CANDJ

Aftershocks

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This has been a fall of major political shifts, many of which herald significant changes to the landscape in which our members practice. Since September, new provincial governments have been elected in British Columbia, Saskatchewan, New Brunswick, and Nova Scotia, and there are credible rumours of early elections in Ontario and federally in 2025. As a result, several provincial associations are now having to negotiate with new Ministers of Health, new bureaucracies, and new stakeholders with varying ideas of where we fit into the Canadian primary care landscape.

Additionally, it's hard to ignore the earthquake that has happened in the United States with the recent presidential election and controversial nomination for Secretary of Health and Human Services (HHS), an agency which directs the work of the National Institutes of Health (NIH), Food and Drug Administration (FDA) and Centers for Disease Control and Prevention (CDC) in that country. Changes at these agencies could affect the research and public health agendas in Canada as well, since our federal health agencies often follow the research priorities set out by the NIH.[1]

In British Columbia, ND regulation has itself undergone a seismic shift with the province's new *Health Professions and Occupations Act* (HPOA) of 2022, which sought to amalgamate the College of Naturopathic Doctors of BC with chiropractic, massage therapy and Traditional Chinese medicine colleges to create a new College of Complementary Health Professionals of BC (CCHPBC). In this issue, we have an update on the amalgamation progress from BC's Naturopathic Doctors (BCND), as the formation of the new CCHPBC structure is now well underway.

Still, despite these changes to the cultural healthcare fault lines, the profession is in a strong position in Canada due to the efforts of our national leadership over the last 20 years to achieve congruency in training, regulation, and insurance coverage. For example, we now have professional regulation and licensure in over half of the provinces and territories in Canada, GST/HST exemption for naturopathic visits, coverage of naturopathic services for Veterans, and established national education standards for professional formation. Taken together, this makes the Canadian naturopathic profession unique among World Naturopathic Federation (WNF) member countries, despite our challenges with being outside of the single payer system (Iva Lloyd, ND, email communication, October 2024).

One area where we have a distinct advantage over other countries is that the CAND was able to negotiate at ground level with private extended health benefit providers as they were considering the addition of naturopathic services in the early 2000s. As a result, Canadian NDs have the ability to bill for time spent with patients, rather than from a corporate- or government-driven scale of fee coding that prioritizes procedures over time spent in care delivery. We were able to extend this model to current and former members of the Canadian Forces via our agreement with Veteran's Affairs in 2023.

We have also had a strong stakeholder presence during the formation and evolution of the federal Natural and Non-Prescription Health Products Directorate (NNHPD), which regulates the natural health products (NHPs) many of our patients rely on for their health.

Understandably, there are many areas where we will need to make progress in order to practice to the full extent of our training and scope: some provinces and territories remain unregulated, and even among the regulated provinces, prescribing authority and access to lab and diagnostic testing is not uniform. There is also still work to be done on the NHP cost-recovery revisions proposed by the federal government, which are still being negotiated, and on adding NDs to the non-insured health benefits plan for First Nations, Métis, and Inuit in Canada.

In many ways, and despite these continued challenges, Canadian naturopathic leadership is helping define what is possible for the profession globally through the WNF, and for this, we are justifiably proud. In turn, we on the *CANDJ* editorial team are proud to play our own role by highlighting the outstanding work of our Canadian researchers and clinicians, and we are encouraged to see the growth this publication has undergone since our digital transition in 2021.

We have two other articles for this edition. Leslie Solomonian offers us a Perspectives piece discussing the role of NDs in engaging with planetary health guidelines to reduce environmental

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footprints of practice and to help treat downstream effects of climate change on human health. She also outlines a Planetary Health Continuing Education Certificate program she developed at the University of Toronto in concert with the President-Elect of the Canadian Association of Physicians for the Environment (CAPE), and the feedback they received from participants of the first cohort of the program offered in 2023.

Our other article is original research from Remy, Gratton, and Cooley at the Canadian College of Naturopathic Medicine (CCNM), describing a survey of North American NDs on their assessments of natural product quality. Although the results are preliminary, they point to a potential framework for further study in this area that could help guide clinical practices and counterbalance industry influences on NHP prescribing patterns.

With this edition, we say goodbye to our long-serving CAND Executive Director and Director of Government Relations, Shawn O'Reilly, who has been the driving force behind much of the progress the CAND has made in the two decades she has been at the helm. We wish her a well-deserved break from captaining our "small-but-mighty" ship, and some quality time with her family.

We also welcome our new CEO, Gemma Beierback, who comes to us from the Canadian Board of Chiropractic Examiners, where she served for several years. There are a lot of files on the go at head office right now, but we are confident she will be able to move the profession ahead as we move confidently into a more collaborative healthcare environment in the years to come.

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Establishing a Unified Framework for Natural Health Product Quality: Insights from North American Naturopathic Practitioners

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ABSTRACT

Background: Healthcare professionals have the responsibility to educate their patients on natural health products (NHPs), yet the assessment of NHP quality throughout North America remains relatively subjective and prone to biases. This study aims to qualify multi-ingredient NHPs, based on the subjective and empirical attributes sought by naturopathic doctors (NDs) who regularly prescribe them.

Methods: This study was divided into two phases. Phase 1 involved virtual interviews with eight experienced NDs across North America. Phase 2 was an online survey of licensed and practicing NDs based on the key themes extracted from Phase 1.

Results: Using an inductive approach to qualitative analysis in Phase 1, four key themes were extracted: sourcing, labelling, monographs, and third-party testing, with each one having several sub-themes. Phase 2 revealed that sourcing was the most important theme, specifically from manufacturing companies that adhere to good manufacturing practices (GMPs), followed by products on which labels provide specific details of the active compounds. Third-party testing ranked third, especially if used to verify that ingredients match the label, and monographs should include referenced evidence on the therapeutic efficacy specific to the recommended dose of the product.

Conclusion: NDs believe that the strongest measure of complex NHP quality is the manufacturing company's ability to adhere to GMPs. Third-party testing could be used to verify standards of quality with product details included in labels and ample referenced evidence in monographs.

Key Words Natural health products (NHPs), quality assessment, naturopathic medicine, good manufacturing practices (GMPs), third-party testing, North American NHP standards; naturopathic doctors (NDs) product preferences

INTRODUCTION

The landscape of natural health products (NHPs) has significantly evolved, reflecting a growing integration of herbal and dietary supplements into healthcare regimes. These products contain vitamins, minerals, herbal and homeopathic medicine, and traditional medicines, aimed to support human health and wellness[1,2]. In an American survey conducted in 2017 and 2018, it was found that 57.6% of adults aged 20 and over had used an NHP within the past 30 days[3].

Regulatory efforts in the United States, governed by the Dietary Supplement Health and Education Act (DSHEA) of 1994, underscore a commitment to safeguard consumer health while supporting industry innovation[4]. In the United States, dietary supplements are primarily regulated through post-market surveillance. Manufacturers are not required to demonstrate safety and efficacy to obtain product approval by the DSHEA unless they contain botanical ingredients.

