

Vital Link

The journal of the Canadian Association of Naturopathic Doctors

Feature Articles

- 🔥 **Editorial Notes: Anger, Grief, Compassion and Technology in Naturopathic Care**
- 🔥 **Update from the Chair and Executive Director**
- 🔥 **Pivoting to Telemedicine in a Naturopathic Undergraduate Educational Setting: Lessons Learned**
- 🔥 **Continuous Glucose Monitoring for Non-insulin Dependent Diabetics in Naturopathic Clinical Practice**

Technology & Virtual Care

Volume 28, No. 2



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Vital Link

The journal of the Canadian Association of Naturopathic Doctors

Volume 28, No. 2

Technology and Virtual Care

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The *Vital Link* is the flagship journal of the Canadian Association of Naturopathic Doctors (CAND). It publishes on a wide variety of topics related to the research and practice of naturopathic medicine in Canada, promoting our profession to Canadians, government, other health care professionals and insurance companies, raising awareness of our unique role in supporting the health of Canadians.

Submissions

As a general naturopathic medical journal, we encourage submissions related to themes of our upcoming editions, and also in our identified core areas of concern including: mental health, health of vulnerable populations, community and planetary health. Contributors should keep in mind that while the main audience for the *Vital Link* is practicing Naturopathic Doctors, we encourage authors from any discipline to submit articles to our editorial team for peer review. Current Submission Guidelines are available in the Members' area of the CAND website or on request from our Editor at drmtrevorrow@cand.ca.

Circulation

The *Vital Link* is published four times per year and is distributed to over 2300 qualified Canadian NDs and students of CNME-accredited naturopathic programs in Canada and the U.S. The *Vital Link* is also distributed to the CAND's corporate members and in our media kit. The journal is available in print and e-formats, by paid subscription. Additionally, the *Vital Link* is a tool promoting qualified naturopathic doctors to corporations, insurance companies, and the provincial/territorial, and Federal branches of government in Canada.

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The *Vital Link* provides advertisers with the largest circulation to qualified Canadian naturopathic doctors of any naturopathic publication. We invite vendors providing NHPD/Health Canada-compliant products, and/or other services to naturopathic doctors to advertise in the *Vital Link*.

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Anger, Grief, Compassion and Technology in Naturopathic Care

Marianne Trevorrow, MA, ND

As I write this letter in early July, we've been dealing with well over a year of navigating the COVID pandemic, and the collective grief of revelations about outbreaks and deaths in our Long-Term Care, Indigenous, BIPOC and homeless communities, overlapping lockdowns that have affected many ND's livelihoods, and provincial health care mobilizations that often seem to have left us out of consideration altogether. Most of us have had to shift our delivery of care almost overnight and are trying to juggle compassionate naturopathic care with a rapidly expanding number of telehealth platforms, with varying levels of reliability and suitability to clinical best practices.

As we cope as a profession with these multiple shocks, recently we have been further confronted with the news of multiple unmarked gravesites (five, at current count) of young children at Indigenous residential schools, with likely many similar revelations to come. As Canadians, the revelations of how we have treated our Indigenous people with criminal indifference, removing children from their families and placing them in overcrowded and substandard accommodations, and subjecting them to abuse and callous indifference to their welfare, is shocking and demands reflection and a collective response to the calls for action from the 2015 Federal Truth and Reconciliation report.

For NDs trying to come to terms with these traumatic revelations; whether on social media, in our conversations with each other, or in our clinical care, it can be difficult to articulate how we should support our Indigenous and Métis patients, neighbors and colleagues. As editors, we are also reflecting on this issue; after recent conversations with researchers at the National Collaborating Centre for Indigenous Health (NCCIH), and in Indigenous Public Health at several institutions, we are planning to publish a series of commentaries in upcoming editions on naturopathic Indigenous health from a position of cultural understanding and humility.

This issue of *CAND Vital Link* will be our last print edition before we make the transition to our digital platform, and so it is fitting that our theme is on adaptation of new technologies into naturopathic practice. Our first article is a commentary by White and Whalley about their experience supervising the implementation of virtual care across the CCNM network during the first months of the COVID pandemic. As they write, teaching shifts went from 1% to 100% virtual delivery within a 10 day period, meaning secure video and communication systems suitable to large scale use had to be rapidly scaffolded onto the existing EMR, and everyone trained in the new system. Looking back a year later, they highlight the communication and technical challenges they faced, and how their clinical didactics were able to adapt to this new care delivery method.

