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Toward a Definition of "Local Public Health Unit" for Public Health Systems and Services Research in Canada

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Abstract

Public health systems and services research in Canada is being held back by a lack of routine collection of data on local public health operations. The development of policy surveillance infrastructure has been hampered by the diversity of local public health governance arrangements throughout the country. In this commentary, we introduce and define a generic concept, "local public health unit (LPHU)" which can be used to identify common local public health arrangements across diverse contexts and support comparative research. We also define related entities, including local public health centre, local public health office, regional public health unit, and ministry public health office.

Keywords

Public health, public health practice, public health administration, organization and administration

Motivation

Public health systems and services research (PHSSR) refers to the systematic study of "the impact of the organization, staffing, financing, and management of public health systems on access to, delivery, cost, quality and outcomes of population-based services and interventions."[1, pg.284] This field is underdeveloped in Canada, due in large part to a lack of infrastructure for the routine collection of nationally comparable evidence on public health system and service operation across the country. By way of contrast, the field of PHSSR is far better developed in the U.S. where, since 1989, there have been important efforts to develop and administer surveys that provide a national profile of local public health departments.[2]

One of the primary reasons that the routine collection of nationally comparable data on local public health activities has not emerged in Canada is that public health in Canada is highly decentralized and orchestrated very differently from one region of the country to the next. In effect, public health practice in Canada consists of 14 different and largely siloed public health systems, one for each province, territory, and the Public Health Agency of Canada operating at the federal level, and each one is characterized by different levels of local regionalization and organization. Advancing PHSSR requires us to be able to identify apples to apples comparisons between similar local public health units from one jurisdiction to the next. However, at present, there is no established approach for identifying comparable local public health units across jurisdictions due to their diverse and frequently changing organizational structures.

We submit that the elementary unit of public health systems and services research in Canada should be what we elect to call the "local public health unit" (LPHU), which is analogous to the "local health departments" that have emerged as the atomic units of PHSSR in the United States.[3] In some jurisdictions, LPHU are further embedded within regional public health units (RPHU) which may share responsibility and oversight for some public health programs and services. In this commentary, we propose and argue for definitions for LPHU and RPHU which can be applied uniformly throughout the country to identify common units of public health operation and support intra-regional comparative research on public health systems and services.

It should be noted that the task of defining LPHU and RPHU in a uniform manner throughout the country to support research is a very different task than defining them to facilitate operation and specific local public health practice. The purpose of this commentary is not to supplant existing public health naming conventions or unit arrangements. Rather, it is to provide a common language and conceptual framework so that diverse existing arrangements can be related and compared and so that their experiences can more effectively inform one another in a research context. This includes also being able to identify common units within the same jurisdiction over time in such a way that transcends system reorganization.

Proposed definition

An ideal definition for LPHU should be specific enough that it can identify a meaningful unit of analysis and generic enough that it can be applied consistently across diverse contexts. With this in mind, we propose that for Canadian research an LPHU should be defined as (we define an RPHU below):

> *The lowest unit of independent (or delegated) responsibility for a defined population, having direct responsibility for the administration of public health programs and services, and led (or co-led) by a qualified Medical Health Officer/Medical Officer of Health.*

According to this definition, an LPHU is a health unit that meets three overlapping criteria. In the following sections, we discuss each of these three criteria and our reasoning for selecting them in turn. A health unit that fails to meet any one of the above criteria should not be considered an LPHU for research purposes.

1. "The lowest unit of independent (or delegated) responsibility for a defined population"

We can think of a "public health unit" as an institution that is responsible for the administration of public health programs and services and led (or co-led) by a qualified Medical Health Officer/Medical Officer of Health (MHO/MOH). A public health unit is considered local when it is the "lowest unit of independent (or delegated) responsibility for a defined population." Historically, it was more common in Canada for the responsibility of LPHU to be independent of wider health or public health authorities;[4] however, in recent years, amalgamations have resulted in LPHU becoming embedded within wider health systems in most provinces. For example, while the responsibility of Toronto Public Health derives from the City of Toronto and it does not answer to any wider health authority, the responsibility of the Edmonton Zone in Alberta follows most of the country and is delegated by the provincial health authority, Alberta Health Services. If there is no unit of independent (or delegated) responsibility below the provincial or territorial level, then a local health unit may cover an entire province or territory. This is the case, for example, in Prince Edward Island.

