

Where Are We Now? A Content Analysis of Canadian Master of Public Health Course Descriptions and the Public Health Agency of Canada's Core Competencies

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ABSTRACT

Objective: To examine the degree to which Master of Public Health (MPH) programs' course descriptions align with the Public Health Agency of Canada's (PHAC's) core competency categories in order to identify strengths and training gaps in such programs across Canada.

Methods: A content analysis of MPH programs in Canada was conducted from July 2019 to November 2019. A sampling frame of programs was obtained from a list from the PHAC Web site. Program information, including mandatory and elective course descriptions, was extracted from each program's Web site and analyzed in NVivo 12. Course descriptions were independently categorized by 2 researchers into 1 or more of the 7 categories of the core competencies outlined by the PHAC.

Results: We identified 18 universities with MPH programs with 267 courses across Canada. Thematic analysis revealed that 100% of programs had coursework that addressed the "Public Health Sciences" and "Assessment and Analysis" categories; 93% addressed "Policy and Program Planning, Implementation, and Evaluation"; 67% addressed each of "Communication," "Leadership," and "Partnerships, Collaboration, and Advocacy"; and only 56% had course descriptions addressing "Diversity and Inclusiveness."

Conclusions: We find that Canadian MPH programs may lack course offerings addressing core competency categories relating to diversity and inclusiveness, communication, and leadership. Our findings were limited in scope as we relied on program Web sites; thus, further research should explore course content in more depth than this course description analysis allowed and identify ways to close the MPH curricular gaps we identified.

KEY WORDS: competencies, education, Master of Public Health, Public Health Agency of Canada

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Competency-based education is regarded as a best practice approach for public health workforce training.¹ The Public Health Agency of Canada (PHAC) released its set of core competencies in 2007 after a series of federal and provincial actions to strengthen Canada's public health system following the 2003 SARS (severe acute respiratory syndrome) epidemic. This document included 36 competency statements across 7 categories that encompassed the "essential knowledge, skills, and attitudes necessary for the practice of public health."² Simultaneously, there has been growth in the number of Master of Public Health (MPH) programs in Canada. The MPH degree is a professional degree that provides learners from a variety of backgrounds with the scientific, theoretical knowledge and skill to practice in a wide range of jobs that serve to prevent

disease and protect the population and public health. To properly prepare students to enter the Canadian public health workforce, MPH programs should use the PHAC core competencies to inform curricula.

While international efforts have been made to address core competencies in public health education, scholarly discourse about MPH programs at a national level in Canada is lacking. Since their release, the PHAC core competencies have not been refreshed since the release to meet the evolving demands of the public health workforce in Canada. Currently, there is no oversight of MPH programs from a national educational accrediting body in Canada as that exists for other health professions and for public health programs in other regions such as the United States and Europe. Recent international efforts outside of Canada have updated competency-based models to further MPH education and be more responsive to workforce needs.^{3,4} In Canada, MPH programs may include a combination of competencies in their curricula, ranging from those supported by the American Council on Education for Public Health (CEPH),⁴ the European Agency for Public Health Education Accreditation, and the Association of Schools of Public Health in the European Region (ASPHER).

The variety of MPH programs could be a strength for public health training in Canada; however, it is unclear to what extent programs are following the PHAC competencies or other competencies in their courses. Previous studies suggest that public health training programs may not provide the necessary training and education for future public health workers.^{5,6} Moreover, there is a growing body of literature from beyond Canada that suggests that MPH education needs to be restructured to better meet the public health challenges of the 21st century.^{3,7,8}

To date, few studies have examined competency-based MPH education in Canada. For example, the University of Guelph conducted a 5-year outcome assessment on its MPH program using the core competencies as an evaluative framework to determine whether its students were receiving adequate training.⁹ It describes the core competencies as a meaningful and informative approach for conducting outcome assessments and encourages other schools to follow suit in order to identify best practices and strengthen the Canadian graduate public health education system. However, not much is known about the extent to which other programs offer courses that align specifically with the PHAC competencies. The purpose of this study was to conduct a preliminary content analysis of Canadian MPH course descriptions by mapping them against the 7 Canadian PHAC core competency categories to understand the structure of MPH education in Canada.

