are not intended as the absolute rules of a treatment approach. Barriers to implementation and understanding the utility of practice guidelines is common to other countries as well [170].

With respect to patient records, lifelong records are kept at health centres [171] however a universal patient record has not been developed in Finland [172].

Finland appears to not suffer from a shortage of physicians. In fact there is no literature to support a physician shortage in Finland and at one time supply had exceeded postings causing a surplus [173]. This was due at least in part to a contraction of health care spending [174].

Quality management is not mandated at the federal level in Finland as it is in other countries such as in the Netherlands [175]. Quality management practices in Finland may originate from central sources or be driven at the municipal level. Studies of the quality management initiatives in the Netherlands were slightly higher than the Finnish activities however the Finnish initiatives, which are controlled at the municipal level were perceived to be more effective by the physicians polled [176]. Whether legislation is

needed for quality initiatives is questionable if there is commitment from health care sources to participate however, federal mandates can be useful to enforce adherence and consistency.

No formal patient education system exists in Finland. Much of the education of patients is informal and voluntary. Three laws (public health law, occupational health law, patient status and rights law) guide health education even if it is not directly legislated [177]. Some of the patient education falls to health nurses assigned to a district, particularly education about family planning and obstetrical care [160, 178].

5.2 The Netherlands:

The health care system in the Netherlands underwent reform to gain efficiencies in the face of rising costs [18, 179]. It was known that the sickness funds were inefficient in obtaining low cost care [180], had regional monopolies and were obligated by law to enter into contracts with local providers [145]. There was no motivation for the sickness funds to change to a market driven system [181, 182]. Some of the areas identified that required reform in the 1980's was the lack of a consolidated financing structure, the absence of incentive to cut costs at all levels, restrictive government regulations, the different insurance schemes in place, premium structures and little or no competition [145].

Some of the changes that occurred were the shift in decision making at the planning and contracting level to health insurance agencies from the sickness funds [183]. The mandatory contracting of services by the sickness funds was discontinued, fixed tariffs for services were put in place, and a shift in risk for health insurance was put to the private insurers [151]. Currently insurance coverage is a mixture of compulsory social insurance and regulated private insurance for higher income earners [145, 184]. The Dunning Committee of the 1990's identified four key perspectives for health care: necessity, effectiveness, efficiency and the responsibility of the individual [145]. In 1992 the sickness funds were partially deregulated to permit competition for enrollees across the country [145]. This brought some element of market forces to bear on the system and broke the monopolistic behavior of the past. To ensure quality and equity in the system the government still regulates the system. This initiative for reform stalled in the late 1990's and a hybrid system still exists in the Netherlands however the number of sickness funds dropped by 80% [145]. The sizes of the remaining sickness funds varied widely. The insurance structure in the Netherlands is both compulsory with two social insurance plan, one universal plan for high cost or long term care, the other for the two thirds of the population that make less than a specified income. The other one third of the population that is above a specified income level must obtain private insurance.

Most of the funds of the compulsory government insurance is directed to sickness funds that then plan and acquire services from providers [184]. This also includes primary care. In 1997 total expenditures on health care was 7.6% of the GDP. This is similar to the 7.4% spent in Finland [26].

Two regulatory bodies, the Central Council for Health Care Charges and the Health Insurance Council set the costs that can be charged by providers. The Health Insurance Council is an independent administrative entity that supervises the compulsory insurance program. This group advises the government on health insurance, the approval of sickness funds, monitors sickness fund expenses, as well as performance through annual review [145, 184].

Within the funding structure of the sickness funds there were four insurance schemes [145]. The first is the high expense or long term care which covers the cost of exceptionally expensive care. In the standard care approximately 64% was publicly funded, 31% private and 5% government funded. The third coverage plan is supplemental insurance for maternity, dental and to cover costs of some prosthetics such as hearing aids.

The sickness funds are designed as not for profit corporations that now compete for patients. They are funded through capitation schemes from the central government fund to cover 90% of their costs [26, 151]. An additional 10% of income can be obtained through flat rate payments of the participants. Capitation is weighted on the basis of age, sex, disability index, and region (population density). Each sickness fund assesses the needs of its participants and retains providers. The government is obliged to oversee the bidding process for the acquisition of services.

Data collection on prescriptions, referrals and encounters are sent back from the providers to the insurance funds that in turn provide the central government with the aggregate data. The government then assesses the performance of the sickness fund based on this data [145].

With respect to services, the funds contract for primary care providers, specialists and hospitals. The consolidation of sickness funds has led to changes in the acquisition of care. Increased buying power by the larger funds has driven down the price for medical devices. A pharmaceutical mail order system has been developed that has also increase purchasing power [18]. Another innovative means to cut costs and spread risk was the consolidation of sickness funds and insurance companies. Some funds also formed their own insurance company to spread liability and to retain subscribers when changes in their income exceeded the cut-off point for publicly funded insurance.

Hospital structure in the Netherlands is not for profit with a mixture of voluntary, charitable or religious organizations running them [145]. Specialized secondary care is linked to the hospitals with fee for service reimbursement. The fees are negotiated centrally and there is some movement towards having salaried specialists.

Primary care is most often associated with the sickness funds. Contracts for primary care providers are negotiated with the physicians. Other forms of primary care obtained by the funds include district nurses, home help, midwives and physiotherapists. Primary care providers form groups to provide continuous coverage.

Another form of care in the Netherlands is the health centre. As of 1998 there were 148 of these centres serving 7% of the population. Within the health centres approximately half of the primary care physicians are staff.

Referral rates for secondary care are lowest in the health centres, higher in group practices and highest from the single practitioner [145]. There is no evidence that this is due to specific policies limiting access within the various practices and not due to other influences such as peer pressure, administrative barriers to service or other influences on the private practice physician such as individual liability, or perceived need to address patient demands to build retention.

Several notable features of the Netherlands health care system include the cultural feature of individual choice, payment and patient rights. As mentioned the four screens for health care services include necessity, effectiveness, efficiency and whether it should be left to the individual with respect to responsibility. Individual choice is a fundamental tenet of the Netherlands culture. Patient contributions are considered barriers to access so co-payments are not required. Patient rights were established in 1995 [185]. This recognizes the dignities and privileges of individuals within the health care system although it does not address the rights to access to care.

Within the health system of the Netherlands, care is centred around the rostering of participants [186-188]. This in itself addresses the issue of continuity of care that was developed in the Finnish reforms. Access to secondary care is through a primary care

provider [180]. A progressive feature in terms of dimension in continuity of care is coverage of the entire family by one primary care physician. This includes home visits, which comprise approximately 17% of contacts. Benefits to the system include the ability to assess lifestyle, family wellbeing and safety as well albeit to a lesser degree substance abuse. What isn't in place is legislative requirements mandatory reporting of abuse either physical or sexual [189, 190].

Funding for primary care services is capitated through negotiation with a representative organization, specialists and the sickness fund. Unique of capitation in the Netherlands is the coverage of the costs of schooling and pensions. Other incentives of practice are also available to physicians and a clear trend is towards group practices.

Within the Netherlands, the ratio of physician to patients is similar to that seen in Finland or approximately 1:2300 [145]. Again like Finland there is no evidence that access to a primary care provider is difficult even though the Dutch medical system has a similar number of physicians as other western countries [191].

In the Netherlands primary care physicians treat nearly 90% of all complaints. This may reflect cultural acceptance of limited care or a more comprehensive program of care offered by primary care physicians [151]. General physicians must provide contact information with their patients to the sickness funds. The movement to group practices appears to be due to government support and progressive leadership. Most importantly there is also some movement to reciprocal care between primary and secondary

providers. The relationship hinges upon the secondary care provider offering information on the care of the patient to the primary care provider. Multidisciplinary teams were also encouraged by government grants [145].

Within the Netherlands a standardized vocabulary was adopted for the informatics-system. This positions the country for the adoption of a universal health record that would be transportable across localities from health centre to health center. A common vocabulary was adopted through the leadership and support of various professional sectors who worked to develop the standards. The system is remarkably flexible with standard ICD codes in place for diagnoses, the capability of free text, drug information, tests, encounters, referrals to other health care providers.

Unlike the Finnish experience there was no information readily available regarding wait times for visits or waiting lists for secondary services.

Quality initiatives in the Netherlands include a set of 50 protocols to increase health promotion [85, 145, 192]. These were designed by the Medical College and fit with the approach to preventative medicine. Within the Netherlands patient satisfaction ratings are good.

5.3 United Kingdom:

Prior to 1992 primary care services in the United Kingdom health care system were secured by general practitioners who served as independent contractors to the National Health Service [34, 108, 193]. There were inequities including the overall rigidity of the system with no free choice for practitioner. Complacency and unresponsiveness to the needs of the population were identified as problems within the system [194]. Funding was attached to facilities and providers rather than the population in the district served. Motivation to improve the system and provide best practices was not present.

Prior to 1990 central government funding was directed to the National Health Service, which in turn distributed funds to the health authorities [195]. The hospitals in the National Health Service are government owned. Health authorities existed at two levels, those for the hospitals and specialist care and regional services.

Regional Health Authorities hold responsibility for regional programs, specialized hospital programs, funding of senior hospital specialists and the District Health Authorities. The District Health Authorities as a lower tier funded some hospitals and community programs. The general practitioners contracted to the National Health System were funded through the Family Health Service Authority.

In the 1990's the system was reformed and patient choice and service competition was permitted to drive market forces [195-197]. Regional Health Authorities were phased out

and the National Health Services provided funding for the District Health Authorities directly. Capitation was in effect for funding services. Consolidation of the Family Health Service Authority and the District Health Authority was complete by 1996. Similar to the Finnish system, the District Health Authorities were transformed into organizations responsible for the acquisition of health care services within a district. The number of health authorities was reduced by over one-half. Health services procured by the District Health Authorities included the primary care or general practitioners [198].

Under the reforms specialists were required to compete for agreements with the District Health Authorities. Further they were formed into publicly owned National Health Service Trusts. The hospital trusts, specialists and other diagnostic services became competitive entities for contracts with the District Health Authorities [199]. This was thought to bring more competition to the delivery of care through cost containment. Failure to obtain contracts would result in reduced allocation of funds.

Primary care physicians remained as contractors in either group or single practices. Funding was through capitation, fee for service and payments for administrative overhead [145].

Capitation funding was on a grid with patient census, rural practice, seniority, and allowances for assistants accounting for approximately 60% of reimbursement. Service fees included health awareness clinics, management of chronic or complex diseases such as diabetes or cardiovascular conditions. In what appeared to be a convoluted and

regressive system it was of a positive note that the treatment of lower socio-economic classes was also considered for increased reimbursement on a fee for service basis. Other fees paid to clinicians included the satisfaction of programs such as immunization and pap smears. By increasing the patient base a primary care physician could also increase reimbursement.

The physician was required to provide information concerning various demographics including age, sex, number of enrollees, and participation in programs. With respect to choice, patients were allowed to move freely from practitioner to practitioner. The only mandated factor was enrolment with one and only one physician at one time. Group practices were encouraged and preference to funding reduced the number of single practice physicians to around 10% by 1996. by 1997 50% of the population was enrolled with primary care fund-holders [200]. Fund-holders organized to become more efficient. The larger 'multi-fund' groups had enrolled up to 200,000 patients. Some of the fund-holders established secondary care facilities within their institutions to facilitate the process of referrals. Fund-holders controlled only 20% of the budget for health services. Management costs were high and evidence of efficiencies was scarce. Perceived inequalities included higher fund-holding for areas of high socio-economic status although this was not conclusive [201]. The Labour Government took power in the late 1990's and brought forward further reforms [202] many of which were a reversal from the Conservative Governments initiatives. Some of the issues the Labour Government had with the prior reforms included a perception of the internal market likened the system to US health care market models. This appeared to be a contradiction since there was no

surplus in the existing system and the control of the system was diminished. As well once a set level of capacity was met there was no incentive to acquire and treat more patients.

Consolidation of all primary care providers into a newly formed Primary Care Trust occurred in 1999 [200, 203]. In contrast to the system in place prior to the election of the Labour Government, the Primary Care Trust controls three-quarters of the health care budget. This should help diminish the inequalities of the previous system however it does place more control of health care back into the hands of the government.

Within the United Kingdom it is the right of all citizens to have access to public health services including specialized, psychiatric, dental and rehabilitative care. Hospital services are also covered. Citizens choose their primary care physician. Funding for the system is derived from insurance contributions and taxation. Private insurance also exists with funding from private insurance and self-pay.

Hospitals are public institutions with some degree of autonomy. Contractual relationships exist between the hospital and the health authority. Specialists can divide their time between private practice and public service or work exclusively through private service. Funding of primary care practitioners is a mixture of capitation, salary and some fee-for-service. Fee-for-service is limited mainly to the objectives of the health system such as vaccinations. In 1997 health expenditures were 6.8% of the GDP [27]. Primary health care expenditure as of 1996 was 36% of total funding from the National Health Service [204].

The health authorities will change their functions to strategic decision making rather than procurement of services [202]. Some responsibilities will be the assessment of need in a region or local as well as the fulfillment of services [202]. The Health Service is also developing and supporting primary care groups that are designed to be responsive to the needs of the community and then design standards of accountability for these groups. Primary care physicians in solitary practices will be moved into contractual arrangements that are designed to promote interactions with other physicians and ensure a minimal level of competency and standardization [202].

Current focus in the UK is towards a responsive primary care system with some transference of patient responsibility towards their own wellness. Some initiatives include the accessibility of the patient to their records and round the clock accessibility to primary care providers and nursing to ease the pressures on hospital emergency rooms. Hospitals will be modernized and the emphasis will be on secondary care services. Service waits in the UK according to the National Health Service will be reduced to weeks rather than months. This in itself may be an improvement over current services however this is not an indication that surplus care will be available within the system and shortages of primary care physicians is a problem [205, 206]. Two approaches to relieving the shortage are the training of physicians assistants and the recruitment of foreign trained physicians [205, 206].

Consolidation of general practitioner services into primary care groups has a targeted enrollment size of 100,000 citizens however some groups now contain nearly a quarter of a million enrollees. Currently, there is evidence that the drive towards larger organizations is not bringing efficiency or benefits to the organizations and that the motivation for consolidation is at the regional level [207].

Most significant within the Labour Party's change in policy is the requirement of the non-fund-holding practices participation in the development of new primary care practice groups [202]. Some of which could be hybrid organizations with the existing general practitioner groups. Community nurses also were rolled into the organizations. It is estimated that the number of care-giving organizations would be reduced by seven eighths by these initiatives.

Funding changes coincident to these initiatives include the consolidation of payments in the form of 'envelop funding' such that the primary care groups, primary care trusts will now be able to channel funds to areas where they deem appropriate. These funds include payments to practitioners, overhead, pharmacy costs, and infrastructure. Equity in the allocation of funds is through an independent committee.

In an effort to promote market forces and efficiencies within the system, allocations that are not expensed will be deemed surplus and are permitted to be used to foster primary care services. This is in contrast to the system of reducing budgets for services that had

remained within their budgeted goals while increasing the funding of services that had not kept within budget [207].

Primary care organizations have two governing bodies; a board that is comprised of citizens appointed by the Health Secretary and an executive comprised of physicians. The heavy emphasis of clinical presence on the board has been justified as a need for accountability and to maintain standards of care. While this appears to be a sound approach to maintaining a standard of care there appears to be no defined criteria to make the standard uniform throughout the nation. Unlike the Finnish and Netherlands health care systems, which have varying degrees of health initiatives, the United Kingdom system has not adopted a uniform best practices system.

To address complaints of delays in obtaining a meeting with a primary care physician the National Health Service has founded 36 urgent care centers. This system has been criticized by physicians as being a work around in response to patient complaints [145]. Issues with urgent care systems include the loss primary care continuity in exchange for timely accessibility.

Enrollment with a general physician or primary care group is voluntary for the population and on a freely selective choice basis. Movement from practitioner to practitioner is without penalty although only one physician may be seen at a time. Ultimately the primary care trusts will have a board consisting of a majority of citizens and a minority of physicians. This is perceived to be a loss of control by the practitioners that will affect

their practice standards. A perceived vacuum of control and the compromise of standards could possibly be countered by the adoption of a national policy of care levels and accountability.

Represented within the primary care groups are multi-disciplinary teams comprised of nurses, midwives, psychotherapists, physiotherapists, social workers, community care workers such as home nursing and administrative management.

Issues that have arisen with the change in practices adopted by the labor government include a concern with the size of enrollment with the general care practices and the movement back to central government control of the national health care system [145].

Management of specialized care is through a referral system. Contractual arrangements are secured between the primary care group and secondary care services. This arrangement may be conflicting since the primary care groups fund the secondary care with no accountability to a regulatory body.

Some progress has been made in the area of informatics however there is no direction towards adoption of a common language or universal patient record. There has been some movement towards a minimum specification for informatics.

Quality initiatives for the most recent reform were outlined in the labor government's white paper. Priority appears to be on the correction of the inequalities across the social classes particularly with respect to access to care [202]. There didn't appear to be any

programs designed to monitor the proposed changes or to track improvements in primary care.

5.4 Australia:

In terms of geographic expanse and its historical ties to Great Britain, Australia is similar to Canada.. Australia also parallels Canada's settlement patterns with the majority of the population concentrated in a dense area, the crescent on the Western coast of the country, much as Canada and Ontario's population is concentrated in the border with the United States and shores of the Great Lakes. The balance of the country is sparsely populated areas. Like Canada, Australia has a distinct and non-integrated aboriginal population with significant socio-economic related health issues and also has a growing immigrant population.

In 1984 a national health insurance was introduced. While universal this system also permitted private insurance care. In the same decade primary care physicians became a distinct professional discipline with requirements for continuing education and accountability [145]. Primary care departments were established in medical schools. Australia has studied possible structures for the delivery of primary care.

As of the 1992 Commonwealth government initiatives were put forward that were designed to address the issues related to primary care. Many of these are functional proposals in contrast to some of the more diffuse European initiatives [145]. More so the

proposed changes have a vertically integrated component that ensures long-lived change. Similar to Canada, Australia has had to address the distribution of physicians away from the densely populated areas. Other initiatives have included the accreditation of general practices, practice grants as a supplement for fee for services, the study of new budget initiatives, consolidation of practices and implementation of informatics [208-213].

The Australian Medical Association and the Royal Australian College of General Practitioners met these proposed initiatives with resistance. In order to gain the support of the physicians the Government collaborated with the Association and College and released a joint proposal in 1992 [145].

This joint initiative had specific objectives to redistribute the workforce from overrepresented areas, support general practice post-graduate training, and establish a voluntary accreditation system for practices that were associated with local associations of general practitioners [214]. As well a number of initiatives were introduced to promote wellness and community health through payment schemes to physicians [215, 216].

Restrictions on physicians entering the country were imposed, as were limitations on the number of physician training positions in medical schools. The Divisions of General Practice that were introduced were designed to give the community-based physician some ability to coordinate care and gain efficiency and standardization [217, 218]. Other service providers were coordinated through the divisions as were the secondary care physicians and hospital services. As of 1996 there were more than 100 divisions with over 85% of the Australian primary care physicians covered.

In 1999 a new budget was introduced that was designed to bolster primary care services with an emphasis on care for the aged, community care, prevention and wellness promotion [219-224]. Some of the budgeted items included improvements to informatics, funding of care trials, better treatment programs for chronic illnesses, and aboriginal peoples and changes to primary care in remote locations. Changes to primary care in remote locations included extra payment incentives for physicians, the development of 30 regional health service facilities in isolated areas, funding for the education of the rural health workers, aboriginal medical services, air transportation for female physicians for remote areas and services for women affected with breast cancer in remote locations [145, 221-224]. Medical students originating from rural locations were found to be twice as likely to practice in rural locations which is a serious recruitment issue in Australia [225, 226].

The formation of a National Institute of Clinical Studies would fund and support clinical studies including primary care development and trials. A system of incentives to change physician prescription practices was also implemented, as was a system to promote standardized care practices through evidence-based medicine [145].

Australia has a health care system that is a hybrid of universal state and private insurance. Australia spends 8.4% of the GDP on health care [26]. The public funding is derived from both federal and state taxation as well as fee for service. Private insurance primarily

covers the differences between the public insurance and some procedure fees as well as some specialist care, and private hospital fees.

The governance structure places the responsibility of hospital benefits, medical services and pharmaceuticals at the federal level [145, 224, 227]. The federal government also drives down public health policy and research. Public hospital operations and the regulation of all hospitals, health professionals, nursing facilities and community health services are under the responsibility of the state government.

Medicare is divided into three components, the Medical Benefits Schedule, Pharmaceutical Benefits Schedule, and the Australian Health Care Agreements [145, 224, 227]. As a supplement to Medicare, private insurance is available to cover the costs of dental care, physiotherapy and other health services that are not covered. Oddly, the government provides a substantial subsidy to partially cover the cost of the private insurance. This 30% payment is not limited to low income earners and is available to everyone. There was no information to indicate why the government subsidizes the private insurance system for all citizens.

The hospitals of Australia include both public and private institutions [224, 227]. Private firms that in turn provide public services for the state governments operate the private institutions. The government, charities and religious organizations operate the public hospitals. A degree of multi-tiered medicine exists in Australia. Upon admission to a hospital a patient elects to either be a public or private patient [228]. If the patient elects

to be a public patient he or she will not be charged for care but must accept the physicians assigned to them. If the patient elects to be a private patient then they choose their attending physician who charges them for service as does the hospital. Private insurance covers most charges with the exception of a Medicare subsidy to partially cover the physician's charges [228]. It is not clear whether the physician benefits from this program by being able to charge at a higher negotiated rate with the private insurance payers. Primary care in Australia is the responsibility of general practitioners in small practices. The use of nurses and multidisciplinary teams has not been developed in Australia. Funding for care is on a fee for service basis with no salaried primary care physicians. The aforementioned health centres were developed to provide services for rural and indigenous populations. The care within these health centres is multidisciplinary and is designed to meet the needs of unique patient groups [228]. To provide incentives to physicians practicing in remote locations stipends are provided. General practitioners practice in health centres in these remote locations [208]. In some locations a nurse serves as the primary care provider with scheduled physician services on a rotational basis. Other programs intended to raise the level of care in remote locations includes the recruitment of medical students from remote locations and education centered on care for remote locations.

Primary care physicians are responsible for referral to secondary care treatment. A referral letter is required by the patient in order for the specialist to receive full reimbursement from Medicare [145, 229]. Disincentive to refer may also occur on the primary care provider side as payment is on a fee for service basis and referral may result

in lost revenue. Some contentious issues exist between the primary care providers and the specialists. A is a perceived lack of reciprocity of information, between the specialists and primary care providers. There is reluctance for referral for fear of losing the patient. Physicians are allowed to charge more than the fee schedule outlined by the government however they may not do so if the government is billed directly. Increases in the number of general practitioners in the late 1990's has led to some competition and reduction in billing rates.

General practice divisions are not as well structured with respect to other countries group practices. General practice divisions are loose associations of several hundred general practitioners that were intended to better primary care practice. The areas of improvement were better coordination of services especially after hours service, a means to bring general practitioners into the hospitals and get involvement with community health services. As well the divisions were seen as a way to have primary care physicians take part in medical school education, clinical research at the community level, and health promotion.

Funding for the general practice divisions from the Department of Health and Family services were initially for programs initiated at the community level. Beginning in 1999 contracts lasting for three years were then provided to accepted programs of activity with accountability to meet agreed upon standards [145].

An elected board governs divisions with an employed and salaried physician acting as director. Depending on the level of activity in the division other staff may be added for administrative purposes. Physicians do not need to become a member of the regional division although 85% of physicians do become members.

Unlike the United Kingdom there appears to be little demand for nursing staff within the general practice. This is likely due to the small size of each practice providing little cost-benefit from hiring other allied health staff. The number of practices employing nursing staff is less than one half that of the United Kingdom.

A common information technology system does not exist in Australia for primary care providers although the prescription software is common to most physicians and there is capability for government tracking of prescription practices [228]. Incentive payment programs are in place to ensure adoption of this system.

Initiatives to improve patient care through primary care and prevention programs are in existence in Australia [145]. General practitioners may eventually have an accreditation process similar to the specialized care providers, The formation of the Australian General Practice Accreditation Limited is the collaborative work of six different medical associations who perceive accreditation as an opportunity for standardization of care and bolster the rights of patients and constantly assess the needs of the population. Quality assurance programs will be developed by the organization, as will educational standards.

The central government will sit on the board with representatives from the Ministry of Health and the Consumers Health Forum.

There are no formalized clinical practice guidelines in Australia. Physician beliefs are that evidence based practices do not necessarily translate from study to individual [145]. Some physicians were concerned that the use of practice guidelines reduced medicine from art to process. No formalized process is in place for the management of chronic or complex disease management. Nor are programs focused at managing care in the elderly. Trials for coordinated care of patients with complex needs are underway. However it is thought that the process of bringing about primary care reform in Australia is too incremental to be significant in the near term [28].

5.5 United States of America:

The United States health care system is a mixture of private and public insurance systems [230-232]. Public insurance is provided to qualifying individuals through Medicare and Medicaid programs. Qualification for Medicare and Medicaid depends upon income, age and other defined criteria [233]. Some chronic diseases treatment such as dialysis for end stage renal disease are included in Medicare programs [233]. Although Medicare and Medicaid programs originate at the federal level there is some degree of management from state to state [234-236]. Wellness and prevention programs exist as do state mandated requirements such as the New York State program for the determination and if necessary, the treatment of hepatitis B virus, HIV and syphilis in newborn infants within

24 hours of birth. Private insurance is usually provided through the workplace with risk assumed by the insurance provider with the cost of the premiums spread over the work group. Service is often contracted through a managed care organization [237].

Change within the United States health care system is driven by many stakeholders including the government, professional associations, the pharmaceutical and medical device industry, citizen's groups, insurance companies and providers. As would be expected the motivations of each group are different. Much inequality exists in the system with many different groups all working towards their own goals, which are not necessarily an efficient system of health care delivery [140, 238-240].

Systemic inefficiencies do exist but however costly the system is, some aspects of US healthcare must be appreciated. Of the countries studied only the United States does not suffer from a saturation of resources [238]. While the redundancy in the system is not readily accessible for the indigent, the access to care and choice for public or privately insured patients is remarkable. Hospital capacity is typically less than most western countries and there is competition for patients [38, 111, 127, 241-243]. Although efficiencies are gained from the competitive nature of the health care system there are conflicting forces such as patient demand for services whether they are proper or not, driven demand from pharmaceutical manufacturers and the perceived need of the clinician to satisfy the patient for retention [244].

The Medicare system was established in the 1960's as a means to provide care to the elderly while Medicaid was established to serve the needs of the poor [245-248]. The federal government and the state government set schedules of services and payments [142, 249, 250]. To some extent stakeholders attempt to influence of these organizations in order to change pricing and services. Non-Medicare and non-Medicaid patients are provided care on a fee for service basis. During the 1960's the government began funding medical training in order to reduce a pending shortage of physicians [145]. Hospitals received much of this funding, particularly those associated with medical schools. This disproportional emphasis still exists and training in over-represented areas still occurs [63, 251]. Consequently, the focus was on the development of the specialist care that these hospitals provided [252]. At the end of the 1960's primary care physicians were in the minority in the United States. Currently there is still more emphasis towards training in specialty areas and little emphasis on primary care research and development [253, 254]. The greatest impact of physician shortage remains in the underserved rural areas [255-258]. The use of physician assistants and nurse practitioners has helped to relieve pressures on the demand for primary care physicians although there is concern that in some circumstances this may lead to different levels of care [259].

Rising health costs in the early 1970's led to the government's endorsement and support for health maintenance organizations [145]. An act of Congress outlined the standards for certification of health maintenance organizations. The endorsement of health maintenance organizations was a strategy to reduce costs by enhancing competition and through a limited extent, regulation. Further cost reductions to the Government were seen

through price setting in Medicare and Medicaid payments. This led to increased prices for the private insurance providers as the hospitals and health maintenance organizations tried to buffer the decline in revenue. The government at this time also introduced diagnostic related groupings which provided payment at a set level for a given disease, condition or treatment [260]. Coupled with the pressures to control service and reduce hospital length of stays, many health maintenance organizations were forced to negotiate with insurers. Cost containment and prescribed limitations of service followed for the next decade [261]. In the 1990's insurance companies became an integral part of a patients care plan as medical decision review, prior notification and approval processes were developed.

