

Medical Student Education

Medical Students, Money, and Career Selection: Students' Perception of Financial Factors and Remuneration in Family Medicine

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Background and Objectives: *Medical students have had a declining interest in family medicine as a career. Some studies have shown a small inverse relationship between debt levels and primary care, but it is unclear how students perceive remuneration in different specialties and how these perceptions might influence career choice.* **Methods:** *Medical students at one school were surveyed to understand their perceptions of physician remuneration and to gain insight into how these perceptions might affect career selection.* **Results:** *Response rate was 72% (560/781 students). Students' estimates of physician income were accurate throughout training, with the overall estimate for family medicine being lower than the actual income by only \$10,656. The vast majority of students agreed with the statement that family physicians get paid too little (85%–89% of each class). The importance of payment as a factor in career decision making increased with higher debt and with advancing training.* **Conclusions:** *Students are able to accurately predict income by specialty from an early stage of training and have a negative perception of income in family medicine. The perception that family physicians make too little money could be an important driver—or at least a modifier—in the lack of interest in family medicine.*

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Despite the importance of family physicians to the health care system and the numerous training opportunities that exist in the field, medical students' interest in primary care has decreased.^{1,2} Residency positions are frequently left vacant as there is a migration by medical students to more-specialized career paths.³ Although there is no one variable that determines medical student career selection, studies have suggested that financial factors may influence career choice.⁴⁻⁷

Students both in Canada and the United States have become accustomed to dealing with mortgage-sized debt upon graduation.^{7,8} Over the last several years there has been an increased awareness of the effect of debt on medical students.⁹⁻¹⁴ One possible effect relates to career selection, and while students' decision making is complicated and linked to multiple variables,¹⁵⁻¹⁷ it

is believed that lifestyle, remuneration, and even the health of the economy play a role in the migration away from primary care.^{4-7,18,19} Implicit in this belief is the assumption that students see primary care careers as a poor choice for redressing the debt incurred during medical training.

It is unclear, however, how medical students perceive financial factors and remuneration in different specialties and how these perceptions might be influencing their decisions regarding their future careers. For example, it is not known if students actually have a negative perception of payment in primary care or even if students know the relative incomes of physicians in various specialties. We hypothesized that students would have negative perception of remuneration in family medicine and that this negative perception would increase as students advanced through their training. We further hypothesized that students would perceive that a more-specialized career would be the most cost-effective way to repay student debt.

To address these questions, medical students were surveyed at the University of Toronto to understand

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their perceptions of physician remuneration and to understand how this might affect career selection. This was part of a larger survey on the effects of financial debt on medical students, with some results being reported elsewhere.²⁰

Methods

Following approval from the University of Toronto Research Ethics Board, a focus group was conducted with fourth-year medical students at the University of Toronto to explore the issues of medical students' financial well-being and their perception of financial factors and career selection. The focus group transcript was content analyzed for themes,²¹ and from this analysis the survey was created.

Survey questions were grouped under several categories, including demographics, debt, and perception of physician remuneration. After pilot-testing for clarity and comprehension, the survey was administered to medical students in all 4 years at the University of Toronto between September and December 2002.

The survey asked students to report their debt levels, respond to questions regarding their perceptions of the incomes of physicians in various specialties, and respond to questions about their perceptions of financial factors in daily activities and future career decisions. Responses were analyzed by year of training to gain an understanding of how student perceptions differed across the course of training. Monetary values are expressed in Canadian dollars.

Results

Of the 781 potential respondents across the 4 years of training, 564 students returned their surveys. Of these, 560 surveys had sufficient data for inclusion in this analysis, for an overall response rate of 72%.

