A consideration of seventeen different reports on specialty specific human resource issues reveals a variety of common themes. Among those most frequently cited are both Canada’s aging population and its insufficient supply of physicians, creating an unprecedented burden on the physician workforce. These reports also included such concerns as physicians’ increasing intention to retire or reduce practice, the mounting heavy workload, and the distribution problems facing Canada’s physician workforce.

In terms of actions taken on behalf of the specialty societies, many have either conducted surveys, done projections, or both. All but one of these reports (neurosurgery) makes the case that their respective disciplines will be in a shortage situation. While few of the specialty-specific reports have specifically enumerated shortages, most of the reports contain recommendations of how to improve the human resource issues currently facing the specialties. Included in this list of the recommendations, the most frequently cited ones are the creation of recruitment/retention programs and the immediate increase in post-graduate positions. What is also commonly cited as a recommendation for addressing human resource issues is the creation of a more cohesive workforce plan. The prospect of new models of delivery also surfaced as a suggestion in addressing issues of workforce burdens, however few specialty reports thoroughly entertained such a prospect.

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**ALLERGY & CLINICAL IMMUNOLOGY**


The last 25 years have seen increased prevalence of allergic diseases including asthma and hypersensitivity. Concern exists that the number of trained specialists in allergy and clinical immunology is not in keeping with this increased prevalence and population growth and therefore predictions are being made regarding preparations for the future. While there were 26 allergy and clinical immunology trainees in Canada in 2007/2008, 12 of them were visa trainees and therefore not remaining in Canada upon completion of training. Estimates show that the current pool of trainees is not adequate to replace departures from the specialty and when coupled with the prevalence of allergic disorders, it is clear the pressures placed on these specialists will be greatly increased.

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**ANAESTHESIA**


A variety of articles have been written over the past few years and despite the different approaches taken, all have ended up with the same message: there are insufficient numbers of
anesthesiologists to meet current as well as predicted needs. To make matters worse, the number of nurses is in decline. The process of trying to attract international medical graduates has caused many countries to start lobbying governments such as Canada’s to restrict the inward flow of international physicians and in Europe, the European Working Time Directive (EWTD) has had a significant impact on the ability of anesthesiologists to deliver care. What is apparent is that there is a worldwide shortage and the need to find solutions is increasingly important. A consistent model is needed which is anesthesia-specific and educational and support programs require development. The shortage has been well documented and therefore a push is being made to develop solutions to deal with this worldwide problem affecting anesthesiologists and their patients.


The study conducted in the fall of 2000 projected anaesthesia supply to 2016 by province as well as projected demand of anaesthesia services by age, sex and province. Projected future demand for clinical anesthesia services was found to be higher than the rate of growth of population. It was determined that there were substantial shortages of anaesthesia specialists, with no way to quickly increase the output of anaesthesia training programs.

**CARDIOVASCULAR AND THORACIC SURGERY**


Background: The number of applications to Canadian cardiac surgery programs has declined recently. Perception of a difficult job market for new graduates may contribute to this decline. The objective of this survey was to document the experience of recent graduates of Canadian cardiac surgery training programs.

Methods: A 45-question, web-based survey was distributed to all graduates of Canadian cardiac surgery training programs who completed their training between 2002 and 2008.

Results: Of the 62 estimated recent graduates, 50 completed the survey (81%). Mean age was 36 ± 3 years and 90% were male. The mean number of years of training after medical school was 9.4 ± 1.6 years; 78% completed a graduate degree; and 27% extended their training because of a lack of jobs. When asked about employment, 74% mostly or definitely got the job they wanted, although 34% considered themselves underemployed. Most respondents (98%) considered finding employment for a new graduate in cardiac surgery today difficult or extremely difficult, and 64% believed that there is currently an excess of cardiac surgeons in Canada. Only 54% of participants would strongly recommend cardiac surgery to potential trainees.

Conclusions: The majority of recent graduates from Canadian cardiac surgery training programs were successful in finding secure employment. A substantial proportion, however, extended their training because of a lack of jobs and reported feeling underemployed. Survey respondents
agreed that a new graduate might have difficulty finding a job in cardiac surgery today. These
careers may contribute to the challenges of recruiting to the specialty.

