Access to Medical Education

A Position Area Summary Statement

Synthesizing and updating

Diversity in Medicine in Canada: Building a Representative and Responsive Medical Community. Position Paper 2010

Representation in Medicine Examining Socio-economic and rural backgrounds. Policy Paper 2009

Double Jeopardy: The CFMS Position on the Threat of Escalating Medical School Tuition Fees Limiting access to Medical Education in Canada. Position paper 2000.

Policy Area: Medical school equity and diversity.

Accountability statement: The recommendations and advocacy plan discussed in this document will be the responsibility of the VP Medical Education and the Education Committee, with full support from the wider membership of the organization. Other executives, national officers, and members of other CFMS committees may assume responsibility of one or more of the advocacy recommendations and will report to the VP Medical Education.

Introduction

One of the most concerning issues with regard to current medical education in Canada is the fact that our current medical school cohorts fall far short of reflecting the diverse population of our nation. Medical students are far more likely than the average Canadian to have parents with university, graduate and professional degrees; to have parents employed in professional or high-level management occupations; to come from families with a high household income; to be from urban areas; (1-4). Physicians from low-income or ethnic minority backgrounds are more likely to serve traditionally underserved patient populations (5, 6). Similarly, physicians hailing from rural areas are more likely to practice in rural areas (7-9). In addition to these important implications for the equitability of patient care, the lack of diversity in medical schools demonstrates limited access to one of the most highly remunerated and highly regarded social-capital professions, maintaining a cycle of elitism within the medical community, and contributes to the systemic exclusion of underprivileged students from higher education and high-income careers.

The CFMS has undertaken research and advocacy on this topic for over a decade. Below is a summary of the CFMS perspective on this issue since 2000, starting with a statement of basic underlying principles, definition of the problem, followed by specific recommendations for stakeholders, as well as a discussion of advocacy to date and future plans.

Principles

Principle One: All Canadians should have equitable access to health care and to a healthy life, regardless of ethnicity, social status, income, geographical location.

Principle two: Our physician population, beginning with our medical students, should reflect the diversity of the Canadian population.

Principle Three: All Canadians should have equitable access to higher education.

Problem Definition:

Given the lack of representation in our medical schools of students from lower-income backgrounds, we have the following concerns regarding the process through which students are accepted into medical schools in Canada:

People from lower-income backgrounds are less likely to consider medical school.

Prospective students from lower-income backgrounds have been shown to feel that medical education is beyond their reach academically and financially. They receive less support and encouragement to pursue medical educations than higher income students. Students from more affluent backgrounds also have more access to role models in medicine, and a more accurate perception of a medical career.(10-13)

Due to this combination of economic, social, and cultural factors, many people from lower-income backgrounds self-select way from a medical education.

The expense and requirements of applying to medical school present a barrier to access for students from lower-income backgrounds and of rural origin.

Medical school application fees add up quickly when applying to multiple schools, and can range from several hundred to several thousand dollars. This is a substantial up-front cost that can pose a barrier to applicants in greater financial need. The costs of admission continue to rise through the interview process, which often entails travel between cities and may necessitate buying formal clothing for the interview itself. While there is little research available that directly studies the impact of these fees, any additional cost can act as a gate-keeping fee which privileges those applicants in higher socio-economic positions.

The Medical College Admissions Test (MCAT) also involves considerable expense. Aside from the fees of the test itself, for which financial consideration exists, preparation for the test can create considerable financial strain because many students spend part of their summers studying, or pay for expensive preparation courses. The MCAT, which some, but not all, Canadian medical schools require for admission, confers an advantage to those who can take time away from a summer job to study, or to those who can afford to pay for additional preparation. Writing the MCAT is also a major inconvenience for rural students, as these tests are often only written at large major centres. These facts raise questions about the utility of the MCAT and its role in admissions to Canadian medical schools.

Admissions criteria may favour students from higher-income backgrounds.

While each school differs in their evaluation of applications, in general the requirements are based on grade point average/academic achievement (with or without the MCAT), extracurricular activities, reference letters, and an interview. Each of these aspects is problematic from the point of view of creating an admissions process unbiased by socioeconomic status. Students who must work part or full time to finance their university education may have less time to focus on academics, to the detriment of their grade point average. Another barrier for some lower-income students is the requirement of many medical schools to take a full course load throughout an applicant's undergraduate education. While the rationale is to permit a fairer assessment and comparison with other students, it systematically discriminates against students who lack the financial resources to take a full course load and must work more hours and stretch a degree out beyond 4 years. Admissions requirements requesting that applicants spend time volunteering or being involved in other extracurricular activities also privilege those who do not need their own employment income to help pay for university. Further, medically-related volunteer activities in underprivileged countries may appear more impressive on an application, because they show both a commitment to and an interest in health care, yet these programs are often restricted to more affluent applicants. Being able to spend one's time volunteering is a luxury.

The medical school admissions interview also makes class-related assumptions. The interview assesses personal characteristics based on the interviewers' conceptions of what type of person makes a successful medical student and future physician. This includes assumptions of dress, language, relevant topics of conversation, and behaviour.

Students from rural communities are currently underrepresented at medical schools across the country, and may be disadvantaged in the admissions process.

Several studies have shown that students from rural communities as less likely to apply to medical school (3, 8, 9, 14, 15). This is attributable in part to the fact that, at present, residents of rural areas are less likely to pursue post-secondary education in the first instance, leaving them ineligible to satisfy university level prerequisite courses and requirements (3, 8, 9, 14, 15). This underrepresentation is especially pronounced among students from lower-income households (14) Rural residents are also more likely to be from lower-income households, which, as discussed above, confers several disadvantages when it comes to medical school candidacy.

Despite being underrepresented in Canadian medical schools, students from rural backgrounds are more likely to practice outside of urban areas (3, 7, 9, 14, 15), which implies a significant missed opportunity to train and recruit physicians who will contribute to reducing the physician shortage in rural areas.

Rising post-secondary and medical school tuitions exacerbate existing barriers to medical education for low-income and rural Canadians.

Rising debt burden may deter students from pursuing higher education and professional degrees, and can have an important impact on specialty choice (9, 13, 15, 16).

Recommendations:

Medical schools should:

1. Increase community-based outreach initiatives at all levels that encourage and support students from underrepresented and/or marginalized communities to pursue a career in medicine;

2. Develop admissions initiatives aimed at increasing the enrollment of medical students from underrepresented and/or marginalized communities.