Since the employer also shared cost for the care provided to their staff there was further pressure on the insurers to retain business by keeping costs down. One approach was a gate keeping function at the primary care level another was the implementation of practice guidelines, which effectively created diagnostic, and treatment plans. Health maintenance organizations that were owned or operated by their insurance providers brought a degree of vertical integration that is not experienced in any of the other countries studied.

There are many different forms of health maintenance organizations in the United States. Some organizations consisted only of physicians, others consisted of physician and hospital services while others were multidisciplinary including other care givers and components of health care delivery such as pharmacy and diagnostic services [262].

Cost containment and the drive to limit access to expensive care placed a greater focus on the primary care physician encounter. This did not necessarily result in enhancement of non-specialty care since many general practitioners are specialists of one sort or another. Internal medicine and obstetrics/gynecology are two specialties that also attend to primary care patients.

A move towards a national health insurance plan is very unlikely in the United States. The majority of Americans does not welcome democratization of health care. Equally if not more important, is the pressure from industry and insurance providers to maintain the free market system of private health care.

Total healthcare expenditures in the United States was a remarkable 13.9% in 1997 [26]. Some form of private insurance covered approximately 55% of the population. Thirty-six million Americans are covered by Medicare while another 35 million are covered by Medicaid [263]. Approximately 40 million people are not covered by any insurance [263]. This portion of the population is deemed 'self-pay or self-insured' and tends to avoid or defer primary care visits until their medical problems force them to seek help. This results in increased institutional visits often when a problem has increased greatly in terms of complexity and cost. States with the greatest number of uninsured include California, Texas and New York [263]. Each of these states also has very high numbers of immigrant workers, who exist below the poverty level and tend to be uninsured.

Medicaid and Medicare provide care to the elderly and the poor in various ways. Two plans exist for Medicare [233]. Plan A is for inpatient services and skilled nursing facilities as part of rehabilitation after a hospital stay. Plan B covers the care provided by physicians, diagnostic testing, flu vaccinations and other limited services [233]. A prescription plan is now under study however there is some opposition to this from the pharmaceutical industry since the government would serve as the biggest purchaser and set pricing in what is a very profitable industry. Medicaid reimbursement and level of coverage varies from state to state [233]. A basic level of care is provided by most states with some states offering more services. Basic services include both in-patient and out-patient services and plans are available in some states in response to health initiatives such as pediatric care [233].

Prior to the 1990's patients from private insurance provided much of the revenue stream to hospitals and providers. Cost containment and negotiated services has led severe reductions in the profitability of these patients. Once marginalized the Medicare or Medicaid patient is now a significant source of revenue for the hospitals that compete for them. Within Medicaid there is the primary care case management model, which assigns a physician to a patient who then has their care managed. This is not in widespread use at this time.

The health maintenance organizations negotiate with groups seeking services. Most often they are responsible for both funding and delivering care [264]. Capitation is common and some risk is assumed that the enrollees will not exceed the capitated funding during

the life of a contract [265]. Depending upon the insurance coverage gate keeping may or may not exist. Primary care physicians in many health maintenance organizations do function as a first line screen however the patient may elect to visit a specialist without a referral [40, 266-268]. Co-payment is common and some services are not completely covered by insurance therefore there are deductible expenses. Most employers offer a choice of one or two plans with different levels of coverage depending upon the amount of deduction. A lack of universality of the insurance programs results in multi-tiered levels of care in the system.

Primary care is distributed and heterogeneous in the United States. Care can be through the health maintenance organizations, single practitioners, physician hospital organizations, integrated delivery systems, health centres and other organizations. Some notable evolutionary changes in primary care include the development of independent practice groups which protect the physician's rights to see patients not enrolled in a health maintenance organization [33, 127, 262, 269]. This allows them to see non-contractual patients and increase the profitability of their practice. Physician-Hospital organizations provide full service care with in- and out-patient services. The primary care physicians are sometimes salaried by the hospital corporation however this type of contractual arrangement decreases efficiency and motivation for the primary care provider to see patients.

Health maintenance organizations may be for profit or not for profit and have varied approaches to service. Some organizations rely on salaried physicians others have

contractual relations with groups of physicians on a capitation basis. The funding mixture can be salary and fee for service for the group practices. Networks also exist with multiple physician groups [270]. Reimbursement of the group is based on the number of enrollees on a capitation basis. A mixture of patients enrolled in health maintenance organizations and other insurance schemes or self-pay may visit the network physicians. Within the previously mentioned independent practice group physicians negotiate with one or more health maintenance organization or insurance provider as well as see non-enrolled patients.

The role of the primary care physician as a gatekeeper is common to most health maintenance organizations however there is some movement away from this as public perception of these organization changes [271, 272]. Some issues that have arisen are the patients right to sue the health maintenance organization for a wider range of services or the ability to appeal the care plan decision [273]. Some health maintenance organizations have financial incentives to suppress referrals and other recruit well patients [274-276]. Some hospitals recruit patients that have attractive insurance plans by holding health fairs in markets that they do not typically represent. Other allied health personnel involved with primary care provision include nurses, nurse practitioners and physician's assistants [259, 277]. Each of which has a limited but different scope of services that they can provide to patients [259, 277].

Informatics systems have evolved within a diverse and private market structure therefore there is a lack of coordination between systems even within consolidated health

management organizations. Most systems are coordinated to capture billing of Medicare and Medicaid billing however. Ultimately this may provide the common language for interfaced systems between the primary care and secondary care providers. The 1996 Health Insurance Portability and Accountability Act (HIPAA) sets the standards for the codes used in billing of Medicare and Medicaid. Regulations set by HIPAA to safeguard patient information may also serve to drive standardization as the information technology industry reshapes the next generation of information systems to integrate safeguards.

Quality initiatives in the United States are numerous and diverse. Many are in response to government-mandated regulations for the basic level of care. The Joint Commission on Accreditation of Hospitals (JCAHO) is one such organization responsible for hospital performance and safety [8]. These initiatives are mandatory and address patient safety, confidentiality and rights [8]. State and federal health care initiatives must also be met to qualify for program funding and also for compliance to continue to receive Medicare and Medicaid funding. Self-reporting and audit measurements also serve to provide feedback to the governing bodies on the performance of their initiatives. Internal quality initiatives within health maintenance organization serve to strengthen the efficiency of care as well as satisfy external regulatory bodies.

5.6 Canada

Health care in Canada is primarily funded from public sources. There are 13 provincial and territorial health insurance plans that meet the level of standard set at the federal level

[278]. The Canada Health Act defines the criteria for insured services within the country

[278]. Provincial and territorial governments are responsible for the delivery of care within their boundaries and are only eligible for the full transfer of federal funds if the national standards of care are provided. The Canada Health Act is designed to provide all Canadians with access to medical services that are deemed necessary [278]. The service is provided on a prepaid basis and direct charges may not be requested at the time of care.

The federal government is responsible for partial assistance to the provinces through the transfer of federal funds, the determination and administration of standards of care, delivery of care to veterans, aboriginal peoples, the military, federal penitentiary inmates, and the Royal Canadian Mounted Police. Health protection and promotion as well as wellness is also expected of the federal government [278].

Provincial and territorial governments in turn are responsible for the delivery of care; planning, funding and evaluation care in hospitals, at the physician level and allied care service. The provincial government is also responsible for prescription care and public health.

The roots to the Canadian health care system can be traced to Saskatchewan where in 1947 a universal hospital insurance scheme was introduced [278]. Ten years later the federal government put into law a funding mechanism to share the cost of the provincial hospital plans. In 1961 all ten provinces and the two existing territories had a public insurance scheme designed to cover in-hospital care [278].

In 1962 Saskatchewan again led the way by providing coverage of out-of-hospital physician costs. In 1968 the federal government followed suit with funding transfers for out-of-hospital charges. All provinces and territories were fully covered for basic services by 1972. Extra billing still existed however and a health services review in 1979 by Justice Emmett Hall warned that hospital user fees and extra-billing was leading to a two-tiered system [278].

The Canada Health Act of 1984 was passed by Parliament in order to eliminate user fees and extra-billing. Provinces that allow for such charges will be penalized through reduced federal transfers. The Canada Health Act was designed to provide universal coverage for all Canadians. Incentive for provincial participation as already mentioned is the penalty of fund transfer reductions if compliance is not met.

There are five criteria set by the Canada Health Act:

- Administration of the insurance plan must be carried out by the province or territory on a not-for-profit basis.
- All medically necessary procedures provided by physicians and hospitals must be covered.
- All insured individuals within a province or territory must obtain uniform care.

- The Provincial insurance plan must cover care within other parts of the country or outside of Canada for enrolled residents.
- Access to care cannot be impeded by barriers such as transportation costs.

Extra billing by professionals and user fees derived from hospital use are illegal. Oddly, a study showed that regulation of extra-billing had as the primary objective the prevention of public sector funding private sector interests rather than directly making extra-billing illegal [279]. In four of the ten provinces private insurance for medically necessary services is not illegal [279]. Reasons for a lack of private insurance appears to be due to the availability of public coverage and not prohibition [279]. This indicates a general satisfaction level or acceptance of the existing system and a lack of pressure or knowledge from the standpoint of the consumer to secure private insurance and expedite care. As well it may signal that private insurance funding is not readily available in these regions. In 2002 a mechanism to settle disputes between the federal, provincial and territorial governments was settled upon. The Romanow report alludes to changes within the Canada Health Act which have been described earlier in this paper. On worth noting is the issue of portability. Romanow recommends that portability be in Canada only [1]. Currently care is provided out of country with payment ceilings. To eliminate insurance for Canadians traveling would be in line with countries such as Australia.

5.6.1 Ontario

Funding for care in Ontario covers primary care, rehabilitative and long-term care and acute care. Payments for drugs are covered in hospitals and for senior citizens. Some hospitals encourage the patient to bring their medication used to treat chronic conditions to the hospital to reduce the costs of care. Other pharmaceutical care and dental is not covered in Ontario. Delisted and restricted coverage includes cosmetic surgery and in vitro fertilization. New drugs are currently restricted from coverage in Ontario. Health care costs in Ontario rose 1.8% in 1999-2000 with pharmaceutical costs driving the increase (15.2%, [280]). Hospital expenditures have decreased but in 2000 were 42% of the total health care spending [280]. Private insurance exists for a number of services in Ontario. Funding for care is split with 70 percent of care from public funds and 30% from private (insurance or out of pocket) funds [1]. Private insurance covers long-term care co-payments, drugs, dental, private rehabilitation care, and retirement assisted living facilities. Private funding for hospitals ranges from 25-30% of total expenditures. Other private services exist, for example diagnostic centres.

Ontario's physician workforce consists of approximately 48% general practitioners and 52% specialists. The United States has more specialists than general practitioners, Australia is split and the United Kingdom has a much greater number of general practitioners (70%).

The history of the delivery of medical care in Canada and therefore Ontario has been focused on the hospital. In many communities hospitals are the third or fourth largest employer. From the start, universal coverage payment was to the hospital and only later was coverage for out-of-hospital costs added. A mixture of government, local not-for-profit and for profit organizations governs hospital and health care facilities in Ontario. Physicians generally are independent however some hospitals and the universities employ salaried physicians. Salaried physicians may or may not have allotted time to capture further revenues on a fee for service basis [281]. Funding in Ontario is unique within the Canadian context in that there is capitation of reimbursement [282].

General governance for the health care facilities in the province is at two levels, the municipality and the Ministry of Health and Long Term Care (MOHLTC). Community elected boards governs the hospital administrative function and oversees the activities of a hospital. Some not-for-profit institutions are governed by religious organizations. The Ontario Hospital Association has devised a hospital report card, which is filled out by the public. Rankings of the hospitals within Ontario are tallied and made public on an annual basis. There are some issues with the system as remote hospitals often have limited service and see patients that may be delayed in making a visit from remote locations. Consequently, the level of acuity and the rate of morbidity and mortality for these patients is often higher.

Physicians are self-regulated with specialty care standards set by the Royal College of Physicians and Surgeons. The Canadian Medical Council and the Provincial Colleges of Physicians and Surgeons govern the licensure of physicians in Canada [283, 284].

Accessibility and portability of care in Ontario and Canada in general, is good. Patients may pick a physician for general care. Patients may also elect to enter a family practice or Health Service Organization after which they voluntarily give up their rights to select other physicians although they may opt out of the practice at any time. There appears to be no formalized process of preventing the patient from visiting other physicians.

Informal registration (retention) with clinicians appears to be more common in rural settings where physician choice and anonymity tend to be lower [285]. Hospital care can also be selected in most regions however there is often only one treatment facility or a very limited choice of treatment facilities in a particular area. Specialized care requires a letter of referral from a primary care provider. Without a letter of referral the specialized care physician is unable to capture funding except in acute care situations. Referrals tend to be most frequent in the pediatric and geriatric periods of life [286]. Accessibility to a teaching or tertiary care hospital seems to have a significant effect on the rate of referral. Patients living in regions close to a teaching hospital have 14% more referrals to specialized care. The current fee for service scheme has been shown not to be successful in fostering shared care between specialized services in Ontario [287]. Also, primary care physicians dealing with follow up advice and care to secondary patients may not be reimbursed but takes up a significant manpower effort [288].

Patient rights have been established for long term care. Other forms of medical care do not have defined patient rights. There does not appear to be much activity by citizen advocacy groups to either champion patient rights or improve medical services in Ontario.

Quality initiatives are unstructured in Ontario. Most physicians practicing general medicine do not conduct research, citing a lack of funding and a need to generate revenue as the major barriers [289]. Identification of the benefits of family medicine research have been known for sometime and this appears to be a neglected area of study [290]. In contrast to Australia the acceptance of practice guidelines by Ontario physicians has been documented for some time [291]. However, the resources or commitment for such guidelines have not been developed. Patterns of care sometimes follow personal beliefs and experiences and are not always based on validated medical practice [292-297]. A pilot study showed that physicians were receptive to the concept of having nursing facilitators participate in preventative care in practices in health service organizations [298, 299]. The outcome of the study showed that primary care physicians did significantly change their practice behaviors through interaction with the nurse facilitators. Such a program on a province wide basis could possibly bring standardization to preventative health care initiatives.

Another problem with quality initiatives is the lack of dissemination of information of federal promotions such as vaccinations [300]. Surprisingly 53% of family physicians were unaware of the federal guidelines for vaccination against Varicella. Added funding

incentives for federally mandated programs could provide incentive to conformity to treatment guidelines. Within the United States mandated reporting of treatment for specified patient populations has helped with compliance for accepted care standards.

The Ontario Hospital Association (OHA) represents the hospitals in Ontario. This group supports the interests of the hospitals and therefore is somewhat biased in how health care in Ontario should be supported. The OHA viewpoint tends to position the hospital as the centre point in the health care system of Ontario. In his address to the Ontario Hospital Association 2002 convention David MacKinnon President and CEO described a bleak economic picture for Ontario hospitals and suggested some ideas for reform [17].

MacKinnon noted that as of 2002 the Ontario hospital system is insolvent [17].

He believes that reform of Ontario's health care system has failed because there is no structure format to gather data on the impact of funding decisions or performance and clinical outcomes. He also suggests that government budgeting has not accounted for technological depreciation, aging and the increase in population. He also believes that the benchmarking of other hospital systems was done anecdotally and not systematically. As well the decision-making and long term goals of hospitals is compromised because of annual budget crises which preempt anything other than short term planning.

According to MacKinnon the key cost drivers to the Ontario health care system the rising costs of drugs and medical devices, an aging population that is increasing in size and greater consumer expectations.

MacKinnon perceives the past changes that were successes are the Ontario Hospital Insurance Plan, Ontario Hospital Pension Plan, Blue Cross Insurance, Ontario Health Records Institute and the centralized collective bargaining for Ontario's hospital workers. He also cites successes in the development of hospital report cards, the hospital purchasing program, and the health insurance reciprocal. He believes that the common thread in each case was that the government wasn't always the leader and that hospitals served as the enablers and not just advocates.

In his address, MacKinnon stated that the choice of care in the future will be shaped by patient values as well as evidence based medical practices. Some of the steps he feels are important to effectively reform health care in Ontario will include a change in the expectations of stakeholders, the design and construction of a new level of connectivity including supply chain management, electronic health enablers and integration at the point of service for these enablers. Some of the connectivity changes include HealPlex an online health education system and health networks such as the Network North and Child Health Networks. While patient values are important to consider in the planning of care, it is surprising that access and availability of primary care was not on his list of influences. What appears to be implied is that the patient values from a hospitalist point of view include timely access to specialized care and elective surgery.

The most contentious issue he feels is the change in thinking with respect to the definition of health care. He asks how comprehensive must health care be to be

effective? He suggests that care be focused on prevention, development of new technologies, care for complex and severe illnesses. He believes that a private insurance scheme should cover the day-to-day primary care visits. This is contradictory to the tenets of Canada's health care system as it leads towards a two-tiered care. Moreover it places the onus of primary care in the hands of the citizen. As observed in the United States a significant portion of the population does not have health insurance.

Some of the current trends in the health care system in Ontario include a decreasing bed capacity and a very high occupancy rate. Ontario Ministry of Health and Long Term Care Daily Census Survey shows that bed capacity in Ontario has dropped by 36% from a high of 49,391 beds in 1990 to 31,772 in 2002 [17]. Most reductions in beds are in the acute care category with less bed loss in psychiatric, complex chronic and rehabilitative care [17]. Bed occupancy rates in Ontario as of 2001 were 87% with the number slightly higher in the Greater Toronto Area at 89% [17]. In contrast the United States bed occupancy rates are around 60% and New York State bed occupancy rates are around 75% [17]. Studies have shown that rates above 85% result in increased risk of bed shortages, which result in delays in surgery and other procedures. The cause of the bed shortage or Emergency Department crisis is one of a change in patient flow in and out of the hospital from the first order rate equation to zero order kinetics. With first order kinetics a constant proportion (percentage) of patients enter and leave the hospital at the same time. The excess capacity serves to absorb the transient increases that may occur due to seasonal pressures such as influenza outbreaks. The beds represent the ever changing but static in census population in the hospital at any given time. When the beds

become full a constant number of patients may then only enter the hospital as the constant number of beds are emptied. The remaining patients that are in need of a bed must remain in the Emergency Department or be transferred to another hospital. This has a substantial effect on the ability to utilize acute care beds for surgical procedures.

In Ontario the percentage of people with wait times for a specialized services greater than three months ranges from 12% for specialist visits, 19% for non-emergency surgery, 9% for diagnostic tests, 19% for cardiac or cancer surgery, and 35% for joint replacement surgery [7]. The percentage of individuals waiting for one to three months those same services were approximately 40% with the exception of cancer and cardiac surgery in which just greater than 25% waited that long [7]. As mentioned by MacKinnon, the financial health of the hospitals of Ontario is poor. According to the C.D. Howe institute Ontario's share of unfunded and unrecognized health care debt is nearly two times the Ontario budget deficit and nearly equal to Ontario's share of the federal deficit [17]. The 2002 figures for current ratio (assets over liabilities) for Ontario Hospitals is on average 0.82 [301]. Teaching hospitals are leading the way in insolvency with a current ratio of 0.6 followed by community hospitals at 0.9 and rehabilitation hospitals at 1.1. Small hospitals have a current ratio of 2.0 [301]. The projected overall current ratio for 2003 is 0.55 [301]. In contrast hospitals in the United States report a current ratio 2.1 [301]. The spectrum of current ratios for Ontario hospitals supports MacKinnon's assertions that ongoing budget crises leads to short term planning goals that do not address the needs of hospitals nor their constituency.

Consumer's perceptions on the groups that influence decisions of health care reform show an influence gap, which may reflect negatively on further reform [9]. An influence gap is the degree of how much a particular group has in influencing the system versus who should have the influence. Of 1006 polled Ontario citizens the view of how over represented a stakeholder is in decisions of public health care reform are: Politicians 57%, private sector organizations 12%, public servants 6% and regional authorities 3%. In the same poll the degree of stakeholder groups that the public feels are underrepresented include: Patients at 46%, non-profit organizations 25%, doctors and nurses 14% and research institutes 1% [9]. Citizens feel that the politicians do not deserve to influence health care reform and strongly feel that they should have a say in where health care goes in the future. This is likely a reflection of the public's current feelings towards the system and a lack of confidence in the ability of the current governments to make the correct reform decisions.

5.7 Cross-Countries Comparison

In the year 2000 Canada spent \$2535 per capita for health care (Adjusted for cost of living, [242]). In contrast the United States spent \$4,631, Australia spent \$2,211 and the United Kingdom spent \$1,763. This is in keeping with the belief that wealthier countries tend to spend more for health care than less wealthy countries. Comparing the reviewed countries expenditures as a percentage of GDP, the United States leads the way and Canada is second (Appendix 1, [242]). Finland's expenditures are the least followed closely by the United Kingdom.

How the funding breaks down is of interest. Canada leads in public expenditures or the funding support from the government as a percentage of GDP (**Appendix 2**, [242]). The United States spends the same amount as the United Kingdom expressed as a percent of GDP. Again Finland spends the least as a percent of the GDP, which in part is a reflection of the compensation for physicians. Of the public expenditures on health, the contributions of social security schemes vary widely by country (**Appendix 3**, [242]). Social security is the predominant funding mechanism in the Netherlands, while in Canada the contribution of social security to health care funding is very low since most funding is derived from government support. As expected private insurance accounts for more than 35% of total expenditures on health in the United States (**Appendix 4**, [242]). This is lower than the percent of individuals covered by private insurance in the US therefore there is a disproportionate expenditure on non-private insured individuals. This likely is the government contribution through Medicare and Medicaid. Such compensation as discussed earlier is not necessarily the most efficient route to finance health care as a country wide aggregate.

Canada's private insurance plans cover between 11 and 12% of total health expenditure. This is of significance since this fraction of care is targeted by Romanow to reduce the emphasis on private and thereby elected or tiered care. Moreover this is a contradiction to MacKinnon's assertions that primary care should be covered by private insurance.

Canada spends the most of the countries that have current information regarding pharmaceutical expenditures as a percentage of total expenditures, (Appendix 5, [242]). This data should be interpreted with caution however, as it does not necessarily indicate that Canadians are over-prescribed in relation to the other countries. In part, this is a reflection the increasing costs of medications and in part it, reflects the disproportionately low cost of some other services in Canada. For example, there has been no expansion of physicians services in Canada from 1994 through 2001 (Appendix 6, [242]). Thus, as dependence on medication changes a relative increase in proportion of pharmaceutical expenditures would be observed. Assuming that formularies and the prescription practices are relatively constant throughout the countries analyzed, a disproportionate increase in pharmaceutical expenditures may reflect a lag in other areas of health care expenditures.

The lack of growth of Canadian physician manpower in relation to the other studied countries is a significant finding when the changes in population and demographics of the country are considered. This will be dealt with in greater detail later in this paper. Only the United Kingdom has less physicians on a per capita basis. The United States with its health care surplus has nearly 1.3 times the number of physicians as Canada on a per capita basis. Most countries with the exception of Australia and Canada are experiencing a rise in physicians with respect to population. As of 2001 both Finland and the Netherlands lead the way with 3.1 and 3.3 physicians per 1000 citizens.

Acute care bed stays and average length of stay serve as reflection of efficiency in terms of hospital services. In all countries the number of acute care beds are decreasing

(Appendix 7, [242]). Australia and Finland have seen the biggest proportional decline of acute care beds. Canada lies roughly in the middle with respect to the number of beds on a per capita basis. Interestingly, the United States with a surplus of health care services is ranked below Canada in the per capita number of acute care beds. This is contradictory to the differences in occupancy rates of beds between the two countries. There is a much higher occupancy rate in Canada, which affects the flow of patients through the system. In the United States, diagnostic related groupings have placed significant pressure on hospitals to reduce dwell time in hospital beds. This has increased the number of outpatient procedures in the United States. Movement of care to an ambulatory setting required an investment in technology and infrastructure to support the change. The average length of bed stay in a country may be in part a reflection of economic pressure to discharge, cultural beliefs, and the use of external clinic based multidisciplinary support teams versus hospital-centred care [302] and the degree or availability of support of rehabilitation bed, chronic care, home care and community based nursing services. Canada is second highest in terms of average length of stay (Appendix 8, [242]). Only the Netherlands was higher. Finland was the lowest number of acute bed care days. Interestingly there was very little evidence that would indicate that Finland has adopted the United States model of outpatient based procedures. Why Finland has such short hospital stays is not clear. Since Finland has few major medical centres, a concentration of specialized surgery may contribute to efficiency of care, as well, there may be a developed network of long term support facilitating shorter stays [303, 304]. Most countries have attempted to reduce expenditures by limiting access to specialized care through one form or another of managed care or gatekeeping [41, 93, 305].

Gatekeeping in the strictest sense requires a referral from a primary care physician in order permit a visit to a specialist. Managed care is similar although there is an added component where the primary care physician may be further constrained to limit referrals based on predetermined criteria which is set by an insurance payer. The United States has taken advantage of the referral system and is the forerunner in the use of managed care largely as a means of limiting the expense of care by insurance payers [180, 261, 266, 268, 306, 307]. Health insurance products in the United States are offered at various levels with different costs to the employer and the subscribing employee. Managed care without open access to specialized care is often offered at a reduced rate to subscribers. Managed care and primary care referrals are often negatively perceived by the consumer, primary care physician and specialist [43, 106, 107, 274, 308-315]. The consumer perception of reduced quality of care is derived from a need for reassurance, the patient's previous exposure to a specialist and a opinion that the primary care physician lacked the expertise to treat a specific ailment [314]. The majority of patients do acknowledge that first contact with a primary care physician is an acceptable part of care, however the level of satisfaction of the patient diminishes when a specialist visit is denied by the primary care provider [312] [309]. Ethical issues have been raised with respect to managed care providers and their conflicting role as payer for service and provider of care [313].

In the United States where there is a surplus of health care providers, a consumer who is both able to choose between health care plans and exercise mobility, both primary care and secondary care providers have negative feelings to some aspects of managed care. Primary care physicians have expressed concern that they are limited in their ability to

practice medicine and dislike the negative interactions when patients are denied a referral. Physicians as with any other service provider appreciate that their patients are also consumers and are free to choose a provider that will satisfy their perceived needs. This also applies to patients with managed care programs although their ability to leave a plan can only occur on an annual basis. Some specialists believe that managed care reduces their patient base and that primary care physicians lack the knowledge to decide when to refer [106, 107]. One study showed that negative perceptions to the referral system were diminished when the specialist was salaried [107].

How much can be learned from the trends of other countries and their reform? The key features of other countries include mixtures of private and public funding to various degrees. Some countries have made efforts to roster their patients with a primary care provider. Some countries have adopted practice guidelines to aid primary care physicians although no mechanisms for formal for the dialogue between primary care and secondary care provider seems to be apparent. Nor does there seem to be a structured system to regulate the flow of patients back and forth between primary and secondary care physicians. Enhancement of primary care requires significant government intervention including funding changes, funding of university training and programs that foster enrollment and service access. Of the countries studied only the United States has surplus activity however it is the least cohesive of countries with respect to health care. There is no call for universality of coverage and institutions are independent agents leading to much redundancy.

Accountability and risk aversion in care can be learned from the United States. This translates into quality assurance practices, accreditation, reporting and monitoring of programs. All key features to ensure the safety of the patient especially during periods of significant health care reform.

Similar to the rest of Canada health care in Ontario has undergone many changes in the past few decades. A perception of reduced service and a need for accessibility has been apparent. For some time the media has focused on the extended wait times for secondary care, lack of hospital resources and the shortages of primary care physicians. A lack of hospital resources and shortages in secondary care are beyond the scope of this work however the apparent shortages in primary care physicians will be explored in greater detail.

In preliminary work, three interviews with primary care physicians (two family medicine physicians and one pediatric primary care physician; (Appendix 9) indicated that the shortage of primary care physicians in Ontario was a reflection of several influencers including:

- The OMA funding structure, which favors procedures over primary care visits.
- Exposure of residents to specialized secondary care during their training in hospital oriented teaching facilities.
- A lack of structured funding commitment to family medicine research.
- Tuition increases and the concomitant financial pressures of graduates of Medical Schools in Ontario.

Exploring the funding structure of the OMA is beyond this paper however the other issues can be addressed to some extent. An analysis of the changes in population and physician demographics, age related productivity, enrolment, distribution, gender distribution, gender related productivity, manpower commitment, changes in residency enrollment, and trends in distribution of physician manpower will be dealt with.

