La médecine familiale comme choix de carrière

Comment ce choix évolue durant les études médicales

Cheri Bethune MD MCISc CCFP **Penelope A. Hansen** PhD **Diana Deacon** MAdEd MSc **Katrina Hurley** MD
Allison Kirby MSc **Marshall Godwin** MD MSc CCFP

RÉSUMÉ

OBJECTIF Déterminer comment évoluent les choix de carrière des étudiants en médecine tout au long de leurs études de premier cycle.

TYPE D'ÉTUDE Enquête quantitative portant sur chaque promotion, à 5 moments au cours des études de premier cycle. À chaque étape de l'enquête, on recueillait des descripteurs qualitatifs des choix des étudiants.

CONTEXTE Faculté de médecine, Memorial University, St-John's, Terre-Neuve.

PARTICIPANTS Étudiants du premier cycle en médecine de chaque promotion entre 1999 et 2006.

PRINCIPAUX PARAMÈTRES MESURÉS Nombre d'étudiants envisageant la médecine familiale comme choix de carrière à 5 moments différents de leur cours de médecine.

RÉSULTATS Au début du premier cycle, de nombreux étudiants envisageaient la médecine familiale comme choix de carrière. Une réduction significative de ce nombre s'est produite au cours de la deuxième année du cours. Cette baisse touchait tous les groupes d'étudiants de l'étude. Même si une remontée d'intérêt pour la médecine familiale s'est manifestée plus tard durant le cours, cela ne corrigeait pas complètement la baisse.

CONCLUSION Au début de leur cours, un fort pourcentage d'étudiants en médecine envisageaient de faire carrière en médecine familiale. À la fin de la deuxième année, on enregistrait une baisse significative de ce pourcentage. On devrait chercher à comprendre comment le programme d'études des deux premières années du premier cycle pourrait protéger et encourager l'intérêt à l'égard de la médecine familiale comme choix de carrière.

POINTS DE REPÈRE DU RÉDACTEUR

- À l'entrée en médecine, de nombreux étudiants envisagent la médecine familiale comme choix de carrière, mais à la fin du premier cycle, beaucoup ont choisi une autre spécialité.
- Selon cette étude, c'est au cours des 2 premières années du cours qu'on observe la plus forte baisse d'intérêt pour la médecine familiale. Quoique cette étude ne porte pas sur les raisons de cette baisse, elle décrit la dynamique des baisses et des hausses d'intérêt durant la formation, une information susceptible d'aider ceux qui planifient les programmes d'études.

Cet article a fait l'objet d'une révision par des pairs.
Le texte intégral est aussi accessible en anglais à **www.cfpc.ca/cfp**.
Can Fam Physician 2007;53:880-885

Family medicine as a career option

How students' attitudes changed during medical school

Cheri Bethune MD MCISc CCFP **Penelope A. Hansen** PhD **Diana Deacon** MAdEd MSc **Katrina Hurley** MD
Allison Kirby MSc **Marshall Godwin** MD MSc CCFP

ABSTRACT

OBJECTIVE To track and describe career choice decisions of medical students as they progressed through their undergraduate training.

DESIGN Quantitative survey of each class at 5 points during their undergraduate experience. Each survey collected qualitative descriptors of students' current career choices.

SETTING Faculty of Medicine at Memorial University of Newfoundland in St John's.

PARTICIPANTS Undergraduate medical students in each year from 1999 to 2006.

MAIN OUTCOME MEASURES Number of students considering family medicine as a career option at 5 different data-collection points throughout the medical school curriculum.

RESULTS Many students considered family medicine as a career choice early in their undergraduate experience. The number of students considering family medicine dropped significantly during the second year of the curriculum. This trend was consistent across all students surveyed. Although interest in family medicine as a career rebounded later in the curriculum, it never fully recovered.

CONCLUSION A large percentage of medical students considered family medicine as a career choice when they entered medical school. The percentage dropped significantly by the end of the second year of training. Attention should be directed toward understanding how the undergraduate medical curriculum in the first 2 years can protect and cultivate interest in family medicine as a career choice.