Methods

We conducted a content analysis of course descriptions from program Web sites to assess course descriptions coverage and their alignment with the 7 PHAC categories of competencies from July 2019 to November 2019. Previous research has shown that Web-based content analysis is a viable method for summarizing baseline trends in graduate-level programs.^{10,11} A list of all public health educational programs was obtained from the PHAC's "Post-Secondary Educational Programs Related to Public Health" Web site.² For the purpose of this analysis, undergraduate, research-focused Master of Science (MSc), and doctoral degrees, as well as diploma or certificate programs related to public health were not included. MSc degrees were excluded because these programs typically place a greater emphasis on preparing learners for research careers and not public health practice; however, MSc Public Health programs or MSc programs that offered a practicum stream were included as they are training programs that include a practical component similar to an MPH program.

Publicly available information for each included program was extracted from each school's Web site. Descriptive information was extracted for each program, including university location (province), length of program, program characteristics, and year of program inception. An e-mail was sent to programs to clarify program inception date and graduation rates when it was not available online. It was also noted whether it could be found on the program's Web site if course content competencies were informed by the PHAC, CEPH, ASPHER, or other competencies. Finally, a list of required courses and available course descriptions for each program was extracted from the Web site. Course names and descriptions were uploaded into NVivo 12 (QSR International, Burlington, Massachusetts) for coding and analysis.

Each required course description was coded by members of the research team (W.S., E.S., S.N.S.). Study members assessed course titles and accompanying course descriptions and coded relevant descriptions into 1 or more of the 7 PHAC categories of competencies. Coding of all courses was completed in duplicate by a second study member. Coding discrepancies were resolved by discussion with all 3 members (W.S., E.S., S.N.S.). Thesis and practicum course codes that did not provide descriptions of specific curricula to cover were not coded, nor were specific specialized courses that focused exclusively on one topic or profession (eg, nursing or microbiology) within specialty streams because these types of courses are not generalizable to the general public health workforce and may not be open to all students. Course

descriptions/wordings were assessed by repetition in course title names across all MPH program offerings included in analysis. This study was considered exempt by HiREB based on TCPS2 (2018) Articles 2.1 and 2.2.

Results

A total of 32 universities offering public health-related postgraduate training programs were listed on the PHAC Web site. Of these, 14 programs were excluded. The British Columbia Institute of Technology, University of Lethbridge, First Nations University of Canada, Ryerson University, York University, and Cape Breton University were all excluded as their public health programs were at the undergraduate level. In addition, the University of Northern British Columbia, University of Calgary, Ontario Tech University, University of Ottawa (at the time of analysis, the MPH program at this institution was not available), Wilfrid Laurier University, Laurentian University, and Dalhousie University were excluded as their public health programs were MSc programs. Finally, the Concordia University of Edmonton was excluded as this is a Graduate Certificate in Public Health.

Eighteen remaining schools met our inclusion criteria for MPH programs (Table 1). These schools were Simon Fraser University, University of British Columbia, University of Victoria, University of Alberta, University of Saskatchewan, University of Manitoba, Lakehead University, McMaster University, Queen's University, University of Guelph, University of Toronto, University of Western, Brock University, University of Waterloo, McGill University, University of Montreal, Laval University, and Memorial University. In terms of distribution across Canada, 6% of MPH programs were in the Atlantic region ($n = 1$), 44% were in Ontario or Quebec, 11% were in Central Canada ($n = 2$), and 22% were in the West ($n = 4$).

The majority (61%) of programs offered only a practicum stream available ($n = 11$), and 39% offered a practicum and thesis stream ($n = 7$). There were 8 programs (44%) that offered specialized MPH streams, for example, epidemiology and/or health promotion; the remaining 10 programs described a generalized program with no specific fields. Programs typically ranged from 1 to 2 years in duration. On the basis of the available information, 33% of programs ($n = 6$) explicitly stated the use of the PHAC's competencies as a guide in formulating their curricula. In addition, 28% of programs ($n = 5$) were accredited by international accrediting bodies. Four of these programs were accredited by CEPH and 1 program by ASPHER. The remaining programs did not report

