STRENGTHENING PUBLIC HEALTH ACROSS CANADA

THE INFLUENCE OF THE NATIONAL COLLABORATING CENTRES FOR PUBLIC HEALTH

National Collaborating Centres for Public Health

Centres de collaboration nationale en santé publique
This document is the result of a collaborative project of the six National Collaborating Centres (NCCs) for Public Health. The NCCs work together to promote and improve the use of scientific research and other knowledge to strengthen public health practices, programs, and policies in Canada. As unique knowledge centres, the NCCs for Public Health identify knowledge gaps, foster networks and provide the public health system with an array of evidence based resources, multi-media products, and knowledge translation services.

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ABOUT THE NATIONAL COLLABORATING CENTRES FOR PUBLIC HEALTH

Established in 2005 and funded through the Public Health Agency of Canada, the six National Collaborating Centres (NCCs) for Public Health work together to identify knowledge gaps, foster networks and provide the Canadian public health system with an array of evidence-based products and knowledge translation services. As essential pan-Canadian knowledge centres, the NCCs promote the use of scientific research and other knowledge to strengthen public health practices, programs, and policies in Canada.
Responding to public health needs with evidence, knowledge, and networks

To improve the health of all Canadians, public health staff need:

**ACCESS** to the best scientific evidence and knowledge available

**NETWORKS** to convene, exchange, and share what works best across jurisdictions

**WAYS TO COMMUNICATE**

**EMERGING NEEDS** to researchers, other practitioners and decision makers

The NCCs respond to these needs, working on a range of topics nationally and across each province and territory. With over ten years of experience, the NCCs are uniquely positioned to strengthen public health programs, practices and policies by delivering high quality evidence and knowledge and fostering meaningful collaboration between diverse stakeholders.

Helping public health staff do more with less

Public health staff have always been tasked with complex, intersecting issues and limited resources. The NCCs play a vital role in Canada’s public health infrastructure by sharing knowledge and evidence. In turn, public health staff save time, make the most of existing resources, and reduce duplication.
Six pathways to strengthen Canadian public health

The NCCs:

1. **DEVELOP** skills and capacity in the Canadian public health workforce
2. **INCREASE** understanding and application of evidence and knowledge in public health decision-making
3. **INTEGRATE** Indigenous perspectives in public health
4. **STRENGTHEN** policies, programs and practice through evidence
5. **SHARE** across jurisdictions and fostering networks
6. **IDENTIFY** and respond to gaps

In this package

- An analysis of how NCCs are strengthening public health across Canada, including links to related examples
- Brief guides to each NCC
- 10 case stories of NCC influence-in-action

To learn more about how the NCCs influence and strengthen public health across Canada, follow the links throughout this document to related case stories and resources.

Still curious? visit NCCPH.CA
The NCCs are leaders in education, training and professional development for Canada’s current and future public health workforce. Thousands of students and practitioners across Canada report that the NCCs’ online and in-person training have increased their knowledge, skills and practice capacity.

The NCCs have created several online learning options:

- **Ready-to-eat meats: Assessing the food safety risks** – An online course developed for public health inspectors to learn general principles of ready-to-eat meat food safety assessment.

- **A framework for analyzing public policies** – A free policy-related online training course.

- **Health impact assessment (HIA) step by step** – An online course on applying the HIA process to public policies in collaboration with local stakeholders.

**Learning centre** – 13 online learning modules that teach key assessment and knowledge translation skills, including how to find different kinds of evidence, determine whether the evidence is appropriate, adapt it for local programs or policies and evaluate its effectiveness.
The NCCs have produced useful resources for in-person and online trainings:

Public health staff and graduate students used *Understanding summary measures* - a brief report that guides them through terms such as Health-Adjusted Life Years (HALYs), Disability-Adjusted Life Years (DALYs), and Quality-Adjusted Life Years (QALYs) - alongside analyses of context and equity considerations, to help them understand the concept of burden of disease.

Case studies highlighting examples of leadership for health equity from Ontario, Alberta, Saskatchewan, Newfoundland, and other locations across Canada were used in nursing curricula as well as in staff trainings in various regional health authorities and health units.

- Health care providers participated in a series of Indigenous cultural competency training webinars including webinars on trauma-Informed care, cultural safety and anti-Indigenous racism.

- Environmental health practitioners used a series of guidance documents and field inquiries on a variety of topics, including investigating indoor mould, using a hierarchy of evidence to assess chemical health risks of artificial turf, explaining environmental public health considerations for float tanks in personal services settings, and irrigating food crops with water containing cyanobacteria blooms.

- A Quebec regional health authority and an Ontario health unit used a resource outlining eight recommended policy approaches to reduce health inequalities in staff training sessions and to reflect on their organizational practices.

An annual series of interactive training webinars, delivered in partnership with the Public Health Physicians of Canada, offered free, customized professional development on priority topics and built capacity for public health physicians (including medical officers of health), specialists, and residents.
The NCCs make existing scientific research, as well as other knowledge, easier to find, understand and use. Through accessible products, the Centres illuminate complex and often less visible evidence and knowledge.

Public health staff used the Understanding research evidence videos to familiarize themselves with research concepts, reporting that the videos are particularly helpful when reading and interpreting systematic reviews. Various curricula also incorporated the series including, for example, the Ontario midwifery education program.

A new series of products made it easier for public health staff to find and use evidence related to population mental health promotion for children and youth. This collection links public health staff with definitions of related concepts, as well as five topical papers that increase knowledge of existing interventions and emerging public health roles. A resource scan also connects public health staff to related organizations and resources.
The Understanding racism series, including factsheets, webinars and podcasts, was incorporated in post-secondary curricula, online training and workshops to build cultural competency in the health system.

The Let’s talk series shifted understanding of how key concepts in health equity apply in public health practice. Resources include a summary of related evidence and knowledge on seven distinct key concepts alongside discussion questions.

