Inclusion of Naturopaths in Northern Ontario Primary Care: A Proposed Solution for The Health Human Resources Shortage

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ABSTRACT

The shortage of primary healthcare practitioners, such as physicians and nurses, in northern Ontario has persisted for decades despite multiple strategies to address it. Poor health outcomes for people living in northern Ontario must be viewed through an equity lens that takes into account the multiple proximal, intermediate, and distal social determinants of health, including, but not limited to, the impact of colonization and continued colonialism on the health of Indigenous Peoples, challenges in housing, education and employment, as well as lack of food security. The increase in chronic health conditions in northern Ontario and the need for interprofessional healthcare teams that offer patient-centred care are key issues. Whole person care that takes into consideration the integration of body, mind, and spirit is central to Indigenous concepts of health and wellness, as well as being central to the foundations of naturopathic medical philosophy. Inclusion of naturopathic doctors in publicly funded multi-disciplinary primary healthcare settings is proposed as an achievable strategy to fill gaps in health human resources and advance the movement towards holistic care for Indigenous Peoples and others living in northern Ontario.

Key Words Indigenous, naturopathic, naturopath, primary healthcare practitioner shortage, holistic, CAM (complementary and alternative medicine).

INTRODUCTION

In order to engage with research related to Indigenous health issues, it is important that we, as the authors, outline how our positionalities may cohere or diverge from our research inquiry, influencing and potentially biasing our approach to answering the research question and ultimately writing a review. All authors currently reside in northern or southwestern areas of Ontario, Canada, and have diverse backgrounds and experiences in direct clinical care, healthcare leadership, and academia. At the time of manuscript writing, three of the four authors identify as white, cis-gendered graduate students completing master's degrees in the Health Sciences. The fourth author is from the Onondaga Nation, Beaver Clan, from the Six Nations of the Grand River Territory and provided guidance in the creation of the manuscript with the intent of collaborating to support the sharing of Indigenous perspectives from a First Nations lens. The authors collectively acknowledge that work in mainstream healthcare and academic sectors relies mainly on evidence-based knowledge that is rooted in western and largely colonial epistemologies. The impetus for the chosen topic of this review is to support the voices of those often not integrated into the mainstream health systems, including alternative care practitioners and those traditionally underserved by the current healthcare system.

The following review was initially written as an Intersectionality-Based Policy Analysis (IBPA) to meet the requirements of a master's level course related to Northern and Remote Health and Healthcare at Lakehead University. The authors jointly identified a current social and policy issue and each completed an independent literature review to answer the following research question: Nurses have filled many positions in primary health care in northern Ontario but a gap in recruitment and retention persists. Can naturopathic doctors (NDs) help to fill these gaps in primary healthcare delivery in northern Ontario? Following the completion of the IBPA and acknowledgement of the ongoing health human resources (HHR) crisis across Canada (and in particular northern Ontario), the authors chose to share this work in the form of a review. This paper presents a strong case for the inclusion of NDs to fill the current gaps in primary care, reducing the impact of the HHR crisis on the ability of individuals to access needed healthcare supports and services. An Indigenous

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naturopathic doctor who provided invaluable perspectives and was a key source in the original IBPA was invited to collaborate in the authoring of this review.

Across the territory currently defined as "Canada," when individuals require health care, they often access primary care services as a first point of contact within the healthcare system. While mainstream primary healthcare models have served many people well, accessing health services is not without its challenges. Across Turtle Island, and more specifically in the territory now referred to as Canada, multiple healthcare deficits exist, including discrepancies in health outcomes between patient demographics,[1] inequitable healthcare provider (HCP) distribution, including physician shortages,[2,3,4,5,6] and ongoing systemic racism within the healthcare sector.[7,8] Healthcare inequities are especially evident in northern, rural, and remote regions. Despite universal coverage and primary healthcare delivery reforms, individuals living within these regions continue to experience compounding factors that lead to poorer health outcomes compared with their more southern and urban counterparts.[9] These compounding factors include, but are not limited to, the proximal, intermediate, and distal social determinants of health, which are the social and economic factors that influence health outcomes.[1]

As many factors combine to create poorer health outcomes in northern, rural, and remote Canada and the Indigenous communities therein, barriers and contributors to these outcomes must not be considered as mutually exclusive. Rather, these factors must be considered together to reveal a more realistic interpretation of how such outcomes affect the diverse populations of these areas, and how they may be addressed, improved, or completely dismantled. While this review acknowledges all social determinants of health, it explores the HCP shortage as it currently exists in northern Ontario—herein defined as the provincial North, spanning the North West and North East Local Health Integration Networks, which extend from the Quebec border to the Manitoba border and from Lake Huron to Hudson Bay.[10] Unique to this review is the recommendation of the integration of naturopathic doctors (NDs), regulated primary healthcare practitioners in Ontario,[11] as one solution to address the HCP shortage.

