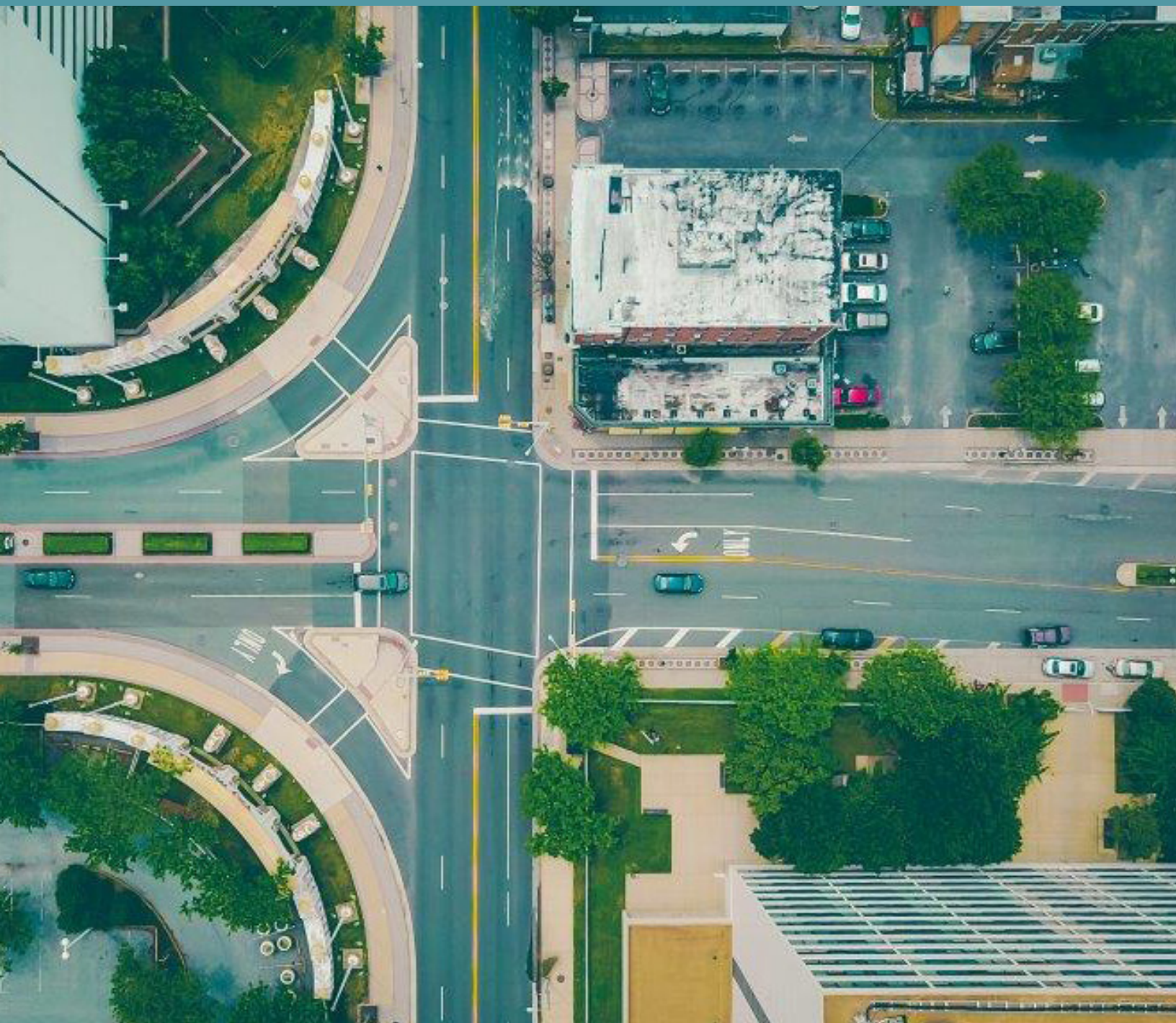


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# HEALTH IMPACT ASSESSMENT (HIA) KNOWLEDGE AND NEEDS SCAN: Findings, Gaps and Recommendations



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## BACKGROUND

Health Impact Assessment (HIA) is a structured approach that allows decision makers to consider how a policy, program or project could affect health. HIAs are often carried out as part of other assessment processes (e.g., environment, transportation, planning) but may be conducted on a stand-alone basis. The findings of an HIA may be used to inform recommendations on whether to approve or defer a proposal or to require modifications to mitigate adverse impacts or maximize benefits for affected individuals, communities or sub-groups.<sup>1,2</sup> Up to six steps may be included: screening, scoping, assessment, recommendation, reporting, and monitoring and evaluation.<sup>3</sup>

Incorporating health criteria in assessment processes has been advocated by agencies such as Health Canada and the Canadian Environmental Assessment Agency (CEAA).<sup>4,5</sup> Some provinces, territories, regions and municipalities require or promote the use of HIA. However, until 2019, federal regulations did not require HIA or the involvement of the public health sector in environmental and other types of assessments.