The Notifiable Diseases Database made it easier for public health staff across Canada to find jurisdiction-specific case definitions and reporting requirements for over 244 communicable diseases.
Indigenous peoples in Canada experience significant and persistent health inequalities caused by inequities of colonization and legislation, intergenerational trauma, and racism. The NCC for Aboriginal Health, with support from other NCCs, leads a renewed public health commitment to integrate Indigenous perspectives and knowledge of First Nations, Inuit and Métis peoples’ health and well-being into culturally-competent public health practice.

A suite of British Columbia-focused Indigenous child and youth health promotion booklets for parents and caregivers, adapted in partnership with Healthy Child Manitoba, are being used across child and family programs in Manitoba.

- A collaboration with the Heiltsuk First Nation and First Nations Health Authority explored the impact of the Nathan E. Stewart fuel spill on the community, and considered how Indigenous communities are differentially impacted when compared with non-Indigenous communities. As a result, Indigenous perspectives and context informed a Health Canada guidance document for environmental health practitioners on the management of crude oil incidents, as well as a more in-depth Environmental Health Review article entitled Supporting Indigenous communities during environmental public health emergencies.

- A national gathering on prevention and control of syphilis in Canada had a dual focus on outbreaks in northern First Nations and Inuit communities, as well as among men who have sex with men in southern cities. The results point to commonalities in the way the outbreaks are manifested, as well as significant differences for transmission among women and men in northern areas.
A case study documented Nunavut’s shared leadership approach to developing a poverty reduction strategy, and shared a promising community engagement process driven by Indigenous perspectives. The study focused on the Nunavummiut concept of health, the importance of healing from colonialism, and highlighted collaboration between government and Inuit organizations, resulting in the Collaboration for Poverty Reduction Act in 2013.

A review of PHAC’s core competencies for public health in Canada from an Indigenous perspective made recommendations as to how the competencies could be updated to ensure cultural relevance and responsivity to Indigenous peoples and their contexts.

A video series helped public health and other audiences across Canada understand traditional and contemporary Indigenous roles related to parenting and children’s education. The videos have been used as training resources within academia, community level parenting and family programming, postsecondary curricula for early childhood education, social work and counselling, and in other training workshops.
The NCCs aim to improve public health policies, programs and practice by building on existing knowledge and evidence, sharing what works, and boosting overall system capacity. NCC leadership on various initiatives contributes to stronger public health practice, regulation and legislation across Canada at the local, regional, and provincial/territorial levels.

New work on carbon monoxide in long-term care facilities led to a monitoring and response framework which was then piloted in six locations. The results were successful and included identifying elderly residents at risk. The framework is now being implemented in health authorities in British Columbia and Saskatchewan.

A suite of tools for analyzing public policies, including a *Method for synthesizing knowledge about public policies*, has helped public health staff and policy makers consider the effects of implementing a policy in relation to cost, feasibility, and equity. The method has been applied to a range of policies, including allergenic pollen control in Quebec, and Federal regulatory options for e-cigarettes.
A 16-month knowledge broker mentoring program provided public health professionals with the knowledge, skills and tools they needed to advance the uptake and use of research evidence in their workplaces. As part of their training, program participants working in several Ontario health units led their teams in evidence-informed public health initiatives.

- These resources to support action on Opioids Use in Canada were used by the Canadian Drug Policy Coalition, the Canadian HIV/AIDS Legal Network, the International Centre for Science in Drug Policy and the Canadian Association of People Who Use Drugs to support their call to action by the Federal government to address the national crisis of opioids overdose deaths.

- Health authorities and health units have used *Public health roles for improving health equity* to inform organizational strategies, plans and targets. The Ontario Ministry of Health’s modernized health equity standard and related guidance document (in draft) are framed around these roles.
The Centres support formal and informal networks across a wide range of organizations and jurisdictions. Networks extend to other related sectors including health care, social services and education, and create opportunities to learn from each other and work together.

NCCs have initiated and continue to facilitate formal networks:

- The Health Equity Collaborative Network is a formal network of 50 equity-focused public health staff from across Canada. Through quarterly meetings via teleconference/webinar, members share practices and experience, build relationships and capacity, advance knowledge of effectiveness, and support organizational commitments related to the social determinants of health and health equity.

- Mod4PH is a LinkedIn discussion group on mathematical modelling in public health epidemiology. This forum creates opportunities for cross-jurisdictional knowledge exchange among 120 public health practitioners, officials and managers, government epidemiologists and statisticians, academic and industry researchers.
NCCs have acted as supportive convenors and facilitators of other self-organizing networks:

- Recently, a national forum on the role of public health in population mental health and wellness promotion was hosted in collaboration with four partners, the Public Health Agency of Canada, the Mental Health Commission of Canada, the Centre for Addictions and Mental Health, and the Canadian Mental Health Association. This event brought together key stakeholders from across Canada, including public health practitioners, researchers, Indigenous organizations, governmental and non-governmental organizations, sharing a common interest and involvement in this field. The forum generated connections as well as a shared list of people actively working to promote mental health and wellness in their jurisdictions. This emerging network has the potential to become a community of practice that supports a common agenda on this topic.

- The NCCs engage with Canada’s public health networks. This includes providing administrative support to the Rural, Remote and Northern Public Health Network for medical officers of health.

An event to *Advance provincial/territorial public health capacity for health equity* deepened conversations between senior leaders and decision-makers from multiple jurisdictions, and generated knowledge and networks that continue to influence change across Canada.
THE NCCs IDENTIFY AND RESPOND TO GAPS

By participating in projects and networks, monitoring developments, and conducting regular environmental scans, the NCCs identify and respond to emerging needs, including knowledge gaps.

- The *Common agenda for public health action on health equity* responded to the voices of public health actors from every province and territory in Canada who expressed the need for consistent and coherent approaches to health equity within Canada’s public health system.

- A *short review of the literature on the effects of climate change on mosquito-borne illnesses in Canada* responded to senior medical officers of health who identified a need for up-to-date information on emerging vector-borne disease outbreaks.

Over 20 new resources related to Influenza-like illnesses responded to several priority areas identified in a 2013 national consultation with the public health community.

A collection of foundational tools and resources responded to practitioners’ needs for better knowledge and regulatory practices for infection control in personal service establishments. These resources outlined the health risks of different services such as tattooing and piercing, and compared guidelines and regulatory frameworks across Canada.