As HCP shortages persist in northern Ontario, resources are often stretched thin. To combat this, naturopathy, traditional Indigenous medicines, and other forms of medicine that exist outside the biomedical model are currently filling gaps in health care in certain rural and northern Ontario communities[12] and across the globe.[13,14] Research suggests that NDs, as primary HCPs, may be well situated to help integrate complementary or alternative (CAM) therapies into conventional primary care, creating a more holistic model that can better address health through prevention and management of chronic disease.[13,15-19] In light of the unique challenges faced by this region and in support of the integration of the naturopathic profession, there are many considerations that need to be taken into account to enact effective change in the healthcare sector. These considerations include past efforts, ongoing colonialism, the unique needs of northern Ontario's populations, and the ND scope of practice.

BACKGROUND

One contributor to the poor health outcomes seen within northern Ontario is the supposed inability to provide adequate services attributed to the geographical expanse and factors such as transportation logistics, community isolation, and high costs[20]; however, there are many more factors that impact the health outcomes that exist in northern Ontario. Such factors include the proximal determinants of health, such as access to nutritious, culturally-relevant, and reasonably priced foods,[20,21] safe and affordable housing,[22,23] and educational opportunities that meet the needs of the local populations. More specifically seen in this region are issues relating to inadequate access to housing[2,24]; creation of a boom–bust economy by mines, leading to changes in resources provided to residents of mining towns and migration of residents into and out of towns as their economies fluctuate[25]; increased need for social services and primary care capacity[2]; and social exclusion by healthcare providers and the general public.[2] As Dr. Sarita Verma (Northern Ontario School of Medicine University President and CEO) purports, "poverty, rising inequality in income and assets, and social exclusion all drive the widening and deepening health inequalities in northern Ontario."[26]

Colonialism and Indigenous Health Considerations

While urban communities in northern Ontario also experience discrepancies in access to health care, the communities in rural and remote northern Ontario experience significantly higher rates of preventable adverse health outcomes. Due to the large proportion of Indigenous Peoples living in northern Ontario, the impact of colonization and ongoing colonialism and its manifestations in the form of geographic isolation on reserves, the maintenance of the Indian Act, and the Non-Insured Health Benefits (NIHB) system cannot be ignored.[2,27] Ongoing colonialism and exacerbated inequities in access to healthcare services have resulted in significant differences in health outcomes between Indigenous and non-Indigenous Peoples in Canada.[1,2]

While health disparities are exacerbated in northern Ontario compared with the southern regions of the province, significant disparities in equity and access to health care exist for Indigenous communities across Ontario. In Canada, 22% of the Indigenous population lives within Ontario.[28] Northern Ontario is home to 106 First Nations communities, with 22% of northwestern Ontario's and 11% of northeastern Ontario's population being Indigenous.[2] Although there exist commonalities, such as holistic philosophies regarding health, use of ceremony, and plant medicines, amongst Indigenous communities, each community has its own distinct traditions, customs, and unique approaches to and conceptualizations of health and well-being.[29]

Indigenous knowledge about and perspectives on health and wellness are not incorporated into mainstream health care, and experiences of individual and systemic racism within health care contribute significantly to the health inequities experienced by Indigenous Peoples.[7,30] Indigenous ancestry remains listed among the social determinants of health, indicating that simply being Indigenous can significantly impact health status.[31] However, it is

important to note that ancestry does not inherently impact health but that, in fact, health is impacted by the marginalization and discrimination of populations by those in positions of power. Identifying Indigenous identity as a contributor to poor health is now strongly cautioned against, which demonstrates a recognition of the systemic barriers within health care which result in skewed health outcomes.[1,2]

Addressing Inequity in Access to Primary Care in Indigenous Communities

We acknowledge that any recommendations about healthcare delivery to First Nations communities must be modified, co-developed, and implemented by First Nations communities to be respectful of Indigenous self-determination and to take into account the difference in healthcare funding streams. In the following paragraphs, we explore the rationale for naturopathic medicine's potential usefulness to Indigenous communities.

Integrative interprofessional healthcare teams providing care to First Nations communities have the potential to be a viable and effective solution to address inequity in access to health care. It is a solution shown to be of great benefit in other areas[32,33] due to the alignment of epistemologies and ontologies of "health" between naturopathic medicine, and Indigenous concepts of health and wellness.

Whole-person care that takes into consideration the integration of body, mind, and spirit is central to Indigenous concepts of health and wellness, as well as being central to the foundations of naturopathic medical philosophy.[18,34-37] As Dr. Johanne McCarthy, ND, a member of the Onondaga Nation of Six Nations, who serves as the Director of Academic Programs at Six Nations Polytechnic and practices naturopathic medicine in Ontario, and others have pointed out, a philosophical and practical alignment appears to exist between Indigenous concepts of health and naturopathic medicine[18,36] (Johanne McCarthy, N.D., email communication, April 4, 2022). In addition, several prominent NDs in Ontario believe that the naturopathic profession's focus on holistic care, patient empowerment, and getting to the root cause of illness primes NDs to engage in dismantling racism and other forms of discrimination, advocating for Indigenous patients, and contributing to the decolonization of medicine[38] (Johanne McCarthy, N.D., email communication, April 4, 2022; Howie Owens, email communication, April 11, 2022). More importantly, Indigenous patients accessing naturopathic medicine have expressed that this intervention fits well with their own cultural concepts of health by viewing body, mind, and spirit as interconnected and getting to the root cause of disease.[18,36] A key study highlights how naturopathic medicine can help address the healthcare needs and preferences of Indigenous Peoples in Canada:

> Findings from the qualitative research study indicate that the naturopathic clinic at Anishnawbe Health Toronto (AHT) achieved positive patient outcomes and addressed the specific health needs of this population in a way that was not met by other traditional or conventional HCPs. Upon evaluation and analysis of common themes at Aboriginal Health Access Centres and after comparison with actual delivery of care, a clear imbalance between the desire for and accessibility to health promotion and prevention programs and the provision of holistic care was revealed. This imbalance could be corrected through the implementation of naturopathic medicine.[18]

In light of the close alignment of epistemologies between naturopathy and Indigenous health and healing, continued implementation of such integrative care is necessary for advancing Indigenous health. Canada, as a signatory to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), has already committed to advancing the health and well-being of Indigenous Peoples through Indigenous-led and desired initiatives.[39] This includes, but is not limited to, the right to all social and health services free of discrimination and the establishment that Indigenous Peoples have a right to the "highest attainable standard of physical and mental health."[39]

The key factors for improving Indigenous access to primary care have long been overlooked, while focus has instead centred on healthcare modalities that fit the western euro-centric health paradigm and silence traditional knowledge and practices.[34] From what can be seen through published[18,36] and anecdotal (e.g., Johanne McCarthy, N.D., email communication, April 4, 2022) sources and the move towards Indigenous-led health care in Canada,[29] the integration of NDs into primary healthcare teams within northern Ontario may be helpful in advancing Indigenous rights in health and health care. Specifically, if the services of NDs are deemed valuable by Indigenous communities, then these services should be fully funded and available to all Indigenous Peoples across northern Ontario.

Health Care Provider Shortages in Northern Ontario

At least 1 million people in Ontario do not have regular access to primary care resources; this shortage is particularly acute in northern and rural areas.[4] To address HCP shortages, Ontario has implemented initiatives such as multiple strategies to recruit and retain physicians,[5,40] the establishment of Family Health Teams, and Nurse Practitioner-Led Clinics[41] as well as the founding of the Northern Ontario School of Medicine in 2005.[42-44]

Despite these initiatives, there is currently a shortage of 100 family doctors and 130 specialists in northern Ontario alone.[4] This is particularly concerning as primary care physicians serve as the first point of healthcare access within the healthcare system, and access to alternative providers, such as nurse practitioners, is still uncommon in most provinces.[45] In rural and remote communities where access to primary care is available, traditional family practices experience challenges meeting the needs of patients with multiple chronic conditions and comorbidities.[46]

Additionally, with the refined vision for primary care focusing on prevention and health promotion, physicians need time allotted within their busy schedules to accommodate such work.[46,47] In rural and remote communities, physicians report working increased hours yet see fewer patients[48] (presumably to support local hospitals or provide locum work for the nearest fly-in

community), and nurses who commonly provide health education and preventive services are limited to providing direct patient care in busy clinics.[49] In northern Ontario, while the focus of primary care should be on health prevention and promotion, in practice it appears to be focused on curative approaches and coping with the current strain on the healthcare system. Rural and remote communities not only experience shortages with respect to family physicians as reviewed above; in addition, these communities experience challenges recruiting and retaining nursing professionals.[46,50-52] Consequently, initiatives have explored the integration of additional regulated HCPs, such as pharmacists and paramedics, into primary healthcare settings, highlighting that increased collaboration across the professions may be beneficial.[53-55]

Integration of NDs into health teams across northern Ontario can help bring prevention and health promotion interventions to the forefront of everyday work in primary care teams; they are a resource in public health work, bridging patients to more direct clinical interventions when integrated into public health settings.[16,56] Several benefits, including the provision of more coordinated and multidimensional patient-centred care, have been found when allopathic and naturopathic providers work together.[57] In this interprofessional collaborative model, providers can learn from each other and gain a better understanding of each profession's scope of practice and value for the circle of care. An example of a successful multidisciplinary clinic is Lakehead University's Student Health and Wellness Centres in northern Ontario. Both main campuses, located in Thunder Bay and Orillia, have NDs working in partnership with the allopathic health team to offer primary health care to students, with great success and popularity.[58,59]

Inclusion of NDs in Primary Care

Naturopathic doctors are highly trained primary HCPs licensed and regulated in the province of Ontario to offer whole-person care and treat the root causes of illness using a wide range of evidence-based natural and conventional therapies.[17,60] Naturopathic doctors complete 8 years of post-secondary education, the final 4 years of which cost at least $25,800 per year in tuition alone, and yet the median salary for an ND in Canada is only $60,000 per year based on working 39 hours per week.[61,62] A 2015 survey of NDs found that average debt load upon graduation was $167,000. However, it is now estimated to be closer to $250,000, especially when considering the debt carried over from undergraduate studies.[63,64] Upon graduation, most NDs establish a medical practice which is run as a business that bills patients for service via a combination of insurance payments and cash.[62,65] This model of care delivery necessitates time and money spent on marketing and outreach in order to attract patients, who are primarily wealthier and have access to extended health benefits or the available income to pay for naturopathic services.[65] Given the debt load of many newly graduated NDs, financial incentives for recruitment into northern communities, which have not made a significant impact with the recruitment of physicians,[40] may promote the recruitment of NDs into these areas and should be considered.