With the passage of the *Impact Assessment Act (IA Act)* in 2019, and the replacement of the CEAA with the Impact Assessment Agency of Canada (IAAC), the role of human health within federally mandated impact assessments has been strengthened.<sup>6</sup> The practitioner's guide related to this Act requires the consideration of health criteria, including indigenous health as well as the employment of best practices in HIA. The use of the Public Health Agency of Canada's recommendations in applying the social determinants of health approach is also required. Proponents must demonstrate that all aspects of the assessment, including health, have been conducted by qualified individuals.<sup>7-9</sup>

Although the scope for health has been expanded under the *IA Act*, the role of the public health sector is not specified. The *IA Act* also empowers cabinet ministers or the IAAC to narrow factors included and to substitute provincial environmental assessment (EA) processes for the federal process.<sup>10</sup> This means that certain health criteria could be excluded and a health assessment might not be conducted if it is not required by provincial regulation.

Canadian Public Health Professionals (PHPs) participate in HIAs within a variety of contexts, but capacities and practices vary, and this has created concern that important dimensions of human health and well-being may be overlooked. To begin addressing this concern, in March 2019, the National Collaborating Centre for Environmental Health (NCCEH) conducted a national scan in order to characterize HIA capacities within health units. This document uses the insights gained from the scan to outline options for addressing challenges for the public health sector in improving HIA practice.



<sup>1</sup> In this report, the term Public Health Professional (PHP) refers to roles such as Environmental Health Officer (EHO), Public Health Inspector (PHI), Manager, Supervisor, Director and specialist in public health units, Medical Officer of Health and Medical and Public Health Officer (referred to collectively as (MOH)).<sup>11-14</sup>

<sup>2</sup> The full report of the scan's methods and findings may be obtained by e-mailing a request to: [contact@ncceh.ca](mailto:contact@ncceh.ca).

SCAN OF KNOWLEDGE AND NEEDS

Information was gathered on five areas of interest: characteristics of HIA practice, human resources, competencies, training needs, and challenges.

This was the first national scan of its kind and an important component was identifying and establishing contact with PHPs with HIA experience. The process diagram in the Appendix illustrates the scan’s work plan. Consultations and searches of the literature and professional organizations identified individuals within the public health sector who had been involved in HIAs and others from outside the sector who worked with PHPs on assessments. These consultations and searches revealed that a number of health units could be engaged in HIA, including population, community and environmental health, health promotion and protection, and harm reduction. For this reason, a list of Medical Officers of Health (MOHs) from these units was also compiled. Two approaches were used to gather information: an online survey questionnaire and telephone interviews targeting key informants (informants) with specialized knowledge or experience. The questionnaire had 17 closed-ended and two open-ended questions. The interviews were semi-structured with defined themes but also permitted subjects to elaborate or introduce topics. Sixteen informants were interviewed and 34 respondents completed the survey.

Since the scan was conducted prior to the passage of the *IA Act* and the formation of the IAAC, questions and answers concerning federally mandated assessments refer to the CEAA.

OVERVIEW OF FINDINGS

The scan provided indications of the scale and nature of PHPs’ involvement in HIA, factors influencing HIA practice, and barriers encountered. Over half of the respondents indicated that they were rarely or never involved in HIA, and 15 informants had extensive experience.

Practice characteristics

Twelve fields were identified (see Figure 1), and three quarters of the participants were involved in assessing proposals in two or more fields. The remainder were involved in one. Projects in the natural resource fields were most highly represented, followed by transport, built environment, and other planning proposals. Approximately thirty participants worked in agencies involved in HIAs for policies or programs, and four informants had assessed these types of proposals. Two informants had been involved in full (6-step) HIAs for municipal planning. Most participants were involved in the screening or scoping steps or in the review of draft reports within the assessment step.

A closer examination of the fields reveals that they may fall into one or more of three governance groups (see Figure 1):

- 1. HIAs embedded within EAs required under federal, provincial, or territorial legislation and overseen by the CEAA often in conjunction with other agencies;
- 2. Assessments required under other provincial, territorial, and local legislation or planning frameworks such as health in all policies, health equity, and Vision Zero plans for reducing traffic-related injuries; and
- 3. HIAs often initiated at the discretion of a local authority as part of permitting or planning.



Figure 1: HIA fields grouped by governance category (\*Under the new *IA Act*, the CEAA has been replaced by the IAAC, but at the time of the scan, federally mandated assessments were still under the jurisdiction of the CEAA.)



Historically, groups two and three above have tended to consider the widest range of health determinants and outcomes, whereas health assessments overseen by the CEAA tended to be restricted to biophysical health impacts stemming from changes to the physical environment. According to several informants, this had been changing and applying a wider health lens was becoming more common. Stand-alone assessments were most likely in the third group. The relationship between a health unit and the agency with primary authority for the assessment also appears to influence the nature of a health unit's involvement. Several informants credited stronger relationships with earlier involvement, broader scope, and greater participation in working groups and committees.