Similar regulatory efforts in Canada were established by Health Canada under the Natural Health Products Regulations of 2004, setting a benchmark for the safety, efficacy, and quality of these products[5]. In contrast to the regulatory frameworks of the United States, Canada has established much stricter regulations for NHPs. In addition to obtaining product and site licensing requirements, adhering to good manufacturing practices (GMPs), adverse reaction reporting, clinical trial requirements, and strict labelling guidelines, Health Canada monitors both the manufacturing and post-marketing processes[5].

Despite these efforts, challenges persist in ensuring the consistent quality and safety of NHPs across markets[6]. Recent incidents

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of poor-quality NHPs reaching the market have highlighted the limitations of current regulatory mechanisms and underscored the need for enhanced standards and methodologies for product evaluation[7]. The workshop on "Addressing Challenges in the Assessment of Botanical Dietary Supplement Safety," hosted by the National Toxicology Program (NTP) in 2016,[8] aimed to address these challenges by clarifying methods for establishing phytoequivalence, active constituent(s), and phytodynamics of botanicals, marking a significant step towards refining quality assessment practices.[8] This resulted in the establishment of the Botanical Safety Consortium (BSC), which represents a collaborative effort to advance the science of botanical safety evaluation and to enhance the botanical dietary supplement industry's ability to bring safe products to the market.[9] This initiative is critical in bridging the gap between regulatory standards and the complex nature of botanical products, offering a framework for comprehensive safety assessment.

Nonetheless, there are incidents where complex NHPs have had hidden ingredients[10,11,12] or where botanical supplements vary due to individual differences in the parts of the plant being used, where raw materials are grown, when they are harvested, or how components are extracted.[13] As well described in a 5-part series,[7] dietary supplement regulations have much room for improvement, especially for multi-ingredient and complex formulations.

Currently, individual assays in laboratory settings assess products for their identity, purity, and potency of ingredients, allowing a quality rating scale to compare products objectively. Unfortunately, such databases for multi-ingredient NHPs are lacking. The persistent issue of NHPs failing to meet quality and safety standards, despite regulatory oversight, necessitates a re-evaluation of current practices.[14] This study, therefore, aims to contribute to this evolving landscape by developing an understanding of how NDs qualify multi-ingredient NHPs, in the hopes that the insights gained will help practitioners, industry, and policymakers hone in on the most important determining factors for NHP quality assessment.

METHODS

This study employed a mixed-methods approach across two phases to develop a comprehensive understanding of factors influencing product quality from the perspective of NDs. The methods, modes of advertising, consent forms, and assurance of confidentiality were all approved by the Research Ethics Board (REB) of the Canadian College of Naturopathic Doctors (CCNM) in Toronto, Ontario.

NDs, especially with statutory registration/occupational licensing, are very likely to have extensive training in and to make frequent use of single-ingredient and multi-ingredient NHPs in their clinical practice,[15] much more so than pharmacists,[16] registered dieticians,[17] and various conventional medical professionals.[18] NDs were therefore selected as the main subject experts to provide insight on what factors must be considered to properly evaluate the quality of NHPs.

Phase 1: Interviews

Recruitment

Participants were selected through targeted advertisements in naturopathic community newsletters and social media groups, ensuring that a diverse range of experiences and perspectives were represented. Participants were given CA$50 to thank them for their time.

A first come, first served basis was used to accept participants based on the inclusion criteria (must have a minimum of 5 years of clinical experience; no more than two participants from the same province or state as a previously interviewed participant; must have signed the consent form to participate in the study). Recruitment ceased once data saturation was obtained and any further interviews failed to produce added insights. Eight interviews were conducted.

Data Collection

Zoom calls were recorded, interviews were transcribed by a neutral third party and then submitted to the participant for accuracy. Each interview consisted of several pre-set questions, as well as questions that may have emerged from a previous interview. Such an inductive interview approach allows for flexibility in subsequent interviews on the themes and topics learned from previous interviews.

Data Analysis

Transcriptions underwent a detailed thematic analysis after each interview was conducted. The data were meticulously coded, and emerging themes were identified and categorized. These emerging themes and topics were then used in subsequent interviews for further elaboration, until no new themes or topics surfaced. This rigorous process was informed by the principle of grounded theory, ensuring that the development of the quality assessment tool was firmly rooted in empirical data.

The themes and sub-themes that emerged from these interviews and the subsequent qualitative analysis formed the survey to be used in Phase 2. Preliminary drafts were then reviewed by interview participants to validate the findings and ensure they accurately reflected the NDs' perspectives on NHP quality.

Phase 2: Surveys

Recruitment

The survey phase targeted a broader pool of licensed, practicing NDs across Canada and the United States, with the aim of collecting at least 150 responses. Similar recruitment channels to Phase 1 were utilized, leveraging the study's growing network and reputation within the naturopathic community to ensure a high response rate. Participants were entered in a draw for a prize of CA$250 to encourage their contribution.

Data Collection

Building on the qualitative insights from Phase 1, Survey Monkey (an online platform for survey data collection and analysis) was

used to ask respondents to rate the importance of each identified theme on a 5-point Likert scale and rank the themes in order of importance. This quantitative approach allowed for the statistical validation of the qualitative findings, ensuring that the most significant factors influencing NHP quality were accurately captured. Forcing participants to rank the order of factors they use to assess NHP quality prevented all factors from being top-rated. The open-ended question "is there anything you feel is missing or worth considering?" was asked for each theme, allowing further insight with nuanced feedback that enriched the data set.

Data Analysis

The survey responses were analyzed using statistical methods to identify mean scores and standard deviations for each theme. Open-ended responses were then analyzed qualitatively to support or enhance the quantitative findings.

Ethics approval was provided by the REB of CCNM in Toronto, Ontario.

RESULTS

Phase 1: Qualitative Analysis

Participants

Sixty-seven willing participants submitted an application to be interviewed, most of whom were rejected due to their geographic location being the same as a previous interviewee. Ultimately, eight virtual interviews were conducted with licensed NDs in Canada and the United States. Participants practiced in the following locations: two from Alberta and one each from British Columbia, Ontario, Nova Scotia, Vermont, Arizona, and Oregon.

Data Analysis

By the eighth interview, data saturation was reached, indicating a comprehensive capture of perspectives on NHP quality. With each interview, themes clearly emerged, resulting in four main themes: Sourcing, Labelling, Monographs, and Third-party testing. Within each of these themes, several sub-themes were grouped to ultimately formulate the survey used in Phase 2 (see Appendix A for the full survey).

Phase 2: Survey Results

Participants

A total of 309 valid responses were obtained (after 13 were rejected because the respondent was not a licensed and practicing naturopathic doctor/physician in either Canada or the United States). Of these, 192 were Canadians from seven different provinces (see Table 1), and 117 were Americans from 18 different states (see Table 2).

Data Analysis

Sourcing: As outlined in Figure 1, adherence to GMPs was considered important, with a notable 76 participants (31.2%) prioritizing it as the most significant factor, compared with 35 (14.4%) and 26 (10.7%) participants ranking it second or third. Additionally, the manufacturing process (e.g., cold-pressed, hydrolyzed) and preference for organic products were considered influential, with 39 (16.0%) and 40 (16.5%) participants deeming it the most noteworthy consideration, respectively.