Additionally, "a defined population" often pertains to a population within a defined geography. In our definition, they do not have to be. For example, the defined local population of the First Nations Health Authority (FNHA) in British Columbia is delineated by First Nations status. Critically, for this unit, its responsibility covers a defined population for which there is no lower level of delegated responsibility.

2. "Having direct responsibility for the administration of public health programs and services."

An LPHU has direct responsibility for administering health programs and services which fall within recognized categories of "core" or "essential" public health functions.[5] In recent years, representative public health bodies across Canada have made efforts to define the scope of the field, including by defining "core and "essential" public health functions[6–10]. In Canada, six categories of essential public health functions are generally most widely recognized, having been identified and distinguished in *Learning from SARS: Renewal of Public Health in Canada*—also referred to as "The Naylor Report"[11] —often feature prominently in the recommended list of essential functions in Canada.These categories are: 1) health protection, 2) health surveillance, 3) disease and injury prevention, 4) population health assessment, 5) health promotion, and, sometimes, 6) disaster response.[4] A unit can be considered a LPHU as long as it has direct responsibility to administer programs and services any of these core functions to be considered an LPHU. As previously mentioned, in some regions of the country, some of these functions are distributed separately between local and regional units (which we define below).

Additionally, to say that the unit has *direct responsibility for the administration of* public health programs and services, is to say that they have the ability to decide on program and service priorities and budget accordingly for their defined population or area. In recent years, we have begun to see an erosion of the role of LPHU in some regions, such that their administrative and budgetary responsibilities are being stripped from them and they are increasingly only being called upon to act as implementers or consultants. Oftentimes, even these relatively modest advisory roles are not being clearly defined. A unit of public health professionals that is not empowered to practice public health should not be considered a public health unit for research purposes.[5]

3. "Led (or co-led) by a qualified Medical Health Officer/Medical Officer of Health"

LPHU are not the only units that may have local responsibility for a defined population and administer public health programs and services. Crucially, the last characteristic that has to be met for a local unit to qualify as an LPHU is that it has to be led by a "qualified Medical Health Officer/Medical Officer of Health."A qualified MHO/MOH is typically defined at the provincial or territorial level by a combination of provincial legislation (e.g. a provincial public health act, but oftentimes regulations under the act) and provincial medical regulatory or licensing authorities. Most commonly, a qualified MHO/MOH is defined as a medical doctor with an FRCPC or equivalent specialization in Public Health and Preventative Medicine. In less common instances, a qualified MHO/MOH could be a medical doctor with another public health specialization (such as a Master's in Public Health). These qualified public health professionals

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[4] Globally, some of the conceptual frameworks that have defined "core" or "essential" primary public health functions include: the 1988 Institute of Medicine report,[12] the "10 Essential Public Health Services" framework developed by the US Department of Health and Human Services in 1994,[13] the "Core Public Health Functions" developed by the Australian National Public Health Partnership in 2000,[14] and the "Essential Public Health Functions" developed by the Pan American Health Organization and World Health Organization.[15]

[5] These "local public health offices" may still be relevant and interesting to research but should be recognized and classified differently. The finding that a region may no longer have units that can rightfully be classified as an LPHU is an interesting and important finding unto itself.

may lead their LPHU by themselves or as part of formalized collaborative partnerships with others, oftentimes non-medical administrative leadership.

Sometimes organizations that are not LPHU administer public health services and programs to local populations. These organizations could be other health service providers or they could be non-public sector community organizations that have stepped in to fill a need. For example, Community Health Centres (CHC)[16] work to provide a more integrated approach to primary care which means that they also oftentimes provide some services that fall within public health's core functions, such as health promotion. This also means that they will routinely employ public health professionals as part of their teams, but this alone does not make them LPHU .

