

Career and training patterns of students entering Canadian medical schools in 1965

NORALOU P. ROOS, PH D; DAVID G. FISH, PH D

Summary: This paper follows the careers of the 1128 students who entered Canadian medical schools in 1965, most of whom graduated in 1969. The type of career pursued (whether general or specialty practice or some combination thereof), the type of specialty undertaken, the place of internship and residency training and the 1973 practice location of the graduates are examined. The wide variation in careers followed by the 12 schools' graduates provides the major focus of the paper.

Résumé: La carrière et la formation des étudiants qui sont entrés dans les écoles de médecine canadiennes en 1965

Cet article a pour but de suivre les carrières de 1128 étudiants qui sont entrés dans les écoles de médecine canadiennes en 1965 et qui, pour la plupart, ont reçu leur diplôme en 1969. On y examine le genre de carrière poursuivie (médecine générale ou pratique d'une spécialité, ou quelque combinaison des deux), le genre de spécialité choisie, l'endroit où se sont tenus l'internat et la formation comme résidents et, finalement, l'endroit où les diplômés ont exercé en 1973. Les grandes différences dans les carrières suivies

par les diplômés des 12 écoles forment le sujet principal de l'article.

Most medical schools have an interest in the subsequent careers of their alumni but many do not systematically obtain such information. It is not surprising, therefore, that in examining the problems of physician supply and distribution it is difficult to obtain reliable, complete and comparable data on the careers of the graduates of Canadian medical schools. This, of course, has not prevented the generation of beliefs (whether founded on fact or fantasy) that school A produces teachers for other schools, school B produces largely general practitioners, while school C generates more than its share of orthopedic surgeons and neurologists.

Much of the basic data necessary for describing the careers of Canadian graduates is available in the "Canadian Medical Directory". The "Canada Health Manpower Inventory", published by Health and Welfare Canada, has produced valuable tabulations, based on the directory, of the supply of physicians by province, type of practice, specialty, university and year of graduation. However, the directory sometimes loses track of physicians, particularly when they leave the country, and it has only limited information on internship and residency training patterns. Therefore, though the directory can be used to generate a description of how physicians are distributed across Canada at a given point in time it cannot describe the route by which they got there. For this reason the data reported in this paper will be of special interest to medical educators and to health manpower planners. Specifically it addresses the question "What are the

career patterns of the 1128 students who entered Canadian medical schools in 1965, most of whom graduated in 1969?" This paper reports on the careers of these physicians between 1969 and 1973 and, in particular, answers the questions "Where did the physicians follow their careers?" and "What patterns of practice did they choose?"

Data collection

Several methods of data collection were used. Published sources such as the "Canadian Medical Directory" and the registries of the provincial colleges of physicians and surgeons were consulted, and the medical faculties, the provincial colleges, the American Medical Association and Medical Marketing Systems, Inc. provided information from their files. Finally, the graduates themselves were asked to complete a mailed questionnaire.*

Results from the data-gathering efforts were quite complete. Internship information was available for almost all graduates (1006 out of 1014) and we were able to track the subsequent careers of all but 3% of the entering group.† It was found that 114 (10.1%) of the entering students did not graduate, 1 person was not practising in 1973, and 6 graduates were deceased. These groups have been excluded from further analysis in this paper.

From the department of social and preventive medicine, University of Manitoba, Winnipeg
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Reprint requests to: Dr. N. P. Roos, Dept. of social and preventive medicine, University of Manitoba, 753 McDermot Ave., Winnipeg, Man. R3E 0W3

*The exhaustiveness of this effort meant that frequently the same information would be obtained from two or more sources. Sometimes the sources were complementary; if a questionnaire was not returned the individual could be tracked through the AMA or the medical faculty. It was also possible to assess the reliability and completeness of information from different sources.

†Our data were complete for the graduates of six schools. They were least complete for McGill graduates, for 18% of whom we obtained only partial career histories.