Labelling: Figure 2 highlights the importance of identifying active constituents and/or standardized compounds in addition to the amount per capsule/serving, with a substantial 110 participants (47.0%) identifying it as the most crucial label information.

Monographs: As summarized in Figure 3, the demonstration of therapeutic efficacy was deemed most important, with 57 participants (26.3%) rating it as a top priority. The effective dose detailed in the monographs followed closely, with 43 participants (19.8%) prioritizing it as the most significant factor.

TABLE 1 Canadian Participants and the Provinces in Which They Practice

Total Canadians		192
Alberta	AB	16
British Columbia	BC	39
Manitoba	MB	1
New Brunswick	NB	2
Nova Scotia	NS	2
Ontario	ON	127
Saskatchewan	SK	5

TABLE 2 American Participants and the States in Which They Practice

Total Americans		117
Arizona	AZ	15
Arkansas	AR	1
California	CA	20
Colorado	CO	7
Connecticut	CT	5
Hawaii	HI	2
Idaho	ID	1
Illinois	IL	2
Michigan	MI	1
Minnesota	MN	12
New Hampshire	NH	4
New Mexico	NM	1
North Dakota	ND	1
Oregon	OR	17
Pennsylvania	PA	1
Utah	UT	3
Vermont	VT	6
Washington	WA	18

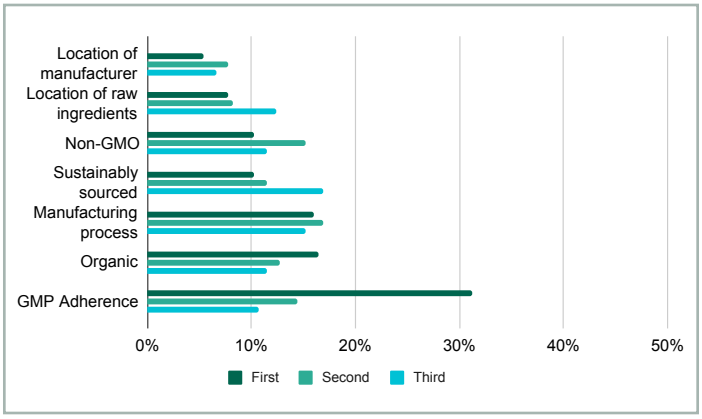

FIGURE 1 Ranking of Items That Define Quality Sourcing

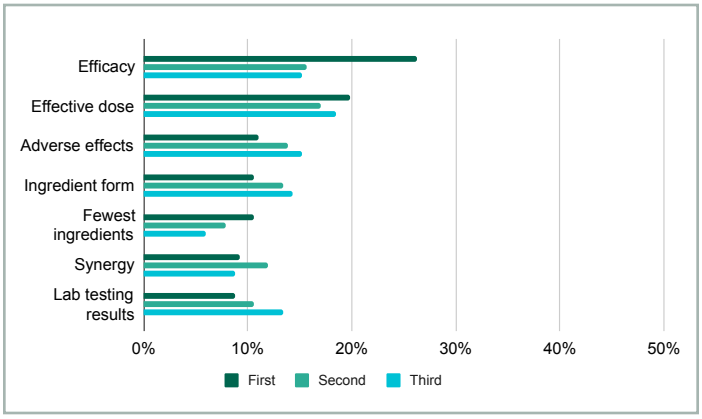

FIGURE 3 Ranking of Items That Define Quality Monographs

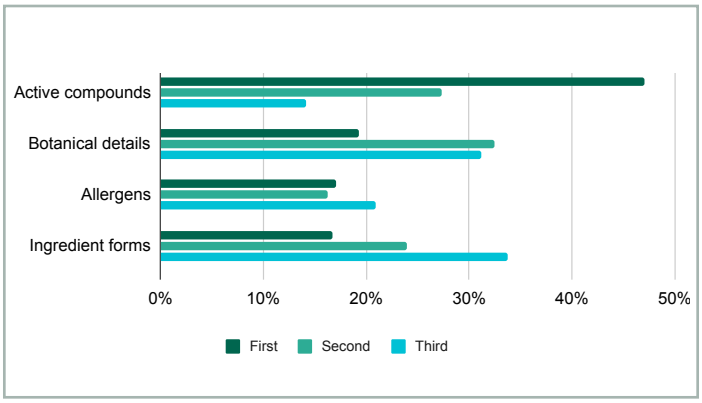

FIGURE 2 Ranking of Items That Define Quality Labelling

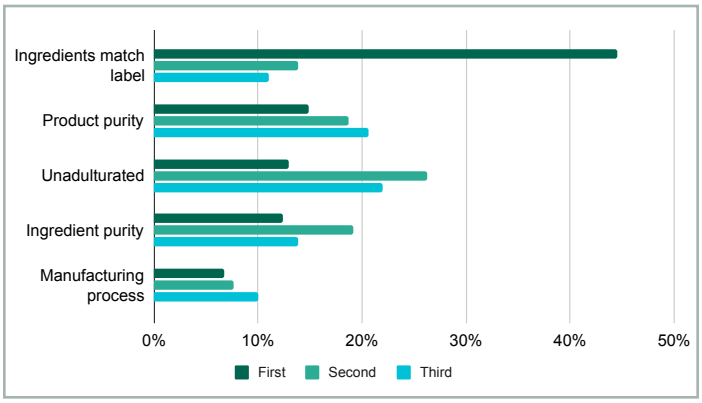

FIGURE 4 Ranking of Items That Define Quality Third-Party Testing

Third-Party Testing: Figure 4 summarizes the relative importance of evaluating third-party testing criteria for NHPs. The alignment of ingredients with those listed on the product label had 93 participants (44.5%) ranking it as the primary concern.

DISCUSSION

In the realm of dietary supplements, adherence to GMPs is vital for ensuring product safety and quality. GMPs, as set by regulatory authorities such as Health Canada and the US Food and Drug Administration (FDA), establish comprehensive requirements for manufacturing, testing, and quality assurance that help ensure dietary supplements are safe for consumption and free from contamination and inconsistencies. Despite GMPs being a top-ranked consideration by NDs in selecting high-quality NHPs, it is by far not the only consideration and, alone, would not be adequate in NHP quality assessment.

With the knowledge NDs have in botanical, nutrient, and orthomolecular compounds, it is not surprising that the largest number of surveyed participants would examine the active constituents and/or standardized compounds and their amount per capsule/serving when judging the quality of an NHP. These sub-themes stood above the botanical name, species, or part used described on a label, but all these sub-themes had some importance and are worth highlighting in high-quality NHPs. Practitioners must be highly familiar with each of these aspects, while industry and policymakers need to ensure transparency in these areas. This is emphasized if third-party testing can certify that ingredient labels were accurate in their reporting of included ingredients. The critical evaluation of third-party testing to verify product claims aligns with the increasing consumer demand for transparency and accountability in health product manufacturing.