3. Recognize the inherent challenges that come with being from low-income and rural backgrounds, and adjust admissions criteria to address this lack of representation

4. Support and help connect student-led initiatives aimed at increasing diversity in medical schools and developing cultural competency, such as student-run electives/ interest groups and awareness activities;

5. In partnership with Provincial and Federal governments, should increase needs-based financial assistance for current and incoming students. Additionally, financial aid and admissions offices, in collaboration with faculties, should endeavor to better publicise existing public and private scholarship and bursary programs. This information should be clearly stated on admissions websites.

6. Waive application fees for students with financial need.

7. Undertake to investigate the impact of the MCAT (and attendant fees) as a potential barrier to diversity in the medical school applicant pool. Ultimately, we recommend discontinuing the use of the MCAT as an admissions requirement. Failing this, we recommend the AFMC offer a MCAT fee assistance program, as does the AAMC.

The CFMS as an organization should:

8. Work with medical schools to increase cultural competency programming in curricula.

9. Support and help connect student-led initiatives aimed at increasing diversity in medical schools and developing cultural competency, such as student-run electives/interest groups and awareness activities;

10. Support and build on national student diversity initiatives;

11. Build on current lobbying efforts focused on increasing diversity in medical education;

Federal and Provincial Governments should:

12. Increase needs-based financial assistance at least to match any increase in tuition or auxiliary fees.

Advocacy completed thus far:

The CFMS has collected data about the medical student population and factors influencing their quality of life by conducting the National Medical Student Survey (2007), the Wellness Survey (2015-2016), and other internal surveys.

The CFMS focused on the financial implications of medical training for its Lobby Day efforts in 2013, asking that the federal government should defer repayment of the principal of, and interest on, the federal portion of Canada Student Loan Program (CSLP) loans until the end of students' residency training,

Additionally, representatives of the CFMS liaise annually with Canadian Association of Internes and Residents (CAIR), CARMS, and provincial bodies regarding issues of physician recruitment and labor market planning.

Room to grow:

The CFMS should undertake research regarding the needs of medical students with dependent children and produce policy recommendations detailing how institutions and federal and provincial governments can widen the accessibility of medical education to students who are or are planning to become parents during medical school.

The CFMS should undertake to produce a comprehensive revision of its positions regarding health human resources (HHR), including a policy area summary statement (PASS) synthesizing existing positions on such topics as distributed medical education, return of service agreements,

residency selection, International Medical Graduates (IMGs), and other issues of relevance to the physician workforce.

The CFMS should update recommendations to take into account findings of the National Wellness Survey.

References

1. Canadian Federation of Medical Students. CFMS National Medical Student Survey. Ottawa, Ontario. : 2007.

2. Dhalla IA, Kwong JC, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Characteristics of first-year students in Canadian medical schools. Canadian Medical Association Journal. 2002;166(8):1029-35.

3. Wright B, Woloschuk W. Have rural background students been disadvantaged by the medical school admission process? Medical education. 2008;42(5):476-9.

4. Young ME, Razack S, Hanson MD, Slade S, Varpio L, Dore KL, et al. Calling for a broader conceptualization of diversity: Surface and deep diversity in four Canadian medical schools. Academic Medicine. 2012;87(11):1501-10.

5. Marrast LM, Zallman L, Woolhandler S, Bor DH, McCormick D. Minority physicians' role in the care of underserved patients: diversifying the physician workforce may be key in addressing health disparities. JAMA internal medicine. 2014;174(2):289-91.

6. Reede JY. A recurring theme: the need for minority physicians. Health Affairs. 2003;22(4):91-3.

7. Chan BTB, Degani N, Crichton T, Pong RW, Rourke JT, Goertzen J, et al. Factors influencing family physicians to enter rural practice: does rural or urban background make a difference? Canadian Family Physician. 2005;51(9):1246-7.

8. Curran V, Rourke J. The role of medical education in the recruitment and retention of rural physicians. Medical Teacher. 2004;26(3):265-72.

9. Rourke J, Canada TFotSoRPo, others. Strategies to increase the enrolment of students of rural origin in medical school: recommendations from the Society of Rural Physicians of Canada. Canadian Medical Association Journal. 2005;172(1):62-5.

10. Beagan BL. Everyday classism in medical school: experiencing marginality and resistance. Medical education. 2005;39(8):777-84.

11. Greenhalgh T, Russell J, Boynton P, Lefford F, Chopra N, Dunkley L. "We were treated like adults"—development of a pre-medicine summer school for 16 year olds from deprived socioeconomic backgrounds: action research study. bmj. 2006;332(7544):762-7.

12. Greenhalgh T, Seyan K, Boynton P. "Not a university type": focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school. BMJ. 2004;328(7455):1541.

13. Ross S, Cleland J, Macleod MJ. Stress, debt and undergraduate medical student performance. Medical Education. 2006;40(6):584-9.

14. Hutten-Czapski P, Pitblado R, Rourke J. Who gets into medical school? Comparison of students from rural and urban backgrounds. Canadian Family Physician. 2005;51(9):1240-1.

15. Rourke J. How can medical schools contribute to the education, recruitment and retention of rural physicians in their region? Bulletin of the World Health Organization. 2010;88(5):395-6.

16. Kwong JC, Dhalla IA, Streiner DL, Baddour RE, Waddell AE, Johnson IL. Effects of rising tuition fees on medical school class composition and financial outlook. Canadian Medical Association Journal. 2002;166(8):1023-8.

Appendix A

Diversity in Medicine in Canada: Building a Representative and Responsive Medical Community. Position Paper 2010

Representation in Medicine Examining Socio-economic and rural backgrounds. Policy Paper 2009

Double Jeopardy: The CFMS Position on the Threat of Escalating Medical School Tuition Fees Limiting access to Medical Education in Canada. Position paper 2000.

Position Papers

Double Jeopardy: The CFMS Position on the Threat of Escalating Medical School Tuition Fees Limiting access to Medical Education in Canada

September 01, 2000
DRAFT paper -- to be ratified at the London Annual General Meeting, September 2000

As with any profession, the motivations for choosing a career in medicine are as unique as the individuals themselves. The experiences that each physician has prior to entering medical school, and undoubtedly the choices that have built their career since then can be credited for the diversity of the Canadian physician pool and the reason why Canadian doctors are known for their commitment to excellence in research, care and contributions to the community.

