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Indigenous Student Matriculation into Medical School: Policy and Progress

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Indigenous Student Matriculation into Medical School: Policy and Progress

Abstract

Access to health care remains suboptimal for Indigenous people in Canada. One contributing factor is the longstanding undersupply of Indigenous physicians. Despite awareness of this issue, underrepresentation in medical schools continues. In 2002, Schulich School of Medicine and Dentistry (SSMD) policies were modified to enhance access for Indigenous students. This article describes our school's continuing journey of policy and process revision, formative collaborations, early learner outcomes, and lessons learned towards this goal. In the first 10 years, SSMD matriculated 15 additional Indigenous students via this new stream. All candidates were successful in the undergraduate medical curriculum, licensing examinations, and residency match. The majority were attracted to primary care specialties, training programs affiliated with SSMD, and practices in southern Ontario. While the process and curriculum have revealed their potential, its capacity is not being maximized.

Keywords

Indigenous, medical school, admissions, policy, pipeline

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Indigenous Student Matriculation into Medical School: Policy and Progress

The aim of this article is to address the imbalance of Indigenous physicians relative to the percentage of Indigenous people in Canada in general, specifically with respect to medical school admissions and matriculation. The present manuscript describes the rationale and approach taken by our school to optimize admissions processes for Indigenous applicants in moving towards a welcoming, supportive, respectful, and culturally safe environment. We have implemented policies and processes to address the issue of Indigenous physician shortages based on a number of recommendations, including those of the Aboriginal Health Task Group (The Indigenous Physicians Association of Canada–Aboriginal Health Recruitment & Retention Subcommittee [IPAC-AFMC], 2007; Une & Chan, 2005), the Canadian Federation of Medical Students (Arkle et al., 2015), and the Future of Medical Education in Canada (Association of Faculties of Medicine Canada, 2010; Hodges et al., 2011).

Indigenous Physicians in Canada

In 1996, the Royal Commission on Aboriginal Peoples (RCAP) presented a series of recommendations to address a wide range of issues for Indigenous Peoples in Canada including health care (Government of Canada, 2015). The RCAP recommendations included training an additional 10,000 health care workers over 10 years—a goal that was actually exceeded (Lecompte, 2012). Family physician and specialist numbers rose and by 2006, ten years after the report was tabled, 2.1% of all health care providers in Canada were Indigenous (compared with 1.2% in 1996) (Lecompte, 2012). While this represented a substantial increase, the figure remained well below proportional representation.

Indigenous people in Canada represent an estimated 4.3% of the population according to 2011 census data, a steady increase from 2.8% in 1996 (Statistics Canada, 2011). Indigenous people in Canada are also relatively young with 46.2% under 25 years of age and 28% under 15 years of age (Statistics Canada, 2011). By comparison, 29.4% of non-Indigenous Canadians are under 25 years of age and 16.5% are under 15 years of age. National statistics report a relative shortage of Indigenous "professionals" (by defined skill level) in general with lower university attendance (McMullen, 2013; Statistics Canada, 2012) as an important factor. In 2011, approximately 3.4 million Canadians, or 10.1% of the entire population, were categorized as "professionals" compared with less than 5% (69,645 out of 1.4 million) of the Indigenous population. Extrapolating a similar ratio for the physician workforce concurs with data reported in Lecompte's (2012) recent Canada-wide study of human resources for Indigenous health. A study of medical school matriculants (Young et al., 2012) suggested that the imbalance may be more extreme, with Indigenous ancestry underrepresented more than four-fold, although derived from data drawn from a more restricted sample.

Guiding Documents and Policy Generation

The Association of Faculties of Medicine of Canada (AFMC) in partnership with The Indigenous Physicians Association of Canada (IPAC) were influential in guiding national dialogue on the issue of Indigenous physician shortages, culminating in a workshop hosted by an Aboriginal Health Task Group (AHTG) (Une & Chan, 2005). In 2005, the following AHTG recommendations were adopted and endorsed by the Council of Deans, encouraging medical schools to develop:

a. Strategy and policy to increase enrollment of Aboriginal medical students;

- b. Aboriginal student selection sub-committee;
- c. Strategy and policy on Aboriginal community partnerships;
- d. Programs to provide support and encouragement to Aboriginal students;
- e. Ways to explore and address institutional bias and barriers to Aboriginal admissions; and
- f. Linkages to other institutions and Aboriginal organizations in order to understand and address barriers to post-secondary education, especially programs leading to health careers, among Aboriginal people.

Universities Canada (2015) agreed on an analogous set of principles aimed at improving both access and the learning environment. The Canadian Federation of Medical Students (CFMS) also recently produced a position paper endorsing many of the same principles related to admissions policies and processes (Arkle et al., 2015). The CFMS paper underscores the importance of collaboration with local Indigenous organizations to optimize communications and recruitment. The paper also emphasizes the need for an equitable and supportive institutional environment, one cornerstone being admissions "pipeline programs" (we prefer the term "stream") cognizant of cultural and financial barriers.

