National Collaborating Centre
for Determinants of Health
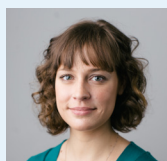
Centre de collaboration nationale
des déterminants de la santé

PUBLIC
HEALTH
SPEAKS

EQUITY AND THE BUILT ENVIRONMENT

The built environment has been described as a foundation for health and healthy living, with features that have the ability to reduce or deepen health inequities among populations disadvantaged by structural inequities.[1] In 2018, Canada's chief public health officer identified "raising awareness … on how the built environment contributes to widening or reducing health inequities"[2] as a priority for promoting and improving the health of Canadians.

In the interest of advancing this priority, the National Collaborating Centre for Determinants of Health (NCCDH) hosted a conversation to explore public health practice and action to advance equity through the built environment. The conversation, which happened in September 2018, included three leaders in public health practice and research who were asked to share their experiences and reflections on the subject. This document has been edited for length and clarity.

TERI EMRICH
Knowledge Translation Specialist
National Collaborating Centre for
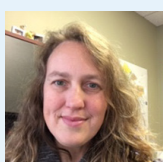Determinants of Health (interviewer)

DR. NAZEEM MUHAJARINE
Professor
Community Health and Epidemiology,
University of Saskatchewan

CLAIRE GRAM
*Population Health Policy
and Projects Lead*
Vancouver Coastal Health

DR. LISA RICHARDS
Medical Officer of Health
Winnipeg Regional Health Authority

PUBLIC HEALTH SPEAKS: HEALTH EQUITY AND THE BUILT ENVIRONMENT

Q **Tell us about yourself and your understanding of the built environment as a social determinant of health inequities.**

A **Nazeem Muhajarine:** I'm a professor in the Community Health and Epidemiology Department in the College of Medicine at the University of Saskatchewan, and I'm also the director of the Saskatchewan Population Health Evaluation Research Unit. Within those institutions, I conduct research focusing on built environment and health.

In the broader sense, when we refer to *built environment,* we mean anything that is built by humans for humans and for the purpose of human activity. This could include buildings, spaces and objects that make up the built environment. We also understand that planning and policy define how we interact with the built environment, so aspects of our neighborhoods, such as the presence of parks, open spaces and commercial destinations, can certainly correlate or even predict our physical activity behaviours and chronic conditions, particularly obesity and overweight.

Claire Gram: I did my graduate education in community and regional planning and found myself in public health because of my interest in people-focused processes. I've worked most of my career in public health and since 2006 have worked on the Population Health Team with Vancouver Coastal Health. I joined the team as work around healthy built environments was starting to develop here in British Columbia.

The thing that excited me as this field started to emerge was looking at [how] the environments in which people live impact their health. That's really the main thrust of our public health work in healthy built environments. It's essential that any time public health is involved with built environment issues, we look at how to improve the health of all and reduce inequities. Reducing inequities is essential because if you're not looking at that, chances are, you're making it worse. It's tricky to address health inequities through the built environment because of the

danger that, as you improve a neighborhood, new people move in and its traditional residents get displaced.

Lisa Richards: I'm a medical officer of health in the Winnipeg Regional Health Authority and, like Claire, I started working in healthy built environments when it was evolving here in Winnipeg. That was around the time of Phase 2 of Healthy Canada by Design Coalition Linking Action and Science for Prevention [CLASP], where we started to work more in the area of healthy built environments.

We define *built environment* very broadly, as in the *Healthy built environment linkages toolkit*. We have appreciated that promoting equity, access and design for all ages was underlying the framework in the Toolkit. We like this approach because we are trying to insert a health equity lens into all of our work within population and public health.