6.0 Canadian Population Demographic Changes:

The Canadian population grew by 10% from 29 million in 1995 to an estimated 32 million in 2003 (**Appendix 10**, [6]). While a population increase would suggest an apparent decrease in the mean age of the population, in fact the reverse is occurring. The percentage of population less than 20 years of age decreased from 28% to 23% or 8.1 million to 7.4 million while the population segment 40 years and older increased from 41% to 49% an increase from 11.9 million to 15.6 million (**Appendix 11**, [6]). Therefore the population is not only increasing it is also aging [316]. The Canadian population over the age of 65 has increased from 7.5% in 1960 to 12.6% in 2001. An increase of 0.6% occurred from 1995 to 2001 alone. The pressure on health care is two-fold and disproportionate. As a population increases more demands for health care follow. However as the population ages the increase in utilization is neither proportional nor linear. Per capita expenses for health care in annual dollars in the age range of 25-29 is \$180 for males and \$395 for females (**Appendix 12**, [317, 318]). By the age of 65 the cost of health care in annual dollars over triples to \$620 for males and increases by 50% for females to \$600. Peak per capita expenditures occur in the over 80-age group for men

(\$920) and females (\$800). A 12% increase in health care costs in the eight years from 1995-2003 can be estimated from the change in population demographics and the annualized cost of care (Appendix 13). This annualized cost translates into not only hospital visits and increased procedures but also increased contact with primary care physicians. The elderly place increased demands on all sectors of health care.

6.1 Canadian Physician Demographic Changes:

From 1995 to beyond 2000 the Canadian absolute count of physicians has remained static although there have been significant demographic changes. Using data from the National Physicians Database [317, 318] it becomes apparent that superimposed on the increased pressures from the aging population is an age- and sex-based decrease in access to physicians. To understand this phenomenon requires knowledge of how physician manpower has changed. Data on the age distribution of Canadian physicians is available between 1996 and 2000. There is no evidence that the trend described has reversed in the present so the data is applicable to the current state. In this period of time there were significant changes in the age of physicians in Canada (Appendix 14, [6, 318]). In 1995 50% of physicians were under the age of 44 and 17% were under the age of 35. In 2000 only 41% were under the age of 44 and 11% were under the age of 35. Conversely, physicians in the 55-64 age group increased from 17% to 20% and the physicians over the age of 65 increased by 2%. Considering the overall physician census had not changed this would not be significant if it wasn't for the fact that practice patterns of physicians are related to age and sex (Appendix 15, [317, 318]). Family Practice physician activity in

1996 showed that peak productivity expressed in relative workload of the aggregate occurred in the age period of 40 to 54 years. Female workload was consistently less and never surpassed one on the relative workload scale. Female Family Practice physician peak activity was in the age range of 50-54 years. Physicians older than 65 years abruptly curtailed their activity. Looking at self-reported data from the Janus survey [319] it can be seen that the trend of reduced activity holds true in 2001 for females and for physicians over the age of 65 (**Appendix 16**). In the post-graduate period, available for child-bearing and raising (years 30-49) females were the least active.

The number of female physicians that entered the workforce increased significantly over this period (**Appendix 17** [317, 318]) which further contributes to the reduction of physician manpower. In surgical specialties the number of female physicians increased from 10 to 14%, while in medical specialties and family/general practice the increases were 23 to 27% and 30 to 35% respectively. There are more female physicians entering family medicine than specialties but more importantly, as indicated by Chan [320] the workload is lower for females than for males. This is particularly true for the recent graduates who have delayed having children until their studies are completed therefore as the pool of new entrants to the workforce is increasing female in composition the hours of activity will decline. Since females appear to be more inclined to enter Family Practice the effects will be even more apparent on this sector of health care. Moreover, the Janus study [319] polled Family Practice physicians and found that a significant proportion of the existing pool planned on reducing their workload in the next three years.

6.2 Ontario Post-Graduate Changes 1995-2002:

How does Ontario post-graduate medical training composition compare to the patterns in specific provinces and the country? The number of post-graduate trainees in Canada who have chosen Family Medicine has remained steady at around 40% of all graduates (Appendix 18, [321]). The number of graduates has decreased slightly during this period. The vast majority of Canadian medical school graduates come from Ontario and Quebec. In Ontario the number of graduates declined from a high of 620 in 1995 to a low of 540 in 2001. In 2002 there were 54 more graduates than in 2001. Quebec experienced an even greater decrease in graduates. The Family Practice census followed the same pattern with 2001 having the lowest number of entrants and then small a correction in 2002. In terms of percentages of Family Medicine entrants there is a decline from a high of 41 percent in 1997 to a low of 37 percent in 2002 (Appendix 19). Quebec, British Columbia, Alberta, Saskatchewan and the Maritime provinces have not experienced this decrease however Newfoundland and Manitoba have experienced greater declines in Family Medicine entrants. In summary, Ontario has experienced a drop in the number of entrants into Family Medicine in addition to the decrease in total graduates who could then enter the workforce after their post-graduate education.

6.2 Ontario Population and Physician Demographic Changes:

The health care regions in Ontario are defined by geography and manpower in each region is tracked. Disproportionate regional increases in population could affect health

care delivery in that area. From 1996 to 2002 the population of Ontario grew by 1.01 million people or by 9.1 percent in keeping with the population growth of the country as a whole (Appendix 20, [6, 322]). Only the Northeastern and Northwestern regions decreased in population. The Greater Toronto Area (GTA) experienced the most growth in population.

The total number of active physicians in Ontario in this same period saw decreases for Family Medicine, and increases in both medical and surgical specializations (Appendix 21, [323]). Surgical specialties practices increased in all regions including the North. The greatest declines in medical specialties were in the central regions particularly Central West. The North also experienced a sharp decline in medical specialties. Family Practice in the GTA saw a 3.3% decrease in manpower during this period. Only in the East was there an increase in Family Practice physicians. The decline in the Central East, South and West regions was striking. In Ontario the numbers of Family Medicine physicians is significantly reduced. Although the GTA has seen one of the smaller regional decreases in Family Medicine Physicians, it has also experienced the greatest growth in population. Therefore there has been a 12.5 percent increase of the ratio of population to physician which is the largest in the province. As the population increases in age and numbers, the physician census in Ontario has been changing with fewer primary care physicians remaining. In contrast there are increasing numbers of surgical and medical specialists.

The cause of the decline in physicians could come from a number of sources. These can include fewer entrants to medical schools, migration of physicians out of the province and country, deferred entry into practice of new graduates, fewer foreign physicians

entering the workforce and increases in retirements of the existing physician pools. Chan has studied these factors in the Canadian physician workforce [320] and has concluded that the increase in physician retirements, restrictions on the immigration of foreign trained medical students and decreases in medical school enrollment were to blame. The popular notion of physician movement to other countries had little impact on the physician workforce according to Chan [320].

In Ontario there are declining numbers of physicians in the 20-34 age group (**Appendix 22**). This age group represents recent entrants to the work force after post-graduate training. The number of active Family Medicine Physicians in Ontario has declined from a high of greater than 1400 in 1995 to less than 1000 in 2002. This is particularly ominous since major decreases in new entrants will affect physician activity in the future even more so than in the present as there will be less physicians in their most productive years over the next two decades. Conversely the number of active physicians in medical specialties has greatly increased while those entering the surgical specialties have modestly increased. Region by region the pattern remains the same. In the GTA and in the Central South and South West regions the number of new entrants to Family Medicine has nearly halved (**Appendices 23-25**). In the Central East and East regions the declines have not been as severe but are still very significant (**Appendices 26-27**). In the Central West region the decline appears to have leveled off and the numbers of Family Physicians are modestly increasing (**Appendix 28**). In the north there has been a substantial decline and leveling off from 1998 onwards (**Appendix 29**). This may reflect a stabilization of declines through the locum program of the Ontario Government.

Another significant trend appears to be settlement of new medical specialty post-graduates in the highly urbanized areas of the GTA and Central South. In these two regions the numbers of total specialties is greater than the numbers of general practice physicians. Within the South West region the numbers of specialties and Family Practice Physicians has converged in 2002. It is unclear how the trend will follow in the future. The remaining regions while impacted less still have modest increases in specialty practitioners.

If the pattern of new entrants into practice has changed how has this affected the age distribution of physicians across time and selected specialties? In **Appendix 30** the shift towards increasing age of practicing Family Medicine physicians is apparent. The number of physicians beyond the age of 50 is increased, as have the numbers beyond the age of 65. This will affect activity both now and in the future. Physicians beyond the age of 65 work considerably fewer hours and while we now have significant numbers of physicians in their peak productive years the shift in age will cause further shortages both in absolute numbers and in relative activity over the next two decades if this trend continues.

Selected specialties were looked at to see which groups were experiencing an influx of young physicians. General Internal Medicine, General Surgery and Anesthesia all have a shifting demographic towards higher numbers of young physicians (**Appendices 31-33**). Emergency physicians are undergoing a peculiar shift with slight increases in new entrants and as surprising shrinkage of physicians between the age of 40-44 (**Appendix 34**) It isn't apparent as to what is causing this decline in middle-aged physicians however

Chan has noted that between 1990 and 2000 there was a significant decline of general medicine physicians in Ontario that would practice outside of their offices including the emergency room [324]. As well the Janus study has indicated that 40 percent of family practice physicians had curtailed activities such as emergency medicine and obstetrics and gynecology up until 2000 and another 20 percent intend to curtail these activities after 2000 [319]. There were also significant increases in the numbers of older physicians in Emergency Practice. Orthopedic surgery, Obstetrics and Gynecology, and Pediatrics have all seen relatively little change in this time period indicating a steady inflow and outflow of physicians from the specialties (Appendix 35-37).

What is causing the decline of new entrants to Family Medicine? The two major arguments are that the cost of tuition has dramatically increased in Ontario [15, 16] and that new entrants to medicine value a controllable lifestyle and do not wish to work long hours that would decrease time spent outside of practice [325-327]. Since 1994 Ontario tuition rates have climbed well beyond the average of the country [328-340]. Controllable lifestyle is considered the ability to predict working hours and to have a greater focus on daytime activities rather than on call service or shift work with extended hours. Some of the controllable lifestyle specialties included Anesthesiology and Emergency Medicine. Surgical specialties, Family Practice, Obstetrics and Gynecology, Pediatrics and Internal Medicine were considered non-controllable lifestyles [325-327]. Since there appears to be no correlation with new entrants and controllable lifestyle some other influence must also be contributing to the increase in specialist training over this period of time.

Tuition rates in Ontario have risen greatly since the mid 1990's (Appendix 38). Ontario has the highest rates of tuition followed by Nova Scotia, which widely fluctuates from year to year. British Columbia has the most stable and lowest tuition rates. Quebec and the other provinces have also seen progressive hikes in tuition however, these increases are modest in comparison to Ontario's increases (Appendices 39-40). Increases in tuition could potentially lead to a homogenization of the medical school student based on affordability with affluent urban families being the primary student source. Affluent students may be less inclined to enter into lower paying medical practices. As well, high tuition costs would lead towards higher financial burdens leading graduates to higher paying specialties in order to reduce their debt. Even within primary care practice the distribution patterns of physicians to affluent areas is guided by financial burden at graduation [341]. Has tuition then been the influencer of the decline in new entrants to Family Practice in relation to specializations? Kwong [15] has studied this and has found that overall in Canada the number of medical students from lower income families is decreasing. Ontario is consistent with this trend and there was no significant difference between Ontario and the rest of Canada in terms of family income. What was significant however was a sharp increase in the number of Ontario students carrying very high debts at graduation. The number of Ontario students with debt greater than \$100,000 has doubled from 1997 to 2000. As well a significant portion of these students have cited the financial burden as a reason for their choice of specialty. Interestingly but not conclusively proven to relate to financial burden is the increased use of intermediate rather than minor billing codes in primary care practice in Ontario [342]. The ratio of

intermediate to minor billing as increased 10-fold in the period of time between 1975 and 1995. Much of the increase in billing is attributed to recent graduates.

7.0 Conclusions and Recommendations:

Of all the countries studied Canada has the second lowest number of physicians per capita. The workforce has remained stable with respect to population since 1993. Ontario is currently experiencing a decline in Primary Care physicians and availability. These declines can in part be attributed to a decrease in new entrants, changing work patterns with a movement away from comprehensive care, the influx of female physicians that work fewer hours in the initial decade of their career and an aging workforce. As well there is a decline in the number of foreign physicians allowed to immigrate to Canada. While the number of physicians is decreasing in Ontario the population is increasing and also aging. This is placing more pressure on the system. Gains have been made in positions in specialized care in many regions of the province however this has been at the expense of Primary Care. The change in tuition fees in Ontario may have contributed to the reduction of graduates that have matched for Primary Care. As well there is evidence that lifestyle plays a role in the selection of a specialization. Even within Primary Care practice there is evidence that physicians are limiting the scope of service and are increasing office only activities.

What can be done to reverse these trends? Many of the countries studied have either increased the number of post-graduate positions available to physicians or have found

programs to bring physicians into primary care through better exposure and financial incentive. Adjusting medical school intake to accommodate the increase in the female physician workforce is important.

In the United States and in Great Britain foreign trained physicians, physician assistants and nurse practitioners have been successfully used to help satisfy demand. The need for further intake from allied health personnel and foreign recruits is recognized in these countries.

Australia recruits medical school students from rural locations with the knowledge that they are twice as likely to practice in a rural setting. In Ontario the development of the newest medical school in Sudbury and Thunder Bay may help to emphasize Primary Care practice in less populated regions in a similar fashion.

Finland and the Netherlands appear to have very structured primary care systems with much of the care delivered by these physicians. This may be difficult to develop in the Canadian context as physicians are free to limit the scope of their practice. Financial incentives may help to reduce the number of physicians that are reducing comprehensive care. The OMA piloted project may serve as a model to facilitate comprehensive care.

At the medical school level financial support could be given, perhaps in the form of grants or scholarships for those that apply for Primary Care post-graduate education.

More medical school entrants are needed to accommodate the increasing numbers of female physicians and the aging physician pool.

Lastly, the Australian emphasis of a Primary Care Research program should be considered to help foster best-practices and to recruit academic-oriented physicians to the field of Primary Care. Academic exposure may facilitate recruitment in the discipline.

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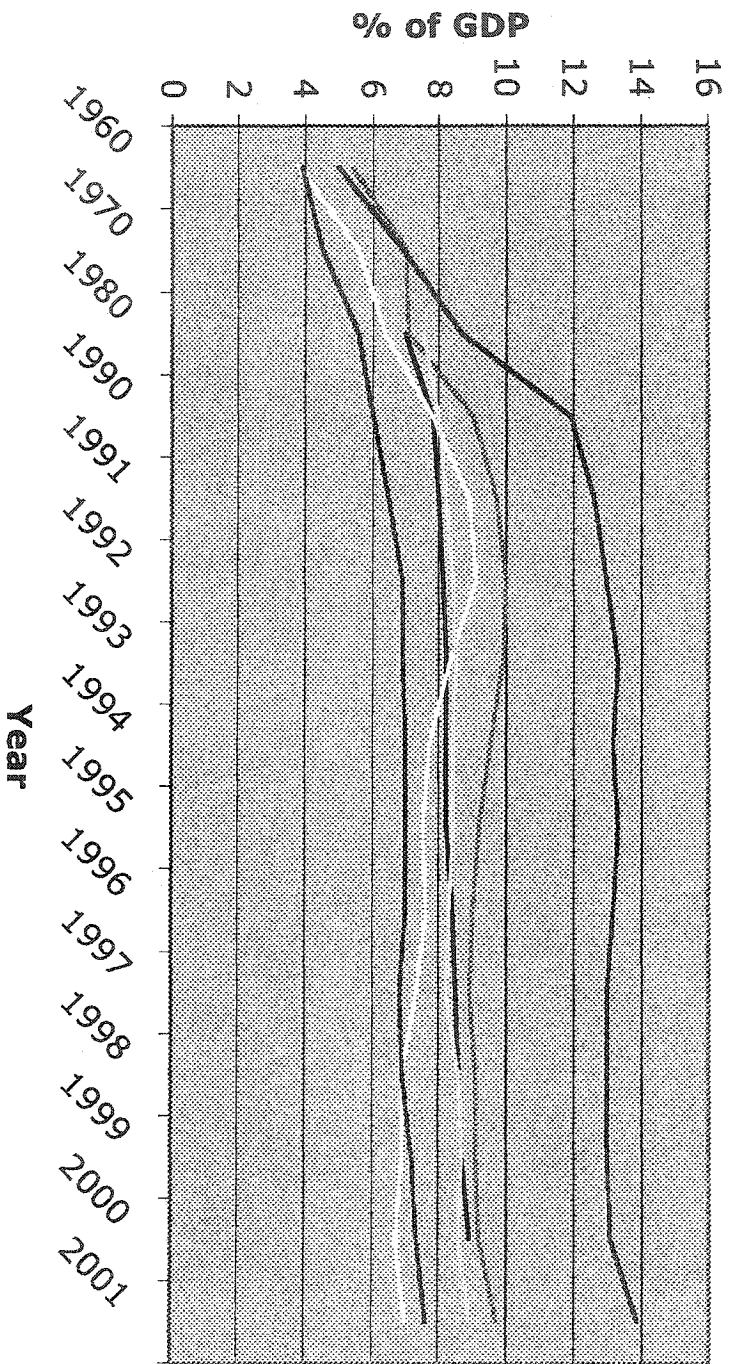
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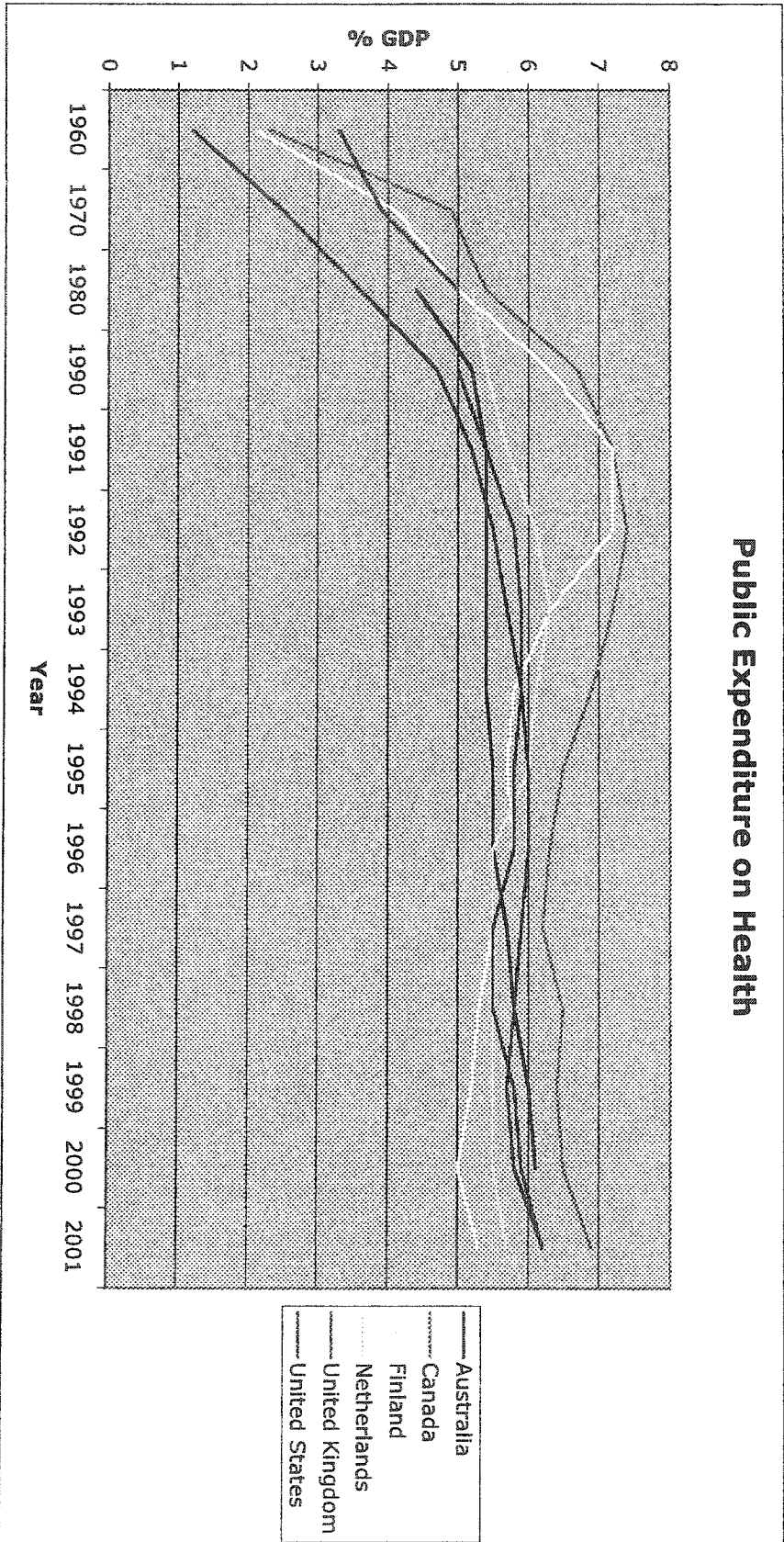
Total Expenditure on Health



Source: OECD

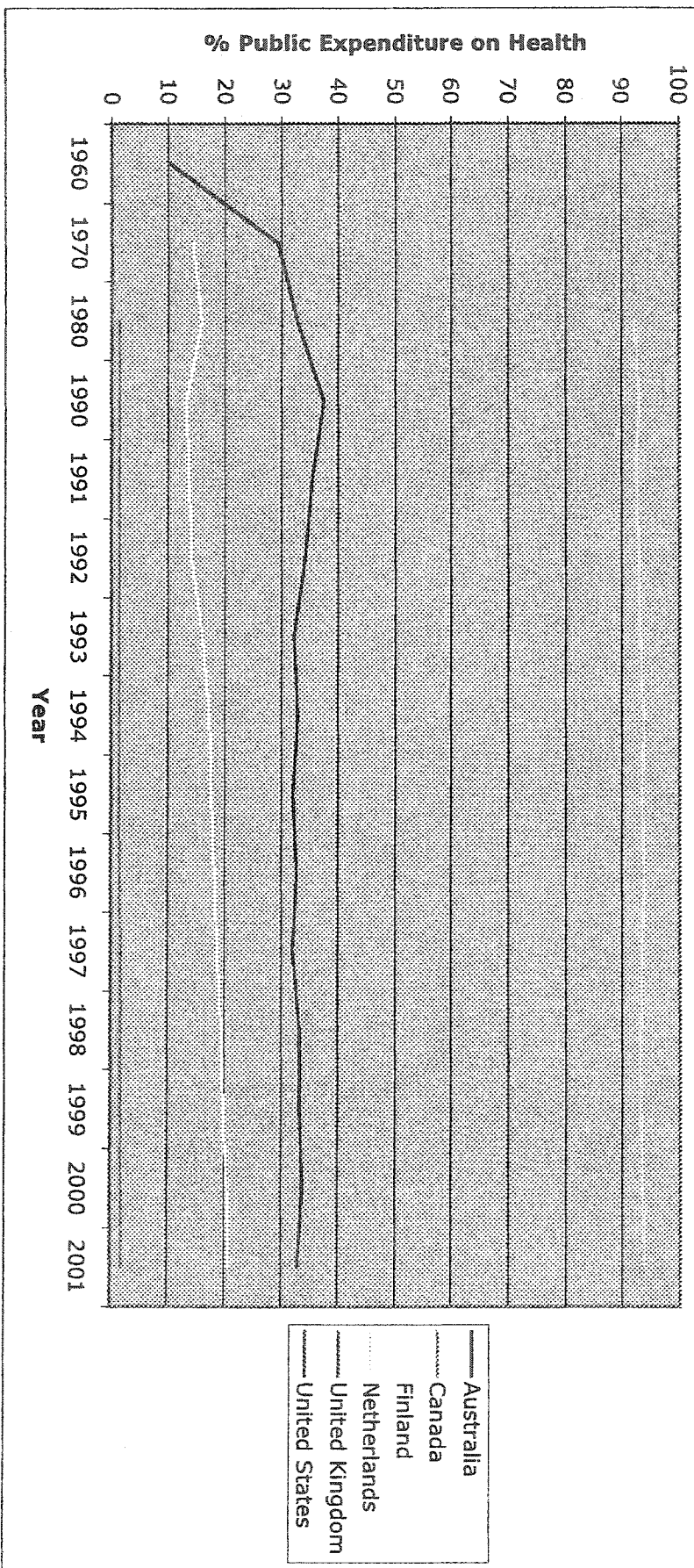
Appendix 1

Public Expenditure on Health



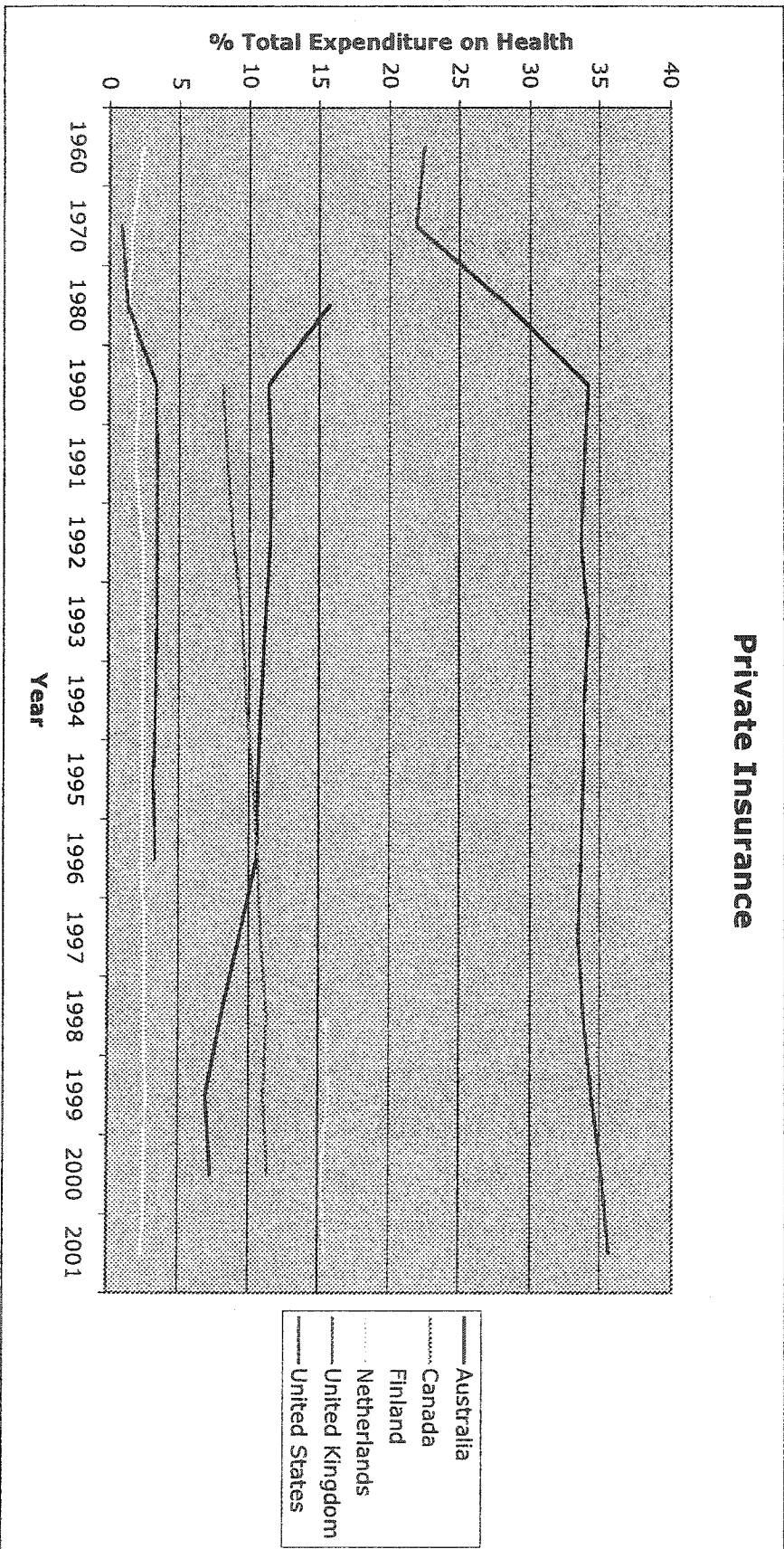
Source: OECD

Social Security Schemes



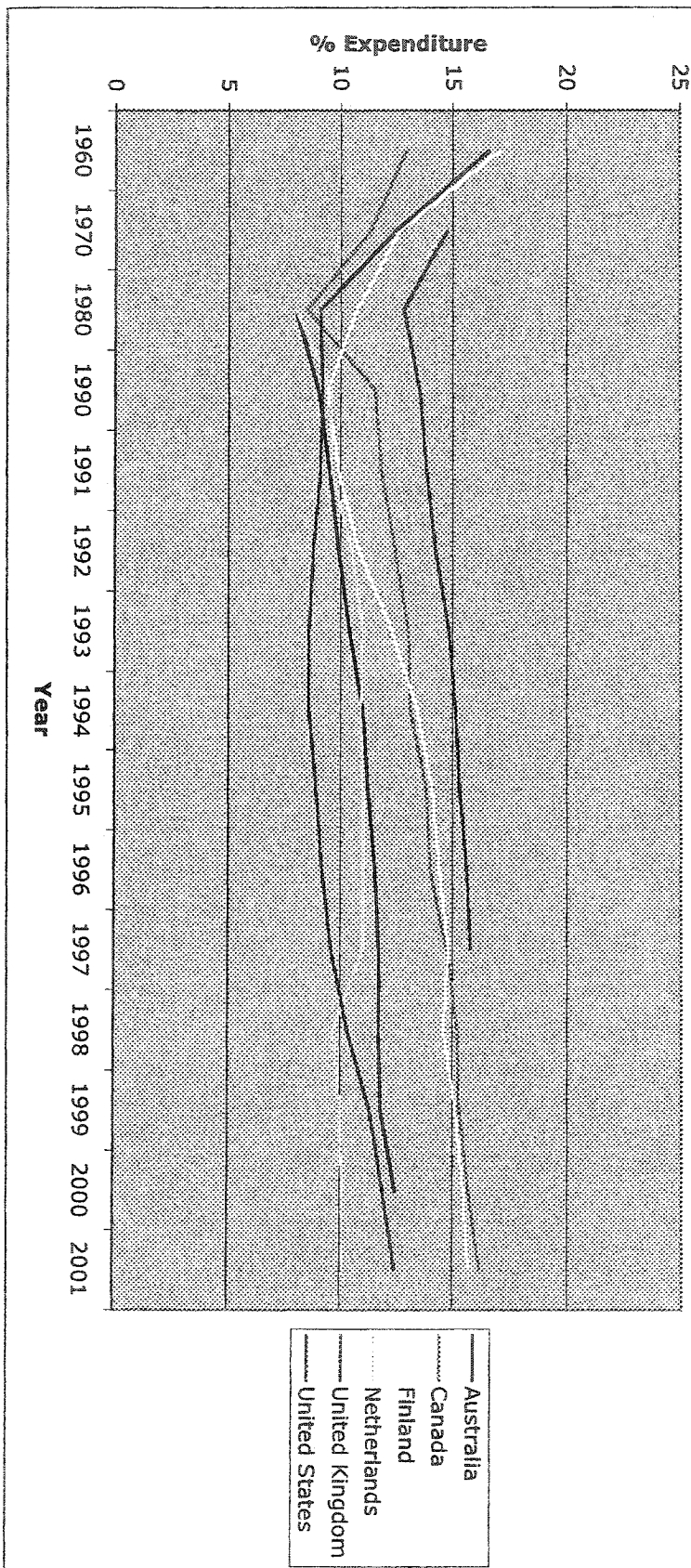
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Private Insurance