The Future of Medical Education in Canada (FMEC) (Association of Faculties of Medicine Canada, 2010; Hodges et al., 2011) crystallized a number of challenges and priorities facing medical schools at a national level. The recommendations have been widely embraced for their relevance and importance to the mandate of Canadian medical schools and the public we serve. Among the 10 recommendations, several are relevant to the present manuscript. The first recommendation encourages schools to remain mindful of individual and community needs. In this regard, FMEC reinvigorated our commitment to social accountability within which there are few if any more pressing (and chronic) issues than Indigenous health. While schools have made progress provincially and nationally, Indigenous matriculants remain disproportionately underrepresented (Young et al., 2012). A component of FMEC's second recommendation—enhance admissions practices—encourages the recruitment of a representative variety of applicants to best serve our diverse population. Indigenous health care figures prominently in recommendations IV and VI, which call for schools to enhance exposure to and training in preventative medicine and public health, and for the diversification of learning contexts, respectively.

Indigenous Matriculants

If a population-appropriate 4.3% of medical students in Canada were Indigenous, each year, a total of 125 Indigenous students would matriculate. Unfortunately, Canadian annual totals are not routinely collected or published. These totals are estimated to be improving, but are still short of this target. A 2003 survey-based study of Canadian medical schools found that Indigenous students represented less than 1% of all matriculants (Spencer, Young, Williams, Yan, & Horsfall, 2005). By 2015, all Canadian medical schools had developed admissions policies to enrich their classes with Indigenous matriculants (Hanson, Moineau, Kulasegaram, & Hammond, 2016). In 2016, at the time of writing, data shared by 10 of 17 Canadian medical schools indicated that 2.6% of new matriculants (45 out of 1,755 seats) were Indigenous. Similarly, Ontario Medical School Application Service data indicates that in the past 10 years, 2.3% of new matriculants to Ontario medical schools were Indigenous (200 out of 8,861 seats). It

is important to point out that, while 125 matriculants per year would easily eclipse past Canadian totals, this would merely create a steady-state going forward, and not address the existing shortage for this demographic. Instead, we are below this target and falling further behind each year. One component to the solution lies with medical school admissions where there is a desire to improve access for students of Indigenous heritage.

Local Indigenous Culture and School History

Western University is located on the traditional territory of the Attawandaron, Anishinaabe, Lenape, and Haudenausaunee peoples in Southwestern Ontario. Southwestern Ontario represents a 37,000 square km segment of the province of Ontario, with a population of approximately 3.5 million, which includes a large Indigenous urban population as well as many First Nations communities. The region is home to 12 First Nations communities including the Chippewas of Nawash Unceded First Nation, Saugeen First Nation, Chippewas of Kettle and Stony Point First Nation, Delaware Nation at Moraviantown, Six Nations of the Grand River, Aamjiwnaang First Nation, Caldwell First Nation, Walpole Island First Nation, Chippewas of the Thames First Nation, Oneida Nation of the Thames, and the Munsee-Delaware Nation (the latter three being in closest proximity to Western). Western University and its medical school campuses (London and Windsor) are centrally located in this region, which is also the geographic home to the medical school's Distributed Education Network, which facilitates undergraduate and postgraduate training outside our tertiary centers. As such, the school is well positioned for collaborative efforts, outreach, recruitment, and training of Indigenous physicians for the region. Western is one of the Canada's largest universities, with undergraduate enrollment (including affiliated university colleges) of approximately 37,000 and a graduate enrollment of approximately 5,000. The medical school, the Schulich School of Medicine and Dentistry (SSMD) established in 1881, currently matriculates 171 new students each year into its 4-year curriculum. Applicant academic thresholds (Medical College Admission Test [MCAT] scores and grade point average) are among the highest in the country. The medical school employs an Indigenous liaison who provides outreach to potential applicants, collaborative ties with local Indigenous communities, and advises the various educational portfolios on optimizing the environment for Indigenous applicants and students. Western is also supported by Indigenous Services, which provides campus-wide Indigenous expertise, outreach, student support, and guidance. Their offices, programming, events, and common areas also offer an enriched academic environment, culturally safe space on campus, and targeted services for self-identified Indigenous students.

Historical data prior to 2002 are unavailable in part because of legislation to protect privacy, but available evidence suggests that Indigenous matriculants were uncommon at our medical school prior to the policy change described herein. The desire to increase applicant and matriculant numbers brought about revisions to our outreach and admissions policies and processes. The present manuscript provides a summary of that experience and outcomes to date which should serve as encouragement for Indigenous communities and applicants and as support for similar admissions policy changes in medical and other professional schools.