Related resources

British Columbia Centre for Disease Control. Healthy built environment linkages toolkit – version 2.0 [Internet]. Vancouver (BC): Provincial Health Services Authority; 2018 May [cited 2018 Oct 31]. Available from: **www.bccdc.ca/health-professionals/ professional-resources/healthy-built-environment-linkages-toolkit**

This toolkit is a synthesis of current research on healthy neighbourhoods, housing, transportation systems, natural environments and food systems.[3] The toolkit presents a healthy built environment conceptual framework, evidence diagrams, practice considerations and principles to support healthier planning.[3]

Healthy Canada by Design CLASP [Internet]. [cited 2018 Oct 31]. Available from: **https://hcbdclasp.blog**

This website houses the archives of the former Healthy Canada by Design Coalition Linking Action and Science for Prevention (CLASP). This national partnership of health, planning and transportation organizations, region and local health authorities, non-governmental organizations and university researchers brought health considerations into land use and transportation planning processes to create healthy communities.[4] The archive includes resources generated through CLASP, as well as the evaluation of the project.

PUBLIC HEALTH SPEAKS: HEALTH EQUITY AND THE BUILT ENVIRONMENT

Q Can you talk about your experience in applying an equity lens to the built environment, in either your practice or your research?

A **Claire:** Our primary focus is working with local governments. Local governments in BC don't have any mechanisms for income redistribution — that falls to the other levels of government. Given that the biggest social determinant of health is income inequities, what role can local governments play? Often, we end up looking at the spatial distribution of public assets in communities and how those can mitigate existing income- or wealth-based inequities.

One example we've done in Squamish, a town of 35,000 outside of Vancouver, is work with the local government on their official community plan. We did a learning lab with the local government a year before they started their plan [so we could] dig into what adding a health lens would look like. A big part of that was addressing inequities, as well as the broader healthy built environment. We identified that one of the priorities for that community

was early childhood — there's a phenomenal number of small children and it's growing. We brought in Human Early Learning Partnership data [that mapped] childhood vulnerabilities and have been able to partner with Squamish on a place-based initiative in one neighbourhood with higher vulnerability scores. In this case, we are applying design thinking to address inequities in early childhood development.

Another example of what we are doing is looking at physical accessibility in the public realm. We don't have any overarching policies supporting accessibility in our cities and towns in BC, so we're looking at how to help city engineers and planners get more consistency and support for the work that they're doing. Accessibility is usually a small piece of engineers' and planners' work, and so they never get to dig in deep enough to understand the underlying issues. Public health can support the work happening across the municipalities by building a bridge to researchers and supporting greater knowledge-sharing across communities.

PUBLIC HEALTH SPEAKS: HEALTH EQUITY AND THE BUILT ENVIRONMENT

Lisa: For the first time, public health is giving significant input into the City of Winnipeg's official community plan. We've done a written submission on their existing plan, and public health's seat on the Community Advisory Committee for the review has given us an opportunity to bring in the voice of those who are not sitting around the table. Our input focused on making sure that the city is addressing space for community gardens, diverse housing forums — including affordable housing, and those types of policies.

Another example is an experience that we had early in our foray into built environment work through the CLASP initiative. When we were first forming our partnership with the City of Winnipeg, they invited us to participate on a Technical Advisory Committee for a new infill development in suburban Winnipeg. Internal municipal departments were mainly participating in the committee, like Water and Waste, and Parks and Recreation. Interestingly, as people were going around the table and making comments about the new plan, we were finding a lot of our comments were being echoed by the other departments [such as those] about supporting active transportation, natural areas like parks, and transportation options that were accessible and linked to transportation networks throughout the city. The unique contribution public health brought to that table was health equity and thinking about affordable housing, which is something that the developers hadn't considered yet.

Nazeem: Researchers cannot act on the health equity question directly. As a researcher, I think our main responsibility is to provide the evidence to people who can act on it. For example, we started our built environment research in 2009 with a three-year *Smart cities, healthy kids* study supported by the CIHR [Canadian Institutes of Health Research].

In 2012, when we were finishing the study and had the results, an unfortunate incident happened: A 10-year-old boy was crossing one of the very busy thoroughfares, 22nd Street in Saskatoon, and was hit by a car and killed.

