

# Physician Resources and Postgraduate Training in Canadian Academic Rheumatology Centers: A 5-Year Prospective Study

JOHN G. HANLY, for the Canadian Council of Academic Rheumatologists

**ABSTRACT.** *Objective.* To describe the trends in physician resources, changes in activity profiles, and the output of the postgraduate training programs in Canadian academic rheumatology centers from 1998-2002. *Methods.* In 1998, the Canadian Council of Academic Rheumatologists (CCAR) established a prospective database to monitor physician resources, activity profiles, and recruitment within 15 academic rheumatology units in Canada. Information was also collected on residents pursuing subspecialty training in rheumatology. *Results.* Over the 5 year period there was an increase in the number of rheumatologists from 157 to 168. The majority of this increase (91%) was attributable to changes in full-time staff. The mean age of rheumatologists increased from 47.9 to 48.9 years over the same period and the ratio of male to female rheumatologists decreased incrementally from 2.5:1 to 1.9:1. The overall allocation of time for clinical care (54-53%), teaching (17-16%), research (21-23%), and administration (7%) remained stable over time. Unfilled staff positions varied between 18-25 per year and were spread between 9-12 centers. The number of trainees in adult and pediatric rheumatology fell incrementally from 38 to 22 over the first 4 years of the study, with an increase to 30 in 2002. The majority of trainees were located at 2 centers and the number of active training programs varied between 6 and 12 per year. Funding for clinical fellowship training was provided by government (27-51%), the Arthritis Society (21-33%), and alternative sources (23-40%). *Conclusion.* These results indicate that rheumatology physician resources within Canadian academic units are inadequate to fulfill responsibilities in the delivery of clinical service and academic programs. Enrollment in rheumatology training programs is falling and is insufficient to meet the present and future needs for patients with rheumatic diseases in Canada. (J Rheumatol 2004;31:1200-5)

*Key Indexing Terms:*  
CANADA

RHEUMATOLOGY

PHYSICIAN RESOURCES

From the Canadian Council of Academic Rheumatologists and Dalhousie University, Halifax, Canada.

Supported by The Arthritis Society of Canada.

J.G. Hanly, MD, MRCPI, FRCPC, Professor of Medicine, Dalhousie University; Head, Division of Rheumatology and Director, Arthritis Centre of Nova Scotia, Queen Elizabeth Health Sciences Center. The Canadian Council of Academic Rheumatologists: John M. Esdaile, MD, University of British Columbia, Vancouver, BC; Anthony Russell, MD, University of Alberta, Edmonton; Liam Martin, MD, University of Calgary, Calgary, Alberta; John Sibley, MD, University of Saskatchewan, Saskatoon, Saskatchewan; Hani El-Gabalawy, MD, University of Manitoba, Winnipeg, Manitoba; Nicole Le Riche, MD, University of Western Ontario, London; Jonathan Adachi, MD, McMaster University, Hamilton; Robert Inman, MD, University of Toronto; Rayfel Schneider, MD, Pediatric Rheumatology Representative, University of Toronto; Denis Morrice, President and CEO, The Arthritis Society, Toronto; Tassos Anastassiades, MD, Queen's University, Kingston; Gunnar Kraag, MD, University of Ottawa, Ottawa, Ontario; Henri Menard, MD, McGill University; Jean-Pierre Pelletier, MD, University of Montreal, Montreal; Gilles Boire, MD, University of Sherbrooke, Sherbrooke, Quebec; John Hanly, MD, Dalhousie University, Halifax, NS; Catherine Alderdice, MD, Memorial University, St. John's, Newfoundland, Canada.

Address reprint requests to Dr. J.G. Hanly, Arthritis Center of Nova Scotia, Queen Elizabeth II Health Sciences Center (Nova Scotia Rehabilitation site), 2nd Floor, 1341 Summer Street, Halifax, Canada, B3H 4K4.