Methods

Policy Development: Best Practices

In 2002, policies to improve the matriculation of Indigenous students were launched at SSMD under the direction of the Dean and the Associate Dean of Admissions and Student Affairs. The decanal team has continued to champion this initiative and the development of other policies to support diversity. In consultation with local and national colleagues as well as the available literature, this strategy's success was predicted to depend upon three elements in particular: working closely with Indigenous Services at Western University, expanding our relationship with regional Indigenous communities, and optimizing the admissions process for Indigenous applicants. These efforts were guided by local Indigenous leaders and built on culturally safe communication strategies that stressed transparency. Website material specific to Indigenous candidates was developed and in all forms of communication Indigenous applicants were encouraged to report any barriers encountered and to avail themselves of our Indigenous liaison and Indigenous Services on campus. In these ways, our local policies found consensus in the recommendations from the AHTG that followed in 2005 and which were expanded upon in 2007 (IPAC-AFMC Aboriginal Health Recruitment & Retention Subcommittee, 2007; Une & Chan, 2005).

Building Ties with Local Indigenous Leaders and Communities

Increasing affiliations with the Indigenous community at Western University was a foundational step in communications, visibility, and cultural safety (National Aboriginal Health Organization [NAHO], 2009, n.d.). This included the development of programming for high school students interested in health care careers, which in turn led to further partnerships with regional Indigenous communities. Common themes in these endeavours included consultation and collaboration with regional Indigenous stakeholders, convenience, and no or minimal cost. Indigenous Services on campus and our Indigenous liaison facilitated many important connections and synergies. Eventually, Indigenous matriculants became ambassadors, mentors, and tangible examples of the program's potential. Early steps included organization of the first Indigenous community-based initiative, involving youth from local Indigenous communities and current medical students as leaders (both Indigenous and non-Indigenous). In these encounters, Indigenous high school students spent time with medical students in hands-on experiences and group discussions about medicine and medical school. The Indigenous liaison officer and central Indigenous Services facilitated further connections to community and spiritual supports for current Schulich Indigenous learners by a number of means (one-on-one advising, campus events, and a visiting Elder program). In addition, mandatory and non-mandatory education sessions were organized on key topics affecting Indigenous health and culture to broaden understanding for all members of the medical school community.

Enhancing the Admissions Process for Applicants to the Indigenous Stream

In consultation with local partners, as well as national and international colleagues, further modifications were introduced to the admissions process to optimize access for Indigenous applicants. These changes included the formation of an Indigenous subcommittee to the Medical Admissions Committee, the assembly of a dedicated Indigenous interview team, and the recruitment of an Indigenous liaison. By enriching each component of the admissions process with the insight and expertise of Indigenous staff,

students, and faculty, our process gained credibility and became better informed in our continued growth towards cultural competence.

The Indigenous Admissions subcommittee of the Medical Admissions Committee was established as a standing committee. It became the subcommittee's mandate to recommend policies and guidelines related to the design, maintenance, and promotion of a program to increase enrollment of Indigenous students and the provision of support and counselling for matriculants. The subcommittee's structure is standard and includes a strong voice from the Indigenous Services office, current and former Indigenous medical students, and representatives from the Indigenous community as follows:

- Chair of Subcommittee: faculty member SSMD and member of the Medical Admissions Committee;
- Vice Chair of Medicine Admissions Committee (or delegate);
- Medical students (2) preferably of Indigenous heritage;
- Faculty member recommended by Western Indigenous Services;
- Director, Indigenous Services, Western University;
- Associate Dean, Admissions (ex officio);
- Manager of Admissions (ex officio);
- SSMD faculty member, appointed by Medicine Admissions Committee;
- Western University faculty member, appointed by Medicine Admissions Committee (typically the social science representative on the Medicine Admissions Committee); and
- Southwestern Ontario Indigenous medical doctor (MD) representative.

The subcommittee was also tasked with the development of standards for the interview and selection of Indigenous candidates most likely to be successful in the undergraduate program at SSMD. The Medical Admissions Committee was instructed to protect up to three seats per year for Indigenous candidates (representing 2.3% of the then 132-seat class, proportional to the Indigenous population in Ontario at that time). Furthermore, modest flexibility in academic requirements was introduced for both grade point average (GPA) and MCAT score. In addition to academic excellence, suitable candidates were required to demonstrate their Indigenous heritage and evidence of their personal connection to an Indigenous community. The latter was verified in the form of a testimonial from the applicant's Indigenous community leader. The typical standardized interview for our school was conducted with an interview team composed of Indigenous members of faculty, staff, and students. These policies were put in place based on the requirements set by the Medical Admissions Committee. However, the policies are revisited each year based on feedback from the community members, students, and Indigenous Services regarding such things as appropriate Indigenous documentation,

assessment of community involvement, and key points to cover in the interview process to better understand candidate connections to Indigenous culture and how they see themselves serving the community in the future. It was anticipated that the addition of a strong Indigenous voice on the Indigenous Admissions subcommittee, a liaison officer, and encouraging outreach activities would be viewed as a supportive network for new applicants and translate into more Indigenous applications.

These improvements to the admissions policy were not made in isolation. The school's has been cognizant of the need to enhance its approach to Indigenous health education for non-Indigenous students and physicians as well. Furthermore, locally and nationally, continued efforts to enable diversity and social accountability including Indigenous health and healthcare resources have become core features in policy development, curriculum redesign, and faculty recruitment.

