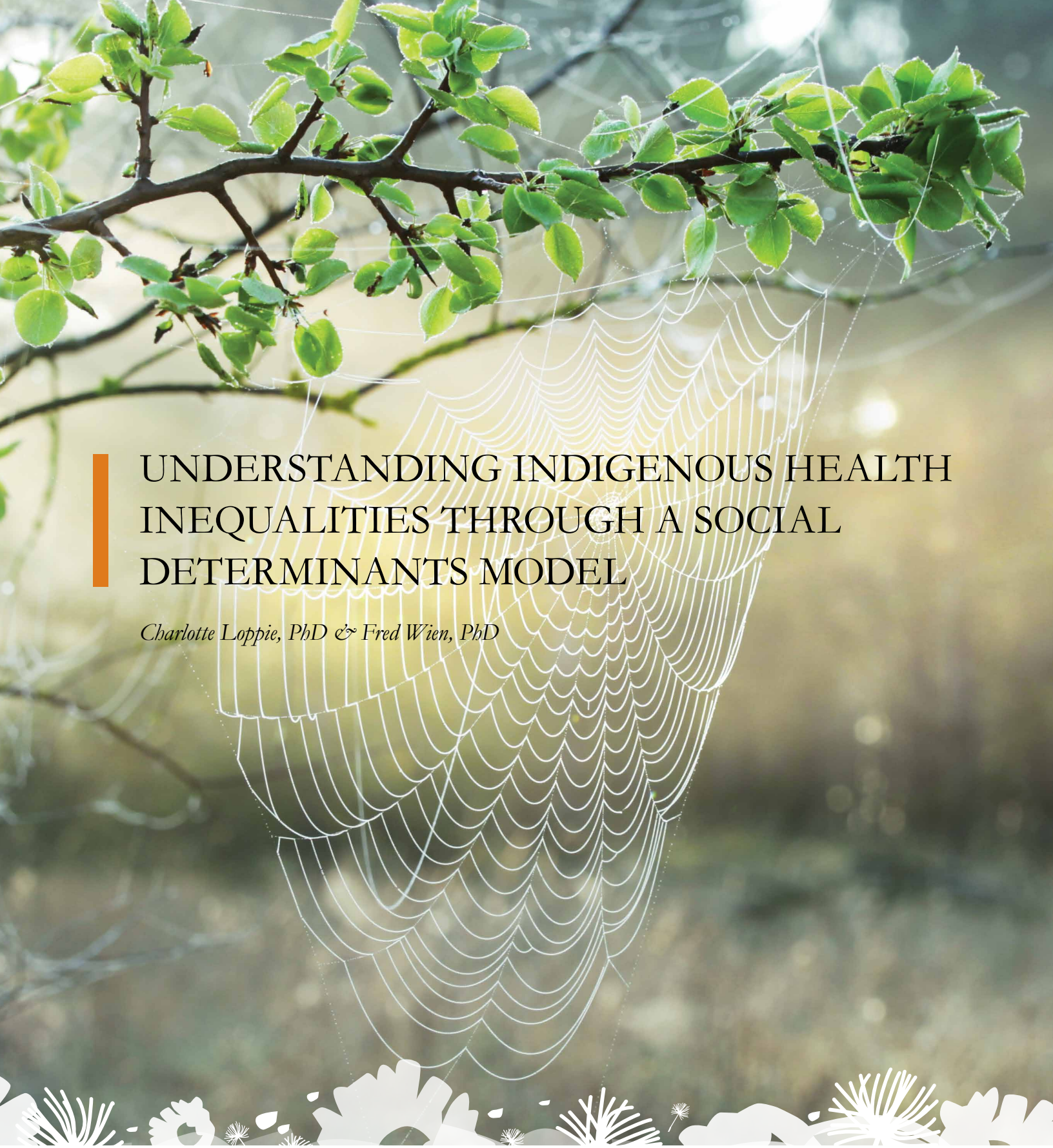
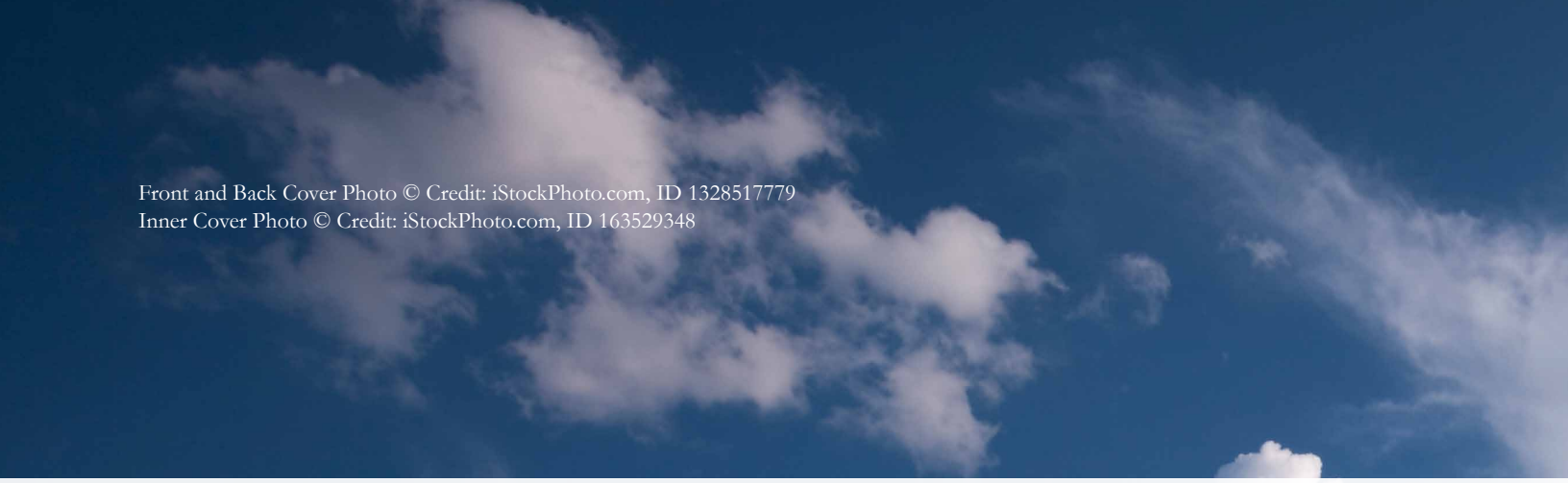


UNDERSTANDING INDIGENOUS HEALTH INEQUALITIES THROUGH A SOCIAL DETERMINANTS MODEL

Charlotte Loppie, PhD & Fred Wien, PhD

National Collaborating Centre for Indigenous Health
Centre de collaboration nationale de la santé autochtone

SOCIAL DETERMINANTS



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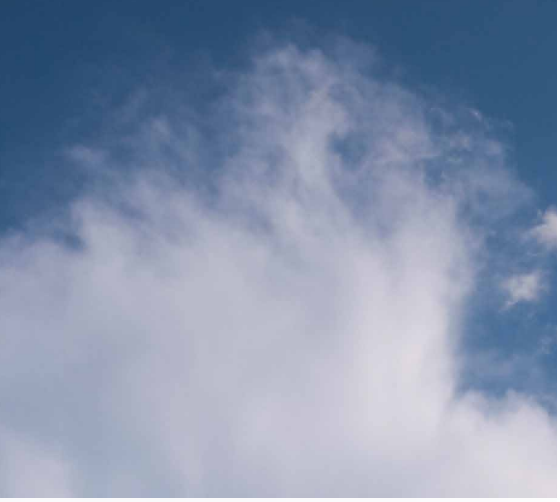

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INTRODUCTION

This report builds on a 2009 National Collaborating Centre for Aboriginal Health (NCCAH) publication, written by Loppie Reading and Wien, by providing updated sources and data related to social determinants of Indigenous Peoples' health inequalities. An in-depth review of academic, professional, and community resources has been synthesized and presented in text and table formats. We also utilize a tree metaphor to explain how root (structural), core (systemic), and stem (immediate) environments influence Indigenous health at individual, community, and population levels. We begin with a brief overview of Indigenous health inequalities, followed by a description of social determinants across the life course. This preamble offers the necessary context for our exploration of the social determinants of Indigenous health inequalities. The rest of the report is organized around the three environments of the tree metaphor, beginning with the root environment, which creates the structural foundation for all other determinants.

When the last edition of this report appeared in 2009, we used data collected in the previous decade or earlier. This current version required a substantial updating of the information reported in tables and charts, and indeed many of them are completely new. The textual information is based on qualitative and quantitative research, as well as historical, social, and political scholarship. As much as possible, we have included Indigenous health scholars and health research led by Indigenous people.

It is fortunate that the quantity and quality of data has improved significantly over the past years, but important gaps remain. One important area of improvement is that it is more likely that one can report on given dimensions or variables for all, or almost all, of the main Indigenous groups. A source like the Census, for example, provides information on First Nation persons on and off reserve, as well as Métis and Inuit. Further strengths of the Census are that the questions posed are exactly the same for all Indigenous groups as they are for the non-Indigenous population, allowing for easy comparison among them. However, the Census does not, even in its long version, ask many questions about health outcomes specifically, although it is better on health determinants. The Canadian Community Health Survey (CCHS), on the other hand, is much better on health indicators, but it is a survey (like the Aboriginal Peoples Survey) that is only implemented for Indigenous respondents who live off reserve.[1]

The First Nations Regional Health Survey (RHS) collects extensive health-related information from children, youth, and adults residing on

[1] The Census is often criticized as a data source because there are a number of First Nation communities that refuse to participate in it. This is not a large number – some 14 communities out of more than 600. More serious questions have been raised about the National Household Survey, the replacement for the Census in 2011, when non-response rates in both Indigenous and non-Indigenous populations reached very high levels. See https://www12.statcan.gc.ca/census-recensement/2016/ref/dq-qd/iir-rii-eng.cfm.

reserve. Implemented by the First Nations Information Governance Centre (FNIGC), it began as a pilot project in 1997 and has been repeated at roughly five-year intervals since then. This increasingly encourages over-time analysis of results. Most of its questions, however, are specific to the RHS and cannot be matched with other data sources such as the CCHS, making comparison with other Indigenous groups and the non-Indigenous population difficult. Adding to the problem is that a large number of surveys that Statistics Canada conducts on specific subjects, ranging from aging to the adoption of new technologies and victimization from crime, are not implemented on reserve, so these important dimensions are missing.

One relatively new source of information upon which we have drawn extensively is the Indigenous Economic Progress Report, compiled by the National Indigenous Economic Development Board (NIEDB), within what is now called Indigenous Services Canada (ISC). The 2019 version of this report is the second that has been published, and it brings together a wide array of data with an emphasis on economics, but is not restricted to that dimension. It is not a source of new data but is, rather, a compilation of existing secondary data from sources such as the Census. Because its home is within the federal government, however, it is able to include internal information of a kind that an outside researcher would have more difficulty accessing.

We have mentioned the need to improve the comparability of data across Indigenous groups and with the non-Indigenous population, as well as the importance of data measured over time. Three other gaps are worth mentioning. First, the wide range of data available for First Nations populations is not matched by what we are able to access for Métis and Inuit populations. Secondly, there is a paucity of multivariate analysis in the literature, even as instruments such as the First Nation RHS make that kind of analysis more feasible. It is important to advance this kind of analysis because, on the one hand, it applies controls in the data analysis so that relationships that might appear when only two variables are considered get excluded when multiple variables are included. This kind of analysis can also help to identify not only the surviving variables, but also how important each of them is in influencing the outcome of interest. Thirdly, bias in the available data is towards documenting disadvantage in outcomes. This serves a certain purpose, but one can also imagine questions being asked that are directly relevant to changing policy and programs. There are examples of this in our report, such as the table identifying barriers that people face when trying to access health services or the reasons given by ex-smokers about what motivated them to stop smoking. Having more of this kind of information would be very helpful for shaping change strategies.

INEQUALITIES IN HEALTH OUTCOMES

Before turning to the social determinants, we provide a few of the most common indicators of health outcomes, beginning with life expectancy. Available data show a considerable difference in the probability of an Indigenous person reaching the age of 75, in comparison with a non-Indigenous person – a differential of some 20 percentage points (Table 1). This table also reveals that females are significantly more likely to reach the age of 75 compared to males.

Table 1: Life expectancy in years for persons one year of age in 2011, by group and sex

Population	Males	Females
First Nation	72.6	77.7
Métis	76.9	82.3
Inuit	70.0	76.1
Non-Indigenous	81.4	87.3

Source: Statistics Canada (2019). Data are from 2011.

Likewise, Tables 2 and 3 show that self-reported health differs substantially between Indigenous and non-Indigenous people, particularly for First Nations people living on reserve.

Table 2: Self-reported general health, by Indigenous identity group (% of respondents), 2015-2016

Population	Excellent or very good general health
First Nation on reserve	37.8
First Nation off reserve	48.5
Métis	51.3
Inuit	44.9
Non-Indigenous	59.9

Source: Statistics Canada (2018a), Table 13-10-0457-01 2011-14. On reserve data are for adults, collected in 2015-16 by the FNIGC (2018a, p. 141).

Table 3: Self-reported mental health, by Indigenous identity group (% of respondents), 2015-2016

Population	Excellent or very good general health
First Nation on reserve	50.5
First Nation off reserve	61.3
Métis	63.5
Inuit	59.5
Non-Indigenous	71.9

Source: Statistics Canada (2018a). Table 13-10-0457-01 2011-14. On reserve data are for adults, collected in 2015-16 by the FNIGC (2018a, p. 141).

The data also suggest that Indigenous people tend to have higher prevalence of long-term (chronic) health conditions than is the case for other adults in Canada (Table 4).

Table 4: Percentage of population who had experienced one or more chronic health conditions, by Indigenous identity group

Population	Percent
First Nation on reserve (males)	55.3
First Nation on reserve (females)	64.4
First Nation off reserve	59.4
Métis	58.8
Inuit	50.5
Non-Indigenous	48.5

Source: Statistics Canada (2018a). Table 13-10-0457-01; 4-year period estimates 2011-14. The on reserve data were collected in 2015-16. Source: FNIGC (2018b, p. 60).

"According to the World Health Organization (WHO), social determinants of health are the "conditions in which people are born, grow, work, live and age, and the wider set of forces and systems shaping the conditions of daily life…" (WHO, 2021, para. 1).