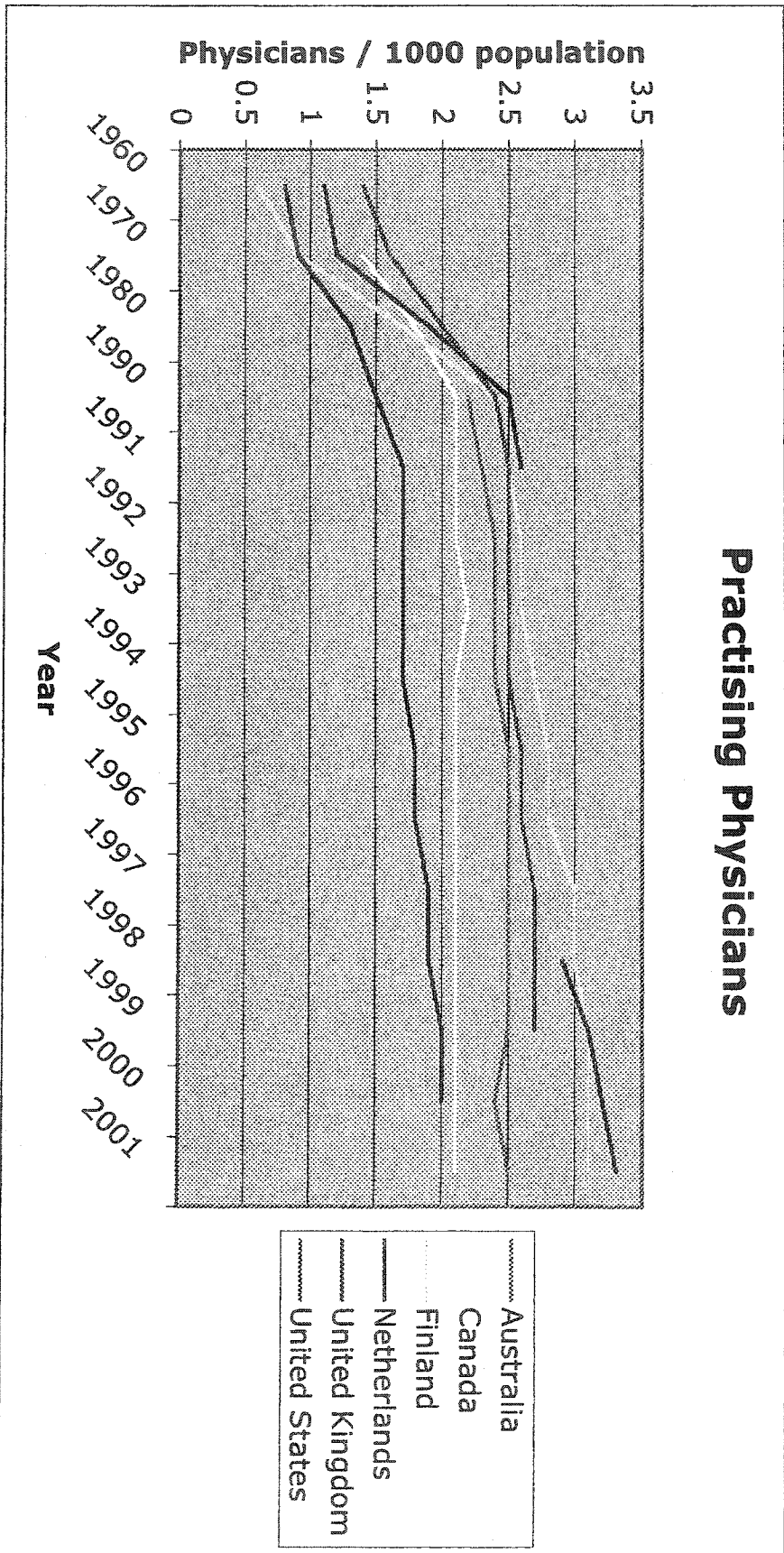
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Expenditure on Pharmaceuticals / Total Expenditures on Health



Source: OECD

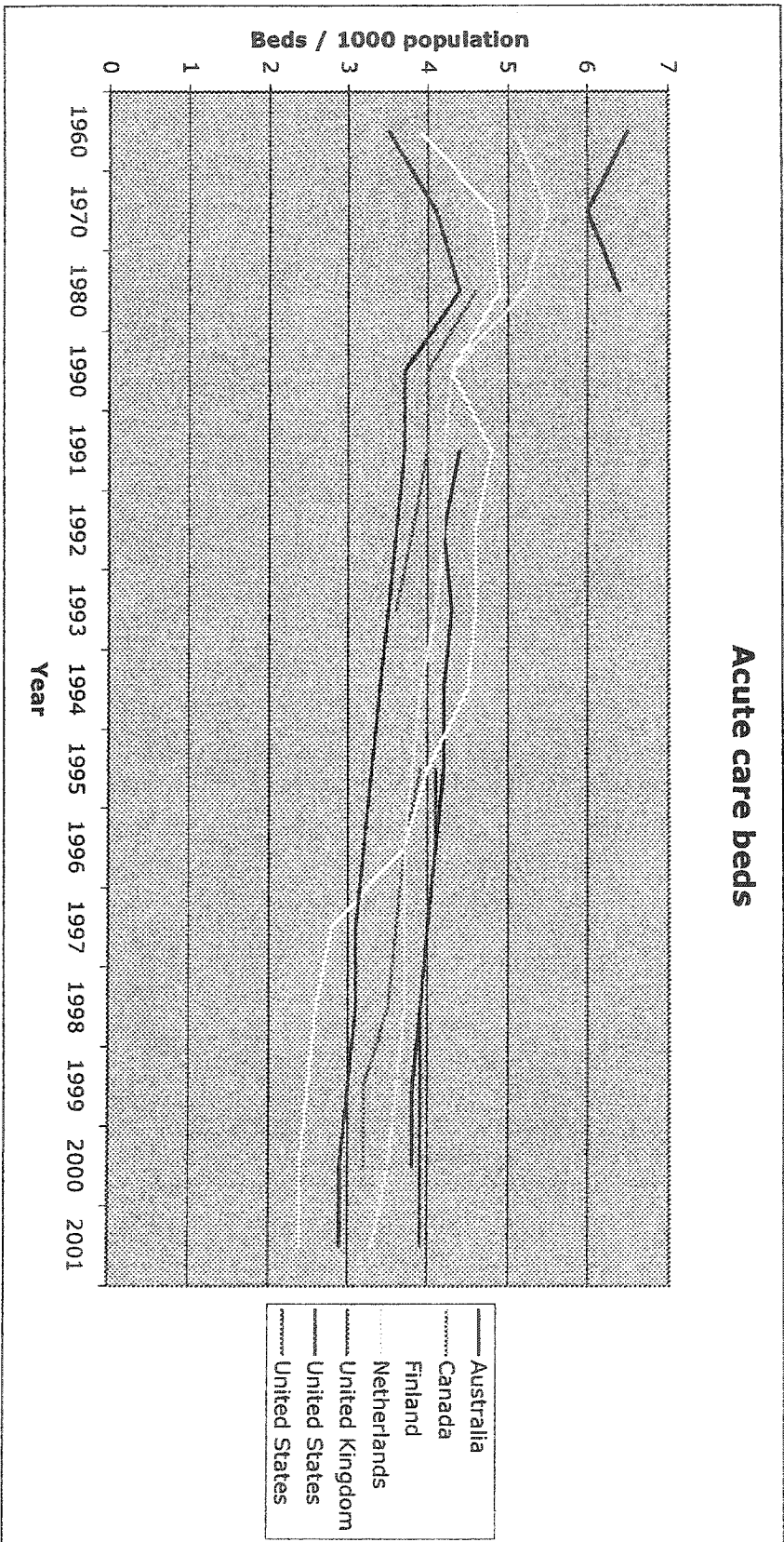
Practising Physicians



Source: OECD

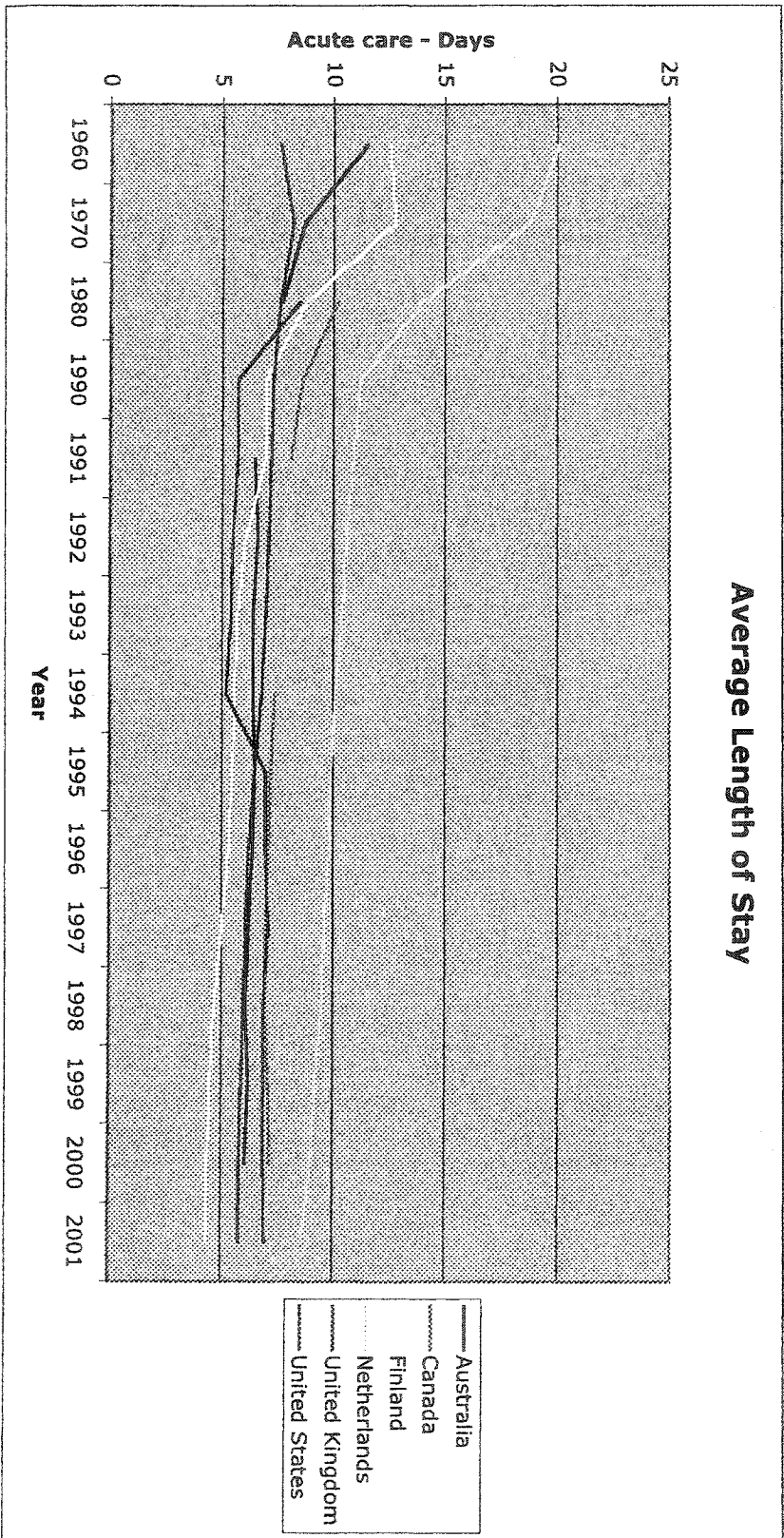
Appendix 6

Acute care beds



Source: OECD

Average Length of Stay



Source: OECD

Appendix 9

Three physicians were randomly approached for semi-structured interviews. Interviews were conducted by phone with a number of general questions provided in advance to develop a dialogue and framework for the interview. The interviewees were asked to provide their opinion on what they perceive the current state of primary care in Ontario to be and what could the government, regulatory bodies, universities and physicians do to improve it?

All three physicians gave consent for identification. One physician that was interviewed has worked with First Nations patients and rural medicine in North Western Ontario and is an academic physician practicing family medicine in Ontario. Another physician is the President-elect of the Canadian College of Family Physicians (CCFP). In addition to her Medical degree she also holds a nurse practitioners degree, has lived in the United States and has first hand experience in a private health care system. She currently has the daunting task of dividing her time between Family Medicine Residency program in Thunder Bay at the newly formed sixth medical school in Ontario, a practice in Sioux Look out and another at the Kasabonika First Nations Reserve. The last physician is a primary care pediatrician who has researched the manpower situation of pediatric medicine in Canada [70] and practices in an academic institution in Ontario. It is important to note that although each physician has either had extensive first-hand experience in Ontario, has conducted manpower research or has had a comparative education and experience background all opinions are anecdotal and must be considered as such.

Interview One:

The interview with the academic Family Practice physician began with a discussion of evidence-based guidelines and the benefits to primary care practitioners:

- She described the Canadian Consensus Guidelines, which bring evidence-based medicine into the context of the Canadian situation. The guidelines describe drugs of choice such as antibiotics, costs to the system and the relative benefits. She believes that the system does apply to a limited extent however the individual patient does not have the same physiologic or pathologic pattern as the person that the guideline was normalized against.

The discussion led to the pilot program of the Family Health Networks in Ontario. This is a rostered system that grew out of the OMA program with the MOHLTC.

- The Family Health Networks were structured to control patient access to care, encourage patient – physician continuity of care and ensure that health initiatives such as the Pap smear and vaccinations were satisfied. Shortcomings to the system related to the lack of support and structure to the system. The program had demands and criteria to be met but did not have the systems or infrastructure in place to support the initiatives.

One issue with the program appears to be a lack of consistency and commitment at the provincial level. Many physicians have not joined and there is no mandated reason to join, which may eventually lead to unbalanced services and care.

Family Health Networks ask their patients to sign a statement committing them to only use the Family Medicine group and not take part in walk in clinics or make use of urgent care facilities unless there is an emergent need to do so. There is no system to ensure compliance. Tied to funding, the ambulatory centres must document that services are provided for extended evening hours and that weekend day access is available.

The topic of specialized care referrals and the interactions of primary care and secondary care providers were also discussed:

- The current state of primary care and specialist care interactions are spotty and lack a structured systematic approach. Occasionally a patient is sent to a specialist with a specific question in mind however the patient is not returned from the specialist for primary care long-term follow up.
- Reciprocal care systems with Psychiatric Medicine and Family Medicine are being developed in some regions.

A significant portion of primary care includes social and psychiatric support [343, 344].

- The interactive measures will include joint charting and consultative letters. There is discussion of having multidisciplinary sessions however.

How can government foster the growth and development of primary care?

- The answer to this question related back to the historic approach to health care in Ontario. Hospital focused care is procedure based. The OMA is responsible for the negotiation of the payment structure of the fees set by the provincial government. Procedure based fees are significantly higher than the fees for

patient visits. This results in an inefficient approach to specialized care. The specialist is motivated to perform procedures and is less motivated to expand patient contact other than what is required for adequate care provision. The ruling body of the OMA, which has traditionally held a solid base of specialist clinicians on the executive, largely controls this system.

How can universities improve the attractiveness of resident positions in Family Practice?

- It was noted that students and residents are exposed to specialized care in by the attending faculty who either knowingly or unwittingly influence the choices of whether or not to go into a specialties. Universities have positions available for Family Practice however the association of universities and teaching hospital training leads to a bias towards specialization.
- One approach suggested was to free up primary care physicians to integrate with hospitals and secondary care physicians. This would provide teaching opportunities and exposure. Clinical associates positions could be created that would allow the primary care physician have a more active role in the hospital based care of their patient.

How could the government improve upon this situation?

- To improve and make primary care attractive to physicians the government would have to change the fee schedule to improve the reimbursement for patient visits.

Much of this could likely be drawn from the savings in procedures which do not need an extended bed stay or do not have the same costs that they had in previous years due to efficiencies acquired in technological advancements.

- To overcome the barriers to primary care physician funding changes by the OMA, the province could find different means to the negotiation of fees or change the funding structure completely to one of capitation or salary with infrastructure support.
- This physician also noted that there was no surplus or slack in the system and that the hospitals and universities are the dominant force or focus of the government. By increasing the position of primary care physicians a more balanced health care system would emerge.
- The length of time that the government is taking to effect reform is too long. There could be more commitment or action. The government must invest in the resources needed to make change work. Investment in infrastructure is necessary.

Concerning the state of primary care research in Ontario:

- The Family Health Network could contribute to primary care research although there is little support for this activity.

General comments:

- Physicians are for the most part altruistic individuals who wish to help people. The universities should devote more time to developing the skills of the physician as an advocate and resource manager. If physicians are given the opportunity they will better influence the social determinants of health. Students need to be made aware that it is their role in health care to engage as an advocate of public health and function as a teacher of their patients.

Interview Two:

The second interviewee is the President-elect of the Canada College of Family Practice (CCFP). Her practice is in two remote areas in North Western Ontario and she is the Director of the Family Medicine Program in Thunder Bay. A large proportion of her patients are Native Canadians who have three times the burden of illness of other Canadians and experience a high birth rate.

When asked what the current issues blocking development of primary care in patient management she explained that the current situation in Ontario is largely due to three issues:

- The fee structure negotiated by the OMA with the provincial government. The fee structure does not attract physicians to the field. Medical students faced a significant increase in tuition several years ago. Students now either come from affluent families that can afford the tuition or they leave school with a high debt burden and wish to enter a specialty with higher fee for services than Family

Practice. Her belief is that the system now attracts urban students that are less inclined to work in remote locations.

- The lack of respect in the medical community for generalists. This point refers not only to the secondary care physicians in the community but to the academic institutions that steer students towards specialized training. The issue of the attitude of some specialists to primary care physicians was raised. There is no structured process for the return of patients to primary care for long-term follow-up. Nor is there a tracking system for the primary care physician to know if the patient is still seeing the specialist.
- The choice of medical students to pursue specialist and subspecialty fields. Students are exposed to highly specialized care and technologies that have a certain degree of glamour, which is not evident, in general practice. Combined with the first two issues, the low reimbursement rates and the high burden of debt, as well as the streaming of students to specialties there is a shortage of primary care physicians. This is evident not only in remote locations but in the larger urban areas of the province.

When asked how this could be corrected she explained that

- The government could alter the fee schedule to better recognize the value of the generalist.
- Hospital amalgamations have introduced an inherent inefficiency into the system with respect to manpower. Staff has services spanning multiple campuses and therefore time is wasted traveling between these locations. There is no easy

solution to this however although technologies could offer some solutions to this problem.

- Another issue with the hospital system is a role for the generalist as well as access to their patient. She cited an example of a patient with need for long-term hospitalization and multidisciplinary care. There was a need for a physician case manager to ensure coordination of care, not only to ensure the patients safety but also to avoid redundant care. Such recognition and expansion of responsibilities would provide greater exposure of generalists to the hospital based secondary and tertiary care providers.
- Concerning the attraction of students to the profession is the issue noted in the survey concerning administrative functions. She noted that the residents desired turnkey operations wishing for clinical care without the responsibilities of office administration. At the same time they physicians still want autonomy and their independence. The point that expensive technologies, some overhead and infrastructure for specialists is taken care of by the hospital however the generalist must cover the infrastructure and overhead of their practice.
- The government should encourage universities to enhance and support general medicine with targeted detailing for high frequency chronic and complex illness such as asthma and diabetes. This would reduce the need for repeat visits to the specialist and better prepare the primary care physician for the treatment of these diseases. The government should also reduce medical school tuition.
- Within the Family Health Networks there should be some mechanisms to develop multidisciplinary approaches to patient care. Social workers, psychiatry, nurse

practitioners, secondary care specialists should be permitted to take a team approach to care.

- In terms of improving the quality of delivery of care in the province she believed that peer review was a positive step particularly if it was used to reward good community practices. This could be driven in part by the colleges and in part by the government.
- Primary care research must be encouraged through funding and structured support. Currently research is under funded and there is a need to develop centres of excellence in primary care to further the field.
- A universal system of care also requires a portable chart that can be accessed with patient consent wherever and whenever required.

General comments included:

- A need to train primary care physicians to have high sensitivity to identify illness but also to have good specificity to know when to refer and when not to refer.
- Physicians should be salaried rather than motivated by fee for service.
- That there is a role for the government in public education with attitudinal changes to how medicine is perceived by the population and that expensive procedures are not always necessary.
- The CCFP must take a lead role in promoting quality of care and the education of family physicians.

- That the CCFP should accomplish this in part by creating educational instruments and promote the teaching of courses in this area.
- That universality should be protected and there should be equity in care in all regions of the province.

Interview Three:

The third interviewee is an academic pediatric generalist that studies pediatric manpower in Canada. This physician has experience working in Asia, Europe and the United States as well as Canada. A study that he is leading right now has shown that the number of pediatric primary care providers is decreasing even as the universities are opening residency positions for primary care. Secondary and tertiary care census is still increasing. Coupled with decreases in the enrollment of Family Medicine access to care is becoming difficult to obtain:

- In London Ontario 20,000 people are unable to secure a primary care physician.
- Tuition deregulation has contributed to this problem as was noted in the other interviews. He described it as a 'social experiment in medical school recruitment'.
- Of approximately 2000 pediatricians in the country only one-third are primary care physicians compared with 25,000 family physicians. He noted that more than 80% of pediatric care is delivered by family physicians. Rather than be protective of his specialty he noted that there is less of a need now for primary

care pediatricians provided there are family medicine physicians to take up the demand.

- Of the problems currently within the system, under funding by the OMA was cited as a major problem.
- Compensation should be reviewed and his belief is that fee for service should be abandoned.
- He believes that there is significant over treatment in the system. Walk in clinics are reaping benefits from the fee for service approach. As well the walk in clinic is an attractive place for a newly graduated physician to practice as the work is predictable and administration is covered. The negative aspect of this is that there is no continuity of care, services are unnecessarily repeated and the patient is treated only in the context of the specific complaint. He noted that in some parts of the country pharmacies own the walk in clinics.
- He believes that although there is a reciprocal relationship in some instances between primary care providers and specialists there is much room for improvement. He believes that the younger physicians in specialized areas are less inclined to retain patients and would rather return them to the primary care physician.
- Access of the community physicians to the hospital and university system is important. The so-called 'town and gown' attitude exists in communities with university hospitals.

What can help correct the current state?

Universities and the MOHLTC are working to develop primary care practice however due to the costs of medical school spots go unmatched.

Rather than open more spots for pediatricians he feels that general practice physicians will cover pediatric care.

Physicians should be salaried.

Community physicians should be given access to the hospitals and better interfacing with secondary care providers must be developed.

The government must commit to reform and pursue it. Past initiatives in curtailing pediatric services had severe negative impact on the communities affected.

The MOHLTC needs better central coordination. He believes the Ministry Departments all exist as silos and send out mixed messages.

A contentious issue that would be resisted by the OMA is primary care reform.

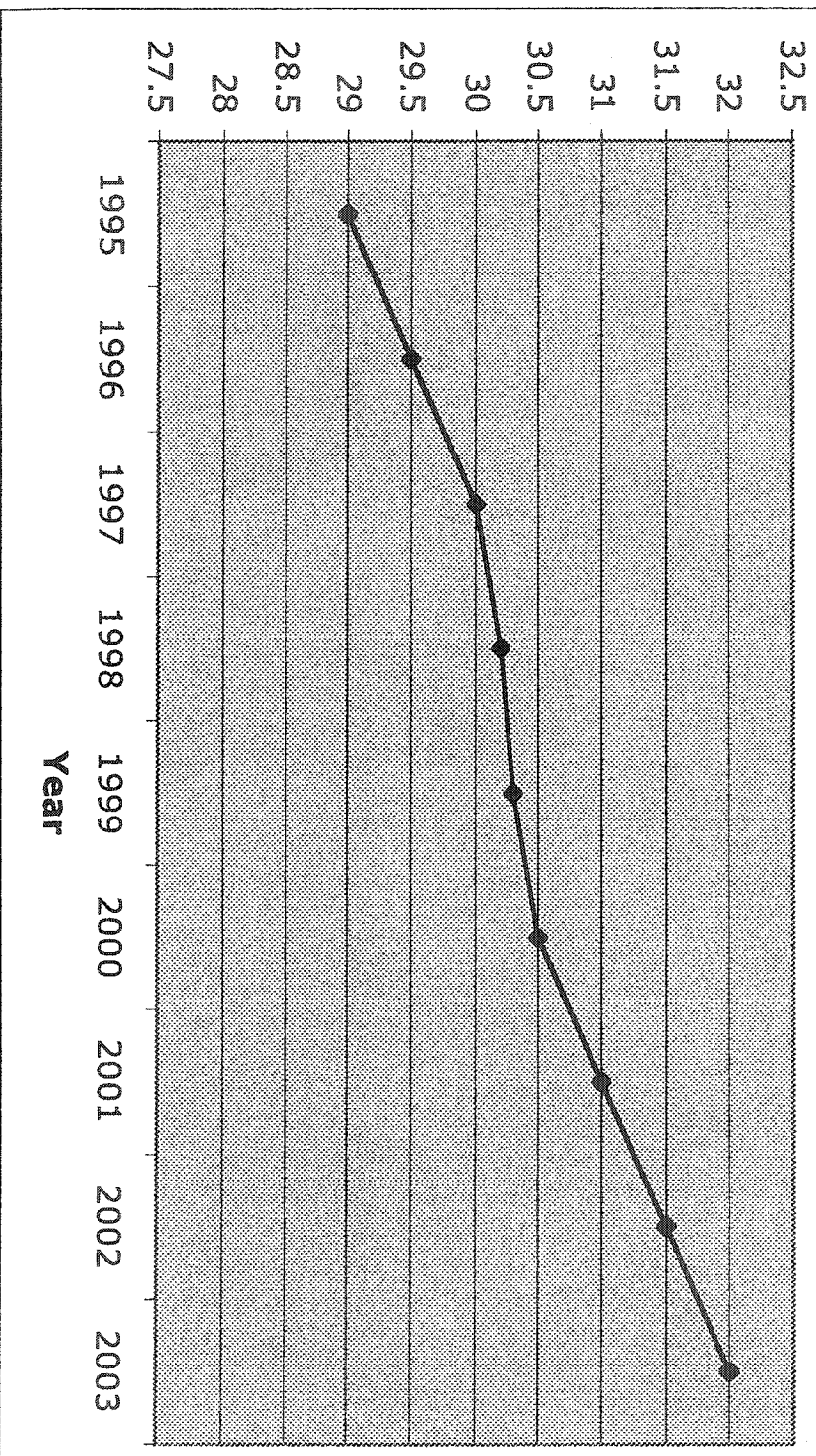
Particularly in terms of remuneration. He believes capitation is necessary and that physicians should be salaried.