The College of Family Physicians of Canada, *When the Clock Starts Ticking: Wait Times*
Canadian Cardiovascular Society Workforce Project Team, “Profile of the cardiovascular
Specialist physician workforce in Canada, 2004.” *Canadian Journal of Cardiology* 21, no. 13

Using the National Physician Survey 2004, the Cardiovascular workforce survey, the PRET
model, and CIHI data, the Canadian Cardiovascular Society (CCS) analyzed the key issues in
human resource planning with respect to cardiologists and cardiovascular surgeons. Findings
included the heavy workload and call hours of these specialists as well as a decline in
cardiovascular specialists per 100 000 elderly population for the next 15 years. The toll placed on
the current workforce is likely to compromise the specialty’s ability to attract more physicians to
the field, meaning the unattractiveness may pose difficulties in sustaining the necessary
workforce. Recruitment and retention will therefore depend on the way in which the quality of
work-life issues is handled. A further challenge for the field and the planning of physician human
resources is to understand what drives short-term changes in supply and to make sure appropriate
actions are taken to maintain balance in longer terms.

**DERMATOLOGY**

Maguiness, Sheilagh, et. al., “The Canadian Dermatology Workforce Survey: Implications for
the Future of Canadian Dermatology- Who will be your skin expert?” *Journal of Cutaneous

The Canadian Dermatology Workforce Survey provides an overview of dermatology at present
in Canada and the critical shortage the specialty faces which will continue to worsen without
change and innovation. What the Canadian Dermatology Association’s (CDA) survey data
indicates is that twice as many dermatologists will retire over the next five years than will
graduate from residency training programs creating an imbalance in demand and supply.
Projections conducted for the specialty show that following the anticipated retirement,
emigration and graduation in 2006 (leaving 505 dermatologists, or 1.6 per 100000 population)
there will be a significant decrease to 394 dermatologists or 1.2/100000 population by the year
2011. Factors listed as affecting this specialty include the aging population, increased delegation
of continuing care services from FPs to dermatologists, the increased demand for non-insured
services, and the advances in technology leading to an increased need for trained specialists.
Outlined as some potential future problems are the attrition of trained dermatologists, reduced
access to care and decreased practice survival because of burn-out. Recommendations proposed
consist of: creating a national dermatology human resources coordinating committee to foster
coordinated planning across the provinces, increasing residency training program capabilities,
improving the ability of GP/FP’s in their diagnosis and management of common skin diseases
and offering improved medical training in dermatology to undergraduates.
EMERGENCY MEDICINE

Sinclair, Doug, *CAEP Manpower Study- Executive Summary*, (CAEP, 2003)

Manpower issues for the specialty of emergency medicine have been noted to be very complex. The fundamental problem in addressing issues of emergency physician manpower is the fact that emergency physicians have variable certification making it very difficult to identify their exact numbers and distribution. According to the Royal College age distribution of certificants in 2003 sees relatively high proportions of older physicians which indicates an increasing need for replacements in upcoming years. This differs a bit from those with CCFP designation which show a younger cohort than the Royal College group, a greater proportion of females, and also improved geographic distribution. What also complicates matters is the changing nature of the specialty which sees an increasing proportion of CCFP-EM certified physicians.

FAMILY MEDICINE


Timely access to care is continually deteriorating, with the single biggest reason being the severe shortage of health professionals. The increased workload and time commitment to comprehensive, continuing care is becoming a challenge, which is compounded by the fact that fewer students are choosing family medicine. What the CFPC has concluded is that a framework is needed on health human resource needs, goals and strategies with a provincial commitment to these goals. The report outlines a variety of recommendations and initiatives the CFPC supports; one of which would be the rescheduling of the CaRMS match to the latest possible date, so as to give students having to make choices the greatest opportunity for exposure to family medicine. The report also mentions models and the interest generated by newer ones (primary care reform and renewal; ‘PCR’ models). These should offer incentives to support continuing comprehensive care and enhanced access to care for populations of patients via groups, networks, teams, interdisciplinary care strategies, and enhanced access to information technology. Given the findings of the NPS 2004 that 60% of family physicians were either limiting the number of new patients or not taking patients at all, and the intentions of a quarter of family physicians at the time to reduce their work hours in the following two years, it is clear that the shortage will only get worse. As the report points out, if the number of family physicians continues to decline, specialists’ roles will also be affected.