SOCIAL DETERMINANTS OF INDIGENOUS HEALTH

Discourse about the social determinants of Indigenous health is not new. In fact, among Indigenous Peoples, it is centuries old. Since the early days of colonialism, Indigenous Peoples have been proclaiming the health harming effects of oppressive political, economic, and social structures and systems. During the past 25 years, national and international initiatives such as the Royal Commission on Aboriginal Peoples (Canadian Institute for Health Information [CIHI], 2004), the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (United Nations, 2018), and the Truth and Reconciliation Commission (TRC) of Canada (TRC, 2015a) have confirmed these assertions and espoused Indigenous self-determination and equity as vital pathways to wellness.

According to the World Health Organization (WHO), social determinants of health are the "conditions in which people are born, grow, work, live and age, and the wider set of forces and systems shaping the conditions of daily life. These include economic policies and systems, development agendas, social norms, social policies and political systems" (WHO, 2021, para. 1). Health researchers, institutions and advocates have reached some consensus about an extensive list of social determinants that influence the health of individuals, communities, and populations. The following list provides some, but not all, examples of social determinants that can influence health in positive and negative ways:

- income and social protection (e.g., social assistance, subsidies, etc.);
- education;
- employment and job security;
- working conditions;
- food security;
- housing, basic amenities and the environment;
- social support and inclusion;
- structural stability; and
- access to affordable health services of decent quality (WHO, 2021).

Social determinants of health are responsible for health inequities[2], particularly between people of different social and economic positions. For example, it has been widely acknowledged that social determinants account for 30-55% of health outcomes – much more than lifestyle activities such as diet and exercise (WHO, 2021). Research has also demonstrated that systems of education, justice, and social welfare contribute more to health outcomes than the health care system (Ruger, 2010; Schillinger et al., 2006; WHO, 2021).

Over the past two decades, there has been an emergence of literature documenting the influence of social determinants on the wellness of Indigenous Peoples. What has become clear is that the physical, emotional, mental, and spiritual dimensions of health among Indigenous children, youth, and adults are distinctly, as well as differentially, influenced by a broad range of environments, circumstances, and relationships (Carson et al., 2007; Fisher et al., 2019; George et al., 2019; Hovey et al., 2014;

[2] Health inequities are defined here as unfair and avoidable differences in health status.

"Social determinants not only directly influence health, they are also transformative – producing subsequent circumstances that further affect health."

Reading & Halseth, 2013; Wypych- Ślusarska et al., 2019). What remains less well articulated are the mechanisms through which social determinants are shaped and subsequently shape health. Researchers are just beginning to map out the complex interconnections that exist and are demonstrating those linkages empirically (Goicolea et al., 2017; Puig-Barrachina et al., 2011; Ruger, 2010; Schillinger et al., 2006).

Indigenous individuals, families, communities, and nations experiencing inequities in the social determinants of health are more likely to carry an additional burden of ill health as well as be restricted from access to resources that might ameliorate these concerns. Social determinants not only directly influence health, they are also transformative – producing subsequent circumstances that further affect health (Garrett et al., 2015, Haggerty et al., 2018; Lauber et al., 2003). For instance, living in conditions of low income has been linked to increased illness and disability that, in turn, represents a social determinant of health, which is linked to diminished opportunities to engage in gainful employment, thereby aggravating poverty (MacKay & Quigley, 2018).

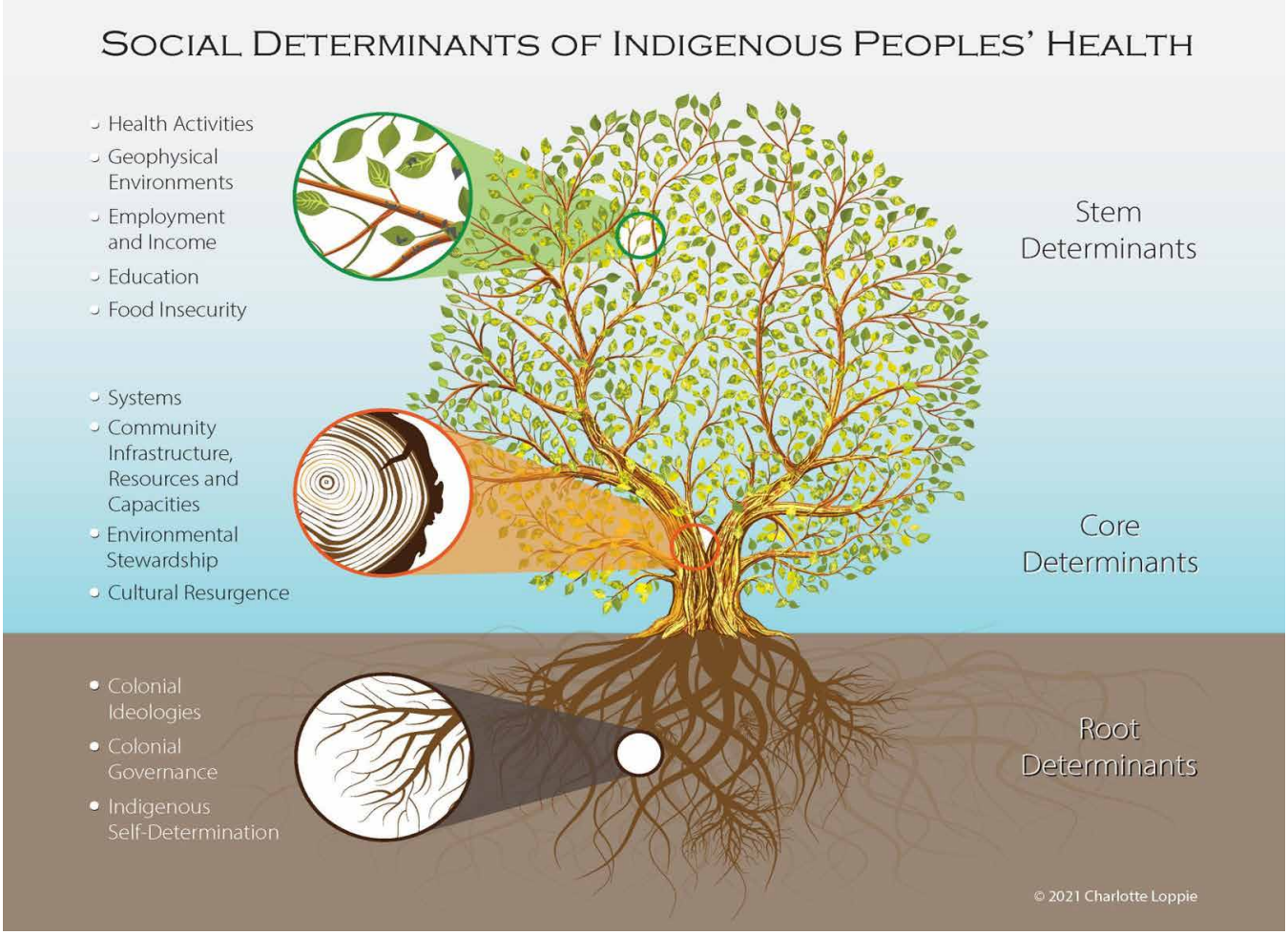
We now introduce a tree metaphor for understanding the relationships between social determinants and various dimensions of Indigenous health. Using available data and scholarship from diverse and often limited literature, we hope to provide compelling support for claims made by these authors and others about health disparities among Indigenous Peoples and the degree to which social determinants of health shape these disparities.

The Tree Metaphor

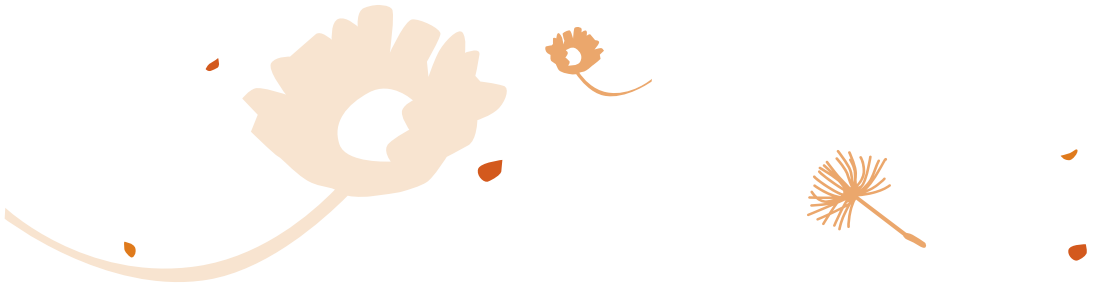
Discussions of Indigenous health must acknowledge the diversity of Indigenous nations, cultures, languages and traditions. On the other hand, models proposed to explore the social determinants of Indigenous health must find common ground. Indigenous cultures are place-based, more specifically land- and water-based, including symbols and stories grounded in the natural world (Greenwood & Lindsay, 2019; Robidoux & Mason, 2017). Trees (or plants more generally) are a familiar part of the natural world, thus represent a relevant metaphor to explore determinants that shape diverse Indigenous Peoples' health. While offering a simple metaphor, trees actually symbolize complex, interrelated structures, systems, and processes. Trees also represent dynamic cycles through which resources are constituted by foundational roots, then transported through the trunk and stems, to influence the growth and maintenance of the tree and its products.

Within the context of Indigenous health, a similar process occurs when a range of resources are distributed through social, political, and economic structures and distributed to diverse systems, where they are likewise delivered to individuals and communities. The obvious difference between these processes is that the former is organic and aims to maintain the well-being of the entire tree, while the latter is socially constructed and sadly, at times, maintains the well-being of selected populations, often to the detriment of others, which ultimately compromises true wellness for everyone.

Like the roots of a tree, structural determinants are deeply embedded ideological and political foundations, which shape all other determinants. The integrity of these foundations also determines health equity and thus the wellness of entire societies. Core determinants represent infrastructure as well as systems – of education, health, justice, social welfare, and others, responsible for the allocation of resources and supports, as well as the engagement of individuals and communities. Within these environments, in/equity is demonstrated in policies, practices, and representation, as well as how barriers to access are addressed. Stem determinants are those which have a more direct impact on the health of individuals and include, but are not limited to, education/training, employment (and therefore income and social status), social supports, and resources (individual, family, and community – human and other).



"…we are all shaped by, and consequently shape, the wellness of our families, communities, and nations."



As they are easily observed and addressed, stem determinants are often the primary focus of health promotion policies, programs, and interventions.

Social Determinants across the Life Course

Trees rarely grow in isolation; they propagate successive generations by spreading seeds and roots. In addition to conceptualizing health across physical, spiritual, emotional, and mental domains, Indigenous cultures emphasize the intergenerational nature of wellness (Viscogliosi et al., 2020). Individually and collectively, we exist on a temporal plane where the experiences of our ancestors inhabit our molecular[3] and social lives. We, in turn, pass those inheritances, as well as our own cumulative experiences, along to subsequent generations. In this way, we are all shaped by, and consequently shape, the wellness of our families, communities, and nations. Lynch and Smith (2005) suggest that "[a] life course perspective explicitly recognizes the importance of time and timing in understanding causal links between exposures and outcomes within an individual life course, across generations, and in population-level diseases trends" (p. 1).

From early childhood, through adolescence, and into adulthood, social determinants influence health at every stage of development. Exposure to health harming determinants early in life has been shown to initiate disease many years before it manifests in poor health (Marmot, 2005). For example, children require a healthy environment in order to maximize development and learning, as well as fully experience themselves and the world. Less than optimal development has consequences not just for adult health, but also for the health of subsequent generations through the perpetuation of unhealthy environments created by unbalanced determinants. Indigenous Peoples are the fastest growing ethnocultural group in Canada, with almost 60% of the Indigenous population under the age of 25 (ISC, 2020a). Consequently, ensuring healthy developmental environments for this fast-growing population of children and youth is a priority for Indigenous communities and nations (Halseth & Greenwood, 2019).

The trajectory of wellness begins prior to gestation, influenced by the social determinants affecting a woman before and during pregnancy (United Nations Development Programme, 2015). Early child development follows, in which environments, circumstances, and relationships impact not only children's immediate health, but set the groundwork for future susceptibilities and strengths. For instance, educational opportunities in childhood can influence socioeconomic

[3] DNA is a complex molecule, a portion of which is passed from parent to offspring during the process of reproduction (National Human Genome Research Institute, 2021).

circumstances in later life (Greenwood, 2005, Maggi et al., 2010, Raphael, 2010, Victorino & Gauthier, 2009). As well, income can influence birth weight, diet, childhood infections, and passive smoking, which can increase the risk of adult respiratory disease (Graham & Power, 2004; Lynch & Smith, 2005).

In as much as social determinants impact children, youth, and adult health in similar ways, they can also manifest as different health issues during each life stage. For example, while crowded housing conditions have been associated with stress in all three age groups (Allam, 2020; Solari & Mare, 2012), for adults, these conditions can contribute to substance overuse and parenting difficulties, which may result in poor school performance among youth and children. In this case, youth substance over-use and violence, as well as behaviour problems in children, have been linked to over-crowded living conditions (Cant et al., 2019; WHO, 2018). If a less-than-optimal environment is present, children and youth will not only face obstacles to optimal physical, emotional, intellectual, and spiritual development, but the difficulties they encounter will also likely create additional stressors for families and communities.

There is now a growing body of research which suggests that trauma can change the way DNA is expressed and how those changes are passed on to the next generation. The human genome is the complete set of DNA that makes each individual unique, while the *epigenome* represents the chemical compounds that tell the genome what to do (National Human Genome Research Institute, 2021). We now know that trauma can alter the human epigenome and has been linked to the inheritance of diseases such as cancer and type 2 diabetes, as well as Alzheimer's disease, depression, addiction, and antisocial behaviour (Jiang et al. 2019).

Since contact, racist and oppressive colonial structures and systems have not only harmed Indigenous Peoples, but the impact of that harm is often passed on through what is referred to as intergenerational trauma (Clarmont & Clarmont, 2016; Cowan, 2020; Methot, 2019; O'Neill et al., 2016). The field of epigenetics is beginning to map out what Indigenous Peoples have referred to as "blood memory" for millennia (Deleary, 2019).

ROOT DETERMINANTS OF HEALTH

Most often, root systems develop from a seed, which germinates into millions of tiny fibres intimately engaged with the soil, generating a firm foundation for the growth of the trunk and limbs. Like the roots of a tree, deeply embedded structural (i.e., political, ideological, economic, and societal) determinants of health represent the foundations from which all other determinants evolve and are maintained. As such, root determinants have the most profound influence on the health of populations. Just as maladies observed in the leaves of a tree can generally be traced to toxicity or deficiency in the roots, inequities in human health are frequently configured, generated, and maintained through socially configured structures. In exploring inequities in the social determinants of Indigenous health through the tree model, colonization, including colonial ideologies and governance, represents key perennial roots.

