

Canadian DOs: International Expansion of Osteopathic Medical Education North of the Border

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Context: The growth of osteopathic medicine in the United States has led to a vibrant expansion of the profession internationally. Canadian students represent the majority of international applicants and matriculants to US colleges of osteopathic medicine (COMs); however, to our knowledge, no studies have explored this population.

Objective: To gain a better understanding of Canadian students attending US colleges of osteopathic medicine by examining their residency training preference, visa preference, intent to practice in the United States or Canada, receptiveness to incorporating osteopathic manipulative medicine into practice, specialty preference, estimated debt incurred, and effect of debt on specialty choice.

Methods: A 10-question electronic survey was sent to Canadian osteopathic medical students in the 17 COMs and branch campuses that accept international applicants. The initial survey pool consisted of first-, second-, third-, and fourth-year medical students (classes of 2014-2017) compiled from a database managed by the Canadian Osteopathic Medical Student Association.

Results: Of the 102 students contacted, 66 (65%) completed the survey. Respondents had a strong desire to practice in Canada (44 [67%]) but were considering an Accreditation Council on Graduate Medical Education (ACGME) or dually accredited residency program in the United States (46 [70%] and 15 [23%], respectively) that would sponsor an H1B visa. Respondents were receptive to incorporating osteopathic manipulative medicine into practice (44 [67%]). Most respondents chose non-primary care specialties (40 [61%]) and incurred a debt of more than \$200,000 (44 of 65 [68%]); however, debt had a limited influence on respondents' choice of specialty ($\chi^2_3=1.911$; $P=.591$).

Conclusion: Most respondents planned to complete ACGME training, to return to Canada to practice medicine, and to practice in a non-primary care specialty. As a growing population that will play a large role in the expansion and reception of the profession internationally, Canadian osteopathic medical students and US-trained Canadian DOs merit further examination.

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Osteopathic physicians (ie, DOs) are one of the fastest growing segments of health care professionals in the United States. Assuming current growth rates, an estimated 1 of 5 graduating medical students will be a DO, with more than 100,000 DOs in active practice by 2019.¹ The expansion of full practice rights for DOs internationally has also been substantial. In particular, Canada has been receptive to DOs. Currently, 8 of the 10 provinces in Canada—Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, and Quebec—recognize the right of US-trained DOs to practice without restriction.²

In 2012, the provinces of Quebec and Manitoba joined Ontario, British Columbia, and Alberta in recognizing the rights of Canadian graduates holding a DO degree from a US college of osteopathic medicine (COM) to participate in the Canadian Residency Matching Service.³ With the increasing expansion of DOs into Canada, the number of Canadian applicants to colleges of osteopathic medicine (COMs) has also grown substantially (*Figure*).⁴⁻¹⁰ For the applicant pool of 2013, Canadians represented 175 of the total 203 international applicants (86%) and 58 of 68 international matriculants (85%) to COMs.¹⁰

This increase in Canadian enrollment to COMs can partially be attributed to the 2011 Canadian Initiative Program launched by the Michigan State University College of Osteopathic Medicine. This program allows 20 to 25 Canadian medical students to matriculate with a subsidized tuition rate.^{11,12} With an already large population of Canadian DO students ready to return home to practice, a greater awareness of osteopathic medicine in Canada will play a large role in the expansion of the profession internationally.¹³ A continued interest in osteopathic medical education by Canadian students can be expected as a result of a growing increase in provincial recognition of DOs and practice rights as well as the growing competitiveness of Canadian medical schools.^{13,14}

In the present study, we surveyed current Canadian osteopathic medical students in an effort to profile this

growing and seldomly researched population. Using results of our survey, we analyzed several areas of interest, including student preferences for graduate medical education, H1B or J1B visas, intent to practice in the United States or return to Canada, receptiveness to incorporating osteopathic manipulative medicine (OMM) into practice, professional specialty preference, estimated educational debt, and relationship of debt to specialty chosen.

Methods

We surveyed Canadian osteopathic medical students at the 17 US COMs and branch campuses that accept international applicants. Our initial survey pool consisted of first-, second-, third-, and fourth-year osteopathic medical students (graduating classes of 2014 through 2017). This pool was compiled from a Canadian Osteopathic Medical Student Association database. Using these data, we contacted all international or Canadian students' representatives from the different COMs. Representatives provided us with ".edu" domain e-mails of all current Canadian DO students. E-mail addresses with ".edu" domains were chosen with the intention of ensuring that only current DO students were part of the survey. The survey was e-mailed to students on March 21, 2014, and was closed on April 14, 2014, corresponding to approximately 28 days. Students were asked to complete the survey once. Students were required to enter their e-mail address to access the survey, and the IP (Internet Protocol) address was checked. Only 1 response per e-mail address and per IP address was allowed.