Table 1 shows the demographics of the student population and their self-reported debt levels. The mean debt level of fourth-year students was \$58,865, and anticipated debt levels upon graduation of first-year students was \$83,526. These findings are consistent with results of other Canadian studies of medical student debt.⁸

Students were asked to estimate the pre-tax net income (billings minus expenses and overhead and before taxes) of family physicians, pediatricians, dermatologists, and general surgeons (Table 2). These four areas of practice were chosen to reflect a variety of specialty areas and incomes. Actual pre-tax income for comparison was determined by using Canadian Institute for Health Information (CIHI) data on 2002 payment for full-time physicians and subtracting established average overhead costs.²² Table 2 illustrates that students were, in general, able to provide a highly accurate estimate of physician income, with the overall estimate for family medicine being lower than the actual income by only \$10,656. Students' estimates were the most inaccurate for dermatology; however, our CIHI data included only Ontario Health Insurance Plan (OHIP) billings and not other forms of private payment, which may make up a substantial proportion of dermatologists' incomes. Approximately 7% of dermatologists' incomes in Canada are made up of non-insurance billing.²³ There was only minimal variability in estimates between years.

The next section of the survey dealt with students' perceptions and opinions regarding physicians' incomes, and results are shown in Table 3. When asked whether these incomes are sufficient, the vast majority of students agreed with the statement that family physicians get paid too little (ranging from 85%–89% of each class). Consistent with these perceptions, 54%–64% of students by year agreed with the statement that if a student has a lot of financial debt, "It is better to do a specialty as you will make more money and be able to pay off your debt faster," with the remainder agreeing that a student should "Do family medicine as the residency is shorter and you can start paying off your debt faster."

Despite these broad consistencies of responses across years of training, the proportion of students considering a career in family medicine declined substantially across years. Of the first-year students surveyed, 70% were considering a career in family medicine as compared to only 30% of the fourth-year students. Further, the proportion of students who responded that they

Table 1

Respondent Demographics, Reported Current Debt (As of September 2002), and Reported Anticipated Debt at Time of Graduation by Year of Medical School and Response to Items by Training Year

Demographic Information	Year 1 n=99/199	Year 2 n=171/199	Year 3 n=169/195	Year 4 n=121/188
Average age	23.4	24.2	25.4	26.5
Percent female	52.5%	52.9%	48.8%	42.3%
Mean current total debt (as of September 2002)	\$20,987	\$37,550	\$53,623	\$58,865
Mean anticipated total debt at graduation	\$83,526	\$82,646	\$83,916	\$65,742

would not consider family medicine because of low remuneration increased from 15% in the first-year class to 40% in the fourth-year class.

Students were also asked to rank order factors that were most important for career selection. Options provided were a short residency, what they would get to do every day, lifestyle (non-financial, time off/little call), content that is intellectually interesting, patient population, how much they will get paid, prestige, and "other." Students in fourth year were more likely to rank "how much I get paid" as one of the most important factors for career selection when compared to

first-year students (15% versus 0%). When we analyzed this question by debt level, we found that students with higher debt were more likely than students with lower (or no) debt to rank payment as an important factor in career selection (2.33% [95% CI: -2.23 to +6.89]) for students anticipating graduation with no debt compared to 10.20% (95% CI: 5.96% to 14.45%) for students with greater than \$100,000 debt (data not shown).

Discussion

Family medicine is an essential component of the health care system, and the current lack of interest in

Table 2

Students' Estimates of Physician Income Compared With Actual Physician Income

Physician Type	Gross Pay (CIHI)*	Average Overhead (CMA)**	Net Pay (CIHI)*	Estimated Net Pay***					Estimated-Actual
				All	Year 1	Year 2	Year 3	Year 4	
Family physician	\$188,344	37%	\$118,656	\$108,000	\$107,000	\$111,000	\$107,000	\$106,000	-\$10,656
General surgeon	\$300,750	29%	\$213,532	\$208,000	\$201,000	\$211,000	\$208,000	\$208,000	-\$5,532
Pediatrician	\$173,515	34%	\$114,519	\$134,000	\$138,000	\$141,000	\$132,000	\$124,000	+\$19,481
Dermatologist	\$293,321	30%	\$205,324	\$266,000	\$251,000	\$278,000	\$260,000	\$273,000	+\$60,676

* Canadian Institute for Health Information—full-time physicians 2002–2003—gross billings for fee-for-service staff.¹