Our second article pertains to a new technology that is increasingly showing up in clinical practice with diabetes, namely Continuous Glucose Monitoring, or CGM. These devices monitor interstitial fluid glucose levels on a continuous basis, creating data which can be uploaded to smartphones or secure patient messaging platforms. As author Duizer points out, they can be an effective tool to reinforce improved glycemic management by providing 'real time' feedback on the effect of dietary, exercise or lifestyle choices. Although the costs may be a barrier to some populations, for those with insulin dependent forms of diabetes (ether childhood or adult onset), this technology has the potential to revolutionize patient care for these populations and is perfectly congruent with the lifestyle approach of naturopathic medicine.

As mentioned previously, while we have been carrying on with our regular quarterly publication schedule, we are also diligently working on our first digital edition for the Fall, including revamping our editorial and submissions policies to be in alignment with international publication and medical journal standards. While we still have much behind-the-scenes work to do, we are excited at our progress to date, and look forward to testing the new members' portal and pages in advance of our launch in late September.

In the meantime, however, please enjoy these articles, and as always, we appreciate member feedback on our current and upcoming editions.

Marianne Trevorrow, ND.

Marianne Trevorrow, MA ND
Editor in Chief



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Update from the Chair and Executive Director

Mark Fontes, ND, Chair and Shawn O'Reilly, Executive Director

Dear Members,

On June 19th, 2021 the CAND held its second consecutive virtual Annual General Meeting. We were pleased to have over 200 of you join us as we discussed the work we did for the profession in 2020 and would like to share highlights of the AGM here.

Prior to the meeting we held a moment of reflection to honour the 215 Indigenous children whose remains were found at the former residential school in Kamloops. We were saddened to hear of the further 751 unmarked graves found in Saskatchewan only a few days later. Reconciliation is a critical national undertaking and it is our collective responsibility. As naturopathic doctors across Canada, we share in the grief of the Indigenous Peoples over these heartbreaking discoveries.

We reviewed the impact of COVID-19 on the profession as clinics were forced to close until advocacy efforts by the Associations resulted in Naturopathic Doctors being designated as essential services, able to continue to provide care to their patients. With the federal government's full attention on the pandemic to the exclusion of everything else, our advocacy focus switched to ensuring Naturopathic Doctors had access to all of the government's emergency financial benefits. Much of our work was advocating for the inclusion of Naturopathic Doctors in the financial benefit programs. Thirty COVID-19 updates were sent out to members in 2020 to keep you informed on the financial assistance available as well as our work as a member of the Public Health Agency of Canada's (PHAC) Health and Allied Health Sector Table. Our participation affords us the opportunity to advocate for the inclusion of a naturopathic approach and natural health products in the fight against the pandemic. This work is ongoing. To assist members in securing the supplies they needed for their clinics we collaborated with Hawktree Solutions, supplier to the Red Cross, for discounted PPE, and Surgically Clean Air for discounted medical grade air filters.

While our main government relations work was focused on pandemic relief, the CAND continued to work with the NNHPD on proposed self-care regulations and new plain language labelling and lobbied Veterans Affairs Canada to add naturopathic services as part of the coverage accessible to Veterans. In addition we assisted several of the Provincial and Territorial Associations with their government advocacy work.

We were pleased to report that the CAND membership numbers stayed strong in 2020 with 2252 members. We continue to have a high overall retention rate year over year.

In addition we welcomed the recent additions of Doctors Data, Precision Analytical, Surgically Clean Air, Vitazan and Restorative Formulations as corporate partners. We thank all of our corporate partners for their continued dedication and support of the CAND, and of the profession.

Naturopathic Medicine Week went digital for the first time in 2020. Our message to "Be in the Know" about NDs and naturopathic medicine did well on all social platforms garnering over 43,000 impressions and a 9.7 engagement rate. Link clicks (to the CAND website to search for an ND) were up 49% over 2019 and we grew our net followers by 638. Engagement was highest mid-week. We thanked all of the Provincial Associations for their participation in helping spread the message on the benefits of taking a naturopathic approach.

Quick note on Naturopathic Medicine Week 2021 which once again was digital. The campaign generated an amazing 1.1 million impressions and 3,000 quality engagements with NDs and Canadians using our campaign hashtags #NatMedWeek2021 and #BetterHealthTogether, which helped to share the stories of how naturopathic medicine has made a positive impact on the lives of Canadians.