Colonization and Colonialism

The incursion of colonial settlers onto Indigenous lands resulted in tremendous harm to those lands and its people. As defined by the National Ocean Service (2021),

> an invasive species is an organism that causes ecological or economic harm in a new environment where it is not native. Invasive species can harm both the natural resources in an ecosystem as well as threaten human use of these resources. Invasive species are capable of causing extinctions of native plants and animals, reducing biodiversity, competing with native organisms for limited resources, and altering habitats. This can result in huge economic impacts and fundamental disruptions. (n. p.)

Invasion (or colonization) of Indigenous geopolitical, economic, and social terrains involved sowing the seeds of oppressive colonial governance and cultures, which have germinated into powerful and deeply-rooted structures, systems, and institutions. According to Kelm (1998), "colonization is a process that includes geographic incursion, socio-cultural dislocation, the establishment of external political control and economic dispossession, the provision of low-level social services and ultimately, the creation of ideological formulations around race and skin colour that position the colonizer at a higher evolution level than the colonized" (p. xvii).

As a powerful root determinant of health, the colonization of what is now known as Canada cannot be overstated. The imposition of foreign cultures, governance structures, and ideologies profoundly reshaped the lives of Indigenous Peoples. It is important to note that colonization is not a singular, historical event, but a persistent and complex constellation of intersecting environments, systems, and processes intended

"It is important to note that colonization is not a singular, historical event, but a persistent and complex constellation of intersecting environments, systems, and processes intended to entrench social, political, and economic determinants that benefit white settler societies, often to the detriment of Indigenous lands, waters, cultures, communities, families, and individuals."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to entrench social, political, and economic determinants that benefit white settler societies,[4] often to the detriment of Indigenous lands, waters, cultures, communities, families, and individuals. Nevertheless, the story of colonization in Canada does have a beginning. Like most colonized countries, justification for governance over Indigenous Peoples in Canada is rooted in the Doctrine of Discovery, which was a belief held by Europeans that if they came upon lands whose inhabitants were not subjects of a European Christian monarch, title to and sovereignty over that land could be claimed by the settlers' county of origin (Charles & Rah, 2019; Greenberg, 2016; Miller et al., 2010).

The impact of colonization manifests differently among diverse Indigenous Peoples in Canada, which are themselves distinct from other Indigenous Peoples globally. For example, Indigenous Peoples differentially experience economic disadvantage. While not as well-to-do as non-Indigenous people, Métis tend to experience higher levels of socio-economic status than First Nations, who generally fair better than Inuit (Statistics Canada, 2021a). In general, remote communities, whether they are Métis, Inuit, or First Nations, experience a lack of economic development, which often leads to low individual socio-economic status (Statistics Canada, 2021a). Additionally, while the mechanisms and impact of colonization, as well as historic and neo-colonialism, are similar among all Indigenous groups, particular policies have been patently more deleterious to the lives and health of specific Peoples. For example, First Nations are unique in their relationship with the Canadian government with respect to provisions made under the *Indian Act* of 1876 (Government of Canada, 1876). Nevertheless, First Nations, Inuit, and Métis have all experienced the enduring imposition of colonial cultures, governance, institutions, and systems. For all Indigenous Peoples, colonization and colonialism have resulted in diminished self-determination, leading to a lack of influence in policies that directly relate to them as individuals,

[4] The term *white settler* society refers to a group of societies that sprang up as a result of European expansion into other regions of the globe from the late fifteenth century onward (Encyclopedia.com, 2019).

communities/collectives, and nations (Daschuk, 2013; Macdougall, 2010; Mancke et al., 2019; Methot, 2019).

The impact of colonization on Indigenous Peoples' relationship with the environment began with dispossession of and displacement from traditional lands. Essentially, within the span of a few generations, entire nations of Indigenous Peoples were rendered homeless – regulated or forbidden to hunt, trap or fish even for the purpose of subsistence. Countless Indigenous people and several authors contend that the intergenerational trauma experienced by Indigenous Peoples is rooted in this mass expulsion from home lands and waters (Dylan, 2019; Goldman, 2012; Greenwood & Lindsay, 2019; Li, 2010; Samson, 2016). In support of this, researchers have conversely discovered that greater stewardship of the land is linked to an increased sense of self-reliance and enhanced overall health (Alexie, 2015; Barnes & Josefowitz, 2019; Fenton, 2006; Stelkia et al., 2020).

Indian Residential School System

One of the most powerful and pernicious mechanisms of assimilation was the Indian Residential School (IRS) system, which is often considered a vanguard of genocide against Indigenous Peoples (Barnes & Josefowitz, 2019; Chartrand et al., 2006; TRC, 2015a; Whiteye, 2018; Woolford & Gacek, 2016). The colonial partnership between religion and government was formalized in 1867 when churches were given control over education and residential schools became an expedient avenue to assimilation (TRC, 2015). The belief, which provided a rationale for these schools, was that Indigenous Peoples required spiritual salvation and cultural conversion. For more than 100 years, the aim of these schools was to "kill the Indian in the child" by attempting to destroy the cultures, languages, family ties, and community networks of approximately 150,000 First Nations, Inuit, and Métis children (Facing History and Ourselves, 2021).

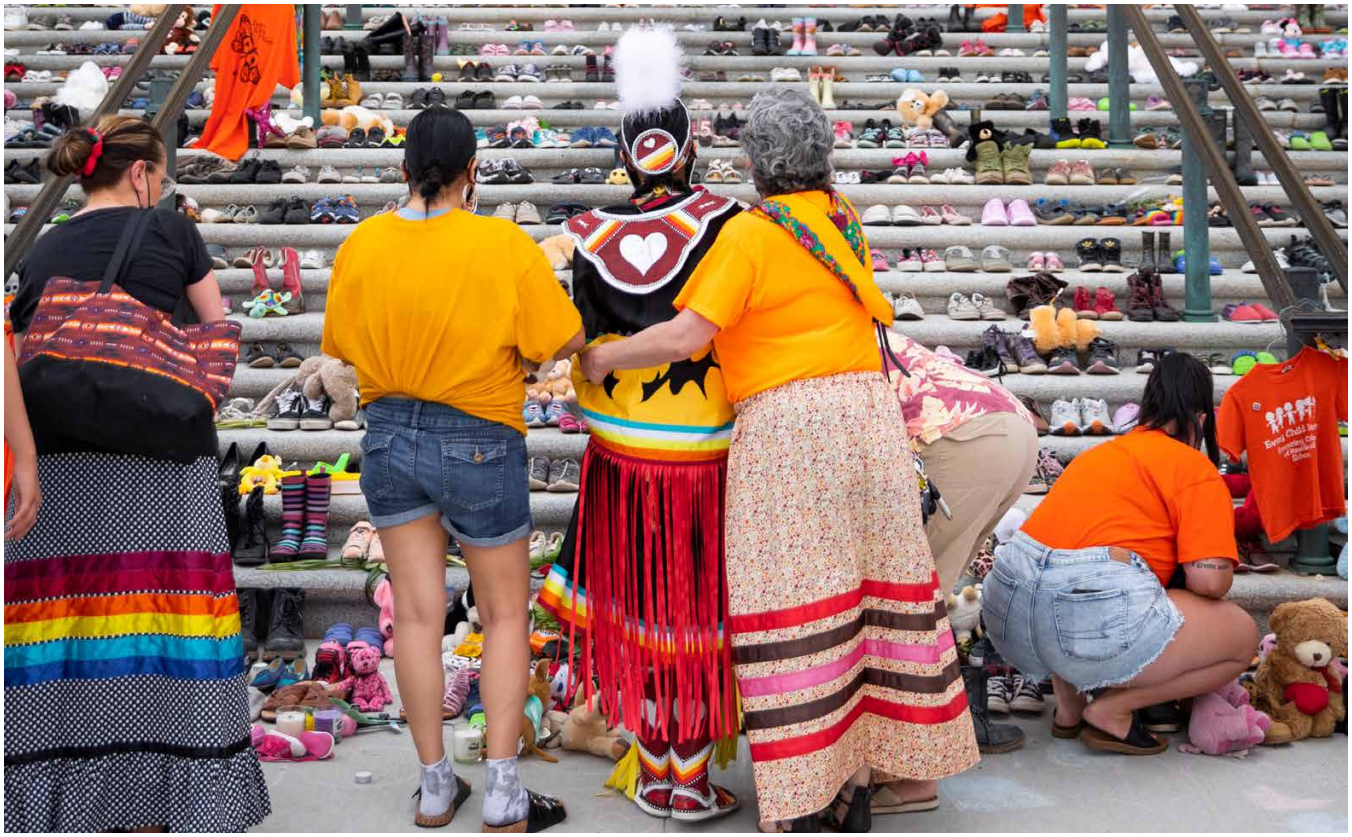

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Table 5: Percentage of First Nations adults, youth, and children affected by attendance at residential school

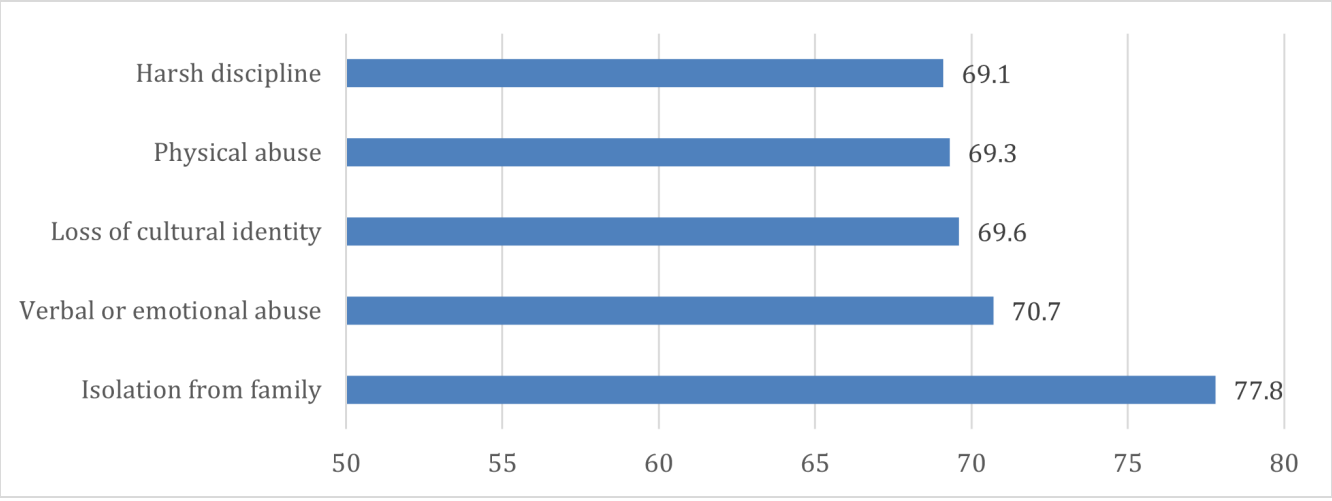
Pathway	Adult	Youth	Children
Not affected	26.3	33.2	37.5
At least one grandparent	17.5	47.0	50.6
At least one parent	39.4	19.8	11.9
Survivor (adults only)	16.8		

Source: FNIGC (2018a, p. 154). Data collected in 2015-16.

Residential schools, where Christianity was vigorously imposed and Indigenous spiritual traditions demonized, sought to forge a destructive path through Indigenous identities, families, and cultures (TRC, 2015a).

Researchers with the Truth and Reconciliation Commission of Canada estimated that at least 3,200 children died while attending Residential School; yet, TRC commissioner Justice Murray Sinclair suggests that the deaths might be closer to 6,000 (TRC, 2015a). Indeed, during the writing of this report, the remains of 215 Indigenous children, some as young at three, were discovered on the grounds of the former Kamloops Indian Residential School. According to Chief Rosanne Casimir of the Tk'emlúps te Secwépemc community, "[t]o our knowledge, these missing children are undocumented deaths" (Newton, 2021). For survivors, the trauma of attending Indian Residential School has not only impacted their own health and well-being but that of their children and grandchildren. Table 5 indicates that about three quarters of adults living on reserve were affected by residential schools – having attended themselves or having a parent or grandparent attend. The proportion affected by attendance at residential school reduces to about two-thirds for youth and children.

Figure 1: Percentage of First Nation IRS survivors who perceived the following negative impacts as a result of attending residential schools



Note: Respondents could choose more than one impact. Only the five most frequently mentioned impacts are listed.

Source: FNIGC (2018a, p. 155). Data collected in 2015-16.

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Among those who attended residential schools, the impacts were substantial and widespread, as Figure 1 demonstrates. Between two-thirds and three-quarters of survivors indicated they experienced impacts, including: isolation from family and community, loss of culture, harsh discipline, as well as physical, emotional, or verbal abuse.

Although the federal, territorial, and provincial governments practiced a haphazard approach to the schooling of Métis children, they did attend residential schools and suffered similar hardships as other Indigenous children. In the north, the federal government created a number of day schools, which were attended by Inuit as well as other Indigenous and non-Indigenous children. These schools were often great distances from children's home communities, meaning they often did not see their families for years. Some parents moved closer to the schools to be near their children, often drastically transforming their livelihood. The impact of these northern school experiences has been reported as similar to southern schools (TRC, 2015b, 2015c).

Colonial Ideologies

White Supremacy

The ideologies (i.e., social or political philosophies) of European settlers – particularly regarding race, gender, and religion – stood in stark contrast to those held by most Indigenous Peoples. In fact, a key justification for colonization and colonial oppression was the erroneous belief in white supremacy; that people racialized as white are inherently superior and so should exclusively possess all forms of power and privilege. Anti-Indigenous racism and social exclusion have not only resulted in the inequitable distribution of resources, power, and autonomy, they have created barriers to Indigenous people's participation in all aspects of political, economic, and social life (Allan & Smylie, 2015; Das Gupta, 2018; Moreton-Robinson, 2015; Paradies, 2016; Perry & McCallum, 2018). Relegated to the bottom of a socially constructed racial hierarchy, after 400 years, Indigenous people continue to experience inequitable social determinants, which directly and indirectly increase their exposure to illness and reduce their capacity to address social determinants of health.