Additional definitions

As mentioned in the Introduction, LPHU are not the only units delivering public health programs and services headed by qualified public health professionals. For instance, as a result of amalgamation efforts, some LPHU share responsibility for the administration of some public health functions for their local populations with RPHU operating at levels above them. In order to help clarify the unique position and function of LPHU it can help to define these other units. There are also units with public health responsibilities operating at provincial and federal levels, including the Public Health Agency of Canada. Table 1 illustrates how variations on the definition of LPHU result in different categories of bodies that are led (or co-led) by qualified MHO/MOH.

Local Public Health Centres

In order to deliver public health programs and services within their defined populations, it is not uncommon for LPHU to maintain subsidiary local public health centres (LPHC), clinics, or offices in which they can provide public health services that require in-person contact with patients closer to the populations they serve, either in specific neighborhoods, or in small towns to more effectively reach surrounding rural areas. These often serve as both a home base for staff that travel around their area for service delivery, and may also have clinic rooms and meeting rooms used by public health staff to deliver both individual and group services. Critically, they report to higher level LPHU and so do not fulfill the LPHU criteria of having independent (or delegated) responsibility for defined population. LPHC can also be used to cluster delivery of certain kinds of programs and services together such as in the case of a sexual health clinic.

Local Public Health Office

A local public health office (LPHO) is an LPHU which reflects the lowest unit of independent (or delegated) responsibility for a defined population and is led (or co-led) by a qualified Medical Health Officer/Medical Officer of Health, but *does not have* direct responsibility for the administration of public health programs and services. This category of public health body is difficult to define as it is a fairly new arrangement, arising from the reorganization and amalgamation efforts that we have seen in some provinces in recent years. Some of these developments have resulted in public health staff becoming distributed throughout the health system and outside of public health units that are led (or co-led) by qualified MHO/MOH. In the absence of staff or resources, MHO/MOH take on an advisory or in-house consultancy role within the health system. These units are also not easy to define because in all cases these developments have largely occurred without explicit formalization in legislation or policy.

The naming of LPHO has been chosen to echo the parallel advisory role of ministry public health offices (see below) at provincial or territorial levels. Given that they are a fairly new arrangement and remain somewhat poorly defined, it is still sometimes useful to group LPHO with LPHU. LPHO should not be confused with LPHC which are sometimes locally referred to as "offices" within some regional public health systems.

Regional Public Health Unit

A regional public health unit (RPHU) is:

> *A unit that has independent (or delegated) responsibility for a defined population above the local level, having direct responsibility for the administration of public health programs and services, and led (or co-led) by a qualified Medical Health Officer/Medical Officer of Health.*

Not every province in Canada has RPHU. Furthermore, in some smaller provinces that have RPHU, the defined population above the local level is the provincial level. As a result of jurisdictional authority for health terminating at the provincial level in Canada for most Canadians (an important exception is First Nations, Metis and Inuit Canadians), RPHU have not tended to cross provincial boundaries. Conversely, larger provinces may elect to operate multiple layers of RPHU. A case could be made that this is what exists in some regions of British Columbia where responsibility for the administration of public health programs and services can be distributed vertically between Health Authorities, Health Service Delivery Areas, and local offices, although the lowest level of delivery is inconsistently defined and applied.

Note that as with LPHU, RPHU are also led (or co-led) by qualified public health professionals. For instance, a ministry office that oversees and coordinates public health operations but which is not led (or co-led) by a qualified public health professional is not a RPHU (it could be a provincial health unit, for example). Another example would be Ontario's Local Health Integration Networks (LHINs) which are responsible for health delivery broadly within wider regions but are not led by qualified public health professionals.