In its 2006 paper *When the Clock Starts Ticking*, the CFPC has cited Decima polls over the 2003-05 period that suggest that 15% - 5 million Canadians do not have a family physician and the CFPC has called for a wait time benchmark approach in primary care that would include benchmarks by level of urgency in terms of time to find a family physician, to be seen by their own family physician, and to be referred from their family physician to a consulting specialist.
Wait times for health care have come to the fore as a primary method for assessing how adequately care is delivered. While governments have established benchmarks for acceptable wait times in a few areas including cancer and joint replacement, little is known about access in many other health conditions. The CAG, because of the unknown causes of access issues in their specialty, put forth a three-pronged approach to evaluate human resources in digestive health care, one of which was a practice audit—a methodology with an aim to documenting the time from initial referral to consultation and subsequent procedures. Using PDAs, data were collected by 199 physicians, representing a third of gastroenterologists in Canada, which showed markedly noticeable provincial differences (likely a result of differences in human and other resources, practice patterns and provincial policies). Other variations include availability of colonoscopy for cancer screening and the practice of triaging. What is concluded by this study is that access to digestive health must be considered in government initiatives to improve access, reduce wait times and establish patient guarantees.

A direct comparison of the 24 scenario-based recommendations produced by consensus (outlined in 2006 gastroenterology article) with the PAGE data (looked at in the other 2008 gastroenterology article), resulted in seven recommendations for which there were sufficiently detailed data allowing for accurate evaluation of timeliness of care. With respect to these 7 areas, less than 50% of those referred for gastroenterology consultation received a full evaluation within the target wait times. Wait times were also prolonged relative to the Wait Time Alliance benchmarks. These lengthy wait times are a result of a variety of factors including the shortage of gastroenterologists in Canada relative to other G7 countries. Rather alarming is that of an estimated 550 practicing gastroenterologists, 180 to 200 (or 30%) will reach the age of retirement in the next ten years. At the same time, while it is estimated that the number of practicing gastroenterologists will decline unless there a twofold increase in the number of newly trained gastroenterologists in this period, no plans are in place to deal with the looming Canadian shortage. Add to the mix the fact that from enrolment in medical school until the completion of subspecialty training in gastroenterology is ten years and it becomes clear the manpower shortage is only going to worsen, likely posing barriers to reductions in wait times to a significant degree. While alternative models of care have the potential to shorten wait times to some extent, the time required for implementation coupled with the fact that these are not replacements to gastroenterologists means the effect is not likely to be significant.

While there is no evidence on what the optimum number of gastroenterologists per 100,000 population should be, it is interesting to compare the variance of gastroenterology manpower among different countries. Of the five countries considered in this study, Canada ranked second to lowest with 1.83/100,000 population (compared to 3.90 in the US and 1.41 in the UK). Overall, Canada seemed to have the least variation in the distribution of gastroenterologists, however given the crude methodology used to calculate this, further analysis is required. In order to try to explain the reasons for variation in manpower among the countries in this article, a few ideas were put forth including the suggestion that general surgeons may be taking on a greater gastroenterological workload or that different investments in health among the countries leads to differences in the number of gastroenterologists employed. Further possibilities are outlined to explain the variations including issues of defining a gastroenterologist in the databases used.


Concerns over access to digestive health care services have plagued gastroenterologists for years. While formal data have not been collected, anecdotal evidence suggest that in some parts of the country, patients wait a year for nonurgent endoscopic services. These waits are related to a shortage of human resources as well as limited access to facilities for diagnostic services. As a result of these issues, the Canadian Association of Gastroenterology (CAG) has identified human resource planning as a priority with outlined initiatives. Included in this article is a table of recommended wait times by acuity category (24 hours, 2 weeks, 2 months, 6 months). Comparing the benchmarks agreed upon and presented in this article with actual wait times will identify limitations in access to digestive health care in Canada. A recommendation is made to carefully consider many issues and individuals associated with health care delivery prior to attempting to implement targets as this would only worsen the problems already being faced.