Research has firmly established that groups subjected to racial and other forms of discrimination experience more frequent and severe negative health outcomes – in part due to the stress of living in racist environments (Akbulut et al., 2020; Gee & Ford, 2011; Harris et al., 2006; Raphael, 2016; Reid et al., 2019; Williams & Mohammed, 2013). While the level of racism affecting particular groups is difficult to measure, one

Table 6: Percentage of First Nation adults living on reserve reporting having experienced aggression, cyberbullying, and racism, by age

Type of behaviour	18-29 years	30-49 years	50+ years	Adult overall
Physical aggression often or sometimes	14.1	12.4	6.5	11.0
Verbal aggression often or sometimes	23.2	23.7	15.4	21.0
Cyberbullying	9.0	8.2	3.6	6.9
Racism	23.4	25.6	22.9	24.2

Note: *Cyberbullying and racism assessed via yes/no responses. Physical and verbal aggression assessed via rarely/never versus often/sometimes.*

Source: FNIGC (2018a, p. 147). Data collected in 2015-16.

approach is to ask respondents if they have experienced racism within a given time period. In response to such a question, about one quarter of First Nation adults living on reserve say that they have experienced racism in the 12 months prior to the survey (Table 6). The numbers are similar for verbal aggression, while cyberbullying and physical aggression are less common. Although this type of data is not available for off-reserve First Nation, Inuit, and Métis peoples, archival, community, and news reports indicate that similar forms of racism are also experienced by these Indigenous groups (Loppie et al., 2014; Monchalin et al., 2020; Pauktuutit Inuit Women of Canada, 2021).

Christianity

Prior to colonization, Indigenous Peoples held deeply established spiritual beliefs and creation stories, rooted in the natural world (Fortune, 2016). As a result of early Roman conversion to Christianity and the subsequent Roman incursion into Europe, Christianity was widespread among early colonizers of the Americas. The intention of early Christians was to "convert the savages," whom they believed to have no religion. Yet, it has become clear that in the eyes of Indigenous nations, "conversion" to Christianity often represented a form of alliance making, which provided mutual advantage. According to Biard (1886), "[t]hey accepted baptism as a sort of sacred pledge of friendship and alliance …" (as cited in Hornborg, 2008, p. 6).

The agendas of geo-political colonialism and Christian conversion formed a synergistic and mutually beneficial alliance for colonization. Christianity was imposed on colonized peoples who, ironically, had to turn to colonizers for help in addressing the most severe impacts of colonization (i.e., threats to resources and safety). Varying degrees of resistance to Christian colonialism have created diverse spiritualities among Indigenous Peoples across Canada, including the complete replacement of traditional spirituality, as well as parallel and hybridized spiritual beliefs and practices (Smith, 2018). In addition to those communities that have always rejected the imposition of Christianity, there is also a growing revitalization of Indigenous forms of spirituality (Howitt, 1969; Lindenfeld & Richardson, 2012).

Patriarchy

"A nation is not conquered until the hearts of its women are on the ground."
Cheyenne Proverb


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The structuring of social systems around gender is universal. In most cultures, patriarchy is the norm, in which men hold power and prevail in roles of political leadership, moral authority, and control of resources (Smuts, 1995). Although some pre-contact Indigenous cultures were patriarchal, most would be defined as egalitarian or matriarchal (Shannon, 2006; Stewart, 2002). While there was a gendered division of labour, gender roles were equally valued and often fluid. Two Spirit[5] people, frequently considered a third gender, were seen to have special gifts and insights (Hunt, 2016). Among many Indigenous cultures, gendered transitions from childhood to adulthood (e.g., vision quest, moon ceremony) were given equal value for the individual and the community (Ude, 1990). Based on the historical record, men and women enjoyed good relations and female authority and leadership was not uncommon (Brown, 2017; Ude, 1990). An illustration of this can be found in the well-known quote of Ada gal'kala (Cherokee Peace Chief) who, while addressing a British treaty delegation in the late-1770s, asked, "Where are your women? How can we possibly talk to you about peace if your women aren't here?" (Parisi & Corntassel, 2007, p. 81).

The combined forces of colonial governance and religion imposed patriarchy into almost every facet of Indigenous life, with Christianity playing a particularly pernicious role in the area of sex and gender. While healthy Indigenous perceptions of sexual autonomy were displaced by sexual shame, missionaries endeavoured to replace Indigenous creation stories (often grounded in female fecundity and/or the natural environment) with one about a male God and the customary subjugation of women. Patriarchy was also woven into the fabric of the *Indian Act*; in order to be considered an "Indian", you had to either be male, be married to a male, or be the recognized child of a male. An Indigenous woman who left her Indigenous husband lost her Indian status, whereas a white woman who married an Indigenous man gained Indian status. The *Indian Act* did not allow women to possess land or marital property so that if they were widowed or separated, they and their children had to leave their home and community with nothing (Government of Canada, 1876).

Through land theft and political oppression, colonial governments forced Indigenous dependence on western institutions where male dominance was the norm. They also imposed male-only governance systems in which women were not allowed to hold political office or even vote in elections. This did not

[5] The creation of the term "two-spirit" is attributed to Elder Myra Laramee, who proposed its use during the Third Annual Inter-tribal Native American, First Nations, Gay and Lesbian American Conference, held in Winnipeg in 1990. The term is a translation of the Anishinaabemowin term *niizh manidoowag*, two spirits" (Dalla Lana School of Public Health, 2021, para. 1).

change until 1951 and it is still less common to see Indigenous women in most leadership positions (Ministry of Public Safety and Solicitor General, 2019; Valaskakis et al., 2009). In addition to imposing patriarchal norms, colonizers depicted Indigenous women as inferior to European women in beauty and morality, leading to justification of widespread sexual exploitation, assault, and murder (Ministry of Public Safety & Solicitor General, 2019; Tucker, 2016). Since the 1970s, an estimated 4,000 Indigenous women and girls have been murdered or are still missing in Canada and they continue to be at much higher risk of violence (Anderson et al., 2018; Poucette, 2019).

Individualism

Traditionally, Indigenous cultures are collectivist in that identity is linked to one's belonging to the group (i.e., family, community, nation). Social behaviour is largely determined by group norms rather than individual preference and cost-benefit analyses. Individual goals are based on serving the needs of the group and personal value is attached to collective success. In-group harmony and interdependence are central attributes to be nurtured, as is concern for family and community – as the self is defined as inseparable from the group (Podsiadlowski, & Fox, 2011; Rosile et al., 2018). Many ceremonies and social activities are meant to enhance this sense of connection and reciprocity (Ramage-Morin & Bougie, 2012).

The European people who colonized North America primarily belonged to individualistic cultures, in which the self is defined as separate from most social groups, with the exception of very close relatives. In these cultures, individual fate, achievement and independence from the group (e.g., family, community, state) are emphasized and self-reliance is valued. Individualism emphasizes personal interests, autonomy, and choice. Personal goals generally take primacy over group ambitions and social behavior is frequently based on personal beliefs. Goals are also based on individual benefit and personal value is attached to one's wealth and success (Bromley, 2019; Heath, 2019).

Although Indigenous Peoples have resisted the imposition of colonial individualism, it was largely enforced through structures, systems, and laws that, for example, banned cultural practices such as potlatch, where sharing of resources was common (Loo, 1992). Colonial laws also prohibited traditional resource distribution and limited fishing and hunting to reduce community sharing. Colonial governments replaced the communal stewardship of land with individual property laws, as well as nuclear family homes, individualized education, and specialized employment – all of which continues to threaten communal sustainability (Bhandar, 2018).

Colonial Governance

The United Nations Development Programme (n.d.) defines governance as a "system of values, policies and institutions by which society manages economic, political and social affairs through interactions within and among the state, civil society and private sector. It is the way a society organizes itself to make and implement decisions" (p. 2). A 1994 study by Young details how dominant groups shape and reproduce structural oppression through political decision-making, as well as through representations that both silence and distort oppressed voices. Prior to colonization, Indigenous Peoples practiced their own forms of government (Crown-Indigenous Relations and Northern Affairs Canada [CIRNAC], 2020a). Yet, the colonial agenda has always been to seize and maintain control over these vital determinants of Indigenous health. Despite the negotiation of treaties, trade agreements and military alliances, the Canadian state's colonial laws, policies, and legislation have maintained a paternalistic and self-serving approach. For instance, many treaties have never been honoured by the Crown (Government of Canada, 2020b).

Yet, avenues of recourse were few and Indigenous people, barred from forming political organizations, often faced a brutal military response, such as that faced by the Métis-led national liberation movement (Andersen, 2014). For First Nations, traditional forms of Indigenous governance were replaced with an elected Chief and Band Council system. The initial three-year election cycle was subsequently reduced to two-years, thus creating additional barriers to progress on long-term goals or inter-community collaborations (Government of Canada, 1880).

As a democracy, Canadian citizens are permitted to elect representatives to a parliament responsible for making decisions on behalf of the nation. Indigenous Peoples have a unique history and experience with voting in federal elections. While the Métis have always had a legal right to vote in federal elections, with some exceptions for veterans, the *Dominion Franchise Act* of 1934 disqualified First Nations people living on reserves and Inuit people from voting in federal elections. In 1950, the vote was given to Inuit but it was only in 1962 that ballot boxes were placed in all Inuit communities for federal elections (Elections Canada, 2021).

"…the Indian Act, as well as other legislation and social policies, rewarded assimilation through the provision of resources and opportunities, while punishing cultural retention."

Until the 1960s, First Nations people could apply for enfranchisement, in which they surrendered their Indian status and band membership in return for Canadian citizenship and the right to vote or to join the military, further assimilating them into the dominant culture. In fact, the *Indian Act,* as well as other legislation and social policies, rewarded assimilation through the provision of resources and opportunities, while punishing cultural retention (Government of Canada, 1876). An 1880 amendment to the *Indian Act* stated that:

> Any Indian who may be admitted to the degree of Doctor of Medicine, or to any other degree by any University of Learning, or who may be admitted in any Province of the Dominion to practise law either as an Advocate or as a Barrister or Counsellor, or Solicitor or Attorney or to be a Notary Public, or who may enter Holy Orders, or who may be licensed by any denomination of Christians as a Minister of the Gospel, may upon petition to the Superintendent-General, ipso facto become and be enfranchised under the provisions of this Act; and the Superintendent-General may give him a suitable allotment of land from the lands belonging to the band of which he is a member (Government of Canada, 1880).

Reserves and Settlements

Without consulting Indigenous Peoples, the Canadian government set aside tracts of land (referred to as reserves) on which "Indian bands" could live – albeit without title or ownership. This land was often relatively small and poorly resourced (i.e., access to clean water and food sources). Many reserves and settlements are also isolated – not only from other communities and services but from employment and economic opportunities. After 200 years, some still do not have basic services like running water and most experience housing shortages and inequities in funding (Farenhorst, et al., 2017; Oliver et al., 2016; Scoffield, 2011; Standing Senate Committee on Aboriginal, People, 2015). Due to these hardships, the majority of First Nations people (~60%) no longer live on reserves, even though it means giving up certain services available only to on-reserve populations (Statistics Canada, 2017c). On the other hand, despite the economic hardships, many communities are thriving – cultural practices are being revitalised and Indigenous languages are increasingly taught in schools and spoken in homes (Jacob, 2012; Rorick, 2017; Sarkar & Lavoie, 2013; Toulouse, 2013).

The Métis Nation is represented through democratically elected governments – the Manitoba Metis Federation, Métis Nation-Saskatchewan, Métis Nation of Alberta, Métis Nation British Columbia, and Métis Nation of Ontario (Métis National Council, 2021). Alberta is the only province with a recognized Métis land base, which includes eight settlements. After the 1885 Northwest Resistance,[6] with the demise of the fur trade and as early colonial farmers settled land in the Prairie provinces, the Métis became dispersed. Between 1900 and 1960, many Métis made their homes on road allowances, which were strips of government-owned land set aside for future roads. Without a land base and facing racial discrimination by potential employers, these Métis families lived in extreme poverty, so road allowance houses were typically poorly constructed with recycled materials (Adams et al., 2013; Campbell, 2019).

Inuit people did not experience extreme forms of colonialism until the 19th century when over-harvesting by settlers decimated sea mammals, thus hampering Inuit's ability to remain self-sufficient. To ensure a Canadian presence in the north, during the 1950s the

[6] The North-West Rebellion (or North-West Resistance) was a five-month battle between the Métis (with First Nations allies) and the Canadian government (The Canadian Encyclopedia, 2021).

federal government ordered the forced relocation of more than 200 Inuit to isolated settlements in the High Arctic, where extreme cold and poor resources led to widespread starvation and death, prompting the government to relocate families to marginally more southern communities (Canadian Council on Social Determinants of Health [CCSDH], 2013). In other cases, Inuit were foced to relocate because their communities were seen as too small or remote to justify the cost of federal services. While commitments were made to provide adequate housing in these communities, most Inuit settlements continue to experience inadequate and poor quality housing (Dyke & Patterson, 2017).

Capitalism

Canada defines itself as a capitalist society (i.e., wealth is generated through private ownership of trade and business), as well as a 'welfare state', grounded in principles of equality, fair distribution of wealth, and public responsibility through initiatives such as social and employment insurance, public education, and universal health care (Diekmeyer, 2020). Decisions about the distribution of collective wealth are made by three levels of government (federal, provincial/territorial, and municipal).

While the early fur trade was beneficial to some Indigenous groups, the decline of that industry led to a surge in commodity production, resource extraction, and wage-labour. Canada's emerging capitalism promoted further land appropriation for colonial expansion and settlement. Dispossessed Indigenous Peoples were forced into labour markets in order to survive; yet, economic equality has remained a challenge (Crook et al., 2018; Talaga, 2017). In the later section on "Stem Determinants," we present data on employment and income, which illustrates this challenge.

CORE DETERMINANTS OF HEALTH

The trunk, or core, of a tree provides critical support for its limbs and facilitates root-to-stem transport of resources. While stem determinants have the most visible link to the health of populations, core determinants can be thought of as the precursor of stem determinants – having a less direct impact on the health of individuals, yet profoundly influencing the conditions in which they are born, live, and work. For Indigenous people, stem determinants such as low income and unfavorable living conditions often result from a lack of local infrastructure, resources, and capacities, as well as restricted environmental stewardship (Bradford et al., 2016; Chenhall & Senior, 2018; Donatuto et al., 2016; Greenwood et al., 2015; Marks et al., 2007; Palmer, 2018). Similarly, inequitable access to resources and opportunities can act as a barrier to health promoting activities like engaging in nutrient dense diets, exercise, and positive coping (Danaei et al., 2017; de Mello et al., 2020; Graham et al., 2020; Graham & White, 2016; Mariner, 2016). Within an Indigenous framework, core determinants also involve kinship networks, relationships to land and water, together with Indigenous languages and practices, all of which represent favourable determinants of Indigenous health.