During NMW we reached over 260,000 Canadians outside our previously existing audience and grew our social media community by 1,000 followers. We encourage all members to follow CAND on Instagram, Twitter and Facebook to stay up to date on news and initiatives!

We were also very excited to share the news that the *Vital Link* will be moving online! In September, the journal will have its own website as an online, indexed peer-reviewed journal. With a public facing

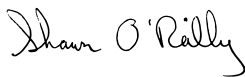
webpage and protected member access, the renamed *CAND Journal-CANDJ* will serve to educate naturopathic doctors and integrative health professionals in Canada and globally on evidence-informed care and the art of naturopathic best practices. We thank Dr. Marianne Trevorrow, ND, Editor in Chief, and Dr. Cyndi Gilbert, ND, Associate Editor, for all of their hard work over the past year continuing to produce a high quality journal while also undertaking the work required to move the journal online. Stay tuned for more announcements over the summer.

It was an engaging AGM and we certainly hope to be able to see you in person next year! The CAND Board of Directors looks forward to continuing to support you, improve awareness of naturopathic medicine and represent the profession at the national level.

Thank you.



Dr. Mark Fontes ND
Chair



Shawn O'Reilly
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Pivoting to Telemedicine in a Naturopathic Undergraduate Educational Setting: Lessons Learned

Lindsey White, ND & Jennifer Whalley, ND



UPDATE

EDITORIAL

COMMENTARY

CASE REVIEW

PRACTICE

RESEARCH

Abstract:

The pandemic has driven healthcare technology forward at a record pace, prompting the rapid implementation of virtual care in Ontario, and across Canada. This case report will look at the transition of a naturopathic undergraduate teaching clinic to a virtual care delivery model, including the initial implementation using both available and new technologies, and the key learning opportunities from the transitional period. It will also review the process of continual monitoring and innovation in naturopathic clinical workflows to reduce administrative burden, promote sustainable practices in virtual care, and improve patient experiences, including decreasing barriers and increasing access to care. Lastly, we will review the importance of innovation when embracing technological change to ensure that naturopathic doctors and interns are adequately prepared for the future of virtual care.

Introduction

Technology adoption in healthcare has historically been a slow-moving process.¹ The onset of the pandemic forced adoption of telemedicine/virtual care and the implementation of new technologies at a pace that had never previously been seen in healthcare.² While implementing these new technologies and providing virtual care provide clear advantages, some key learning opportunities can be applied to virtual care delivery post-pandemic and for future adoption of new technologies in naturopathic care. As an educational institution for health care providers, the curriculum must mirror the innovation and growth seen in the health care sector to ensure future naturopathic doctors can provide the care needed to meet the needs of the patients.

Transition to Virtual Care Review

In ten days, CCONM teaching clinics went from 1% virtual visit types to 100% virtual visits. Pivoting towards a fully operational virtual clinic, with 100 interns, 60 supervising naturopathic doctors, 7000 patients, and 10 different clinics required heavy reliance on current technology. The clinics were at an advantage with an electronic medical record (EMR) system, virtual appointment reminders, and a virtual messaging system already in place. From there, a telemedicine platform and patient communication platform were added, and systems were put in place to fill the gaps of what was needed to provide high-quality telemedicine care.

These gaps included a telemedicine platform that would enable video calls with multiple participants at once. As an educational institution, one of the unique needs required for providing care

and high-quality education is the ability for multiple participants in a visit. Unfortunately, most telemedicine platforms are built for one-to-one interaction, doctor and patient. We choose a system that could allow group calls, although with limited functionality. The system was often overburdened with our need for a supervisor, intern, learning students, and the patient. This ultimately led to an undesirable patient visit and learning opportunity for our interns. A second gap was finding the best way to communicate with patients both from a staff perspective (collecting payments, booking follow-ups) and from a practitioner perspective sending treatment plans in a secure platform. We were able to find a messaging system that integrated with our EMR, which allowed treatment plans to come directly from the chart, as well as allowed staff to send forms, and questionnaires electronically and once completed would automatically load into the chart. This integration is key in decreasing the overall administrative burden on operational staff and faculty while ensuring proper information was channeled into the medical chart. The other significant gap in our pivot to virtual care was students' limited training and understanding of conducting a telemedicine visit, as was the case for a portion of our clinical faculty. Providing training to staff and students on the importance of a "websites" manner and supporting supervisors modeling safe virtual care also allowed us to train interns in preparation for future practice.