Results

The first 10 years of the program enjoyed consistent success in attracting highly qualified Indigenous applicants averaging 10 per year from across the country. Each year, an average of 5 applicants were invited for interview and 4 received offers of admission. The result of the new process was the matriculation of 15 additional students who self-identified as Indigenous. The vast majority of applicants who accepted our offer of admission were from Ontario. Of the 21 matriculants to date (15 graduates, 6 currently in medical school), 19 (90%) were from Ontario. This ratio is similar to that for non-Indigenous students (91%) over this period.

Although 15 matriculants in 10 years represented a promising early outcome, despite consistently offering more than 3 positions, it meant that only half of the available seats were filled. With rare exception, students who declined our offer accepted an offer at another Canadian medical school with a strong in-province and in-region preference. Each year, Canadian medical schools saw their collective capacity far outnumber competitive applicants.

Of our first 15 matriculants, the male-to-female gender ratio was 7:8. All were successful in the undergraduate medical curriculum culminating in a 100% success rate in the Medical Council of Canada Evaluating Exam (MCCEE) and the Canadian residency match. For comparison, requirement to withdraw (failure beyond remediation) among all matriculants at the school was 0.1%, while failure in the MCCEE and residency match were 2.1% and 1.1% respectively over the same period of time.

Graduates revealed a moderate preference for primary care specialties and family medicine in particular. In total, 53% (8 of 15) chose to enter family medicine specialty training (Figure 1) compared with 36% for the general pool over the same period of time. Residency site selection favoured the home institution with 53% (8 of 15) choosing a residency associated with SSMD (Figure 2) compared with 31% of the general pool. Eight graduates had entered practice at the time of this review and all for whom data was available (n = 6) launched practices in this region (Southern Ontario).

Indigenous students identified a number of factors as important to this program's early success including academic and personal supports, the credibility of a program that is connected to the Indigenous community, and the presence of Indigenous peers, members of faculty, and mentors. These factors were perceived as adding relevance, validity, and cultural safety.

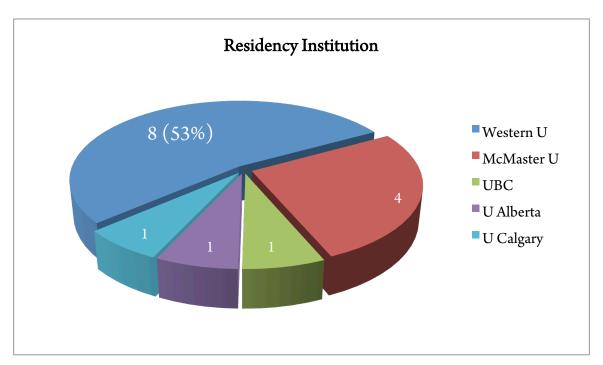


Figure 1. Institution chosen by Indigenous graduates for residency training.

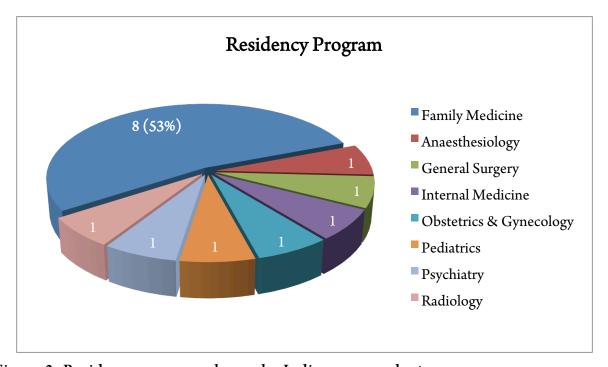


Figure 2. Residency program chosen by Indigenous graduates.

Discussion

The Indigenous stream at SSMD was initiated in 2002 in response to chronic medical workforce shortages in local Indigenous communities, a move that was echoed at the national level by the AFMC, IPAC, and the Council of Deans (Une & Chan, 2005). Mindful of evidence that Indigenous graduates would be more likely to provide culturally competent care, SSMD moved to improve access to medical school for academically strong Indigenous applicants who also demonstrated a genuine connection to their Indigenous culture and community.

The present article describes promising early outcomes and confirms that capacity exists to increase matriculation. In the first 10 years following our Indigenous stream's inception, we see promising early trends at each stage: admissions, undergraduate medical education, licensure, residency training, and entry into practice.

Lessons learned include the value of communications that are transparent, culturally informed, and varied in format to reach Indigenous applicants, communities, and educators at all levels. While informed by national and international scholarship, this can be a daunting task without the advice and expertise of local Indigenous partners. The establishment of cultural credibility and safety in our relationships, communications, and processes is a gradual process that continues and is guided by Indigenous colleagues and our own matriculants, who are our greatest ambassadors.