Canadian Association of Gastroenterology, Access to Digestive Health Care in Canada (CAG, 2005).

Gastroenterology resources are difficult to gauge. While a human resource plan for sufficient delivery of gastroenterological (GI) services is valuable, it is difficult to determine what current resources exist and to estimate what future demands there will be. Also complicating the ability of planners to estimate the provision of services is the fact that some GI services are performed by other health professionals. The CAG Human Resource Planning Project was launched in 2004 to address a variety of questions regarding the state of the specialty. Using data on patient referrals it was determined that serious problems exist with access to GI care. When looked at in terms of retirement expectations, even greater concern arises. Assuming that the age of retirement is 65, 18% of GI specialists indicated intention to retire within the next five years and 33% within 10 years; indications of a serious manpower crisis abound. What has been called for is a multi-faceted approach including at least a two-fold increase in gastroenterologists immediately as well as the opportunity to work with key stakeholders, to implement effective strategies. Given that demand is influenced by public education and there has been an increased awareness of colon cancer and its prevention in recent years, the demand for screening services continually escalates.
In the spring of 2007, 39 administrators, family physicians, geriatric psychiatrists, and postgraduate trainees and specialists in geriatric medicine came together to talk about geriatrics and its future in Canada. The poor recruitment into care-of-the-elderly and geriatric medicine training programs, the current unmet needs which continue to worsen and the question over the design of specialty medicine all led to this conference taking place. Since the peak of the number of trainees in geriatric medicine in 1997 (when there were 39) there has been a 50% drop coinciding with a 70% increase in the number of total postgraduate training spots for all specialties. As of 2007 there were a total of 211 specialists in geriatric medicine.

There are numerous reasons why trainees in care-of-the-elderly and geriatric medicine programs have seen their numbers drop over the past decade including increasing medical school debt and the perception that there is nothing unique about the medical care of older patients. The author also pointed out that rotations in geriatric medicine are still not a mandatory requirement for Canadian internal medicine training programs, with the argument that increasing early, ongoing exposure to geriatrics would prove one way to spur interest and combat the decline that is occurring. The conference participants agreed on a variety of recommendations including the establishment of a national body to raise the profile of aging as well as adding other entry routes into geriatric medicine training programs. It is hoped that the initiatives developed will stop the impending shortage from worsening.

The relatively new specialty of geriatric medicine (GM) is the subject of serious concerns given the increase in Canada’s population aged 65 and older occurring at the same time recruitment into the specialty is decreasing. Entrance of trainees into the program has fallen to 4 trainees per year in 2004 compared to 9 per year for the entire decade of the 90s. The decline in interest in the specialty is worrisome and prompted the Geriatric Recruitment Issues Study (GRIST) designed to assess how recruitment into the fairly new field of practice can be improved. With a focus on recruitment, various suggestions arose from the GRIST including: implementation of mentorship programs, coordination of advocacy campaigns, creation of student initiative programs and consideration of reduction in length of GM training. Given the demographic implications of this specialty, improvements are sought on an immediate basis.
Two surveys have assessed the need for gynecologic oncologists in Canada, with the findings outlined in this report on HR needs. As of 2006 it was found that 51 gynecologic oncologists were active in Canada while 71 were needed. The majority of training centres believed that an extra year of training was required and it was found that of all trainees, 57% have remained in Canada. Of 15 reporting centres (out of 16), 11 are recruiting within 5 years and the wide range of responsibilities within the subspecialty became apparent. Since the completion of the first survey, the numbers of gynecologic oncologists increased to 61, however with just 61 members across the country, the retirement of even one has a significant impact on the provision of care. This, along with the need for two to three years of additional postgraduate education following specialty training means that trainees are not joining fast enough. The specialty has come up with initiatives that will hopefully make the subspecialty more attractive.

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**INTERNAL MEDICINE**

Canadian Society of Internal Medicine, *Care-Fully: Defining a Plan for General Internal Medicine in Canada* (Ottawa: CSIM, 2005).