** Average overhead expenses from Canadian Medical Association (CMA) National Physician Survey based on specialty.²

*** Students were asked to predict how much physicians made after expenses and before taxes.

Table 3

Perception of Remuneration by Specialty and Percentage of Students Considering Family Medicine

Statement	Year 1 Students	Year 2 Students	Year 3 Students	Year 4 Students	Chi-Square	P Value
Family physicians get paid too little. (% who agreed or strongly agreed)	85%	89%	88%	89%	1.04	.792
Specialists get paid too little. (% who agreed or strongly agreed)	19%	25%	34%	32%	7.96	<.05
Specialty career is a better way to clear debt. (% selecting this choice over alternative)	57%	63%	54%	64%	4.21	.24
I would not choose family medicine because of low financial remuneration. (% who agreed or strongly agreed)	15%	20%	29%	40%	21.87	<.001
Are you considering family medicine as a potential career? (% who answered yes)	72%	61%	57%	30%	44.36	<.001
Percent of students who rated payment as one of the top two most important factors in career selection.	0%	7%	9%	15%	14.62	<.005

primary care could adversely affect the sustainability of health care delivery. Our data support the literature documenting a declining interest in family medicine throughout medical school (70% in first year to 30% in fourth year).^{1,3} While many factors are involved in students' career selection, financial issues may have a significant effect.

We found that the proportion of students who state that they would not consider family medicine due to low remuneration was higher in later years of medical training than in earlier years (40% in fourth year versus 15% in first-year students). This finding raises the question of what happens during medical school to increase the number of students who will not consider family medicine due to low payment while the relative perception of payment in the various specialties remains constant. Part of this change may relate to social desirability bias—students in first year might be less comfortable admitting that they would not consider a domain of practice because of low income potential, whereas the fourth years might be more honest (or cynical). It is also possible that payment actually becomes a more important factor as students advance through their training. Our study found that fourth-year students were far more likely to rank payment as the most important factor in career selection than first-year students (15% versus 0%). This may be explained, in part, by the fact that fourth-year students as a group have more debt than first-year students, and the amount of debt seems to influence decision making. This is further supported by the work by Rosenblatt et al⁶ and by our finding that students with higher debt (greater than \$100,000) were more likely to rank payment as one of the top two most important factors for career selection than students with no debt (10% versus 0%). Interestingly, in another Canadian study, Kwong asked this question and found the opposite—25% of first-year students felt that financial considerations would be a major influence on their career choice versus only 13% of fourth-year students; however, our study asked what was the most important factor, while Kwong et al asked about major influences.¹² The difference in survey questions between the two studies may explain the apparently discrepant results.

Although there is a great deal of conflicting data, most studies have shown a small relationship between increased debt and choosing a specialist career.^{5,6,17,18,24} Where the relationship has been looked at carefully, as in the study by Rosenblatt et al, which was based on the Association of American Medical Colleges' graduation questionnaire, other factors were found to be more important than debt, such as gender, race, and other sociodemographic characteristics.⁶ When these are controlled for, the effect of debt is quite small. Moreover, these researchers found that the more debt students had, the less likely they were to choose any

primary care specialty, with the effect being greatest above a debt level of \$150,000. It should be noted that these effects were only present if all primary care careers were taken together; there was no relationship when family medicine alone was examined.

The work by Colquitt et al has also been helpful in trying to further understand the complexity of the effect of financial factors on career decision making.¹⁸ These authors showed that future earning expectation and the ratio of debt to future earning expectation are statistically important determinants for career selection. Students who have higher future income expectations and students who have higher debt levels relative to future earning expectation seem to choose specialty career paths. Another way of looking at this finding is that as we hold earning expectations stable, the more debt students have, the less likely they are to choose a career in primary care. Part of the reason why the literature has shown conflicting results when looking at debt and financial factors is that the link between specialty choice and debt has ignored the importance of understanding the perception of students with respect to future income. There may be a small inverse relationship between debt and choosing a career in primary care, but expectations surrounding future income and the relationship between debt and this expectation might be the most important factor in this regard.