A suite of resources to support equity in environmental health practice responded to environmental public health practitioners who described the challenges of balancing their mandate to enforce public health regulations while still considering the effects of their decisions on vulnerable people. Collaborations with the Canadian Institute of Public Health Inspectors (CIPHI) were then initiated to shift training and practice.
STORIES OF INFLUENCE-IN-ACTION

The following sections provide an in-depth look at the NCCs and their influence, both as individual centres, and as collaborators with other NCCs.

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Located on the traditional territory of the Lheidli T’enneh First Nation, the National Collaborating Centre for Aboriginal Health (NCCAH) is the only organization in Canada dedicated to Indigenous health and knowledge translation. Their ground-breaking contributions integrate Indigenous knowledge into public health research, policy and practice, and inform the work of the other NCCs.

Indigenous peoples in Canada experience significant and persistent health inequalities, caused by colonization, intergenerational trauma and racism. To address these complex issues that underpin Indigenous health, the NCCAH ‘walks in both worlds’, working with First Nations, Inuit and Métis peoples across the country and collaborating with non-Indigenous public health to share information and build capacity. NCCAH has created significant partnerships with researchers, including an international collaboration to develop a set of core competencies for Indigenous public health.

Opening a space for Indigenous people to have their own voice

- NCCAH’s national gatherings are often held in traditional places such as long houses, and always include traditional food and cultural performances.
- Dialogue circles engage Indigenous and non-Indigenous knowledge holders to explore how Indigenous knowledge and western science can be used together.
THREE PRIORITIES TO MOVE THE AGENDA FORWARD

1. Determinants of health

NCCAH recognizes that colonization and colonialism cross-cut and influence all other social determinants of health for Indigenous individuals, families and communities. They have produced a number of resources on racism in Canada, fact sheets on specific determinants of health, and other key resources that explore health inequalities:

- Determinants of Indigenous peoples’ health in Canada – beyond the social
- Health inequalities and social determinants of Aboriginal peoples’ health

2. Emerging issues

NCCAH acknowledges the diverse priorities for Indigenous people who live in urban, rural, remote, and northern communities across Canada. Here are some examples:

- Underrepresentation of Indigenous peoples in research, including randomized controlled trials and research designs.
- Art and wellness for Indigenous health and healing.
- Intergenerational trauma and its connection to mental health and wellness.

3. Children, youth and families

NCCAH recognizes that rebuilding Aboriginal health and well-being starts with children. They have created a large number of resources including a series of four parenting booklets in collaboration with the BC First Nations Health Authority.

Other examples:
- Four videos based on national gatherings to address challenges faced by Indigenous parents and caregivers and to foster healing and strength across generations.
- Health care providers participated in a series of Indigenous cultural competency training webinars including webinars on trauma-informed care, cultural safety and anti-Indigenous racism.
CASE STORY

Opening a space to integrate Indigenous perspectives and build cultural awareness

One popular video series developed by the NCCAH is helping public health and other audiences across Canada understand traditional and contemporary Indigenous roles. The videos reveal how Indigenous children, parents, and families can be strengthened and better supported. The series also opens the door for First Nations, Inuit and Métis peoples to play a greater role in public health.

Videos expand the reach and impact of national gatherings

Four videos, each about 20 minutes long, are based on information shared at national gatherings convened by the NCCAH over six years. The content addresses challenges faced by Indigenous parents and caregivers, particularly the negative effects of residential schools and child welfare policies that fragmented relationships for mothers, fathers and families, and interrupted the flow of traditional cultural practices from one generation to another.

Each video is accompanied by a comprehensive summary:

- **Messages from the heart: caring for our children** highlights successful programs and strategies for Indigenous parents, families and communities. Elders and young parents share their wisdom and experience in raising children.
- **Family is the focus** describes the process to develop a collective consensus statement on how to strengthen support for the health and well-being of First Nations, Inuit, and Métis families and communities.
With Dad video engages wide range of audiences

Shared at the Truth and Reconciliation Commission, this video has brought the issue of involvement of Indigenous fathers to the forefront of mainstream media, academic literature, and policy development across Canada.

- Sacred space of womanhood: Mothering across the generations explores cultural transmission from grandmothers to mothers-to-be in the post-residential school era.
- With Dad: strengthening the circle of care examines the urgent need for a stronger role for Indigenous fathers in communities, programs, research, and policies.

A bridge to share knowledge and build cultural safety

The videos have sparked a dialogue on topics that are not usually discussed, by addressing important and difficult issues in a safe and culturally-appropriate way. The visual format is also particularly effective in engaging groups with low literacy, and Elders who speak only their Indigenous language.

Interest in the videos has been very strong, thanks to widespread promotion at national and provincial conferences, on NCC websites, and through social media. They have been used as a training resource in a variety of settings, from academic to community level parenting and family programming, and in training workshops, and postsecondary curriculum for early childhood education, social work, and counselling programs.
Public health professionals can play a major role in addressing and reducing health disparities, yet they do not always have the knowledge or skills to take action. The National Collaborating Centre for Determinants of Health (NCCDH) recognizes the formal public health system as a key change agent for health equity, in partnership with anti-poverty and housing advocates among others.

NCCDH draws upon research literature and practice-based evidence and supports networking and knowledge exchange to improve public health organizations’ capacity to advance equitable opportunities for health.

Addressing health determinants to reduce health inequities involves every aspect of how public health organizations operate:

- Organizational level – the culture of the organization, how priorities are established, resources are allocated, partnerships are viewed and pursued, and leadership and management are enacted.
- Program level – how needs are assessed, programs are planned and implemented, and performance is assessed.

See: Integrating social determinants of health and health equity into Canadian public health practice and Boosting momentum: applying knowledge to advance health equity - 2014 environmental scan
NCCDH STRATEGIES SUPPORT AN INTEGRATIVE PUBLIC HEALTH FOCUS ON HEALTH EQUITY

1. Encourage making health equity an explicit goal

NCCDH has shifted the dialogue toward integrating health equity within public health expectations, encompassing multiple social determinants of health and relevance to all public health programs.