Child Welfare Policies and Systems

Beginning in the 1950s, apprehension and relocation of Indigenous children into non-Indigenous homes became a common 'solution' to the problem of Indigenous poverty. Currently, 52.2% of children in foster care in Canada are Indigenous, while accounting for only 7.7% of the child population (ISC, 2021). Intergenerational trauma, poverty, mental illness, and substance abuse are most commonly associated with child welfare involvement and Indigenous women are more vulnerable to having their children apprehended for these reasons (Caron, 2005; Ritland et al, 2021). There is growing concern among Indigenous leaders and child advocates about the lasting health impacts of involvement in the child welfare system, including mental health problems, suicide, substance use, criminality, and HIV/AIDS (Carrière & Richardson, 2017; Clarkson et al., 2015; de Leeuw & Greenwood, 2017; NCCAH, 2017; Tait, 2013).

Criminal Justice System

Within Canada's criminal justice system, Indigenous people are overrepresented as both victims and offenders. For example, in 2014, 28% of Indigenous people 15 years of age and over reported being a victim of crime in the previous 12 months, compared to 18% of non-Indigenous adults (Department of Justice, 2019). As Table 7 shows, the figures are even more disproportionate when looking at victims of violent crime, murder, and sexual assault. In terms of incarceration, Indigenous adults accounted for about 30% of adults taken into custody in 2017/18, a figure that increased by 10 % from a decade earlier. The Supreme Court and several inquiries have identified systemic discrimination throughout the criminal justice system, including policing, courts, and corrections (Johnson, 2019). Even when employment, income, and substance use issues are

taken into consideration, Indigenous ancestry remains highly associated with forceful police interventions and incarcerations as well as denial of bail, resulting in disproportionately long sentences and over-representation of Indigenous people in maximum security institutions (Kaiser-Derrick, 2019; Monchalin, 2016; Razack, 2015; Singh et al., 2019; Weatherburn, 2014). For those who are targets of crime, this means being viewed as less worthy victims and less credible witnesses, as well as having their requests for assistance often being ignored (Roach, 2019).

Table 7: Indigenous overrepresentation as victims of crime, by type of crime, 2014

Type of crime	Indigenous per 1000 population	Non-Indigenous per 1000 population
Victims of violent crime	163	74
Women as victims of violent crime	220	84
Men as victims of violent crime	110	66
Women as victims of sexual assault	115	35
Homicide victims 2017	8.76	1.42

Source: Department of Justice (2019). Data for persons 15 years of age and over.

Health Care System

In order to realize the benefits of an advanced system of health care, individuals must have geophysical, political, and social access to its services. This is often not the case for Indigenous people and has led to diminished screening, late diagnosis, and negative health outcomes (Auger et al., 2016; Geddes, 2017; Halseth, 2018; Shrivastava et al., 2019; Sylliboy & Hovey, 2020). In particular, the federal system of health care delivery for status First Nations people resembles a 'patch quilt' of programs and services with limited accountability, fragmented delivery, and jurisdictional ambiguity (Diekmeyer, 2020). Navigating the complexities and contradictions of these bureaucracies often results in harmful and sometimes deadly outcomes, as was the case for Jordan River Anderson of Norway House Cree Nation in Manitoba. Born with complex medical needs, Jordan was kept in the hospital for over two years while the province of Manitoba and the federal government argued over who should pay for his at-home care. As a result, Jordan died at the age of five, never having spent a single day at home with his family (First Nations Child & Family Caring Society, 2021).

Historically, Métis and non-Status 'Indians' (people) did not fall under federal jurisdiction in terms of health and other services. However,

> on April 14, 2016, the Supreme Court of Canada ruled that the Federal Government has Constitutional responsibility for Métis and non-Status [people]. [Although] the decision does not require the federal government to provide programs and services [including those related to health] to Métis and non-status [people], it can no longer deny these services on the basis it has no jurisdiction. Métis and non-status Indians can now lobby …the federal government and [it] will have to justify any distinction in the type and level of services it provides to status [people], non-status [people] and Métis. (Congress of Aboriginal Peoples, 2016, n. p.)

According to Statistics Canada (2017b), over 80% of First Nations and most Inuit communities are considered remote – that is, an extreme distance from basic services. Almost one quarter of Métis live in rural or remote communities, while many reserves are in rural locations and most Inuit live in remote northern communities in Inuit Nunangat.[7] Geographic isolation in rural, remote, and northern communities represents a substantial barrier to Indigenous people accessing health care. Small, isolated communities have much more difficulty attracting and retaining health professionals, leading to short-term, non-resident care or the necessity to travel long distances, at great expense, to receive care (National Collaborating Centre for Indigenous Health, 2019).

[7] Inuit Nunangat is the homeland of the Inuit in Canada, consisting of four northern regions called the Inuvialuit Settlement Region, the territory of Nunavut, Nunavik in northern Quebec, and Nunatsiavut of Newfoundland and Labrador (Inuit Tapiriit Kanatami, 2021).

Access to timely services is a critical determinant of health. Table 8 shows utilization patterns that suggest limited access to doctors and dentists for Indigenous people. This is most notable in the North, where nurses play a more immediate role in place of medical doctors.

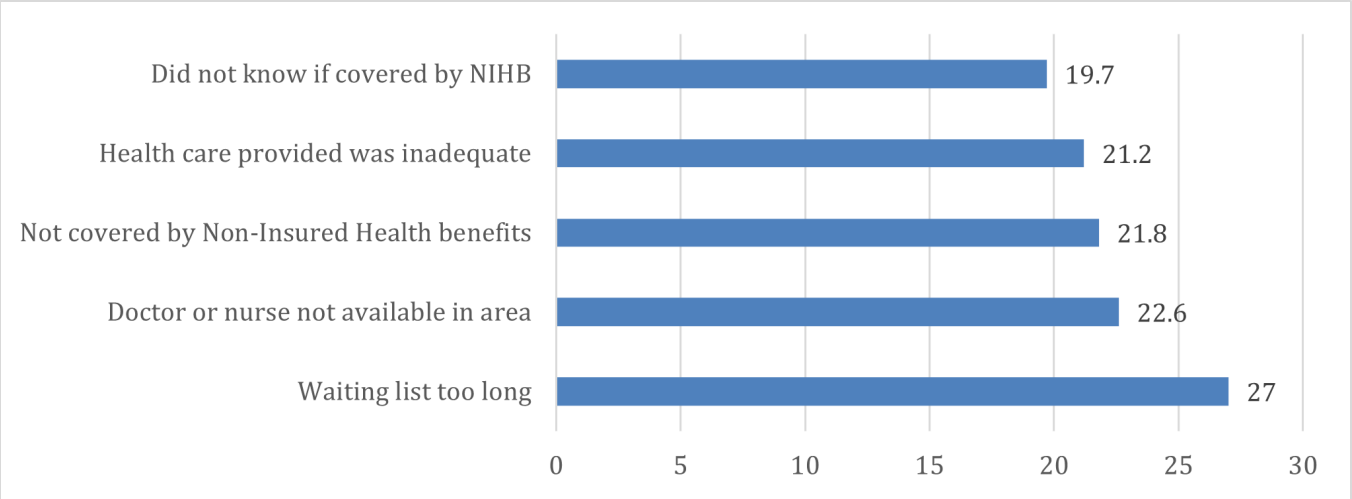
Table 8: Access to and use of health care services by Indigenous group, 2017 (% of respondents)

Aboriginal identity group	Does not have regular medical doctor	Has not received dental care last three years	Health care required in last 12 months but not received
First Nations Registered or Treaty	20.8	14.0	13.7
First Nations Not Registered or Treaty	15.9	20.5	18.1
Métis	15.9	19.7	14.1
Inuit	66.8	19.4	16.0

Source: Adapted from Statistics Canada (2021b). Data are from the Aboriginal Peoples Survey.

First Nation adults living on reserve often experience long wait lists for health care (Figure 2). In addition, they are limited by needed-services not being covered or approved by the federal Non-Insured Health Benefit Plan (NIHB) and by doctors or nurses not being available in their area. Reports that health care provided was inadequate or not culturally appropriate are also frequently mentioned barriers.

Figure 2: Self-reported barriers to receiving health care among First Nations adults living on reserve who required health care in the past 12 months (% of respondents)



Source: FNIGC (2018a, p. 21). Only the five most frequently mentioned barriers are listed. Data collected in 2015-16.

Social access to health care is similarly limited or denied to all Indigenous people (First Nations, Métis and Inuit) through health care environments in which racism is both systemic and personal. Countless examples have been documented by news media, researchers, and health care workers (Logan McCallum & Boyer, 2018; Matthews, 2019; Monchalin et al., 2020; Nelson & Wilson, 2018; Robson et al., 2012; Shrivastava et al., 2019). The most recent is the 2020 release of the "In Plain Sight" report, which documents the experiences of 9,000 people in British Columbia who reported widespread anti-Indigenous stereotyping and racism, reduced access to care, discrimination at point of care, as well as work-related racism against Indigenous health care workers (Turpel-Lafond, 2020).

Educational System

Adequate education has a profound impact on employment, income, and living conditions (Gluz & Moyano, 2013; Stávková et al., 2012). Well-educated parents not only earn higher incomes, thereby improving stem determinants for their own and their children's health, but also pass along a tradition of education to the next generation (Bonikowska, 2020; Chan & Boliver, 2013; Liu et al., 2018; Sheikh, 2015). Education has also been correlated with optimal child development, as well as mitigating some of the effects of poor child development on adult health (Andersen, 2014).

During the gradual closure of Indian Residential Schools, there was an increase in Indigenous student attendance in provincial and territorial schools. Métis and non-status youth were required to attend regular provincial and territorial schools as soon as they became established. Between the 1970s and the early 2000s, Inuit and individual First Nations slowly gained more control over education; they hired more Indigenous teachers, developed culturally relevant curricula and teaching resources, and promoted a resurgence of Indigenous language instruction. By 2013, 500 band-operated schools were serving about 65% of the on-reserve student population (Filice, 2018). Despite this progress, a 2016 Canadian Broadcasting Corporation report revealed that First Nations students received 30% less government funding than non-Indigenous students (Porter, 2016). This inequitable funding has resulted in fewer educational resources, libraries, and technologies, as well as a lack of competitive salaries to recruit and retain teachers. First Nations child advocate Dr. Cindy Blackstock suggests that this discrimination has played a major role in the lower education completion rates among First Nations youth (as cited in Irvine, 2004).

Preschool programs have demonstrated the most favorable "return on investment" among Indigenous children. Yet, in 2018, the Aboriginal Head Start On-Reserve program only served about 20% of First Nations children because of eligibility and was not available to children with special needs (Barrera, 2018). Although the benefits of culturally relevant curricula have been shown to retain Indigenous students, within mainstream high schools, most curricula continue to lack focus on Indigenous content and pedagogy (Anderson, 2004; Battiste, 2002; Kovach & Montgomery, 2019). Since the 1960s, there has been a slow but steady increase in Indigenous students pursuing post-secondary education in Canada. Even though university-level attainment has increased, a gap continues to exist among Indigenous Peoples, caused in many cases by economic and social challenges.[8] As efforts to include Indigenous programming, studies, and courses in post-secondary education are ongoing, they have not kept pace with the educational needs of Indigenous post-secondary students (Arvidson, 2020; Restoule et al., 2013; Scowcroft, 2015).

[8] Data on these points follow in a later section.

Community Infrastructure, Resources and Capacities

Socioeconomic position is generally measured at three levels: individual, household, and neighborhood (Howe et al., 2012). While each level contributes to health, the community in which people live heavily influences their wellness. In particular, community infrastructure (e.g., buildings, schools, amenities, roads/bridges, public transportation, water and waste management), resource development (e.g., land use, natural resource harvesting and use), and safety (e.g., fire, ambulance, and police services) are important contributors to community health. In the case of land-based Indigenous communities, economic development is often a key determinant, with control over and use of land and natural resources representing a foundation to the success of most economic development initiatives (CCSDH, 2013). In addition, the capacity to provide employment, to train and retain vital workers, and to develop and implement local, culturally relevant programs and services is imperative. Inequities in the distribution of financial and human resources continue to disadvantage many Indigenous communities from optimizing collective health. As well, communities often experience fragmented, under-funded programs in which government bureaucracies promote community responsibility without a parallel transfer of control (Canadian Council for Aboriginal Business, 2016; McCartney, 2016; Warkentin & Parliament House of Commons, 2014).

Although the *Indian Act* continues to regulate almost every aspect of First Nations' lives, over time, many provisions that violated the civil rights of First Nations people have been removed. For example, a 1988 amendment increased access to band revenues through taxation of reserve lands and allowed individuals to hold mortgages on reserves (Borrows & Rotman, 2018; Cameron et al., 2020). Many Indigenous communities are also experiencing economic growth through the negotiation of fair and equitable partnerships with the private sector. Better education is leading to growing expertise in establishing culturally relevant corporate governance models, as well as economic development activities. In these ways, many, but not all, Indigenous communities are overcoming challenges to achieving self-sustaining governance and economic success (CCSDH, 2013).

"…many, but not all, Indigenous communities are overcoming challenges to achieving self-sustaining governance and economic success."

One measure of economic success is compiled by the National Indigenous Economic Development Board (NIEDB). Called the NIEDB Economic Development Index, it is an amalgamation of 12 discreet indicators, most of which are reported individually in other tables and charts of this report (e.g., employment, income, housing, education, etc.). The values of the index range from 0 (lowest) to 100 (highest). Table 9 shows a significant gap between Indigenous and non-Indigenous populations, especially for the Inuit and on-reserve populations, but also some small improvements between 2006 and 2016.

Table 9: NIEDB Economic Development Index,[9] by Indigenous identity group, 2006 and 2016

Indigenous Identity Group	2006	2016
First Nation on reserve	47.6	48.5
First Nation off reserve	60.6	62.3
Métis	64.9	67.1
Inuit	53.6	55.3
Non-Indigenous	68.7	69.7

Source: NIEDB (2019, p. 171).