The different regions of the province suffer from different levels of pediatric care and services. He explained that free-standing pediatric institutions are somewhat more effective at obtaining resources from the government however the 'hospital within a hospital' model of pediatric care is more efficient at supporting the large budget items such as PET scanners.

He believes that there is a role for multidisciplinary teams to manage long-term chronic diseases. Such areas where he feels there has been success includes endocrinology and hematology-oncology physicians interfacing with primary care.

Walk in clinics should be reformed. All patients should have a family physician that can coordinate care and ensure prevention is part of the treatment.

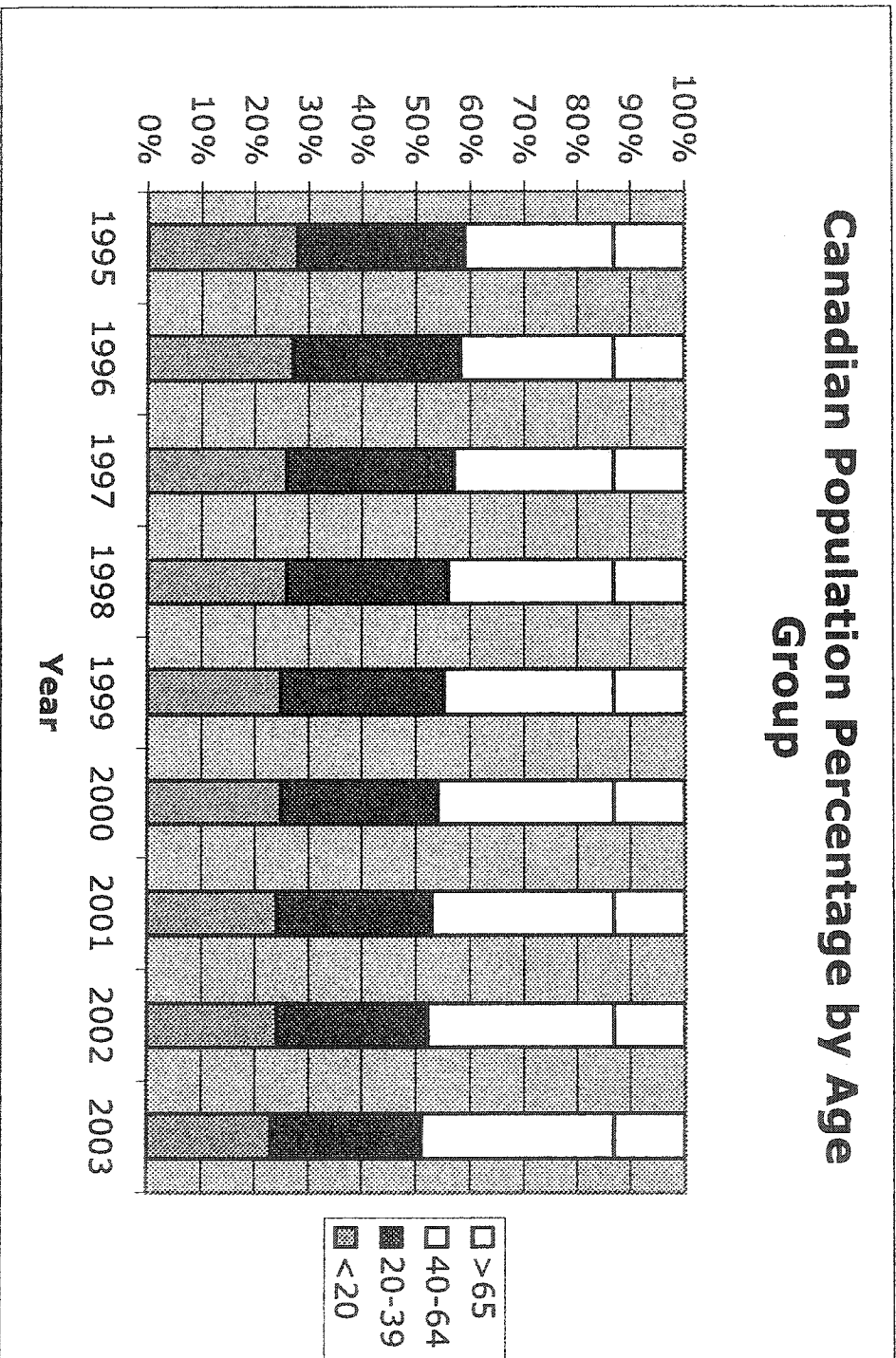
Canadian Population (Millions)



Source: Statistics Canada

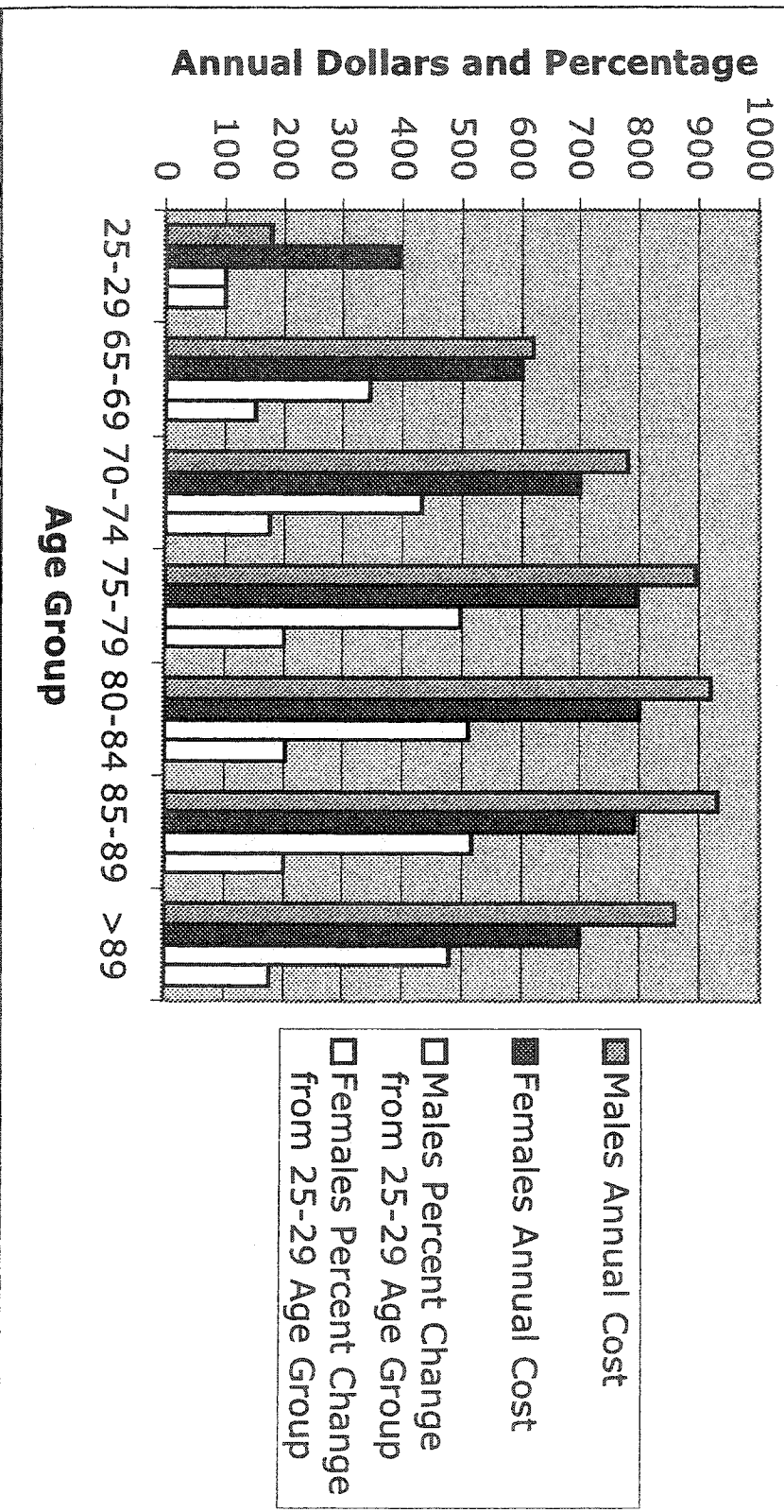
Appendix 10

Canadian Population Percentage by Age Group



Source: Statistics Canada

Per Capita Health Care Expenditures Canada Sorted By Age

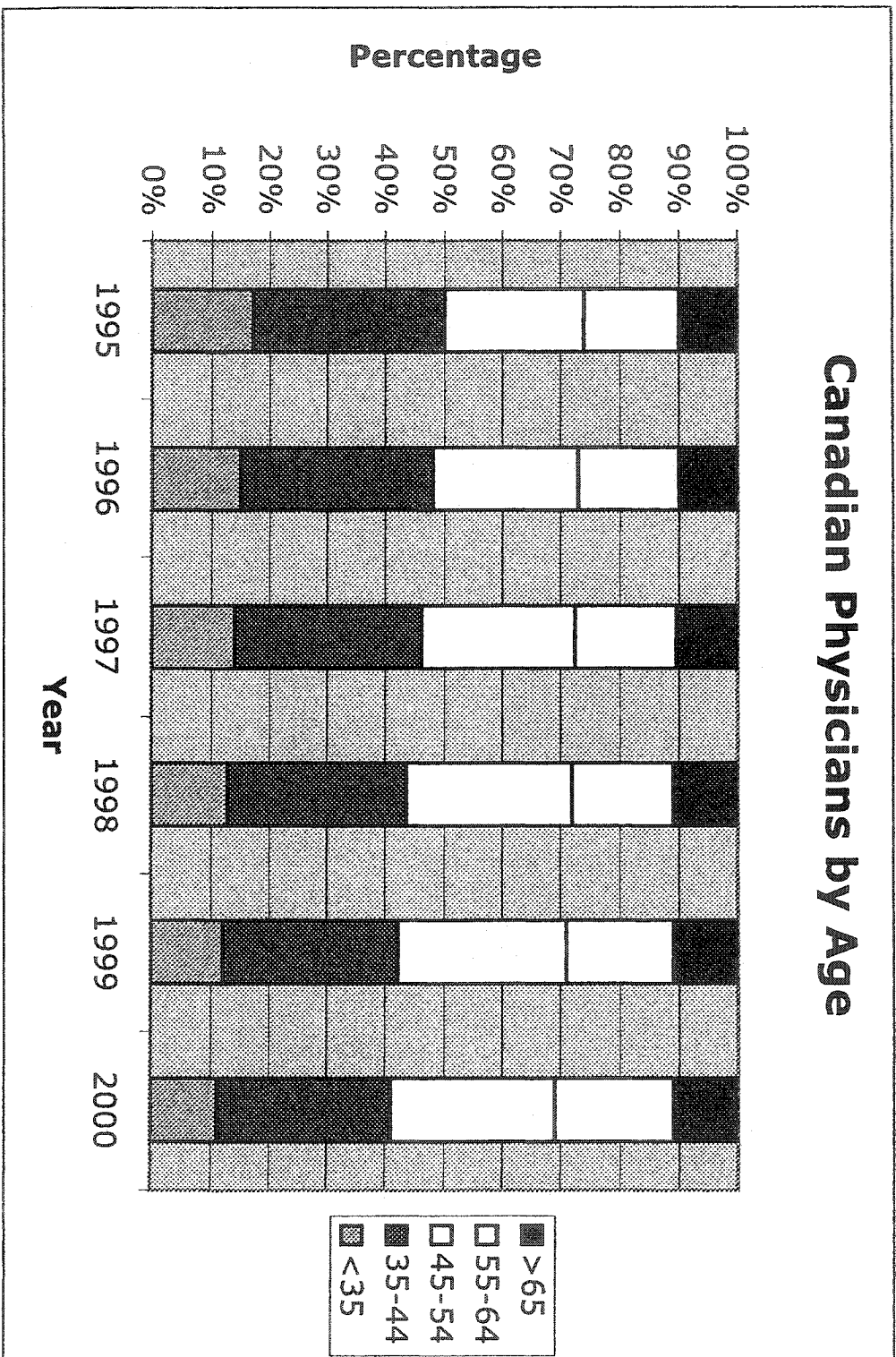


Source: National Physicians Database

Age Range	Annualized Cost of Care*	% Population		Population Count		Net Difference 95-03		Annualized Cost By Age Group		% Change 95-03
		1995	2003	1995	2003	1995	2003	1995	2003	
<20	\$261.25	28	23	8,120,000	7,360,000	-760,000	2,121,350,000	1,922,800,000	-198,550,000	-9.4
20-39	\$272.50	31	28	8,990,000	8,960,000	-30,000	2,449,775,000	2,441,600,000	-8,175,000	-0.3
40-64	\$360.00	28	36	8,120,000	11,520,000	3,400,000	2,923,200,000	4,147,200,000	1,224,000,000	41.9
>65	\$745.00	13	13	3,770,000	4,160,000	390,000	2,808,650,000	3,099,200,000	290,550,000	10.3
Total				29,000,000	32,000,000	3,000,000	10,302,975,000	11,610,800,000	1,307,825,000	12.7

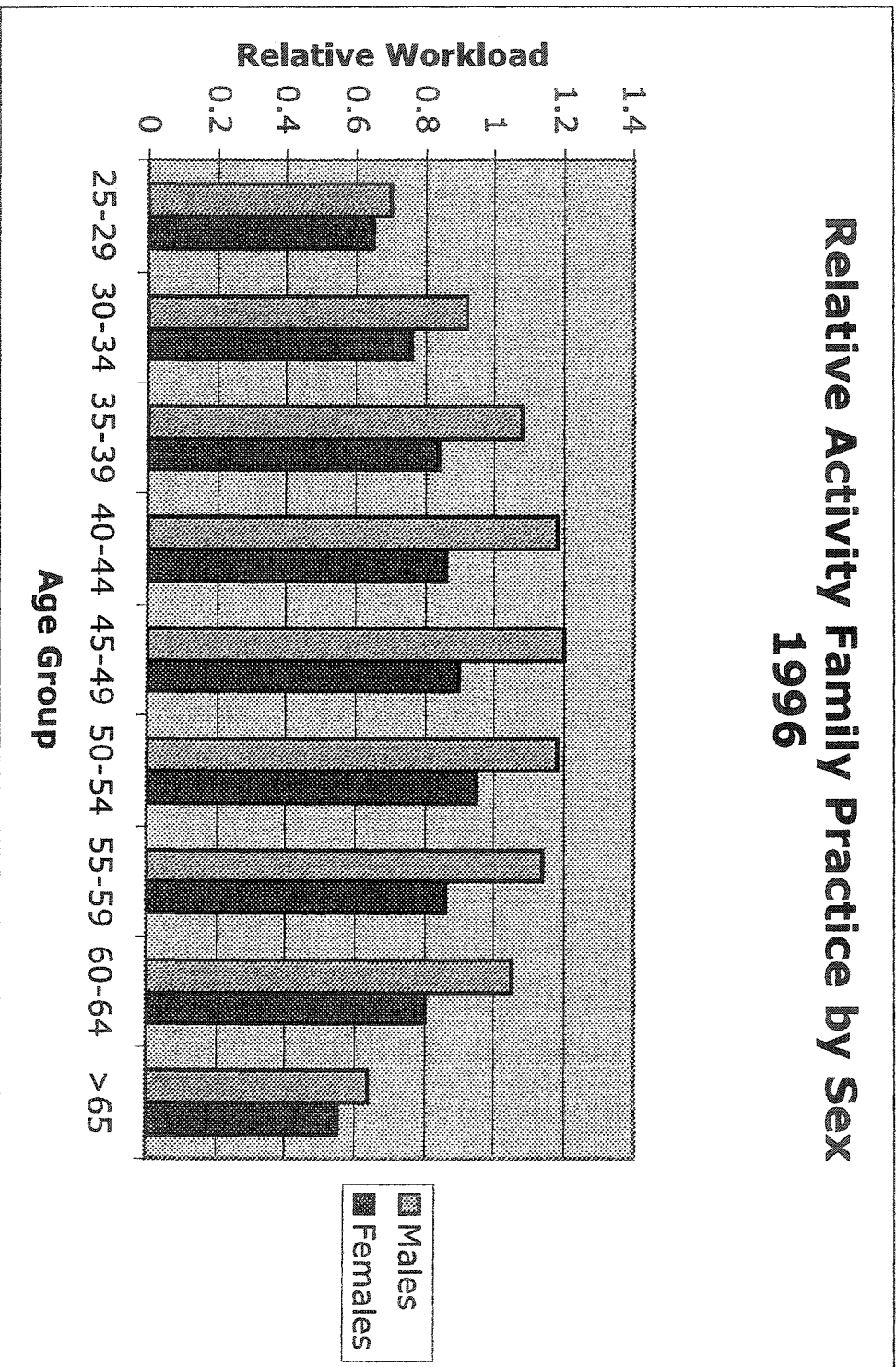
*As an average for males and females assuming no change from 2003 and 1995. Actual differences would be higher if adjusted for inflation.
From National Physician Database and Statistics Canada

Canadian Physicians by Age



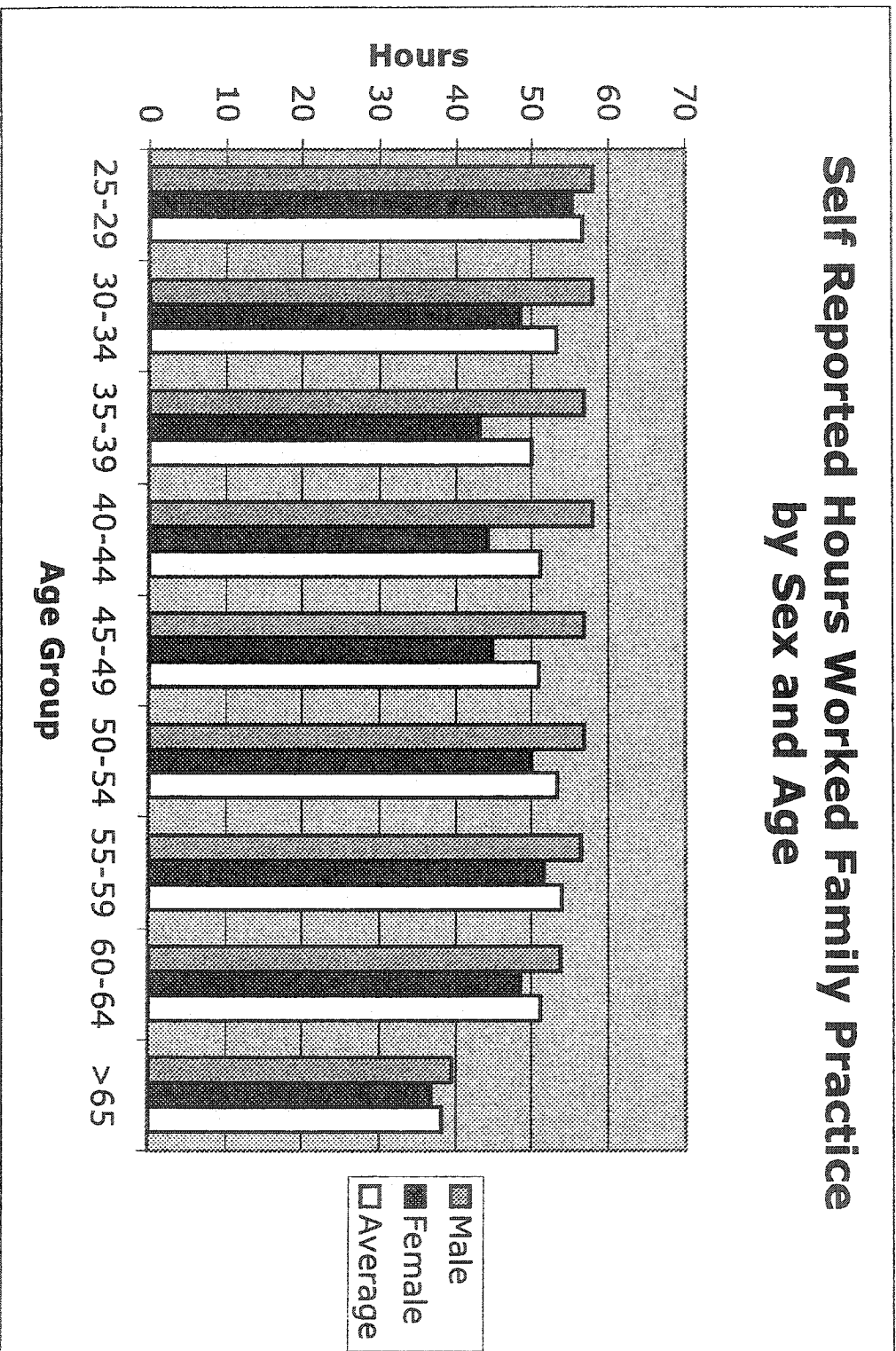
Source: Southam Medical Database

Relative Activity Family Practice by Sex 1996



Source: National Physician Database

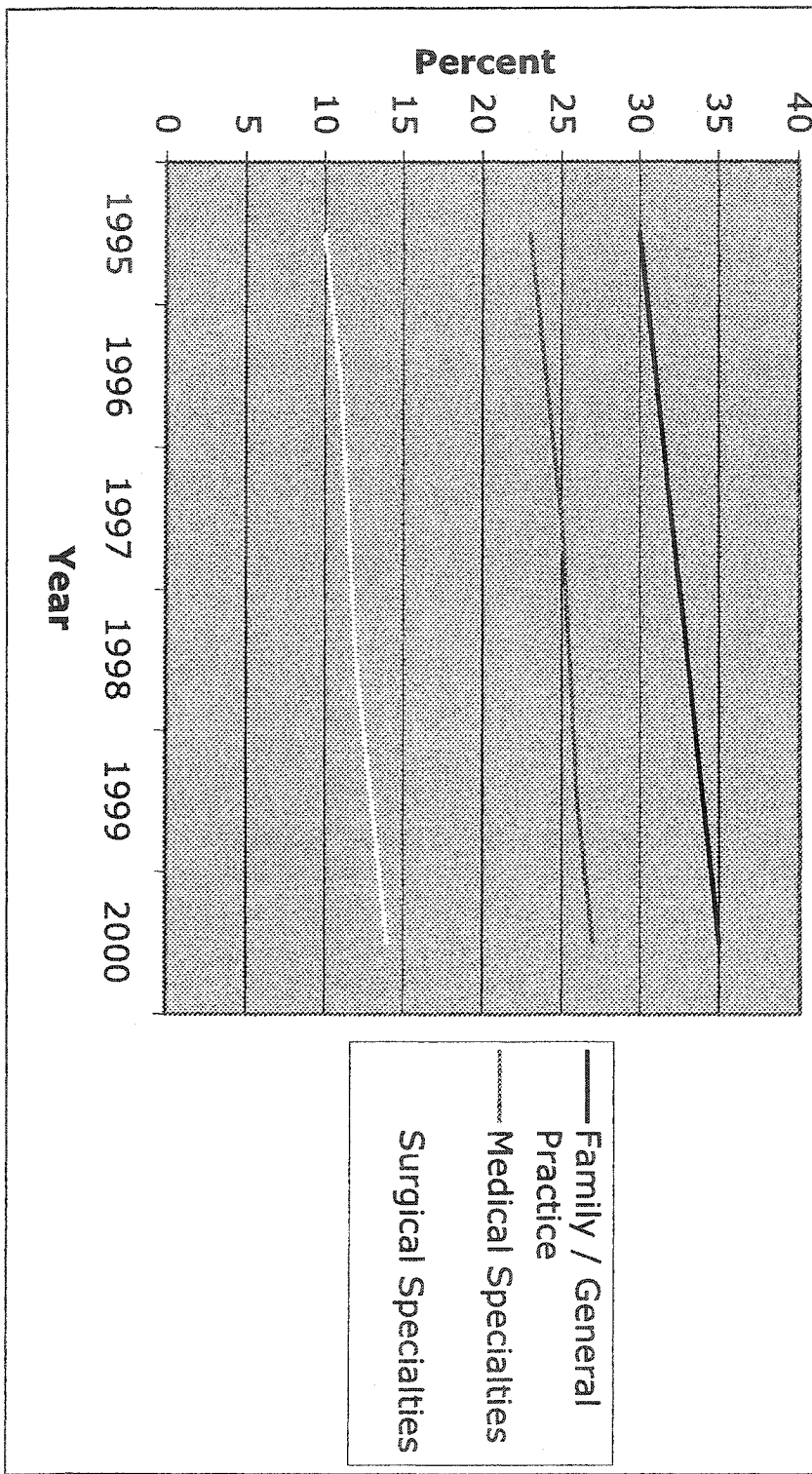
Self Reported Hours Worked Family Practice by Sex and Age