Table I—Career patterns of physicians, 1970-1973

Career pattern	Faculty entered in 1965												All graduates %
	BC %	Alta. %	Sask. %	Man. %	UWO %	Tor. %	Qué. %	Ott. %	McG. %	Mon. %	Lav. %	Dal. %	
Family medicine only	2	6	0	2	7	3	9	6	4	0	0	0	3
General practice only	42	26	26	24	38	41	15	22	13	33	52	64	34
Left residency training for general practice (Total in primary contact practice)	13 (57)	16 (48)	16 (42)	8 (34)	9 (54)	10 (54)	22 (46)	19 (47)	8 (25)	7 (40)	3 (55)	4 (68)	10 (47)
Left general practice for residency training	9	18	5	18	3	5	3	5	7	3	3	18	8
Residency training only (Total in residency training)	35 (44)	35 (53)	54 (59)	49 (67)	44 (47)	40 (45)	51 (54)	49 (54)	69 (76)	57 (60)	43 (46)	15 (33)	45 (53)
Total no.	55	89	43	66	71	152	59	64	104	104	115	68	991

Career patterns

Table I summarizes the major career patterns of students entering Canadian medical schools in 1965. Thirty-seven percent of graduates entered and have remained in general practice or family medicine.† Ten percent first entered a residency program (in a specialty) but subsequently left for general practice. Eight percent left general practice for a specialty residency program (other than family medicine) and 45% have been engaged exclusively in residency training since leaving medical school.

The patterns, however, vary considerably from faculty to faculty. Dalhousie and Laval graduates are most likely to enter general practice directly following internship and to remain in this career. If the students who enter family medicine are added to those who

†Physicians were classified as practising family medicine only if they had completed a residency program in family medicine.

leave residency training for general practice the number of schools with more than half of their graduates in primary contact practice rises to five: British Columbia, Western Ontario, Toronto, Laval and Dalhousie. In contrast, over two thirds of McGill and Manitoba graduates either immediately pursue residency programs or leave general practice to begin residency training.

Careers pursued in 1973

Table II presents a detailed breakdown of the professional activities of each faculty's graduates in 1973. In addition to the general differences in career patterns, graduates of different faculties vary considerably in the type of specialties chosen for residency training. For example, 37% of Saskatchewan's graduates enter surgical specialties but only 12% of Dalhousie's do so.

Place of internship

Table III categorizes each school's graduates according to whether they interned in a hospital affiliated with their own medical faculty[§] or elsewhere. All Dalhousie graduates interned in the Maritimes as an integral part of the program leading to the MD degree. Graduates of the Université de Montréal (94%) and the University of Toronto (88%) tended to intern at hospitals affiliated with their respective schools. However, many of those graduating from British Columbia and Saskatchewan left their home provinces, frequently for internships in the United States.

§Affiliated hospitals were those designated as such in "Graduate Training Programmes approved by the Royal College of Physicians and Surgeons of Canada, as at July 1, 1969", reprinted from the *Annals of the Royal College of Physicians and Surgeons of Canada* (1: 212, 1969).