Ministry Public Health Office

Provincial and territorial governments in Canada usually maintain public health staff within their Ministry of Health (and sometimes also within other Ministries depending on how the government is organized) so they can provide direct support to the functioning of government. The primary roles of these staff are to advise Ministries and Ministers on public and population matters, including proposed policy changes and interpretation, but also to provide oversight for the fulfilling of legislated mandates under the various acts and regulations guiding public health programs. They also often act as conveners to achieve consensus among the various local public health leaders, or interpreters of the scale and scope of the legislation resulting in production of guidelines for programs and operational implementation procedures (e.g. mandatory programs documents, provincial communicable disease manuals, immunization manuals, consistent forms, databases and software for surveillance, etc). They also act as the mechanism for interprovincial communication about public health issues that transcend provincial borders (e.g. outbreak control, achieving national consensus on public health programs and approaches in a Federalist system). As such, MPHO contain a mix of support staff and experts, and are often headed by a senior bureaucrat. Throughout the country Chief Medical Officers of Health, who are qualified

public health medical doctors, have various roles to play within these structures. Although their roles are sometimes administrative, they are usually merely consultative.

In some provinces, for example, Alberta and Saskatchewan, there are both Ministry Public Health Offices and provincial-level RPHU offices consisting of separate personnel and mandates. The critical differences between them is that only the latter is directly responsible for the administration of program and services delivery. In smaller provinces and territories, for example, Prince Edward Island, which are sometimes too small to support fully fledged RPHU or LPHU operations, Ministry Public Health Offices can contain units that are responsible for program and service delivery. In these instances, Ministry Public Health Offices may function as RPHU/LPHU.

Public Health Agency of Canada

The federal-level Public Health Agency of Canada is responsible for linking national public health affairs to those occurring in other countries, and the World Health Organization. It is responsible for coordinating public health efforts that need to span jurisdictions, which can include quarantine, regulating certain devices and products, and providing guidance on public health standards and best practise, and coordination in times of national emergency. They do not have direct direct responsibility over provincial and local level public health operations. They do work alongside and in tandem with them on various matters.

Competing alternatives and other considerations

"Unit" vs. "region" vs. "authority," etc

LPHU throughout the country use various names which reflect local preferences as well as their relative positions within wider public health and health systems. For example, LPHU in Alberta are organizationally responsible for "zones"; in Saskatchewan, "areas"; and in Manitoba, "authorities." The only region in Canada in which LPHU are widely referred to as "units" is in Ontario where they are routinely referred to as "public health units." [17] The use of the more generic term "unit" in Ontario very likely reflects its greater diversity of unique LPHU arrangements. Public health in Ontario has never been regionalized as it has in the other provinces. It is precisely the genericness of the word "unit" which makes it most suitable to the purpose of our definition for research. In the United States, LPHU are called "local health departments." The term "department" is sometimes used informally to refer to LPHU in some jurisdictions in Canada.

Arbitrariness of "lowest unit"

As a result of myriad governance arrangements used throughout the provinces and territories to organize and oversee public health, what constitutes the "lowest unit of independent (or delegated) direct responsibility for a defined population" can be highly variable. For example, an LPHU can be responsible for populations spanning a few tens of thousands of people, or millions of people. They can also be responsible for populations comprising a single densely populated urban community or a multitude of spread out rural communities. As previously mentioned, they can be operationally independent of other health and public health bodies or they can answer only to themselves. They can consist of large teams of leadership and staff administering a complete spectrum of essential public health functions or they can consist of only a medical health officer working part time.

The imposition of a generic LPHU definition provides us with a basis for making meaningful comparisons among diverse LPHU and marks a critical first step toward determining whether some arrangements are more effective than others under given specific conditions. Variations that at first glance may seem intractable should instead be seen as variable features of a more fundamental and underlying LPHU concept. Understanding them in this way allows us to ask additional research questions. For instance, we may elect to explore whether the size or contiguity of the populations for which LPHU are responsible impacts their ability to provide public health programs and services. Or, we might explore how the manner in which LPHU authority is derived, the scope and capacity of their teams, and/or the range of public health programs and services over which they have direct responsibility, interact to determine population health.