Source: Janus Report 2001

Appendix 16

Female Physicians in Canada



Source: Southam Medical Database

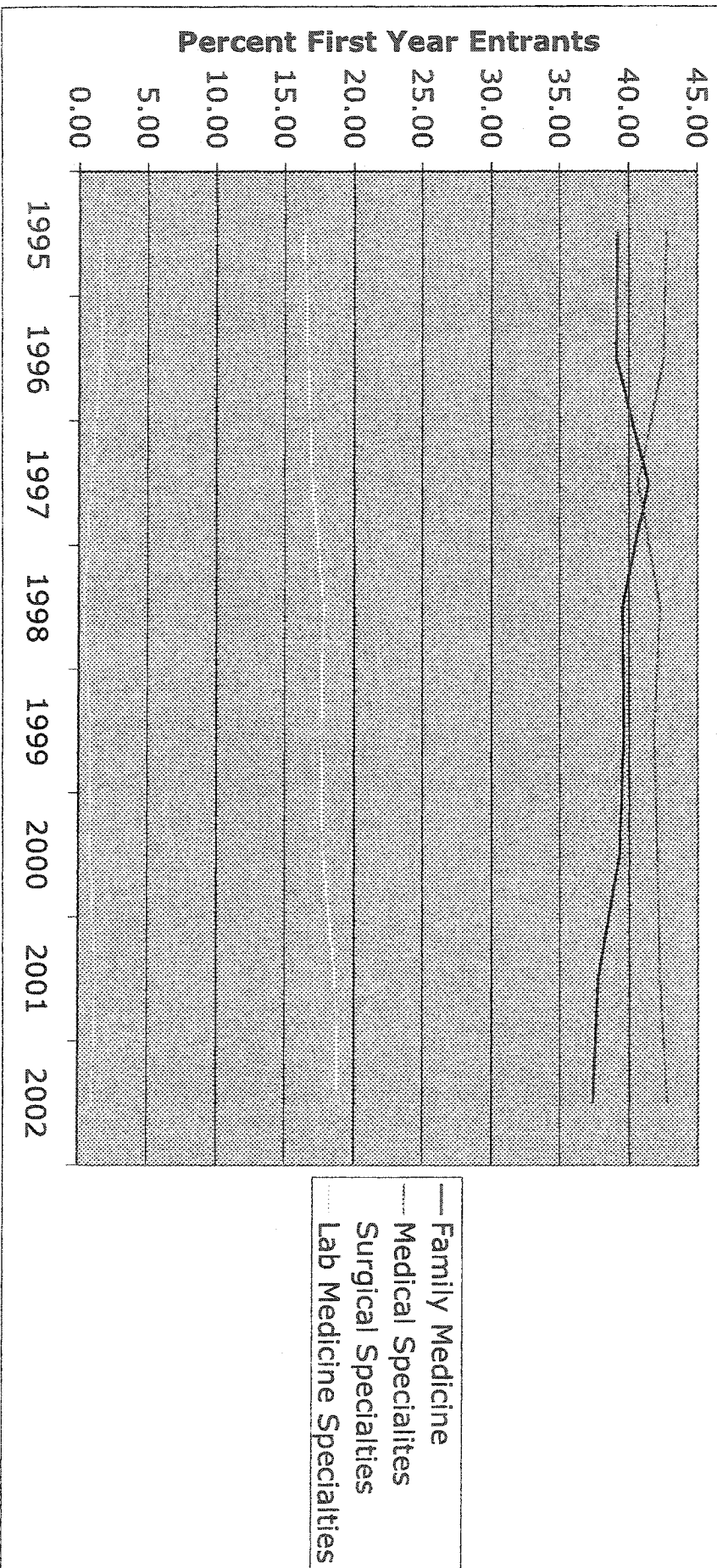
Post-M.D. Training	NFLD	Maritimes	Quebec	Ontario	Manitoba	Sask	Alberta	B.C.	Total
1995									
Family Medicine	22	28	212	243	33	19	75	47	679
% total	42.31	37.33	39.33	39.19	41.25	39.58	40.54	37.30	39.36
Medical Specialties	18	26	215	265	32	15	75	52	698
% total	34.62	34.67	39.89	42.74	40.00	31.25	40.54	41.27	40.46
Surgical Specialties	11	20	104	102	12	11	31	21	312
% total	21.15	26.67	19.29	16.45	15.00	22.92	16.76	16.67	18.09
Lab Medicine Specialties	1	1	8	10	3	3	4	6	36
% total	1.92	1.33	1.48	1.61	3.75	6.25	2.16	4.76	2.09
Total	52	75	539	620	80	48	185	126	1725
% Specialized	57.69	62.67	60.67	60.81	58.75	60.42	59.46	62.70	60.64
1996									
Family Medicine	23	28	209	237	24	23	77	49	670
% total	50.00	35.90	41.22	39.11	34.78	40.35	42.08	42.98	40.26
Medical Specialties	15	29	191	258	30	21	72	40	656
% total	32.61	37.18	37.67	42.57	43.48	36.84	39.34	35.09	39.42
Surgical Specialties	8	20	101	101	13	11	31	20	305
% total	17.39	25.64	19.92	16.67	18.84	19.30	16.94	17.54	18.33
Lab Medicine Specialties	0	1	6	10	2	2	3	5	29
% total	0.00	1.28	1.18	1.65	2.90	3.51	1.64	4.39	1.74
Total	46	78	507	606	69	57	183	114	1664
% Specialized	50.00	64.10	58.78	60.89	65.22	59.65	57.92	57.02	59.50
1997									
Family Medicine	24	34	231	229	26	20	69	46	679
% total	48.00	41.98	47.05	41.41	39.39	39.22	39.43	38.98	42.70
Medical Specialties	15	26	167	225	28	20	71	44	596
% total	30.00	32.10	34.01	40.69	42.42	39.22	40.57	37.29	37.48
Surgical Specialties	10	20	87	94	11	10	32	24	288
% total	20.00	24.69	17.72	17.00	16.67	19.61	18.29	20.34	18.11
Lab Medicine Specialties	1	1	6	5	1	1	3	4	22
% total	2.00	1.23	1.22	0.90	1.52	1.96	1.71	3.39	1.38
Total	50	81	491	553	66	51	175	118	1590
% Specialized	52.00	58.02	52.95	58.59	60.61	60.78	60.57	61.02	56.98
1998									
Family Medicine	24	39	227	215	21	19	67	46	658
% total	46.15	42.86	44.42	39.52	30.00	39.58	39.18	39.66	41.05
Medical Specialties	20	29	188	230	33	21	66	44	631
% total	38.46	31.87	36.79	42.28	47.14	43.75	38.60	37.93	39.36
Surgical Specialties	7	20	93	97	13	8	33	22	293
% total	13.46	21.98	18.20	17.83	18.57	16.67	19.30	18.97	18.28
Lab Medicine Specialties	1	3	3	2	3	0	5	4	21
% total	1.92	3.30	0.59	0.37	4.29	0.00	2.92	3.45	1.31
Total	52	91	511	544	70	48	171	116	1603
% Specialized	53.85	57.14	55.58	60.48	70.00	60.42	60.82	60.34	58.95

1999									
Family Medicine	19	41	185	218	22	16	68	47	616
% total	33.93	43.62	39.03	39.64	31.43	35.56	39.31	39.17	38.94
Medical Specialties	27	30	198	230	31	19	70	48	653
% total	48.21	31.91	41.77	41.82	44.29	42.22	40.46	40.00	41.28
Surgical Specialties	9	20	86	97	16	10	32	23	293
% total	16.07	21.28	18.14	17.64	22.86	22.22	18.50	19.17	18.52
Lab Medicine Specialties	1	3	5	5	1	0	3	2	20
% total	1.79	3.19	1.05	0.91	1.43	0.00	1.73	1.67	1.26
Total	56	94	474	550	70	45	173	120	1582
% Specialized	66.07	56.38	60.97	60.36	68.57	64.44	60.69	60.83	61.06
2000									
Family Medicine	19	38	171	219	21	19	71	41	599
% total	44.19	40.86	39.58	39.32	31.34	33.33	38.17	36.28	38.70
Medical Specialties	16	32	179	234	32	28	79	46	646
% total	37.21	34.41	41.44	42.01	47.76	49.12	42.47	40.71	41.73
Surgical Specialties	8	19	77	99	14	10	29	22	278
% total	18.60	20.43	17.82	17.77	20.90	17.54	15.59	19.47	17.96
Lab Medicine Specialties	0	4	5	5	0	0	7	4	25
% total	0.00	4.30	1.16	0.90	0.00	0.00	3.76	3.54	1.61
Total	43	93	432	557	67	57	186	113	1548
% Specialized	55.81	59.14	60.42	60.68	68.66	66.67	61.83	63.72	61.30
2001									
Family Medicine	16	40	162	204	23	20	94	52	611
% total	30.77	40.82	38.48	37.78	32.86	32.79	45.41	41.60	38.82
Medical Specialties	25	34	164	228	32	28	75	47	633
% total	48.08	34.69	38.95	42.22	45.71	45.90	36.23	37.60	40.22
Surgical Specialties	10	21	83	101	14	12	30	24	295
% total	19.23	21.43	19.71	18.70	20.00	19.67	14.49	19.20	18.74
Lab Medicine Specialties	1	3	12	7	1	1	8	2	35
% total	1.92	3.06	2.85	1.30	1.43	1.64	3.86	1.60	2.22
Total	52	98	421	540	70	61	207	125	1574
% Specialized	69.23	59.18	61.52	62.22	67.14	67.21	54.59	58.40	61.18
2002									
Family Medicine	14	40	179	222	18	24	92	50	639
% total	26.92	42.11	41.15	37.37	26.09	38.10	45.77	37.88	38.87
Medical Specialties	30	30	172	254	34	27	73	52	672
% total	57.69	31.58	39.54	42.76	49.28	42.86	36.32	39.39	40.88
Surgical Specialties	8	22	71	112	15	11	31	26	296
% total	15.38	23.16	16.32	18.86	21.74	17.46	15.42	19.70	18.00
Lab Medicine Specialties	0	3	13	6	2	1	5	4	34
% total	0.00	3.16	2.99	1.01	2.90	1.59	2.49	3.03	2.07
Total	52	95	435	594	69	63	201	132	1644
% Specialized	73.08	57.89	58.85	62.63	73.91	61.90	54.23	62.12	60.95

Source: Canadian Post-M.D. Education Registry

Appendix 18

Post M.D. Training Ontario 1995-2002



Source: Canadian Post-M.D. Education Registry

Appendix 19

Population Ontario by Region 1996, 2001-02

Region	Year	1996	2001	2002
Total Pop. ON		11083000	11898000	12097000
GTA Pop.		4765690	5318406	5467844
GTA %		43.0	44.7	45.2
Central Pop.		2449343	2617560	2649243
Central %		22.1	22.0	21.9
Eastern Pop.		1518371	1594332	1620998
Eastern %		13.7	13.4	13.4
Southwestern Pop.		1485122	1534842	1548416
Southwestern %		13.4	12.9	12.8
Northeastern Pop.		598482	571104	568559
Northeastern %		5.4	4.8	4.7
Northwestern Pop.		254909	249858	241940
Northwestern %		2.3	2.1	2.0

Source: Statistics Canada and Ontario Provincial Govt.

Appendix 20

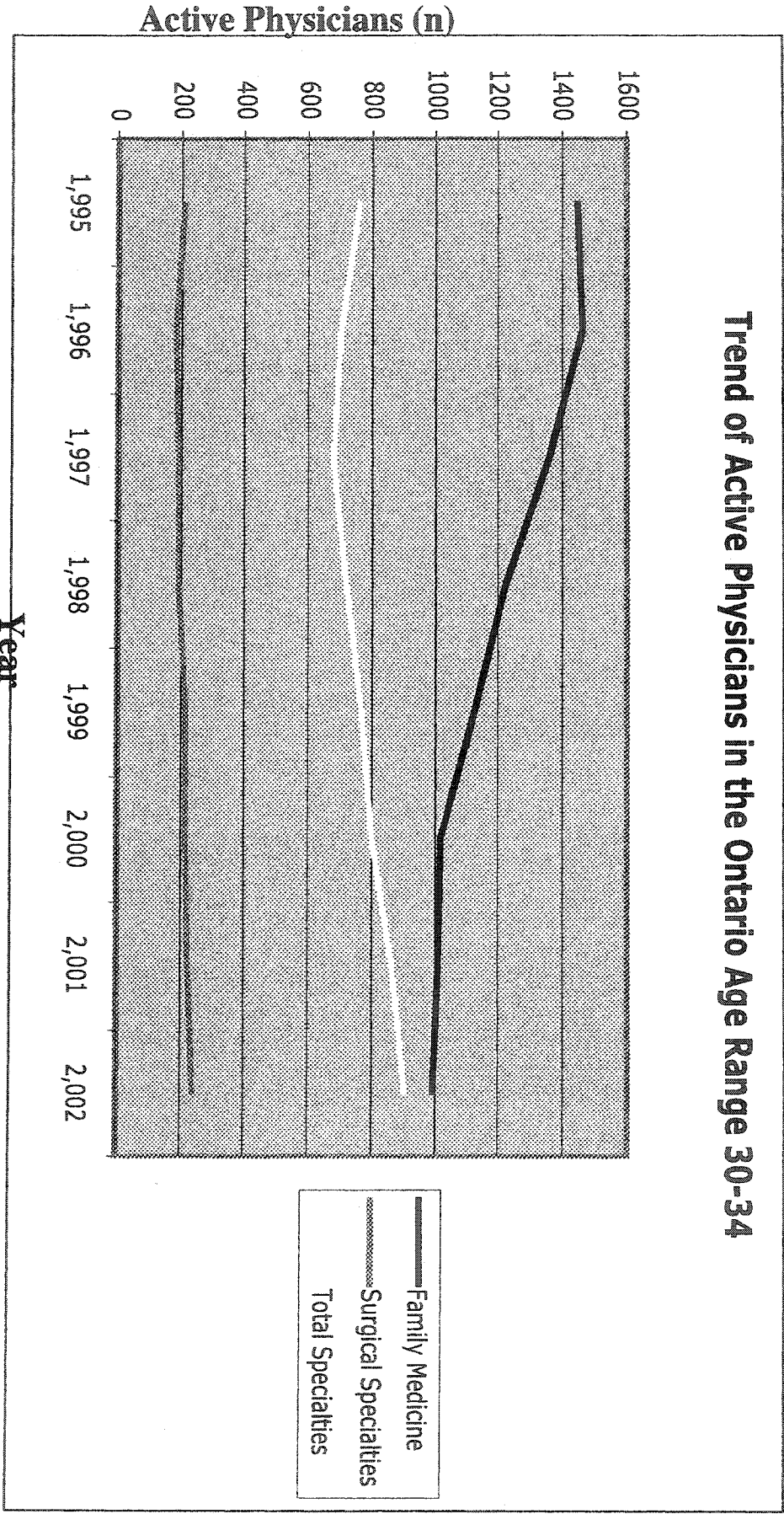
Population per Active Physician Ontario and Regions 1996 and 2001

Year	1996		2001		% Change 1996-2001	
	Total Physicians	Pop:Phys	Total Physicians	Pop:Phys	Total Physicians	Pop:Phys
Ontario						
Family Practice	9870	1109	8845	1195	-10.4	7.8
Med Specialization	8463	1293	9904	1067	17.0	-17.5
Surg Specialization	1522	7193	2406	4290	58.1	-40.4
Toronto						
Family Practice	2890	815	2795	917	-3.3	12.5
Med Specialization	3348	704	5917	433	76.7	-38.4
Surg Specialization	479	4916	921	2782	92.3	-43.4
Central East						
Family Practice	1877	1374	1338	1488	-28.7	8.3
Med Specialization	780	3306	662	3007	-15.1	-9.0
Surg Specialization	198	13025	270	7372	36.4	-43.4
Central South						
Family Practice	1110	1330	841	1388	-24.2	4.4
Med Specialization	1031	1432	820	1424	-20.5	-0.6
Surg Specialization	209	7064	288	4052	37.8	-42.6
Central West						
Family Practice	1682	1244	1472	1453	-12.5	16.8
Med Specialization	1373	1524	768	2785	-44.1	82.7
Surg Specialization	280	7471	313	6833	11.8	-8.5
East						
Family Practice	1523	1008	1628	984	6.9	-2.4
Med Specialization	1550	990	1428	1122	-7.9	13.3
Surg Specialization	246	6239	449	3569	82.5	-42.8
North						
Family Practice	788	1138	771	1138	-2.2	0.0
Med Specialization	381	2353	309	2839	-18.9	20.7
Surg Specialization	110	8151	165	5319	50.0	-34.7

Source: Active Physician Registries, 1995 - 2002
 Ontario Physician Human Resources Data Centre

Appendix 21

Trend of Active Physicians in the Ontario Age Range 30-34

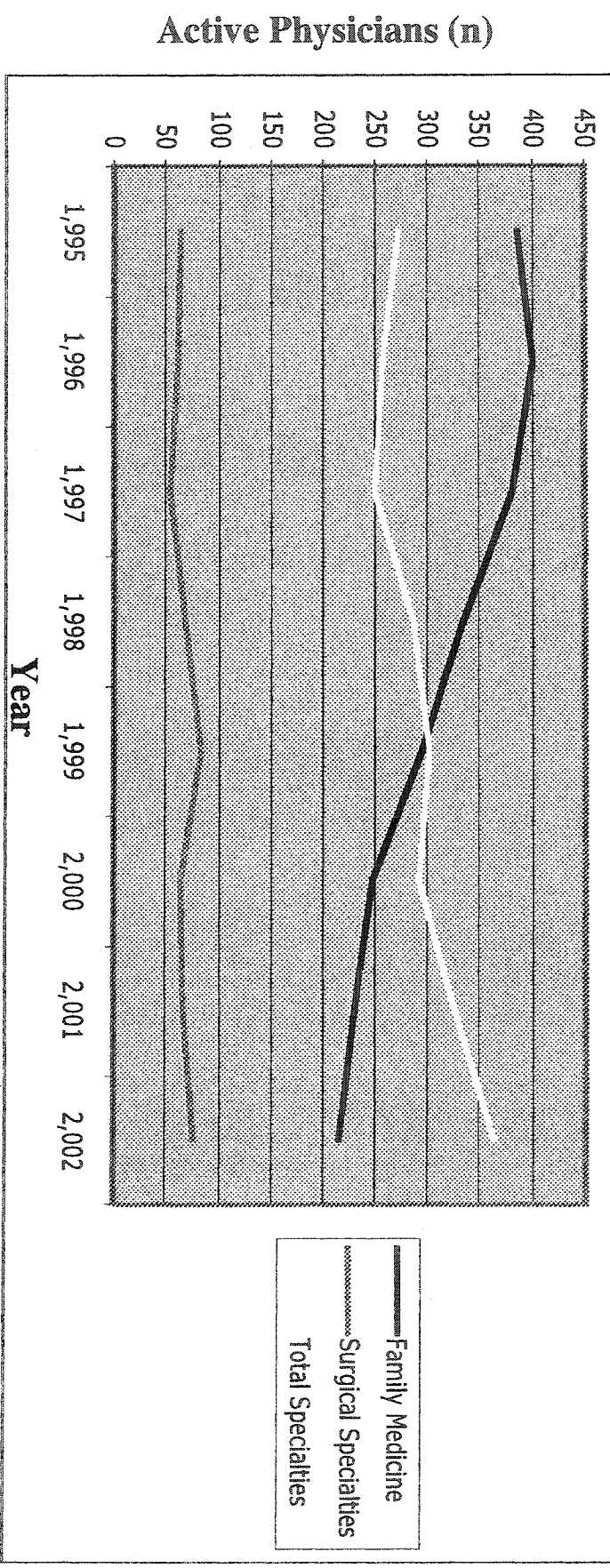


Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

Appendix 22

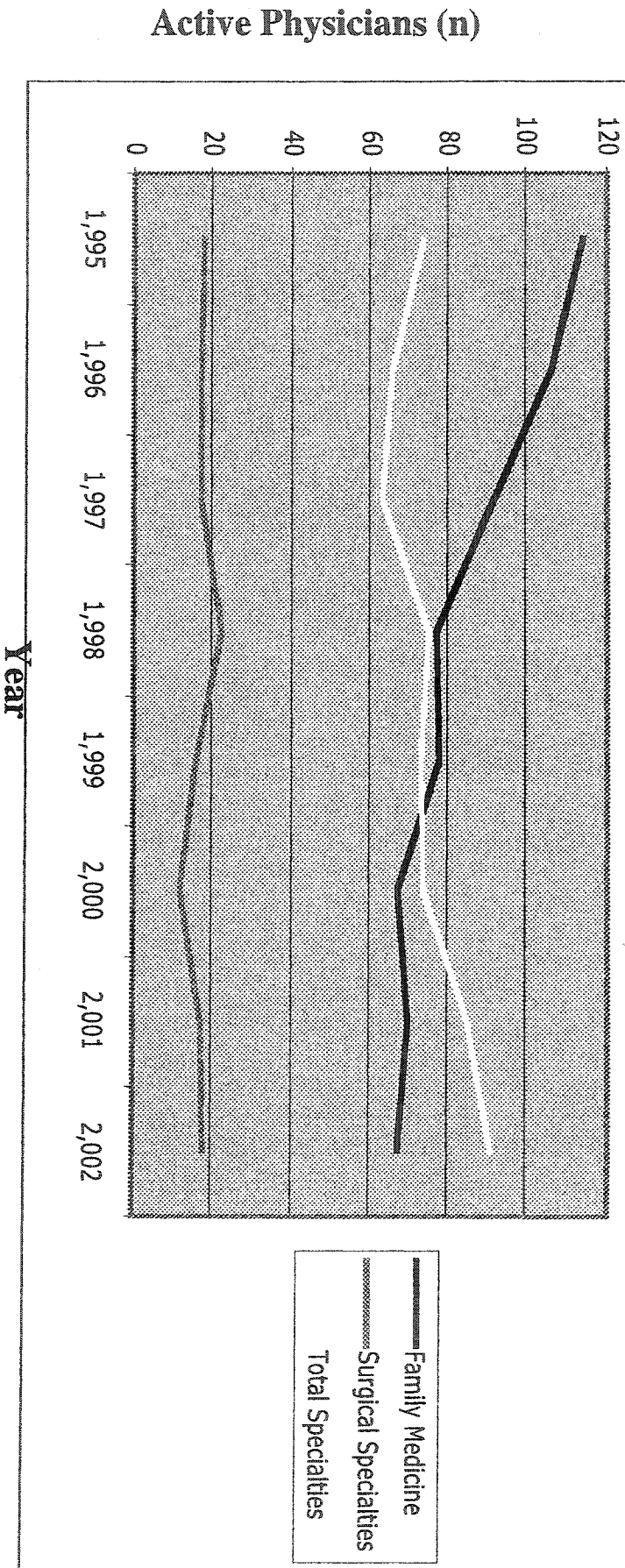
Trend of Active Physicians in the Toronto Planning Region Age Range 30-34



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

Trend of Active Physicians in the Central South Planning Region Age Range 30-34

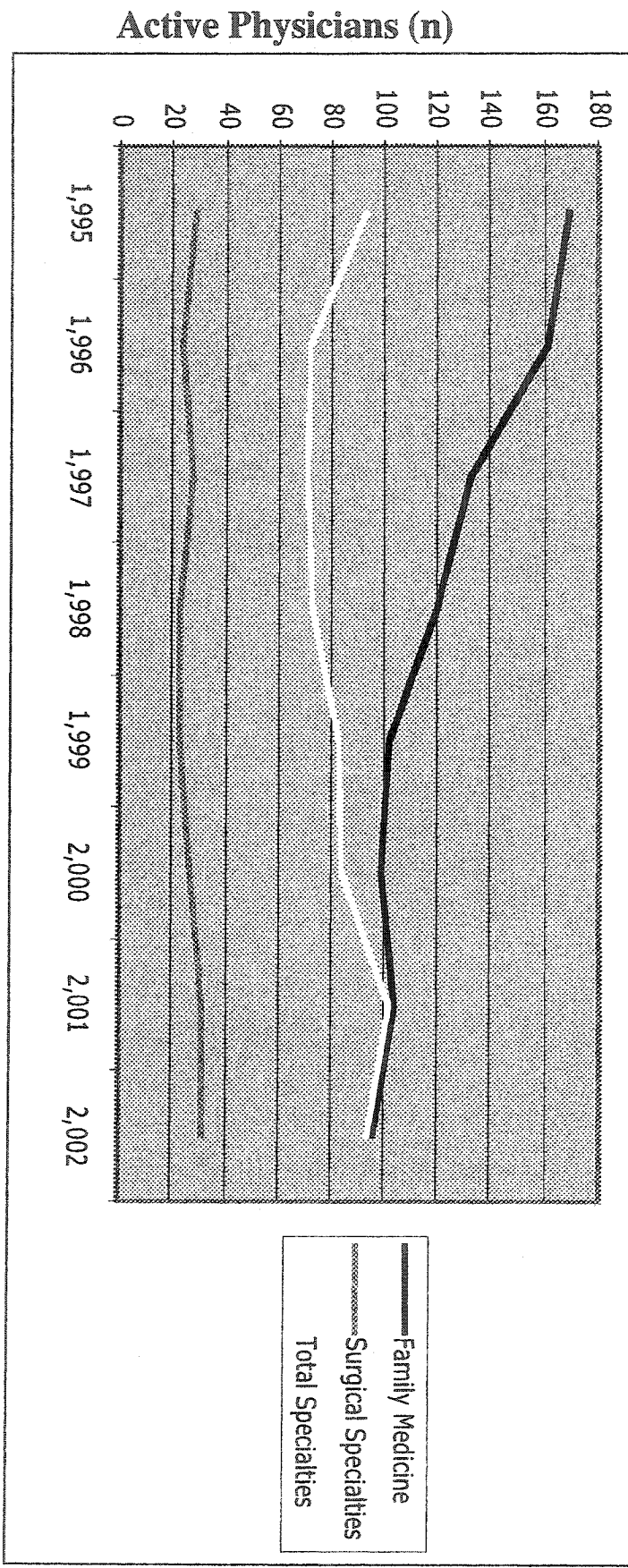


Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

Appendix 24

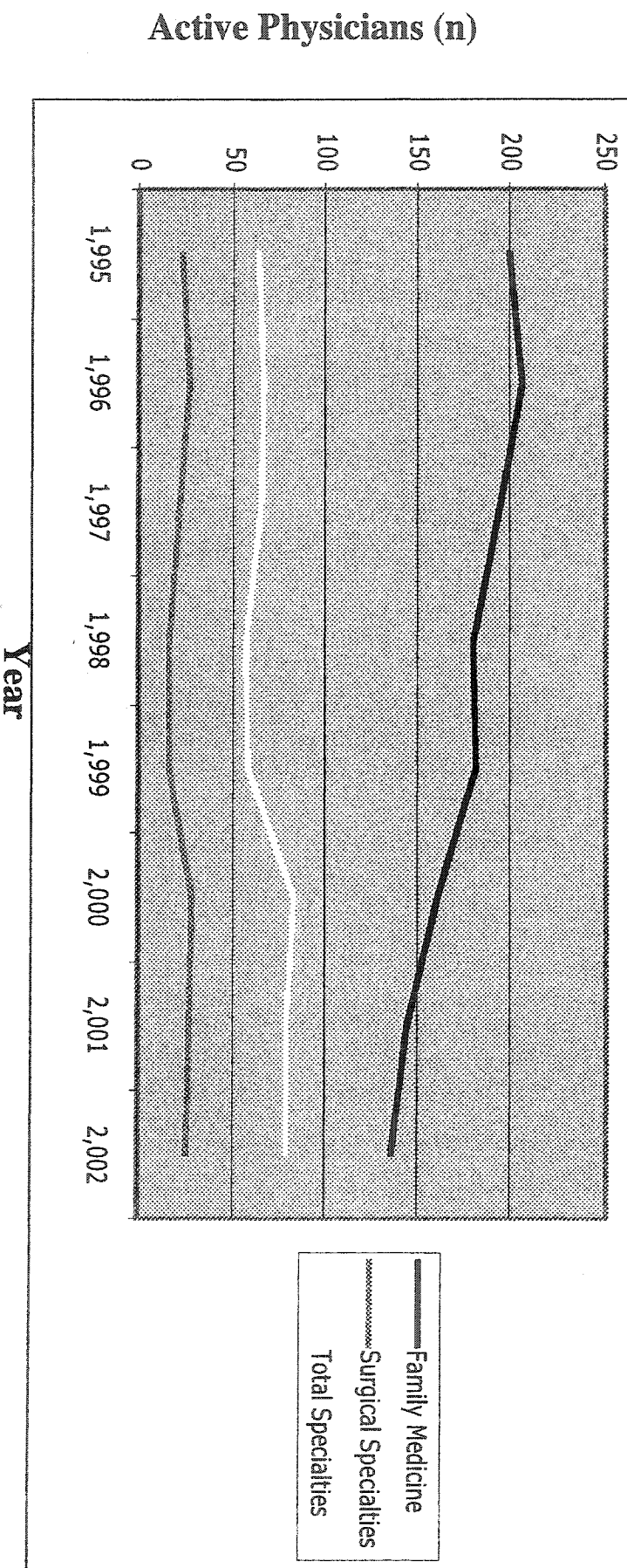
Trend of Active Physicians in the South West Planning Region Age Range 30-34