EDITOR'S KEY POINTS

- Many students enter medical school considering family medicine as a career choice. By the time they complete their undergraduate training, however, they have chosen another specialty.
- This study found that the greatest decline in interest in family medicine occurred during the first 2 years of medical school. Although the study does not address the reasons for this decline, it does describe the dynamic of attrition and gain during training that might help educators planning curriculums.

This article has been peer reviewed.
Full text is also available in English at **www.cfpc.ca/cfp**.
Can Fam Physician 2007;53:880-885

Primary care in Canada is suffering because insufficient numbers of physicians are choosing family medicine as a career. Millions of Canadians are without adequate access to the health care system.[1] Governments have responded by increasing medical school enrolment, anticipating that more family physicians will emerge at the end of training.[2] Interest in family medicine as a career choice has declined substantially in the past decade.[3-5] Despite this disturbing trend relatively few studies have explored the factors that influence career choice.[6,7]

How students make career choices in medicine is a new science. Most literature on career choice in medicine focuses on demographics in an attempt to ascertain what "type" of student is likely to choose family medicine.[8,9] This focus suggests that admission criteria could influence the type of physicians generated by a medical school. Other studies take a retrospective approach, asking students at the end of medical school to identify factors that influenced their choices.[10-12] Few studies have prospectively followed students through their undergraduate schooling to explore the complex process of career choice.[13-15]

Interest in the specialty of family medicine has declined dramatically in Canada over the past decade. Our particular concern was the depth and persistence of the decline in the medical school at Memorial University of Newfoundland (Memorial), which was designed and is mandated to train physicians for a predominantly rural area. In 2005, after fulfilling its mandate for many years and enjoying a national and international reputation for training rural doctors, Memorial fell to second-last place in the country for number of students entering family medicine residencies.[16] Although the decline was paralleled elsewhere in North America, the decline at Memorial had been steady and persistent since 1996. Surprisingly, a dramatic reversal took place in 2006 when 45% of the class matched to family medicine. This paper addresses some of the factors that might have contributed to this change.

The objective of the study was to assess what proportion of medical students considered family medicine as a career choice at various times during medical school and how their thinking changed over the course of undergraduate training. We also looked at whether considering family medicine was affected by sex, by consideration of other disciplines, or by curricular or extracurricular events within the training program.

Dr Bethune, Dr Hansen, Ms Deacon, Ms Kirby, *and* **Dr Godwin** *teach in the Faculty of Medicine at Memorial University of Newfoundland in St John's.* **Dr Hurley** *is a resident in emergency medicine at Dalhousie University in Halifax, NS.*

METHODS

The study was approved by Memorial's Human Investigations Committee. We began administering the Career Choices survey to medical students at Memorial in 1999. Each class was surveyed 5 times during the 4 years in medical school using the same questionnaire each time to identify current career choices. There were 5 data-collection points (DCPs): 1—within 2 months of starting medical school in first year, 2—at the end of first year, 3—at the end of second year, 4—at the start of clerkship, and 5—near the end of fourth year (after completing the residency matching process, but before matriculation).

The survey instrument was developed by the authors and pilot-tested on 10 undergraduate students for clarity. The questions asked about family medicine were also asked about all other disciplines, such as surgery and internal medicine. Students could indicate interest in many specialties and were not asked to identify their top choices. The qualitative descriptors of particular career choices will be reported separately.

Students were approached to complete the survey within the first 2 months of medical school in a full class session. The purpose of the research was explained, and students' questions were answered. Completion of the survey was understood as implied consent for participation in the study. Students' responses were anonymous but coded. The researchers did not have access to the codes but were able to match responses from each survey to responses on surveys at earlier DCPs, thus tracking changing career choices. Students usually completed and handed in the surveys in class. In 2005 and 2006, the clerkship surveys (DCP 4) were mailed to students with return-address envelopes. No reminders were sent. Whenever unanticipated changes in the curriculum resulted in missing the opportunity to collect surveys face-to-face, surveys were mailed out. Return rates from mailings were poor.