Interestingly, although many of these studies asked students about career choice, debt, and expected future income, there have been no studies to our knowledge that look at students' perceptions of the incomes of family medicine or other specialties. If these perceptions are inaccurate, they may be unnecessarily biasing the students. Our data suggest that students are, in fact, able to accurately predict physician income for family medicine, and accuracy did not differ between first-year and fourth-year students. Knowing this, the vast majority of students (88%) felt that family physicians are paid too little. The fact that students can predict specialty payment and that they perceive that family physicians are paid too little is an important step forward in understanding the relationship between specialty payment and career choice.

Further, students might overestimate the incomes of specialties that they perceive as more subspecialized despite that they in fact are not paid more. For example, in Canada, pediatrics training programs are 4 years in duration and thus might be interpreted as more sub-specialized than family medicine programs, which are only 2 years long. This might be one reason why students in our study significantly overestimated the income of pediatricians. Our study also showed that the majority of students believe that subspecializing is the best strategy in paying off debt. This further supports data from the Canadian National Physician Survey, which showed that 23% of medical students

said they intended to choose a high earning specialty to deal with debt, compared with 16% who would choose a short residency specifically to pay off debt.²⁵ It is worth noting that our study differed from the National Survey in that it asked students their perceptions of what would be the better way to pay off debt, not their actual intentions regarding career choice; however, the trends are very similar.

Our data, along with others, highlight the importance of taking a more holistic view of financial factors and career decision making. Debt itself does not seem to be a direct factor in career decision making; rather, the level of debt seems to have an influence on the relative importance of future income, and it may magnify students' negative perceptions of physician payment in family medicine. Gaining a better understanding about the perceptions of students and how financial factors affect student decision making is critical in beginning to understand how to support primary care specialties with respect to recruitment. It seems important to further understand how the perception of payment relates to how students perceive the value of the actual specialty. Students can predict payment by specialty early on and feel family physicians are paid too little. This might lead students to make functional economic decisions to choose other specialties based on repayment of debt and reward for time spent training. However, it might also make students devalue family medicine and choose further subspecialization not for economic reasons but rather because they feel that low payment is a signal for low-valued work.

Limitations

There are several limitations to this study. The first is that the study was completed at only one institution in Canada, and the generalizability of data may therefore be limited. However, the 72% response rate is relatively high, giving credibility to the data set at least within our institution. The second is that students were asked to predict remuneration for only four specialties, and this might oversimplify the results. In addition, payment is difficult to calculate; we used CIHI payment data in conjunction with established overhead costs, but there is significant variability in physicians' practices. As well, these data only captured payment for listed procedures through insurance payments, thus the actual income is potentially underrepresentative of certain practices (for example in cosmetic surgery or other uninsured practices) that are directly billed to the patient.

The response rate varied between years of training, which might affect the comparison between years of training. Despite this, the trends seem internally consistent.

Finally, there is variation in the training and practice between Canada and other countries, including training length, which might affect the generalizability of our

findings. For example, family medicine in residency training in Canada is a 2-year program compared to 3 years in the United States.

Conclusions

There are multiple factors that influence students in their choice of careers, including the type of work, the length of the residency, exposure to specialties, mentorship, and lifestyle.^{15,16} However, one cannot ignore the fact that students do seem to have negative perceptions of income in family medicine. The perception that family physicians are paid too little could be an important driver—or at least modifier—in the lack of interest in family medicine. This could go beyond the financial realities of decision making to the larger issue of valuing work: a negative perception of payment might negatively influence students' perceptions of the specialty in general.

Further, as debt increases, it is also possible that increased financial burden will cause further migration away from family medicine as students place a greater emphasis on remuneration.

These findings provide a link between previous work looking at debt and specialty choice and future earning expectation. Future studies are necessary to understand how payment affects the perception of the value of the work family physicians provide and to further understand if negative perception is driven by actual payment of family physicians or relative payment to other specialties. More importantly, studies of interventions to address negative perceptions in the profession are required such as early exposure to family medicine interest groups in medical school.²⁶ Medical student career decision making is complex and is influenced by many factors, but as we gain a better understanding of the relationships and interdependencies of these factors, there is increased potential to develop and implement interventions to improve recruitment.

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