Naturopathic doctors wishing to enter the workforce and use their medical skills and training to help people do not have the same opportunities as medical doctors and nurse practitioners to do so—spending years recruiting patients to their private practices.[64] In Canada, only 6% of NDs report working full-time or part-time in a hospital, community health clinic, or non-profit organization.[62] In British Columbia, some naturopathic services are covered under the medical services plan (MSP) for low-income individuals, but there is no coverage in Ontario under the Ontario Health Insurance Plan (OHIP), severely limiting the number of patients who can access these services.[66,67] Currently, there are 1,733 registered NDs in Ontario, with an estimated 100 new registrants each year.[1] Furthermore, it is important to highlight that unlike medical doctors and nurse practitioners, NDs have limited opportunities for salaried positions upon graduation and, as a result, experience limited opportunities for employment outside of sole practitioner entrepreneurship. At present, NDs, and particularly new graduates who have yet to set up a practice, represent a significant untapped resource in terms of highly trained regulated primary HCPs capable of delivering low-cost holistic and prevention-focused primary care in the province of Ontario.

Although it is regulated within the province of Ontario, the naturopathic scope of practice may differ from provider to provider. For instance, while all NDs complete 8 years of post-secondary education, some may continue to complete additional training to expand their scope of practice, such as to acquire prescribing abilities. In Ontario, 773 NDs (approximately 45% of the profession) have met the standard of practice for prescribing, which allows NDs to prescribe certain substances classified as drugs.[11] This is a significant point of consideration when discussing the integration of NDs into health teams, as their scope of practice and their training is comparable to that of mainstream practitioners (refer to Table 1 and Table 2).

CONCLUSION

Despite the implementation of innovative solutions to address the issue, lack of access to comprehensive, culturally appropriate primary care in northern Ontario continues to persist. With much of the evidence pointing to a shortage of HCPs, long wait times, and poor recruitment and retention of staff, there is a need to bolster the workforce numbers. Integration of NDs into interprofessional health teams is a potential solution that can positively impact the issues currently present in northern Ontario primary care. Naturopathic medicine has great potential to address primary healthcare needs.[15] In addition to treating acute and chronic conditions, NDs engage in health promotion and prevention of disease.[60] Naturopathic medicine has the potential to become a "disruptive innovation" in health care due to its ability to address primary healthcare needs, particularly chronic diseases, such as depression and diabetes, without the use of expensive pharmaceutical and surgical interventions, while also providing highly qualified professionals to bolster the primary care workforce.[15]

TABLE 1 Comparison of medical doctor, nurse practitioner and naturopathic doctor education within Canada

Professional Title	Type of Degree	Years of Education	Curricular Focus	Clinical Experience Requirement
Naturopathic Doctor (ND)	Naturopathic Doctor (post-graduate)	4-year degree with prerequisite of completion of bachelor's degree	• Biomedical sciences • Clinical sciences • Naturopathic therapeutics • Traditional Chinese medicine • Acupuncture • Botanical medicine • Clinical nutrition • Homeopathic medicine • Physical medicine • Health psychology and lifestyle psychology • Health promotion and disease prevention • Professionalism and ethics • Research appraisal and application • Identifying the need for urgent and emergent healthcare • Chronic disease management • Interprofessional collaboration	1200 hours
Medical Doctor (MD)	Doctor of Medicine (second entry undergraduate)	4-year degree with prerequisite of completion of bachelor's degree	• Biomedical, behavioural, social sciences • Curriculum across the life cycle • Scientific method/clinical/translational research • Critical judgement/problem-solving skills • Societal problems • Cultural competence and healthcare disparities • Medical ethics • Communication skills • Interprofessional collaboration	No set amount of time. Often takes place in the last year or two years of the 4-year period, in tandem with classes.
Nurse Practitioner (NP)	Master of Science in Nursing, Nurse Practitioner	2-year degree with prerequisite of completion of Bachelor of Science in Nursing and minimum of 2 years of full-time registered nursing practice	• Developmental and life stages • Pathophysiology • Psychopathology • Epidemiology • Infectious diseases • Behavioural sciences • Demographics and family processes • Interprofessional collaboration • Research appraisal and application to evidence-informed practice • Therapeutics • Pharmacology	Minimum of 700 hours of direct clinical practice (outside of lab time)

TABLE 2 Comparison of nurse, nurse practitioner and naturopathic doctor scopes of practice within Ontario

Procedure	Nurse	Nurse Practitioner	Naturopathic Doctor	Naturopathic Doctor with Prescribing Rights and IV License
Venipuncture	Yes	Yes	Yes	Yes
Intramuscular injections	Yes	Yes	No	Yes
Intravenous	Yes	Yes	No	Yes
Communicating a diagnosis	No	Yes	Yes[a]	Yes
Soft tissue manipulation[b]	No	No	Yes	Yes
Joint manipulation[c]	No	No	Yes	Yes
Acupuncture	No	No	Yes	Yes
Prescription of drugs	No	Yes[d]	No	Yes[e]
Full physical exam	Yes	Yes	Yes	Yes
Health promotion	Yes	Yes	Yes	Yes
Casting a bone fracture	No	Yes	No	No
Mental health counselling	Yes[f]	Yes	Yes[g]	Yes
Ordering and interpreting lab tests	Order only	Yes[h]	Yes[i]	Yes