The academic flexibility that was introduced to enrich our school in this manner has not invited academic difficulty in the undergraduate or postgraduate curricula for these trainees. While academic and non-academic aptitudes are important variables, the academic thresholds in the selection process for medical school are extreme and a number of studies have suggested that marginalized populations are particularly disadvantaged by exceedingly high academic thresholds and certain formats of assessment, calling for broader and more culturally-appropriate methodologies in measuring aptitude (Eskander, Shandling, & Hanson, 2013; Raghavan et al., 2013). In this regard, Pidgeon (2008) reminds us that Indigenous and non-Indigenous cultural capital, habitus, epistemologies, and perceptions of success in higher education are not the same. She argues that success is embedded and judged more wholistically in Indigenous cultures in ways that escape colonial measures of success. Indigenous students are also more likely to live in rural settings where limits of distance, internet access, and financial resources can create further disadvantage (McMullen, 2013; Statistics Canada, 2010). Such issues are not unique to Canada (Acosta & Olsen, 2006; Curtis et al., 2015). Curtis and colleagues have reported on sources of disadvantage including secondary school preparation among Indigenous students in New Zealand and the potential of equity-based admissions processes (Curtis & Reid, 2013; Curtis, Wikaire, Stokes, & Reid, 2012). Similarly, student affairs deans of U.S. medical schools reported that key barriers to minority recruitment were academic thresholds (MCAT scores) and a lack of minority faculty and role models (Agrawal, Vlaicu, & Carrasquillo, 2005). Acosta and Olsen (2006) identified similar barriers to medical school matriculation for Indigenous students and other minorities, emphasizing the importance of processes to optimize entrance, retention, and faculty development.

Although quantitative data is not available, it is widely recognized that Indigenous matriculants were uncommon at our school prior to 2002. Canadian legislation prevents the routine collection of information on racial heritage. While this legislation was created in the spirit of protecting applicants

from potential bias and breaches of privacy, it has hindered Canadian medical schools in their understanding of the history and severity of this underrepresentation. While precise data are unavailable, the closest surrogate for the number of Indigenous students that would likely have matriculated in the 10 years prior to this study is the number of Indigenous matriculants (self-identified) who gained entry through the non-Indigenous stream in the period under study. This would have been the only pathway to entrance prior to 2002. These students accounted for less than 0.1% of the matriculant population. The improvements we have seen are associated with policy changes (modified admissions criteria) as well as expanded resources (Indigenous liaison officer, peer mentorship) and partnerships (Indigenous Services on campus, regional Indigenous communities). To ensure future success and to determine which factors are most important, ongoing data collection and analysis is imperative.

Institutions of Higher Learning: The Way Forward

The literature details a number of contributing factors in the realm of education, including inadequate educational resources and negative perceptions of institutions of higher education (Curtis et al., 2012; Gordon & White, 2014). Role models and mentors, early education experiences, and parental involvement in education are influential in creating an atmosphere that values higher education (Akmal & Larsen, 2004; Bempechat, 1990; Gorman, 1998; McLaughlin & Shields, 1987). Many authors have concluded that parental attainment of higher education is the most potent variable in predicting the same in their children (Finnie, Childs, & Wismer, 2011; McMullen, 2013).

Indigenous student success in post-secondary education is also shaped by many external factors including inadequate elementary and secondary school resources and financial constraints. Early childhood social and emotional experiences connected to colonialism and intergenerational trauma, geographic and cultural dislocation as well as additional family and community responsibilities are also impactful. Institutional factors include real and perceived threats of assimilation through inculcation within a Western educational environment, anti-Indigenous bias embedded in Euro-Western institutions, programs, and services as well as systemic barriers related to one's lack of cultural capital in navigating the institution. The paucity or lack of Indigenous presence and inclusion in curriculum content, human resources across staff and faculty, and service approaches are also influential (Paquette & Fallon, 2010).

Indigenous perceptions of educational institutions in Canada are a significant barrier, the nature and extent of which has been definitively examined by the Truth and Reconciliation Commission (Government of Canada, 2015; Truth and Reconciliation Commission, 2015). In his book *The New Buffalo: The Struggle for Aboriginal Post-Secondary Education,* Blair Stonechild (2006) speaks volumes about the past and future in stating, "The role of postsecondary education has evolved from a tool of assimilation to an instrument of empowerment" (p. 2). While this invites a new era, it also acknowledges the multi-generational depth of distrust towards institutions of higher education among Indigenous people in Canada. The Honourable Justice Murray Sinclair (2010) provided further sobering perspective in his address to the Senate Committee on Aboriginal Peoples: "There is no shortcut, no quick fix. It has taken generations to get us to this point and it will take generations to make it right" (p. 6).

For future generations, these factors must be addressed in order for higher education to become a culturally safe goal and source of empowerment. Furthermore, institutions of higher education need to value the diversity of knowledge that various populations bring to their learning platform, which in turn cannot be evaluated by traditional universal yardsticks. Gordon and White (2014) concluded that the gap in rates of post-secondary education between Indigenous people and non-Indigenous Canadians persists. This, alongside evidence that Indigenous students are further underrepresented in science, technology, engineering, and mathematics (STEM) programs (Ezeife, 2011), should compound concerns of the shortage of Indigenous youth tracking toward careers in the health care sector. Adding further urgency to the maturation of related policies and solutions is the fact that Indigenous youth are the fastest growing sector of Canadian society (Statistics Canada, 2011).