Table II—Physicians' activities in 1973

Activity	Faculty entered in 1965												All graduates %
	BC %	Alta. %	Sask. %	Man. %	UWO %	Tor. %	Qué. %	Ott. %	McG. %	Mon. %	Lav. %	Dal. %	
General Practice (%)	49	30	42	30	44	47	27	32	20	35	54	61	40
Family medicine	2	6	0	2	7	4	10	8	4	0	0	0	3
Other (CFB, casualty officer)	6	11	0	3	3	2	9	6	0	4	1	8	4
(Total in primary contact practice)	(57)	(47)	(42)	(35)	(54)	(53)	(46)	(46)	(24)	(39)	(55)	(69)	(47)
<i>Basic science</i>													
Research or training	0	0	0	0	0	1	0	2	1	0	1	0	0
Paraclinical sciences*	2	6	5	2	0	0	5	2	2	1	1	2	2
<i>Medical specialties*</i>													
Internal medicine	4	5	2	6	6	8	2	5	11	9	4	8	6
Hematology	2	0	0	3	1	1	0	2	0	2	0	0	1
Cardiology	2	0	2	3	1	0	0	0	3	1	3	0	1
Endocrinology	0	0	0	0	1	0	0	2	0	0	1	2	0
Gastroenterology	0	0	0	5	0	1	2	0	2	0	1	0	1
Nephrology	0	0	0	0	0	0	2	1	1	1	0	2	0
Respiratory diseases	0	0	0	0	0	1	0	2	4	0	0	0	1
Rheumatology	0	0	0	2	0	1	0	0	2	0	1	0	1
(Medical subtotal)	(8)	(5)	(4)	(19)	(9)	(12)	(4)	(13)	(23)	(13)	(10)	(12)	(11)
Public health	0	0	0	0	0	1	0	2	2	0	0	0	1
Physical medicine and rehabilitation	0	0	0	0	0	0	0	0	0	2	4	0	1
Psychiatry	7	2	0	8	6	7	12	6	7	8	5	5	6
Pediatrics	6	1	0	9	3	2	9	0	6	7	2	3	4
Radiology	5	2	7	8	0	3	0	6	5	8	4	2	4
Neurology	2	0	5	3	0	0	0	0	2	1	2	0	1
Dermatology	0	2	0	2	1	0	2	3	0	3	1	0	1
<i>Surgical specialties*</i>													
General surgery	0	7	2	3	4	3	2	11	7	8	4	3	5
Otolaryngology	0	1	2	2	3	1	2	0	1	0	1	2	1
Plastic surgery	0	1	5	0	0	3	2	0	0	1	1	0	1
Urology	0	3	0	0	1	3	2	0	1	0	0	0	1
Neurosurgery	0	1	0	0	1	2	0	0	1	0	0	0	1
Anesthesia	4	5	5	8	1	2	3	2	4	6	4	0	3
Orthopedic surgery	2	5	12	3	3	3	3	5	8	1	4	3	4
Obstetrics and gynecology	2	3	9	2	9	4	3	2	4	2	3	2	3
Cardiovascular and thoracic surgery	0	1	0	0	0	0	0	2	1	1	1	0	1
Ophthalmology	6	7	2	0	4	1	7	5	3	1	2	2	3
(Surgical Subtotal)	(14)	(34)	(37)	(18)	(26)	(22)	(24)	(25)	(31)	(20)	(20)	(12)	(23)
Hospital administration	2	1	0	0	0	0	0	0	0	1	0	0	0
Total no.	55	89	43	66	71	152	59	65	104	105	114	67	990

*Three or four students had completed their residency programs by the summer of 1973; most others were still in residency training rather than in specialty practice.

Location of residency training

Place of residency training also varies among graduates of the various schools. Table IV shows the province where graduates received the major part of their residency training. This table includes data on those physicians who spent only 1 or 2 years in postgraduate training as well as those who are still in residency training.

As was true for internships, Montréal (100%) and Toronto (82%) graduates were more likely than graduates from other schools to train in their home provinces. Montréal graduates' mobility

may be somewhat limited by language and it will be noted that 78% of Laval graduates also train in Québec. However, Montréal and Toronto graduates may also have had their pick of many attractive residencies in their home cities.

Since residents are an important source of medical services to a province it is important to know not only where a province's own graduates train but also whether the province is gaining the services of as many physicians from other provinces as it is losing when its own graduates leave. Table V describes the aggregate gains and losses

of residents across provinces.

British Columbia clearly held a major attraction for Canadian-trained physicians; the province both retained almost 60% (19 out of 32) of its own graduates who entered residency training and attracted many residents from other provinces. All other provinces were net exporters of residents, with Manitoba, Alberta and Saskatchewan losing 50% or more of their own residents and failing to attract replacements from other provinces. Since physicians do not necessarily set up specialty practice where they have trained Table V cannot be used to deduce these physicians' eventual practice locations.¶ We can, however, examine where graduates who entered general practice have located.

