

Canada's PaRx Program – Greening Physical Activity

Eileen Nicolle, Ashley Aimone, Samantha Green, Melissa Lem,
Erica Di Ruggiero, Shaza A. Fadel, Ojistoh Horn

Executive Summary

Featuring “PaRx” a Parks Prescription program in Canada, this case study details how formally integrating the natural environment with health care can have positive effects on both human health and ecosystems. This case study begins by contextualizing the current global epidemics of non-communicable diseases, such as hypertension and diabetes, and risk factors such as physical inactivity. It then considers how these health issues are interconnected with planetary crises. The importance of Indigenous Peoples’ protection of the planet, and activism for planetary health, is highlighted, with a focus on how respecting and learning from Indigenous ways can help us face the challenges of the Anthropocene.

The case study then describes the health benefits of spending time in nature, and how nature prescriptions could be one strategy in addressing non-communicable diseases. The case considers the barriers that people experience in trying to access nature, including factors such as equity and social determinants of health. The case aims to highlight that collaboration between communities and health providers can help to overcome barriers in accessing nature, and address chronic diseases, while creating a culture that values and protects the natural environment.

Learning objectives

After examining this case, learners should be able to:

1. Understand the effects of non-communicable diseases on health
2. Analyze the link between non-communicable diseases, such as diabetes and hypertension, and planetary crises as well as be familiar with the concept of “Planetary Boundaries.”
3. Discuss how Indigenous worldviews, which value and respect the land, differ from dominant ideologies such as western worldviews, and recognize the role Indigenous communities have played in protecting the environment.

4. Explain the benefits of health care providers facilitating nature prescriptions.
6. Assess the barriers and challenges to prescribing nature as a health and planetary intervention, including social factors.
7. Understand the importance of collaboration between community organizations and health teams in implementing planetary health initiatives.

Epidemics of non-communicable diseases and the importance of physical activity

Non-Communicable Diseases (NCDs) are an increasing challenge to health and social systems globally.(1, 2) NCDs are the leading cause of adult disability and death worldwide and include conditions such as heart disease, stroke, chronic obstructive pulmonary disease, cancer, chronic kidney disease, and type 2 diabetes mellitus.(3) In the United States (US), six out of ten people have a chronic disease such as heart disease, diabetes, or cancer.(4)

NCDs affect high, middle, and low-income countries and are costly to health systems.(3) NCDs impact health care systems through both direct costs, such as hospital expenses, and indirect effects, such as decreased population productivity.(3) “NCDs reduce global and national economic output, strain health systems, burden vulnerable households, put human rights at risk and hamper progress.”(5) Their effects are therefore far-reaching and extremely significant at local, national, and international levels.

NCDs are a global issue, even in low-income countries, where they have largely overtaken communicable diseases in terms of disease burden.(6)(7) Within countries, NCDs do not affect people equitably and many chronic diseases are more prevalent in people who struggle with social determinants of health such as low income.(8) Furthermore, chronic stress, which is linked to socio-economic disadvantage, can result in a cascade of effects, including altered immune responses, with increased risk of chronic diseases across one’s lifetime.(9) Access to healthy foods, proximity to green spaces, and the ability to participate in physical activity, which are important for the prevention of NCDs, are also related to socio-economic status.

NCDs are therefore tied to the social determinants of health—the conditions into which people are born, grow, live, work and age and equity.(10) Inequalities in social conditions both prior to

birth and in early life have a long-term impact on NCDs.(11) Vulnerable populations are at particular risk of NCDs and an approach to tackling NCDs should include consideration of the root causes of these illnesses.(10)

NCDs are also linked to individual behaviours and therefore represent an essential opportunity to improve health through prevention. For instance, it is estimated that “80% of heart diseases, stroke, type 2 diabetes and over one third of cancers can be prevented by cutting out tobacco, eating a healthy diet, being physically active and stopping harmful use of alcohol.”(12) Understanding the causes of unhealthy behaviours, and the role of social and physical environments, is essential in trying to improve the health of populations and devising equitable approaches to addressing growing NCDs globally. NCDs represent a major health risk, create a large economic burden, disproportionately affect vulnerable populations, and are largely preventable.

Physical activity can play a crucial role in the prevention and management of many chronic diseases including diabetes and hypertension.(4) The World Health Organization recommends a minimum of 150 minutes of moderate exercise per week or 75 minutes of intense exercise; yet one in four adults globally do not achieve this minimum recommendation.(13, 14) Inadequate physical activity puts populations at increased risk of NCDs.