Data were analyzed using the Statistical Package for the Social Sciences. Main outcomes assessed were the proportion of students considering family medicine as a career option at each of the 5 DCPs. We used the McNemar test to determine whether the proportion of students considering family medicine at exit (DCP 5) was significantly different from the proportion considering it at entry (DCP 1) into medical school.

RESULTS

Medical student cohorts are named by the year in which they graduate; in our 4-year program, students entering medical school in 1999 are designated as the class of 2003; students in second year in 1999 were the class

of 2002, and so on. We report here primarily on the responses of students in the classes of 2003 to 2006 because it is those 4 years for which we have complete data from all 5 DCPs. We have medical school entry data on the classes of 2003 to 2008 and exit data on the classes of 2001 to 2006 and report on trends in interest in family medicine from the beginning to the end of medical school.

The Faculty of Medicine at Memorial accepts 60 medical students each year. **Table 1** lists the classes surveyed and the number and sex of students who responded at each DCP for each class.

2003 through 2006 cohorts: change over time

For the 2003 and 2004 cohorts, we have adequate data at all DCPs from entry to exit. For the class of 2005 at DCP 4 and the class of 2006 at DCP 3, however, the response rate was 15% or lower due to turnover in our research staff, and responses should be interpreted with caution. These 4 cohorts were used to assess trends in medical students' thinking about career choices during their time in medical school. The number and proportion of students in these 4 classes who considered family medicine as a career option at the 5 different DCPs are shown in **Table 2**. The drop in the number considering family medicine as a career option between DCP 2 and DCP 3 is obvious (nearly 20 percentage points) for years 2003 to 2005 and is statistically significant ($P<.001$). For the class of 2006, the drop was not significant ($P=.08$) (**Table 3**).

Trends at medical school entry for classes of 2003 to 2008

The proportion of students considering family medicine at entry into medical school remained relatively stable over the period studied (**Table 3**). The proportion was highest in 2003 when 78% were considering family medicine and lowest in 2004 when 61% were considering family medicine. Between 2005 and 2008, the proportion varied between 65% and 70%.

Trends at medical school exit for classes of 2001 to 2006

In the class of 2001, 64% were considering family medicine at the end of medical school, but in the class of 2002, only 37% were considering it. For 2003 through 2005, the proportions ranged from 46% to 52%, increasing to 60% for the class of 2006 (**Table 3**).

Sex, class, and consideration of other specialties

At entry, 78% of women and 64% of men were considering family medicine; at exit, 65% of women and 38% of men were considering it. Female students were consistently more likely to consider family medicine than male students were. This was not statistically significant at entry ($P=.12$), but was significant at exit ($P=.006$). For both women and men, trends toward considering family

Table 2. Classes of 2003 and 2004: *Number and proportion of responding medical students who were considering family medicine as a career choice at each data-collection point.*

DATA-COLLECTION POINTS	2003 N (%)	2004 N (%)	2005 N (%)	2006 N (%)
1	46 (78)	36 (61)	42 (70)	39 (68)
2	45 (78)	32 (60)	29 (57)	33 (75)
3	29 (56)	21 (42)	23 (49)	3 (60)*
4	27 (52)	24 (45)	7 (77)*	6 (66)*
5	28 (52)	20 (49)	12 (46)	32 (60)

*Small number of respondents.