Submitted September 5, 2003; revision accepted December 30, 2003.

There are 16 academic rheumatology units in Canada, each of which is strategically aligned with a Canadian medical school. This network of Arthritis Centers (formerly Rheumatic Disease Units) was established in 1976 and has been the primary source for scholarly activity in research and medical education. It has also been the backbone for coordinating care delivery to patients with rheumatic diseases and acted as an incubator to meet the future rheumatology needs in both the academic units and in community rheumatology practice.

The Canadian Council of Academic Rheumatologists (CCAR) consists of the Heads of each of the 16 academic rheumatology units across Canada with independent representation from pediatric rheumatology and The Arthritis Society of Canada. In 2001, CCAR reviewed physician resources in Canadian academic rheumatology units and raised concerns about current and future staffing levels<sup>1</sup>. This report provides an update on resources and activities within the academic units by examining the trends in a variety of indicators over a 5-year period. The results indicate that over that time the cohort of physicians within

Canadian academic rheumatology units remained relatively static in size, was ageing, and had an increasing representation of women. A particular concern was the fall in recruitment into rheumatology training programs, which may be inadequate to support the longterm needs of the academic units and community practice.

## MATERIALS AND METHODS

**Participants.** A database was established in July 1998 to gather information annually on physician resources, activity profiles, and recruitment within academic rheumatology units in Canada. Fifteen of the 16 units participated (University of British Columbia, University of Alberta, University of Calgary, University of Saskatchewan, University of Manitoba, University of Western Ontario, McMaster University, University of Toronto, Queen's University, University of Ottawa, McGill University, University of Montreal, University of Sherbrooke, Dalhousie University, and Memorial University).

**Data collection.** Data were collected in 3 main areas. (1) Age and gender of academic faculty and whether individuals had primary responsibility for adult or pediatric rheumatology: the proportion of an individual's professional time spent within the academic unit was defined as the full-time equivalent (FTE) and the allocation of each individual's time for clinical care activities, teaching (undergraduate or postgraduate), research (clinical or basic science), and administrative activities was recorded. (2) Vacant positions within the academic units at the time of data collection: this included identification of whether primary responsibility was for adult or pediatric rheumatology, the FTE allotment within the academic unit, and the allocation of time to clinical care activities, teaching, research, and administration. Potential barriers to recruitment were also sought, in particular with regard to the suitability of applicants, the lack of financial resources, and lack of physical resources. (3) Rheumatology trainees within the academic units: this included age, gender, whether they were training primarily in adult or pediatric rheumatology, the year of fellowship training within a 2-year program, and the trainee's source of funding. Following

completion of the 2-year clinical fellowship, data were collected on whether individual trainees pursued additional training in clinical care, basic science, or clinical research. Upon acquiring an attending staff appointment, it was determined whether this occurred within Canada and whether the appointment was primarily within an academic unit or in full-time community practice. The information was entered into a database written in Microsoft Access and summary reports were generated. The data were analyzed in Microsoft Excel.

## RESULTS

Over the 5-year period there was an increase in the total number of rheumatologists from 157 (mean FTE 76%) to 168 (mean FTE 78%). The number of adult rheumatologists increased from 137 to 144 with an increase in pediatric rheumatologists from 20 to 24 (Figure 1). The majority of this increase (91%) was attributable to changes in full-time staff within the academic units. The overall allocation of time for clinical care (54-53%), teaching (17-16%), research (21-23%), and administration (7%) remained stable over time. The mean age of rheumatologists increased incrementally from 47.9 to 48.9 years over the same period while the ratio of male to female rheumatologists decreased incrementally from 2.5:1 to 1.9:1 (Figure 2). The number of unfilled staff positions showed a downward trend and varied between 18-25 per year, spread between 9-12 centers (Figure 3). In each of the 5 years the most frequently cited barrier to recruitment was a lack of suitable applicants, with a lack of financial resources and a lack of physical resources being less common.