The Indigenous Medical Student and The Future of Indigenous Health Human Resources

Indigenous physicians are critical to Canadian health care and addressing the health needs of Indigenous communities. They provide cultural credibility, cultural safety, and understanding in health promotion and the delivery of care. The numerical shortage of physicians in Indigenous communities is only one facet of the problem. Indeed, the very concepts of health and healing among Indigenous Peoples are informed by a much broader and more wholistic perspective (Graham & Leesberg Stamler, 2010; National Aboriginal Community Controlled Health Organization [NACCHO], 2009; Richmond, Ross, & Bernier, 2013). It could be argued that sociocultural aspects of health are best addressed by physicians of similar heritage. Not only are such physicians more adept and credible in the direction and provision of culturally competent health care, but patients are also more receptive and therefore more likely to benefit from the advice and care provided (Bergen Jr., 2000; Cantor et al., 1996; Cantor et al., 2003; Komaromy et al., 1996; Lecompte, 2012; McMullen, 2013; Mikkonen & Raphael, 2010; Rabinowitz, Diamond, Markham, & Santana, 2012; Saha, Arbelaez, & Cooper, 2003; Spencer et al., 2005; Strasser, 2010). This underscores the importance of working with Indigenous matriculants to seek practices that serve their communities.

In this environment, Indigenous medical school applicants and matriculants find themselves in a pivotal and potentially burdensome position. They influence and are influenced by a large number of factors including their culture, socioeconomic, and rural disadvantages, attitudes towards higher education, imbalances in health care delivery, mentoring, and role modeling. Products of this environment, they are also key to shaping its future (Figure 3). While they may accept this responsibility connected to their cultural identity, medical schools, and health care institutions have a shared responsibility to recognize Indigenous students' needs and barriers and be prepared to support them.



Figure 3. Indigenous medical students and healthcare professionals: Factors and facilitators.

The continuing shortage of Indigenous physicians in Canada calls for concerted national efforts and policy change, supported at all levels of medical education, to shift a chronic shortfall to a point of national pride. At the urging of IPAC and the AFMC, all Canadian medical schools now have a variety of processes in place aimed at improving access for Indigenous applicants. These efforts should witness a substantial increase in Indigenous matriculants; however, continued data collection is imperative to inform best practices and demonstrate that the goal of enriching the medical profession with Indigenous colleagues and improving healthcare delivery to Indigenous people in Canada is being realized at a level that may lead to long-term balance. The foundation for national (and international) collaboration exists with the potential to accelerate policy development (Hanson et al., 2016). In the words of Justice Sinclair (2010), "much has been accomplished, but there is much left to do" (p. 6).

This report adds to the evidence that policy changes that add flexibility at admissions can facilitate the desired outcomes: an increase in matriculants who are successful in undergraduate and postgraduate medical education and graduates who favour in-region practices. Our experience also indicates that such policy change is only part of the long-term solution with local, regional, and national implications. It calls for continued efforts upstream to optimize Indigenous matriculation through enhanced cultural safety, mentorship, investments in early educational supports and experiences, celebration and communication of candidate success, and the development of a national database with which to better monitor workforce needs and recruitment.

References

- Acosta, D., & Olsen, P. (2006). Meeting the needs of regional minority groups: The University of Washington's programs to increase the American Indian and Alaskan Native physician workforce. *Academic Medicine: Journal of the Association of American Medical Colleges,* 81(10), 863–870. doi: http://doi.org/10.1097/01.ACM.0000238047.48977.05
- Agrawal, J. R., Vlaicu, S., & Carrasquillo, O. (2005). Progress and pitfalls in underrepresented minority recruitment: Perspectives from the medical schools. *Journal of the National Medical Association*, 97(9), 1226–1231.
- Akmal, T. T., & Larsen, D. E. (2004). Keeping history from repeating itself: Involving parents about retention decisions to support student achievement. Research in Middle Level Education, 27(2), 1–14.
- Arkle, M., Deschner, M., Giroux, R., Morrison, R., Nelson, D., Sauve, A., & Singh, K. (2015). *Indigenous Peoples and health in Canadian medical education: CFMS position paper.* Retrieved from http://www.old.cfms.org/attachments/article/1370/Indigenous_Health_in_MedEd_AGM2015.pdf
- Association of Faculties of Medicine Canada (AFMC). (2010). *The future of medical education in Canada (FMEC): A collective vision for MD education.* Ottawa: Author. Retrieved from http://www.afmc.ca/fmec/pdf/collective_vision.pdf
- Bempechat, J. (1990). The role of parent involvement in children's academic achievement: A review of the literature. ERIC Publications, 14. Retrieved from http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED322285
- Bergen Jr., S. S. (2000). Underrepresented minorities in medicine. *JAMA: The Journal of the American Medical Association*, 284(9), 1138–1139.
- Cantor, J. C., Miles, E. L., Baker, L. C., & Barker, D. C. (1996). Physician service to the underserved: Implications for affirmative action in medical education. *Inquiry: A Journal of Medical Care Organization, Provision and Financing*, 33(2), 167–180.
- Cantor, J. C., Miles, E. L., Baker, L. C., Barker, D. C., Komaromy, M., Grumbach, K., ... Cooper, L. A. (2003). Race, gender, and partnership in the patient-physician relationship. *JAMA: The Journal of the American Medical Association*, 289(8), 1225–1228. doi: https://doi.org/10.1056/NEJM199605163342006
- Curtis, E., & Reid, P. (2013). Indigenous health workforce development: Challenges and successes of the vision 20:20 programme. *ANZ Journal of Surgery*, *83*(1–2), 49–54. doi: https://doi.org/10.1111/ans.12030; 10.1111/ans.12030