“Physical inactivity is one of the leading risk factors for noncommunicable disease mortality. People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active.”(14) Studies have shown that in high-income countries 26% of men and 35% of women do not get enough physical activity and in low-income countries 12% of men and 24% of women are insufficiently active.(14) Physical activity is therefore an important intervention in light of rising NCDs and is needed across the globe to improve health and wellbeing.(4)

What NCDs are common in your area?

Are disease patterns changing in your country or community over time? What changes have been seen? What are the direct and indirect costs?

Connections between non-communicable diseases and the planet

The extent to which the planet is currently in crisis can be understood through the “Planetary Boundaries Framework” which delineates the safe operating spaces for humanity.(15) (16) The nine planetary boundaries include: climate change, novel entities, stratospheric ozone depletion, atmospheric aerosol loading, ocean acidification, modification of biogeochemical flows, freshwater change, land system change, and biosphere integrity. Currently six of the boundaries are being transgressed including: land-system change, climate change, biosphere integrity, and biogeochemical flows.(17) (18) The planetary boundaries that have not yet been exceeded include: ocean acidification, atmospheric aerosol loading and ozone depletion.

Many of the drivers of planetary health issues, such as our built environments, sedentary lifestyles, climate change, and dominant ideologies, are connected to NCDs. There is therefore an opportunity to look at interventions, such as physical activity, that can co-benefit the health of the planet and human health.

Land-system changes, and the way we have designed many of our lived environments, for instance, with cars versus people in mind, does not promote physical activity and contributes to worsening planetary health. For instance cities face issues such as air pollution, heat island effects, and inadequate greenspace which all have negative effects on health.(19)

With increasing urbanization and advances in technology, there has also been an increase in time spent participating in sedentary activities, such as driving and screen time. The trend towards a more sedentary lifestyle contributes both to NCD burden and to increases in greenhouse gases and climate change. People now spend more time both at work and during leisure time being sedentary, which has negative consequences on physical activity.(14) A report from Common Sense Media in 2019 found that 8-12 year olds “now use screens for entertainment for an average of 4 hours, 44 minutes a day, and 13- to 18-year-olds are on screens for an average of 7 hours, 22 minutes each day.”(20) As children grow up with more time spent participating in sedentary activities, their risk of chronic diseases such as diabetes and hypertension increases.(21)

Air pollution which also results from land-system changes and our industries has negative impacts on both people and the planet. Air pollution is especially detrimental for people with

NCDs, as it can aggravate chronic diseases such as asthma, COPD and cardiovascular disease, and can worsen cognition, skin diseases, and pregnancy outcomes.(22) (23) Pollution is not only an environmental issue; it has an impact across many different areas of society including health and economics.(24) “Pollution is very costly; it is responsible for productivity losses, health-care costs, and costs resulting from damages to ecosystems.”(24) Fossil fuels are also closely tied to air pollution, as fossil fuel combustion in higher-income countries and the burning of biomass in lower-income countries causes the majority of airborne particulate pollution.(24)

Fossil fuels are also the largest contributor to climate change, and as temperatures rise, events such as forest fires become more frequent, which also aggravates air pollution.(25, 26) These positive feedback loops worsen both the health of people and the planet. People depend on the planet for their health and as “the health of our planet worsens, human health is also endangered,” especially for those with underlying chronic conditions.(27) The warming climate means increases in events such as severe heat waves, storms, floods, and droughts, which are especially detrimental to those with chronic conditions.(2) Climate change “will bring heightened risks to human survival and will likely exacerbate the incidence of some NCDs, including cardiovascular disease, some cancers, respiratory health, mental disorders, injuries, and malnutrition.”(2) There is therefore an imperative to act on climate change to protect people with NCDs.(28)

Dominant western ideologies, especially capitalism, are linked to both NCDs and planetary crises. Economies have been built to depend on fossil fuels, especially in sectors such as transportation, buildings and agriculture.(29) Unlimited growth and the ready availability of products have contributed to the adoption of unhealthy lifestyles.(30) Furthermore, “trade liberalization” has increased the availability of “Western” lifestyles globally and contributed to increases in chronic diseases.(30)

The commodification of the environment and exploitation of resources are closely tied to capitalism. “Capitalism has historically assumed that natural resources—not only minerals but also air, water, fertile soil, and trees—exist in unlimited abundance.”(29) Given the reality of finite resources, the extractive and exploitative nature of the capitalist model is deeply problematic for both people and the planet on which we depend. Under this model we face the reality of continuing to exceed planetary boundaries.