[a] NDs may communicate a "naturopathic diagnosis"
[b] Comparable to massage performed by registered massage therapists
[c] Comparable to joint manipulations performed by chiropractors
[d] If the required nurse practitioner controlled substance education is completed
[e] May prescribe but very limited set of medications that have been outlined in their professional scope
[f] Both nurses and nurse practitioners are regulated to perform counseling using "psychotherapy techniques" within Ontario
[g] NDs perform "lifestyle counseling" as per their professional regulations with Ontario
[h] Nurse practitioners may only order tests that are covered under OHIP within Ontario
[i] NDs may order any lab tests and have additional labs that may be ordered that fall specifically within their scope of practice and within Ontario

Adding NDs to the primary healthcare options available can also further the work that is being done to integrate holistic forms of healing and healthcare such as the inclusion of traditional healers and Indigenous medicines into healthcare settings.[18,29] Through NDs' evidence-informed use of plant medicine and therapies, as well as their focus on the body's natural abilities to heal itself and the connection between the physical, mental, and spiritual aspects of healing, NDs can provide cost-effective and, in some instances, culturally relevant care for healthcare systems and Indigenous Peoples respectively[18,36,56] (Johanne McCarthy, N.D., email communication, April 4, 2022).

As mentioned previously, NDs, although regulated in the province of Ontario, are not covered under OHIP and, as such, work in a fee-for-service setting, often attracting patients of higher socioeconomic status. Integration into a Family Health Team or other interprofessional health team such as a Nurse Practitioner–Led Clinic, would need to account for service fees and make ND-provided services accessible, especially to patients who have been historically made vulnerable by the healthcare system. Further considerations for integration include role clarification between providers and between patients and providers[72]; communication between providers within the health team[12,73]; and working on foundational lifestyle approaches that "fill in the gaps" in conventional primary care[74,75] and endorse a more coordinated, collaborative, culturally responsive, inclusive, and accessible system of care.