Those types of accidents had happened before. This is a street that separates some of the core, low-income neighborhoods in Saskatoon — for example, Riversdale — from the [high-income] Caswell Hill area. A city committee considered a proposal to erect a chain-link fence that would stretch the length of 22nd Street from the city core to the suburb, on the median of 22nd Street. Many people thought this was a very bad idea, as it would permanently separate neighbourhoods from one another. We were able to present evidence comparing 22nd Street to another busy artery of similar length and traffic volume that had more pedestrian-controlled street lights, stop signs and so on. We wrote a letter to the city and provided this evidence, and the committee decided to pull back the recommendation for the chain-link fence that they were planning to bring to the mayor and to the council. This is an example of us having the data and being able to present the data in almost real time, in this case to stop a bad policy decision from being made.

Another example is an evaluation we did on the impact or the effectiveness of the Good Food Junction, a full-service grocery store established in 2012 hoping to provide accessible food for five low-income neighborhoods where there weren't any grocery stores. We found that people who lived close to the Good Food Junction actually did spend more money on healthy food compared to the average group of people living elsewhere in the city.[5] In spite of showing that it was making a difference in providing accessible food for these neighborhoods, they ended up closing the Good Food Junction in January 2016 after about three years of being open. So, now, we have submitted a paper that looks at why grocery stores fail in a city location where there was previously a food desert. We have seen eight other cases where grocery stores have been introduced in a city but have not been able to sustain themselves and closed their doors. I think that's a question that needs to be asked. Why do grocery stores fail when we know that there's a need for them, particularly in low-income, inner-city neighborhoods?

PUBLIC HEALTH SPEAKS: HEALTH EQUITY AND THE BUILT ENVIRONMENT

Q **What opportunities do you see for public health to promote health equity through the built environment?**

A **Nazeem:** This is a very dynamic area of research. The CIHR, particularly the **Institute of Population and Public Health** (IPPH), has given leadership to an **Environments and Health Initiative** that has funded nine teams to look at health and the built environment not only from an epidemiological or descriptive sense but also how we understand the effectiveness of interventions that would address health inequalities and inequities as well. I am co-leading one of these teams, the **Multisectoral Urban Systems for health and Equity in Canadian cities** [MUSE]. MUSE involves Montreal, Saskatoon, Toronto and Vancouver. Municipalities are taking an active role in partnering or sometimes actually leading built environment transformations like putting in new bike lanes, transit routes, building bridges, etc. …. We are trying to understand how these multisectoral partnerships work to affect change, and how built environment interventions are received and favoured by citizens in these cities. We will also analyze whether these urban transformations narrow, or exacerbate, health equity in these cities.

Another team project that I'm part of is the **Interventions, Research, and Action in Cities** [INTERACT] project. INTERACT also includes Vancouver, Saskatoon and Montreal, as well as Victoria, and is using a case study approach. They are evaluating the city-based interventions that transform the built environment. This is a very active area of research across Canada and the IPPH has identified healthy cities as one of their three priorities for funding and advocacy.

Lisa: Working in partnership with other stakeholders is what we have found to be very valuable here in Winnipeg. We spend most of our time these days on relationship-building — including attempting to have a seat at municipal tables. Public health is providing input into the **Winnipeg Transit Master Plan** to apply a health equity lens and focus on promoting low-income fares and trying to estimate their health impact on structurally disadvantaged populations. We're trying to support connections between community stakeholders, such as the **Winnipeg Poverty Reduction Council** and **Food Matters Manitoba**. We are also supporting the **Manitoba Collaborative Data Portal**, where community organizations and members can access built environment data maps with equity layers generated by public health epidemiologists. It is not always possible

for public health to speak as a delegate at city council, so sometimes we rely on our community partners to do that important work. The data portal will help our partners bring evidence to the table when they interact with the city.