Table 1. Number of students from each class of 60 who responded at the 5 data-collection points

DATA-COLLECTION POINTS	2001 N (%)	2002 N (%)	2003 N (%)	2004 N (%)	2005 N (%)	2006 N (%)	2007 N (%)	2008 N(%)
1 Total			59	59	60	57	60	59
• Male			26 (44)	32 (54)	21 (35)	17 (30)	23 (38)	25 (42)
• Female			33 (56)	27 (46)	39 (65)	40 (70)	37 (62)	34 (58)
2 Total			58	53	51	44	8	
• Male			26 (45)	28 (53)	16 (31)	11 (25)	3 (38)	
• Female			32 (55)	25 (47)	35 (68)	33 (75)	5 (62)	
3 Total		56	52	50	47	5		
• Male		26 (46)	23 (44)	26 (52)	13 (28)	2 (40)		
• Female		30 (54)	29 (56)	24 (48)	34 (72)	3 (60)		
4 Total	55	53	52	53	9	9		
• Male	24 (44)	27 (51)	24 (46)	27 (51)	1 (11)	4 (44)		
• Female	31 (56)	26 (49)	28 (54)	26 (49)	8 (89)	5 (56)		
5 Total	44	49	54	41	26	53		
• Male	19 (43)	25 (51)	26 (48)	21 (51)	8 (31)	16 (30)		
• Female	25 (57)	24 (49)	28 (52)	20 (49)	18 (69)	37 (70)		

Table 3. Classes of 2001 to 2008: *Number and proportion of responding students considering family medicine as a career choice at entry and exit from of medical school.*

DATA-COLLECTION POINTS	2001 N (%)	2002 N (%)	2003 N (%)	2004 N (%)	2005 N (%)	2006 N (%)	2007 N (%)	2008 N (%)
1 (medical school entry)	NA	NA	46 (78)	36 (61)	42 (70)	39 (68)	39 (65)	39 (66)
5 (medical school exit)	28 (64)	18 (37)	28 (52)	20 (49)	12 (46)	32 (60)	NA	NA
P values (McNemar test)	NA	NA	<.001	<.001	<.001	.08	NA	NA

NA—not applicable.

medicine as a career were stronger at DCPs 1 and 2 than at DCPs 3, 4, and 5.

We looked at the effect of students' consideration of other specialties on whether they were also considering family medicine. At entry, this made no difference, but by the end of medical school, students considering more than 2 specialties were much more likely ($P<.001$) to be considering family medicine as 1 of their options.

We used logistic regression to assess the independence of sex, class, and number of specialties being considered on whether family medicine was considered as a career option. At both entry and exit, sex and number of specialties being considered were predictive of whether family medicine was being considered. With the exception of the class of 2006, class was not predictive.

Endurance of career choice through undergraduate training

Table 4 illustrates how students' choice of family medicine endured or decreased throughout undergraduate training. For the class of 2003, 54% of those initially considering family medicine lost interest (78% to 46% of the class) while 31% of those initially not considering family medicine subsequently developed an interest in it (22% to 31% of the class). This gain and loss needs to be considered carefully to understand how students lose interest in family medicine and how and why some students develop an interest in family medicine during medical school.

DISCUSSION

The career choices of medical students are of increasing concern to governments and universities who collectively strive to provide the right balance of medical professionals to meet the needs of their communities.[4] The trend away from family medicine as a career has lasted for many years, and the literature abounds with strategies designed to encourage students to follow primary care careers.[14,17-20] Until recently, some medical schools have had a resurgence of student interest in primary care careers without completely understanding how and why students make their career choices.

As a medical school in a predominantly rural province, the program at Memorial was designed to use the geographic and educational resources of the province to its advantage. Students with rural roots are well represented in the student population (almost 40% of students

Table 4. Change in career choice through undergraduate training: *Students considering and not considering family medicine (FM) at entry to and exit from medical school.*

CLASS (N)	ENTRY RESPONDENTS N (%)	EXIT RESPONDENTS N (%)	NET % GAIN OR LOSS
2003 (59)	46 (78) were considering FM	21 (46) were still considering FM	
		25 (54) were not considering FM	-54
	13 (22) were not considering FM	4 (31) were now considering FM	
		9 (69) were still not considering FM	+31
2004 (59)	36 (61) were considering FM	17 (47) were still considering FM	
		19 (53) were not considering FM	-53
	23 (39) were not considering FM	2 (9) were now considering FM	
		21 (91) were still not considering FM	+9
2005 (60)	42 (70) were considering FM	10 (24) were still considering FM	
		32 (76) were not considering FM	-76
	18 (30) were not considering FM	1 (6) was now considering FM	
		17 (94) were still not considering FM	+6
2006 (57)	39 (68) were considering FM	24 (62) were still considering FM	
		15 (38) were not considering FM	-38
	18 (32) were not considering FM	6 (33) were now considering FM	
		12 (67) were still not considering FM	+33