Physicians entering general practice are quite likely to remain in the province where they attended medical school (Table VI). Only four schools lost more than a third of these physicians — Saskatchewan, Manitoba, Ottawa and McGill. Table VII traces the flows of general practitioners across provinces. British Columbia again both holds her own graduates and attracts many physicians from other provinces. Although Alberta lost many residents she retains her general practitioners reasonably well. Manitoba and Saskatchewan remain major exporters of physicians.

Table III—Place of internship

Internship	Faculty entered in 1965												All graduates %
	BC %	Alta. %	Sask. %	Man. %	UWO %	Tor. %	Qué. %	Ott. %	McG. %	Mon. %	Lav. %	Dal. %	
Affiliated hospital	42	57	30	66	40	88	40	38	54	94	69	100	65
Other hospital, home province*	0	20	0	0	17	1	27	13	1	5	30	0	10
Elsewhere in Canada	29	23	23	27	42	9	30	37	22	1	1	0	18
United States	29	0	40	7	1	2	3	13	23	0	0	0	8
Other	0	0	7	0	0	1	0	0	0	0	0	0	0
Total no.	55	93	43	70	72	152	60	63	111	104	115	68	1006

*Home province for Dalhousie students always refers to the four Maritime provinces.

Table IV—Place of majority of residency training*

Residency	Faculty entered in 1965												All graduates %
	BC %	Alta. %	Sask. %	Man. %	UWO %	Tor. %	Qué. %	Ott. %	McG. %	Mon. %	Lav. %	Dal. %	
British Columbia	59	8	3	2	7	0	6	8	6	0	0	4	6
Alberta	3	44	0	2	7	1	4	2	0	0	0	0	6
Saskatchewan	0	2	50	2	2	0	0	0	0	0	0	0	3
Manitoba	3	0	3	44	0	0	4	0	0	0	0	0	4
Ontario	13	18	19	18	66	82	70	56	15	0	9	16	34
Québec	3	11	0	8	9	2	8	20	36	100	78	12	28
Maritimes	0	0	0	0	0	1	0	0	2	0	0	60	3
United States	16	14	25	24	7	11	8	14	40	0	9	4	15
Other country	3	5	0	0	2	2	0	0	1	0	4	4	2
Total no.	32	66	32	50	44	90	50	50	91	70	55	25	655

*Table includes only those students known to have taken residency training. Of the 18 physicians taking residencies in the Maritimes 16 were in Nova Scotia and 2 in Newfoundland.

Table V—Aggregate gains and losses of residents across provinces

	BC	Alta.	Sask.	Man.	Ont.	Qué.	Mari.	US	Other
No. of province's graduates taking residency training	32	66	32	50	234	216	25	—	—
No. of residents remaining in home province for majority of their training	19	29	16	22	166	146	15	—	—
No. of residents attracted from other provinces for majority of their training	23	9	3	4	54	35	3	100	11
Net gain or loss of residents	+10	-28	-13	-24	-14	-35	-7	+100	+11
Percentage gain or loss of residents	+32	-42	-41	-48	-6	-16	-28	—	—

Discussion

This paper highlights both the geographic mobility of Canadian-trained physicians and the contrasting career patterns of different schools' graduates. Both factors affect the distribution of physicians across Canada. Two of the prairie provinces sustain the greatest losses from this mobility: Saskatchewan and Manitoba appear to have lost 50% or more of the medical students they trained and these same provinces have failed to attract physicians from other provinces. The United States and British Columbia are the major beneficiaries of this mobility.

Perhaps climate has something to do with these patterns; Saskatchewan and Manitoba graduates tend to leave prairie winters for internships in southern centres such as Los Angeles. Economic factors may be of some importance since Ontario, with the highest physician earnings in Canada, is successful in keeping many of its graduates and in attracting physicians from other provinces to residency programs. On the other hand, British Columbia's physicians have the lowest earnings in

¶The ongoing research will follow these graduates into other practice settings and the relationship between place of residency and subsequent practice will be reported.