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

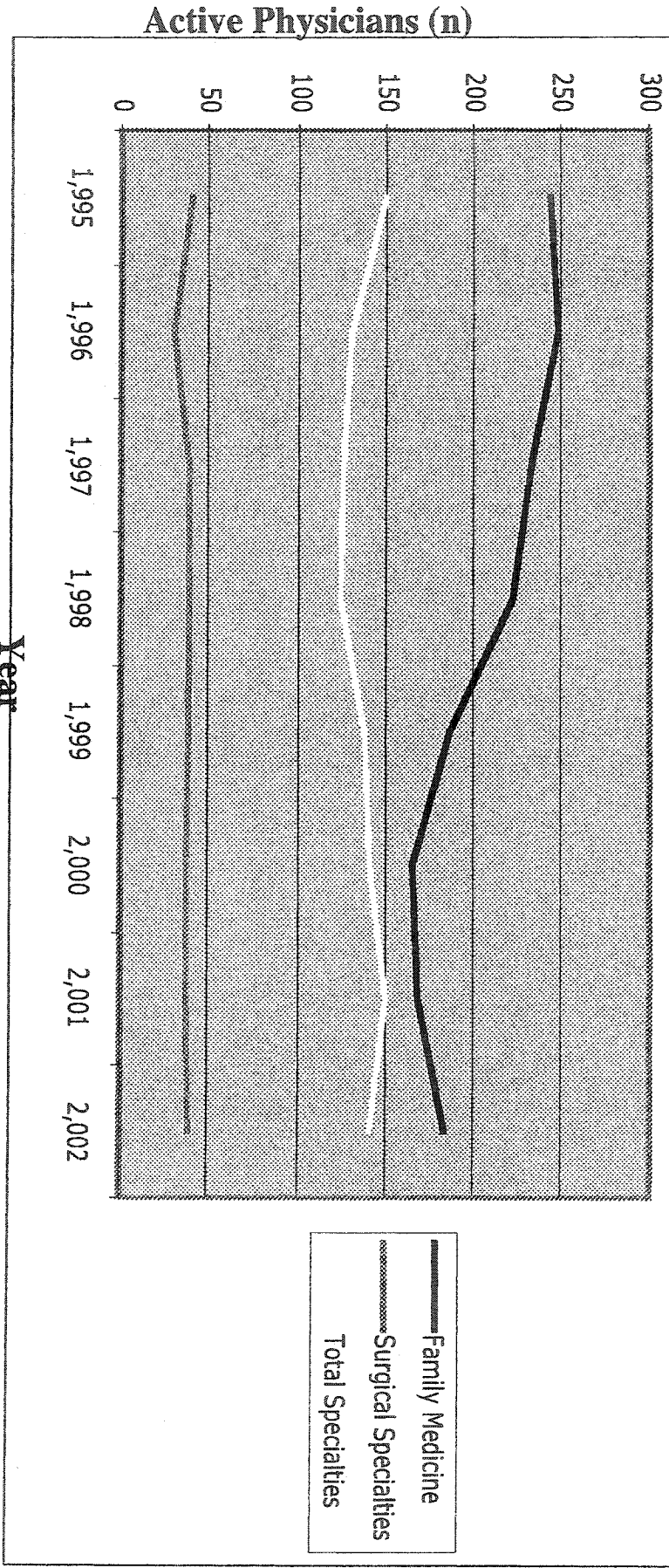
Trend of Active Physicians in the Central East Planning Region Age Range 30-34



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

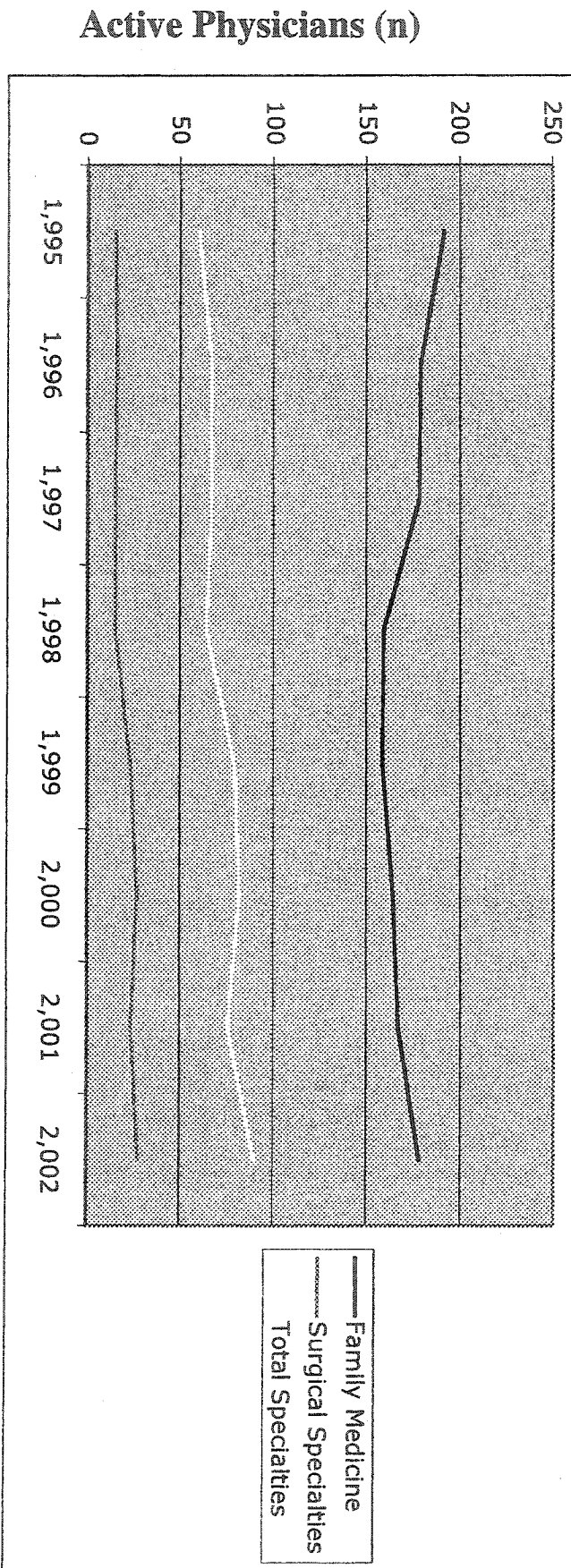
Trend of Active Physicians in the East Planning Region Age Range 30-34



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

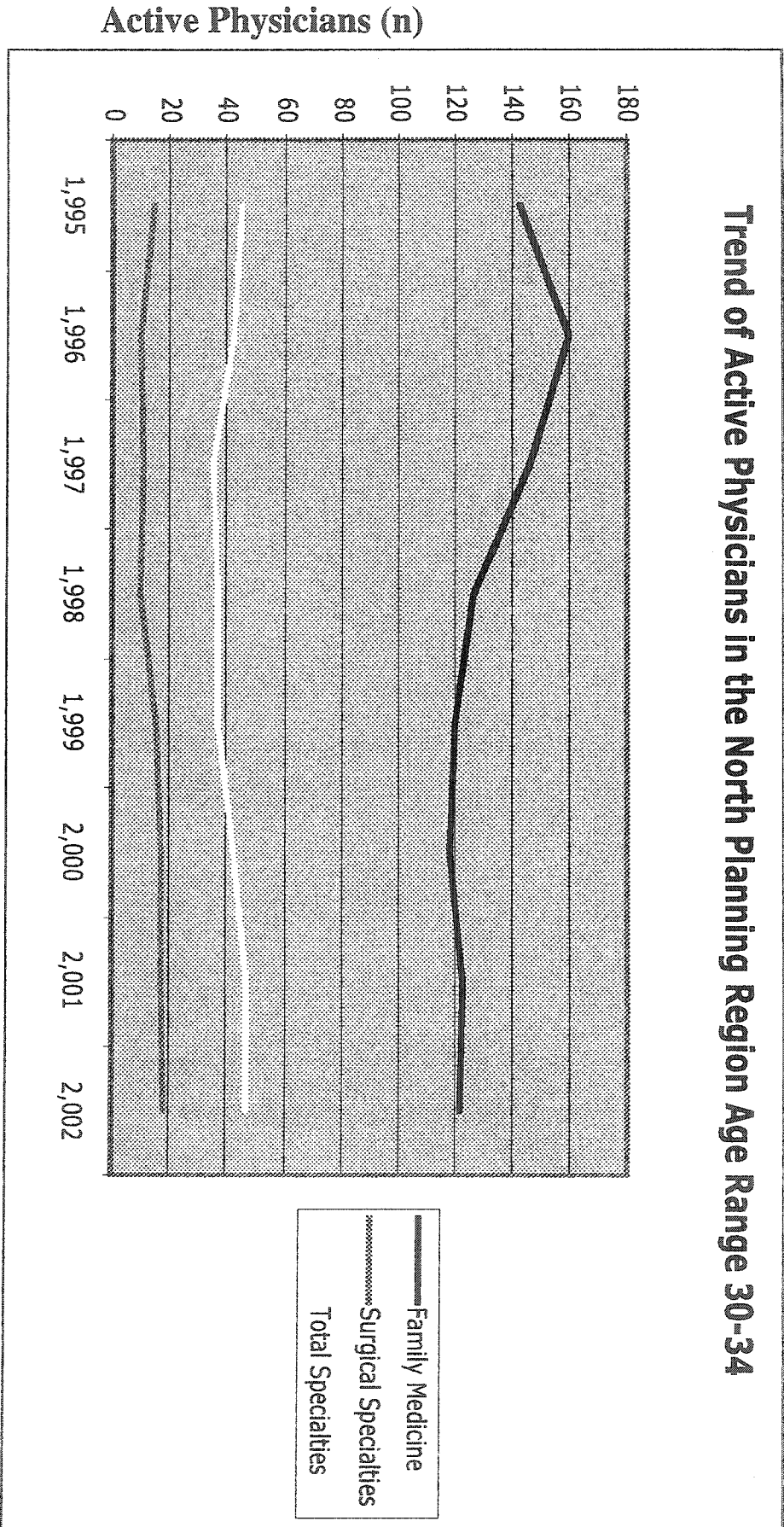
Trend of Active Physicians in the Central West Planning Region Age Range 30-34



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

Trend of Active Physicians in the North Planning Region Age Range 30-34

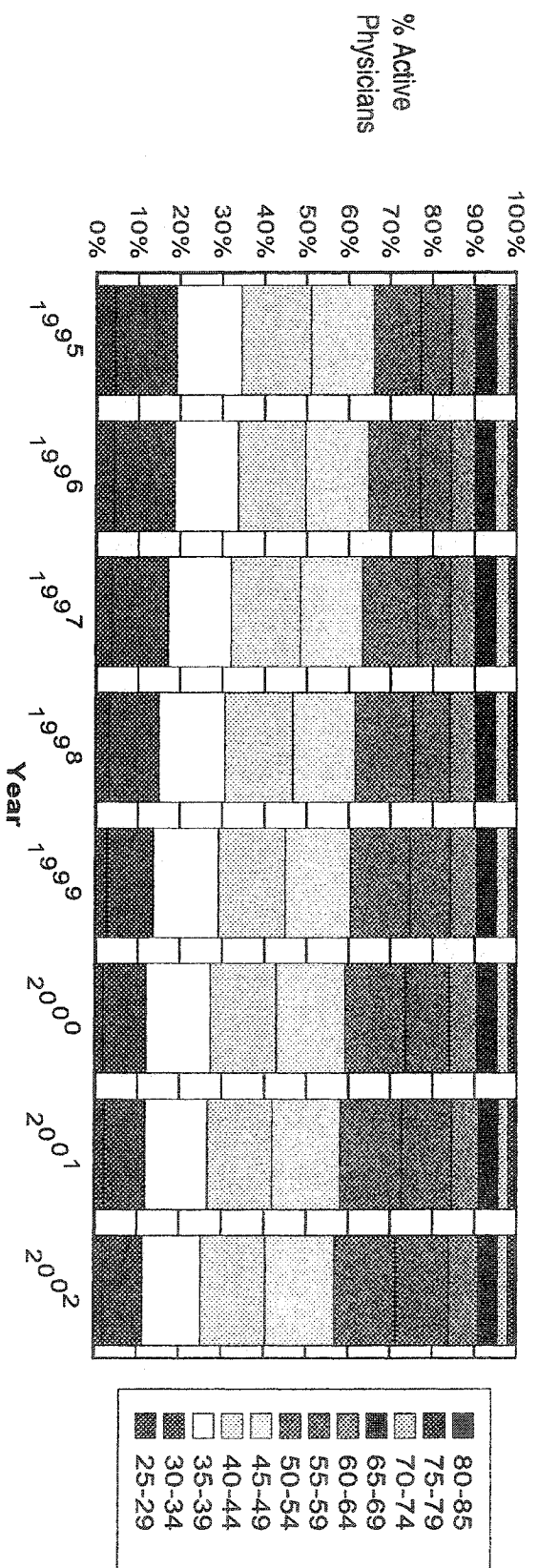


Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

Appendix 29

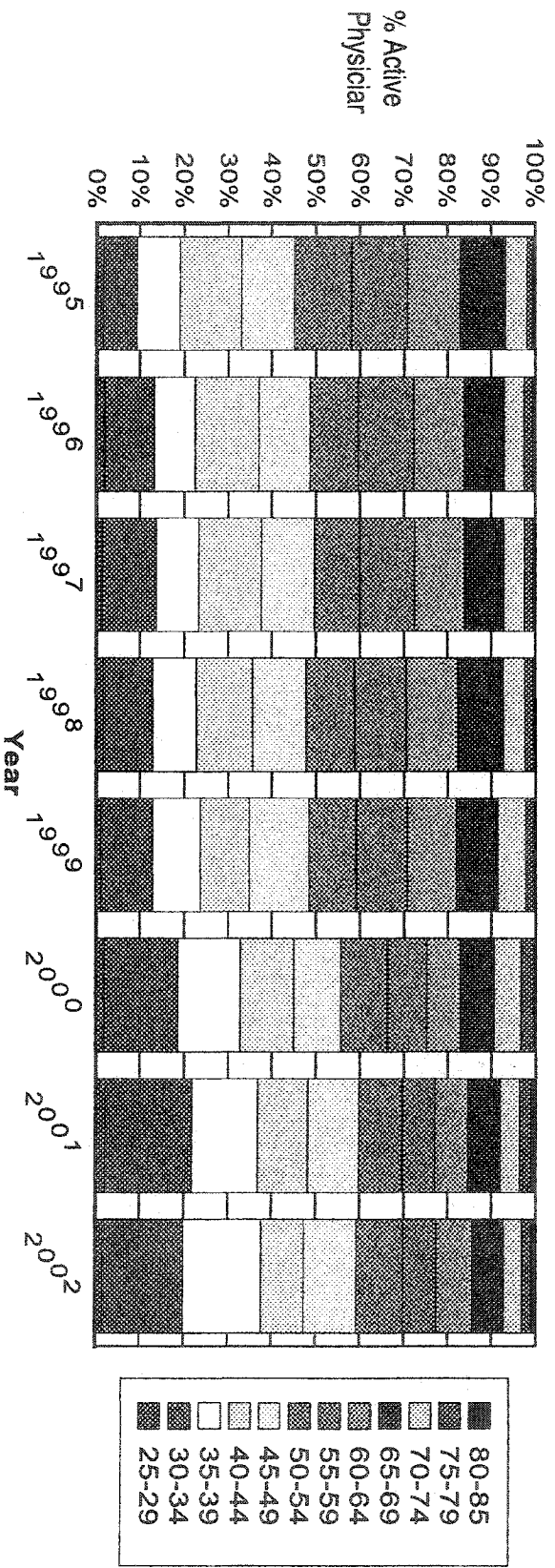
Trend of Active Physicians Family Practice Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

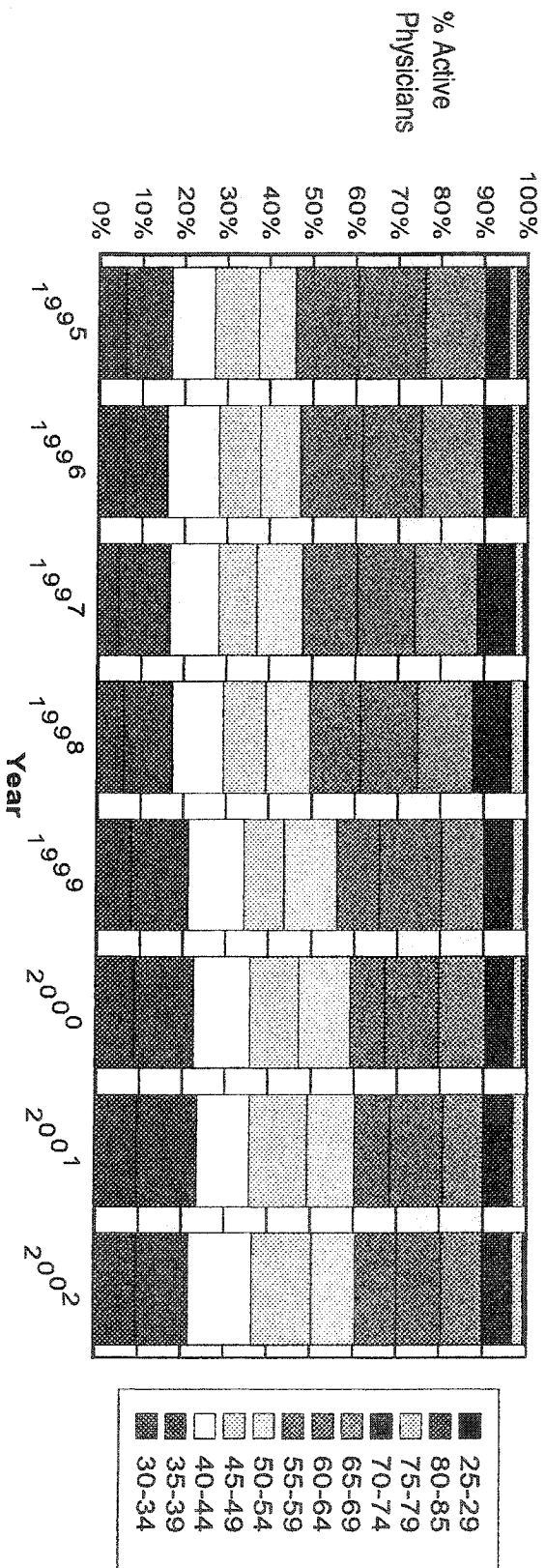
Trend of Active Physicians General Internal Medicine Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

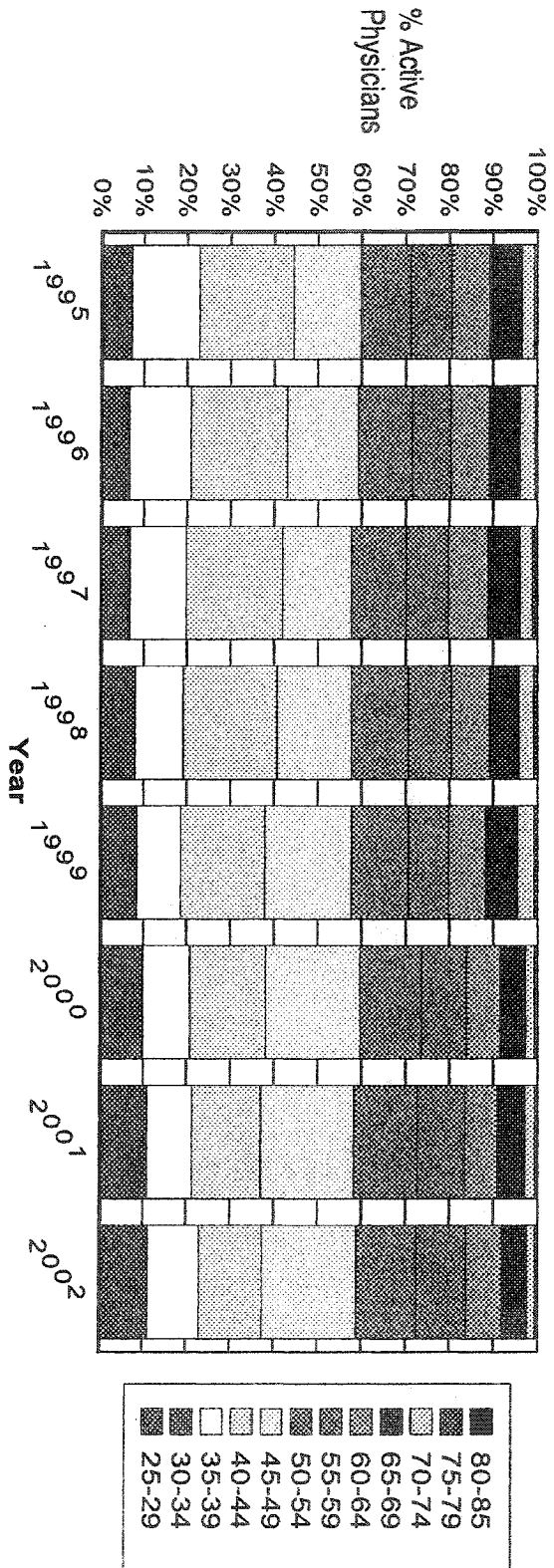
Trend of Active Physicians General Surgery Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

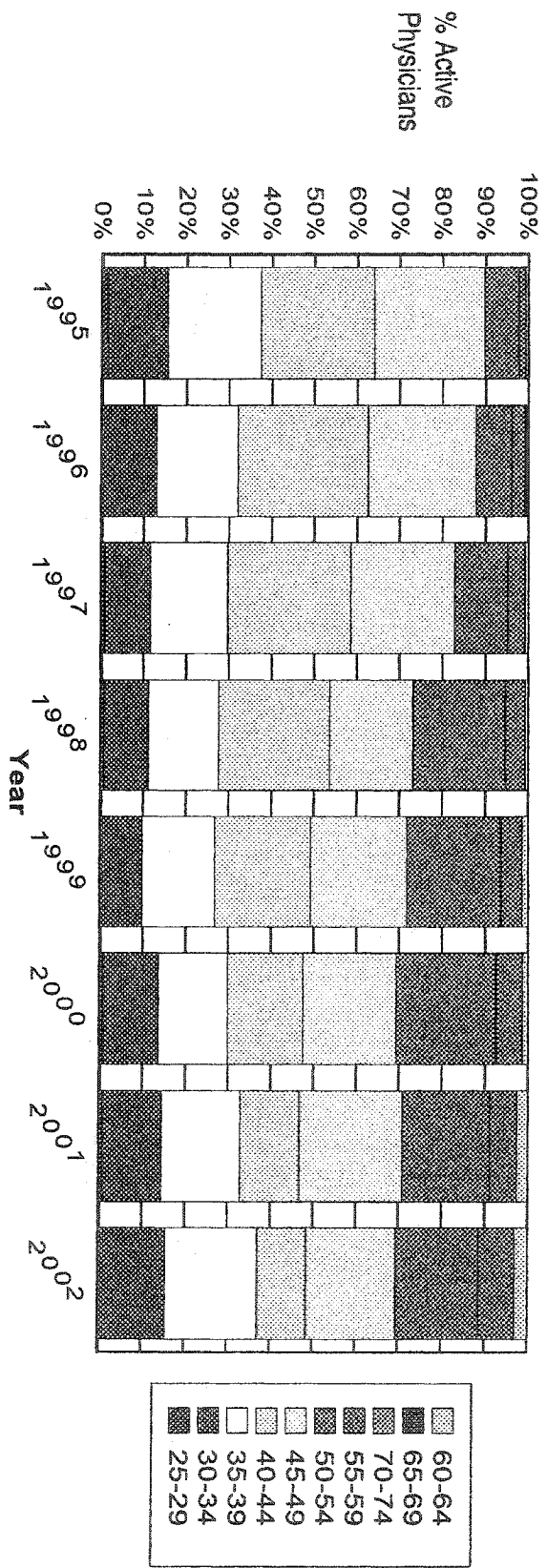
Trend of Active Physicians Anesthesia Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

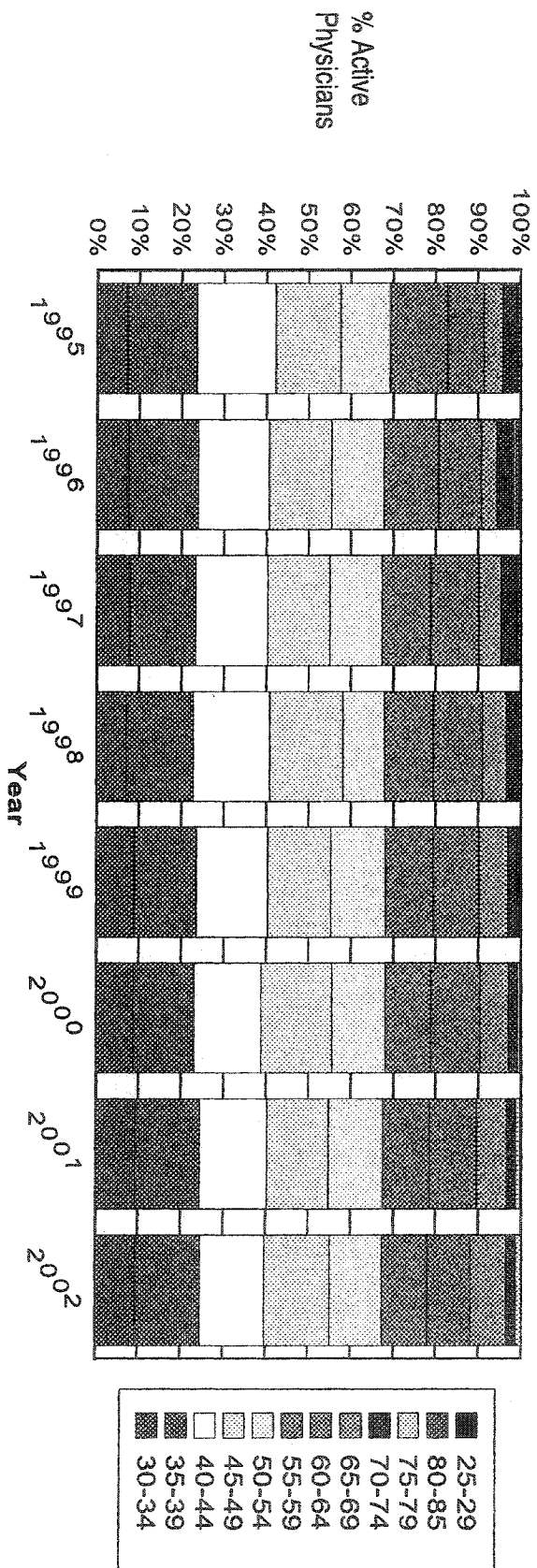
Trend of Active Physicians Emergency Physicians Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

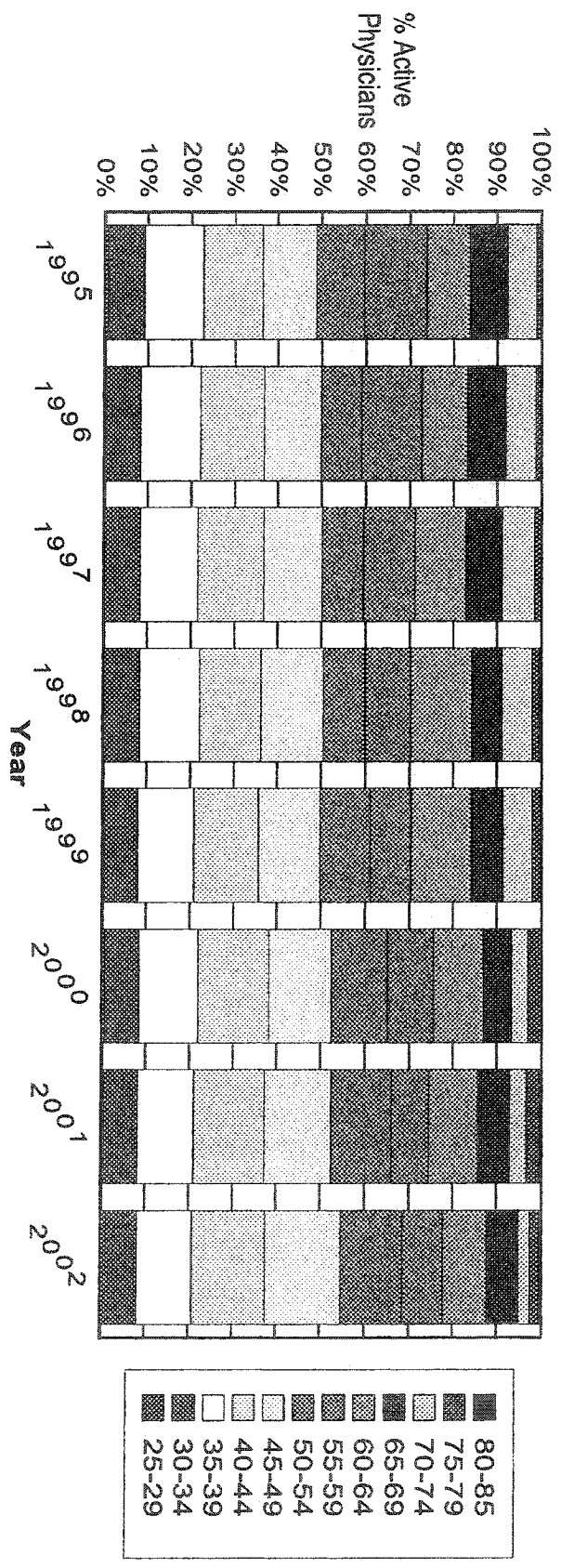
Trend of Active Physicians Orthopedic Surgery Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