Over the past three decades there has been a continual decline occurring in the number of physicians choosing general internal medicine (GIM) careers, despite the growing need for their services. One of the main concerns outlined in the report is that if the trend of fewer residents choosing internal medicine continues, an immediate, severe shortage of GIM specialists will result with adverse effects. The need for increased support for recruitment, training and retention is mentioned and recommendations are made to the Royal College of Physicians and Surgeons of Canada, medical school faculty, and hospitals, health authorities, provincial medical organizations and governments regarding changes to training, delivery of care and remuneration.


According to Dr. Coke’s article on defining the need and importance of generalist care, general internists play an essential role in the health care system. In fact, GIM specialists are well suited to consultant work outside of major referral centres, including rural/remote settings or smaller community hospitals, encouraging health care planners to recommend an increase in their numbers. Estimates show that there are approximately 2400 medical specialists in Canada currently practicing as either community or university-based general internists. Assuming they retire at the age of 70 like most other physicians, between 60-100 new recruits will be required per year over the next five years as a means to retain the current numbers. Given that the number of residents choosing to complete GIM training has fallen in Canada over the past four years from 60 to fewer than 20 per year (representing less than 10% of all medical residents), a crisis looms. Compounding the issue is the aging physician workforce as well as Canada’s aging population. The anticipated increase in demand for services coupled with increasing retirements lead to concerns over impending shortages of medical specialists.
**NEUROLOGY**


The manpower survey of neurologists conducted in 2002 provided the Canadian Neurological Society (CNS) a good overview of their specialists including their demographics, distribution, interests, working conditions, satisfaction and future plans. It was learned that: older neurologists are more satisfied, those in their 40s and 50s report the most work hours, few neurologists see improvements to the quality of care within the discipline, 20% are older than 60, and academic neurologists are considerably more satisfied than those community neurologists. Further, up to 20% of neurologists indicated intention to retire within 5 years following the survey and another 15% intended to reduce practice. This comes at a time when issues of access are cause for concern, with patients’ access to neurological care being variable and the neurologists’ access to services including MRIs quite poor. The CMA Physician Resource Evaluation Template (PRET) was used to project future supply and assess possible scenarios. Major efforts to retain existing expertise and augment residency training are needed to maintain the present quality of care. While neurological research is continually expanding, the necessary workforce to sustain neurological care in the near future is increasingly more difficult to come by, leaving the state of neurology in a predicament.

**NEUROSURGERY**


In the case of neurosurgery, young trainees are having difficulties finding employment in Canada. This coupled with recent restrictions in US certification has led to concerns that there will soon be a surplus of neurosurgeons graduating. Although 14.6 residents/year are being trained, only 6.5/year are required to maintain existing neurosurgical workforce. This supports the concerns of imminent employment crisis for the young neurosurgeons with more than 2 times the required number of residents/year being trained. The shortfall of staff positions comes at a time when the specialty may be under-servicing Canada’s population. What all of these facts bring to the fore is the need for more cohesive workforce planning in Canada and in particular appropriate balance between training and needs being ensured.

**OBSTETRICS and GYNAECOLOGY**

Les ressources humaines en santé dans le domaine des soins obstétricaux d’urgence intrapartum (SOGC, 2008) - Résumé analytique

The HHR Project of the Society of Obstetricians and Gynaecologists of Canada looks to close gaps in health human resources data by gathering national data. Surveys of practicing obstetricians and residents provided SOGC with a current, national understanding of HHR issues affecting the specialty. Of approximately 1370 obstetricians providing intrapartum care, 406 are in 53 teaching hospitals in major urban centres while 964 provide care in the remaining 300 hospitals across Canada that do obstetrics. Distribution is clearly already an issue and likely to become a bigger one.

With the majority of residents planning to practice in 4 provinces (AB, BC, ON, QC), within major urban centres where there is a possibility of job-sharing and fewer on-call requirements, challenges can already be seen for future HHR planning. Even though 413 Ob/Gyn residents may at first seem satisfactory to address forecasted retirements, given that not all of these trainees will pursue active practice and that demographics of both the women having children and the specialists providing care are changing, the specialty could enter into a state of crisis in very little time. Projections commissioned by SOGC help to illustrate this point, demonstrating that if each Ob/Gyn delivered 150 babies per year, the projected shortfall between need and supply would be 856 doctors. The solution to this impending shortage lies not only in hospitals but in the education system and SOGC has therefore recommended ministers of health and education meet on this issue. They also propose increases in the number of Ob/Gyn resident positions as well as teachers and researchers be made in the near future.