2. Promote public health roles and improve common understanding to advance health equity

NCCDH promotes a set of evidence-informed public health roles and a common agenda for equity action.
- Let’s talk resources demonstrate how key health equity concepts apply in public health practice, while a glossary promotes shared understanding of such concepts.

3. Support the application of promising equity-oriented knowledge and practices

NCCDH’s case studies model public health efforts that show promise in the area of health equity.
- Resources developed to respond to public health need support effective leadership, intersectoral partnership, community engagement and discipline-specific practice, including environmental health officers.
- NCCDH consults and partners with public health organizations, provides training, education and a library of international resources curated for Canadian value.

4. Facilitate intentional networks and knowledge exchange

NCCDH convenes meetings and regional forums to strengthen collaboration.
- The Health Equity Collaborative Network is an invitational network of public health’s equity specialists, and Health Equity Clicks is an online community open to practitioners, researchers, and community partners.

5. Influence knowledge translation practices to support action on health equity

NCCDH contributes to adapting health equity knowledge translation models and methods, and helps make sense of translating knowledge in a digital world.
CASE STORY

Pan-Canadian leaders forum
designed to put knowledge into action

In 2014, the NCCDH convened Advancing Provincial/Territorial Public Health Capacity for Health Equity, a pivotal event to deepen the conversation about what provinces and territories can do to ensure health for all Canadians.

Prior consultations had confirmed that all provinces and territories wanted to better integrate equity into their programs, policies and practices, but their capacity to do this varied. In response, NCCDH invited senior public health decision-makers and researchers to come together. Chief Public Health Officers, Deputy Chief Medical Officers, Executive Directors, Assistant Deputy Ministers, regionally-placed Medical Officers, and Federal guests, were among the attendees who took part in generating knowledge and networks that continue to influence change across the country.

Connecting public health leaders and researchers to share evidence and promising practices

Over two days, participants discussed what worked best when integrating health equity into public health and identified knowledge-to-action gaps. Leading researchers presented their latest findings on building organizational public health capacity for health equity. Participants flagged the importance of establishing whole-of-government approaches to narrow the gap between the least and most healthy.

Following the forum, 94% of respondents said that they had gained new knowledge, new information, and at least one new connection.

“I really rely on the NCCDH. Their national networks are super important, the relationship building, the sharing of information, their knowledge. And, I get better connected and acquainted because of the work of the NCCDH.”

PUBLIC HEALTH PRACTITIONER

Dr. Benita Cohen, University of Manitoba, MB
Continued momentum to integrate health equity in public health

The NCCDH extended the reach of the forum through event proceedings, distributed to public health networks across Canada. The forum has generated positive outcomes including:

• Manitoba has championed a Health in All Policies approach and has presented this work at national and international conferences.

• Alberta Health Services has partnered with the NCCDH on a number of initiatives, including case stories that illustrate public health action to advance health equity.

• Insights and knowledge shared at the forum informed the Common agenda for public health action on health equity (2016).

• New Brunswick has convened leaders across departments to explore how government can address social determinants of health and health inequities. More recently, NCCDH trained province-wide public health staff in New Brunswick about equity and applying the Common Agenda.

Five top-ranked actions arising from the forum

• Increase health data reporting by social gradient
• Use geographic information system mapping
• Sustain funding for NCCDH and the other NCCs
• Integrate equity within population health strategic plans
• Create a framework for health status reporting focused on health equity

In 2016, the NCCs collaboratively released Equity-integrated population health status reporting: Action framework.
The National Collaborating Centre for Environmental Health (NCCEH) contributes to maintaining a strong environmental health infrastructure in Canada, and responds to needs and gaps related to the increasingly complex sources of environment-related illness. A primary focus is to ensure that Canada has a multi-skilled, up-to-date workforce of public health inspectors (PHIs) and environmental health officers (EHOs).

Key public health issues NCCEH addresses:

- **Contaminants and hazards** from infectious diseases, chemicals, radiation and noise;
- **Indoor and outdoor air quality**, including mould, radon and other contaminants;
- **Safe drinking and recreational water**, including small drinking water systems;
- **Natural and human-made environments** where we live, work and play;
- **Safe and healthy food systems** through food safety, hygiene and healthy eating;
- **Practices and procedures to prevent harm**, such as emergency preparedness and risk management; and
- **Changing climate** and its impact on human health.
NCCEH SUPPORTS FRONTLINE ENVIRONMENTAL HEALTH PROFESSIONALS WITH THREE INTER-RELATED STRATEGIES

1. Synthesize knowledge and practice to ensure all front-line practitioners have timely access to evidence

   NCCEH publications, tools, and training include:
   - user-friendly evidence reviews on topics such as radio frequency radiation, splash parks, food environments and other environmental health issues;
   - guidance documents (e.g. on addressing health equity) and responses to various field inquiries (e.g. infection control for tebori tattooing);
   - workshops, webinars, conferences, and training programs across Canada, such as an online food safety risk assessment course for public health inspectors.

2. Identify and fill gaps in research and practice knowledge

   NCCEH fills knowledge gaps on emerging issues, such as shale gas extraction and cyanobacteria blooms in freshwater. They also fill gaps that arise as the environmental health sector expands to include built environment features like urban and transportation design and food security, with a growing emphasis on health equity. For example, Food environments: An introduction for public health practice includes a discussion of equitable access to healthy foods.

   - NCCEH makes recommendations for action to decision-makers on issues that affect the health of Canadians, such as a recent presentation on radon exposure to the Parliamentary Committee on Health.

3. Build capacity through networks across jurisdictions that deliver environmental health services

   - The NCCEH has a long-standing relationship with the Canadian Institute of Public Health Inspectors (CIPHI). NCCEH staff regularly deliver workshops and presentations at provincial and national CIPHI conferences, and CIPHI members regularly access NCCEH resources and participate in NCCEH learning events (e.g. Environmental Health Seminar Series, eJournal Club, online courses).