Claire: As Lisa said, often the most important or valuable contribution that public health makes when we're working with local governments is bringing that equity lens. Public health's role is to help define and share data and evidence about vulnerable populations, and support knowledge exchange and capacity-building. For example, [in Vancouver] we have two sub-groupings of municipalities — the North Shore (which is five municipalities) and Sea to Sky (with three municipalities) — where we co-host with local governments an annual Healthy Communities Congress to provide good opportunities for learning and sharing across the elected representatives of municipalities. We focus a lot of our presentations on health inequities, sharing the message on how to build health equity into their current work.

Another role that we play, particularly in the smaller communities, is bringing in some of the evidence, information and innovation forward, because these smaller communities have much less capacity to do so on their own. Given what many local governments are already trying to do, and the good planning principles already there, our job in public health is to help amplify what is working and to nudge people to take equity into consideration. Also, public health needs to stand beside and behind the councils and staff that are putting forward good progressive policies. In that way, being outside the municipalities can be an asset because we're a different voice able to support some of the work that's going on.

A final thought is that the number of public health staff involved in this work is small compared to the number of local governments and their many departments that we interact with. VCH [**Vancouver Coastal Health**] tries to use a systems approach, identifying what needs to be done at a local, regional, provincial or, in some cases, national level and then connecting with those partners to share

our knowledge of what is needed with their capacities for support. We often work with regional districts to build on their convening role so we can work with multiple municipalities at once supporting the work we do at the local level. For example, in Metro Vancouver, we have VCH reps that sit on both the Regional Planning Advisory Committee (made up of senior planners) and the Social Issues Committee (made up of social planners). Being at those tables allows us to help to identify opportunities for collaboration and to share information. It has been a good way to build relationships with people at the staff level. We have also been able to co-host events.

Nazeem: One of the things that really needs to happen systematically at a municipal level is introducing [a] health impact assessment process. There's very little of this happening in any place in Canada. It's not happening at a federal level and it's not happening at the municipal [or] provincial level either. We can look to other countries, like Australia and New Zealand, where this is done right now more systematically and consistently. This is a real need that we have right now.

Related resources

National Collaborating Centre for Determinants of Health. Let's talk: public health roles for improving health equity [Internet]. Antigonish (NS): National Collaborating Centre for Determinants of Health, St. Francis Xavier University; 2013 [cited 2018 Oct 31]. Available from: **http://nccdh.ca/resources/ entry/lets-talk-public-health-roles**

This resource offers a framework outlining four categories of action that public health organizations can take to reduce health inequities.

National Collaborating Centre for Healthy Public Policy, Université de Montréal. **Introduction to health impact assessment (HIA) of public policies** [Online course]. Montreal (QC): Université de Montréal; 2012 [cited 2018 Oct 31]. Available from: **www.ncchpp.ca/274/Online_Course.ccnpps?id_ article=839**

This bilingual online course takes participants through the process of conducing a health impact assessment of a public policy.

Q **When working to influence equity through the built environment, who have been your most successful partners?**

A **Nazeem:** Our partners have varied depending on the projects and our focus of research, as well as their ability to act on information and knowledge that we would generate. In our MUSE and INTERACT projects, our key partners are the public health leaders, like the chief medical health officers and their delegates in the municipalities and cities that we are doing our research in. The chief medical health officer and deputy [medical] health officers have a legislated mandate to monitor health events and to report on these health indicators. So I think they invariably are one of the most influential and effective partners to reduce health inequities at a city level. Other key partners are municipal actors like planners, managers and designers. In our work with the Good Food Junction and other food environment studies, our key partner was a community-based organization called **CHEP Good Food Inc.** and the public and Catholic school divisions.

We have networks in Canada like the **Urban Public Health Network** (UPHN) and the **Canadian Northern and Remote Health Network**, which come together regularly to share ideas and to participate and engage with researchers to generate relevant evidence that they can act on or advocate for change. We have these built-in networks that we can tap into [but] we probably are under-using them. You could imagine these networks working in concert with mayors' forums, the **Canada Mortgage and Housing Corporation** and health research funders like the CIHR and the **Canadian Foundation for Innovation** to really elevate both the generation of knowledge and application of knowledge in Canada.