HIAs are typically conducted in teams of three or more members that include roles ranging from MOHs to Public Health Inspectors (PHIs). The minority of respondents reporting that responsibility for HIA rested with one person also reported infrequent involvement in assessments. Five units had an HIA specialist and five could access specialists from other units. Twenty-one respondents relied on staff who are knowledgeable about HIA but who are not HIA specialists, and 12 relied on outsourced expertise.

### ***Experience, training and skills***

Most respondents ranked themselves as familiar or very familiar with HIA. One third indicated that others within their unit possessed complementary skills. Four informants had developed HIA knowledge products to support PHPs.

Three quarters of the participants had studied HIA within degree, diploma, or professional development programs. The remainder had trained informally or were untrained. Fourteen had attended a workshop and eight had completed the online course offered by the National Collaborating Centre for Healthy Public Policy (NCCHPP). MOHs were slightly more likely than others to have formal training. All participants had trained in one or more of 15 skills and techniques often used within HIA. The largest number had studied Human Health Risk Assessment (HHRA) or air and water quality. MOHs and managerial staff were more likely to have trained in activities often undertaken in conjunction with assessments, for example, participation in panels and working groups or communication.

Most respondents felt that they had the skills needed for the HIAs in which they had been involved. Correspondence between experience and self-assessed competency was

highest for the screening, recommending, and reporting components and lowest for stakeholder consultation, reviewing quantitative assessments of health impacts, and for the monitoring and evaluation step.

### ***Perceived barriers and needs***

The questionnaire included a list of eight limiting factors shown in Table 1, and respondents selected those most relevant for their HIA practice. Informants were asked to discuss barriers they encountered. The barriers frequently selected included lack of resources (e.g., staffing, financial) and health units' mandates as well as timing and policy issues. (See Table 1 and selected comments in Box 1). Links between staffing limitations and the scope of HIAs were noted by several participants. A representative of a provincial environmental assessment office and one informant from a small unit explained that this was the reason that health assessments were often restricted to regulatory compliance criteria. Timing was raised by half of the respondents and two thirds of the informants. The main concerns arose from units being brought into the process too late to properly scope health criteria and assessment methods or from being given too little time to complete the tasks required. The absence of legislation and regulation emerged as a major barrier to creating the organizational mandates needed to justify expanding HIA capacity.



## BOX 1: SELECTED QUOTES ON BARRIERS TO PHPS INVOLVEMENT IN HIA

*"The depth of expertise and experience is variable both at an individual and organizational level."*  
(Role: MOH)

*"We have been trying to do a modified version of HIA—basically, key considerations only, summarized in a few pages. Would be wonderful to have the capacity to do this within public health, but <this> feels far away for our public health unit unless the value of PH involvement in HIA is recognized and becomes more widely understood."* (Role: MOH)

*"Key barriers are funding, not engaging public health in a timely fashion (i.e., at the scoping phase of the project) and lack of organizational understanding of the importance of this."* (Role: MOH)

*"We need legislation."* (Role: Regional Built Environment Consultant)

*"The HIA...assessor learns a lot from practical experience and this only comes from doing/reviewing/participating in numerous major projects and thus the assessor needs to be local yet given enough projects to allow them to grow and gain valuable experience that helps them grow."*  
(Role: Acting Manager, PHI Environmental Health Protection Coordinator)

*"The skill sets and training of PHIs/EHOs are often overlooked/under-recognized. This is further complicated by unclear mandates and roles and responsibilities amongst programs and agencies, especially under CEAA."* (Role: Health Unit Director/Program Manager/Supervisor)

The three most commonly cited needs by the study group were:

1. Staff training;
2. Developing and maintaining relationships with non-health agencies; and
3. Mandatory inclusion of the public health sector in the assessment process.

The need for opportunities to train on the job was a priority as was training in the monitoring and evaluation step. Several informants communicated broader visions for the assessment process. Speaking from the perspective of transportation planning, one informant encouraged "empathic design" that prioritizes the well-being of all individuals affected by a system (e.g., drivers, public transportation users, cyclists, pedestrians, residents, and businesses). Another commented on the need to include the economic value of health impacts in order to facilitate comparisons with other outcomes that are measured in monetary terms (e.g., employment, profits, and tax revenues).





TABLE 1. FACTORS LIMITING HEALTH UNIT'S INVOLVEMENT IN HIA

LIMITING FACTOR	NUMBER OF RESPONDENTS SELECTING EACH FACTOR*
Staff availability	20
Staff training	23
Organizational experience with HIA	22
Financial resources (e.g., for travel to sites, hiring consultants/experts)	19
Organizational mandate	15
Timing of consultation with public health too late in the HIA process	15
Access to expertise outside of the agency	12
Supervision	4
Other	8

\*Respondents had the option of selecting more than one limiting factor.