   - Recently, the CIPHI Board of Certification asked the NCCEH and NCCDH to inform revisions to instructional objectives relating to the integration of health equity into environmental health practice.
CASE STORY

**Improving the safety of personal service establishments**

When Canadians want to have manicures and pedicures, get a tattoo or have their ears pierced, they visit personal service establishments (PSEs). Yet, until recently, there were few guiding resources for public health professionals to regulate this rapidly evolving industry, improve practice, and protect the public from health risks related to personal service procedures.

**PSE Practice and Infection Risk – a knowledge gap**

The NCCEH responded to knowledge gaps in infection control and regulatory practices for PSEs by developing a collection of foundational tools and resources for front-line practitioners to increase their understanding of the risks associated with PSEs. These accessible resources include overviews of the health risks of different personal services, the importance of cleaning, disinfection and sterilization, and a comparison of guidelines and regulatory frameworks across Canada.

**What are PSEs?**

PSEs are a wide range of businesses that offer aesthetic treatments and personal enhancement services such as:

- hair and nail salons;
- barber shops;
- tanning salons;
- electrology and waxing salons;
- tattoo and piercing parlours; and
- floatation tanks.

Since all of these services involves contact with the body, there is a potential risk of transmitting infection and disease to and among clients.
NCCEH was a catalyst for addressing knowledge gaps in PSEs, encouraging new regulations

- The PSE resources were shared widely on the NCCEH website and at presentations and workshops. They became a springboard to foster the development of new regulations, guidelines, best practices, and programs across the country. With support from the Public Health Agency of Canada, NCCEH formed a national Personal Services Working Group to connect stakeholders, identify gaps and stimulate knowledge exchange. A major focus was to develop and share appropriate legislation, regulation, and inspection procedures.

Impact on knowledge and practice

- Several NCCEH resources related to PSE practice are created in response to real-life inquiries from field officers (e.g. field inquiries on meat-packing pads as tattoo dressings, and adverse effects after medical, commercial, or self-administered colon cleansing procedures).

- Other NCCEH resources continue to be used as training tools for incoming Public Health Inspectors, and the regulation of PSEs has become more evidence-based. Front-line staff have noted that these user-friendly resources can be understood and acted upon by PSE owners and staff, even when there are language barriers.

- The NCCEH has been asked by several provinces and territories to review draft guidelines and two provinces are developing new policies to ensure that sterile water is used in all tattooing. In one jurisdiction, NCCEH’s work has guided and helped to improve regulations for bagging tattoo machines. Tattoo providers now cover the tattoo device with a plastic bag to avoid spraying surfaces with blood, which could be transferred to another person.

Sensory deprivation floatation tanks—a gap in PSE regulations

Salt-water floatation tanks are rapidly gaining in popularity in some parts of Canada as a calming, therapeutic treatment. However, since they fall between regulations for swimming pools and personal services, they are often unregulated, and their health risks are largely unknown.

The NCCEH has been responding to requests for guidelines and standards on floatation tanks from across Canada. The centre has reviewed current guidelines and assessed considerations for public health, and will continue to address this issue for front-line practitioners.
Healthy public policies can play a key role in improving population health and reducing health inequalities by acting on the social, economic, and environmental determinants of health, such as education, social support, income, and the built environment. Healthy public policy is foundational to Canada’s renewed public health system, as identified in the Ottawa Charter for Health Promotion.

The National Collaborating Centre for Healthy Public Policy (NCCHPP) supports Canada’s public health actors to participate in shaping policies to advance population health and reduce inequalities through a wide range of tools, resources and activities such as literature reviews, online courses, briefing notes, inventories of key resources, workshops, webinars, and more. These resources and activities belong to one of two broad areas: thematic knowledge syntheses, and methods and approaches for developing healthy public policies.

Current focus areas and projects

- Analyzing public policies
- Policy processes
- Knowledge sharing
- Health impact assessment
- Integrated governance
- Ethics
- Population mental health
- Built environment
- Health inequalities
- Deliberative processes
KEY STRATEGIES AND APPROACHES

1. Thematic knowledge syntheses

The NCCHPP develops and shares knowledge syntheses to inform policy options where gaps are identified. Some of the topics that have been covered include:

- population mental health promotion;
- traffic-calming approaches and interventions;
- policy approaches to reducing health inequalities; and
- knowledge sharing in a decision-making context.

2. Methods and approaches for developing healthy public policies

The NCCHPP introduces public health actors to methods and approaches that can help them to participate in healthy public policy development:

- An internationally-recognized method for analyzing public policies that facilitates the integration of evidence about effects and equity with implementation issues (cost, feasibility, and acceptability).
- Learning tools on collaborative models such as integrated governance, whole-of-government approaches and health in all policies.
- Health impact assessment (HIA) resources such as an online course, tools, and resource inventories, all of which support integrating a health perspective into policy making.
- Various public health ethics resources including adapted summaries of ethics frameworks and short case studies to allow reflection on values and principles that underpin policy decisions.
- Resources to map policy landscapes, coalitions and stakeholders, identify strategic opportunities, and communicate effectively across sectors.
CASE STORY

Demystifying policy analysis for better public health interventions

The NCCHPP has developed an integrated series of evidence-informed tools in French and English to help public health professionals analyze policy options, including:

- the Method for synthesizing knowledge about public policies;
- a practical guide for applying an analytical framework to public policies;
- a practical guide for constructing a logic model to reflect on a policy’s effectiveness; and
- an online training course on a framework for analyzing public policies.

Supporting public health to inform public policy development

- Informing public policy development is recognized as a key strategy of population health promotion. Since 2010, the method for synthesizing knowledge has been supporting public health practitioners in their efforts to consider research-based evidence, stakeholders’ perspectives on policy effects and equity, as well as implementation issues (cost, feasibility and acceptability). Practitioners can easily apply this policy analysis method to:
  » consider the relevance of a particular policy; or
  » plan a knowledge-sharing strategy that considers what is important to policy makers.

Capacity development for a renewed public health workforce

- High demand for this method inspired the NCCHPP to develop an online training course. This course has been completed by hundreds of people from across Canada and abroad, including public health actors at the local, regional, provincial, and federal levels, by students and by staff from non-governmental organizations.