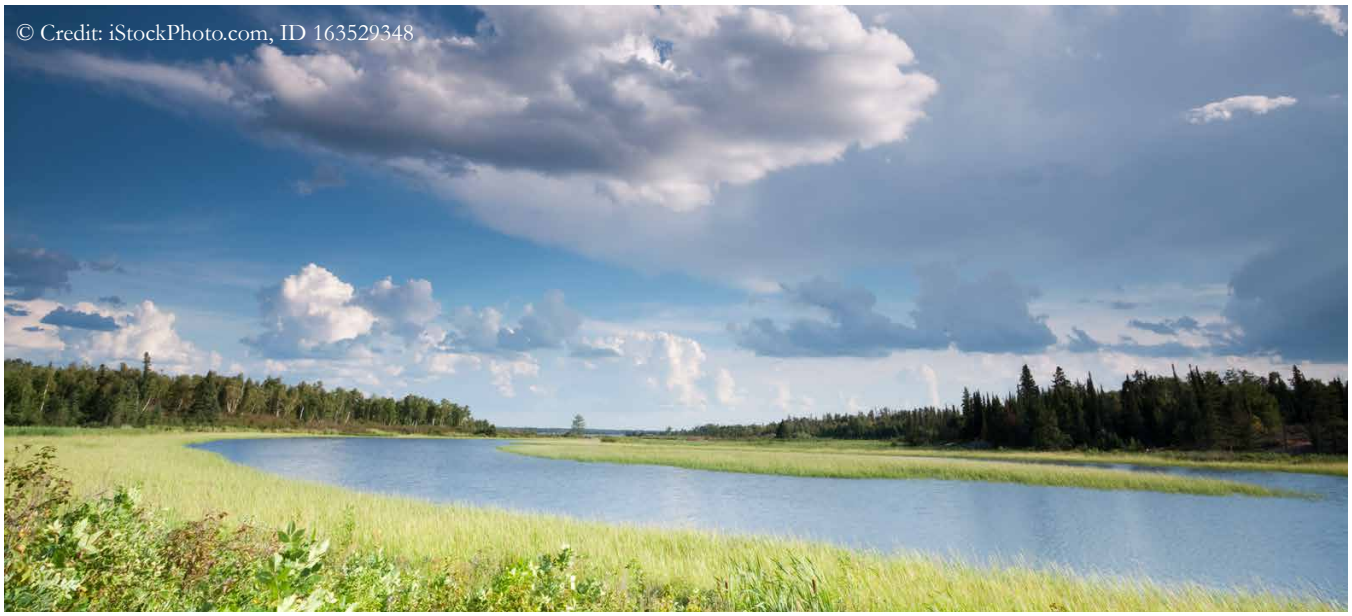
Environmental Stewardship

Environmental stewardship represents a widely recognized determinant of Indigenous health (Azeiteiro et al., 2018; Burger, 2002; Jennings et al., 2016). In fact, traditional ties to the natural environment are generally acknowledged as a major resource for the superior health enjoyed by Indigenous Peoples prior to European colonization. The United Nations Declaration on the Rights of Indigenous People (UNDRIP) makes several statements about Indigenous Peoples' rights to own, use, develop, and control their lands, territories, and resources (United Nations, 2018). Unfortunately, during the past 400 years, colonial expansion has resulted in the rapid dispossession and forced segregation of Indigenous Peoples. Colonial governments often do not acknowledge Indigenous Peoples as stewards of their traditional territories, nor do they permit them an equitable share of its natural resources. Industrial contamination of wildlife, fish, vegetation, and water has also forced Indigenous Peoples further from the natural environments that once sustained community health (Moreton-Robinson, 2015).

In 1870, the Canadian government created a Métis system of 'scrip' – documents redeemable for land or money in exchange for land rights. In 2013, the Supreme Court of Canada ruled that the federal government failed to provide the Métis with the land grants they were promised and negotiations between various levels of government and the Métis Nation concerning the reclamation of land rights continue.

When Indigenous Peoples have authority over their lands and waters, we see favorable determinants of health at several

[9] The NIEDB Economic Development Index consolidates outcomes from two types of indicators – core indicators (employment, labour force participation, and income-related indicators) and underlying indicators (education, housing, and entrepreneurship self-employment indicators).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"When Indigenous Peoples have authority over their lands and waters, we see favorable determinants of health at several levels…"

levels (Chandler & Lalonde, 1998; Frye, & Parker, 2021; Gilpin & Wiebe, 2018; Muller et al., 2019), and there has been a growing trend towards Indigenous environmental stewardship and self-determination. Since the 1970s, Inuit in Nunavut, Nunavik, Nunatsiavut, and the Inuvialuit Settlement Region in the Northwest Territories have developed institutions of self-government and land sovereignty. Further, in 2020, there were 25 self-government and land claims agreements across Canada (First Nations = 20, Métis = 1, and Inuit = 4), with another 50 under negotiation (CIRNAC, 2020b). In the last two decades, the majority of First Nations and other Indigenous organizations have also begun to administer federal funds for programs and are gaining some power over traditional lands (CIRNAC, 2020a).

Indigenous Peoples are coming together to take a stand against colonial encroachment on their ancestral lands as well as against capitalist industries that strip its resources (Crosby, 2018; *Srivastava, 2021;* Union of BC Indian Chiefs (UBCIC), 2020). They are reasserting control using mechanisms such as negotiating Comprehensive Land Claim Agreements, Self-Government Agreements, and First Nation Land Management Agreements (FNLMA).[10] With respect to the latter, for example, the number of communities participating in the FNLMA process has increased from 96 in 2014 to 131 in 2018 (NIEDB, 2019). Most of the programs within Indigenous communities are now delivered through partnership agreements with federal-provincial or federal-territorial governments. For example, Health Canada provides First Nations and Inuit Peoples with health care funding and programs, while the Canada Mortgage and Housing Corporation (CMHC) provides housing funding and programs (CMHC, 2021).

[10] These agreements allow communities to opt out of the 44 land related sections of the *Indian Act* and assume administration and full law-making authority of their reserve lands, environment, and natural resources and to develop a land code (NIEDB, 2019).

STEM DETERMINANTS OF HEALTH

The limbs of a tree do not exist in isolation – they emerge from the core, as an extension of its structure and as a result of the resources they receive. Within a social determinants of health model, stem determinants include: early child development, income and social status, food security, education and literacy, social support networks, employment, working conditions, and the physical environment (WHO, 2021). There is overwhelming evidence that disadvantage and inequity within this environment give rise to all manner of physical, emotional, mental, spiritual, and social challenges (Carson et al., 2007; Chenhall & Senior, 2018; Greenwood et al., 2015; Harasemiw et al., 2018; Marmot, 2005).

The mechanisms through which stem determinants influence health are becoming more clearly articulated in the literature. Beyond reducing the capacity to meet basic survival needs (e.g., adequate food, shelter, safety), unfavorable stem determinants contribute to both

acute and cumulative stress that, in turn, produces or exacerbates health problems (Anisman, 2015; Clow & Smyth, 2020; Lovallo, 2016; Rice, 2012). Deficits in stem environments can also thwart the development of personal skills and resources for coping with challenges and developing healthy behaviours, leaving people ill-equipped to respond to difficulties or capitalize on opportunities (Alper, 2017; Evans & Kim, 2013; Kim et al., 2016).

According to the United Nations Human Development Index, which measures health through longevity, educational achievement, and adult literacy, while Canada ranked 13th internationally in 2016, First Nations[11] people living on reserve ranked 78th and those living off-reserve ranked 42nd (ISC, 2020b). The Community Well-Being Index (CWB), developed by Indigenous and Northern Affairs Canada,[12] represents a composite score for communities based on the characteristics of the residents – specifically their income, education, housing quantity and quality, and labour force characteristics (participation and employment rates) (ISC, 2020c). Table 10 reveals that the CWB score for First Nation and Inuit communities[13] remains well below that of non-Indigenous

[11] Métis, Inuit, and non-status people were categorized with "Other Canadians".
[12] In 2017, Indigenous and Northern Affairs Canada was dissolved and replaced by two new departments: Indigenous Services Canada and Crown-Indigenous Relations and Northern Affairs Canada.
[13] The CWB index does not provide scores for Métis communities.

communities. Analysis of the CWB score over time shows that it has improved for all three types of communities, but the gap between First Nations or Inuit communities and non-Indigenous communities has not narrowed.

Table 10: Average Community Well-Being scores, by Indigenous community type, 1981 to 2016

Year	First Nation communities	Inuit communities	Non-Indigenous communities
1981	45.0	46.1	64.5
2016	58.4	61.3	77.5

Source: Indigenous Services Canada (2020c, p.3).

Does it make a difference to a person's health if they live in a community with a well-being score above average? Available data suggest that it does, both with respect to the CWB score overall and with its components. For the registered First Nation population, the age-standardized mortality rate is higher for persons living in lower scoring communities than it is for those living in communities where the score is above average (Oliver et al., 2016). Results such as these, and others reported by Chandler and Lalonde (1998) and cited above, illustrate the point that determinants of health depend not just on individual-level characteristics and behaviours, but are also influenced by the environment in which people live, whether that be the physical environment, the nature of their governance, or its level of well-being.

Health Activities

Health activities represent a recognized stem determinant of health, with well-documented impacts on several health outcomes, including diabetes, arthritis, cancer, heart disease, and mental health (Curtis et al., 2010; Halseth, 2019; Harasemiw et al., 2018; Knott et al., 2016; Masotti et al., 2020; McDougall et al., 2017; Wrathall et al., 2020). For instance, poor diet, lack of exercise, smoking, and poor prenatal health are all associated with an increase in morbidity and mortality that are unevenly distributed across socioeconomic positions (Olson et al., 2007). A disproportionate prevalence of unhealthy activities does exist within many Indigenous populations (Batal & Decelles, 2019; Gould et al., 2017; Logie et al., 2018; Passey et al., 2013; Pelletier et al., 2017; Whitbeck & Armenta, 2015); yet, while it is critical to take these activities into account, they must be considered within the context of powerful root and core determinants, lest a punitive, individualistic perspective dominates the analysis. Of course, there are many health behaviours that could be documented here, but an obvious example is the level of smoking, which is two-to-three times higher within Indigenous populations compared to the mainstream (Table 11).

Table 11: Smoking daily or occasionally, by Indigenous identity group (% of respondents)

Population	Smoking daily or occasionally
First Nation on reserve	53.5
First Nation off reserve	37.1
Métis	33.3
Inuit	51.7
Non-Indigenous	18.7

Source: Statistics Canada (2018a). Table 13-10-0457-01. Data are for the period 2011-14.

This translates into higher levels of exposure to second-hand smoke in the home, as Table 12 illustrates.

Table 12: Exposure to second-hand smoke at home, by Indigenous identity group (% of respondents)

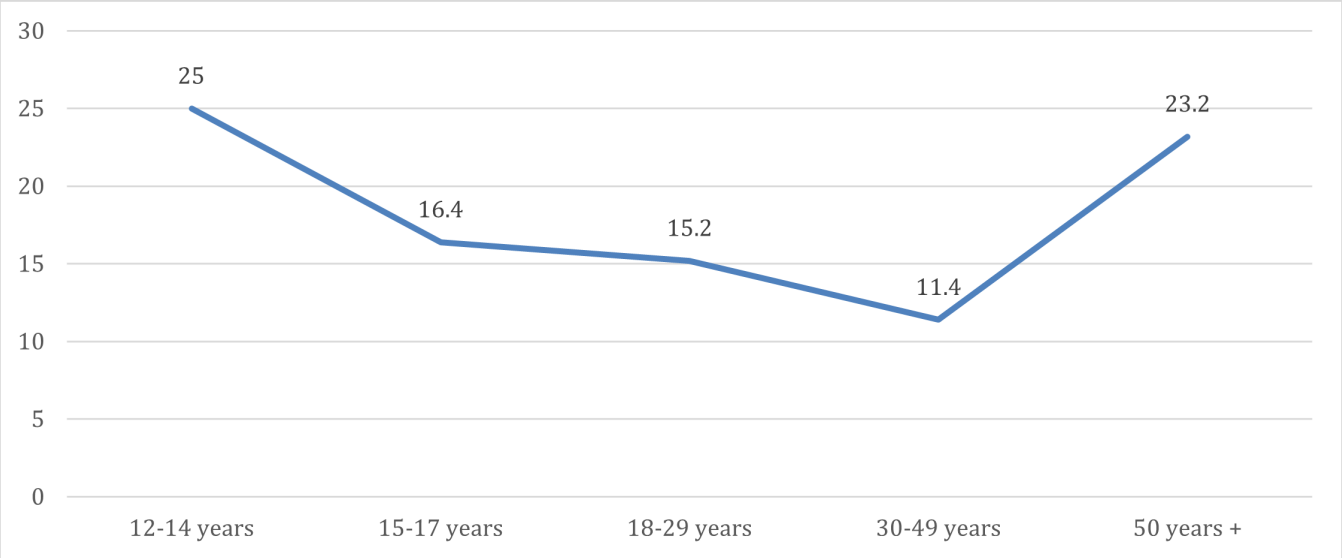
Population	Per cent exposed to second hand smoke
First Nation on reserve	30.2
First Nation off reserve	11.3
Métis	8.0
Inuit	8.9
Non-Indigenous	5.1

Source: Statistics Canada (2018a). Table 13-10-0457-01. Data are for the period 2011-14.

It is encouraging to see that people are trying to quit smoking. Available data show that half of First Nation adults living on reserve, for example, made attempts to quit in the previous year, and almost all of them tried to quit "cold turkey," based on willpower alone. The reasons for giving up smoking revolve around making healthier life style choices, but also include concern for the well-being of persons around them (Statistics Canada, 2018a).

Socio-economic status and smoking are closely connected, as is social environment, relationship stability, level of education, and number of children (Meijer et al., 2016). In all of these dimensions, Indigenous women generally fare less favourably (Tait, 2013). When asked, First Nations women living on reserve reported that the reason they smoked was to cope with stress and control their emotions as well as to get a break from daily hardships and the relentless responsibility of caring for others (Bronars et al., 2018; Ebert & Fahy, 2007). An indication of the stress level of First Nation women living on reserve is provided in Figure 3 below.

Figure 3: Perceived life stress among First Nations living on reserve, by age group: Percent reporting daily life "not stressful at all"



Source: FNIGC (2018b, p. 142). Data collected 2015-16.

"When asked, First Nations women living on reserve reported that the reason they smoked was to cope with stress and control their emotions as well as to get a break from daily hardships and the relentless responsibility of caring for others."