Sadly, the changing times on the national economic and political front are having an effect in the medical realm as well. An increasing resource crunch is forcing universities to do more with less - and driving a skyward trend for tuition that, due to differential fee schedules, is hitting professional schools particularly hard. The aging of the population combined with an inadequate physician supply is making equitable delivery of health care to all Canadians a near impossibility. As well, the growing acknowledgment of Canadian doctors' need for wellbeing and the adoption of a healthy lifestyle is making it more difficult to fill the gaps that a dwindling workforce is leaving behind. All of these factors are contributing to a downward spiral for workforce morale, impacting on the attitudes of health care professionals and ultimately affecting the delivery of health care to Canadians.

Despite this strikingly evident need to rejuvenate and renew the MD population in Canada, it is becoming more apparent that the current trends are limiting access to many potential future physicians. Rising tuition fees and an insufficient number of medical school seats are robbing Canadians of a diverse physician workforce, and slamming the door on a very talented group of people. "Return of Service" programmes offered by governments, while well intentioned, are not a solution to this crisis - they only serve to impose onerous restrictions and conditions on physicians and do nothing to improve accessibility to medical schools. The Canadian Federation of Medical Students believes that something can be done to stop this dangerous trend and make medical education more accessible to the deserving Canadians who are slowly being shut out.

Immediate Effects

The immediate effects of the recent changes are already being seen: the population of medical students has changed to reflect the new economic reality. A study at one school revealed that the average parental household income of the classes changed significantly: the percentage of students whose family incomes were $60 000 or less decreased from 40% to 27% in one year after tuition deregulation - illustrating that the population who can access medical education is narrowing. As well, studies show a polarization of students' financial situation: students are either forced to carry heavy unmanageable debt loads, or are financially positioned such that no debt-assistance is required. With government assistance programmes sagging far behind need, increasingly only those who are financially capable of shouldering large tuition costs or who are prepared or able to incur enormous amounts of debt are being admitted into medical schools - a worrisome comment on the effect that increasing fees is having on the admissions process.

Another predominant phenomenon is the migration of students to schools outside of Canada. Currently, the ratio of applicants to positions in Canada is much higher than for most other comparable nations: for example, 1:19,300 in Canada, compared to 1:12200 in the UK and 1:13500 in Australia. Hence, talented young Canadians are forced to enroll in non-Canadian institutions to be trained, and accept conditions where re-entry into Canada is not assured, simply because there are insufficient numbers of medical school training positions available in this country. This could be compounding the normal migration attributed to "Brain Drain" by

driving out talented young Canadians prior to their achieving professional status. And by making re-patriation cumbersome, we are in fact barring Canadian physicians from practicing in Canada.

Further concern surfaces when reviewing the shift in applicants to the specialty versus general practice pool. The Canadian Residency Matching Service results for the 2000 match show that less than 30% of the matriculating class was matched to family medicine residencies. This is the lowest ratio ever in Canada. The reason for this shift is debatable, but certainly as the graduating debtload of students rises, it will have a measurable effect on career choice.

Long-term ramifications

The long-term ramifications of decreased access are even more disturbing. The most publicly feared of these is the effect that it may have on location of practice for new doctors. As the physician shortage in remote and rural communities becomes more profound, practice location is becoming an integral component of the career decision. Given that the cost of medical education is higher for students studying further from home, higher tuition will only compound this burden. Students hailing from rural communities are a commodity, because they are more likely to return. Thus, limiting their access will have an impact on the future rural physician supply. Governments contemplate employing coercive measures to lure young physicians to remote locales, but have proposed very few initiatives that would provide financial assistance for students from rural communities.

As the physician shortage is exaggerated by this diminished accessibility, Canada may be forced to rely on International Medical Graduates to continue the adequate provision of health care. Although this source of medical professionals has always been important to the Canadian landscape, increasing reliance on these individuals poses an ethical dilemma. As internationally trained physicians are lured to Canada, we face the ethical problem of poaching creative MD's from the health care systems that have trained them, and are relying on them to remain. As its future guardians, we cannot permit this intrinsic injustice to be built into the health care system.

A final consideration of the long term effects of decreased accessibility is that, by decreasing access to medical education, we are, as a profession, distancing ourselves from the Canadian population. As the gap widens, our patients may find it harder to relate, and our role as compassionate caregivers will be filled by other non-physician clinicians, leaving MD's to serve only as cold, unattached databanks.

The Solutions

The CFMS believes that it is critical to measure the effects of the accessibility crisis, and take action before more harm is done. We propose the following steps be taken:

- All Canadian Universities impose a moratorium on differential tuition fee increases until such decisions and their effects are fully evaluated;
- Provincial and Federal Governments increase financial, needs-based assistance to become at par with tuition increases;
- A nation-wide expansion of the number of seats in medical school and residency to both increase flexibility for career choice and meet the demands of the Canadian population accessing care;
- Ensure that the current accreditation process guarantees that the admissions procedures for entry into Canadian Medical Schools, and the environment in which candidates are making these choices, selects students on the basis of academic merit, not financial status;
- Fund curricular activities fully (i.e. rural electives) to help maintain the cultural diversity of the classes, as opposed to having students absorbed by tertiary care settings and urban learning environments. Evidence supports the exposure of medical students and to rural environments during medical school as a successful recruitment technique;
- Discourage coercive measure for recruitment of students both prior to and after completion of their Medical Degree, recognizing that Return of Service programmes, in a climate

of escalating tuition fees, are involuntary and coercive;

Study methods for fair, ethical re-patriation of Canadian physicians trained outside of Canada until Canadian schools establish a self-sufficiency with the requirements of the health care system;

Encourage medical students to continue to develop a healthy interest in extracurricular activities and to maintain a link to their communities.

For more information contact: Tara Mastracci.

CFMS/FEMC POSITION PAPER

Diversity in Medicine in Canada: Building a Representative and Responsive Medical Community

BACKGROUND

The CFMS/FEMC recognizes diversity broadly, encompassing diversity in culture, ethnicity, gender, sexuality, physical ability, geography, religion and socioeconomic status. Within these domains of diversity, differences and dynamics among communities and community members have created imbalances in power and privilege that have systemically disadvantaged certain groups. Within the field of medicine, this has resulted in a healthcare system that is not reflective of or responsive enough to the healthcare needs of marginalized communities, such as Aboriginal communities, African-Canadians, and LGBTQ persons, to name a few.