The emphasis on therapeutic efficacy within product monographs is another finding that aligns with current trends in evidence-based practice. Practitioners prioritize products that not only comply with manufacturing standards but also demonstrate clear, substantiated and evidence-informed benefits. This is crucial in a market where the therapeutic claims of NHPs can vary widely, and where both traditional and scientific validation can significantly influence both clinical outcomes and patient trust. The study found that product monographs need to provide evidence for the product's efficacy at the suggested dose. Thereafter, there is a relatively even distribution between the desire for monographs to discuss adverse effects and justify the ingredient form. This focus on efficacy echoes the broader healthcare industry's shift towards rigorous clinical validation and the necessity for NHPs to meet these high standards to be considered viable therapeutic options.

Moreover, the prioritization of accurate labelling and the verification of ingredients through third-party testing cannot be overstated.

In an industry plagued by instances of mislabelling and adulteration, third-party verification acts as a crucial safeguard, which was reflected as highly important in this study's findings. Research has shown that products undergoing third-party testing are more likely to meet their label claims and be free from contaminants, thereby enhancing consumer trust and safety.[19] This was consistent with the findings from this study where an even distribution was found between the desire to have third-party testing for product purity, unadulterated contents, ingredient purity, and the manufacturing process. Relying on third-party testing not only supports regulatory compliance but also aligns with consumer advocacy for greater transparency and accountability in dietary supplement production[20] and is consistent with the professional expectations revealed in this study.

Though the United States has the world's largest NHP market,[21] the FDA's Office of Dietary Supplement Programs continues to rely on manufacturers to ensure the safety and adequacy of their products.[22] In Canada, on the other hand, NHPs are regulated more like drugs, with even more stringent legislation passed in June 2023.

Strengths

With 192 Canadian NDs from 7 different provinces and 117 American NDs from 18 different states, the distribution of participants in this study ensured a wide representation from both countries, offering a robust foundation for analyzing their perspectives on the quality of NHPs.

The use of both interviews and surveys ensured a robust, evidence-based approach to tool development, enhancing its validity and utility for NDs assessing NHP quality. This methodology provided a detailed and justified approach to understanding and developing a quality assessment tool for complex NHPs. The mixed-methods design, combining inductive qualitative interviews with surveys, offered an understanding of the factors that influence NHP quality from the perspective of naturopathic practitioners. This comprehensive approach helps provide a unified framework for the assessment of complex NHPs.

Limitations

The sample size in this study is small. However, the number of interviews was sufficient to draw necessary conclusions, so additional interviews would not likely offer a greater benefit. The study adopted an inductive approach to qualitative data collection, allowing themes to naturally emerge from the interviews. This method enabled a deep, contextual understanding of the factors NDs consider when assessing the quality of NHPs. The iterative nature of the interviews, akin to a Bayesian statistical method, but for qualitative research, enhanced the richness of the data collected. Interview participants were also given a week to review the draft version of the survey to ensure that everything they personally felt was crucial to include had, in fact, been included, thereby reducing any potential interviewer bias.

To provide adequate data for the statistical processing of Phase 2, Reise, Waller, and Comrey[23] suggest that a sample size of 50 would be very poor, progressively increasing to a sample size of 1000 that they deem to be excellent. However, the sample size should reflect the number of variables being evaluated. Carpenter[24] suggests the minimum standard used in communications research of 5 participants to every variable is sufficient. With the 4 main themes and 29 sub-themes in the survey, it can be argued that a total of 150 participants is sufficient.

Another bias could be underlined with the large number of survey participants from Ontario, reflecting the location where the study took place. The distribution of participants, though wide, does not adequately reflect the distribution of practicing NDs in Canada and the United States.

Future considerations

Future studies should consider the application of the Delphi technique, which involves multiple rounds of surveys to gather expert opinions and achieve consensus on the key criteria. By engaging a panel of experts in various industries (such as naturopathic medicine, pharmacology, and regulatory affairs), the Delphi technique could be used to systematically refine the priorities identified in this study, such as GMP adherence, detailed labelling, therapeutic efficacy, and third-party testing.

Though guidelines and policies can certainly be enhanced with these survey results, it is the compliance procedures that tend to be lengthy, costly, and challenging to execute for 100% of the market. We therefore suggest using consensus results from the Delphi technique to develop a digital quality assessment that ranks complex, multi-ingredient NHPs, much like some existing platforms offer for single-ingredient products. This system would provide a standardized framework for evaluating the safety, efficacy, and transparency of NHPs, facilitating informed decision-making for both practitioners and consumers. Future regulatory policies and practices for NHPs could also consider implementing a scoring system to enhance product quality assurances and product comparisons.

CONCLUSION

An ND's selection of NHPs relies heavily on the manufacturing company's reputation and its ability to adhere to GMPs and high-calibre extraction processes. The more transparency an NHP company can provide, the more likely the product will be considered to be of high quality. Sourcing, labelling, monographs, and third-party testing emerged as the four main themes to assess quality NHPs, with several sub-themes identified for each. For sourcing, participants placed the greatest importance on adherence to GMPs, followed by the inclusion of details of the manufacturing process (i.e., cold-pressed, hydrolyzed, etc.) provided on the product label or in the product monograph. Detailed labelling, including specific information on active constituents and/or standardized compounds, along with their amount per capsule/serving, was highly valued. The inclusion of monographs with referenced evidence on therapeutic efficacy relative to the recommended dosage was also deemed important. There was a strong preference for evidence-based information supporting product claims. Using external verification to ensure that product ingredients match their labels accurately establishes a sense

of trust in NHP production. This underscores the value placed on product authenticity and purity. This analysis confirmed the relative importance of each factor in the quality assessment of NHPs, facilitating the development of a unified framework for assessing NHP quality that encapsulates these key elements.

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APPENDIX

A: Sample Interview Questions

Keep in mind that this is not a patient scenario but how you determine or rank the quality of one product versus another.

1. What interested you in participating?

2. How do you define "quality" with regards to multi-ingredient NHPs?
    a. Purity
    b. Effect dose
    c. Synergy
    d. Bioavailability
    e. Lack of fillers
    f. Organic
    g. Made in (Canada, US, Europe, S. America, China….)
    h. Ethical cultivation
    i. Specifics on SE, part provided on label
    j. Potency of SE
    k. Customer support

3. There are many NHPs that have many ingredients in them, for example a product for Joint Pain. Different brands and options on the market may have different ingredients or different amounts too. How do you, as an ND, choose the "best" NHP for your patient among so many options?

4. If you were to have a top 5 list of must-haves for a quality NHP to receive your seal of approval for the best quality product, what would they be?
    a. (for each of the above) Can you elaborate and explain why that's important to you?

5. Do you have your own dispensary or use an online database?

6. What do you feel is missing from current online databases that show you available products?

Please note that an inductive interview approach allows for flexibility in subsequent interviews. Themes and topics learned from one interview can influence future interview questions: E.g.: if a previous ND spoke of purity, a subsequent interview can ask "Other NDs have mentioned purity but that wasn't in your top 5, why not?"