To pivot quickly, as stated we used resources in place, added additional resources, and most importantly communicated often through our messaging system. Daily communication on the transition and processes were sent out. These communications were intentionally short, with 'how-to' videos so that users could digest the significant change in small bites. Additionally, we created a centralized platform

for supervisors on our already in-place communication platform to facilitate communication, link out to helpful resources, and create short-cuts to administrative documents. Many townhalls, group meetings for internal stakeholders were held to address the changes and get feedback. Patients were also involved in the process, as they have been significant stakeholders in how we offer our services. The Patient Advisory Committee (PAC) was consulted four times throughout this year and their role was pivotal in providing feedback and reviewing our processes. This was/is a huge change for all stakeholders, compounded by the fact that everyone was living in a pandemic. Managing people's expectations, emotions, and ability to cope was always at the forefront of decisions and communication.

While the initial focus was on continuing to offer care to patients, the complexity of clinical workflows had increased because no single system could meet the needs of a large teaching clinic. The use of multiple systems that did not communicate, combined with increased access to staff working from home quickly increased administrative workflow for interns, supervisors, and operations staff. It was through monitoring workflows with a critical reflection on the complexities and administrative burden that it was decided to refocus on simplifying and centralizing clinical systems.

The introduction of an online system that sends booking reminders, treatment plans, and processes payments allowed us to replace four outdated systems while allowing patients the option to book online if they were uncomfortable with calling to book. Centralizing communication also supported patients receiving consistent messaging while reducing patient communications coming directly from supervisors' emails. Introduction of a 15-minute follow-up for patients who were emailing or calling supervisors to clarify questions also formalized a process for facilitating boundaries between visits.

Finally, while our virtual teleconferencing system offered group calls as stated it was often overburdened with the number of participants on the call. To improve the patient experience and the learning experience the telemedicine platform was changed to the same platform we were using for our student-faculty interactions. This singular platform was capable of handling multiple participants in the same call, but also allowed us to reduce two systems down to one singular system for communication within the clinic.

Discussion (Review of Lessons Learned, Research and Future Directions)

The rapid transition to virtual care delivery across the medical community pushed technology adoption quickly, allowing CCNM Clinics to continue to provide care to current patients throughout the pandemic. While the initial transition occurred at a rapid pace to ensure ongoing patient care and student education, the pace of the transition brought a lot of change for both faculty and students paired with a period of high uncertainty throughout the pandemic. The change was managed using short and frequent feedback with supportive resources. Microsoft Teams was one of our most successful

platforms, allowing us to centralize internal communications for staff and interns who felt this was a more efficient way to communicate and share resources. There was also a strong appreciation from staff and patients throughout the process as we worked to improve our processes as well as streamline and automate workflows.

There continues to be clear advantages to virtual care delivery including the ability to provide care in a way that removes physical barriers for people who cannot come into the clinic while also allowing naturopaths to serve wider populations across Ontario. Given these advantages, virtual care is a practice that is expected to continue beyond the pandemic, so ensuring that best practices are integrated into naturopathic clinics and that clinical workflows are sustainable in the long term is vital to the health of the profession.

KEY LEARNING OPPORTUNITIES

BOUNDARIES IN COMMUNICATIONS

- Clear communication in visits to reduce access to emailing outside of appointments
- Providing shorter appointments for answering questions about treatment plan

MONITORING AND REFINING CLINICAL WORKFLOWS

- Monitoring inefficient clinical workflows and streamlining processes
- Updating technologies to simplify workflows

FACILITATING ACCESSIBILITY

- Virtual care can increase accessibility to services for certain individuals
- On the other hand, it is imperative that alternative options are made available for individuals with limited access to the technology required for virtual care

Some of the key learning opportunities from this implementation included the importance of boundaries in a virtual world, monitoring and refining workflows, and building strategies to facilitate accessibility. While boundaries are unique to each provider, clinic-wide policies and technology can be used to manage expectations and ensure stronger boundaries are in place to support long-term sustainability in any healthcare practice. This process requires continuous monitoring and communication between healthcare providers, operations staff, and patients.