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REFERENCES

1. Public Health Agency of Canada. *Key health inequalities in Canada: A national portrait.* https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/science-research/key-health-inequalities-canada-national-portrait-executive-summary/key_health_inequalities_full_report-eng.pdf. Published 2018. Accessed April 12, 2022.
2. Health Quality Ontario. *Northern Ontario health equity strategy.* https://www.hqontario.ca/Portals/0/documents/health-quality/health-equity-strategy-report-en.pdf. Published 2018. Accessed April 3, 2022.
3. Malko AV, Huckfeldt V. Physician shortage in Canada: A review of contributing factors. *Glob J Health Sci.* 2017;9(9):68. doi:10.5539/gjhs.v9n9p68
4. Ontario Medical Association (OMA). Prescription for Northern Ontario. https://www.oma.org/uploadedfiles/oma/media/public/oma-hcp-northernplatform.pdf. Published 2021. Accessed April 12, 2022.
5. Pong RW. Recruitment and retention of physicians: Physician supply and sufficiency. In: Schiff, R, Møller, H, eds. *Health and healthcare in Canada.* University of Toronto Press; 2021:153-166.
6. Wyonch R. What happened to health workers? Data and labour shortages, wages and vacancies. Updated January 21, 2022. Accessed April 6, 2022. https://www.cdhowe.org/intelligence-memos/rosalie-wyonch-what-happened-health-workers-data-labour-shortages-wages-and
7. Allan B, Smylie J. First Peoples, second class treatment: The role of racism in the health and well-being of Indigenous peoples in Canada. Toronto, ON: the Wellesley Institute; 2015.
8. Anishnawbe Mushkiki Health Access Centre. *Our health counts Thunder Bay; Discrimination.* http://www.welllivinghouse.com/wp-content/uploads/2022/03/Citation-Final_OHC-TB-Factsheet-Discrimination.pdf. Published 2020. Accessed April 14, 2022.
9. Schiff R, Møller H, eds. *Health and healthcare in Northern Canada*. Toronto, ON: University of Toronto Press; 2021.
10. Health Quality Ontario. *Health in the North: A report on geography and the health of people in Ontario's two northern regions.* http://www.hqontario.ca/portals/0/Documents/system-performance/health-in-the-north-en.pdf. Published 2017. Accessed April 4, 2022.
11. College of Naturopaths of Ontario (CONO). *2020/21 Annual Report*. https://www.collegeofnaturopaths.on.ca/wp-content/uploads/2021/12/2021-Annual-Report-English-v3.pdf. Published 2021. Accessed March 21, 2022.
12. Hollenberg D, Lytle M, Walji R, Cooley K. Addressing provider shortage in underserviced areas: The role of traditional, complementary and alternative medicine (TCAM) providers in Canadian rural healthcare. *Eur J Integr Med*. 2013;5(1):15-26. doi:10.1016/j.eujim.2012.08.008
13. Pescosolido B, Manago B, Olafsdottir S. The global use of diverse medical systems. *Soc Sci Med*. 2020;267:112721. doi:10.1016/j.socscimed.2019.112721
14. Wardle J, Oberg, EB. The intersecting paradigms of naturopathic medicine and public health: Opportunities for naturopathic medicine. *J Altern Complement Med*. 2011;17(11):1079-1084. doi:10
15. Bradley R, Harnett J, Cooley K, McIntyre E, Goldenberg J, Adams J. Naturopathy as a model of prevention-oriented, patient-centered primary care: A disruptive innovation in health care. *Medicina*. 2019;55(9): 603. doi:10.3390/medicina55090603
16. Hawk C, Adams J, Hartvigsen J. The role of CAM in public health, disease prevention and health promotion. *Evid Based Complementary Altern Med.* 2015;Article 528487. doi:10.1155/2015/528487
17. Kennedy D, Bernhardt B, Snyder T, Bancu V, Cooley K. Complementary medical health services: A cross-sectional descriptive analysis of a Canadian naturopathic teaching clinic. *BMC Complement Altern Med.* 2015;15(1). doi:10.1186/s12906-015-0550-6
18. Potter I, Dickson B, Bernhardt B, Seely D, Brascoupé S, McCarthy J, Kennedy D, Cooley K, Walji R, Grobys S, Weeks L. *Naturopathic medicine for improved health care within Canadian Aboriginal communities.* (unpublished technical report). https://www.researchgate.net/publication/319494788_. Published in 2008. Accessed April 4, 2022.
19. Shirwaikar A, Govindarajan R, Rawat AKS. Integrating complementary and alternative medicine with primary health care. *Evid Based Complementary Altern Med.* 2008;Article 948308. doi:10.1155/2013/948308
20. Leblanc-Laurendeau O. *Food insecurity in northern Canada: An overview (background paper).* Library of Parliament. https://lop.parl.ca/staticfiles/PublicWebsite/Home/ResearchPublications/BackgroundPapers/PDF/2020-47-E.pdf. Published 2020. Accessed April 9, 2022.
21. Schiff R, Schembri V. Food and health: Food security, food systems and health in Northern Canada. In: Schiff R, Møller H, eds. *Health and healthcare in Canada*. Toronto, ON: University of Toronto Press; 2021:40-56.
22. Kauppi C, Faries E, Montgomery P, Mosset S, Pallard H. Housing and health: Housing and health challenges in rural and remote communities. In: Schiff R, Møller H, eds. *Health and healthcare in Canada*. Toronto: University of Toronto Press; 2021:57-88.
23. Taylor L. *Housing and health: An overview of the literature.* Health Affairs. Updated June 17, 2018. https://www.healthaffairs.org/do/10.1377/hpb20180313.396577/full/. Accessed September 2, 2022.
24. Thunder Bay District Health Unit. *Profile of the social determinants of health in Thunder Bay district.* https://www.tbdhu.com/health-topics/health-equity/profile-of-social-determinants-of-health-thunder-bay-district. Published 2018. Accessed April 12, 2022.

25. Rice K, Webster F. Care interrupted: Poverty, in-migration, and primary care in rural resource towns. *Soc Sci Med.* 2017;191:77-83. doi:10.1016/j.socscimed.2017.08.044

26. Verma, S. NOSM University. Evolution – Should we rename the social determinants of health to be the social determinants of equity? https://www.nosm.ca/2020/09/08/evolution-should-we-rename-the-social-determinants-of-health-to-be-the-social-determinants-of-equity/#:~:text=Poverty%2C%20rising%20inequality%20in%20income,race%2C%20to%20gender%20and%20culture. Updated September 8, 2020. Accessed April 9, 2022.

27. National Collaborating Centre for Indigenous Health. *Access to health services as a social determinant of First Nations, Inuit and Métis health.* https://www.nccih.ca/docs/determinants/FS-AccessHealthServicesSDOH-2019-EN.pdf. Published 2019. Accessed April 8, 2022.

28. Government of Canada. *Annual Report to Parliament*. https://www.sac-isc.gc.ca/eng/1602010609492/1602010631711. Published 2020. Accessed April 3, 2022.

29. Redvers N, Blondin B. Traditional Indigenous medicine in North America: A scoping review. *PloS One.* 2020;15(8):e0237531. doi:10.1371/journal.pone.0237531

30. Fijal D, Beagan BL. Indigenous perspectives on health: Integration with a Canadian model of practice. *Can J Occup Ther.* 2019;86(3):220-231. doi:10.1177/0008417419832284

31. Mikkonen J, Raphael D. *Social determinants of health: The Canadian facts.* Toronto, ON: York University School of Health Policy and Management; 2010. https://thecanadianfacts.org/the_canadian_facts.pdf. Accessed April 3, 2022.

32. France H, Rodriguez C. Traditional Chinese medicine in Canada: An Indigenous perspective. *Chinese Med and Culture.* 2019;2(1):1-5. doi:10.4103/CMAC.CMAC_2_19

33. Xu X. Indigenous groups in B.C. welcome traditional Chinese medicine clinics. *The Globe and Mail.* https://www.theglobeandmail.com/canada/british-columbia/article-indigenous-groups-in-bc-welcome-traditional-chinese-medicine-clinics/. Updated May 25, 2018. Accessed April 4, 2022.