What connections do you see between rising non-communicable diseases and planetary crises such as climate change?

The Importance of Connecting within Nature for People and the Planet

Technology, and sedentary activities such as driving and screen time, are risk factors for physical inactivity. These are also largely disconnected from the natural environment and ignore the interconnectedness of human health and environmental systems. Furthermore, “increasing urbanicity and modern lifestyles can mean that opportunities for human contact within nature become less frequent.”(31)

Decreased opportunities to be in nature and to connect within nature have an impact on health, as it has been shown that “[n]ature is an incredible healing resource” and is “beneficial for improving mental health, cardiovascular health, work performance, and even helps with more complex treatments such as cancer care.”(32) These benefits apply to all age groups.(32) Sedentary activities do not promote physical activity or time outdoors, which therefore has a major impact on health and means that individuals may not be regularly connecting within nature.

In many places in the world, humans’ relationship within nature has changed over time, with decreasing exposure and time spent in nature. There is evidence that fostering an appreciation of nature in children can encourage the protection of our planet.(33) “Research shows that people who are more connected to nature do more to protect it.”(34) Underlying this is the idea, from biologist Edward Wilson that “to protect nature, people must regain their innate love for it,” which occurs through positive interactions and experiences.(35) Therefore, not only is decreased time in nature a lost opportunity for physical and mental health, but it also has a negative impact on the planet on which life depends.(35)

As environmental degradation, air pollution, biodiversity loss, and climate change worsen, it is important to think about what experiences will promote thriving populations and a healthy planet. In considering what makes us “well,” it is important that Indigenous perspectives and frameworks be included. In seeking to address non communicable diseases, it is therefore imperative to think of inclusive solutions that will result in co-benefits for people and the planet.

Striving to increase the time that people spend in nature and their access to nature is beneficial for the planet and for our health. Making nature available means enhancing conservation efforts and initiatives to increase green spaces.(32) Protecting trees and forests also helps to sequester carbon emissions and urban green spaces reduce the heat island effect.(32) Furthermore, exposing children to nature can promote a long term appreciation of nature and the desire to protect it, which has can have positive effects for generations.(32)

What is your relationship with nature? How do you connect within nature?

What benefits (if any) do you derive from time spent in nature?

How much time do children in your community spend outside/in nature?

How much time do adults in your country spend outside/in nature?

Do you see a link between non-communicable disease and the health of the environment around you?

Indigenous Perspectives on the Earth and Indigenous Advocacy

In a solutions-based approach to planetary health issues, it is essential to highlight the role that Indigenous Peoples around the globe have played in protecting the planet and how Indigenous worldviews differ from other dominant ideologies. For instance, the concept of connecting within nature and appreciating nature is intrinsic to many Indigenous worldviews, where Mother Earth is considered “kin.” Human beings are therefore “at an equal standing with the rest of the natural world; they are kindred relations” and there is recognition of the importance of connecting with the land.(36, 37)

Indigenous Peoples manage or have tenure rights to over a quarter of the earth’s surface and protect 80% of the remaining biodiversity.(38, 39, 40, 41) This is to the planet’s benefit, as these lands have fared better than the rest of the world.(40) For instance, the rapid decline of biodiversity that is being seen globally is much less rapid in lands managed by Indigenous communities.(42)

Trying to learn from Indigenous communities, many of whom have sustainably lived on the land for thousands of years, is therefore an essential part of addressing current planetary crises. Indigenous communities “have accumulated holistic knowledge over centuries, which has allowed them to maintain an equilibrated social-ecological system.”(38) A better understanding and appreciation of Indigenous ways of knowing and being, valuing Indigenous traditional knowledge, sovereignty and rights, and involving Indigenous Peoples in leadership around planetary issues, therefore all represent important opportunities in planetary health.(42) “More awareness, amplification, and actioned support for Indigenous land tenure rights” is one way to “ensure a healthy planet for all.”(39) As one author stated “land back is not merely a matter of justice, rights or “reconciliation”; Indigenous jurisdiction can indeed help mitigate the loss of biodiversity and climate crisis.”(42)