As medical students in a country that embraces diversity, we believe that our medical system should be representative of and responsive to the diversity within our communities. Unfortunately, the medical school admissions process has traditionally favoured students from high-income, urban dwelling, majority groups, thereby limiting the diversity of medical students across Canada and further marginalizing underrepresented patients and communities.[1] While organizations such as the Association of Faculties of Medicine of Canada (AFMC) are recognizing these disparities and taking steps to increase the diversity and cultural competency of medical students, there is still much work to be done.[2]

To meet the needs of a diverse patient population, medical students and physicians must be able to provide care that is both culturally safe and culturally competent, regardless of a patient's background or personal experiences. Cultural safety refers to the patient's perspective in a healthcare encounter, while cultural competence refers to a health care provider's ability to create and support safe spaces for patients.[3] The overarching goal of cultural safety and competence is the creation of a safe, accessible space for disclosure and discussion.

Studies have shown that patients have better health outcomes when they receive care from a provider that can appreciate or relate to their background and experiences. In addition, patients are more likely to visit a physician and adhere to a recommended care plan when the physician provides culturally safe and competent healthcare. [1] Unfortunately, many minority groups experience barriers to health care access because existing services and/or healthcare providers do not adequately address their needs or experiences.

In supporting the development of cultural competency and cultural safety within medical education, it is important for students to have opportunities to explore and understand the imbalances in power and privilege that influence the experiences of marginalized communities and be exposed to different communities throughout their medical

education. It is also crucial for students to be challenged to explore their own experiences and biases. This involves not only addressing issues of overt discrimination, but also unconscious assumptions or stereotypes that students may be unaware of bringing to the clinical encounter.

An increased emphasis on diversity in medicine would help ensure that medical students and physicians are in tune with the needs of the communities that they strive to serve and represent. This is important since they often act as role models, leaders, and mentors within their communities. Physicians who better understand and represent the needs of their patients will be better able to advocate for public health issues and clinical research that can directly benefit marginalized communities they work with. Achieving this goal requires increasing the number of physicians from marginalized communities, and supporting the development of physicians who are able to work with these communities as allies and supports.

RECOMMENDATIONS

To ensure medical students across Canada are better equipped to meet the needs of diverse patient populations as future physicians, the CFMS/FEMC recommends:

- increasing community-based initiatives at all levels that encourage and support students from marginalized communities to pursue a career in medicine;
- medical schools develop admissions initiatives aimed at increasing the enrollment of medical students from marginalized communities that recognize their unique needs and experiences;
- medical schools, in partnership with provincial and federal governments, work to waive fees and/or create a bursary program for medical school applications (including MCAT) for students in financial need;
- medical schools, in partnership with provincial and federal governments, adjust tuition fees and/or debt relief programs to ensure medical education is accessible to all;
- medical schools publicize current scholarship programs and continue to pursue scholarship funding to eliminate financial barriers in pursuing a career in medicine;
- medical schools increase cultural competency programming in curricula.

To contribute to increasing the diversity in medical school classes and supporting the cultural competency development of medical students, the CFMS/FEMC as an organization should continue to:

- support and help connect student-led initiatives aimed at increasing diversity in medical schools and developing cultural competency, such as student-run electives/ interest groups and awareness activities;
- support and build on national student diversity initiatives;
- build on current lobbying efforts focused on increasing diversity in medical education;
- work with the AFMC on their *Future of Medical Education in Canada* project in the areas of diversity and social accountability in medical education.

Check out the following CFMS/FEMC's projects aimed at increasing diversity in medicine by visiting our website www.cfms.org:
Accessibility In Medical Education (AIMED) Program; an initiative to encourage rural high school students to pursue a career in medicine
Medical Students with Disabilities; an initiative to support and advocate for medical students with disabilities
Lobby Day 2010; our discussions with MPs focused on increasing the representation of students from low-income and rural background in medical school
Global Health Advocacy Theme for 2008/09 and 2009/10; our Global Health Program's national advocacy work focused on Aboriginal health issues in Canada

You may also be interested in the CFMS/FEMC position papers that explore the following diversity in medicine topics in greater depth:
Representation in Medicine: Examining Socio-Economic and Rural Backgrounds
Aboriginal Health

REFERENCES

1. Merani S, Abdulla S, Kwong J, et. al. Increasing tuition fees in a country with two different models of medical education. *Medical Education* 2010; 44: 577-586.
2. The Association of Faculties of Medicine of Canada. The Future of Medical Education in Canada (FEMC): A Collective Vision for MD Education. 2010. http://www.afmc.ca/fmec/pdf/collective_vision.pdf Retrieved July 25, 2010.
3. National Aboriginal Health Organization. Cultural Competency and Safety: A First Nations, Inuit and Metis Context & Guidelines for Health Professionals. 2007. http://www.naho.ca/publications/UofT2007.pdf Retrieved July 25, 2010.

First Drafted
2004 Bimpe Ayeni

Updated
2010 - Cait Champion (University of Toronto, 2012), Jane Dunstan (University of Toronto, 2012), Danielle Rodin (University of Toronto, 2012), Ashley Miller (University of Ottawa, 2012)

SUPPLEMENTARY MATERIAL

Recruitment and Support Initiatives to Increase Diversity in Canadian Medical Schools - Results of a 2004 CFMS/FEMC Survey
Bimpe Ayeni, 2004

The following initiatives are proving to be successful in the recruitment and support of a diverse medical student population:

- The **University of Toronto Black Medical Students Association (BMSA)** is a network of medical students and physicians that fosters mentorship and organizes community outreach initiatives. The group runs a Summer Mentorship Program that exposes high school students to medicine by giving them a chance to take classes, work with professors, and conduct research. BMSA also runs an interview workshop to help students prepare for medical school interviews.
- **Canadian Aboriginal Leaders in Medicine (CALM)** is a national organization whose membership consists of Aboriginal medical students and physicians. The group holds annual conferences to network and to discuss issues pertaining to Aboriginal health, research, and representation in the health sciences.
- The **University of British Columbia Faculty of Medicine** hosts a pre-admissions workshop for Aboriginal premedical students. In addition, since 2002, there has been an **Aboriginal Residency Site** at UBC which trains Family Practice residents who intend to care for Aboriginal populations and/or work in Aboriginal communities.
- The **Quebec Black Medical Association** is based in Montreal and it brings together high school students, undergraduates, medical students and physicians. In addition to promoting mentorship, the group provides scholarships and bursaries to assist students interested in pursuing a career in the health professions.
- The **University of Manitoba** has a 2 to 4-year Special **Premedical Studies Program** to prepare Aboriginal students for entrance into medical and dental schools or other health science programs. The program familiarizes students with university expectations and provides individualized academic advising and counseling. In addition, there is a **Professional Health Program** that provides support to students that have gained admissions to a health science program.
- The **Office of the Aboriginal Health Care Careers Program** at the **University of Alberta** was created to recruit and assist Aboriginal students. The Office provides academic, administrative, emotional, financial, and social supports to Aboriginal applicants and students. In addition, the Office strives for the inclusion of Aboriginal health issues including Traditional Medicine.