## SUMMARY OF FINDINGS AND GAPS

Most participants supported at least one of the following:

1. Giving health criteria equal status to others (e.g., environmental, transportation efficiency);
2. Including a range of health determinants and outcomes that could be impacted by a proposal;
3. Assessing both the potential beneficial and adverse outcomes; and
4. Policy and regulation clearly delineating requirements for including health criteria and the role of the public health sector in the assessment process.

It was apparent that many participants were poorly informed about practice outside of their own units, regions, or fields of practice. Other than the online HIA course offered by

NCCHPP<sup>15</sup> that many participants knew about or had completed, there was a low level of awareness about quality HIA resources (e.g., handbooks, guides, and HIA reports) produced by other Canadian PHPs; these include handbooks, guides, and case studies on HIA or related topics such as HHRA incorporating a determinants of health lens.<sup>16-21</sup> One informant commented that good Canadian case studies from which to learn would be welcome, confirming that improving HIA knowledge exchange within the public health sector could be beneficial. Another participant commented that some valuable French-language work might be made more accessible if translation were available.

Many of the scan's findings are also evident in the HIA literature. The policy gap has been raised as a barrier in

several Canadian studies as have the desirability of applying a broad health lens and the importance of collaboration with non-health decision makers.<sup>22-27</sup> Noble and Bronson's (2006) observation that health criteria need to be better incorporated into the post-approval stages corresponds to the emphasis on training needs in the monitoring and evaluation step.<sup>24</sup>

The scan and recent literature also reveal that there has been progress in solidifying HIA methodologies. In their review of Canadian mining case studies, Bronson and Noble (2005) noted an absence of methodologies for including health in EAs, but a more recent review by Bourcier et al. (2015) indicates that methods have been developed and refined. Many more tools are currently in use compared to the past.<sup>2,28</sup> Thus, the current challenge is to ensure that resources are disseminated and utilized consistently.<sup>25</sup> As one Medical Officer of Health in the scan commented, "Public health professionals have the skills and desire to do HIAs but lack the resources."

Two issues discussed in the literature were absent from the scan: the composition of HIA teams and communication, both of which were found to be key predictors of success in a 2014 survey of 23 HIAs.<sup>2,28,29</sup>

Some caution needs to be exercised in generalizing the findings. The sample is small and the reasons for the survey's 17% response rate are not clear. Half the 200 recipients opened the questionnaire and 34 completed it. Understanding the reasons behind the decision not to continue by those who opened the survey and read the introduction would be of interest. Part of the reason may be that individuals with more experience and interest in HIA would be more likely to complete the survey. Since many respondents indicated that they had little or no HIA involvement, it is possible that many others who received the survey had a similar lack of experience and felt unqualified to complete the questionnaire. Several informants indicated that the term HIA may have deterred recipients who may not classify their health assessments as HIA.

## RECOMMENDATIONS

The recommendations below are informed by the scan and recent HIA publications. The focus is on capacity building within the public health sector, developing and maintaining relationships among HIA stakeholders, effective communication, and policy.

### ***Increase capacity building within the public health sector***

***Community of practice (CoP)*** – The existence of PHPs with extensive HIA experience and expertise coupled with the apparent weak connection among health units creates an opportunity for a CoP or similar forum to address shared, practice-oriented problems.<sup>30,31</sup> Goals such as establishing clear triggers for HIA, defining mandates for health units, and establishing practice standards reflecting public health priorities could be served by such a forum.<sup>4,22,32,33</sup> It could also be used to identify and mobilize contextualized resources and to fill information gaps identified in the scan, including obtaining a more complete understanding of the involvement and interest of PHPs in HIA.

***Training*** – Opportunities should reflect preferences for on-the-job training and prioritize HIA's holistic aspects. If the scan's participants are representative of HIA practitioners in the public health sector, then many already have high levels of competencies in skills related to HIA, such as HHRA and environmental quality assessment, but need to understand how multiple elements are integrated. The newly revised course offered by NCCHPP has this focus and could be particularly relevant for HIAs in planning-related contexts.<sup>15</sup> Emphasis on the monitoring and evaluation step could be appropriate since it was highlighted as a training need by respondents. A CoP could enhance on-the-job training by facilitating knowledge exchange and mobilizing existing resources in public health workplaces.<sup>16-21,34,35</sup>

***Ensuring that HIA teams include people with the required skills and experience*** – A systematic approach to team building should inform priorities for training, staffing, and outsourcing to ensure that HIA teams include the following expertise: proposal-related content, project management, familiarity with the decision-making process (e.g., policies, regulations, key stakeholders), and stakeholder engagement.<sup>36</sup>

### ***Engage non-health stakeholders***

Since strong relationships with non-health agencies appear to improve HIA practice, outreach to key stakeholders such as the IAAC, provincial and territorial environmental assessment offices, transportation and planning departments, and community organizations would be mutually beneficial. Activities that contribute to engagement, such as participation in planning committees and review panels, should be sought.