B: Survey Questions

1. "I'm a licensed and practicing naturopathic doctor/physician in either Canada or the US."
    – Yes
    – No

2. "In what state or province are you licensed and practicing?"

3. "To better understand how sourcing can be rated in an objective measure of quality of an NHP, please rank the following from the most important to the least important:"
    – The geographic location of the product manufacturing company
    – The geographic source of the raw ingredients in the product
    – The product company adheres to Good Manufacturing Practices (GMPs)
    – The product label or monograph includes the manufacturing process (i.e., cold-pressed, hydrolyzed, etc.)
    – The product monograph discusses the carbon impact of the manufacturing process
    – The product ingredients were obtained through certified fair-trade sources
    – The product ingredients are demonstrated to be sustainably sourced
    – The final product is 100% organic (or as close to it as possible)
    – The final product is 100% non-GMO (or as close to it as possible)

4. "Do you have any additional comments you would like to make about what should be included in the assessment of quality sourcing?"

5. "The following emerged as important measures of quality that should be included in a quality label. Please rank the following from the most important to the least important:"
   - The product label specifies the species and parts used of the botanical ingredient
   - The product label specifies the form of the ingredient (e.g., liposomal, chelated, nano, etc.)
   - The product label highlights potential allergens
   - The product label identifies active constituents and/or standardized compounds in addition to the amount per capsule/serving

6. "Do you have any additional comments you would like to make about what should be included in the assessment of quality labelling?"

7. "To better understand what elements are deemed crucial for inclusion in a quality monograph, please rank the following from the most important to the least important:"
   - The product monograph explains why certain non-medicinal ingredients and fillers are included (unless the product is absent of them)
   - The product monograph provides evidence on therapeutic efficacy, including its magnitude of benefit
   - The product monograph provides evidence on the dosing used in studies, with a clear effect dose or rationale for the dose included in the product's formula
   - The product monograph provides evidence for the combination of ingredients used, including synergy, interactions or pharmacodynamics if applicable
   - The product contains the fewest number of ingredients possible to ensure the effective dose can be obtained
   - The product monograph provides evidence on the form of the ingredient used, including bioavailability and pharmacokinetics
   - The product monograph clearly outlines any known adverse effects
   - The product monograph provides a rationale for shelf-life and storage, including data on oxidation and denaturing
   - The product monograph includes results of third-party testing

8. "Do you have any additional comments you would like to make about what should be included in the assessment of quality monographs?"

9. "We ask that you rank the following from the most important to the least important regarding third-party testing:"
   - Third-party testing has been used as part of an assessment of Good Manufacturing Process (quality assessment of the facility)
   - Third-party testing has been used to assess the absence of heavy metals, toxins or contaminants in raw ingredients
   - Third-party testing has been used to assess the purity of each raw ingredient (i.e., unadulterated ingredients)
   - Third-party testing has been used to assess the strength of each raw ingredient (i.e., potency of extracts)
   - Third-party testing has been used to assess the absence of heavy metals, toxins or contaminants in final products
   - Third-party testing has been used to ensure the ingredients match the product label
   - Third-party testing has been used to assess the shelf-life of the final product

10. "Do you have any additional comments you would like to make about what should be included in the assessment of quality third-party testing?"

11. "We now ask that you rank these four themes from the most important to the least important:"
    - Sourcing
    - Labelling
    - Monograph
    - Third-party testing

Taking Action on Planetary Health: A Call to Action for Naturopathic Doctors

Leslie Solomonian,[1] ND, MPH (FCM)

THE CLIMATE CRISIS IS A HEALTH CRISIS

The World Health Organization has called climate change one of the biggest health threats of the 21st century.[1] Climate destabilization has myriad direct and indirect physical and mental health impacts, including extreme heat–related illness; flood- and wildfire-related deaths, displacement, and evacuations; droughts; wildfire-related asthma, COPD, and cardiovascular disease; tick-borne disease; seasonal allergies; anxiety, depression, increased food insecurity, and conflict.[2] Climate destruction poses higher risks for Indigenous people, people who are racially marginalized, people living in poverty, people living with disabilities, the elderly, people experiencing homelessness, and people who work outdoors.[3] The climate crisis is a *health* crisis, resulting in a tremendous burden on healthcare providers and systems, driving the need to adapt to these changing determinants of health.

"Climate change," however, is but one element of the broader planetary health crisis. The discipline of planetary health represents an integrative approach to understanding the reciprocal relationship between human beings and the planet. Whitmee et al. characterized planetary health as "the health of human civilization and the state of the natural systems on which it depends."[4] At its core, planetary health acknowledges the indispensable role of flourishing ecosystems in sustaining human societies; the well-being of individuals and communities is inexorably linked to healthy natural systems. Breakdown in these systems is generally understood to be due to human activity, yielding the term "anthropocene," which defines the current geological epoch as marked by human-induced alterations to the Earth's geology and ecosystems.[5] The term acknowledges humanity's pivotal role in driving environmental transformations, including industrialization, deforestation, nuclear waste deposition, *and* climate change, leaving distinct imprints in the geological record.

The causes of the anthropocene and the planetary health crisis are complex. Myers encapsulated the societal, economic, and political drivers and mediators that have led to such mass ecological disruption and the consequential impacts on human health.[6] White supremacy, capitalism, colonialism, and patriarchy are considered by many to be central to the evolution and perpetuation of the planetary health crisis.[7] Proposed principles of planetary health emphasize the need to challenge these dominant systems in the process of recreating a more sustainable and just society.[8]

THE ROLE OF HEALTHCARE PROVIDERS, AND THE OPPORTUNITY FOR NATUROPATHIC MEDICINE

This audience won't be surprised by the fact that the healthcare sector contributes substantially to the problem. According to the 2023 report of the Lancet Countdown on Health and Climate Change, the carbon footprint of the healthcare system is estimated to be 4% to 6% of all global emissions, equivalent to the fifth-largest emitter if the health sector was a country.[9] Canada is a top emitter, with healthcare being 5.2% of our carbon emissions. Most greenhouse gas emissions (71%) come from the healthcare supply chain (production, transport, and disposal of goods and services such as pharmaceuticals, chemical reagents, food and agricultural products, medical devices, equipment, and instruments).[10]

There are a number of evidence-informed strategies healthcare providers can implement to improve sustainability. A new Canadian guide, *Planetary Health for Primary Care*, identifies four principles: reducing unnecessary care, empowering patients, emphasizing health promotion and prevention, and choosing lower-impact treatment options.[11] It appears that naturopathic practice, in theory, is more likely to align with these strategies. Leaning on approaches that are preventive, health-promoting, and minimally invasive inherently reduces waste;[12] lifestyle strategies such as a whole-foods plant-based diet,[13] physical activity,[14] and nature immersion have benefits for both individuals and the environment.[15] Naturopathic philosophy also seems to inherently align with principles of planetary health.[8,16] An emphasis on prevention, optimizing conditions for health, pluralism, and holistic thinking, are clear connections between the two frameworks.