34. Allen L, Hatala A, Ijaz S, Courchene E, Bushie E. Indigenous-led health care partnerships in Canada. *CMAJ Open.* 2020;192(9):E208-E216. doi:10.1503/cmaj.190728

35. Peltier C. Integrating traditional healing and Northern health care: Indigenous concepts of living well. In: R Schiff, H Møller, eds. *Health and healthcare in Canada.* Toronto, ON: University of Toronto Press; 2021:346-361.

36. Walji R, Weeks L, Cooley K, Seely D. Naturopathic medicine and Aboriginal health: An exploratory study at Anishnawbe Health Toronto. *Can J Public Health.* 2010;101(6):475-480. doi:10.1007/bf03403967

37. Yu Z, Steenbeek A, Biderman M, Macdonald M, Carrier L, MacDonald C. Characteristics of Indigenous healing strategies in Canada: A scoping review. *JBI Evid Synth.* 2020;18(12):2512-2555. doi:10.11124/jbisrir-d-19-00385

38. Gilbert C. Advancing health equity in naturopathic medicine. *CAND Journal.* 2021;28(1):7-8. doi:10.54434/candj.13

39. United Nations. *United Nations Declaration on the Rights of Indigenous Peoples*. https://www.un.org/development/desa/indigenouspeoples/wp-content/uploads/sites/19/2018/11/UNDRIP_E_web.pdf. Published 2007. Accessed April 6, 2022.

40. Koebisch SH, Rix J, Holmes M. Recruitment and retention of healthcare professionals in rural Canada: A systematic review. *Can J Rur Med.* 2020;25(2):67-78. doi:10.4103/CJRM.CJRM_43_1

41. Registered Nurses' Association of Ontario. *Coming together, moving forward: Building the next chapter of Ontario's rural, remote & northern nursing workforce report.* https://rnao.ca/sites/rnao-ca/files/RR_May8.pdf. Published 2015. Accessed April 8, 2022.

42. Delvin ME, Braithwaite S, Camargo Plazas P. Canadian nurse practitioner's quest for identity: A philosophical perspective. *Int J Nurs Sci.* 2018;5(2):110-114. doi:10.1016/j.ijnss.2018.03.001

43. Fournier J, Lightfoot N, Larocque S, Johnson J, Eger T. Theory of nurse practitioner job satisfaction. *J Nurse Pract.* 2019;15(4):290-294. doi:10.1016/j.nurpra.2018.10.011

44. Alliance for Healthier Communities. *Nurse practitioner-led clinics*. https://www.allianceon.org/nurse-practitioner-led-clinics. Accessed April 5, 2022.

45. Hedden L, Barer ML, McGrail K, Law M, Bourgeault IL. In British Columbia, the supply of primary care physicians grew, but their rate of clinical activity declined. *Health Aff.* 2017;36(11):1904-1911. doi:10.1377/hlthaff.2017.0014

46. Heale R, James S, Wenghofer E, Garceau ML. Nurse practitioners' perceptions of the impact of the nurse practitioner-led clinic model on the quality of care of complex patients. *Prim Health Care Res Dev.* 2018;19(6):553-560. doi:10.1017/S1463423617000913

47. World Health Organization & UNICEF. *A vision for primary health care in the 21st century: Towards universal health coverage and the Sustainable Development Goals.* https://www.who.int/docs/default-source/primary-health/vision.pdf. Published 2018. Accessed May 15, 2022.

48. Wenghofer EF, Timony PE, Gauthier NJ. "Rural" doesn't mean "uniform": Northern vs Southern rural family physicians' workload and practice structures in Ontario. *Rural Remote Health.* 2014;14(2):Article 2720.

49. Roots A, MacDonald M. Outcomes associated with nurse practitioners in collaborative practice with general practitioners in rural settings in Canada: A mixed methods study. *Hum Resour Health.* 2014;12(69). doi:10.1186/1478-4491-12-69

50. Bourque H, Gunn K, MacLeod M. A pathway for implementing the nurse practitioner workforce in a rural and remote health region. *Nurs Leadersh (Tor Ont).* 2020;33(2):44-53. doi:10 .12927/cjnl.2020.26238

51. Buchan J, Duffield C, Jordan A. "Solving" nursing shortages: Do we need a new agenda? *J Nurs Manag.* 2015;23(5):543-545. doi:10.1111/jonm.12315

52. MacLeod, MLP, Stewart NJ, Kulig JC, et al. Nurses who work in rural and remote communities in Canada: A national survey. *Hum Resour Health.* 2017;15:Article 34. doi:10.1186/s12960-017-0209-0

53. Eaton G, Wong G, Tierney S, Roberts N, Williams V, Mahtani KR. Understanding the role of the paramedic in primary care: A realist review. *BMC Med 19.* 2021;Article 145. doi:10.1186/s12916-021-02019-z

54. Mossialos E, Courtin E, Naci H, Benrimoj S, Bouvy M, Farris K, Noyce P, Sketris I. From "retailers" to health care providers: Transforming the role of community pharmacists in chronic disease management. *Health Policy.* 2015;119(5):628-639. doi:10.1016/j.healthpol.2015.02.007

55. Canadian Paramedicine. *Community paramedicine: Part of a modern emergency health services system*. https://canadianparamedicine.ca/community-paramedicine-part-of-a-modern-emergency-health-services-system/. Accessed April 5, 2022.