Representation in Medicine
Examining Socio-economic and rural backgrounds

Submitted to the delegates of the CFMS BAGM 2009 on behalf of the PAC
(Michael Richardson *Western* and Matthew Sheppard *MUN)*

Introduction

Medical school programs are among the most competitive in Canada. Every year, each of Canada's 17 Medical Doctorate programs receives thousands of applications for a limited number of positions. Due to the high demand for the few spots that are available, school administrators and eager undergraduate students focus their attention on what type of student belongs in medical school, and "what it takes to get in." Frequently the issue of the socio-economic and geographic backgrounds of the successful applicants is left out of these discussions.

One of the most concerning issues with regard to current medical education in Canada is the fact that our medical students reflect a very narrow segment of our population. In general, they come from higher-income backgrounds, are raised by well-educated parents, and live in densely populated urban areas. This is problematic for several reasons. For one, it demonstrates limited access to one of the most highly remunerated and highly regarded social-capital professions, maintaining a cycle of elitism within the medical community. Secondly, it means that our population of physicians will continue to represent a narrow segment of the population, which has implications for the distribution of medical practice in this country and the variable and inequitable access to health resources. And thirdly, it contributes to the systemic exclusion of marginalized people from higher education and high-income careers.

This paper is an attempt to bring greater attention to the issue of the accessibility of medical education in Canada. We explore some of the current barriers to medical education for students from low-income and rural backgrounds, and provide some recommendations to begin the process of developing a more equally accessible education system with students who more closely resemble the social and demographic distribution of all Canadians.

Entering medical school is the result of a life-long process of influences, social conditioning, and opportunities; the barriers are many and they are intertwined. There is a need for much more primary research and policy analysis on the social, economic, cultural, geographic, political, and other factors that influence an individual's path through the education system to a career in medicine. The effects of low-income status and rural upbringing on education intersect with ethnicity, language, immigration status, Aboriginal heritage, physical and mental barriers to participation, and other forms of marginalization in Canada; it is impossible to account for all of them in this paper. Similarly, the solutions will be complex, as they must address the roots of poverty and economic disparities that, ultimately, lead to the narrow representation of rural students and students of low socio-economic background in our medical schools. Therefore, this paper serves as an introduction to what we, and other sources, feel are some of the most immediate issues affecting the accessibility of medical education, and we intend for our

recommendations to be concrete steps that government and medical schools can take in the short term to begin the process of addressing this issue.

Principles

Principle One: All people in Canada should have equitable access to health care and to a healthy life.

The overall health of a person or a population is complex, with a wide variety of determinants, including: income, geographic location, employment, gender, nutrition, etc. Access to health care should not be included in the list, yet for many Canadians, lack of access is a reality. The multiple layers of inequalities distributed among pockets of populations across Canada translate into a higher burden of illness and disease for marginalized people, including low-wage earners, rural inhabitants, recent immigrants, or Aboriginal people.[i]

While the ideal solution to this problem would be to address these inequalities and concomitant social and environmental determinants of health more directly, in the interim we must face the reality that such a health gradient exists, and instead ensure that we deliver health care in such a way that it reaches those who need it the most. Unfortunately this is not the case. Traditionally, health care is much more accessible in higher-income and urban areas, while rural parts of the country and Aboriginal communities face chronic shortages of health care personnel, including physicians.[ii] Any broad-based approach to improve the health of our communities and the operation of our health care system should strive to provide equitable access to health care resources, with recognition, response and reaction to prevalent inequalities of health.

Principle Two: Our physician population, beginning with our medical students, should reflect our population.

In order to provide equitable access to health care, and specifically to address the chronic shortages of physicians in particular geographic areas and among specific populations, we need to ensure that our physicians reflect the diversity of our nation. Specific attention must be given to the chronic shortage of physicians in particular geographic areas and among marginalized populations. The available research suggests that physicians are more likely to serve populations that reflect their personal background. For example, physicians from lower-income families or areas are more likely than their higher-income peers to establish a medical practice providing service to lower-income patients. Further, physicians from low-income or ethnic minority backgrounds are more likely to treat patients with chronic illnesses or complex, multiple diagnoses.[iii] Therefore, a physician population that includes a representative proportion from lower-income backgrounds will benefit Canadian society by promoting equitable access to health care.

Unfortunately, our current medical school cohort falls far short of reflecting the diverse population of our nation. Tradition still holds true today, that medical students come disproportionately from wealthier backgrounds. Serial surveys of medical school demographics over the past decade show similar trends: medical students are far more likely than the average Canadian to have parents with university degrees, especially with graduate or professional degrees; to have parents employed in professional or high-level management occupations; and to come from families with a high household income.[iv] For example, in 2007 nearly 30% of medical students self-reported as having a family income in the top quintile nationally, while less than 15% came from the bottom quintile.[v] This income disparity is most severe in Ontario, where tuition has more than tripled since it was deregulated in 1997.[vi] In that province, more than 40% of medical students represent the highest 20% of household incomes, while only 4% hail from the lowest quintile. Overall, the average annual parental household income of medical students in 2007 was more than $115 000[vii]. Clearly, our medical schools are producing a generation of physicians who fail to reflect the diversity of our population.

Principle Three: All Canadians should have equitable access to higher education.

Concerns

Given the lack of representation in our medical schools of students from lower-income backgrounds, we have the following concerns regarding the process through which students are accepted into medical schools in Canada:

Concern One: People from lower-income backgrounds are less likely to consider medical school.

Research from the UK demonstrates that socio-economic status affects individuals' perceptions of who goes to medical school and what type of people become doctors. Specifically, people from lower-income backgrounds are more likely to associate medical school with elitism and privilege, and accordingly consider medical school to be unattainable for someone in their position.[viii] A study of medical students' perceptions and experiences of their socio-economic backgrounds showed that students from higher-income backgrounds had far more family and social network support and encouragement to pursue a medical education when compared to medical students who self-identified as working class.[ix] Students from more affluent backgrounds also had more access to role models in medicine, and a more accurate perception of a medical career.[x] These socio-cultural factors play a role in considering medical school as a viable career option.