## Communicate strategically

The results of HIAs should be crafted into messages that are communicated in ways that resonate with decision makers. Dissemination strategies must be built into HIA plans, coordinated with other stakeholders, and communicated with various audiences at different times during the assessment process. Recommendations should provide clear ideas of actions needed.

## Contribute to the development and implementation of relevant policies and regulation

There are opportunities for the public health sector to promote HIA at the federal, provincial, and territorial levels. A number of provisions in the IAAC practice guidelines may have resulted in part from contributions made by the public health sector during the policy-making process. Two health units represented in the scan had commented during the *IA Act's* public consultation process advocating for including statutory requirements, a range of determinants of health, and vulnerable sub-populations.<sup>37-39</sup> These provisions create opportunities related to the collection and analysis of data needed for baseline health assessments and to developing and using expertise in assessing changes in health and the underlying determinants of health. Similarly, the *IA Act's* recommendation that health specialists should serve within the IAAC could lead to an expanded role for public health professionals not previously available.<sup>40</sup> At the provincial

and territorial level, the public health sector has been involved to varying degrees in changes to EA legislation. One example is the engagement of health authorities in the process underway in British Columbia.<sup>41</sup> In Quebec, the public health sector was proactive in affirming the role of HIA in the *Public Health Act* (2001) and progress has been made in incorporating health in areas such as environment, transport, and agriculture.<sup>42</sup>

## CONCLUSION

This study was the first national scan to obtain a snapshot of PHPs' involvement in HIA representing all of the major fields and governance frameworks. Previous surveys were restricted to specific fields or regions of Canada.<sup>22,24,26</sup> Since 1998, when Canada's HIA handbook<sup>4</sup> was published, HIA practice has increased and several barriers have been resolved. Currently, the mandate of the public health sector needs to be clarified and staffing, training, and other resource needs must be addressed. Although participants regarded policy gaps as a major constraint, following the completion of the scan new impact assessment practice guidelines were released under the *IA Act*. These outline a potentially expanded role for PHPs in federally required assessments and could be leveraged for strategies addressing the needs above. Knowledge mobilization and exchange opportunities are identified as an important means of disseminating and leveraging existing experience and improving PHPs' ability to engage in new HIA opportunities.



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## REFERENCES

1. National Research Council Committee on Health Impact Assessment. Improving health in the United States: the role of health impact assessment. Washington, DC: National Academies Press (US), National Academy of Sciences; 2011. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22379655>.
2. Bourcier E, Charbonneau D, Cahill C, Dannenberg AL. Do health impact assessments make a difference? A national evaluation of HIAs in the United States. Seattle, WA: Center for Community Health and Evaluation; 2014 Apr. Available from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2014/rwjf409204](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2014/rwjf409204).
3. Fulk F, Rhodus J. Health Impact Assessment (HIA): six steps to factoring health into decision-making. Poster. Cincinnati, OH: US Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory; 2015. Available from: <https://www.ecos.org/wp-content/uploads/2016/03/HIA-Process-Poster.pdf>.
4. Health Canada. The Canadian handbook on health impact assessment. Volume 1: the basics. Ottawa, ON: Health Canada; 2004. Available from: [http://www.hc-sc.gc.ca/fniah-spnia/pubs/promotion/\\_environ/handbook-guide2004/index-eng.php](http://www.hc-sc.gc.ca/fniah-spnia/pubs/promotion/_environ/handbook-guide2004/index-eng.php).
5. Canadian Environmental Assessment Agency. Basics of environmental assessment. Ottawa, ON: Government of Canada; 2019 [updated 2019 Oct 16; cited 2019 Oct 29]; Available from: <https://www.canada.ca/en/environmental-assessment-agency/services/environmental-assessments/basics-environmental-assessment.html>.
6. Impact Assessment Agency of Canada. Impact assessment. Ottawa, ON: Government of Canada; 2019 [updated 2019 Nov 6; cited 2019 Oct 29]; Available from: <https://www.canada.ca/en/impact-assessment-agency.html>.
7. Impact Assessment Agency of Canada. Practitioner's guide to Federal impact assessments under the Impact Assessment Act, section 1. Tailored impact statement guidelines template for designated projects subject to the Impact Assessment Act, 1.1 Factors to be considered in the impact assessment. Ottawa, ON: Government of Canada; 2019. Available from: [https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/tailored-impact-statement-guidelines-projects-impact-assessment-act.html#\\_Toc15652066](https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/tailored-impact-statement-guidelines-projects-impact-assessment-act.html#_Toc15652066).
8. Impact Assessment Agency of Canada. Practitioner's guide to Federal impact assessments under the Impact Assessment Act. Ottawa, ON: Government of Canada; 2019. Available from: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act.html>.
9. Impact Assessment Agency of Canada. Practitioner's guide to Federal impact assessments under the Impact Assessment Act, section 1. Tailored impact statement guidelines template for designated projects subject to the Impact Assessment Act, 9. Baseline conditions-human health. Ottawa, ON: Government of Canada; 2019. Available from: [https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/tailored-impact-statement-guidelines-projects-impact-assessment-act.html#\\_Toc15652097](https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act/tailored-impact-statement-guidelines-projects-impact-assessment-act.html#_Toc15652097).
10. Lindgren R. Canada's Impact Assessment Act: a public interest perspective. Toronto, ON: Canadian Environmental Law Association; 2019 Jun 26 [cited 2019 Oct 20]; Available from: <https://www.cela.ca/public-interest-impact-assessment>.
11. British Columbia Ministry of Health. About public health-For public health professionals. Victoria, BC: Government of British Columbia; 2019 [cited 2019 March 23]; Available from: <https://www2.gov.bc.ca/gov/content/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/about-public-health/for-public-health-professionals#two>.
12. Canadian Institute for Health Information. Environmental public health professionals. Ottawa, ON: CIHI; [cited 2019 Mar 23]; Available from: <https://www.cihi.ca/en/environmental-public-health-professionals>.
13. Centers for Disease Control and Prevention. What is environmental public health? Washington, DC: US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry, National Center for Environmental Health; 2014 [cited 2019 Mar 19]; Available from: <https://blogs.cdc.gov/yourhealthyourenvironment/2014/04/22/what-is-environmental-public-health/>.