Geophysical Environments

Geophysical environments play a critical role in determining the health of populations through access to resources and services, housing, water and waste management, safety, and transportation (CIHI, 2012; Christian et al., 2015; Richmond & Nightingale, 2021). Among Indigenous Peoples, detrimental geophysical settings are the direct result of dispossession of traditional territories, the imposition of reserves or settlement structures, and the subsequent federal under-funding of housing and other infrastructure. The most pernicious outcomes of these settings include unsafe water, food insecurity, and poor home quality (Jones, 2020; Olson, 2016; Patrick et al., 2019; Robidoux & Mason, 2017; White et al., 2012). According to the Council of Canadians (2021), in May of 2018, there were 174 drinking water advisories in over 100 First Nations communities, some dating back more than 20 years, and a further 73% of First Nations water systems were at high or medium risk of contamination (Council of Canadians, 2021). Nevertheless, there are a large number of ongoing and completed projects dealing with Indigenous water and wastewater (NIEDB, 2019).

The quality of housing in a community is also an important determinant of health and, as shown in Table 13, Indigenous housing has improved to some degree over the decade between 2006 and 2016. Other data from the First Nations RHS reveal that more than one-third to almost one-half of respondents indicated there was mold or mildew in their home in the 12 months preceding the survey (FNIGC, 2018b).

Table 13: Percentage of population living in dwellings in need of major repairs, by Indigenous identity group, 2006 and 2016

Population	Per cent of dwellings in need of major repairs, 2006	Per cent of dwellings in need of major repairs, 2016
First Nation on reserve	44.4	44.1
First Nation off reserve	16.6	13.8
Métis	14.1	11.3
Inuit	27.9	26.2
Non-Indigenous	7.0	6.0

Source: NIEDB (2019, p. 170).

Indigenous people in Canada are much more likely to live in crowded housing conditions than are non-Indigenous Canadians. Table 14 provides the percentage of First Nation, Inuit, and Métis persons who live in crowded conditions, specifying the proportion who are short one, two, or three bedrooms in relation to their family size. The situation is particularly dire for Inuit.

Table 14: Percentage of First Nation, Inuit, and Métis living in crowded housing, 2016

Indigenous Identity Group	One bedroom short of what is needed	Two bedroom short	Three bedroom short
First Nation	14	5	4
Métis	7	1	0.4
Inuit	22	11	7

Source: NIEDB (2019, p. 170).

Crowding has been linked to a number of poor health outcomes, including increased risk of transmitting infectious diseases such as deadly lower respiratory tract infections (e.g., COVID-19), as well as higher rates of injuries, mental health problems, and family tensions (Allam, 2020; Carrière et al., 2017; O'Shea et al., 2005).

In conditions of overcrowding, children often have little room to study or play, while adults have no private space to relax (Caputo, 2019; Solari & Mare, 2012). In many cases, these conditions act as a stressor, which increases the likelihood of behavioural and learning difficulties in children and adolescents, as well as substance overuse and conflict among adults (Cant et al., 2019; Usher et al., 2020). Family violence, which is compounded by overcrowding (Makinde et al., 2016), directly impacts all family dimensions of health, especially women's health, with a resultant negative impact on the physical and emotional health of children. In particular, intimate partner violence is disproportionately experienced by Indigenous women, many of whom live in crowded conditions (Daoud et al., 2013; Ontario Native Women's Association, 2018). As an example, highly crowded households in Nunavut, the Northwest Territories, and the Yukon have the highest, second highest, and third highest (respectively) rates of female victims of family violence in Canada (Public Safety Canada, 2020).

Employment and Income

The literature is clear and convincing about the role of socio-economic status (SES) in determining the risk of developing health problems, suggesting "social causation" as the main explanation for inequalities in health. Generally, people with more education, money, power, and privilege are better able to avoid risk and adopt protective strategies (Aittomäki et al., 2014; Health Quality Ontario, 2016; Link et al., 1998). Through colonization, colonialism, systemic racism, and discrimination, Indigenous people have been denied access to the resources and conditions necessary to maximize their SES (Eversole et al., 2005; Olson, 2016). This is manifested in disproportionately low rates of literacy and educational attainment, high rates of unemployment, low income, and lower rates of home ownership (Eversole et al. 2005; Moran et al., 2002; Moran et al., 2010, NIEDB, 2019).

The following three tables show significant inequalities in the participation of Indigenous people in the Canadian

economy. Indigenous people are less likely than non-Indigenous people to participate in the labour force (participation rate[14]) and are even less likely to be employed (employment rate[15]). If they are in the labour force,[16] their level of unemployment (unemployment rate[17]) is between two and three times higher than it is for non-Indigenous Canadians. When comparing these indicators between the year 2006 and 2016, the results are mixed, depending on the Indigenous group, but show little progress in reducing the gap with the non-Indigenous population (NIEDB, 2019).

Table 15: Labour force status, by Indigenous identity group (% of respondents), 2016

Population	Participation Rate	Employment Rate	Unemployment Rate
First Nation on reserve	48.3	36.3	24.9
First Nation off reserve	61.4	52.0	15.3
Métis	67.9	60.3	11.2
Inuit	63.1	49.0	22.4
Non-Indigenous	65.2	60.2	7.7

Source: Statistics Canada (2018b). Catalogue no. 98-510-X2016001.

When they are able to find jobs, Indigenous people's annual earnings from employment are considerably lower than they are for non-Indigenous people. This applies when they work full-time, full-year, and also when they work part-time or for part of the year. Even sharper inequalities are evident when we look at total income received in the year. For example, in the year 2015, among First Nations living on reserve, the median total income after tax was only about half that of non-Indigenous Canadians (Table 16).

Table 16: Selected income characteristics, by Indigenous identity group, 2015

Population	Median After Tax Income	Percentage of families in bottom 10 per cent	Prevalence of low income (LICO-AT)
First Nation on reserve	16,891	37.5	N/A
First Nation off reserve	23,880	22.1	18.3
Métis	29,119	12.6	10.1
Inuit	23,645	15.3	9.5
Non-Indigenous	31,149	9.4	9.0

Source: Statistics Canada (2018b). Catalogue no. 98-510-X2016001. Statistics Canada defines the LICO-AT measure as follows: The low-income cut-offs, after tax, refers to an income threshold, defined using 1992 expenditure data, below which economic families or persons not in economic families would likely have devoted a larger share of their after-tax income than average to the necessities of food, shelter, and clothing. More specifically, the thresholds represented income levels at which these families or persons were expected to spend 20 percentage points or more of their after-tax income than average on food, shelter and clothing. These thresholds have been adjusted to current dollars using the all-items Consumer Price Index (CPI).

[14] Participation rate refers to those in the labour force expressed as a percentage of the total population 15 years and over.
[15] Employment rate refers to those who are employed as a percentage of the population 15 years and over.
[16] 'Labour force' refers to those who are employed or unemployed.
[17] Unemployment rate refers to those who are unemployed expressed as a percentage of the labour force.

Other data show that the gap in median income between Indigenous and non-Indigenous populations widened over the 2005-15 period for all Indigenous groups except for Métis (NIEDB, 2019). Owing to high unemployment and low earnings, it is not surprising to see that income from government transfers, such as social assistance, is a much larger component of total income for Indigenous persons than it is for other Canadians (Table 17).

Table 17: Percentage of individuals 15 years and older with main source of income from government transfers, by Indigenous identity group, 2005 and 2015

Population	2005	2015
First Nation on reserve	42.7	44.3
First Nation off reserve	30.9	30.5
Métis	23.8	23.7
Inuit	29.8	31.9
Non-Indigenous	21.6	22.0

Source: NIEDB (2019, p. 159).

It has been well-established that income level and other economic indicators have a bearing on health outcomes. One example is that of Métis women, where those in the labour force are much more likely to report their general health in positive terms than those who are not in the labour force (Hahmann, 2019).

The most widely discussed impact of low income related to health is a lack of access to material resources such as nutrient dense food, which leads to high rates of obesity and diabetes, as well as poor cardiovascular and renal health (Hojjat & Hojjat, 2017; Houle et al., 2016). Diabetes levels are especially high among First Nation adults living on reserve, at 15.9%, compared to 8.2% for First Nation adults living off reserve, 6.0 per cent for Métis, 3.2% for Inuit, and 5% for all Canadian adults (Table 18).

Table 18: Proportion of adults with self-reported diabetes, by Indigenous identity group

Population	Percent
First Nation on reserve	15.9
First Nation off reserve	8.2
Métis	6.0
Inuit	3.2
Canadian adults	5.0

Source: FNIGC (2018b, p. 50) for on reserve. Data collected 2015-16. Statistics Canada (2018a), Table 13-10-0457-0. 2011-14 for other groups.

Low income also increases the risk of family instability, divorce, and single parenthood (Crane & Heaton, 2008; Rothwell & McEwen, 2017). As well, it is linked to social exclusion – described by the United Nations as "a state in which individuals are unable to participate fully in economic, social, political and cultural life" (Department of Economic and Social Affairs, 2016, p. 18). In Table 19, data are presented that reflect a related stem determinant of health – the tendency for Indigenous mothers to have their first child while they are still teenagers, a percentage that is anywhere from three to almost eight times higher than the non-Indigenous rate (Table 19).

Table 19: Early motherhood among off-reserve First Nation, Inuit, Métis, and non-Indigenous women aged 20 to 44 years (% of respondents), 2011 and 2012

Population	Became mothers in teen years	Became mothers in later years	Did not have children
First Nation off reserve	28	42	31
Métis	20	46	34
Inuit	45	32	23
Non-Indigenous	6	49	45

Source: Statistics Canada (2017b). Early motherhood among off-reserve First Nations, Métis and Inuit women. Data sources are the Aboriginal Peoples Survey, 2012 and the General Social Survey, 2011.

We now understand that when stem determinants do not support control over the basic material resources of life, choice, which is key to self-determined health, is denied (Gibert et al., 2017; Oi & Alwin, 2017). Low income minimizes control, resulting in feelings of anxiety, insecurity, low self-esteem, and hopelessness (Lindert, 2015; Haney, 2007; Martoncik, 2019; Ridley et al., 2020). This and other forms of psychosocial stress have been linked to violence, addictions, poor parenting, and lack of social support (al'Absi, 2018; Baugher & Gazmararian, 2015; Graves & Müller, 2016; Willie et al., 2016). The accumulation of these psychosocial stressors often leads to poor mental health and increased vulnerability to infection, as well as diabetes, high blood pressure, and depression (al'Absi, 2018; Hackett & Steptoe, 2017; Larkin, 2005; Sharpley et al., 2014). In addition, suicide has been linked to poor mental health and substance abuse, which are, in turn, linked to social exclusion and poverty (Choi et al., 2019; Eck, 2016; Olié & Courtet, 2020).

Education

Education, which is a component of socio-economic status, determines health through a number of pathways. By way of example, inadequate education often results in poor literacy, which affects one's ability to acquire information about a whole range of health harming and health promoting activities. Low levels of education also limit opportunities within the labour market, often resulting in unemployment and lower paying jobs (Brunello et al., 2016; Hoff et al., 2017; Kelly et al., 2015; Kino & Kawachi, 2020).

Table 20 clearly shows how Indigenous people are disadvantaged when it comes to the level of education attained. The table reveals how much less likely it is that Indigenous people have at least a high school diploma compared to non-Indigenous Canadians, and this is especially the case for First Nation persons living on reserve and for the Inuit. Gaps in educational attainment are also found at other levels, for example with respect to college, trades, and other non-university certificates, diplomas, or degrees, as well as with university-level certificates and degrees (NIEDB, 2019).

Table 20: Percentage of population with at least a high school diploma (25-64 years), by Indigenous identity group, 2006 and 2016

Population	2006	2016
First Nation on reserve	49.9	57.0
First Nation off reserve	69.8	76.2
Inuit	49.2	56.1
Métis	73.8	82.0
Non-Indigenous	85.2	89.2

Source: NIEDB (2019, pp. 164-66).

"It is clear that intersecting social determinants impact Indigenous Peoples' health across the life course, involving physical, spiritual, emotional, and mental domains."

Education levels are a determinant of health that intersects with other determinants such as income. In Table 21, the data show that level of education seems to make a major difference in employment earnings. Those who have less than a high school education, for example, have annual employment earnings that are only a small fraction of those who have educational credentials at the post-secondary level (Table 21).

Table 21: Median employment income, by education level and Indigenous identity group, 2015

Highest level of education	First Nations	Inuit	Métis	Non-Indigenous
No certificate, degree or diploma	11,854	10,307	15,134	16,751
Secondary (high) school diploma or equivalency certificate	19,421	24,803	25,184	24,532
Apprenticeship or trades certificate or diploma	29,699	33,465	39,798	36,749
University certificate or diploma below bachelor level	35,098	57,743	41,295	37,875
University certificate, diploma or degree at bachelor level or above	51,593	67,020	55,966	51,688

Source: NIEDB (2019, p. 163).

Food Insecurity[18]

Low income has clear outcomes on health because, in part, it determines what kinds of foods people have available in their neighborhood and what they can afford to purchase. Thus, persons at lower incomes are subject to the stress of food insecurity and a compromised diet (Khanna, 2019; Wakefield et al., 2015). In the literature, food insecurity is related to health outcomes that include multiple chronic conditions, obesity, distress, and depression (Martin, 2016; Richmond et al., 2020). Indigenous people living off reserve are three times more likely to be living in households experiencing food insecurity than is the case for all Canadians (21% to 7%) (Table 22). This condition is strongly related to low income as well as single parent status, both of which we know from other data are more likely to occur in Indigenous households.

Table 22: Percentage of population experiencing moderate or severe food insecurity, by Indigenous identity group, 2007 to 2010

Population	%
First Nation off reserve	20.6
Métis	14.3
Inuit	26.3
Non-Indigenous	7.2

Source: Statistics Canada (2021c). Table 13-10-0099-01.

[18] Food insecurity can refer to "any insecurity" that includes concern there will not be enough to eat because of a lack of money in the previous 12 months, as well as a "compromised diet," which includes either the quality or the quantity of food (or both) that one would want to eat because of a lack of money.

INTERSECTIONS

In 1989, Kimberlé Crenshaw, an African American scholar and civil rights activist, used the metaphor of a traffic intersection to explain the interconnection of race and gender for Black women, thus coining the term "intersectionality." It is clear that intersecting social determinants impact Indigenous Peoples' health across the life course, involving physical, spiritual, emotional, and mental domains (Estey et al., 2007; Njeze et al., 2020). Table 23, for example, shows how much more likely it is (the probability) that Inuit men in Inuit Nunangat will experience higher mental distress if they have experienced disadvantage in social determinants.