What appears to be an inherent alignment between naturopathic medicine and planetary health does not exempt practitioners from the need to be vigilant of the ways in which practice may benefit or harm the planet and all who share it. It may, in fact, be an argument for *greater* efforts to mitigate harm. Natural health products

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and medical devices and equipment used in practice, for example, contribute to the environmental footprint of practice. Promoting planetary health must also go beyond convenient co-benefits or clinical practice. It is in our oath to protect the health of the planet "for ourselves and future generations." Our avowed commitment to treating the whole requires us to view the health of the individuals we see in practice—and those we don't—as an extension of the health of the world in which we live and take tangible action to promote planetary health on a larger scale.

All healthcare providers—and perhaps NDs especially, given our principles—have a responsibility to adapt to treat the downstream effects of the climate crisis. We also have a responsibility to act to improve social and ecological determinants of health – the root cause of the majority of health outcomes and health inequities.[17] There is a significant body of literature arguing that healthcare providers must act to reduce our personal and collective contributions and use our influence to affect policies, systems, and individual behaviours to improve population health and the health of the natural environment of which we are a part.[18]

CHALLENGES AND BARRIERS

Despite the clear role for healthcare professionals in taking action on the planetary health crisis, most will have had no education on these topics in their undergraduate or postgraduate curriculum.[19] There is a unique set of barriers with respect to acting on planetary health, largely related to psychological and cognitive dissonance and the vast complexity of the problem.[20] One barrier to anyone taking action on a complicated problem is lack of institutional support. This author has encountered numerous barriers to shifting practices within the profession, particularly at the only institution for naturopathic medical education in Canada. From years of discouragement in efforts to create a meaningful sustainability strategy for the institution, to resistance to a critique of excessive personal protective equipment use in the teaching clinic,[21,22] to an unwillingness to consider a system to advise patients of the impacts of poor air quality or excessive heat on health,[23,24] this author has floundered in her attempts. There has been some movement on the part of professional associations incorporating planetary health content into conference proceedings and publications; however, this author has experienced numerous occasions of having this content rejected by regulators for naturopathic continuing education (CE) credits. The argument is often made that taking action on the planetary health crisis is not "relevant" to naturopathic practice, or an outright conflict of interest. Given the alignment between stated naturopathic principles and what experts say is needed for planetary health, our institutions should be *leaders* in this work.

TAKING ACTION ON PLANETARY HEALTH

There are other institutions and voices that are prioritizing this work. Along with Samantha Green—a family physician, adjunct faculty at the University of Toronto, and president elect for the Canadian Association of Physicians for the Environment—I approached the Department of Continuing Professional Development in the school of Family & Community Medicine at the University of Toronto with a proposal. They were immediately supportive, indicating that our idea fulfilled a key strategic goal. Together, we designed and offered a 40-hour CE certificate program to build capacity among healthcare providers to take action on the planetary health crisis.[25] The first iteration of the program was offered in 2023; the second in fall 2024. A variant of the program is now being considered for the general public by the School of Continuing Studies.

The program is grounded in adult learning theory and planetary health principles, including the critical centering of justice. It is team-based, community-oriented, and interdisciplinary. The program is first and foremost action-oriented; we know that knowledge is rarely sufficient for change. The primary outcome of the program is the application of knowledge, attitude, and skills to create an intervention to adapt to and/or mitigate the planetary health crisis. Program objectives and intended outcomes are listed in Figure 1.

All components of the program are grounded in principles of planetary health, including systems thinking, multimodal ways of knowing, ethics, spirituality, cognitive psychology, and the humanities. Collaborative learning is critical; as facilitators, we emphasize that we are co-creating skills and knowledge with participants. We use the program itself as an example of an intervention, using its development as a model for the step-by-step plan creation. Participants are encouraged to register in teams, and we help individual registrants create affinity groups within the cohort. Sessions are heavily interactive, with deliberate space for supported self-direction and choice. The schedule alternates between full-cohort gatherings (online), and structured team meetings to work on the intervention strategy. There is a significant amount of independent learning to prepare for each session, consisting of relevant reading, viewing, reflections, and prompts to connect with the natural world; engagement in the online discussion forum is encouraged to build community between sessions and between teams. Purposeful feedback loops are built into the design to encourage cross-pollination of ideas between groups (Figure 2).

Twenty-four participants enrolled in the first iteration, including physicians, nurses, naturopathic doctors, registered dieticians, and other healthcare professionals. A micro (clinical), meso (institutional/community), macro (policy) framework is used in the program to define various types of advocacy actions that a healthcare provider might take on within their role;[26] arguably, all are collectively necessary for meaningful change to occur. As such, an array of action plans emerged from this first cohort (Table 1).

Four months after the end of the first cohort, we hosted a reunion gathering to hear how alumni continued to take action. We heard of tangible movements towards embedding planetary health principles in various professional spaces, such as associations, conferences, and local health units/authorities. We heard of organized campaigns for policy change on climate. Two participants are currently running for election. We heard of initiatives to weave planetary health concepts and competencies into pre-existing health education curricula. The program deliberately incorporates strategies and mechanisms for effectively coping with the strong emotions that often arise when working to promote