Further, to support sustainable practice in virtual care delivery, the process of monitoring workflows is another key avenue for practicing naturopathic doctors as part of any change management process. While embracing change can be challenging, especially implementing new systems a year after the original implementation,

there are clear advantages to problem-solving and simplifying clinical workflows that use significant resources and/or administrative time with the end goal of reducing administrative burden. Working with staff and healthcare providers to identify areas for improvement, to collaborate on possible solutions, and streamline clinical workflows is something that will continue to be necessary for the future of naturopathic practices and the shifting technology landscape.

Conclusion

There is no doubt that digital health is in a “cultural transformation” and a paradigm shift is occurring within the healthcare field.³ As an educational institution, virtual care and the use of technology in healthcare must be built into the curriculum. This is to ensure future naturopathic doctors have the skill to provide high-quality healthcare in a virtual setting. As well as model best practices for processes and systems in workflow monitoring, boundaries in clinical care, and integration of new technologies. 🍁

About the Authors

Dr. Lindsey White, ND (she/her) – a 2012 CCNM graduate. Lindsey owned and operated a multi-disciplinary clinic in downtown Toronto for five years (2013-2018) with a focus on working with the LGBTQ community. Currently, Director, Clinical Services at CCNM and is responsible for the operations and strategic growth of CCNM’s teaching clinics across the GTA. Lindsey works towards ensuring a high-level of customer service is provided to all stakeholders – students, faculty and patients. Lindsey works passionately towards developing strategy for clinic modernization, growth, and improved patient experience within the lens of a teaching institution.

Dr. Jennifer Whalley, ND (she/her) – a 2016 CCNM graduate. Jennifer has a private practice with a focus on supporting people who experience persistent pain and she supports the adoption of new technologies at CCNM Clinics. Jennifer is passionate about supporting the adoption of virtual care and finding ways to use technology to improve patient experiences and drive meaningful clinical change.

Competing interests: none declared

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Continuous Glucose Monitoring for Non-insulin Dependent Diabetics in Naturopathic Clinical Practice

Dr. David Duizer, BSc, ND, RMC



Abstract:

With a strong focus on lifestyle medicine and desire for evidence-informed, individualized treatment protocols naturopathic doctors have much to offer the type 2 diabetes patient. The newest addition to the naturopathic doctor's tool kit is continuous and flash glucose monitoring devices. Data obtained from this technology supports healthy glucose control in type 2 diabetes patients. When clinicians are able to be connected to this data nutrition, exercise, supplement, herbal and medication prescriptions can be individualized to the patients insulin sensitivity and glucose disposal. The article reviews one naturopathic doctor's approach to type 2 diabetes management using continuous glucose monitoring.

Naturopathic doctors are poised to blunt the growth of type 2 diabetes in Canada in part because of their focus on lifestyle medicine and continued growth as a profession.⁹

The ability to scientifically evaluate glucose responses to food and the extent of insulin resistance using laboratory assessments has enabled the emergence of patient-centered, holistic, and precise approaches to diabetes. The newest additions to the naturopathic doctor's tool kit are continuous and flash glucose monitoring devices (for the purpose of this article we will refer to both types as simply CGM). This technology connects practitioners to their patients' diet and exercise choices through distributed applications that store real-time glucose data on cloud computing platforms. When treatment goals are well-established and evidence-based protocols are used, CGM data has the potential to personalize nutritional, exercise and supplement treatment strategies to improve patient outcomes.¹⁰ This method of practice is well-aligned with the mentality of the naturopathic doctor.

What are CGM devices?

CGM devices are small sensors that can be placed on the body to accurately monitor interstitial fluid glucose levels immediately below the skin; they are clinically validated to measure blood glucose levels.¹ These devices are able to communicate glucose levels with handheld devices including both patient and practitioner smartphones. Common market CGMs can be used for two weeks before replacement is necessary. Data can be analyzed at any time to facilitate lifestyle change and to track intervention impacts.

Two commonly used terms to describe these devices are continuous glucose monitors and flash glucose monitors. Continuous glucose monitors do not need to be scanned to transmit data while flash glucose monitors store data which is submitted when a capture device

is brought close to, or 'flashed', over the sensor.² CGM devices are highly accurate, although they lag behind plasma glucose levels by approximately 15 minutes.² They can be properly calibrated through fingerstick glucose testing if needed.

CGM devices are applied to the posterior non-dominant upper arm by the naturopathic doctor and require target zones to be individualized to patient goals. Although they require a short period of instruction, they are generally easy to use and have an intuitive interface that even the least tech-savvy patient usually finds simple to understand.²³ Initial lessons for patients include how often to scan (for flash glucose monitors), and how to understand alerts (for pure CGM users). Application settings within the system include, but are not limited to: predicted HbA1C, average glucose, alerts for both hypoglycemia and hyperglycemia and percentage time-in-target reporting.