Lisa: What comes to mind is the partnership we had with the Healthy Canada by Design CLASP initiative. That really helped us open the doors to a relationship with the City of Winnipeg — specifically, the **Planning Department**. We were able to do a presentation at the executive level, which allowed for buy-in from multiple departments from the city. Had we not started that way, it would've been a longer road to where we've come now. CLASP accelerated our relationship with the municipality by giving the city the opportunity to collaborate on a national initiative, and we got to know a couple of planners who immersed themselves in learning about the public health aspects and the benefit to supporting healthy built environments. To this day, we still have really good relationships with those planners and work really closely with them. I can't emphasize enough the value of having individual relationships, hopefully more than one, within municipalities, with people who will help you navigate through their system and advocate for you to sit at tables where you wouldn't have otherwise been considered.

Claire: I would like to put bells and stars around the partners Lisa just mentioned. CLASP was a really amazing launch for a lot of work across the country and now that it is done, I notice the gap. While there are other national networks, as Nazeem mentioned, they don't have the same reach into the health authorities as CLASP did. The importance of individual champions is also really critical, and that includes council members and mayors. Building trust between our systems really happens at that individual level.

Q How do we make sure public health is sitting at the table with it comes to planning and designing our local built environments? What unique role does public health play?

A **Lisa:** It's different in every province in Canada, but in Manitoba, the health authority is very separate from the municipality, so it's hard to find a seat at the table to bring a public health or a health equity lens to the table in municipal processes. Currently, our relationship with the City of Winnipeg is largely ad hoc. Right now, we're trying to get a memorandum of understanding [MOU] with the city to more formally participate in some of their planning, policy and decision-making. A lot of the consultation that we're doing with them is actually at the community consultation phase. This is the last stage, where they've usually already developed a plan or a policy, and they're putting it out for public consultation. An MOU with the City of Winnipeg will allow us to more systemically be involved in planning earlier on in the development.

Claire: In British Columbia, we've been enabled by the provincial **Healthy Communities** initiative, which gives health authorities the responsibility to build connections and work together with local governments. For educational opportunities and building resources such as the *Healthy built environment linkages toolkit*, we work with provincial partners such as the **BC Healthy Built Environment Alliance**, PlanH and the **BC Healthy Living Alliance**. This has helped maintain the focus in the health authority, as well as provide us with the resources and support for public health to work with all communities.

Within health authorities, this work crosses a lot of departments and areas. We need to consider who from public health is sitting at each table and how can we support their capacity in terms of content expertise, partnership-building and collaboration skills. There is also

a significant role within the health authorities to ensure that we are bringing a unified approach, so our internal collaboration and coordination is very important to our credibility when working with local governments.

The other part is that have we have to be useful. We need to bring tailored tools and resources like health profiles and suggested policy actions for the different audiences sitting at different tables. At VCH (and **Fraser Health**), we've been fortunate to have the **My Health My Community** survey data, which provides information at the community level on health and wellness, and then to be able to analyze that in a variety of ways. It's an amazing tool for us to bring forward and show how it can be used. So, there's getting us at the table, having the tools and resources, as well as having the skills and capacities within the health authority to really know how to work in that kind of environment.

Nazeem: As Lisa and Claire have mentioned, you need a commitment, openness to working together, some familiarity with individual people, and a framework to work within such as an MOU, like Lisa was talking about from Winnipeg. [For example,] an MOU has been signed between the president of the University of Saskatchewan and the mayor of the City of Saskatoon to work together for planning and land development, as well as research.

What we bring is that readiness, the commitment and, of course, the capacity to generate information. We generate information not over the course of three years, [which is] the typical sort of duration of research projects, but through rapid review. Like a cost–benefit analysis of an intervention such as a bus rapid transit, which we did with a medical student over eight weeks this past summer. This is where that health impact assessment that I previously mentioned belongs. Health impact assessments are something that there's a dire need to put in place in Canada.

PUBLIC HEALTH SPEAKS: HEALTH EQUITY AND THE BUILT ENVIRONMENT

Q What are some practical actions that public health practitioners can take to promote equity in the built environment?