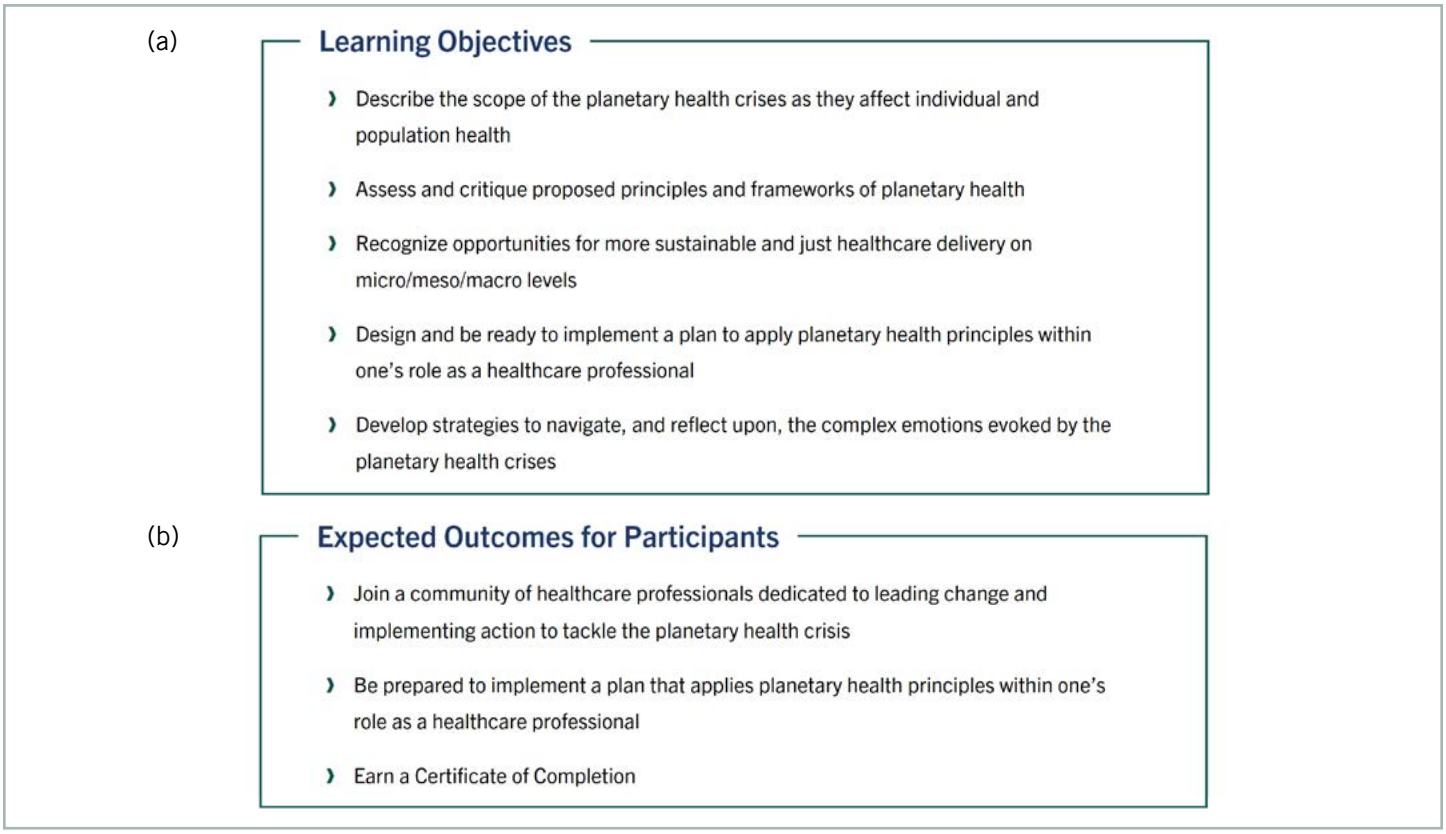

FIGURE 1 (a) Program Objectives and (b) Outcomes. Source: Taking action on planetary health – building community to advance planetary health. https://planetaryhealthaction.ca/

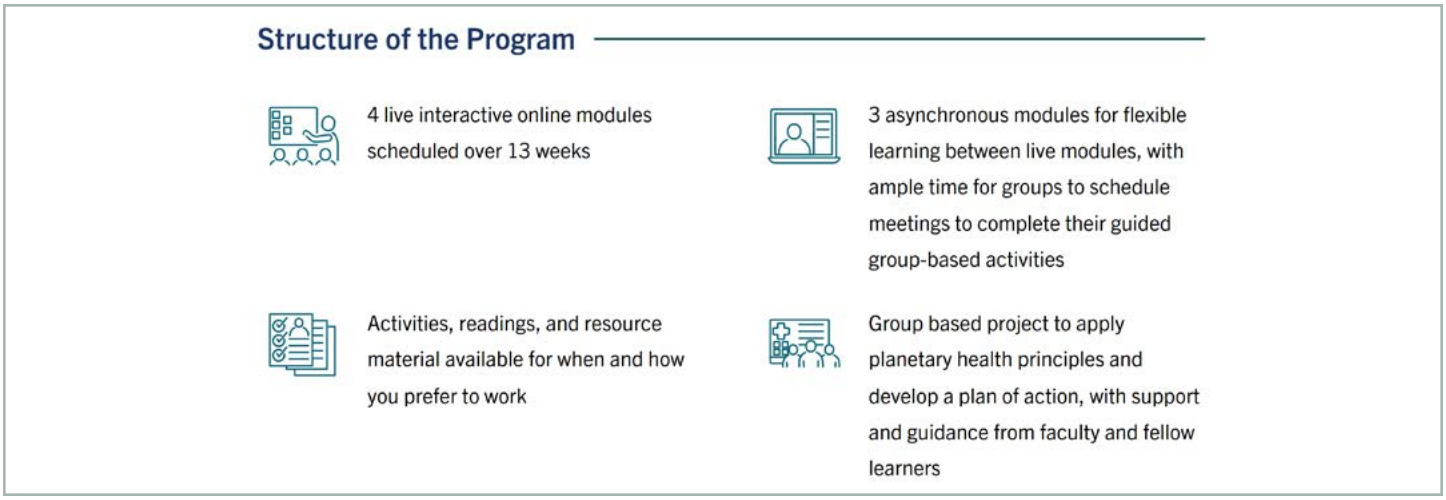

FIGURE 2 Structure of the Taking Action on Planetary Health Certificate Program. Source: Taking action on planetary health – building community to advance planetary health. https://planetaryhealthaction.ca/

TABLE 1 Action Plans from "Taking Action on Planetary Health" Cohort 1

• Creation of a clinical personalizable prescription template with prompts and local resources for individuals to "take for your physical and mental health, for your community, and for our living world" (micro with possible meso outcomes)
• Creation of a rubric by which healthcare institutions can prioritize and embed planetary health principles in their operations (meso with possible micro outcomes)
• Development of a digital interface to support youth in coping with eco-distress (micro with possible meso outcomes)
• Creation of a guide for healthcare leaders to develop and present modules/workshops on planetary health to other healthcare workers or students (meso with possible micro and macro outcomes)
• Design of a strategy for an organizational response to heat-related vulnerability, including a screening tool for homebound populations at risk, creation of a process/paradigm/care plan for mobilizing during heat emergencies, and advocacy around apartment buildings that ban unit air conditioners (micro, meso and macro outcomes)

planetary health; alumni reflected on the importance of this in their work. We also talked about the power of personal stories; the group reflected that stories (more than data) and compassion are what helps "bring others along," normalizes difficult feelings, and reduces overwhelm, all critical for maintaining optimism in this work. We also reminded ourselves of the collective impact of consistent efforts to shift narratives, behaviours and policies, no matter how small each shift might feel.

Thirteen of the first cohort consented to participate in an evaluation of the pilot. These participants completed a pre-program survey assessing knowledge, attitudes, behaviours, and barriers towards taking action on planetary health from their position as a healthcare provider. Eleven completed a second identical survey immediately after the program completed. There was a trend to improved self-perceived knowledge of the causes and consequences of the planetary health crisis, as well as increased agreement that healthcare providers have a responsibility to take action. There was an increase in participants acting on planetary health, especially in clinical practice. Most respondents found the program feasible and effective, particularly the team-based approach. These preliminary results were presented as part of a panel on climate and health education at the 2023 Conference for Climate and Health in New York.[27] Qualitative feedback was used to reiterate the program for the next cohort.

MOVING FORWARD; A CALL TO ACTION FOR NDS

As articulated in our article published in *CANDJ* in 2019, there are a number of strategies NDs can consider, ranging from "micro" clinical steps to "macro" advocacy for policy change:[28]

- Make explicit the reciprocal connections between individual health goals and the health of the planet.
- Consider environmental harms (or benefits) of different therapeutic approaches in the process of obtaining informed consent.
- "Nature" is embedded in the name of our profession; keeping nature central in practice and lifestyle helps to cultivate a sense of stewardship in ourselves and our patients, and has myriad benefits.
- Establish personal and professional habits which minimize your environmental footprint. Make your choices and reasons explicit.
- Be an agent of change and make it public; illustrate the links to our commitment to optimizing conditions for health.