An important benefit of CGM is a greatly reduced reliance on finger-stick measurements to maintain glycemic control. CGM provides real-time glucose levels including first morning, pre- and postprandial readings. With the use of an app or external device a graphical representation of the day's glucose readings can show the ebb and flow of glucose levels. Most devices provide an opportunity for patient journaling tagged to readings or timings. For example, if a meal needs to be reported and tracked or if exercise influenced levels, a journal entry tagged to the corresponding data set could be valuable for patient understanding and practitioner review. Fingersticks are only required for device calibration and for confirming levels occasionally with other devices.

An important negative to consider when discussing CGM usage is cost, which ranges from \$90 to \$120 per sensor. CGM sensors

last 10-14 days depending on the brand. Scanners can be purchased separately for those without a compatible smartphone. As a relatively new technology and with significant investment involved in their production and market release, these devices can be cost-prohibitive for some. In addition, each sensor is only viable for 3-14 days. For type 1 diabetic patients using multiple insulin injections and still experiencing suboptimal glycemic control, CGM has been shown to be cost-effective when compared to finger-stick testing as it has been projected to reduce the risk of type 1 diabetes complications and increase quality-adjusted life-years.⁷ For those with type 2 diabetes not on prandial insulin, CGM used short-term and intermittently has been shown to be a cost-effective self-care tool for disease management.¹¹

How can CGM devices be used clinically?

The most common uses of CGM devices are in the management of type 1 diabetes and insulin-dependent type 2 diabetes however the management of non-insulin-dependent type 2 diabetes, a condition commonly addressed in naturopathic medicine, is an emerging application.³ For insulin-dependent populations CGM provides improved glycemic control and a better understanding of how food, exercise and lifestyle influence insulin requirements. As a technological advancement, the ability of CGM devices to detect hypoglycemia in patients unaware of this phenomenon is highly valued.³ A meta-analysis and systematic review published in 2018 showed CGM use leads to statistically significant (although modest at 0.2%) reductions in HbA1C in patients with type 2 diabetes.⁴ Clinical trial data shows CGM use in this population increases time-in-range and reduces glycemic variability, metrics that represent overall glycemic control.¹² A growing body of evidence suggests that such precision medical devices could aid practitioners in tracking and optimizing the effectiveness of nutrition and exercise programs.⁴ Continuous glucose monitoring can identify patients at a higher risk of developing complications that develop as a result of poor glycemic control, such as diabetic retinopathy. In fact, patients with less “time-in-range”, defined as 3.9-10 mmol/L, and higher measures of glycemic variability have an increased prevalence of diabetic retinopathy.⁵ Identifying patients with poor control will empower the patient and practitioner to work together to reduce the risks of diabetes complications.

For those diabetic patients who experience difficulty reducing glycemic variability and lack an understanding for how to utilize finger-stick testing to evaluate effectiveness of diet, exercise and lifestyle CGM helps to reduce both high and low blood glucose.¹³ CGM can also be a valuable tool for patient recognition of hyperglycemia in prediabetes.¹⁴ This use aligns well with the naturopathic principles of “prevention” and “doctor as teacher”. CGM provides an opportunity to teach patients about what actions contribute to hyperglycemia, how to measure morning and post-prandial glucose levels as well as how to adapt diet and exercise to improve these markers. Achieving improved “time-in-target” and lower glycemic variability reduces the risk of the progression of diabetes and can support a program focused on the prevention

of diabetes in insulin resistant patients. These two populations are commonly being managed by naturopathic doctors who are experienced in combining lifestyle interventions with common medications for glycemic control.¹⁵ Learning about and facilitating the introduction of CGM to these patients may lead to improved care and further personalized programs to be adopted.¹⁶

How can CGM devices be used clinically by naturopathic doctors?