To create the 10-item survey, Canadian osteopathic medical students (S.E., P.C., and J.K.) laid out the goals and purpose of the study. The survey was organized to logically group questions so that it would flow smoothly from 1 topic to the next. The student members of the working group filtered, rewrote, and, if necessary, dropped questions that they felt were sensitive to medical students. The questionnaire was circulated to other students for impressions and pilot testing, which provided

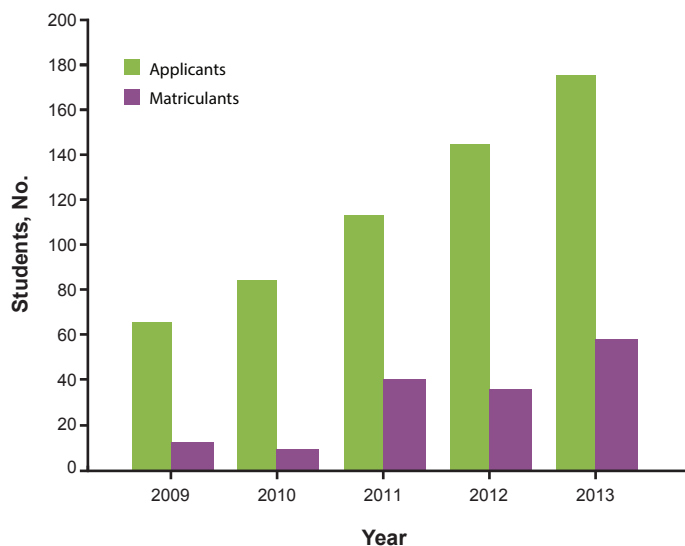


Figure. Canadian applicants and matriculants to US colleges of osteopathic medicine from 2009 through 2013.⁴⁻¹⁰

feedback on readability, complexity, ambiguity, and overall time to completion. No questions were required to be answered to progress through the survey.

The survey was administered electronically using a SurveyMonkey (<http://www.surveymonkey.com>) template. Multiple entries into the survey were restricted to ensure that student responses were not duplicated. All responses were anonymous and no incentives were offered for completion of the survey. All statistical analyses were completed using SPSS statistical software (version 19; IBM Corporation). A *P* value of less than or equal to .05 was considered statistically significant.

Results

Of the 102 Canadian osteopathic medical students contacted, 66 (65%) completed our survey. Of these 66 respondents, 36 (55%) preferred to complete a residency program in the United States. If one had to train in the United States, 46 (70%) and 15 (23%) preferred to complete either an Accreditation Council on Graduate Medical Education (ACGME) or dually accredited

residency program, respectively. When questioned about choice of residency visa status, 57 of 64 respondents (89%) preferred an H1B visa over a J1B visa. Forty-four of 66 respondents (67%) were interested in returning to Canada to practice, and 49 (74%) intended to complete at least 1 elective 4-week rotation at a Canadian hospital during their third or fourth year of osteopathic medical school. A majority of the 66 respondents (48 [73%]) were planning to take the Medical Council of Canada Evaluating Examination and all Canadian licensing examinations.

Canadian students also showed receptiveness to OMM use in health care and an interest in non-primary care specialties. Of 65 respondents, 44 (67%) planned on incorporating OMM into their practice. Forty of 66 respondents (61%) preferred a non-primary care residency (eg, surgery, subspecialty internal medicine, psychiatry, emergency medicine, physical medicine and rehabilitation, radiology). The remaining 26 respondents (39%) preferred primary care (eg, family medicine, general pediatrics, general internal medicine).

Canadian students were asked about educational debt incurred, as well as how debt affected specialties of choice. Of 65 respondents, 44 (68%) reported an estimated student debt higher than \$200,000, whereas 8 (12%) estimated debt between \$150,000-\$200,000, 4 (6%) estimated between \$100,000-\$150,000, and 9 (14%) estimated less than \$100,000. Of 66 respondents, student debt “greatly” influenced the choice of future specialty for 8 (12%), “moderately” for 26 (39%), minimally for 20 (30%), and posed no consideration for 12 (8%). Debt had a limited influence on respondents’ choice of specialty ($\chi^2=1.911$; $P=.591$) and choice of practicing in the United States or Canada ($\chi^2=0.914$; $P=.822$) (Table).

Discussion

Osteopathic medical schools have made efforts to expand osteopathic medicine in Canada.¹¹ Canadians represent the majority of international applicants to

Table.
Influence of Debt on Specialty and Country of Practice Among
Canadian Osteopathic Medical Students: A Survey-Based Study (N=66)

Item	n	Influence of Debt			
		None	Minimal	Moderate	Great
Planned Specialty^a					
Primary care	26	5	10	9	2
Non–primary care	40	7	10	17	6
Total	66	12	20	26	8
Preferred Country of Practice^b					
United States	22	3	8	8	3
Canada	44	9	12	18	5
Total	66	12	20	26	8

^a $\chi^2_3=1.911$; $P=.591$.

^b $\chi^2_3=0.914$; $P=.822$.