All of these strategies benefit from deliberate learning to improve effectiveness. We invite you to consider registering for our next iteration! As the sole naturopathic doctor in this cohort indicated:

> This was the first course I have taken that directly and practically addressed an emerging issue in the healthcare landscape—the increasing prevalence of symptoms and illnesses that are related, directly or indirectly, to climate change. For me this has already led to important changes in my work with patients. I believe that naturopathy, with its heightened emphasis on the connection between environment and health, is particularly well suited to take a leading role in this field over the next few decades. My hope is that, in the future, naturopaths will engage more fully and directly with issues related to climate change, climate anxiety, and planetary health. (Christopher Sowton, ND, email communication, September 5, 2024).

However, our program is far from the only one available to support the competence of healthcare providers in taking meaningful action on planetary health. Table 2 lists a number more to explore.

Consider this our collective call to action.

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CONFLICTS OF INTEREST DISCLOSURE
I am the co-developer and facilitator of the program described. I am financially compensated by the University of Toronto to do this work.

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TABLE 2 Educational Opportunities for Taking Action on Planetary Health

Taking Action on Planetary Health	https://planetaryhealthaction.ca/
Centre for Sustainable Healthcare: short courses in sustainability, health, and healthcare	https://sustainablehealthcare.org.uk/courses
Cascades Canada: continuing professional development training programs for individuals in health systems working towards environmentally sustainable healthcare	https://cascadescanada.ca/training/
TelessaúdeRS-UFRGS: Massive Open Online Course (self-directed, asynchronous):	https://www.ufrgs.br/telessauders/saude-planetaria/
Planetary Health for Nurses: continuing education	https://nursing.yale.edu/planetary-health-nurses
Climate Health Organizing Fellows Program	https://www.healthequity.challiance.org/climate-health-2023-24
Climate Change and Human Health ECHO Program	https://hsc.unm.edu/echo/partner-portal/programs/global/climate-change/
World Organization of Family Doctors (WONCA) Air Health Train the Trainer Program	https://www.globalfamilydoctor.com/News/WONCAAirHealthTraintheTrainerProgram.aspx
Planetary health academy	https://planetary-health-academy.de/

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British Columbia's Changing Regulatory Landscape—Challenges and Opportunities

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British Columbia (BC) is in the midst of a shift to the healthcare regulatory landscape. This change to regulation was initiated several years ago, and many across the country are likely familiar with the gist of this transition. This shift has two main components. First, the number of BC's regulatory colleges was reduced, including the amalgamation, on June 28, 2024, of the former College of Naturopathic Doctors of BC to the College of Complementary Health Professionals of BC (CCHPBC), which includes our colleagues in Traditional Chinese medicine, registered massage therapy, and chiropractic care. Second, the former *Health Professions Act* will be replaced by the passed, but not yet enacted, *Health Professions and Occupations Act*.[1]

For several years the BC Government has signaled to health professions a strong desire to implement recommendations arising from a commissioned report in 2018 referred to as the Cayton Report.[2] Comprehensive in its scope, the Cayton Report recommended reducing the number of regulatory colleges and updating the *Health Professions Act* of 2005 to enhance the protection of the public, focus on greater transparency, and improve the complaints process.

In answer to these recommendations, the new *Health Professions and Occupations Act* (HPOA or the Act) passed its third reading in the Legislative Assembly of BC on November 24, 2022, and received Royal Assent the same day. The final approved HPOA moved swiftly and with rapid consultation through the review and legislative process. Its numerous provisions represent significant changes to the regulation of health professions in BC. These include but are not limited to:

- A reduction in the number regulatory colleges, which included several newly amalgamated colleges
- A restructured discipline and complaints process
- A focus on and commitment to cultural safety and humility
- Changes to information sharing and transparency amongst the regulatory colleges and other agencies in the name of public safety and protection
- A competency-based, as opposed to profession-based, Board appointment model for regulatory college Boards of Directors

While the new HPOA has passed into law, it remains unclear when full implementation will occur, and government has yet to confirm its timelines publicly. The newly amalgamated colleges will need to prepare for the new Act while also navigating the complexities of joining diverse health professions into condensed entities—no easy feat. Underscoring this complexity is that CCPHBC enacted its first set of bylaws in June 2024 to facilitate amalgamation, but a further set of bylaws will need to be written for the new HPOA. While the regulatory colleges prepare for these steps, government has also moved forward with implementation, notably by naming the Superintendent, Sherri Young, who will lead the Office of the Superintendent of Health Professions and Occupations Oversight. The new Office has several functions, but its primary role is to ensure regulated health profession colleges under the new Act are accountable in the public interest.

British Columbia's Naturopathic Doctors (BCND) has taken a dual-oriented approach to understanding and staying on top of news and information as it relates to the HPOA by using legal expertise, collaborating with health association colleagues through a group known as the Healthcare Associations of British Columbia, inviting government officials to speak to the collaborative group of healthcare associations, and joining forces with other groups to strategize ways forward given all of BC's regulated health professions share similar concerns about the new HPOA. These shared concerns focus on the lack of collaboration and rapid consultation when developing the new Act as well as significant concerns with respect to the disciplines and complaints process, use of titles, potential privacy and human rights issues, and the costs of implementation and how these costs may be passed on to our respective memberships. At the heart of the work of BCND is our membership. We have heard members' concerns and have been consistently impressed with the passion that NDs in our province have demonstrated in understanding a very complex Act, replete with uncertainty. BCND will continue to centre the "voice" of NDs in navigating our new regulatory landscape.

Concerns notwithstanding, it remains important that NDs also consider the opportunities presented by the new HPOA and the amalgamation of colleges. NDs have been working closely with

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our health professional colleagues and are taking a strong leadership role in understanding aspects of the Act and how it may impact healthcare delivery in BC. By working with colleagues and by taking an interprofessional approach to understanding the issues, NDs are situating themselves as key players in the healthcare sphere. No longer are we working on the edges of care; rather, we are working collaboratively with medicine, nursing, and other allied health professional colleagues in highlighting concerns and in working towards solutions. We are closely connected with our colleagues in the College of Complementary Health Professions of BC, so that we may jointly tackle issues that are of importance to all of us. While we focus on NDs, we have also learned that there is strength in collaboration, and it is with the collective voice that we can demonstrate the strength of our profession. As Simon Sinek once said: "To ask, 'What's best for me?' is finite thinking. To ask, 'What's best for us?' is infinite thinking." It is the "infinite" thinking approach that BCND strives for and considers in our approach while also being sensitive to any potential impact on ND practice.

BC's NDs are not naïve to the reality that we will not see all the changes we seek to make to the Act, but the collective effort of working with government, working with health professional colleagues, and working with our regulatory body situates NDs where we need to be, at the forefront of conversation as it relates to healthcare delivery in our province.

We encourage you to keep watch on BC. While we cannot say for sure, we do wonder whether BC's new Act may be the first in a line of changes, some of which could soon be seen across the country.

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