A **Claire:** The first one is really that you can't do the work unless you build the partnerships. Part of the process of building the partnerships is learning what the world looks like from your partner's eyes. What is it they need in order to act on health inequities? If you're working with planners, understand what are the opportunities and constraints that they operate under. The same goes for working with councils. It's really building your partnership muscle to be able to have access to the information you need to make sure that what you're providing is timely and appropriate.

Partnership capacity is essential to promoting equity through the built environment. What we found with the MOUs, and when we're working on with official community plans, is that they build the platform for us to come in later. It's just saying, yes, here's why we should be involved. The MOU allows staff to come to us; it builds that infrastructure to include us on a more regular basis. We encourage local governments to have health right up front early in their goals. Often, it's already there but not

as explicitly stated as health. For the partnership work, we advise that it really helps if you say it out loud. This allows us to come in and support you in the future.

The other thing is engaging with vulnerable populations. It's not just about bringing forward what we know about them, but how do we bring their voices to the table? It's about identifying other groups that should be participating. Public health has access to and works with many populations, so we can facilitate those interactions to make sure that their voices are brought in.

Lisa: My first point is the importance of developing a position statement on healthy built environments. This has allowed WRHA [Winnipeg Regional Health Authority] to elevate the value of supporting healthy built environments all the way up to our board of directors. Having that position statement speeds up our approval processes for being able to act on supporting healthy built environments, like speaking at city council meetings on behalf of or, very rarely, against proposed City policies or programs. A position statement also allows us to articulate what our core business is for healthy built environments and grounds what our day-to-day work is in this area.

My second point is monitoring the city's **Community Engagement site** and weighing in when applicable. We encourage other health authorities starting in healthy built environment work to get involved in their municipality's community plans where it's practical. Some regional health authorities in Manitoba have 20-plus municipalities within their regional health authority and it's very overwhelming for them to think about weighing in on all the official community plans. We suggest they start with one of their larger centres and contact them to see when their opportunity might be to weigh in and just start that relationship.

We found it's very helpful to just show up at the **provincial planners conference** and make connections with **built environment stakeholders**. I think this is the only setting where we've actually met developers and had an opportunity to chat with them and see built environments from their lens. We found that's very helpful for enhancing that relationship with community advocates to be able to have a collective impact opportunity, working with community to achieve the same goals.

Related resources

National Collaborating Centre for Determinants of Health. Collective impact and public health: an old/new approach - stories of two Canadian initiatives [Internet]. Antigonish (NS): National Collaborating Centre for Determinants of Health, St. Francis Xavier University; 2017 [cited 2018 Oct 31]. Available from: **www.nccdh. ca/resources/entry/collective-impact-and-public- health-stories-of-two-canadian-initiatives**

This resource describes two examples where public health has been significantly involved in a Canadian collective impact initiative. In each story, practitioners explain how the project came together, next steps and strategic lessons learned, as well as how to get started on a collective impact initiative.

Nazeem: One thing that I would offer is co-leadership. It's practical but a little bit of an attitudinal shift as well. When we are doing this work, we need to find counterparts who are leaders — it is always good to have the leadership shared across sectors including city, public health, the university and so on. We have had lot of success in our past work building social research institutes that have symmetrical leadership that spans different sectors.

The second thing is to be able to think critically and reflectively, and this actually came from the chief medical health officer in Saskatoon here, at a meeting last November [2017] in Montreal. At the end of the meeting, he made the point that we had to be very careful coming from the public health, population health and university health research perspectives. We need to not sound like health is everything and everything is about health, and that kind of "health imperialism," particularly when you are dealing with municipal partners. Planners come from a different perspective and we have to be sensitive to the fact that not everybody tends to think that what they do is about health, let alone using a health equity lens. We have to do this with a lot of tact and diplomacy. The health ministries take almost 50% of the budget of the provincial government. The municipalities get just a small portion of the provincial budget, and now we are going out and saying that we want to play in your area. What I'm saying is that we have to be sensitive to how we might appear to some of our partners that we want to work closely with.