Although 14 of the 15 centers had programs accredited by the Royal College of Physicians and Surgeons of Canada

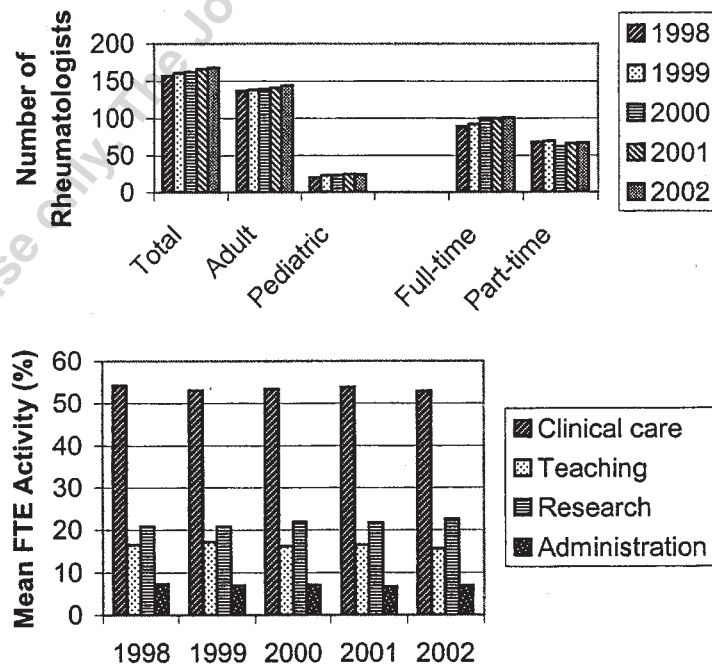


Figure 1. Change in the total number, adult, and pediatric rheumatologists in Canadian academic rheumatology centers between 1998 and 2002.

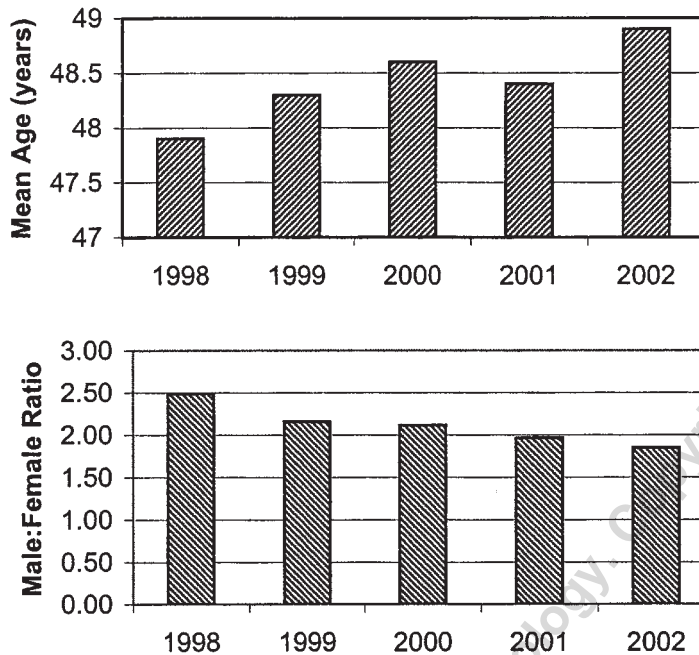


Figure 2. Change in gender ratio among adult and pediatric rheumatologists in Canadian academic rheumatology centers between 1998 and 2002.