COMs, and COMs have seen a progressive increase in Canadian applicants and matriculants (*Figure*). However, to our knowledge, no studies have examined this growing international student population. We surveyed current Canadian osteopathic medical students in an effort to profile this population. Our results show that the majority of Canadians prefer to complete their residency in the United States under either an ACGME or dually accredited program. The reluctance to complete an AOA-accredited residency program may result from the fact that osteopathic programs are not recognized by Canada, preventing students from returning back home to practice.¹⁵ The single graduate medical education accreditation system will eventually alleviate this problem and allow Canadian students to participate in programs with osteopathic tracks. Interestingly, our results show that Canadian students were more inclined to complete a residency program in the United States and then return to Canada to practice. Students deciding to complete an ACGME or a dually accredited residency program in the United States might have an easier transition in their return back to Canada.

A greater number of residency positions is available in the United States. On comparing the 2014 first-year residency Match results between the US National Resident Matching Program and the Canadian Resident Match Service, 25,687 positions were filled in the US match,¹⁶ whereas 3255 positions were filled in the Canadian match.¹⁷ This difference in the availability of residency positions available in the United States may be an attractive factor, especially when one is already receiving US medical education.

Furthermore, a majority of Canadian students (40 of 66 [61%]) preferred a non–primary care specialty. By comparison, 21% of domestic osteopathic medical students planned on entering primary care, whereas 67% preferred a non–primary care specialty and 12% were undecided.¹⁸ This finding highlights a similar intent by both domestic and Canadian students to pursue non–primary care specialties.

More than 67% of Canadian students were planning to incorporate OMM into their practice, which would lead to an expansion of OMM internationally. According to Gamber et al,¹⁹ a survey-based study by Fry²⁰ indicated

that 57% of students were interested in osteopathic manipulative treatment during their freshmen year but that those numbers declined to 34% by the time students completed residency. Although results from our study could have shown a similar drop-off in intent to practice OMM throughout the years, our data did not differentiate students on the basis of their year in osteopathic medical school. Additionally, the drop in student interest in OMM in subsequent years of training can also be attributed to the physician's field of study. Compared with osteopathic primary care physicians, specialists have been shown to use less OMT.^{21,22} Regardless of these facts, our results show that Canadian osteopathic medical students were receptive to OMM.

The majority of respondents intended to complete at least one 4-week rotation at a Canadian hospital and to complete the Medical Council of Canada Evaluating Examination, a requirement to enter the residency match in Canada. These results further highlight the consistency of our data, suggesting that many Canadian DOs are more inclined to return home at some point in their training. Interestingly, the majority of Canadian physicians who attended US allopathic medical school and who completed their residency training in the United States were more likely to remain in the United States or relocate to the United States at some point.^{23,24} It is conceivable that the majority of Canadian DOs, who are more inclined to complete residency training in the United States, will eventually stay here and contribute to the US health care workforce. Similar results were found with several other nations' foreign medical graduates who were completing their residency training in the United States.^{25,26} Although data^{23,24} suggest that Canadian allopathic physicians tend to ultimately practice in the United States, the primary care-specific nature of DOs might allow for an easier return of service—an agreement between the Canadian province and the physician in which the physician provides service in underserved communities—to Canada. Additional studies will be required to gain a better under-

standing of Canadian DOs' location of practice several years down the road.

In addition, our results did not show a statistically significant relationship between the amount of debt and students' choice of primary care vs non-primary care specialties. The majority of debt Canadian students reported to incur was higher than \$200,000, whereas the average debt for a domestic osteopathic medical student is \$183,664.¹⁸ These results are in direct contrast with findings of domestic students, which have shown that higher indebted students often pursue a non-primary care field.²⁷ However, our analysis revealed that the higher debt of Canadian osteopathic medical students did not have a statistically significant influence on their specialty of choice or planned location of practice.

One of the limitations of the present study is the low response rate of our survey at 65%; however, we attribute this response rate to the very recent expansion of Canadian DO enrollment and a perhaps lack of strong student networks in COMs. With a smaller population of students, our novel study provides a detailed profiling of Canadian osteopathic medical students. Another limitation is that our survey measured intent rather than actual training and practice demographics. A future follow-up study would be needed to confirm our findings.

Conclusion

The prototypical Canadian student was considering an ACGME residency program but had a strong desire to return to Canada. Furthermore, Canadian students were receptive to OMT and most students preferred a non-primary care specialty. Canadian medical students estimated an educational debt of more than \$200,000; however, debt had a limited influence on student choice of specialty. Given the increasing enrollment of Canadian students in COMs, we expect that Canadian DOs will play an important role in shaping health care in both the United States and Canada and suggest that follow-up studies be conducted to investigate that role.

Author Contributions

Student Doctors Evren, Chander, and Kim and Dr Teitelbaum provided substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; all authors drafted the article or revised it critically for important intellectual content; Student Doctors Evren, Chander, and Kim and Dr Teitelbaum gave final approval of the version of the article to be published; and Student Doctors Evren, Chander, and Kim and Dr Teitelbaum agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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