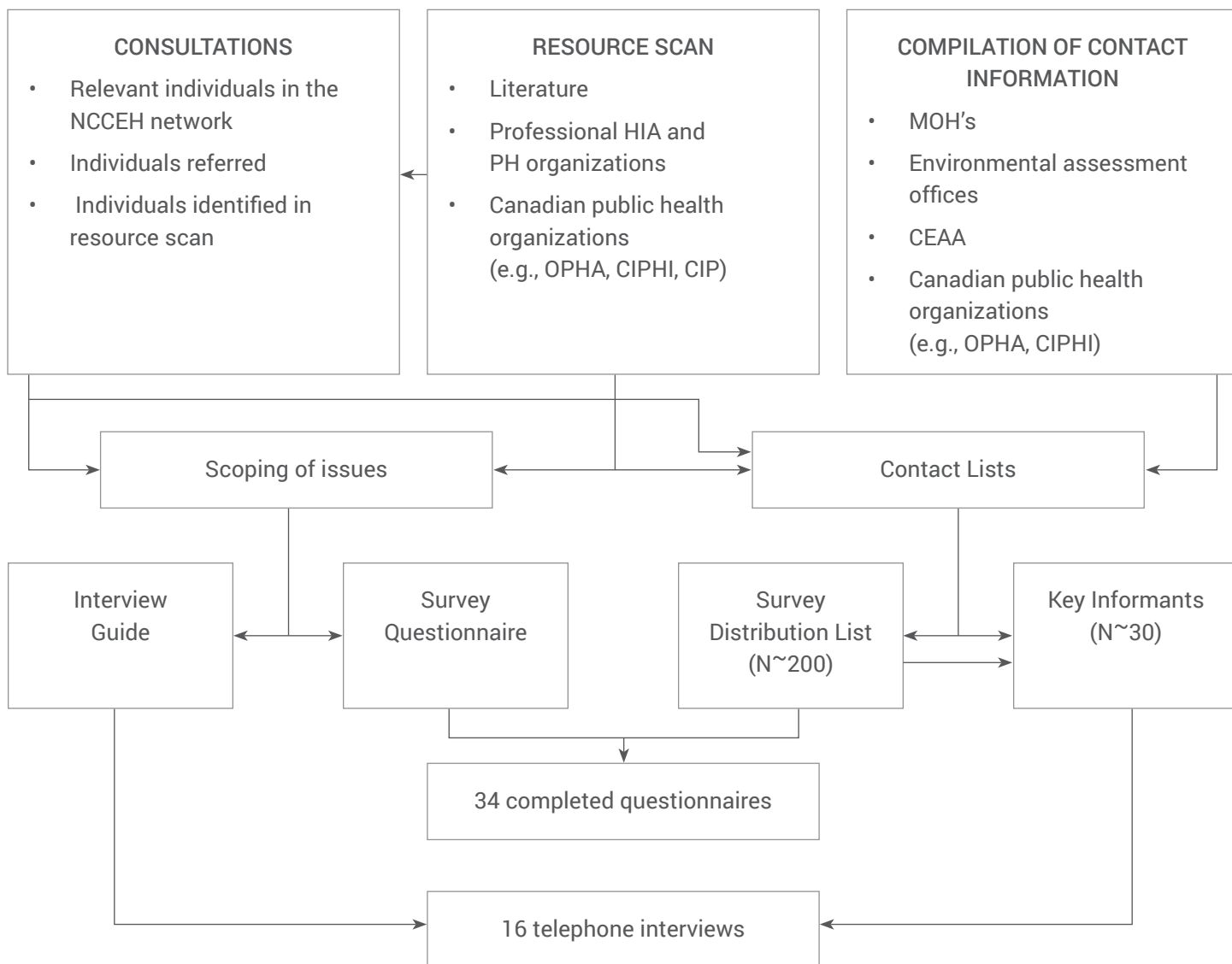
14. Public Health Agency of Canada. Core competencies for public health in Canada. Ottawa, ON: PHAC; 2007. Available from: <http://www.phac-aspc.gc.ca/php-ppsp/ccph-cesp/pdfs/cc-manual-eng090407.pdf>.
15. National Collaborating Centre for Healthy Public Policy. Online course - Health impact assessment, step by step. on-line course. Montreal, QC: NCCHPP; 2019 Apr. Available from: [http://www.ncchpp.ca/274/Online\\_Course.ccnpps?id\\_article=922](http://www.ncchpp.ca/274/Online_Course.ccnpps?id_article=922).
16. Froese K, Orenstein M. Saskatchewan guidelines for reviewing health impacts in environmental assessment. Calgary, AB: Habitat Health Impact Consulting; 2014.
17. Sharpe C, Janzen C, Schwandt M, Dunn-Pierce T, Neudorf C, Meili R. Growing healthier: a health equity impact assessment of Saskatoon's growth plan. Saskatoon, SK: Saskatoon Health Region and Upstream; 2016 Oct. Available from: <https://drive.google.com/file/d/0B0U9o9nlpWKIQWp4RXNpNHYxclU/view>.
18. Ontario Public Health Association, Healthy Built Environment Working Group. Public health and environmental assessments 101. Toronto, ON: OPHA; [cited 2019 Oct 26]; Available from: <https://opha.on.ca/Events/Introduction-to-Environmental-Assessments-and-Role.aspx>.
19. EcoHealth. Health impact assessment of transportation and land use planning activities - guidebook. Vancouver, BC: Metro Vancouver, Vancouver Coastal Health Authority, Fraser Health Authority, Translink; 2015. Available from: <http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HIA-Guidebook.pdf>.
20. Alberta Health and Wellness. Guidance on human health risk assessment for environmental impact assessment in Alberta (version 2). Edmonton, AB: Government of Alberta; 2019 Aug. Available from: <https://open.alberta.ca/publications/9781460143599>.
21. Alberta Health Services. Health equity impact assessment situational and resource analysis. Edmonton, AB: Government of Alberta; 2017. Available from: <https://www.albertahealthservices.ca/assets/healthinfo/poph/hi-poph-surv-sh-sa-heia-situational-analysis.pdf>.