Undergraduate and graduate curriculum

- This online course is being used in various public health programs in universities across the country. Course material has informed and structured classroom discussions, has been assigned as mandatory reading, and has been integrated into end-of-session assignments.
The method for policy analysis in action

This method has informed analyses on a wide-range of policies.

- Regional ragweed pollen control policy (this led to the development of a provincial policy framework with significant funding under the Climate Change Adaptation Plan)
- Federal regulatory options for e-cigarettes
- Age-friendly municipal strategy
- Food safety intervention and evaluation
- Impact of subsidized school meal policies on children’s diet and body weight
- “Health in All Policies” initiatives

Staff development

- Some teams in public health authorities have taken the online course in groups and then discussed the implications for their work. One health authority decided to make the online course a mandatory continuing education activity for some of its professionals and physicians. They developed a ninety-minute condensed version of the course that is now being offered to all of its health professionals. The course material was also used to make a short presentation to the health authority’s board of directors.

“The content presented will support me in conducting a well-planned and well-rounded policy analysis without being overwhelmed by the process”

“I now have a structured approach to policy analysis.”

COURSE PARTICIPANTS
Infectious disease prevention and control is a cornerstone of public health, reflecting its origins in epidemic control. The National Collaborating Centre for Infectious Diseases (NCCID) is a hub of national and international expertise in infectious disease.

NCCID is closely connected both to frontline public health and primary care systems, where infectious diseases break out, are detected and treated, and to leading experts and sources of evidence.

NCCID is a key partner in Canada's infectious disease prevention and control infrastructure. It collaborates with all parts of the surveillance, investigation and control system, including front-line clinicians and programmers, provincial and territorial public health organizations, national and inter-provincial committees, and the Public Health Agency of Canada.
KEY STRATEGIES AND APPROACHES

1. NCCID works across disciplines, sectors and jurisdictions
   • Online communities advance practice for highly-specialized public health practitioners who are spread across jurisdictions with few opportunities to interact in person; including for example, the LinkedIn discussion group on mathematical modelling (mod4PH).
   • The National Notifiable Diseases Database maps and tracks how infectious disease surveillance and control occurs across Canada. It helps provincial and local public health organizations better interpret their own surveillance information.

2. NCCID connects decision-makers and practitioners with knowledge and with each other
   Emerging infectious diseases such as Zika virus
   As disease outbreaks develop, major problems can emerge quickly. NCCID responds rapidly with Disease Briefs and Quick Links, sharing coordinated knowledge and evidence from experts and partners.

   Persistent infectious diseases such as influenza
   To help keep the public health workforce current on effective strategies and move collective debate forward, NCCID develops and shares reviews of key issues, such as the importance of equity in discussions of burden of diseases.

   Evolving infectious diseases such as STIs and TB
   NCCID organizes and brokers information through publications, workshops, webinars and podcasts, such as how public health units in various settings cope with overwhelming Chlamydia case volumes and innovative approaches to tuberculosis and oral health for refugees.
CASE STORY

Notifiable Diseases Database - consultation and collaboration for an essential public health resource

The Notifiable Diseases Database (NDDB) is a Canada-wide, searchable database of case definitions and reporting requirements for 244 communicable diseases in the provinces and territories and by the federal government.

Canada has international surveillance obligations for a set of diseases. However, since every province and territory define its own list of notifiable diseases, including the criteria for defining reportable cases, there is considerable variation across jurisdictions. Since disease lists, case definitions and reporting requirements can change, the database is regularly updated.

Creation of the database developed stronger networks and encouraged overdue updates

- Led by the NCCID, this initiative involved consultations with public health stakeholders in every province and territory and with federal public health staff. While participating in the building of this database, several jurisdictions were spurred to proceed with overdue updates.

Rapid access to side-by-side comparisons, by jurisdiction or disease

For each province and territory, the database includes:

- which diseases must be reported, and how each disease is defined;
- who must report them (e.g., doctor, nurse, laboratory technician, school principal);
- where diseases must be reported (Ministry of Health, medical officer of health, Public Health Agency of Canada, World Health Organization); and
- when diseases must be reported (immediately, within 24-hours).
Diseases don’t respect borders

Since communicable diseases travel quickly across borders, provinces and territories need to be able to compare their reporting information to inform their decisions.

“As we consulted across jurisdictions, shared information, and incorporated updates, we noticed that the definitions of cases became more consistent as common terminology was being used... several jurisdictions changed and evolved their list of notifiable diseases as a result of participating in building this database.”

NCCID PROJECT MANAGER

User-friendly search options

- Users can search by transmission type and for vaccine-preventable diseases. The database also includes the most recent source of case definitions and notes the date this information was last updated.
The National Collaborating Centre for Methods and Tools (NCCMT) provides strong leadership to help Canada’s public health professionals use high quality, up-to-date methods, and tools to build capacity for evidence-informed public health practice (EIPH).

The increasing complexity of today’s public health environment has led to growing expectations that practitioners will use the best available evidence to plan programs, make decisions, and set policy.

NCCMT collaborates with individuals, organizations and communities to share methods and tools to develop, implement and evaluate public health programs and policies. NCCMT has a particular focus on building public health capacity to engage in knowledge translation, gap identification, networking, and evidence-informed decision making.

Health Evidence™
NCCMT works with McMaster University on this searchable registry of more than 4,800 quality-rated systematic reviews evaluating the effectiveness of public health interventions.
FOUR KEY STRATEGIES GUIDE NCCMT’S WORK

1. Develop organizational capacity and individual skills for evidence-informed public health decision-making
   • NCCMT offers a wide range of learning tools to help practitioners learn how to practice EIPH, including workshops, webinars, and a video series called Understanding research evidence.
   • The Skills Assessment Tool identifies gaps in knowledge and skills for EIPH and recommends resources to fill those gaps.
   • The Learning Centre offers self-paced, online learning modules on EIPH.