Indigenous lands, including National Parks, such as Banff in Canada, were forcibly taken from Indigenous Peoples, and it is important to be aware of the long-lasting, intergenerational effects that colonialism has had on Indigenous communities.(32)

Many Indigenous communities have faced and continue to face tremendous challenges and inequities. “Indigenous Peoples have resiliently weathered continued assaults to their sovereignty and rights throughout colonialism and its continued effects.”(39) Indigenous Peoples are also being disproportionately affected by climate change “despite Indigenous communities worldwide contributing the least to greenhouse gas emissions.”(39) Acknowledging the leadership of Indigenous Peoples and communities in the face of historical and ongoing inequities is part of a path towards truth and reconciliation.

Learning from Indigenous Peoples means recognizing the incredible diversity within and between communities, and the unique values and principles that underly many Indigenous cultures, and appreciating how these differ from mainstream worldviews and values. For instance, “Human-centric (ie, anthropocentric) hierarchies are most often absent in Indigenous languages and lifeways with a profound and deep respect given for all human and non-human entities.”(39) Valuing “Mother Earth” and nature is part of many Indigenous cultures, and “Indigenous Peoples globally have the sacred mandate and right to give voice ... to all of Nature.”(39)

The notion that spending time in nature is important and beneficial is also intrinsic to many Indigenous Peoples. Elder David Courchene expresses our interdependence on the land when he says: “Our health and wellbeing as humanity is directly connected to the health and wellbeing of Mother Earth....When our mother feels well, we as her children will become well again.”(43) He also details how, in his culture, people are encouraged to spend as much time as they can on the land.(37)

Furthermore, the concepts of relationality and stewardship, which are present in many Indigenous cultures, emphasize the interconnectedness of all living things, their worth, and the need to respect and care for the earth; these are essential concepts that could enable people and the planet can thrive together.(44)

Despite the multitude of challenges being faced by Indigenous Peoples, “many are creating pathways forward with solutions that further social and environmental well-being and self-determination for generations to come.”(44) Underlying these solutions are concepts of intergenerational equity and respect.(44) Thinking about future generations is part of many Indigenous Peoples’ ways of thinking and is protective for both people and the planet.

Indigenous Peoples in many areas, including in Canada, have effectively advocated to protect the environment. “Indigenous water protectors, land defenders, pipeline fighters, and many other grassroots formations...have dedicated their lives to defending the sacredness of Mother Earth.”(45) There have been different modes of protection including non-violent direct action and political lobbying. These and other methods have been used to “fight against neoliberal projects” which are often extractive with detrimental planetary consequences.(45)

Indigenous responses to environmental threats:

Canadian Tar Sands Oil

Cree, Metis, and Dene communities have been fighting against the expansion of the Canadian tar sands for over 20 years. These tar sands are downstream from the eastern foothills of the Rocky Mountains, in a region containing around 2 trillion barrels of oil. Accessing this oil would require the destruction of an area larger than Florida. Tar sands are a very climate-damaging means of obtaining oil given the energy required for extraction and processing.(45)

Northern Gateway Oil Pipeline

The Northern Gateway tar sands pipeline was cancelled by the Canadian government in 2016. This pipeline was supposed to cross many First Nations territories and natural areas including “nearly 1,000 rivers, streams, and other bodies of water.”(45) A declaration by over 60 First Nations was issued in 2010 outlining that the pipeline was a “grave threat” to “our laws, traditions, values and our inherent rights as Indigenous peoples.”(45) The Yinka Dene Alliance, Heiltsuk Nation, Coastal First Nations, Wet’suwet’en First Nation, and many other Indigenous resisters opposed the pipeline. Ultimately a Canadian Federal Court of Appeals sided with the First Nations and declared that the project had not provided full consultation as well as ignored “issues like unceded land title and First Nations governance.”(45)

Trans Mountain Extension Oil Pipeline

There has been strong opposition to the Trans Mountain tar sands pipeline project by the Tsleil-Waututh First Nation. This pipeline would stretch from Edmonton in Alberta to Vancouver in British Columbia. It was previously owned by Kinder Morgan but is currently owned by the Canadian government. The pipeline is being opposed due to “a lack of Indigenous consultation and the severe harm the project would cause to communities and the climate.”(45) The project was temporarily halted in 2016 due in part to failures in consultation, and is currently facing ongoing lawsuits and protests.(45)

How has climate change affected you, your family, and your community?