Concurrently, people from lower-income backgrounds are more likely to over-estimate the costs of post-secondary education while underestimating both the level of financial support available to students, as well as the financial benefits that post-secondary education can often confer through higher-paid careers.[xi] Due to this combination of economic, social, and cultural factors, many people from lower-income backgrounds self-select away from a medical education.

On the topic of medical school and elitism, it is worth noting that research at a Canadian medical school by Brenda Beagan indicated that perceptions of medical school as an elitist space may not be completely misguided; students who self-identified as working class experienced marginality, isolation, and a feeling of cultural difference from their peers and instructors.[xii]

Concern Two: The expense and requirements of applying to medical school present a barrier to access for students from lower-income backgrounds and of rural origin.

Medical school application fees add up quickly when applying to multiple schools. For example, applying to a single medical school in Ontario through OMSAS costs $285; if applying to all six, the fees add up to $660.[xiii] This is a substantial up-front cost that can pose a barrier to applicants in greater financial need. The costs of admission continue to rise through the interview process, which often entails travel between cities and may necessitate buying formal clothing for the interview itself. While there is little research available that directly studies the impact of these fees, any additional cost can act as a gate-keeping fee which privileges those applicants in higher socio-economic positions.

The Medical College Admissions Test (MCAT) also involves considerable expense. Aside from the fees of the test itself, for which financial consideration exists, preparation for the test can create considerable financial strain because many students spend part of their summers studying, or pay for expensive preparation courses. The MCAT, which some, but not all, Canadian medical schools require for admission, confers an advantage to those who can take time away from a summer job to study, or to those who can afford to pay for additional preparation. Writing the MCAT is also a major inconvenience for rural students, as these tests are often only written at large major centres. It should be noted that recent research indicates the MCAT is a less reliable indicator of medical school achievement than grade point average, and in the United States white students consistently score better than African-Americans even when controlling for grade point average.[xiv] These facts raise questions about the utility of the MCAT and its role in admissions to Canadian medical schools.

These financial concerns are a harsher reality still for students from rural areas. Students from rural areas often face more financial obstacles than their urban counterparts. Out of necessity, students from rural areas in Canada have to move away from their hometown in order to continue to pursue post-secondary education. Since students must move away to make avail of post-secondary opportunities, this means that they must incur costs related to moving, accommodations, lodging and visits home during down-time and the holidays. This is in contrast to most medical students, as the majority come from wealthy families[15]. Rural families are typically significantly poorer than their urban equivalents[16] and thus, the additional financial costs associated with post-secondary education, and then medical education, are of both real and serious concern.

Concern Three: Admissions criteria may favour students from higher-income backgrounds.

While each school differs in their evaluation of applications, in general the requirements are based on grade point average/academic achievement (with or without the MCAT), extracurricular activities, reference letters, and an interview. Each of these aspects is problematic from the point of view of creating an admissions process unbiased by socio-economic status.

A student's academic achievement is often linked to their socio-economic background. This is a complex issue but some key points used here will illustrate this relationship. Students who must work part or full time to finance their university education may have less time to focus on academics, to the detriment of their grade point average. Another barrier for some lower-income students is the requirement of many medical schools to take a full course load throughout an applicant's undergraduate education. While the rationale is to permit a fairer assessment and comparison with other students, it systematically discriminates against students who lack the financial resources to take a full course load and must work more hours and stretch a degree out beyond 4 years. Further it also works against students with dependants who cannot attend school full time (and who are in general are greatly under-represented in post-secondary education).[17]

Admissions requirements requesting that applicants spend time volunteering or being involved in other extracurricular activities also privilege those with the financial resources to spend their time in ways other than academics or employment. Further, medically-related volunteer activities in underprivileged countries may appear more impressive on an application, because they show both a commitment to and an interest in health care, yet these programs are often restricted to more affluent applicants. Being able to spend one's time volunteering is a luxury that access to greater financial resources permits, and yet it is a universal expectation of medical school applicants.

The medical school admissions interview also makes class-related assumptions. The interview assesses personal characteristics based on the interviewers' conceptions of what type of person makes a successful medical student and future physician. This includes assumptions of dress, language, relevant topics of conversation, and professional behaviour. Research in both Canada and the UK indicates these attributes, as a form of social capital, are less readily accessible to applicants from lower-income backgrounds.[18]

Concern Four: The number of students from rural communities are currently underrepresented at medical schools across the country.

In a 2001 Survey, it was found that only 10.8% of medical students at that time were originally from rural communities, which is a sharp contrast to the number of Canadians (22%) who live in rural areas[19]. This shows that from purely a population standpoint, medical schools should be admitting twice as many students from rural communities in order to be representative of the entire Canadian population.

Concern Five: *Canadian medical schools require that all applicants complete university level prerequisite courses. Fewer students from rural areas go on to attend post-secondary schools than students from urban areas.*

Finnie et al. showed that the number of students who attend post-secondary education from rural areas is drastically smaller than those from urban areas. While 41% of females and 34% of males from urban areas attend university, only 33% of females and 21% of males from rural areas go on to do so[20]. Further, Frenette showed that living more than 80km from a post-secondary institution reduced attendance from all socio-economic backgrounds, but especially among lower-income families[21].

Concern Six: Fewer students from rural areas apply to medical school. Further, of this smaller number of students, fewer seem to be accepted.

While national data on medical school applicants do not exist, data from the province of Ontario suggest that fewer students from rural areas apply to attend medical school. While Ontario has a rural population of 13%, only 7.3% of the Ontario applicants were of rural origin and they made up only 6.2% of the successful applicants[22]. When using the same data from Ontario it can be seen that of those few rural students who apply, a lower proportion are accepted when compared to their urban counterparts. This holds true even with similar GPA's and MCAT scores. In 2002 & 2003, one in 5.6 rural applicants were admitted compared to one in 4.7 applicants of urban origin. On average, the GPA's of both rural and urban applicants were identical at 3.42[23].

Concern Seven: Individuals from rural areas in Canada have less access to family physicians than those in other areas. As the interest in family medicine residency positions declines, fewer medical school graduates will be graduating as family doctors and more rural Canadians will find it difficult to find a primary care physician.