2. Identify, evaluate and disseminate knowledge translation methods and tools
   • Free online databases and registries:
     » Registry of Knowledge Translation Methods and Tools is a searchable, online collection of evidence-informed methods (processes) and tools (instruments) for knowledge translation.
     » Public Health + is a source of pre-appraised studies and reviews relevant to public health.
   • Practical tools
     » EIPH wheel
     » Applicability and Transferability of Evidence Tool (A&T Tool)

3. Advance knowledge on the use of knowledge translation (KT) methods and tools
   • Monthly 'Spotlight' webinar series sharing user accounts of real-world application of methods and tools.
   • Capacity-building workshops and knowledge broker mentoring.
   • Collection of Canadian public health success stories in evidence use in an online Casebook.

4. Develop productive partnerships with other NCCs and community public health organizations
   • Coordinate the NCCPH Knowledge translation in public health medicine webinar series in partnership with the Public Health Physicians of Canada.
CASE STORY

**Accessible training builds capacity for evidence-informed public health**

Public health systems across Canada are expected to make decisions based on the latest evidence. However, the public health workforce often lacks the knowledge and skills they need to find, assess and apply research evidence to their own programs and policies.

A major contribution to public health professional development

The NCCMT has developed a series of free online learning modules that teach the steps to evidence-informed public health. The online learning modules were developed in response to a growing need for high-quality EIPH training that is not limited by budget or time constraints. The NCCMT adapted in-person workshops to an online platform and launched the first module in 2012.

The series of 13 modules teaches online learners key knowledge translation skills, including how to find different kinds of evidence, determine its quality, adapt it to local programs or policies, and evaluate its effectiveness. The modules are mapped to the seven-step evidence-informed public health process.

Seven steps of evidence-informed public health

“Learning the seven-step process of Evidence-Informed Public Health has made me realize how well I can contribute as an evaluator to public health.”

ONLINE LEARNER
Learning modules as training tools are:

- used widely to orient new staff and faculty and to prepare practicum students for placements;
- required curriculum for the Masters of Public Health students at several universities; and
- accredited by the Canadian Institute of Public Health Inspectors for its continuing professional development program.

NCCMT makes complex information easy to learn

Unlike some professional development opportunities, the free online format allows remote learners and people on limited budgets to participate. The modules use clear language and a dynamic, problem-solving approach grounded in realistic public health scenarios. The user-friendly curriculum can be adapted for individual or group learning, and each module takes between one and three hours. Learners who successfully complete modules earn Certificates of Competence.

Learners applaud modules, in Canada and beyond

Since their launch, thousands of learners have benefited from NCCMT’s online modules. Analytics indicate that users repeatedly access and refer to these resources. The modules have received national and international recognition from a wide range of sectors, including public health, nursing, allied health care and post-secondary education.

“Even though I have worked in the NHS for 33 years, the modules have really been eye-opening and excellent study material, without the jargon. They have made me want to start studying again.”

ONLINE USER FROM THE UK
Canadian Governments at every level cite mental health and well-being as a priority for public health. Increasingly, the public health workforce is being called on to protect and improve it. To support this work, the six National Collaborating Centres for Public Health (NCCs) combined their diverse and complementary perspectives to advance collective knowledge and action on population mental health promotion.

Identifying sector strengths through foundational research

When the six NCCs began this joint project, they built on existing foundational work. The NCC for Healthy Public Policy had recently assessed the public health workforce’s needs in both mental health and mental health promotion. Key activities included an analysis of current strengths and gaps, including in-person consultations and an online bilingual questionnaire, completed by more than 450 public health practitioners from across Canada. This needs assessment showed that public health practitioners have an understanding of the important links between public health and mental health, but report they are not sufficiently trained or supported to intervene in the most effective ways.

Filling knowledge gaps through an all-NCC approach

Together, the NCCs developed a strategy to synthesize the best available evidence on population mental health promotion for children and youth. Each NCC developed one discussion paper, based on extensive literature searches and relevant resources from across the network. The goal was to provide numerous entry points for public health to collaborate with other sectors to support evidence-based action that addresses the determinants of mental well-being for all children and youth in Canada.

NCC NETWORK COLLABORATES TO MEET KNOWLEDGE NEEDS OF THE PUBLIC HEALTH SECTOR

**Collaborative influence-in-action**

*Case story: Promoting population mental health and wellness*
NCCS work together on cross-cutting mental health issues

The 2017 *Population mental health promotion for children and youth* collection includes:

- a foundational report that includes definitions, concepts, methods, and cross-cutting equity themes;
- topical papers on mental health and environmental health, Indigenous children and youth, infectious diseases, chronic diseases and healthy public policy;
- specific roles for public health, including proven and promising practices across disciplines and settings; and
- a scan of Canadian and international resources

Contributing to the knowledge base; increasing capacity for population mental health promotion

The NCC knowledge synthesis initiative is a major contribution to the public health literature in Canada, both for existing practitioners and for students of public health. Access to this integrated collection will build workforce competencies to support the integration of population mental health promotion into public health programs, policies, and practices.

Engaging national partners and action networks

Recently, a national forum on the role of public health in population mental health and wellness promotion was hosted in collaboration with four partners, the Public Health Agency of Canada, the Mental Health Commission of Canada, the Centre for Addictions and Mental Health, and the Canadian Mental Health Association. This event brought together key stakeholders from across Canada, including public health practitioners, researchers, Indigenous organizations, governmental and non-governmental organizations, sharing a common interest and involvement in this field. The forum generated resources as well as a shared list of people actively working to promote mental health and wellness in their jurisdictions. This emerging network has the potential to become a community of practice that supports a common agenda on this topic.
The National Collaborating Centres for Public Health (NCCs) are making a major contribution to the development of Medical Officers of Health (MOH) and other public health physician specialists. They are partnering with the Public Health Physicians of Canada (PHPC) to provide an annual series of interactive training webinars that offer free, customized professional development on priority population topics that address knowledge gaps, and build capacity for core MOH competencies.

The Knowledge translation in public health medicine webinar series was created in response to a need identified by residents in Public Health Preventive Medicine who wanted to meet regularly, share knowledge and expertise, and learn about latest research evidence and knowledge translation tools that could support their practice. What started as a series for these residents, has now expanded to include a broader public health physician audience.