Discussing glycemic index, glycemic load, low carbohydrate diet, carbohydrate usage as a fuel source, delaying gastric emptying and improving insulin sensitivity with the metabolically unhealthy patient is a common practice of the naturopathic doctor. Real time evidence of glycemic change as illustrated in the graphical representation of glucose levels provided by CGM applications is one of the simplest, most intuitive ways to teach patients about this topic and how glycemic control relates to end-organ function. Thus, through the use of CGM devices naturopathic doctors have an opportunity to utilize a holistic approach to metabolic wellness that could include a review of the impacts of stress, hormone imbalance, inflammation and appetite control on blood sugar levels. Discussions with patients could be as simplistic as reviewing the influence of fibre on gastric emptying or as complex as a guided analysis of how postprandial high intensity interval training reduces the “area-under-the-curve” or facilitates carbohydrate usage during exercise and therefore improves glycemic control. With CGM devices naturopathic doctors have an opportunity for precision patient care, individualized treatment as well as the privilege of being community leaders in the field of metabolic wellness.

In the region the author is writing from, a prescription is required for a CGM sensor. If the patient is smartphone-savvy an extra device is not necessary as the smartphone can handle the data.

Naturopathic interventions that can be evaluated and individualized using real time glucose data include:

- 1) **Exercise choice and the difference between post-exercise glucose levels**
 - Naturopathic doctors use progressive overload resistance training, high intensity interval training, medium continuous intensity training, sprint training and others to support the fitness levels of patients. Each can impact glycemic control.¹⁷
- 2) **Macronutrient planning and the influence of a low carb diet, managing glycemic load and glycemic index as well as the role of protein and fat on glucose levels**
 - Clinical trials have shown that naturopathic medical practice, which includes nutritional counselling, is an effective way of promoting lifestyle changes that prevent the development of disorders linked with insulin resistance, such as the metabolic syndrome.¹⁸

3) Immediate impacts of supplements on glucose levels and tracking supplements used for improving insulin sensitivity

- Following the recommendation of a supplement a common tracking tool for naturopathic doctors is a HbA1c test after 12 weeks. CGM devices predict HbA1c, provide real time feedback on supplement effectiveness and may save time and resources when glycemic control is the ultimate goal.¹⁹

4) Relationship and interactions between medications used in diabetes and naturopathic protocols

- Practicing safe and effective therapeutics is very important to naturopathic doctors. CGM provides a level of security highly valued to patients and healthcare teams when considering the prevention of hypoglycemic events.

Commonly-used assessments by naturopathic doctors in diabetes management include fasting plasma glucose, random plasma glucose, fasting insulin level, oral glucose tolerance test and HbA1c, among others. These methods of assessment are each clinically useful and relevant however they lack an ability to provide real-time, easy-to-obtain feedback to guide healthy nutrition choices. They are less functional in their utility than what a practitioner looking to support a healthy lifestyle may desire. An optimal nutrition plan for a type 2 diabetes patient takes into account how medication usage, macronutrient combining, fibre intake, supplement routine and exercise habits have on glycemic control. With CGM the naturopathic doctor is able to accurately assess how external and internal influences alter blood glucose levels. This level of connection to patient data could potentially influence positive nutrition choices in the insulin resistant patient.

An example of a process for clinical use of CGM in naturopathic practice

The following is an example for how CGM devices can be used in a naturopathic practice focused on chronic disease prevention and management. The author's experience provides the basis for this protocol. It is intuitive, provides adequate follow up, promotes patient involvement and encouragement and generally produces positive results for the author. Protocols including CGM implementation, counselling and intervention adjustment similar to this have been shown to be effective for reducing HbA1c, increasing "time-in-range", lowering total caloric intake and reducing glycemic variability.¹⁶

Initial consultation:

The initial visit with the diabetic and/or insulin resistant patient is an enlightening experience as it tends to reveal patterns conducive to worsening glycemic control. Diet, exercise, stress, sleep, past medical history and comorbidities are reviewed among other important items of an initial intake. Prior to the initiation of CGM laboratory assessments are commonly completed. They may include fasting plasma glucose and HbA1c. During this visit the clinical utility of CGM is discussed and a prescription for the device is provided to the patient.

Follow up consultation:

A follow-up visit is an appropriate time to apply the sensor, ensure comfort and review usage instructions. Usage instructions should be focused on using the CGM data to facilitate nutritional intake autoregulation for the purpose of improving glycemic control. Generally, reviewing scanning and assessing timings are helpful. These could include first morning measurements, pre and post meal scans including 1 and 2 hours postprandial. Finally, pre- and post-exercise as well as pre-sleep measurements can round out the schedule. If abnormalities, or "time-out-of-target" is significant a good note to mention is to journal meals and activities for the 2-4 hours prior. Supplement, medication and exercise recommendations round out the protocol and a note is then made about their influence on glycemic control, ie. what to expect and when. When instructed patients learn to effectively journal foods and activities that both positively and negatively influence glucose levels. This has the potential to reduce insulin resistance through the development of healthier habits.