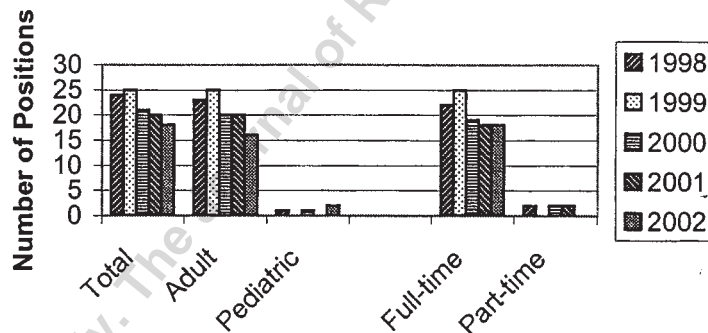


Figure 3. The number of unfilled rheumatology staff positions in Canadian academic rheumatology centers between 1998 and 2002. The majority of vacancies were full-time positions for adult rheumatologists.

for postgraduate training in rheumatology, the majority of trainees were located at 2 centers and the number of active programs (i.e. with trainees) varied between 6 and 12 per year (Figure 4). The mean age of trainees was 30-33 years with equal gender representation. The overall number of trainees fell incrementally from 38 to 22 over the first 4 years of the study, with an increase to 30 in 2002 (Figure 5A). Funding for clinical fellowship training was provided by government (27-51%), the Arthritis Society (21-33%), and alternative sources (23-40%) (Figure 5B). The source of funding for trainees changed over the study period. There was a fall in government funding, a decline in Arthritis Society funding except for 2002, and stable funding from alternative sources. Some of the apparent fall in funding is

attributable to a reduction in application pressure, as the number of physicians seeking subspecialty training in rheumatology has declined. Following core clinical rheumatology training, the pursuit of additional clinical or research skills was progressively less frequent (Figure 6A). This is in large part a direct consequence of the decline in the number of core rheumatology trainees. Likewise the number of trainees taking up staff positions in academic units or in the community within Canada fell over time and varied between 8-14 per year (Figure 6B).

## DISCUSSION

In view of the high prevalence of rheumatic diseases, their anticipated increase over the next 3 decades<sup>2</sup>, and the

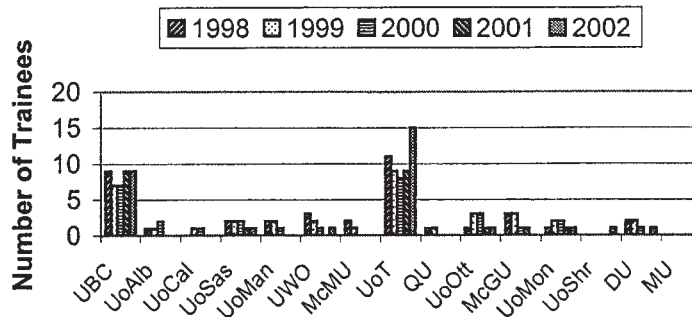


Figure 4. The number of trainees in accredited Canadian rheumatology training programs between 1998 and 2002. From left to right: University of British Columbia; University of Alberta; University of Calgary; University of Saskatchewan; University of Manitoba; University of Western Ontario; McMaster University; University of Toronto; Queen's University; University of Ottawa; McGill University; University of Montreal; University of Sherbrooke; Dalhousie University; Memorial University.