Relatedly, there is also some inevitable arbitrariness in the manner in which health functioning is distributed between LPHU and RPHU in provinces in which public health has been regionalized. At this time, provinces that have regionalized have tended to only add one additional level of amalgamated provision, but they could add more. By defining, and so making explicit what these levels are and how they can be distinguished, we can clarify important research questions that would be vague otherwise. For example, is it adequate to centralize public health surveillance and analysis at RPHU? Or does failing to invest in this kind of capacity at the LPHU level result in local units not being able to as effectively monitor and react to the needs of their local populations?

It is also arguable that the definition provided in this essay is more than an artificial construct generated to serve research purposes. Insofar as public health is a unique and specialized field of health practice, then the primary vector by which it is provided to people is via LPHU. Following this line of reasoning, an LPHU can be conceptually analogous to a "hospital" or "clinic" in other fields of medicine. Therefore, similarly, just because one hospital or clinic is bigger or smaller, or arranged differently compared to another, does not mean that the two are incomparable; the fact they are considered "hospitals" can universally influence the manner through which they are funded, staffed, regulated and governed by higher-level health care authorities.

Dynamism of "public health programs and services"

Considerable effort has been made by a number of leading representative public health bodies to define what should be the scope of public health operations within Canada and globally.[18–22] Not all groups have included or excluded an identical range of activities over the years. For example, disease surveillance has for a long time been regarded as one of the critical pillars of public health. In recent years, there has been a movement to also include population health assessment as a pillar of its own.[23–25] We propose that LPHU should be defined such that what it recognizes as "public health programs and services" is sensitive to these developments. What counts as "public health programs and services" should be defined as whatever qualified public health professionals recognize to be essential public health functions at any given point in time. We recognize that in the far future, once we have been routinely collecting data on LPHU for some time, this may introduce complications when we try to relate LPHU over very long periods.

Why only if led by a qualified Medical Health Officer/Medical Officer of Health?

For some, this may be one of the more contentious elements of our definition of LPHU as it disqualifies units that may provide public health services at the local level but lack embedded

oversight by a qualified MHO/MOH. Nonetheless, in Canada,[6] the roles and responsibilities of MHO/MOH and their qualification are encoded in law by provincial and territorial public health acts. For example, the *Ontario Health Protection and Promotion Act (R.S.O. 1990, c. H.7, s. 64)* stipulates:

> No person is eligible for appointment as a medical officer of health or an associate medical officer of health unless,
>
> (a) he or she is a physician;
>
> (b) he or she possesses the qualifications and requirements prescribed by the regulations for the position; and
>
> (c) the Minister approves the proposed appointment.

Where, in the same act, a physician is defined as "a legally qualified medical practitioner" (*s. 1*). The legislated role of MHO/MOH throughout the country—combined with the fact that they tend to lead (or co-lead) public health staff and programming at a local level—makes them a convenient proxy to defining LPHU. Their number and distribution can also serve as a possible bell-weather for the erosion of the public health system as a cohesive entity, if and where it becomes difficult to identify the LPHU based on the role of the local MHO.

Moreover, insofar as we acknowledge that public health is a unique field of medical practice that requires training, experience, and expertise to perform effectively, it is critical that we include this condition. It is certainly the case that non-qualified health professionals are capable of engaging in activities that can improve population health in the absence of qualified public health medical oversight, however, we should expect that only qualified public health medical professionals are able to ensure this is achieved to its fullest extent, knowledgeably and consistently.

Conclusion

Public health systems and services research in Canada needs an agreed upon unit of analysis in order to facilitate comparisons between diverse settings and ensure the advancement of the field. In this commentary, we propose that this unit should be the local public health unit (LPHU) and provide a generic definition which can be used to identify these units throughout the country. Where applicable, researchers should also consider the function and capacity of RPHU. Appendix A provides a complete list of all LPHU and RPHU in each province and territory. At this time, we have reviewed use of the phrase LPHU in other publications to ensure that the phrase is not already widely used to refer to another concept—it is not (reported elsewhere). We are in the process of engaging knowledge users about our proposed definition and to determine ways that it, as well as the arguments and examples we use to support it, can be improved.

References

1. Acheson D. Report of the Committee of Inquiry into the future development of the Public Health functions and Community Medicine. 1988.