22. McCallum LC, Ollson CA, Stefanovic IL. Advancing the practice of health impact assessment in Canada: obstacles and opportunities. *Environ Impact Assess Rev*. 2015;55:98-109. Available from: <https://doi.org/10.1016/j.eiar.2015.07.007>.
23. McCallum LK. Development and application of strategies for health impact assessment of projects and policies. Toronto, ON: University of Toronto; 2017. Available from: [https://tspace.library.utoronto.ca/bitstream/1807/79339/3/McCallum\\_Lindsay\\_C\\_201702\\_PhD\\_thesis.pdf](https://tspace.library.utoronto.ca/bitstream/1807/79339/3/McCallum_Lindsay_C_201702_PhD_thesis.pdf).
24. Noble B, Bronson J. Practitioner survey of the state of health integration in environmental assessment: the case of northern Canada. *Environ Impact Assess Rev*. 2006;26(4):410-24. Available from: <https://doi.org/10.1016/j.eiar.2005.11.001>.
25. Noble BF, Bronson JE. Integrating human health into environmental impact assessment: case studies of Canada's northern mining resource sector. *Arctic*. 2005;58(4):395-405. Available from: <http://pubs.aina.ucalgary.ca/arctic/arctic58-4-395.pdf>.
26. Dix-Cooper L, Kosatsky T. Readiness of BC's health authorities to stand for health in mandated environmental assessments. Canadian Institute of Public Health Inspectors National Conference, 2015; Ottawa, ON: CIPHI; 2015. Available from: [http://www.nccch.ca/sites/default/files/Readiness\\_BC\\_Health\\_Authorities\\_EA-Dix-Cooper-Kosasky.pdf](http://www.nccch.ca/sites/default/files/Readiness_BC_Health_Authorities_EA-Dix-Cooper-Kosasky.pdf).
27. Peterson E, Kosatsky T. Incorporating health into environmental assessments in Canada. *Environmental Health Review*. 2016 2016/03/01;59(1):4-6. Available from: <http://dx.doi.org/10.5864/d2016-006>.
28. Bourcier E, Charbonneau D, Cahill C, Dannenberg AL. An evaluation of health impact assessments in the United States, 2011 - 2014. *Prev Chronic Dis*. 2015;12(Feb 19). Available from: <http://dx.doi.org/10.5888/pcd12.140376>.