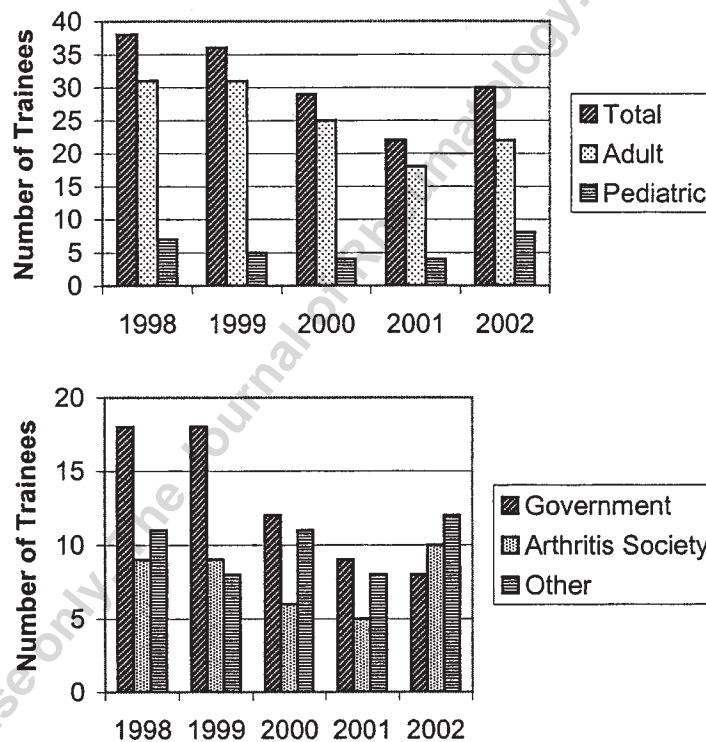


Figure 5. Change in the total number, adult, and pediatric rheumatology trainees (Top) and their source of funding (Bottom) in Canadian rheumatology training programs between 1998 and 2002.

increasing complexity of diagnostic and therapeutic options, there is concern that the number of Canadian health care providers, in particular rheumatologists, may not be adequate to address the clinical need. Although a great deal of arthritis care is provided by community based rheumatologists, the majority of rheumatologists in Canada hold full-time or part-time appointments within the academic Arthritis Centers. Historically, this network has provided

specialist clinical care to patients with rheumatic diseases in addition to training future generations of rheumatologists, the vast majority of whom establish their medical practice in Canada. The current study provides a 5-year report card on physician resources and selected activities in 15 of the 16 Canadian academic Arthritis Centers. The results indicate a modest increase in rheumatology physician resources over this time and a change in the demographic makeup of the

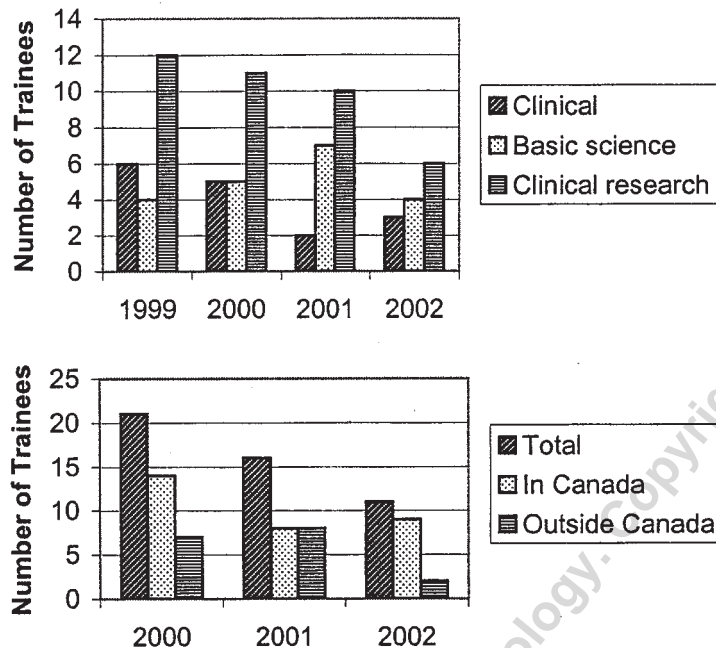


Figure 6. The career path of trainees following completion of core rheumatology training: (Top) change in the pursuit of additional clinical and research training between 1999 and 2002; (Bottom) change in the number of trainees taking up staff positions within and outside Canada between 2000 and 2002.

national academic rheumatology cohort but a reduction in the number of resident physicians entering this field of subspecialization.