Day 7 data review consultation:

Some practitioners may request a follow-up at the 7 day mark (of a 14 day sensor length). The author recommends patients eat their typical diet from days 1-7 of a 14 day sensor. This method allows for the application of lessons learned from days 8-14. In order to appropriately apply lessons learned, a follow up consultation at day 7 is valuable. From days 8-14 optimal glycemic control is a common goal.

During the day 7 follow-up consultation the following discussion points may be relevant:

- how late-night eating can influence sleeping glucose levels²⁰
- how exercise influences glycemic levels¹⁷
- the impact of stress on glucose²¹
- the dangers of liquid sugar²²

When using CGM patients are able to visualize these lessons. It is this process of visualization that promotes improved adherence. Learning about glycemic control in this way inspires healthy lifestyle changes.

Day 14 data review and long term planning consultation:

Following day 14 practitioners commonly remove the sensor for patients and request a follow up consultation to review the full data set and prepare a plan for the next 12 weeks. Following the 12 week period fasting plasma glucose and HbA1c are retested to assess improvements in glycemic control.

Follow-up assessments for the asymptomatic type 2 diabetes patient can be heavily focused on subjective reporting and HbA1c results. This type of consultation can be very uninspiring. When

using CGM devices naturopathic doctors are able to have detailed nutrition and exercise conversations with their patients. They are able to adjust supplement dosing accurately. They're able to add and subtract single dietary items that may influence sugar absorption and facilitate safe fasting protocols. Since these devices enable practitioners to get alerts at home on their own personal devices about their patients' glucose levels there is an extra layer of service that can be applied. Naturopathic doctors can be alerted when patients experience hypoglycemia and hyperglycemia. Through custom setting management on CGM devices naturopathic doctors can change target windows and challenge patients to improve their glycemic control when their comfort level with the system improves.

This technology has the potential to transform the practice of the naturopathic doctor working in chronic disease prevention and management by enhancing their ability to provide patient-centered care. CGM devices can be used across patient populations including in the elderly, those with acute coronary syndrome, in insulin-resistant patients struggling to lose weight in addition to their common applications of insulin dependent and non-insulin dependent diabetes mellitus. With proper goal setting, adequate data review and clear programming, results obtained from CGM devices can support program optimization for those struggling to control glucose levels. Naturopathic doctors have the expertise and desire to engage in patient education required to maximize the potential benefits of CGM devices. 🍌

About the Author

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Reminder: **CAND Vital Link is Moving Online!**

It has long been a goal of the Canadian Association of Naturopathic Doctors to have its journal, the *Vital Link*, listed as a fully indexed online journal. That goal will shortly be realized following extensive work these past two years to re-imagine *CAND Vital Link* for the 21st century. We are pleased to announce that the *Vital Link* journal will be moving to its own website in the Fall of 2021 as an **online, indexed peer-reviewed journal**. With a public facing webpage and protected member access, *CANDJ* will serve to educate naturopathic doctors and integrative health professionals in Canada and globally on evidence-informed care and the art of naturopathic best practices, including community and planetary health.

The Editors and our Executive Director are working with SG Publishing, a Canadian company that has helped several other medical and CAM journals make the online transition to an Open Journal Systems platform, in the creation of *CANDJ*. Our website will have optimized functionality and an enhanced reader experience across multiple platforms, including mobile and handheld devices.

In addition to launching with our third edition of 2021, we will be adding all 2019-2021 editions to the website, so that members will be able to browse and download articles from past and recent editions.

All CAND members will have full online access with their membership; additionally, non-members will be able to download articles or editions for a nominal fee, increasing our revenue and impact for our publication.

Behind the scenes, SG Publishing will be providing production and editorial support so that peer review, copy editing, and layout will be done efficiently, thoroughly, and on time. Articles will be searchable online, with unique DOI numbers to increase their potential reach. Longer term, our plan with SG Publishing is to meet standards to be included in higher impact databases such as PubMed Central and EBSCOhost by year 2-3. This will be a first for any ND association journal in North America.

The CAND Board of Directors, *Vital Link* Editors and our 12-member Editorial Board are very excited to see this project about to launch and welcome member questions and feedback as we move forward with the transition.

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