29. Health Canada. The Canadian handbook on health impact assessment. Volume 3: the multidisciplinary team. Ottawa, ON: Health Canada; 2004. Available from: [http://www.hc-sc.gc.ca/fniah-spnia/pubs/promotion/\\_environ/hand-book-guide2004/index-eng.php](http://www.hc-sc.gc.ca/fniah-spnia/pubs/promotion/_environ/hand-book-guide2004/index-eng.php).
30. Centers for Disease Control and Prevention. Communities of Practice (CoPs) [Public Health Professionals Gateway]. Washington, DC: US Department of Health and Human Services; 2019 [updated 2019 Feb 15; cited 2019 Jun 26]; Available from: <https://www.cdc.gov/phcommunities/index.html>.
31. Richard L, Chiocchio F, Essiembre H, Tremblay M-C, Lamy G, Champagne F, et al. Communities of practice as a professional and organizational development strategy in local public health organizations in Quebec, Canada: an evaluation model. *Healthc Policy*. 2014;9(3):26-39. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/24726072>.
32. Dreaves HA. How Health Impact Assessments (HIAs) help us to select the public health policies most likely to maximise health gain, on the basis of best public health science. *AIMS Public Health*. 2016;3(2):235-41. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29546158>.
33. World health Organisation (WHO). The Ottawa Charter for Health Promotion. Geneva: WHO; 1986 [cited 2019 May 29 2019]; Available from: <https://www.who.int/healthpromotion/conferences/previous/ottawa/en/index4.html>.
34. Society of practitioners of Health Impact Assessment. Welcome to the society of practitioners of health impact assessment. Oakland, CA: SOPHIA; [cited 2019 Oct 26]; Available from: <https://hiasociety.org/>.
35. International Association for Impact Assessment. IAIA. The leading global network on impact assessment. Fargo, ND: IAIA; [cited 2019 Oct 26]; Available from: <https://www.iaia.org/>.
36. Committee on Health Impact Assessment; National Research Council. Improving health in the United States. The role of health impact assessment. Washington, DC: National Academies Press; 2011. Available from: [http://www.nap.edu/catalog.php?record\\_id=13229](http://www.nap.edu/catalog.php?record_id=13229).
37. Region of Durham. Region of Durham submission on the discussion paper on information requirements and time management regulatory proposal. Durham, ON: Region of Durham; 2019. Available from: <https://www.impactassessmentregulations.ca/8866/documents/16789/download>.
38. Northern Health Authority. Re: The Government of Canada's Consultation Paper on Information Requirements and Time Management Regulations. Comments and Recommendations on Behalf of Northern Health. Prince George, BC: Northern Health; 2018 Jun 1. Available from: [https://s3.ca-central-1.amazonaws.com/ehq-production-canada/file\\_answers/files/8220d692dd4cf1e599ebac84a9fe465bb0c8ebe2/010/438/417/original/2018\\_06\\_01\\_Federal\\_IAA\\_-\\_Regulation\\_Review\\_-\\_Information\\_Requirements\\_and\\_Timelines.pdf?1527882947&utm\\_campaign=website&utm\\_source=ehq&utm\\_medium=email](https://s3.ca-central-1.amazonaws.com/ehq-production-canada/file_answers/files/8220d692dd4cf1e599ebac84a9fe465bb0c8ebe2/010/438/417/original/2018_06_01_Federal_IAA_-_Regulation_Review_-_Information_Requirements_and_Timelines.pdf?1527882947&utm_campaign=website&utm_source=ehq&utm_medium=email).
39. Lindgren RD. Submissions by the Canadian Environmental Law Association to the Government regarding discussion paper on the Proposed List and Discussion Paper on Information Requirements and Time Management Regulatory Proposal. Public comment submitted as part of consultation on new impact assessment system under Bill C-69. Toronto, ON: Canadian Environmental Law Association; 2019 May 29. Available from: <https://www.impactassessmentregulations.ca/8866/documents/16609/download>.
40. Government of Canada. Bill C-69, Statutes of Canada, Chapter 28. Parliament of Canada.(2019). Available from: <https://www.parl.ca/DocumentViewer/en/42-1/bill/C-69/royal-assent>.
41. British Columbia Ministry of the Environment and Climate Change. Environmental assessment revitalization - what we heard report. Victoria, BC: Government of British Columbia; 2018. Available from: [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization/documents/what\\_we\\_heard\\_report\\_final.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/environmental-assessment-revitalization/documents/what_we_heard_report_final.pdf).
42. Gagnon F, Turgeon J, Dallaire C. Health impact assessment in Quebec: When the law becomes a lever for action. Montreal, QC: National Collaborating Centre for Healthy Public Policy; 2008 Oct. Available from: [http://www.ncchpp.ca/docs/GEPPS\\_HIAQu%C3%A9becANoct2008.pdf](http://www.ncchpp.ca/docs/GEPPS_HIAQu%C3%A9becANoct2008.pdf).

## APPENDIX

### HIA KNOWLEDGE AND NEEDS SCAN WORKFLOW



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