Concern about inadequate numbers of rheumatologists is not restricted to Canada. For example, in the United States (US) there has been a decline in the number of residents pursuing training in rheumatology over the past decade, and the American College of Rheumatology has predicted a 20% decrease in the number of rheumatologists in the US between 2016 and 2026<sup>3</sup>. The mean age of American rheumatologists is 51 years and is one of the highest among the clinical specialists. In the United Kingdom, although there has been a favorable change in the number of rheumatologists per capita from one per 192,000 people in 1997 to one per 164,000 in 2001, this is still well short of the recommendation by the British Society for Rheumatology for one rheumatologist per 85,000 population<sup>4</sup>. Models have also been developed to predict the number of rheumatologists required in Canada both within the academic centers and in community practice<sup>1</sup>. Our results indicate a current shortfall of 17 rheumatologists within the academic centers across the country. This deficit is partly mitigated by the fact that physicians are continuing to work beyond the conventional retirement age of 65 years, but the shortfall will likely be exacerbated in years to come by the decline in enrollment in rheumatology residency training programs.

A solution to the shortfall in rheumatology physician resources in Canada will involve training more rheumatolo-

gists. In light of this, the 5-year data on the status of post-graduate training programs are somewhat disquieting. Instead of increased enrollment, the number of medical residents selecting rheumatology for subspecialty training fell progressively in 4 of the 5 years. The increase in the number of trainees in 2002 compared to the previous year is in part attributable to a higher proportion of foreign-funded trainees, the majority of whom will return to their country of origin upon completion of their training. The equal gender distribution of trainees is gradually being reflected in the cohort of rheumatologists within the academic centers which will also impact negatively upon available physician resources as many female physicians must deal with conflicting demands on their time. The dominance of 2 of the 14 accredited rheumatology training programs also has potentially negative implications for the survival of smaller programs and the eventual regional distribution of rheumatologists as it is well-recognized that physicians tend to remain in the geographic area in which they train.

The reasons for the relative shortfall in rheumatologists in Canada are not unique and have been well documented in the past<sup>1</sup>. The explanation may be traced to an initiative in the early 1990s to substantially curtail medical school enrollment across Canada, changes in immigration policy, graying of the physician population, increased proportion of female physicians, lack of funding for academic centers, and uncompetitive financial compensation for clinical services delivered by all cognitive specialties, including rheuma-

tology. Fortunately, there is increasing evidence that positive steps are being taken to address these issues. Enrollment has been increased in all medical schools across Canada in recent years. The Arthritis Society of Canada has played a leadership role by increasing its support for clinical fellowship training and partnering with other sponsors to provide 10 Clinician-Teacher personnel awards that will enhance the profile of rheumatology within undergraduate and postgraduate medical school curricula. Three of the 16 rheumatology academic centers have fundamentally changed their funding models by switching from a fee-for-service to global funding which is more equitable across specialties and more supportive of teaching and other scholarly activities. There has also been substantial change in the ways in which rheumatologic care is delivered, through a greater utilization of outpatient clinics, more formal triage of referrals to identify the most needy cases, and use of physician extenders. Further work in all of these areas will be required if

Canadian rheumatologists are to continue to provide a reasonable level of care to the increasing numbers of patients for whom they are responsible and to avert a potential crisis in the delivery of subspecialty care to patients with rheumatic diseases over the next 2 decades.

#### REFERENCES

1. Hanly JG. Manpower in Canadian academic rheumatology units: current status and future trends. *J Rheumatol* 2001;28:1944-51.
2. Badley EM, Wang PP. Arthritis and the aging population: projections of arthritis prevalence in Canada 1991 to 2031. *J Rheumatol* 1998;25:138-44.
3. Pincus T, Gibofsky A, Weinblatt M. Urgent care and tight control of rheumatoid arthritis as in diabetes and hypertension: better treatments but a shortage of rheumatologists. *Arthritis Rheum* 2002;46:851-4.
4. Turner G, Symmons D, Bamji A, Palferman T. Consultant rheumatology workforce in the UK: changing patterns of provision 1997-2001. *Rheumatology* 2002;41:680-4.

Personal non-commercial use only. The Journal of Rheumatology. Copyright © 2004. All rights reserved