have rural backgrounds), and students have many opportunities to learn in rural settings. Rural upbringing is known to influence students in choosing family medicine as a career, and medical schools with special programs designed to enhance rural practice have been more successful in recruiting students to family medicine.[8,19,21-23]

Decline in interest in family medicine

Our study documents the decline in interest in family medicine generally and especially the decline in interest following the second year of undergraduate studies. The most obvious explanation for this trend could be the second-year curriculum with its full year of courses taught exclusively by specialists and with family physicians notably absent. Another factor could be a "hidden curriculum" that infiltrates the consciousness of medical students with negative impressions of family medicine.[24,25]

Other factors that likely influence this dramatic shift emerge through the comments captured in students' survey responses. Detailed analysis of these comments will be reported separately.

Curriculum modifications

Our data have already given rise to minor curriculum modifications at Memorial, most notably the addition of a family medicine course at the end of second year. In this course, each student works one-on-one with a family physician in a community for 2 weeks. Concern about declining enrolment in family medicine has prompted a local and national strategy to develop family medicine interest groups (FMIGs). Memorial has enjoyed 2 years of success with FMIGs, and the arrival of a new Dean who is a rural family physician has likely affected the atmosphere in the medical school. All these factors together could account for the dramatic upswing in interest in family medicine in the class of 2006 (45% of this class matched to the specialty of family medicine, ranking number 1 in Canada). These students were the first class to experience the curriculum changes. Trends during the next few years will show whether these changes have a lasting effect on medical students' decisions.

Conclusion

This study illustrates the dramatic loss of interest in family medicine as a career choice during the second year of undergraduate studies. Many students enter Memorial's medical school with an interest in family medicine. This interest declines substantially by the end of second year. It is important to understand more clearly how the formal curriculum and the "hidden curriculum" affect students' career choices and to respond to these factors with vigour in order to maintain interest in family medicine and have a positive and enduring effect on physician resource planning.

Acknowledgment

We thank **Bonnie James** *for her help with getting the Career Choices Project started and with interim data analysis. This project was supported by 2 grants totaling $4500 from the Dean of Medicine at Memorial University of Newfoundland.*

Contributors

Dr Bethune, Dr Hansen, Ms Deacon, Dr Hurley, Ms Kirby, *and* **Dr Godwin** *contributed to concept and design of the study; data gathering, analysis, and interpretation; and preparation of the manuscript submitted.*

Competing interests

None declared

Correspondence to: **Dr Cheri Bethune,** *c/o Faculty of Medicine, Memorial University of Newfoundland, 300 Prince Philip Dr, St John's, NL A1B 3V6; telephone 709 777-6741; fax 709 777-7916; e-mail* **cbethune@mun.ca**