The family physician-population ratio in rural Canada in 2002 was 1:1201, as compared with 1:981 for Canada as a whole[24]. It has been well documented that the number of medical students who desire to practice family medicine as a career has been declining. In 1992, 44% of eligible medical school graduates chose family medicine as their career of choice compared to only 25% in 2003[25].

Concern Eight: Since medical students from rural areas are more likely to return to practice in rural areas, the family physician shortage in rural areas may continue to worsen as rural students continue to be underrepresented.

Many studies have consistently shown that students who originally hail from rural areas are more likely than their urban equivalents to set up practice in rural areas at the end of their training. In a Canadian study, it was found that of 159 family practice residents at Queen's University, those of rural origin were 2.3 times more likely than those from urban areas to choose to practice in a rural setting after graduation[26].

American studies have shown that medical students from rural areas are four times more likely to go on to practice in a rural setting, even when educated in a standard urban curriculum without rural placements. Interest in primary care medicine and rural origin accounted for 78% of the probability that a graduating student would choose rural

primary care[27].

Further, Canadian students from rural areas are more likely to indicate a preference in family medicine than their urban equivalents when entering medical school[28].This difference is also still significant at the end of medical school training[29].

Wright et. al. reported that among first-year medical students in Alberta and British Columbia, it was the older students who were more concerned about medical lifestyle and who, once again, grew up in rural areas who were more interested in family medicine as a career. Desire to enter family medicine increased according to the size of a student's community of origin: those hailing from communities of less than 50 000 were 2.3 times more likely to have a desire to practice family medicine than those from larger communities[30].

Recommendations

Recommendation One: Medical schools should initiate early outreach programs to encourage interest in a medical career for both rural students and students from low SES backgrounds.

Efforts to increase the socio-economic diversity of our medical school attendees must begin early in a prospective student's life. As mentioned earlier, teenagers from lower-income backgrounds are less likely than their wealthier peers to have realistic perceptions of medicine, and much lower interest in pursuing medicine as a career. Early outreach programs, such as summer immersion camps, increase awareness and interest in medicine by exposing teenagers to medical practice and linking them with current medical students.[31] Some schools already have summer programs to reach out to under-represented groups, such as the MedQuest summer camp at the University of Western Ontario for rural students in South-West Ontario.[32] These programs, as well as one-on-one mentorship programs, are a pro-active solution to the problem by increasing interest in medical school at a time when teenagers are making decisions regarding their post-secondary future.

Recommendation Two: Medical schools should recognize the inherent challenges that come with being from low-income and rural backgrounds, and adjust admissions criteria to address this lack of representation.

Some Canadian medical schools currently make provisions for students from under-represented groups to promote admissions from these groups, such as students from rural areas in the geographical catchment area of the school, northern rural communities, and Aboriginal applicants (examples include UWO and NOSM).[33] Given that such precedents exist for targeted admissions procedures, medical schools should continue to implement these provisions for rural students, and expand them to include students from lower-income backgrounds. As many schools provide scholarships and bursaries based on demonstrated financial need, they may already have a method for determining low-income status. Admissions committees could also take part-time work experience during

the school term and summers as into consideration as an extra-curricular activity, given that work experience may come at the expense of volunteer activities.

It is often thought that making such allowances will lower the standards for medical school admissions; however, many studies have indicated that students from disadvantaged backgrounds go on to perform equally well as their more advantaged classmates. [34]

Also, given the high financial expense and questionable predictive value of the MCAT, we recommend that medical schools discontinue the use of the MCAT as an admissions requirement.

Recommendation Three: Medical schools should waive application fees for students with financial need.

The American Association of Medical Colleges has a fee assistance program for application and MCAT fees.[35] Canadian medical schools should adopt similar programs to ease this barrier to admissions.

Recommendation Four: Provincial governments and medical schools should ensure that tuition fees are as low as possible.

Medical tuition at Canadian schools correlates with both average household income and income distribution (relative to national quintiles) of students[36]. High tuition fees present an enormous barrier to participation. Therefore, provincial governments, which set regulation and provide public funding, and the schools that set individual tuition schedules, must strive to keep tuition as low as possible. We recognize that provincial governments and universities face financial pressures, but we believe they should bear in mind the relationship between tuition and accessibility when considering tuition fee increases.

Recommendation Five: Medical Schools should make clear statements, through admissions websites, promotional materials, and outreach methods, that financial assistance is available to all accepted students.

Given that, as previously noted, people from lower-income backgrounds tend to overestimate costs and underestimate the available financial supports, medical schools must take greater steps to promote awareness of these financial options. This will help the perception that medical school is financially unattainable.

Conclusions

The accessibility of a medical education in Canada is a pressing issue in our health care system. If we hope to achieve and maintain an inclusive, universal health care system that can provide equitable access to health care resources, we must address the issue of under-represented groups in our medical school classrooms.

An example from Australia where they have also struggled with rural medicine due to their dispersed population and relatively large land mass illustrates how the number of disadvantaged students enrolled in medicine can be increased. After years of struggle, through the use of financial incentives, adjustments to admission criteria and other positive changes, Australia's medical school classes increased their proportion of rural students from a dismal 10% in 1989 to 25% in 2000[37].

Outreach programs, fee assistance efforts, and comprehensive re-evaluations of admissions criteria are a strong first step towards rectifying this issue. However, achieving a truly accessible system of medical education will require a broad based effort to address the sources of educational inequality in Canada, from pre-school to post-graduate, and to ensure that our entire system of learning and training in this country is open, available, and inclusive to Canadians from all backgrounds.

---

[i] Richmond, C.A. and N.A. Ross. "The Determinants of First Nation and Inuit Health: a critical population health approach." *Health Place* 15:2 (June 2009), 403-411; Smith K.B. et al. "Commission on the Social Determinants of Health." *Australian Journal of Rural Health* 16:2 (April 2008), 56-66.

[ii] Ibid.

[iii] "Affirmative Action." *Lancet* 353:9146 (January 1999), 1-2; JC Cantor , E.L. et al. "Physician service to the underserved." *Inquiry* 33 (1996), 167-80; Bergen, SS. "Underrepresented minorities in medicine," *JAMA*, 284:9 (Sept 2000), 1138-9.

[iv] Dhalla, I.A. et al. "Characteristics of first-year students in Canadian medical schools." *CMAJ*, 166:8 (April 2002), 1029-1035; OMA 2006 Medical Student Factsheet <http://www.oma.org/student/factsheet2006.pdf> (retrived April 2nd, 2009); Abdullah S., Merani S., Johnson I. "CFMS: The National Medical Student Survey," 2007.