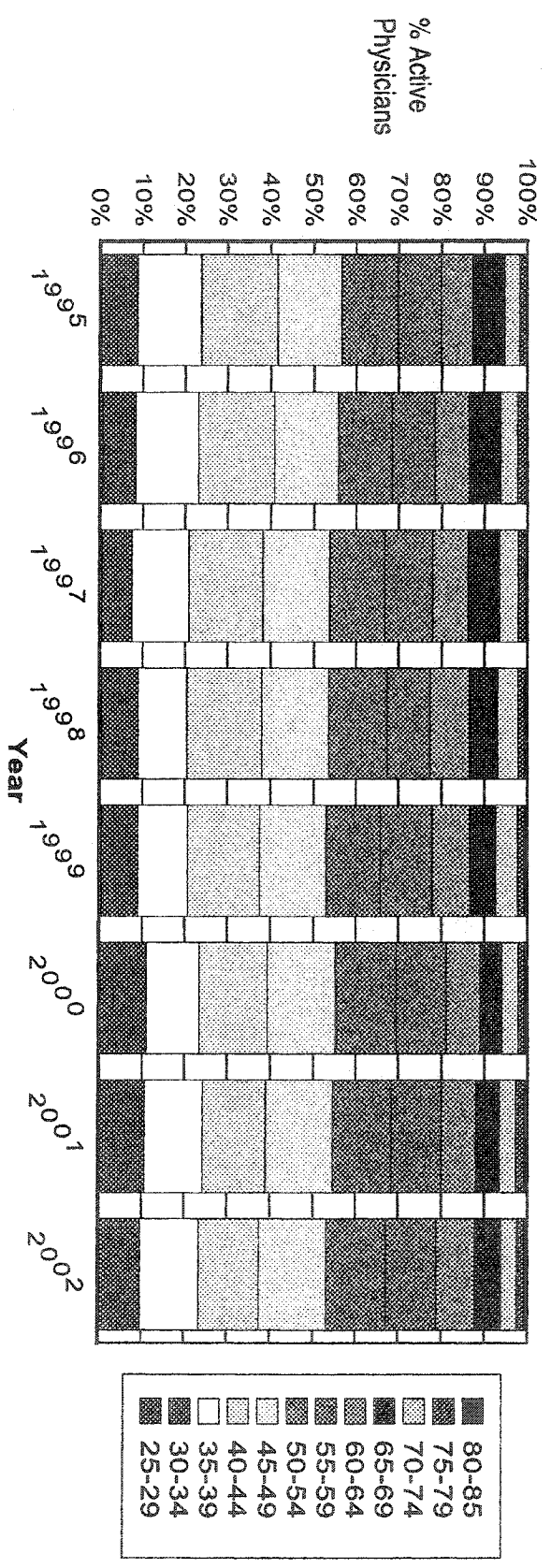
Trend of Active Physicians Obs-Gyn Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

Ontario Physician Human Resources Data Centre

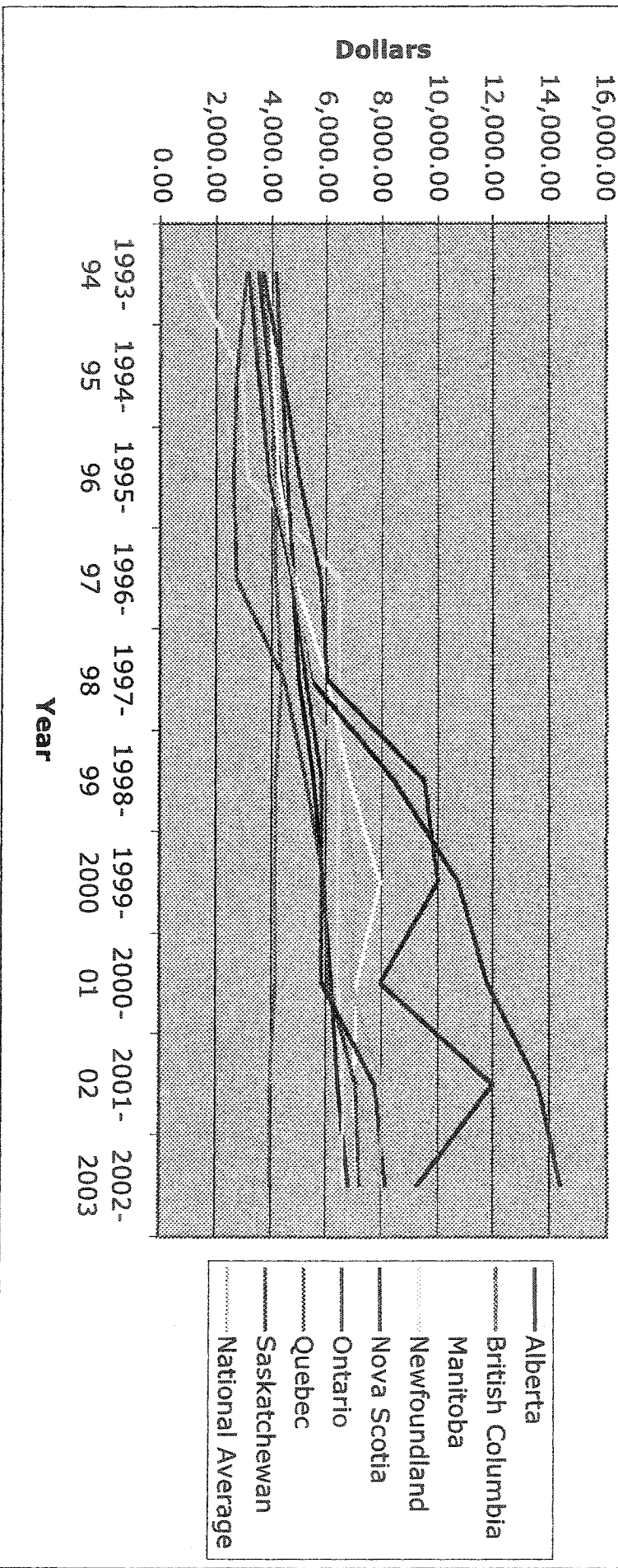
Trend of Active Physicians Pediatrics Ontario by Age Range



Source: Active Physician Registries, 1995 - 2002

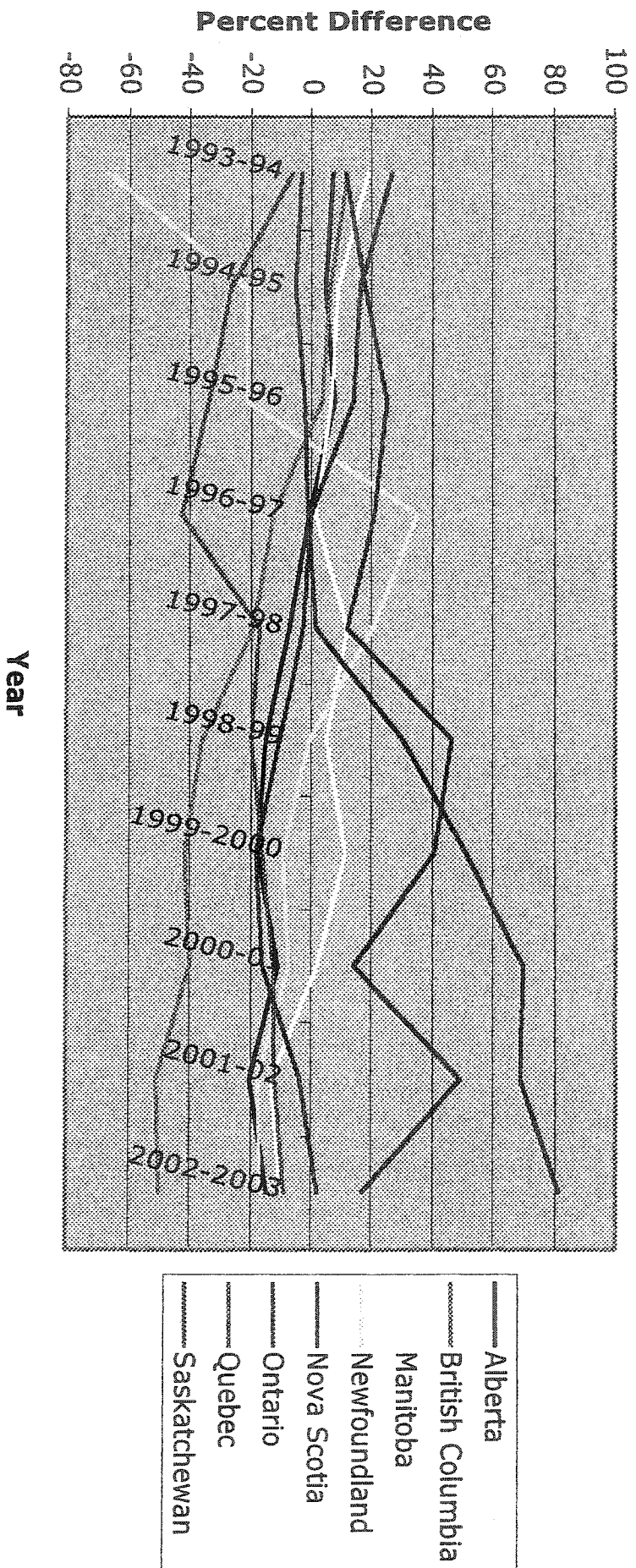
Ontario Physician Human Resources Data Centre

Canadian Medical School Tuition



Source: References

Canadian Medical School Tuition by Province Percent Difference from National Average



Source: References

Canadian Medical School Tuition Percent Change from Previous Year (Provincial Averages)

Province	Year	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03
Alberta		10.9	9.7	10.8	4.7	10.7	6.1	5.5	3.5	6.1
British Columbia		7.5	4.2	1.1	3.8	(4.4)	0.0	0.5	(5.0)	0.0
Manitoba		4.2	5.0	13.6	23.8	13.9	16.0	(10.8)	(1.2)	2.2
Newfoundland		166.1	7.2	105.3	0.0	(0.2)	(0.2)	0.0	3.0	0.0
Nova Scotia		20.1	13.3	15.5	4.2	58.1	5.1	(20.8)	51.0	(22.4)
Ontario		11.5	10.4	21.2	15.1	54.8	27.3	9.3	15.4	5.8
Quebec		(11.3)	(3.7)	3.7	61.8	17.7	14.0	2.0	16.4	2.1
Saskatchewan		4.4	5.1	4.7	9.4	11.3	(0.1)	0.1	33.0	4.8
National Average		13.6	6.8	19.8	12.1	21.0	9.5	(2.6)	16.0	(1.3)

Source: References 331-340.

Addendum to:

Primary Care Practice in Ontario:

An analysis of the factors that affect physician supply and activity.

It has been recognized that primary care physicians are an essential and core component of the Canadian care system. The numbers of physicians entering this field has decreased while demand from a growing and aging population has increased. Although difficult to quantify, some reasons for medical graduates to forego primary care residencies are thought to include reimbursement, overall job satisfaction (as observed in training), the threat of substitutes (foreign physicians and nurse practitioners) and the influences of mentors in undergraduate medical training. Other issues to be addressed include: The state of the workforce with respect to the following factors:

- Fee-for-service versus, AFP and capitation plans.
- The change from acute care to prevention.
- Amalgamation and rationalization of services.
- Organization of service delivery.
- Market orientation of the sector and the degree of state control and regulation.

These questions will be addressed in this addendum.

1. How might the introduction of nurse practitioners to the primary health care system affect fourth year medical student's choice of career?

Primary care shortages have forced the need for both substitutes and incentives that further threaten the intake of primary care physicians. For example, in 1997 in the United States, Oxford Health Care offered a pilot program where patients could elect to select a nurse practitioner for their primary health care needs [1]. In this project the nurse

practitioner was paid the same salary as the physicians that were contracted to perform primary care work. Nurse practitioners have a B.Sc. in nursing and an additional two-year M.Sc. degree. Incentives for the nurse practitioners serve as disincentives to physicians who are considering primary care as their specialization. Even if the role of the primary care nurse practitioner was subordinate to a physician there may still be reasons for resistance to the integration of nurse practitioners in Canada; particularly how it will effect the practice of the physician.

A nurse practitioner will be able to perform limited tasks and have to work under the supervision of a physician. Because of the limitations of procedures that can be undertaken by a nurse practitioner, more difficult cases that fall beyond the scope of the nurse will be directed towards the supervising physician. This could evolve the primary care physician's practice away from a holistic patient-focused approach to care and towards treatment of a limited subset of conditions or medical problems within their practice. Continuous exposure to cases with a high level of acuity or with less chance for a positive outcome may serve to erode job satisfaction, morale and increase work related stress [2]. This will be further exacerbated by the signal that the training to be a physician is not as valued as it would be if the physician had completed a residency in a specialization that is not threatened by substitutes.

Physician attitudes to nurse practitioners vary, depending upon their training experiences and exposure [3]. It is clear however, that closing the gap of roles between nurses and physicians could lead to resentment. As the roles of the two begin to overlap, physician

graduates considering family practice may view primary care as threatened of being replaced or as undervalued.

2. Discuss reduced job satisfaction as a contributor to reduced attractiveness of a career in primary care? How might the reduction in acute hospital bed supply have affected this?

Reduced job satisfaction in primary care has been identified as one reason why physicians modify or leave their practice. Studies have shown that concern about reimbursement, lack of control over working conditions, inflexible treatment regimens, lack of professional support and excessive call all lead to attrition [4, 5]. A reduction in the number of acute care beds can serve as a catalyst for job dissatisfaction. As the number of acute care beds decreases both intake and discharge frequencies change. Intake will be reduced, impacting those anticipating both elective and non-elective surgeries or procedures. Discharges will occur earlier placing more emphasis on convalescence time outside of the hospital. The increased wait time for a bed or decreased convalescence time will mean that patients will depend more on the primary care physician for support and treatment. This will increase workload with more seriously ill patients who may also be dissatisfied with the system. The impact on the state of primary care practice will be to further reduce the number of physician graduates that will be interested in primary care and will also affect the work practices of those already practicing [2, 6]. In the United Kingdom it was determined that the primary determinant of choosing a practice location was inversely related to

the number of deprived patients. Underserved patients tend to have greater needs including psychiatric problems and place more pressures on the primary care provider [7]. Although convalescing patients are not completely equitable to underserved patients, their special needs serve to increase workload in a manner that is not controllable by the physician.

3. Discuss the moral issues involved in actively recruiting physicians from developing countries as a means of increasing Canadian medical manpower?

Foreign physicians can relieve some pressure on the shortage of primary care physicians as it has in the US [8]. The ethics of wealthy countries recruitment of physicians from developing countries to fill positions has been debated [9, 10]. From the perspective of the recruiting country a need is being filled which is not as attractive to the domestic physicians. The physicians that are recruited are rewarded with a lifestyle that would have been difficult to achieve in their native country. Many affluent countries recruit physicians from Sub-Saharan Africa. Sub-Saharan African countries are currently undergoing a crisis with the AIDS epidemic. For example it is estimated that approximately 17% of South African workers are infected with HIV [11].

Recruitment of foreign workers, either skilled or unskilled, usually serves to fill positions that are unattractive to domestic workers. The case could be made that the recruitment of physicians from areas that are undergoing a health crisis of the

magnitude faced by Sub-Saharan Africa is self-serving and not in the best interests of anyone. While the choice of workers to move from one area to another should be permissible when the opportunities exist, there is a need to balance the opportunities with the needs of the country that will lose the worker. Canada could attempt to recruit from other countries that are not as greatly affected by AIDS and if necessary enhance recruitment packages to bring in physicians that may be less inclined to move. More importantly, recruitment often serves as a temporary fix to a flawed system. Internal changes to university programs to enhance the selection of primary care practice would be a better solution in the long run to stabilize primary care intake.

4. What effect might the socialization that occurs during medical school, some of which is destructive, have on the medical student's career choice?

Medical school socialization is a combination of several factors or influences that can have both positive and negative effects on the shaping of an individual physician. For example physicians are influenced by their mentors or role models or by staff whom they perceive to have biases against them [12, 13, 14]. Outstanding primary care physicians are characterized as being achievement oriented, empathic, with skills in patient motivation such as personal influence and empowerment [15]. During medical school training in the United Kingdom survey participants identified the marginalization of primary care training with emphasis placed on the specialized practices [2]. A survey of physician graduates in Washington State indicated that the

majority of graduates who chose primary care practice did so in the first two years of medical training, whereas the majority of other specializations were decided upon in the final years of training [16]. While the issue was not explored in this survey, this phenomenon may suggest that the choice of primary care is diminished through the course of medical school. Programs that encourage early exposure to primary care practice enhance the selection of primary care residency [17, 18].

Moreover, graduates that select primary care are more influenced by role models than those choosing non primary care specialties [19]. Other factors that lead towards primary care choice includes orientation and exposure, patient interactions and overall medical school culture. Non primary care physicians were more inclined to go to a specialization on the basis of controllable hours and lifestyle as well as a more exciting, faster paced tempo. Patient-centredness is also a factor that influences choice of primary care, while doctor-centred care appears to influence specialty care [20].

5. Discuss the state of the workforce with respect to the following factors:

- Fee-for-service versus, AFP and capitation plans.
- The change from acute care to prevention.
- Amalgamation and rationalization of services.
- Organization of service delivery.
- Market orientation of the sector and the degree of state control and regulation.

Fee-for-service versus, AFP and capitation plans:

Physician reimbursement in Canada has historically been fee-for-service with the rates set through agreements between the provincial governments and the respective provincial medical associations. The setting of rates is periodically updated through negotiations. Service fees also known as relative value fee schedules have been estimation of the time spent on each procedure. Inequity exists between specialized procedure reimbursement and primary care – disease prevention reimbursement [21]. Primary care physicians have the lowest reimbursement rates for patient contact and care. Motivation to perform academic, or other profession enriching activities is suppressed by fee for service [22]. An alternative is to customize reimbursement to suit the motivators of a particular physician within an organized practice group on the assumption that some will spend more or less time in academic activity while others will bring value to the group through direct patient care.

In 1993 a reimbursement ceiling was added to the fee-for-service schedule in Ontario in an effort to control expenditures in the province [23, 24]. In itself this is a form of capitation. This came about after Ontario physicians rejected voluntary practice guidelines, which would have constrained autonomy in the province. While capitation did limit some physician's income, the ceiling was sufficiently high enough that primary care physicians typically did not reach it.

Capitation programs can take on various forms including full capitation or partial capitation for defined services [25]. Partial capitation has been shown to be more economical than comprehensive programs [25]. This is likely due to the ability to refine the reimbursement to reflect actual services. As capitation encompasses more services and programs the accuracy of determining true costs would decrease.

Capitation payments considering both needs-based payment schedules, and age and sex, or age and sex with either socioeconomic or mortality adjustments have also been explored [26]. The needs-based pilot program did not do better than simple age and sex adjusted capitation program. This indicates that other factors such as care attitudes and practice activities of physicians may confound demographically defined systems of capitation. This argues for the need for risk pooling and some adoption of practice guidelines if capitation is to succeed in Ontario.

Incentives for limiting service have been studied using various funding systems. In Ontario, capitation with incentives for low hospital utilization was piloted in the mid-1980's. The pilot group was matched against the traditional fee-for-service group [27]. No differences were observed between the groups indicating that cost cutting methods in medical practice are, to some extent, affected by influences other than reimbursement. In contrast in the United States pre-payment incentives within the Children's Medicaid program were shown to reduce the number of specialist referrals [28]. The difficulty with quantifying the results of these studies lies in the fact that the outcome measured is purely economic. No reference is given to the patient outcome either adverse or beneficial. There is some evidence that the motivations of both

primary and specialist care can be guided by reimbursement schemes [29]. In a hybrid reimbursement project of an integrated care system, primary care physicians were paid through capitation, while the specialists were given reduced fee-for-service payments. This system reduced the number of hospital admissions however, the length of stay increased for specialized care [29]. Some health maintenance organizations in the United States withhold physician's income to cover potential deficits while others have mechanisms for the distribution of surpluses [30]. In the United States risk pooling, or at-risk contracting, has been used to protect capitated independent practice groups and integrated care systems [31]. Risk sharing is strategic for capitated caregiver systems to shield against disproportionate health care expenditures that would reduce reimbursement from third party payers.

Several members of the University of Toronto have proposed an alternate system of health care delivery for Canada [32]. The Canadian Integrated Delivery System (CIDS) is similar to the programs previously described in Finland, the Netherlands and the UK. Physicians would have incentives to keep costs down; there would be both horizontal and vertical integration. Each delivery system would serve a population between 100,000 and 2 million [32]. Horizontal integration would include practice groups of primary care physicians with vertical integration through the participation of specialists within the CIDS.

In Ontario recent reform pilot projects have included capitation programs. As described in the body of the thesis (pages 12 – 15) the OMA and the government have recently embarked on programs to enroll and maintain patients with one primary care

practitioner. Some confusion exists with the implementation of the program as noted by a study in the Hamilton-Wentworth region [33]. A survey to determine resistance to the reform program showed that some impediments to adoption of the program included reluctance on the part of patients to join and for physicians a lack of information regarding their roles and expectations. Should the program prove successful and be adopted on a broader scale in Ontario, further effort will be needed to ensure acceptance on the part of both the physician and patient.

The change from acute care to prevention:

It has been long recognized that prevention of disease is more cost effective and beneficial to the population than treatment of disease [34, 35]. Evidence based medicine has led to universal acknowledgement that prevention of sexually transmitted disease [36], obesity, alcoholism, smoking [37] and enhancement of obstetric and maternal support [38], pediatric care [38], immunization [39], nutrition and psychiatric wellness [40] and cancer screening [41] are all essential for the well being of the population. Much of the responsibility for the deliverance of preventative medicine lies in the hands of primary care physicians. Moreover, continuity of care depends on repeated physician visits, scheduled examinations and immunizations [42]. In the United States approaches to promote prevention include State and Federal mandated Medicaid screening and surveillance programs, managed Medicaid programs and capitated specialized care combined with fee-for-service primary care

within health maintenance organizations [43]. The latter initiative is necessary to provide incentive to support the legislated Medicaid programs of prevention. Support for preventative programs is multifaceted however, the deliverance of the initiatives lies with the primary care or first contact physician. Deliverance of such programs depends upon communication and formalization of the initiative (for example, immunization or screening at specified ages) by a governing agency, monitoring and capture of outcomes by a designated body and the deliverance of the care by the clinician. As the numbers of accessible primary care physicians decreases, the opportunity for preventative medicine also decreases. First contact physicians at emergency departments and walk in clinics in Ontario are not compelled to determine whether a patient has a regular physician or has seen a primary care physician in the past year. The result of this is piecemeal care attending only to specific complaints and not prevention of disease.

Amalgamation and rationalization of services:

In Ontario the amalgamation of services has resulted in the restructuring of regional health care systems, the closing of hospitals and the consolidation of other hospital services across campuses. The centralization of coordinated services in geographically defined areas has resulted in a reduced number of acute care beds and has put more pressure on out of hospital convalescence (see above discussion regarding potential pressures of reduced acute care beds). Canada has one of the highest per capita numbers of acute care beds (**Appendix 7**) and one of the longest

bed stays per acute care hospitalization. What isn't apparent is whether this is due to inappropriate use of acute care beds for chronic patients or whether this is due to a lack of rehabilitative support services; either institutional or at home.

A study of Ontario hospitals showed that the introduction of a sub acute category to hospital beds would reduce the number of acute care bed stays and as well ensure that non-acute beds were also appropriately used [44]. A significant number of elective surgical patients were admitted the day before surgery and occupied an acute care bed needlessly. Between 1995 and 1999 the number of acute care beds in Ontario was reduced by 20% with only a 2% decline in the number of inpatients [45]. This resulted in a net increase in patients per bed placing more demands on both nursing and hospital physicians. In a study from 1986 to 1998, terminal cancer patients in the last six months of life occupied 5.3% of all acute care beds [46]. This is a considerable number of beds, reflecting a lack of hospice-, home-, and palliative-care facilities to support this group. Elderly patients often occupy acute care beds while waiting for long-term beds in nursing facilities. This is in part due to a shortage of long-term beds and a lack of coordinated geriatric services and discharge planning services [47]. The introduction of geriatric care and discharge planning reduced the need for acute care beds for these patients by 51% in some Metropolitan Toronto hospitals.

Organization of service delivery:

Health care in Ontario is delivered by both primary care and specialized physicians. Both of which may have privileges at one, or more, hospitals although often physicians will have a practice independent of the hospitals they are associated with. Patients are not required to roster with a given physician leading to replication of services when more than one primary care physician is visited. This may also occur when patients use the Emergency Department or walk in (urgent care) clinics for non-acute care.

Access to specialized care occurs through a referral. Without the referral a specialist may not bill the Ontario Health Insurance Plan. Insurance is global for all residents of Ontario although a residency period of three months is required for eligibility to the program. Individuals covered by insurance from other provinces are also covered without penalty in Ontario as part of the portability component of universal care in Canada.

Hospitals conduct both inpatient and outpatient services more efficiently than hospitals in the United States, in part due to centralized services [48]. Hospitals and long-term care facilities depend upon provincial funding but are independent and community focused. Some are administered by religious organizations while others are administered internally with a community board of directors. Both teaching and community hospitals are located in each geographic region of Ontario. The recent

formation of the Northern Ontario medical school with campuses in North Western and North Eastern Ontario should help to encourage settlement of primary care physicians in the these areas.

In addition to general teaching and community hospitals there are also rehabilitative hospitals and children's hospitals specializing in care and research pertaining to the neonate, pediatric and adolescent. Some adult patients suffering from inherited diseases are also treated at pediatric facilities because the expertise in care lies with these institutions. The model of having integrated children's facilities within an integrated adult hospital is resisted in communities with dedicated pediatric facilities although benefit could be gained by taking advantage of existing infrastructure rather than duplicating it for a relatively small number of hospital beds. The military and federal police (RCMP) are treated at federal facilities or more commonly through contractual arrangements with existing community facilities.

Market orientation of the sector and the degree of state control and regulation:

Ontario's health care system is public and at the macroscopic level the market orientation is non-competitive and arguably focused on the consumer. While customer focused, the system also is limited in resources to the extent that the outward appearance is not customer oriented. In other words, there is no push to attract patients. The delivery of service at the institutional level is monopolistic or an

oligopoly depending on the area served. However, the system is in sharp contrast to the United Kingdom's National Health Service, as it existed before their current reforms. As Canada and Ontario move more towards a structured system of preventative care more emphasis for patient empowerment will be needed.

Although the orientation is not towards competition there are isolated areas where competition has or does exist. During the amalgamation process in Ontario, some hospitals were positioning themselves to be necessary for the francophone population or for pediatric care. Others positioned themselves on the basis of geographic location.

Considering the market is consumer focused there are some limitations to how far this can be taken in Ontario. The low level of competition, a lack of surplus, or limited redundancy means that patient choice of services is limited in a given community. This is unfortunate as competition, or other external pressures, can bring efficiencies and improvements to the system that may not be realized without stimulus. Moreover, the consumer does not necessarily know what is best for them in the health care area. Patients may expect surgical intervention or expensive diagnostic procedures when none are warranted. This can place unnecessary stress on the system and even affect patient safety.

In terms of a market orientation matrix a lack of competitor focus and low customer focus indicates firms (hospitals) that are strategically inept [49]. This is not

necessarily so in Ontario however since the hospitals tend to focus on internal strengths and development. If the unlikely prospect of privatization of the health care system were to occur in Ontario this marketing position would not be favorable. In the current state it is much less a threat to the survival of a hospital and may be strategic to cope with the limited resources.

Competition for patients is not an issue at the individual physician level since many have limited their practices and do not take on more patients. The drive to see a physician is a pull on the part of the patient and not a push from the clinician. As preventative care will require scheduled visits at specified intervals this will change. Capitation will also drive push on the part of the physician particularly if scheduled visits for prevention are tied to the reimbursement scheme.

State control and regulation of licenses, accreditation and limited quality assurance programs are in the hands of the provincial government. The current federal and provincial health initiatives are not monitored and enforced. There is no link between reimbursement and adherence to programs. The provincial government through the Ministry of Health and Long Term Care is capable of suspending or terminating hospital funding and services. A major consolidation of services occurred through the late 1990's and early 2000's. Some of the consolidation initiatives have still not been resolved.

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