56. Lloyd I, Gerontakos S, Cardozo V. Naturopathic community clinics: An international cross-sectional survey. *BMC Health Serv Res.* 2021;21(1). doi:10.1186/s12913-021-06806-5

57. Chowdury M, Gilbert C. Collaboration in the time of COVID-19: Lessons for community shared care models. *CAND Journal.* 2020;27(2):11-12. doi:10.54434/candj.61

58. Lakehead University. (2022a). *Health and wellness: Meet our team.* https://www.lakeheadu.ca/students/student-life/student-services/or/health-and-wellness/meet-our-team. Accessed April 8, 2022.

59. Lakehead University. (2022b). *Naturopathic doctor.* https://www.lakeheadu.ca/students/wellness-recreation/student-health-and-wellness/health-services/thunder-bay/node/61861. Accessed April 8, 2022.

60. Ontario Association of Naturopathic Doctors (OAND). *Ontario's naturopathic doctors: Providing greater access to primary healthcare for Ontarians.* https://www.newswire.ca/news-releases/ontarios-naturopathic-doctors-providing-greater-access-to-primary-healthcare-for-ontarians-518005071.html#:~:text=Naturopathic%20Doctors%20treat%20the%20root,a%20general%20primary%20healthcare%20profession. Updated July 1, 2015. Accessed March 27, 2022.

61. Canadian College of Naturopathic Medicine. *Tuition fees.* https://ccnm.edu/future-students/admissions/tuition-fees. Accessed April 9, 2022.

62. Association of Accredited Naturopathic Medical Colleges (AANMC). Graduate success and compensation study. 2020. https://aanmc.org/wp-content/uploads/2020/06/2020-Graduate-Success-and-Compensation-Study.pdf. Accessed March 21, 2022.

63. See C. *Naturopathic doctor salary: Is it worth the student loan debt?* StudentLoanPlanner. https://www.studentloanplanner.com/naturopathic-doctor-salary-worth-student-debt/. Updated February 27, 2022. Accessed March 30, 2022.

64. Weeks J. Evolving incomes, services and clinical foci of naturopathic practices: Musings on the graduate success and compensation study. *Today's Practitioner*. https://todayspractitioner.com/uncategorized/evolving-incomes-services-and-clinical-foci-of-naturopathic-practices-musings-on-the-graduate-success-and-compensation-study/#.YkRP6hDMKqA. Updated September 9, 2020. Accessed March 30, 2022.

65. Williams A, Kitchen P, Eby J. Alternative health care consultations in Ontario, Canada: A geographic and socio-demographic analysis. *BMC Complement Altern Med*. 2011;11(1). doi:10.1186/1472-6882-11-47

66. 66. Government of British Columbia. *Naturopaths*. https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/msp/naturopaths. Accessed April 5, 2022.

67. Prout G. Canada's provincial health plans. Special benefits insurance services. https://www.sbis.ca/canadas-provincial-health-plans.html. Accessed March 31, 2022.

68. Canadian College of Naturopathic Medicine. *Toronto academic calendar 2021-2022*. https://ccnm.edu/sites/default/files/2022-04/AC-2021-2022-rev-19APR-2022.pdf. Published 2021. Accessed May 8, 2022.

69. Committee on Accreditation of Canadian Medical Schools. *CACMS standards and elements*. https://www.cacms-cafmc.ca/sites/default/files/documents/CACMS_Standards_and_Elements_AY_2022-2023.pdf. Updated February 2021. Accessed May 8, 2022.

70. Canadian Association of Schools of Nursing. *Nurse practitioner education in Canada: National framework of guiding principles & essential components*. https://casn.ca/wp-content/uploads/2014/12/FINALNPFrameworkEN20130131.pdf. Published 2012. Accessed May 8, 2022.

71. Canadian Nurses Associations. *Canadian nurse practitioner core competency framework*. https://www.cno.org/globalassets/for/rnec/pdf/competencyframework_en.pdf. Published 2010. Accessed May 8, 2022.

72. Gocan S, Laplante MA, Woodend K. Interprofessional collaboration in Ontario's family health teams: A review of the literature. *J Res Interprof Pract Educ*. 2014;3(3). doi:10.22230/jripe.2014v3n3a131

73. Contandriopoulos D, Brousselle A, Dubois CA, et al. A process-based framework to guide nurse practitioners' integration into primary healthcare teams: Results from a logic analysis. *BMC Health Serv Res*. 2015;15:78. doi:10.1186/s12913-015-0731-5

74. Brooks K. A way forward—Navigating the integrative medical paradigm. *CAND Journal*. 2019;26(2):17-19. doi:10.54434/candj.30

75. Singer J, Adams J. Integrating complementary and alternative medicine into mainstream healthcare services: The perspectives of health service managers. *BMC Complement Altern Med*. 2014;14:Article 167. doi:10.1186/1472-6882-14-167.