Since 2012, all the NCCs have hosted annual webinars for public health residents and physicians. Here are some examples.

- How can I influence policy-making?
- Evidence-informed decision-making from a health equity perspective.
- Wicked problems in environmental health
- Cultural safety for Indigenous people.
- Emerging respiratory infections.
- Where are the resources to “move upstream” in public health work?
Webinars are designed to meet learning needs and align with MOH competencies

This project engages the PHPC and all six NCCs, which each host a session every year. Webinars are delivered collaboratively by a public health expert and a public health physician with practical experience on the topic. The series is coordinated by the National Collaborating Centre for Methods and Tools. A joint PHPC/NCC scientific planning committee supervises the learning content: it assesses annual learning needs for public health physicians, and the NCCs meet these needs with the webinars. The committee ensures that these webinars have impact by identifying learning needs, and designing content to match MOH competency requirement.

Developing critical skills for future practice

Participation in the webinar series is growing steadily. Its accreditation adds incentive to attend. Learners report that the customized content is relevant to their public health practice, which requires them to respond to potential threats, chronic disease and injury, infectious diseases and health disparities. By supporting physicians to acquire and improve the knowledge and skills required to perform the duties of a MOH, the NCCs are helping to build the capacity of the public health physician workforce, laying the foundation for an emerging community of practice.

Who attends the webinars?

• Public health physicians, including Medical Officers of Health
• Future public health physicians
• Infectious disease specialists
• Family physicians
• Other health professionals (non-physicians)
Collaborative influence-in-action
Case story: Influenza and influenza-like illness

NCCs MOBILIZE COLLECTIVE EXPERTISE, RESPOND TO PUBLIC HEALTH COMMUNITY

Influenza is a persistent public health issue, with an average of 12,000 Canadians hospitalized and 3,500 dying from related complications per year. Despite vaccine advances and growing public awareness, there are still many unanswered questions about how to prevent and control influenza and influenza-like illness (ILI). Following a national consultation in 2013, the public health community identified five priority areas, all related to gaps in knowledge related to ILI. In the two years that followed, the National Collaborating Centre for Infectious Diseases (NCCID) led all National Collaborating Centres for Public Health (NCCs) in a collective project responding to these public health needs.

A suite of new products to address knowledge gaps

Together, the NCCs produced more than 20 new resources from multiple perspectives to address several priority areas identified in the national consultation:

- Vaccine effectiveness, efficacy, efficiency and equity
  - Resources review evidence and models on vaccine effectiveness and on mandatory vaccines for healthcare workers.
• **Other strategies to prevent influenza and ILI**
  » Resources focus on non-pharmaceutical measures, and the effectiveness of school closures. They also include case studies that address the equity implications of influenza prevention, and identify lessons learned from pandemic planning in Indigenous communities.

• **Surveillance of influenza and ILI and better estimates of the burden**
  » Resources explore the determinants of influenza infection in Indigenous populations, including an epidemiological review that outlines the impact of the H1N1 influenza pandemic among First Nations, Inuit, and Métis peoples. Other resources present conceptual and methodological measures and modelling to understand the burden of influenza, including an equity model.

Work is underway to develop new resources on other priority areas, including rapid diagnostics, communication and messaging.

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**Continued interest in project resources**

• A webinar from the NCC for Determinants of Health on health equity and influenza had widespread attendance from health units and regional health authorities from across Canada, as well as participants from NGOs/health charities, hospitals, research centres and insurance companies.

• The NCC for Environmental Health resource on *Non-pharmaceutical measures to prevent the transmission of influenza* has been downloaded hundreds of times since its original posting.
Collaborative influence-in-action
Case story: Integrating equity in environmental health practice

TWO NCCs IDENTIFY AND RESPOND TO ENVIRONMENTAL PUBLIC HEALTH PRACTITIONER NEEDS

When staff at the National Collaborating Centres (NCCs) for Environmental Health and for Determinants of Health first discussed working together on a new resource about bedbugs, they had no idea it would be the start of a ground-breaking collaboration. Together, they had identified a gap: environmental public health practitioners had only minimally discussed how to integrate health equity and determinants of health in their practice. Realizing that their organizations were uniquely positioned to start a pan-Canadian conversation, and strengthen public health practice, they set to work.

Pilot study reveals need for training and revisiting scope of practice

The two NCCs conducted a pilot study on needs and gaps for environmental public health practitioners to address health equity in two provinces. Participants described the challenge of balancing their mandate to enforce public health regulations with a recognition that their decisions can have a profound effect on people who are vulnerable. What’s more, they needed training and accessible resources to address social determinants such as poor living conditions, poverty, food insecurity, and lack of access to power.

What is the role of environmental public health practitioners?

Public health inspectors and environmental health officers are professionals who work to ensure we live in healthy environments. They ensure food safety in restaurants and at public events, monitor drinking water quality, prevent and manage communicable disease outbreaks, assess soil and air quality, promote tobacco control and injury prevention, and contribute to healthy land use planning decisions. In addition to facility licensing and inspections, they educate the public and partner with other public health professionals.
NCCs responded with accessible resources and collaborations to shift local and regional practice

- An online handbook developed by the BC Centre for Disease Control with supporting input from the NCCs.
- A practical framework for action and an accompanying user guide.
- Key resources for environmental public health practitioners: A curated reading list.
- Series of national and provincial knowledge exchange and learning events focused on assessing inspection practice from an equity lens.
- Consultations with individual practitioners and regional health authorities/public health units.
- A glossary of health equity in the context of environmental public health (in press)

Partnership with CIPHI strengthens learning and core competencies

In 2016, NCCs helped plan the national annual education conference of the Canadian Institute of Public Health Inspector (CIPHI), helping to integrate an equity lens into the program. The two NCCs delivered several well-attended training workshops to the largest learning event for Canadian environmental public health practitioners. They have since been invited to submit feedback on how to integrate health equity into the core professional competencies for environmental public health practitioners through the CIPHI Instructional Objectives that are used to guide public health inspector training programs in Canada.