[6] But not in all countries. For example, the United Kingdom.

2. National Association of County and City Health Officials. 2016 National Profile of Local Health Departments [Internet]. National Association of County and City Health Officials. 2017 [cited 2019 Jul 19]. Available from: https://nacchovoice.naccho.org/2017/01/25/2016-national-profile-of-local-health-departments/
3. National Association of Country and City Health Officials (NACCHO). National Profile of Local Health Departments 2019. 2019.
4. Rutty C, Sullivan SC. This is public health: a Canadian history. Public Health. 2010;4:10.
5. public health community health nursing practice in Canada: Role and Activities. Canadian Public Health Association; 2010 Mar.
6. British Columbia, Ministry of Health. Promote, protect, prevent: our health begins here: BC's Guiding Framework for Public Health. 2017.
7. Saskatchewan Health. Public Health/Population Health Services in Saskatchewn. 2011.
8. Ontario Public Health Standards: Requirements for Programs, Services, and Accountability. Ministry of Health and Long-Term Care ; 2018 Jan.
9. WRHA Population and Public Health Conceptual Framework [Internet]. WRHA Population and Public Health. [cited 2020 Dec 15]. Available from: https://professionals.wrha.mb.ca/old/extranet/publichealth/index.php
10. Canadian Public Health Association. Public Health: A conceptual framework [Internet]. Canadian Public Health Association; Available from: https://www.cpha.ca/public-health-conceptual-framework
11. Ottawa: Health Canada. National Advisory Committee on SARS and Public Health: Learning from SARS: Renewal of Public Health in Canada. 2003.
12. Institute of Medicine. The future of public health. Washington, DC: National Academy Press; 1988.
13. The Public Health System and the 10 Essential Public Health Services [Internet]. Centers for Disease Control and Prevention (CDC). 2018. Available from: https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html
14. Lower T, Durham G, Bow D, Larson A. Implementation of the Australian core public health functions in rural Western Australia. Aust N Z J Public Health. 2004 Oct;28(5):418–25.
15. Ramagem C, Ruales J. The essential public health functions as a strategy for improving overall health systems performance: trends and challenges since the Public Health in the Americas Initiative, 2000-2007. Pan American Health Organization/World Health Organization; 2008.
16. About community Health Centres [Internet]. Canadian Association of Community Health Centres. [cited 2021 Jan 11]. Available from: https://www.cachc.ca/about-chcs/
17. Ministry of Health and Long-Term Care. Public Health Units [Internet]. Government of Ontario. [cited 2020 Nov 17]. Available from: http://www.health.gov.on.ca/en/common/system/services/phu/default.aspx
18. Martin-Moreno JM, Harris M, Jakubowski E, Kluge H. Defining and Assessing Public Health Functions: A Global Analysis. Annu Rev Public Health. 2016 Jan 18;37:335–55.
19. Litvak E, Dufour R, Leblanc É, Kaiser D, Mercure S-A, Nguyen CT, et al. Making sense of what exactly public health does: a typology of public health interventions. Can J Public Health. 2019;111(1):65–71.
20. Jorm L, Gruszin S, Churches T. A multidimensional classification of public health activity

in Australia. Aust New Zealand Health Policy. 2009 Apr 9;6:9.
21. Jarvis T, Scott F, El-Jardali F, Alvarez E. Defining and classifying public health systems: a critical interpretive synthesis. Health Res Policy Syst. 2020 Jun 16;18(1):68.
22. Nurse J, Edmondson-Jones P. A framework for the delivery of public health: an ecological approach. J Epidemiol Community Health. 2007 Jun;61(6):555–8.
23. Canadian Institutes of Health Research, Institute of Population and Public Health. Charting the Course: A Pan-Canadian Consultation on Population and Public Health Priorities. Canadian Institute for Health Information ; 2002.
24. Di Ruggiero E, Rose A, Gaudreau K. Canadian Institutes of Health Research support for population health intervention research in Canada. Can J Public Health. 2009 Jan;100(1):Suppl I15–9.
25. Canadian Public Health Association. Public Health in the Context of Health System Renewal in Canada: Background Document. Canadian Public Health Association ; 2019 May.
26. CBPHC Overview [Internet]. Canadian Institutes of Health Research. 2015 [cited 2021 Jan 11]. Available from: https://cihr-irsc.gc.ca/e/44079.html
27. Population Health and Wellness, Ministry of Health Services, Province of British Columbia. A framework for core functions in public health. 2015 Mar.