What examples of Indigenous advocacy are you familiar with?

What Indigenous values or concepts resonate with you? Do these differ from the values or concepts that feel dominant in your community?

How has colonialism affected Indigenous people’s health and wellness as well as their ability to connect with the land?

Prescribing Nature

The fact that spending time in nature is beneficial for the health of populations is not a new idea. In fact, in the 1800s in London, England, organizations such as the Commons Preservation Society and the National Health Society advocated for the “preservation, creation, and accessibility of open spaces and parks within crowded residential areas, referring to them as the “lungs” of the town or city.”(31)

With rising epidemics of chronic diseases, encouraging people to connect within nature by prescribing nature through “Park Prescriptions” or “Green Prescriptions” is an intervention that has been shown to both increase well-being and reduce costs on the system.(1) “Backed by hundreds of studies over several decades, research suggests that connecting to nature is one of the best things you can do to improve your health,” this includes both physical health – such as the risk of chronic disease, and mental health.(34) Western medical approaches to chronic diseases have focused on medications and advocated for physical activity but have not specifically recommended time in nature or provided a prescription for this.

Furthermore, emerging evidence suggests that the gains from exercise are “amplified by green spaces.”(46) For example, “compared with nongreen urban environments, significantly lower systolic and diastolic blood pressure and greater heart rate variability were observed following viewing and walking in forest environments.”(4) Other benefits include a reduction in anxiety and depression, and increased step counts.(47) “[T]here is mounting empirical evidence that interacting with nature delivers a range of measurable human benefits, including positive effects on physical health, psychological well-being, cognitive ability and social cohesion.”(48) Some of these benefits occur quite quickly; for instance, studies have shown that stress hormone levels drop after “just 15 minutes of sitting in a forest.”(32) Although the mechanisms by which green spaces and nature improve health are still being explored, it is thought that physical activity, social cohesion, and stress reduction, may contribute to improvements in health.(31)

In recent years, there has also been increasing recognition of the importance of social factors for health, and a movement towards “social prescribing.” Social prescribing involves improving health and well-being by connecting people to non-clinical services.(40) A significant proportion of patients consult their primary care practitioner for social issues. Aging populations, increasing complexity in health care needs, and increased demand for services, have also contributed to the growing popularity of social prescribing.(49) Nature-based prescriptions are a form of social

prescribing whereby people are connected to nature; this can be done formally through social prescribing programs, or informally where the patient seeks out resources in their community.

Time within nature can involve a variety of experiences including nature walks, community gardening, spending time in urban parks, and forest bathing.(50) “Health benefits start to add up whenever patients feel like they've had meaningful contact with nature, whether it be sitting on a park bench or hiking up a mountain peak.”(34) Green spaces such as parks, and personal or community gardens can therefore be low-cost opportunities to promote physical activity with many health benefits.(4)

In high income countries, there are a variety of Park Prescription programs. In the United States there have been studies of Park Prescriptions to improve resilience among children, and in the United Kingdom there has been a large national green social prescribing programme aimed at tackling mental health.(51) (52) Singapore has also used Park Prescriptions to increase physical activity in outdoor settings and improve quality of life in adults.(51)

Some low and middle-income countries are also looking to improve health through green space and nature prescribing. Given rising NCDs and the effect of these on health, economies, and productivity, this represents a critical opportunity. For instance, in Dhaka, Bangladesh, one study looked at the factors influencing greenspace use.(51) Interestingly, this study found that the presence of NCDs and the availability of a Park Prescription were both associated with a higher intensity of greenspace use. People therefore seemed to be more motivated to participate in physical activity in green spaces based on their health conditions, especially with a written recommendation from their health provider.(51)

Park Prescriptions may be especially important in low and middle-income countries where there are large populations rapidly urbanizing, with rising NCDs.(51) The low cost and widespread applicability of these prescription programs make them attractive, evidence-based tools for improving the health of people and the planet.

Providing a physical prescription to patients is important, as patients are more likely to follow advice when it is written down and ideally prescribed to them.(32) “Studies suggest that written prescriptions are better received than oral advice in motivating patients to make a change.” (34) Park Prescriptions are also effective because health professionals are trusted sources of

information, and patients are more likely to follow advice from someone they trust.(32) Studies have also shown that patients are interested in nature prescriptions. For instance, a recent study in Australia showed that almost 82% of participants had interest in a nature prescription, even if they were currently spending less than 2 hours a week in nature. (53)

What type of “Park Prescription” activity would work in your setting?