Q **Do you have one final thought you would like to share with public health practitioners, decision-makers and researchers?**

A Nazeem: Built environment research is still a work in progress. We have only really begun to do this in the last 10 to 12 years, 15 years, maybe. What is directing us in this work is logic and understanding that built environment is impacting health and including health equity issues. But in terms of generating evidence through well-designed studies, I think that we have a lot of work to do in that area. Built environment research and policy advice based on research is still a work in progress and we need to just understand that and not get ahead of ourselves.

Claire: One the areas that we haven't touched on yet is Indigenous health and what does a healthy built environment mean in an Indigenous context. The **National Collaborating Centre for Environmental Health** put forth a really good **presentation** on that, but I think it's an area that we will need to make sure that we learn about if we want to support Indigenous communities. I also think it is very important that we make sure our learning curve doesn't burden those communities. There's an opportunity to learn about healthy built environments in another context, in another way of thinking and knowing

Lisa: I would just say the value of working closely with your municipality and offering to help them. There have been times where they've called upon us, [saying] "Could you come and support our urban agriculture report?" Sometimes they've asked me to address other issues that fall outside the built environment, like cell phone towers and a public health perspective on that, so they can share

evidence with specific advocacy groups. We've really tried to support their requests over the years, and I think that has gained us a lot of ground. It's about bringing that equity lens to the municipality and talking about health equity where they really haven't had those conversations before. It's not automatic that when you support a healthy built environment that you support health equity — you have to be mindful in your approach.

Related resources

National Collaborating Centre for Aboriginal Health. The built environment: understanding how physical environments influence the health and well-being of First Nations peoples living on-reserve [Internet]. Prince George (BC): NCCAH; 2018 [cited 2018 Oct 31]. 36 p. Available from: **www.nccah-ccnsa. ca/495/The_built_environment___Understanding_how_ physical_environments_influence_the_health_and_well- being_of_First_Nations_peoples_living_on-reserve_. nccah?id=236**

This resource from the **National Collaborating Centre for Aboriginal Health** offers insight on how the health and well-being of First Nations communities living on-reserve are influenced by the built environment. It contrasts the intentional design of Indigenous communities pre-colonization to the altered state of home and community environments as a result of colonization, connecting these changes to ongoing health inequity among Indigenous peoples.

PUBLIC HEALTH SPEAKS: HEALTH EQUITY AND THE BUILT ENVIRONMENT

References

1. Public Health Agency of Canada. The chief public health officer's report on the state of public health in Canada 2017: designing healthy living [Internet]. Ottawa (ON): PHAC; 2017 [cited 2018 Nov 14]. Available from: www.canada.ca/en/public-health/services/publications/chief-public-health-officer-reports-state-public-health-canada/2017-designing-healthy-living.html

2. Public Health Agency of Canada [Internet]. Ottawa (ON): PHAC; c2018. Statement from Dr. Theresa Tam, chief public health officer of Canada; 2018 Jan 18 [cited 2018 Oct 31];[about 4 screens]. Available from: www.canada.ca/en/public-health/news/2018/01/statement_from_drtheresatamchiefpublichealthofficerofcanada.html

3. British Columbia Centre for Disease control. Healthy Built Environment Linkages Toolkit – version 2.0 [Internet]. Vancouver (BC): Provincial Health Services Authority; 2018 May [cited 2018 Oct 31]. Available from: www.bccdc.ca/health-professionals/professional-resources/healthy-built-environment-linkages-toolkit

4. Healthy Canada by Design CLASP [Internet]. [cited 2018 Oct 31]. Available from: https://hcbdclasp.blog/

5. Fuller D, Engler-Stringer R, Muhajarine N. Examining food purchasing patterns from sales data at a full-service grocery store intervention in a former food desert. Preventive Medicine Reports [Internet]. 2015 [cited 2018 Oct 31];2:164-169. https://doi.org/10.1016/j.pmedr.2015.02.012