Table 1. Different categories of bodies that are led (or co-led) by a qualified Medical Health Officer/Medical Officer of Health at provincial or territorial levels and lower.

		Lowest unit of independent (or delegated) responsibility for a defined population.	
		Yes	No
Having direct responsibility for the administration of public health programs and services.	Yes	Local Public Health Unit	Regional Public Health Unit
	No	Local Public Health Office	Ministry Public Health Office

Appendix A. Subprovincial public health units by province and territories in accordance with our proposed definitions.

Province/Territory	Regional Public Health Unit	Local Public Health Unit
Alberta	Alberta Health Services	North Zone
		Edmonton Zone
		Central Zone
		Calgary Zone
		South Zone
British Columbia	Vancouver Coastal Health Authority	Richmond
		Vancouver
		North Shore/Coast Garibaldi
	Vancouver Island Health	South Vancouver Island
		Central Vancouver Island
		North Vancouver Island
	Fraser Health	Fraser East
		Fraser North
		Fraser South
	Interior Health	East Kootenay
		Kootenay Boundary
		Okanagan
		Thompson Cariboo Shuswap
	Northern Health	Northwest
		Northern Interior
		Northeast
	N/A	First Nations Health Authority
Manitoba	N/A	Winnipeg Regional Health Authority
		Interlake-Eastern Regional Health Authority
		Southern Health
		Prairie Mountain Health
		Northern Health Region
New Brunswick	N/A	North Region
		East Region
		South Region
		Central Region
Newfoundland and Labrador		Central Health
		Eastern Health
		Labrador-Grenfell Health
		Western Health
Northwest Territories		Health and Social Services
Nova Scotia	N/A	Western Zone
		Northern zone
		Eastern Zone
		Central Zone
Nunavut	N/A	Department of Health
		Chatham-Kent Health Unit
		Lambton-Health Unit
		Windsor-Essex County Health Unit
		Middlesex-London Health Unit
		Grey Bruce Health Unit
		Southwestern Public Health
		Huron Perth Health Unit
		Region of Waterloo, Public Health
		Brant County Health Unit

Ontario	N/A	Hamilton Public Health Services Haldimand-Norfolk Health Unit Niagara Region Public Health Department Wellington-Dufferin-Guelph Health Unit Peel Public Health Halton Region Health Department Toronto Public Health York Region Public Health Services Peterborough Public Health Haliburton, Kawartha, Pine Ridge District Health Unit Durham Region Health Department Hastings and Prince Edward Counties Health Unit Leeds, Grenville and Lanark District Health Unit Kingston, Frontenac and Lennox & Addington Health Eastern Ontario Health Unit Ottawa Public Health Renfrew County and District Health Unit Simcoe Muskoka District Health Unit Timiskaming Health Unit North Bay Parry Sound District Health Unit Algoma Public Health Unit Sudbury and District Health Unit Porcupine Health Unit Northwestern Health Unit Thunder Bay District Health Unit
Prince Edward Island	N/A	Health PEI
Quebec	N/A	Bas-Saint Laurent Saguenay-Lac Saint Jean Capitale-Natoinale Mauricie-et-Center-du-Québec Estrie Montreal Outaouais Abitibi-Témiscamingue Cote-Nord Nord-du-Québec Gaspésie – Îles-de-la-Madeleine Chaudière-Appalaches Laval Lanaudière Laurentides Montérégie Centre-du-Québec
Saskatchewan	Saskatchewan Health Authority	North Urban (Regina) Urban (Saskatoon) Rural
Yukon Territory	N/A	Department of Health and Social Services