- Curtis, E., Wikaire, E., Jiang, Y., McMillan, L., Loto, R., Airini, & Reid, P. (2015). Quantitative analysis of a Māori and Pacific admission process on first-year health study. *BMC Medical Education*, 15(1), 196. doi: https://doi.org/10.1186/s12909-015-0470-7
- Curtis, E., Wikaire, E., Stokes, K., & Reid, P. (2012). Addressing Indigenous health workforce inequities: A literature review exploring "best" practice for recruitment into tertiary health programmes. *International Journal for Equity in Health, 11,* 13. doi: https://doi.org/10.1186/1475-9276-11-13; 10.1186/1475-9276-11-13
- Eskander, A., Shandling, M., & Hanson, M. D. (2013). Should the MCAT exam be used for medical school admissions in Canada? *Academic Medicine: Journal of the Association of American Medical Colleges*, 88(5), 572–80. doi: https://doi.org/10.1097/ACM.0b013e31828b85af
- Ezeife, A. N. (2011). A cultural and environmental spin to mathematics education: Research implementation experience in a Canadian Aboriginal community. *First Nations Perspectives*, 4(1), 2–39.
- Finnie, R., Childs, S., & Wismer, A. (2011). *Under-represented groups in postsecondary education in Ontario: Evidence from the Youth in Transition Survey.* Retrieved from www.heqco.ca
- Gordon, C. E., & White, J. P. (2014). Indigenous educational attainment in Canada. *International Indigenous Policy Journal*, *5*(3). doi: https://doi.org/10.18584/iipj.2014.5.3.6
- Gorman, T. J. (1998). Social class and parental attitudes toward education: Resistance and conformity to schooling in the family. *Journal of Contemporary Ethnography*, *27*(1), 10–44. doi: https://doi.org/10.1177/089124198027001002
- Government of Canada. (2015). *Highlights from the Report of the Royal Commission on Aboriginal Peoples*. Retrieved from http://www.aadnc-aandc.gc.ca/eng/1100100014597/1100100014637
- Graham, H., & Leesberg Stamler, L. (2010). Contemporary perceptions of health from an Indigenous (Plains Cree) perspective. *Journal of Aboriginal Health*, 6(1), 6-17.
- Hanson, M. D., Moineau, G., Kulasegaram, K. (Mahan), & Hammond, R. (2016). Is Canada ready for nationwide collaboration on medical school admissions practices and policies? *Academic Medicine*, *91*(11), 1501-1508. doi: https://doi.org/10.1097/ACM.00000000000001286
- Hodges, B., Albert, M., Atweiler, D., Akseer, S., Bandiera, G., Byrne, N., ... Reeves, S. (2011). The future of medical education: A Canadian environmental scan. *Medical Education*, 45, 95–106.
- The Indigenous Physicians Association of Canada-The Association of Faculties of Medicine of Canada (IPAC-AFMC) Aboriginal Health Recruitment & Retention Subcommittee. (2007). *Preadmissions support toolkit*. Retrieved from https://www.afmc.ca/pdf/IPAC-AFMC-Pre-Admissions-Support-Toolkit-Eng.pdf
- Komaromy, M., Grumbach, K., Drake, M., Vranizan, K., Lurie, N., Keane, D., & Bindman, A. B. (1996). The role of Black and Hispanic physicians in providing health care for underserved populations.