1999 Society of Obstetricians and Gynaecologists of Canada Study

Studies have been conducted regarding manpower issues in obstetrics/gynaecology. Some issues affecting the specialty in particular include the level of on-call responsibility (making critical mass issues very important) as well as increasing teaching responsibilities which lead to fewer obstetricians/ gynaecologists performing deliveries. There are not many obstetrical models in place, however recommendations exist regarding their implementation: urban models would need to differ from rural and models would need to mix primary care physicians, midwives and obstetricians.

The specialty is facing an HR crisis. Despite the falling birthrate, obstetricians/ gynaecologists can nevertheless barely keep up with demand for services. Cited as the number one factor contributing to the manpower problem is the stress of obstetrical call. Due to the inevitability of deliveries in the night, those seeking better work-life balance are scared away. These factors (call and demand for service) were evident in NPS 2004 data which showed that 18.6% of obstetricians/ gynaecologists were planning to reduce their non on-call work hours and 13.4% were planning to cut back on-call availability. The burnout being experienced by these specialists is limiting their scope of practice and driving them to retire early.

ONCOLOGY

The Canadian Strategy for Cancer Control (CSCC) is a multi-stakeholder group of the leading cancer organizations which has a goal of reducing the number of Canadians diagnosed with cancer, enhancing the quality of life for cancer patients and lessening the likelihood of dying from the illness. With action and better positioning of resources, over the next 30 years, over one million Canadians could be prevented from developing cancer and the lives of over 400,000 Canadians could be saved. The problem is that Canada is facing a cancer crisis: the numbers of diagnoses are rising because of the aging population, which places enormous demands on the health system in place.

Presently there is no one organization in charge of coordinating cancer care, yet with the CSCC, there are goals of achieving a pan-Canadian approach that would better our chances of avoiding the cancer crisis Canada is facing currently. By putting together Action Groups, networks of experts can reduce the burden of cancer on our health care system by allowing knowledge transfer, providing an integrated cancer strategy and making the system more effectively and efficiently diagnose and treat patients. A set of strategic priority areas which include encouraging cancer research and supporting the cancer workforce have been laid out. A lack of human resources has certainly been identified as a potential threat to cancer control efforts in Canada with shortages in the workforce limiting the ability of the health care system to care for patients. The Action Group established to deal with this problem examines the nature and extent of the human resource crisis, addresses recruitment and retention issues and makes predictions regarding supply. This effort coupled with the others CSCC has put forward are part of the decisive action required to ensure a crisis point is not reached.

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**OPHTHALMOLOGY**


The CMA Physician Resource Evaluation Template (PRET) was used to project the supply of ophthalmologists up to 2016. A “status quo” scenario indicates that the supply of ophthalmologists will be inadequate in the future. Expanding Canadian residency programs to their maximum capacity will maintain the current national ophthalmologist-to-population ratio but will still not be enough to meet the demands for ophthalmology services because of the shift in demographics as baby boomers age.

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**ORTHOPAEDIC SURGERY**


The Canadian population is under-serviced with regards to orthopaedic services, to the point that orthopaedic consultation and surgery is the longest wait of any surgical specialty. Aside from resource restrictions such as operating room time, there is also the workforce to be considered. While it is evident that more orthopaedic surgeons are needed, the current workforce could be used more efficiently. What is seen is that 1/3 of the current workforce’s time is being used on...
operating and 2/3 of their time is spent providing services which could be provided by less expensive health care providers. In the attempt to sustain the workforce, improvements to resource capability would positively affect retention. Other strategies proposed include more elective operating resources, better use of existing resources, bringing more trained surgeons into Canada and adding more training positions as soon as possible. The Canadian Orthopaedic Association in collaboration with the CMA will help refine workforce projections model.