Table 23: Relationship between selected characteristics and higher mental distress among Inuit men aged 18 years and over, Inuit Nunangat, 2012

Characteristic	Adjusted probability of higher mental distress
Less than high school education	0.21
Completed high school	0.12
Has at least one chronic condition	0.30
Does not have a chronic condition	0.15
Had an unmet health care need in previous 12 months	0.27
Did not report an unmet need	0.17
Has moderate to very weak family ties	0.23
Has strong or very strong family ties	0.17
Low or very low food security	0.26
High or marginal food security	0.10
Personal or family history of residential school attendance	0.20
No such history	0.12
Seriously injured in last 12 months	0.26
Not seriously injured in last 12 months	0.18

Source: Statistics Canada (2015).

A similar result is found in Table 24, where social determinants grouped as proximal, intermediate, and distal are shown to have an effect on three health outcomes: the presence of chronic health conditions, self-reported general health, and self-reported mental health for First Nations persons living off reserve. We note that the expected relationship is not always established, but results depend on the nature of the sample chosen, the wording of questions, and so forth.

Table 24: Social determinants of health for the off-reserve First Nations population 15 years of age and older, 2012

Determinant	One or more chronic health conditions	Self-reported fair or poor general health	Self-reported fair or poor mental health
Demographic characteristics			
Age	+	+	--
Gender	+	--	--
Proximal determinants			
Daily smoking	+	+	+
Heavy drinking	--	--	--
Overweight, obese	+	+	--
Major housing repairs	+	+	+
Less than high school	+	+	--
Being unemployed	--	+	+
Income in lowest tercile	--	+	+
Food insecurity	+	+	+
Intermediate determinants			
Unmet health care need	+	+	+
Cultural participation	+	--	--
Aboriginal language speaking	--	--	--
Social support	--	+	--
Strong family ties (not controlled)	+	+	+
Distal determinants			
Residential school attendance	--	--	--

Notes: + indicates a statistically significant relationship to health outcomes after controlling for other variables; "--" indicates no such relationship found.

Source: Rotenberg (2016).

"…Indigenous Peoples have not been passive recipients of oppression; they have resisted every colonial structure, system, space, and sector – and they have survived, even thrived."

Many of the interactions thought to be at play have yet to be established, but available data do indicate that the likelihood of reporting any of the three health outcomes mentioned above (chronic conditions, self-reported general and mental health) increases as the number of poor social determinants increase. As Rotenberg (2016) reports:

> [f]or example, someone who is unemployed, a daily smoker, living in a house in need of major repairs, and experienced food insecurity in the last 12 months has a significantly greater likelihood of having at least one chronic condition, poor or fair self-rated general health, or poor or fair self-rated mental health than someone who did not experience any of these negative social conditions. (p. 20)

RESISTANCE AND RESURGENCE

This report was intended to reveal the critical role that social determinants play in shaping inequalities in Indigenous Peoples' health. This is still important, as responsibility for these disparities continues to be placed on Indigenous people themselves. However, it is essential to acknowledge that Indigenous Peoples have not been passive recipients of oppression; they have resisted every colonial structure, system, space, and sector – and they have survived, even thrived. When enough resistance is exerted within stem and core environments, the seeds of equity can germinate as decolonized roots that represent the values, knowledge systems, cultures, and self-determination of Indigenous Peoples (Archibald et al., 2019; Bhambra et al., 2018; Carter, 2018; Charlton et al., 2020; Kelly & Black, 2018; Liebel, 2020). We are happy to note that many authors have begun to highlight and learn from the strengths and successes of Indigenous Peoples, communities, collectives, and organizations (Bryant et al., 2021; Burgess, 2009; Greenwood et al., 2018; Henry et al., 2018; Tabobondung, 2019; Taylor et al., 2020). One such publication is the Canadian Council on Social Determinants of Health (2013) report entitled, *Roots of resilience: Overcoming inequities in Aboriginal communities*, but there are many more.

Indigenous self-determination

The Centre for Self-Determination (2021) describes five principles of self-determination as:

1. *Freedom* – to decide how to live;
2. *Authority* – over resources;
3. *Support* – to organize resources in ways that are life enhancing and meaningful;
4. *Responsibility* – to use resources wisely; and
5. *Confirmation* – of the important role everyone plays.

In order to achieve equity, freedom and authority are critical within material, psychosocial, and political domains. Self-determination has been cited as the most important determinant

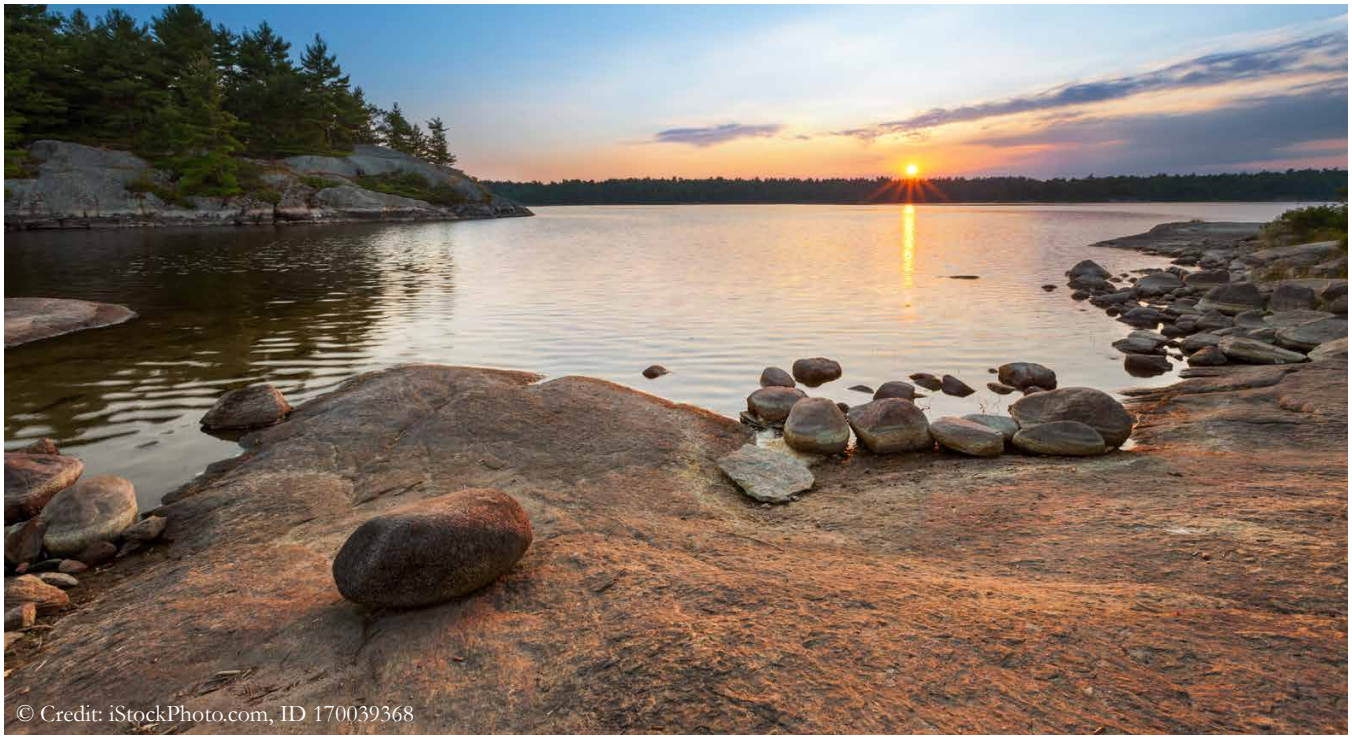
of health for Indigenous Peoples because, as a root determinant, it shapes and influences all other determinants in core and stem environments. Not surprisingly, researchers have discovered multiple links between self-determination (at the nation and community level) and positive health outcomes (Auger et al., 2016; Ng et al., 2012; The Lancet, 2020; Rasmus et al., 2020).

What are the indicators of self-determination? One crucial aspect is the degree to which Indigenous people are regaining control over their own lands and resources. Some of these data are presented in the section dealing with environmental stewardship, which refers to instruments of self-determination such as Comprehensive Land Claims Agreements, Self-government Agreements, and First Nation Land Management Agreements. These and other instruments make the point that self-determination is not only a matter of having the authority to make decisions and laws, but also having a well-developed infrastructure for the implementation of decisions. For instance, the Inuit have taken major steps toward self-determination through the negotiation of comprehensive land claims agreements, which have provided the underpinnings for the formation of regional and territorial governments.

Cultural Resurgence

Indigenous cultural resurgence refers to the reclamation and regeneration of Indigenous languages, traditions, and relationships with ancestral lands and waters. Cultural resurgence is part of a larger movement to reclaim Indigenous knowledge systems, laws, and identities, as well as to develop decolonized infrastructures, communications, and technologies, which are powerful tools of self-government (Dhillon, 2018; McMahon et al., 2015; Mitchell, 2020; Palmater, 2020).

A 1998 landmark study conducted by Chandler and Lalonde revealed that among First Nations youth in British Columbia, rates of suicide varied dramatically with a constellation of characteristics referred to as "cultural continuity" (Chandler & Lalonde, 1998). After more than 20 years, cultural continuity might now be best described as cultural preservation or resurgence. According to Chandler and Lalonde, low rates, or an absence, of suicide in a community appeared to be related to determinants such as: land title, self-government (particularly the involvement of women), control of education, security and cultural facilities, as well as control of the policies and practices of health, safety, and social programs. Cultural continuity/resurgence also involves traditional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intergenerational connectedness, which is maintained through intact families and the engagement of Elders, who pass teachings to subsequent generations (Chandler & Lalonde, 1998). In a 2016 meta-analysis of cultural continuity as a social determinant of Indigenous health, Auger discovered that cultural continuity positively influences mental health outcomes such as identity and self-esteem, as well as coping skills. Other Indigenous authors also assert the importance of cultural learning, especially language, as a psychological asset and protective factor against mental health problems (McIvor et al., 2013; Stewart et al., 2017).

According to Corntassel (2012), "Whether through ceremony or through other ways that Indigenous peoples (re)connect to the natural world, processes of resurgence are often contentious and reflect the spiritual, cultural, economic, social and political scope of the struggle" (p. 88). Led by Indigenous women, the 2012 Idle No More movement for Indigenous sovereignty, rights, and respect involved Indigenous and non-Indigenous people standing in solidarity against colonial oppression (John, 2015). This Canada-wide social action resulted in a heightened awareness of Indigenous Peoples' struggle for equity and justice. It also led to more collective action throughout Canada, including public demands to include the unvarnished truth about colonization, the *Indian Act*, the Residential School System, and Indian hospitals in Canadian educational curriculum at all levels (Idle No More, n.d.).

What progress is being made in cultural reclamation? One important set of indicators pertains to the use of Indigenous languages. There are different ways to measure Indigenous language use, but a fairly common one is to ask whether a person speaks an Indigenous language at home. While 61.4% of Inuit and 18.0% of on- and off-reserve First Nation individuals spoke an Indigenous language at home, only 1.2% of Métis did so (Statistics Canada, 2017a). According to Statistics Canada (2017a), Cree is the most common language of the Métis, followed by Dene, and just over 1,000 speak Michif, the traditional language of the Métis, which involves a mixture of the Cree and French languages.

While the numbers for actual language ability are not high, there is at least a recognition, especially among First Nations who are Registered or Treaty Indians, as well as among the Inuit, that it is important to speak and understand an Indigenous language (Table 25). Indeed, language education programs have become more numerous in recent years.

Table 25: Importance of speaking and understanding an Indigenous language, by Indigenous identity group (% of respondents), 2012

Indigenous identity group	Very important	Somewhat important	Not very or not at all important
First Nations - Registered or Treaty	38.5	28.4	29.5
First Nations - Not Registered or Treaty	14.6	30.6	50.7
Métis	12.1	24.7	59.6
Inuit	63.6	17.2	14.9

Source: Statistics Canada (2021d). Ottawa, Table 41-10-0034-01

CLOSING

Data presented in this report clearly demonstrate the health disparities facing Indigenous Peoples. The individual and cumulative effects of inequitable social determinants of health have been associated with a wide range of communicable, chronic, and life-threatening illnesses and disabilities (Anderson, 2015; Barr, 2019; Boulton et al., 2016; Compton et al., 2015; Davidson, 2019; Hansen & Metzl, 2019; Kondo, 2020; Ratcliff, 2017; Tarasuk et al., 2019; Viner et al., 2012). There is also compelling evidence that social determinants within stem, core, and root environments shape and perpetuate these disparities in complex and dynamic ways.

In offering the Tree Model, we join others who are developing frameworks that contribute to a holistic perspective and provide new insights into determinants of Indigenous health (e.g., First Nations Health Authority, 2021; Downey, 2020; McCabe et al., 2016; Sarmiento, et al., 2020). The Tree Model presents root (structural), core (systemic), and stem (immediate) environments as nested spheres of origin, influence, and impact; each affecting the others in dynamic ways. This model not only identifies a cascade of determinants responsible for shaping Indigenous health, but it emphasizes the critical role of deeply embedded root determinants in generating most disparities. It does this by revealing how Indigenous health continues to be constructed from the foundations of racist ideologies and colonial governance.

By understanding these foundations, we are better able to distinguish the pathways along which root determinants form systemic, community, and immediate environments. For example, segregationist policies, such as the reserve system, represent mechanisms through which racist ideologies are transformed into disadvantageous living conditions. Likewise, when systems are not held accountable for policies and standards that create unsafe environments (e.g., housing standards related to toxins, crowding, air quality), racial and colonial bias are revealed (Dingake, 2017).

The Oxford Dictionary (2021) defines *structure* as "the arrangement of and relations between the parts of elements of something complex." Few would argue that the social determinants of health are not complex and that structural determinants are particularly crucial to equity. The structure of any *just* society serves to support systems through which all people can access and derive benefit from resources and opportunities, thus facilitating goodwill and cohesion among its members. Does our current societal structure have integrity – the state of being undivided, honest and principled? Can racist ideologies, historical wounds, unbalanced power relations, and the inequitable distribution of resources be interpreted as structural integrity?

Social determinants models such as the one presented in this report can be used to inform collective efforts to reinforce our societal structure with integrity. This could lead to equitable policies, systems, and environments; where no child is denied the basic resources for healthy development; where fair educational and employment opportunities are offered to all people; where we celebrate the diverse contributions made by Indigenous Peoples and prevent exposure to harmful environments; where we support everyone in maximizing their capacities and self-determination, and facilitate the development of healthy and sustainable Indigenous communities across Canada.

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