Canada (outside the Yukon and the Northwest Territories) but this province attracted more physicians from the 1965 cohort than did any other province. One thing is clear — the mobility patterns described here document the aggravation rather than the relief of existing uneven patterns of physician distribution in Canada. British Columbia** and Ontario are the provinces with the highest physician : population ratios, yet these provinces continue to gain the most from location decisions of recent graduates of Canadian medical schools.

The contrasting patterns of specialization among graduates of Canadian medical schools are difficult to interpret. Why were McGill graduates five times more likely than Saskatchewan or Queen's graduates to specialize in internal medicine? Why did only 1% of Montréal graduates specialize in orthopedic surgery while 12% of Sas-

**This is true in spite of the fact that output from the University of British Columbia medical school is quite small relative to the province's population.

katchewan's did so?

In an attempt to describe more fully physician manpower patterns in Canada our continuing research is examining (a) career preference and attitudes of students entering medical school, (b) the differing faculty and research patterns at each school, (c) existing distribution of physicians across Canada, (d) existing income patterns of physicians and (e) existing distribution of foreign medical school graduates.

The authors would like to thank the schools and organizations that contributed to the success of this data collection effort. The medical schools, the provincial colleges of physicians and surgeons, American Medical Association and Medical Marketing Systems, Inc. were all most generous in offering time and access to their files. The contribution of Jan Steiner and the division of studies in medical education of the University of Toronto is especially acknowledged. The authors are particularly indebted to the Association of Canadian Medical Colleges for conducting the original research on the career preferences and attitudes of Canadian medical students. ■

Table VI—Location of general practitioners in summer 1973

	Faculty entered in 1965												All graduates %
	BC %	Alta. %	Sask. %	Man. %	UWO %	Tor. %	Qué. %	Ott. %	McG. %	Mon. %	Lav. %	Dal. %	
British Columbia	87	19	33	13	24	7	15	7	8	0	0	7	15
Alberta	3	72	11	0	0	0	4	3	0	0	0	2	8
Saskatchewan	0	0	50	0	0	0	0	0	0	0	0	0	2
Manitoba	0	0	0	44	0	0	0	0	4	0	0	2	3
Ontario	0	5	0	30	68	89	70	50	32	10	0	7	34
Québec	0	0	0	0	0	0	0	23	44	86	100	0	25
New Brunswick	0	0	0	0	0	0	0	3	0	2	0	20	2
Nova Scotia	0	0	0	0	0	0	0	3	0	0	0	37	4
Prince Edward Island	0	2	0	0	0	0	0	0	0	0	0	4	1
Newfoundland	7	0	0	0	0	1	0	0	0	0	0	22	3
NWT and Yukon	0	0	6	0	3	0	0	0	0	0	0	0	0
Other*	3	2	0	13	5	2	11	10	12	2	0	0	4
Total no.	31	43	18	23	38	82	27	30	25	42	13	10	466

*Includes general practitioners located outside Canada, whether at Canadian Forces bases or in private practice.

Table VII—Aggregate gains and losses of general practitioners across provinces

	BC	Alta.	Sask.	Man.	Ont.	Qué.	Maritimes
No. of province's graduates entering general practice	31	43	18	23	177	128	46
No. of graduates remaining in home province	27	31	9	10	133	108	38
No. of graduates attracted from other provinces	43	6	0	2	24	7	7
Net gain or loss	+ 39	- 6	- 9	- 11	- 20	- 13	- 1
Percentage gain or loss	+126	-14	-50	-48	- 11	- 10	- 2

— Postgraduate Courses, continued from page 82

TRAUMA TO THE UPPER LIMB. Four Seasons Sheraton Hotel, Toronto, April 10-12, 1975. Information: The Director, Division of Postgraduate Medical Education, University of Toronto, Toronto, Ont. M5S 1A8