[v] "CFMS: The National Medical Student Survey," 2007.

[vi] OMA 2006 Medical Student Factsheet <http://www.oma.org/student/factsheet2006.pdf> (retrived April 2nd, 2009);

[vii] "CFMS: The National Medical Student Survey," 2007.

[viii] Greenhalgh T, Seyan K, Boynton P. "'Not a university type': focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school." *BMJ*,;328:7455 (June 2006), 1541-1547.

[ix] Beagan, Brenda. "Everyday classism in medical school: experiencing marginality and resistance." *Medical Education*, 39:8 (Aug 2005), 777-784.

[x] Ibid.; Greenhalgh T, Seyan K, Boynton P. "'Not a university type': focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school." *BMJ*,;328:7455 (June 2006), 1541-1547; Greenhalgh T, et al. "'We were treated like adults' – development of a pre-medicine summer school for 16 year olds from deprived socioeconomic backgrounds: action research study." *BMJ*, 332(7544): 762-767; Meilleur, Paris. "Early Outreach Programs: Reaching Out Early to Reach Higher." Ontario Undergraduate Student Alliance Policy Paper, October 2006.

[xi] Greenhalgh T, Seyan K, Boynton P. "'Not a university type': focus group study of social class, ethnic, and sex differences in school pupils' perceptions about medical school." *BMJ*,;328:7455 (June 2006), 1541-1547; Meilleur, Paris. "Early Outreach Programs: Reaching Out Early to Reach Higher." Ontario Undergraduate Student Alliance Policy Paper, October 2006.

[xii] Beagan, Brenda. "Everyday classism in medical school: experiencing marginality and resistance." *Medical Education*, 39:8 (Aug 2005), 777-784.

[xiii] "Fees and Payment of Fees." *OUAC: Professional Applications*, 2009, <http://www.ouac.on.ca/omsas/omsas-fees.html> (retrieved April 3rd 2009).

[xiv] Frazer, Ricardo A. "Affirmative Action Policy in Medical School Admissions." *Journal of Health Care for the Poor and Underserved*, 16:1 (Feb 2005), 12–18.

[15] Dhalla, I.A. et al. "Characteristics of first-year students in Canadian medical schools." *CMAJ*, 166:8

(April 2002), 1029-1035

[16] Rourke J. for the Task Force of the Society of Rural Physicians of Canada. Strategies to increase the enrolment of students of rural origin in medical school: recommendation from the Society of Rural Physicians of Canada. CMAJ 2005;172(1):62-65.

[17] Greenhalgh T, et al. "'We were treated like adults' – development of a pre-medicine summer school for 16 year olds from deprived socioeconomic backgrounds: action research study." *BMJ*, 332(7544): 762-767.

[18] "MedQuest." *Schulich School of Medicine and Dentistry, University of Western Ontario*. <http://www.medquestwestern.ca/index.php> (Retrieved April 3rd, 2009).

[19] Dhalla, I.A. et al. "Characteristics of first-year students in Canadian medical schools." *CMAJ*, 166:8 (April 2002), 1029-1035

[20] Hutten-Czapski, Peter, Pitblado, Roger, & Rourke, James. "Who gets into medical school ? Comparison of students from rural and urban backgrounds." Can Fam Physician, 51, 2005, 1240-1241, < http://www.cfpc.ca/cfp/2005/Sep/_pdf/vol51-sep-research-2.pdf>, accessed Apr. 17th, 2009.

[21] Ibid.

[22] Ibid

[23] Ibid

[24] Rourke J. for the Task Force of the Society of Rural Physicians of Canada. Strategies to increase the enrolment of students of rural origin in medical school: recommendation from the Society of Rural Physicians of Canada. CMAJ 2005;172(1):62-65.

[25] Ibid

[26] Easterbrook M, Godwin M, Wilson R, Hodgetts G, Brown G, Pong R, et al. Rural back- ground and clinical rotations during medical training: effect on practice location. CMAJ 1999;160:1159-63.

[27] Rabinowitz HK, Diamond JJ, Markham FW, Paynter NP. Critical factors for designing programs to increase the supply and retention of rural primary care physicians. JAMA 2001;286:1041-8.

[28] Dhalla, I.A. et al. "Characteristics of first-year students in Canadian medical schools." *CMAJ*, 166:8 (April 2002), 1029-1035

[29] Chan BTB, Degani N, Crichton T, Pong RW, Rourke JT, Goertzen J, McCready B., Factors influencing family physicians to enter rural practice.
Canadian Family Physician 2005;51:1246-1247.

[30] Wright B, Scott I, Woloschuk W, Brenneis F. Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine. CMAJ 2004;170:1920-4.

[31] Greenhalgh T, et al. "'We were treated like adults' – development of a pre-medicine summer school for 16 year olds from deprived socioeconomic backgrounds: action research study." *BMJ*, 332(7544): 762-767.

[32] "MedQuest." *Schulich School of Medicine and Dentistry, University of Western Ontario*. <http://www.medquestwestern.ca/index.php> (Retrieved April 3rd, 2009).

[33] "FAQs for M.D. Admissions." *Schulich School of Medicine and Dentistry*. <http://www.schulich.uwo.ca/education/admissions/medicine/> (Retrieved April 4th, 2009); "Admissions." *Northern Ontario School of Medicine.* <http://www.normed.ca/education/ume/general.aspx?id=384> (Retrieved April 1st, 2009).

[34] Dhalla, I.A. et al. "Characteristics of first-year students in Canadian medical schools." *CMAJ*, 166:8 (April 2002), 1029-1035

[35] "AAMC Fee Assistance Program (FAP)." *AAMC*, <http://www.aamc.org/students/applying/fap/start.htm> (Retrieved April 21st, 2009).

[36] Dhalla, I.A. et al. "Characteristics of first-year students in Canadian medical schools." *CMAJ*, 166:8 (April 2002), 1029-1035; OMA 2006 Medical Student Factsheet <http://www.oma.org/student/factsheet2006.pdf> (retrieved April 2nd, 2009); Abdullah S., Merani S., Johnson I. "CFMS: The National Medical Student Survey," 2007.

[37] Dunbabin JS, Levitt L. Rural origin and rural medical exposure: their impact on the rural and remote medical workforce in Australia (2003) <http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=212> (retrieved April 6th, 2009)