What benefits (if any) would you see, if any, in providing patients with a Park Prescription?

Has your health care provider ever discussed a Park Prescription with you? Is this something you would be interested in?

Canada’s Health Care System and the Parks Prescription Program

Canada has a publicly funded health care system, which was created with equity in mind.

“Access to health care based on need rather than ability to pay was the founding principle of the Canadian health-care system.”(54) There is no national health care system in Canada but rather national standards with federal funding for provincial and territorial delivery of care.(54) The federal government does not, therefore, oversee the delivery of health care with some exceptions for special populations such the Canadian Forces, inmates in federal prisons, Indigenous Peoples who qualify, veterans, and some refugees.(54)

The Canadian system is based on the principles outlined in the 1984 Canada Health Act and includes portability, universality, accessibility, comprehensiveness, and public administration. (54) The health care system is taxation-based and covers in-hospital care as well as core medical services.(54) Given that not all health care costs are covered by the public system—for instance medications and dental care are often not covered—many Canadians have private insurance as well, often through their employer.(54)

Around 10.4% of Canada’s gross domestic product goes towards health care, making this a significant area of spending.(54) The rising epidemic of NCDs therefore has ramifications population-wide in a publicly funded taxation-based system. Canadians have high levels of NCDs. (55) With rising NCDs, it is imperative that health care providers and public health

units—which form the prevention arm of the health care system—look at easily accessible and implementable opportunities.

The Park Prescriptions Program in Canada, was driven by health-care professionals, and was originally an initiative of the BC Parks Foundation. Abbreviated to “PaRx,” the program began in British Columbia in 2020 and as of 2022 had expanded to every province in Canada, including a French-language program, Prescri-Nature, in Quebec.(32, 34) This program encourages licensed health professionals to prescribe nature, and allows them to prescribe Parks Canada Discovery Passes to patients, giving them free entry to Parks Canada sites for a year. With this pass, more than 80 sites across Canada can therefore be accessed for free, which helps to reduce barriers to spending time within nature.(32)

The PaRx program is evidence-based and recommends at least two hours of time in nature a week, at least 20 minutes at a time for maximal benefit.(32) Research shows that spending two hours a week within nature results in better health and wellbeing, and that the most efficient drop in cortisol is seen around 20-30 minutes.(34) While the Discovery Pass is one feature of this program, along with discounted or free access to other nature-based venues like the Toronto Zoo and UBC Botanical Gardens, patients are encouraged to access whatever green space is feasible in their context. The PaRx website provides resources for practitioners and patients including prescriptions, patient handouts, evidence-based guidelines, and answers to frequently asked questions.(34)

When providers register with the program they receive resources including instructions on how to prescribe and their own unique provider code.(34) Information is also provided regarding the benefits of prescribing nature, highlighting that it is a “simple, practical intervention,” and can be used regardless of physical ability or location.(34) This program is beneficial to patients and can also have positive effects on providers as they increase resilience in their patient population. Providers may themselves increasingly value nature and time spent in nature.

How is health care funded and delivered in your country?

What health services are not publicly funded in your country?

Beyond covering health expenses, what other factors determine people’s access to health?

Barriers and Challenges to Accessing Nature

Access to green space is not equitable. This is important to consider when we think about who is at greatest risk of NCDs, and what barriers will need to be overcome for people to participate in Park Prescriptions. Studies have demonstrated that certain groups such as minorities, racialized people, and individuals with lower socioeconomic income, are disproportionately affected by a lack of greenspace.(32)(58)(56) In terms of equity, access to green space differs not only in terms of acreage but also in terms of the quality of the greenspace.(32, 57) In trying to provide equitable access to nature and nature prescriptions, it is important to consider the way we organize our cities and our neighbourhoods, as well as individual work obligations and individuals' ability to navigate systems. It is also important to think of safety; are there safety concerns in available green spaces, such as high levels of crime or discarded needles, that make the space unsafe, or is the land polluted or contaminated rendering it unsafe.

As one author commented, “knowing where to go, valuing nature, and having time, and money” all increase the likelihood of going to a park.(58) Therefore participation in Park Prescriptions may depend on people's prior experiences in nature, ensuring people have safe spaces to access, making green spaces readily available, and individual factors such as income and work conditions.