References

1. Shortt S, Green M, Keresztes C. *The decline of family practice as a career in Ontario: a discussion paper on interventions to enhance recruitment and retention*. Kingston, Ont: Centre for Health Services and Policy Research; 2003.
2. Tyrell L, Dauphinee W; on behalf of the Canadian Medical Forum Task Force. *Task Force on Physician Supply in Canada*. Ottawa, Ont: Association of Canadian Medical Colleges; 1999. Available from: **http://www.physicianhr.ca/reports/PhysicianSupplyInCanada-Final1999.pdf**. Accessed 2007 February 7.
3. Rosser WW. The decline of family medicine as a career choice. *CMAJ* 2002;166:1419-20.
4. Thurber AD, Busing N. Decreasing supply of family physicians and general practitioners. Serious implications for the future. *Can Fam Physician* 1999;45:2084-9.
5. MacKean P, Gutkin C. Fewer medical students selecting family medicine. Can family practice survive? [editorial] *Can Fam Physician* 2003;49:408-9 (Eng), 415-7 (Fr).
6. Senf JH, Campos-Outcalt D, Watkins AJ, Bastacky S, Killian C. A systematic analysis of how medical school characteristics relate to graduates' choices of primary care specialties. *Acad Med* 1997;72(6):524-33.
7. Reed VA, Jernstedt GC, McCormick TR. A longitudinal study of determinants of career satisfaction in medical students. *Med Educ Online* [serial online] 2004;9(11).
8. Curran V, Rourke J. The role of medical education in the recruitment and retention of rural physicians. *Med Teach* 2004;26(3):265-72.
9. Bland CJ, Meurer LN, Maldonado G. Determinants of primary care specialty choice: a non-statistical meta-analysis of the literature. *Acad Med* 1995;70(7):620-41.
10. Jordan J, Brown JB, Russell G. Choosing family medicine. What influences medical students? *Can Fam Physician* 2003;49:1131-7.
11. Schafer S, Shore W, French L, Tovar J, Hughes S, Hearst N. Rejecting family practice: why medical students switch to other specialties. *Fam Med* 2000;32(5):320-5.
12. Lawrence J, Poole P, Diener S. Critical factors in career decision making for women medical graduates. *Med Educ* 2003;37(4):319-27.
13. Mutha S, Takayama JI, O'Neil EH. Insights into medical students' career choices based on third- and fourth-year students' focus-group discussions. *Acad Med* 1997;72(7):635-40.
14. Sobral DT. Selective training and cross-year clinical tutoring as educational influences on generalist career choice. *Educ Health* (Abingdon) 2001;14(2):295-303.
15. Petrides KV, McManus IC. Mapping medical careers: questionnaire assessment of career preferences in medical school applicants and final-year students [abstract]. *BMC Med Educ* 2004;4:18.
16. Society of Rural Physicians of Canada. *Keith Awards for 2000*. Ottawa, Ont: Society of Rural Physicians of Canada; 2000. Available from: **http://www.srpc.ca/awards2000.html**. Accessed 2007 February 8.
17. Corbet EC Jr, Owen JA, Hayden GF. Effect of a second-year primary care preceptorship on medical students' career plans. *South Med J* 2002;95(7):691-4.
18. Brooks CH. The influence of medical school clinical experiences on career preferences: a multidimensional perspective. *Soc Sci Med* 1991;32(3):327-32.
19. Phillips TJ, Rosenblatt RA, Schaad DC, Cullen TJ. The long-term effect of an innovative family physician curricular pathway on the specialty and location of graduates of the University of Washington. *Acad Med* 1999;74(3):285-8.
20. Hill-Sakurai LE, Schillinger E, Rittenhouse DR, Fahrenbach R, Hudes ES, LeBaron S, et al. Do required preclinical courses with family physicians encourage interest in family medicine? *Fam Med* 2003;35(8):579-84.
21. Ko M, Edelstein RA, Heslin KC, Rajagopalan S, Wilkerson L, Colburn L, et al. Impact of the university of California, Los Angeles/Charles R. Drew University medical education program on medical students' intentions to practice in underserved areas. *Acad Med* 2005;80(9):803-8.
22. Senf JH, Campos-Outcalt D, Kutob R. Factors related to the choice of family medicine: a reassessment and literature review. *J Am Board Fam Pract* 2003;16(6):502-12.
23. Tolhurst HM, Adams J, Stewart SM. An exploration of when urban background medical students become interested in rural practice. *Rural Remote Health* 2006;6(1):452. Available from: **www.rrh.org.au/publishedarticles/article_print_452.pdf**. Accessed 2006 March 8.
24. Hafferty FW. Beyond curriculum reform: confronting medicine's hidden curriculum. *Acad Med* 1998;73(4):403-7.
25. Hafferty FW, Franks R. The hidden curriculum, ethics teaching, and the structure of medical education. *Acad Med* 1994;69(11):861-71.