FETAL MONITORING WORKSHOP. McMaster University Medical Centre, Hamilton, April 11-12, 1975. Information: Dr. S. B. Effer, Associate Professor, Dept. of Obstetrics & Gynecology, McMaster University Medical Centre, 1200 Main St. W., Hamilton, Ont. L8S 4J9

ANESTHESIA FOR FAMILY PHYSICIANS. University of Toronto, April 14-18, 1975. Information: The Director, Division of Postgraduate Medical Education, University of Toronto, Toronto, Ont. M5S 1A8

JOURNÉES CHIRURGICALES DE L'HÔTEL-DIEU. Hôtel-Dieu de Montréal. Les 18-19 avril 1975. Renseignements: Directeur du Service d'éducation médicale continue, Université de Montréal, C.P. 6207, Succursale A, Montréal, Qué. H3C 3T7

CLINICAL, THERAPEUTIC AND INTERPRETATIVE ASPECTS OF HEMOPHILIA AND HEMOSTASIS. Medical Sciences Bldg., Rm. 1747, UWO campus. London, April 18, 1975. Information: Assistant Dean, Continuing Education, Faculty of Medicine, University of Western Ontario, London, Ont. N6A 3K7

MALADIES INFECTIEUSES ET ANTIBIOTIQUES. Hôpital Saint-Luc, Montréal. Le 19 avril 1975. Renseignements: Directeur du Service d'éducation médicale continue, Université de Montréal, C.P. 6207, Succursale A, Montréal, Qué. H3C 3T7

CURRENT TRENDS IN THE TREATMENT OF INFECTIOUS DISEASE. St. Joseph's Hospital, London, Ont. April 23, 1975. Information: Assistant Dean, Continuing Education, Faculty of Medicine, The University of Western Ontario, London, Ont. N6A 3K7

DROGUES, ALCOOL ET AUTRES TOXICOMANIES. Hôtel Bonaventure, Montréal. Le 26 avril 1975. Renseignements: Directeur du Service d'éducation médicale continue, Université de Montréal, C.P. 6207, Succursale A, Montréal, Qué. H3C 3T7

OPHTHALMOLOGY SPRING CLINICAL DAY. University Hospital, London, Ont. May 2, 1975. Information: Assistant Dean, Continuing Education, Faculty of Medicine, The University of Western Ontario, London, Ont. N6A 3K7

CHEST DISEASES. Clinical day, University Hospital, London, Ont. May 7, 1975. Information: Assistant Dean, Continuing Education, Faculty of Medicine, The University of Western Ontario, London, Ont. N6A 3K7

CARDIOLOGIE EN PRATIQUE GÉNÉRALE. Institut de Cardiologie de Montréal. Les 8-10 mai 1975. Renseignements: Directeur du Service d'éducation médicale continue, Université de Montréal, C.P. 6207, Succursale A, Montréal, Qué. H3C 3T7

CPRI SYMPOSIUM. Children's Psychiatric Research Institute, London, Ont. May 14, 1975. Information: Assistant Dean, Continuing Education, Faculty of Medicine, The University of Western Ontario, London, Ont. N6A 3K7

ENDOCRINOLOGIE PÉDIATRIQUE. Holiday Inn, Montréal (centre ville). Les 15-16 mai 1975. Renseignements: Directeur du Service d'éducation médicale continue, Université de Montréal, C.P. 6207, Succursale A, Montréal, Qué. H3C 3T7

ORTHOPEDIC SURGERY. Clinical seminar, University Hospital, London, Ont. May 21, 1975. Information: Assistant Dean, Continuing Education, Faculty of Medicine, The University of Western Ontario, London, Ont. N6A 3K7

ENTRETIENS OPHTHALMOLOGIQUES DE MAISON-NEUVE. Holiday Inn, Montréal (centre ville). Les 21-23 mai 1975. Renseignements: Directeur du Service d'éducation médicale continue, Université de Montréal, C.P. 6207, Succursale A, Montréal, Qué. H3C 3T7