Furthermore, with the increasing negative effects of climate change, outdoor conditions, especially in certain areas, may limit people's ability or desire to be outside. For instance, heat waves, wildfire smoke, and air pollution all have adverse effects on health and may increasingly interfere with people's access to outdoor spaces. It is therefore urgent that we address climate change and ensuring that urban infrastructure is constructed to mitigate and slow the effects of climate change.

Thinking about what may make green spaces more attractive or accessible is important in ensuring an inclusive approach. Certain cultures may value food and gathering and appreciate picnic tables or cooking opportunities. Other groups may experience accessibility challenges and need wheelchair or walker-friendly trails or access to benches. Thinking about the diverse needs

of different groups represents a good opportunity to partner with community organizations to ensure that park prescriptions are feasible for all.

Is access to green space equitable in your city? Are there neighbourhoods that have better access than others?

What social determinants of health may affect people's ability to access green spaces and nature?

How has colonialism and inter-generational trauma affected Indigenous' people relationship with the land and ability to interact with nature?

Collaborating for Better Health

The Planetary Health Alliance defines Planetary Health as “a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth.”(59) Of great importance in this definition is the transdisciplinary nature of Planetary Health, which calls upon people working and living in different spaces to collaborate. Therefore, looking for opportunities to work across disciplines and form partnerships, including with community organizations, is a key aspect of advancing planetary health.

For instance, when implementing Park Prescriptions, there may be opportunities to collaborate with interdisciplinary groups and to create partnerships between health facilities and local organizations who have similar values or a common focus.(60) Within health systems, studies have shown that involving non-physician staff in park prescription programs can be an effective way to overcome certain barriers, such as time constraints.(4)

There may also be organizations that focus on specific groups that may experience barriers to accessing nature, such as the elderly, newcomers, LGBTQ+ people, people with disabilities, or people living in poverty, and partnerships could facilitate access for these populations. Furthermore, recognizing the role that Indigenous Peoples and communities have played in valuing the natural environment, and seeking opportunities to support Indigenous advocacy and initiatives, represents an important path to healthier people and a healthier planet.

In High Park in Toronto, Indigenous Turtle Protectors, or in Anishinaabemowin the *Mishiikenh Gizhaasowin* “advocate, support and protect” turtle relatives living in the park.(61) They are guided by principles of reciprocity, “viewing Mother Earth and other beings as kin,” and relationship-building as they believe that “building reciprocal relationships takes time, and that the process of relationship-building is equally important as the outcomes of those relationships.”(61) This Indigenous-guided stewardship program helps to protect the turtles in the park and also educates visitors so they can better protect the turtles as well. This partnership between community organizations such as *Toronto Animal Services, Parks, Forestry and Recreation*, the *Indigenous Affairs Office at the City of Toronto*, and the *High Park Nature Centre* is an example of a nature-based initiative to improve the health of people who enjoy the natural environment and the planet.(61)

Are their examples in your setting of the health sector successfully collaborating with community group or organizations?

In Park Prescription programs or Green Prescription programs, what opportunities for collaboration do you see?

Epilogue/Scaling up

The PaRx Program is one example of a nature-based initiative that addresses the relationship between people and the planet. This Canadian program is part of a much larger global movement that recognizes the benefits of time spent within nature for health and wellness and the co-benefits of these programs for the planet. It also calls on us to think of the root causes of ill health, and what changes may help people to live healthier lives.

While the Canadian program is new, with its inception in 2020, there is increasing recognition globally of the benefits of Park Prescriptions and time spent within nature. Working to advance planetary health requires global and interdisciplinary collaboration to ensure innovative, evidence-based programs with mutual benefit to people and the planet are more widely implemented.

This case study has highlighted the essential role that Indigenous communities have played in valuing and protecting the environment, and the link between protecting their rights and sovereignty and planetary health. Recognizing how colonialism and dominant global ideologies have affected the current planetary crises is a crucial part of finding equitable and sustainable solutions. The availability of greenspace is dependent on protection of the natural environment and valuing nature.

Appreciating the transdisciplinary nature of planetary health, and seeking out partnerships, also represents an important opportunity for more widespread and equitable impacts. Being aware of what inequities exist allows for the creation of programs that actively seek to overcome barriers to create a more equitable world.

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