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**PAEDIATRICS**


Published in 2001 following a national survey of Canada’s paediatricians, conducted in 1999 and 2000, the Canadian Paediatric Society’s (CPS) report on human resource planning outlines the problems affecting the specialty which tend to mirror the problems of the medical workforce as a whole. Children’s health care is at risk of deteriorating due to pending shortages of paediatric specialists. As with other specialties, a large proportion of the older specialists indicated plans to retire, hours of work were noted as having increased, and greater proportions of females were noted as joining the specialty, some in part-time capacity. Conclusions drawn in the report include the addressing of recruitment and retention issues as well as the need for more integrated health planning based on the changing needs of Canada’s children.

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**PLASTIC SURGERY**


In addition to health care policies, physician migration increases coupled with early retirement have decreased the number of available physicians over the past 20 years. This decrease affects physicians with respect to workload, and patients in their ability to access care. Plastic surgery is not immune to any of these issues. A three-part study was undertaken which involved a survey dealing with supply, a survey focused on demographics, workload and future plans, and a consideration of the number of Canadian trainees graduating between 1995 and 2005 who have since left the country. The purpose of the study was to determine if a shortage of plastic surgeons exists and to provide information to governments and training programs to help develop a sustainable workforce. The study indicated that most plastic surgeons feel there are not enough plastic surgeons in their communities, that approximately 4 graduates leave the country per year (a 21% emigration rate) and that a large proportion (34%) of the workforce is older than 55. The study was able to determine that there is a shortage of plastic surgeons, and data from the National Physician Survey was used to corroborate findings of the study regarding the state of the specialty. In order to maintain the current, inadequate plastic surgeon-to-population ratio of 1 per 72,000 for the year 2010, a 50% increase in the number of plastic surgeon trainees is needed, assuming all graduates stay in Canada. The study developed several recommendations for how to deal with shortages affecting the specialty including: implementation of retention bonuses,
incorporation of mandatory rural electives and workforce studies that evaluate quality of care according to a standardized set of outcome measures in order to draw international comparisons. Serious concerns with the number of current as well as projected plastic surgeons are raised through this study.

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**RADIOLOGY**


A Canadian Association of Radiologists (CAR) human resources survey concluded that diagnostic radiologists are burdened with a workload far in excess of the government’s recommendation and the situation will worsen unless the number of graduates is raised immediately. A number of predictions were made regarding the potential need for human resources. Early retirement was cited as a likely occurrence for 30-40 radiologists at the time of the study. Also, with the growing percent of females working in the profession, by the year 2010 it is expected the radiologist workforce in Canada will be 50% male, 50% female. Concerns also arise given the choice of younger doctors to typically work fewer hours, citing quality of life as the reason. Fuelled by concerns and predictions such as these, recommendations include increasing residency positions in Canada, offering more flexibility in career choices for medical students, increasing re-entry positions in radiology, providing temporary accommodation and facilitation for greater numbers of IMGs and creating retention and repatriation programs.

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**RHEUMATOLOGY**


With an aim to study physician resources as well as postgraduate training program output, a five-year study beginning in 1998 was conducted. A database was developed which monitored physician resources, recruitment and residents pursuing training in rheumatology. What was seen in the five-year period was that while there was a small increase in the number of rheumatologists (mostly as a result of changes to full-time staff) and that time allocation remained constant, there were a number of unfilled staff positions (between 18 and 25 per year). This coupled with a decline in the number of trainees in adult and pediatric rheumatology led in part to the conclusion that physician resources in academic units are inadequate to ensure required delivery of clinical service.


Using the database established by the Canadian Council of Academic Rheumatologists (CCAR), trends were monitored annually regarding manpower and recruitment in 15 academic rheumatology units. In the three-year study while there was an increase in the number of rheumatologists there were also a number (21) of unfilled positions across 12 centres. Barriers to recruitment are cited as financial resources, lack of suitable applicants and physician resources.
In the three-year study, the number of trainees fell as did the number of active training programs (from 12 to 11). Considering recruitment, anticipated changes in population growth and increases in the prevalence of rheumatic disease, an estimated shortfall in rheumatologists required by 2026 was pegged at 64%.

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