- *The New England Journal of Medicine, 334*(20), 1305–1310. doi: https://doi.org/10.1056/NEJM199605163342006
- Lecompte, E. (2012). Aboriginal health human resources: A matter of health. *Journal of Aboriginal Health*, 8(2), 16–22.
- McLaughlin, M. W., & Shields, P. M. (1987). Involving low-income parents in the schools: A role for policy? *Phi Delta Kappan*, *69*(2), 156–160. Retrieved from http://www.eric.ed.gov/ERICWebPortal/detail?accno=EJ359353
- McMullen, K. (2013). *Postsecondary education participation among underrepresented and minority groups.* Retrieved from http://www.statcan.gc.ca/pub/81-004-x/2011004/article/11595-eng.htm
- Mikkonen, J., & Raphael, D. (2010). *Social determinants of health: The Canadian facts.* doi: https://doi.org/10.1016/B978-012288145-9/50048-6
- National Aboriginal Community Controlled Health Organisation (NACCHO). (2009). *Towards a national primary health care strategy: Fulfilling Aboriginal peoples aspirations to close the gap.*Retrieved from www.naccho.org.au/wp.../PHC-Strategy-NACCHO-submission-2009-FINAL-2.pdf
- National Aboriginal Health Organization (NAHO). (2009). *Cultural competency and safety in First Nations, Inuit and Métis health care.* Retrieved from www.naho.ca/documents/naho/english/factSheets/culturalCompetency.pdf
- National Aboriginal Health Organization (NAHO). (n.d.). *Cultural safety*. Retrieved from http://www.naho.ca/inuit/inuit-knowledge/cultural-safety/#_ftnref3
- Paquette, J., & Fallon, G. (2010). First Nation education policy in Canada: Progress or gridlock? Toronto: University of Toronto Press.
- Pidgeon, M. (2008). Pushing against the margins: Indigenous theorizing of "success" and retention in higher education. *Journal of College Student Retention*, 10(3), 339–360. doi: https://doi.org/10.2190/CS.10.3.e
- Rabinowitz, H. K., Diamond, J. J., Markham, F. W., & Santana, A. J. (2012). The relationship between entering medical students' backgrounds and career plans and their rural practice outcomes three decades later. *Academic Medicine: Journal of the Association of American Medical Colleges*, 87(4), 493–497. doi: https://doi.org/10.1097/ACM.0b013e3182488c06; 10.1097/ACM.0b013e3182488c06
- Raghavan, M., Martin, B. D., Burnett, M., Aoki, F., Christensen, H., MacKalski, F., ... Ripstein, I. (2013). Multiple mini-interview scores of medical school applicants with and without rural attributes. *Rural and Remote Health*, *13*(2), 1–9.

- Richmond, C. A. M., Ross, N. A., & Bernier, J. (2013). Exploring Indigenous concepts of health: The dimensions of Métis and Inuit health. *Aboriginal Policy Research Series: Moving Forward, Making a Difference, 4*(20), 3–16. Retrieved from ir.lib.uwo.ca/cgi/viewcontent.cgi?article=1329&context=aprci
- Saha, S., Arbelaez, J. J., & Cooper, L. A. (2003). Patient-physician relationships and racial disparities in the quality of health care. *American Journal of Public Health*, *93*(10), 1713–1719.
- Sinclair, M. (2010). *Presentation to the Senate Committee on Aboriginal Peoples*. Retrieved from http://www.trc.ca/websites/trcinstitution/File/pdfs/senate%20speech_handout_copy_E_Final.pdf
- Spencer, A., Young, T., Williams, S., Yan, D., & Horsfall, S. (2005). Survey on Aboriginal issues within Canadian medical programmes. *Medical Education*, *39*(11), 1101–1109. doi: https://doi.org/10.1111/j.1365-2929.2005.02316.x
- Statistics Canada. (2010). *Internet use by individuals, by selected characteristics*. Retrieved from http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/comm35a-eng.htm
- Statistics Canada. (2011). 2011 Government of Canada National Household Survey. Retrieved from http://www12.statcan.gc.ca/census-recensement/index-eng.cfm
- Statistics Canada. (2012). *Learning-education attainment/indicators of well-being in Canada*. Retrieved from http://well-being.esdc.gc.ca/misme-iowb/.3ndic.1t.4r@-eng.jsp?iid=29
- Stonechild, B. (2006). *The new buffalo: The struggle for Aboriginal post-secondary education in Canada*. Winnipeg: University of Manitoba Press.
- Strasser, R. P. (2010). Community engagement: A key to successful rural clinical education. *Rural and Remote Health*, *10*(3), 1543.
- Truth and Reconciliation Commission. (2015). *National Centre for Truth and Reconciliation*. Retrieved from http://nctr.ca/reports.php
- Une, V. A. J., & Chan, F. (2005, June). *AFMC/UBC Workshop on Admissions and Support of Aboriginal Students in Medicine*. University of British Columbia, Vancouver, BC.
- Universities Canada. (2015). *Universities Canada principles on Indigenous education*. Retrieved from http://www.univcan.ca/issues/indigenous-education/
- Young, M. E., Razack, S., Hanson, M. D., Slade, S., Varpio, L., Dore, K. L., & McKnight, D. (2012). Calling for a broader conceptualization of diversity: Surface and deep diversity in four Canadian medical schools. *Academic Medicine: Journal of the Association of American Medical Colleges, 87*(11), 1501–1510. doi: http://doi.org/10.1097/ACM.0b013e31826daf74; 10.1097/ACM.0b013e31826daf74