TABLE 1
Canadian MPH Program Descriptive Data

Region of Canada	Number of Schools	Percentage of Total Schools (N = 18)
Location		
Eastern Canada (NL, PE, NS, NB)	1	6
Quebec	3	16
Ontario	8	44
Central Canada (MB, SK)	2	11
Western Canada (AB, BC)	4	22
Canadian Territories	0	0
Length of program		
≤12 mo	2	11
12-20 mo	8	44
20-24 mo	4	22
12-24 mo	1	6
16-24 mo	3	17
Type of program		
Only practicum available	11	61
Practicum and thesis available	7	39
Specialized MPH streams available	8	44
Program/faculty inception year		
2000-2004	1	6
2005-2009	9	50
2010-2014	6	33
2015-2019	1	6
Unknown	1	6
Competency (associations)^a		
PHAC	6	33
CEPH	4	22
ASPHER	1	6
Not stated	8	44

Abbreviations: AB, Alberta; ASPHER, Association of Schools of Public Health in the European Region; BC, British Columbia; CEPH, Council on Education for Public Health; MB, Manitoba; MPH, Master of Public Health; NB, New Brunswick; NL, Newfoundland and Labrador; NS, Nova Scotia; PE, Prince Edward Island; PHAC, Public Health Agency of Canada; SK, Saskatchewan.

^aOne program utilizes more than 1 competency (association). Thus, the percentages for the competency domain do not sum to 100%.

any competencies used to formulate their curricula ($n = 8$).

Using content analysis, a total of 209 courses were examined for their relevance with the 7 PHAC categories of competencies (Table 2). For PHAC category 1.0 Public Health Sciences, 46% ($n = 123$) of the 267 courses were found to have wordings relevant to this category. Some examples of course titles identified were "Environment Health," "Indigenous Health," "Health promotion," and "Health Practice

TABLE 2
PHAC Competency Categories and MPH Course Coverage

Competency	Percentage of Programs Requiring 1 Core Course	Course Themes	Number of Courses	Percentage of Total Courses From All MPH Programs (N = 267)
<p><i>Public Health Sciences</i> "...key knowledge and critical thinking skills related to the public health sciences: behavioural and social sciences, biostatistics, epidemiology, environmental public health, demography, workplace health, and the prevention of chronic diseases, infectious diseases, psychosocial problems and injuries."</p>	100	Foundations/Core Concepts of Public Health Epidemiology Environmental Health Health Promotion Biostatistics Indigenous Health Determinants and Social Aspects of Health Health Practice and Policy Research Seminar Community Health, Services and Systems Disease/Injury Prevention	123	46
<p><i>Assessment and Analysis</i> "...core competencies needed to collect, assess, analyze and apply information (including data, facts, concepts and theories). These competencies are required to make evidence-based decisions, prepare budgets and reports, conduct investigations and make recommendations for policy and program development."</p>	100	Biostatistics Epidemiology Research Health Care Systems	98	38
<p><i>3.0 Policy and Program Planning, Implementation, and Evaluation</i> "...core competencies needed to effectively choose options, and to plan, implement, and evaluate policies and/or programs in public health. This includes the management of incidents such as outbreaks and emergencies...."</p>	94	Population and Public Health Policy Health Policy and Planning Knowledge Translation Research Program Planning and Evaluation Health Systems and Services Public Health Practice Indigenous Health Health Promotion and Nutrition Determinants of Health	68	25
<p><i>4.0 Partnerships, Collaboration, and Advocacy</i> "...captures the competencies required to influence and work with others to improve the health and well-being of the public through the pursuit of a common goal. Partnership and collaboration optimizes performance through shared resources and responsibilities. Advocacy—speaking, writing, or acting in favour of a particular cause, policy or group of people—often aims to reduce inequities in health status or access to health services."</p>	67	Research Collaboration and Partnerships Foundations Knowledge Translation Economic Evaluation of Health Care Health Promotion Indigenous Health Engagement and Leadership Management and Administration of Health Services Health Policy	31	12
<p><i>5.0 Diversity and Inclusiveness</i> "Category identifies the socio-cultural competencies required to interact effectively with diverse individuals, groups and communities. It is the embodiment of attitudes and practices that result in inclusive behaviours, practices, programs and policies."</p>	56	Indigenous Health Health Policy Foundations Health Promotion Social Determinants of Health	28	10

(continues)

TABLE 2
PHAC Competency Categories and MPH Course Coverage (continued)

Competency	Percentage of Programs Requiring 1 Core Course	Course Themes	Number of Courses	Percentage of Total Courses From All MPH Programs (N = 267)
6.0 Communication "This category addresses numerous dimensions of communication including internal and external exchanges; written, verbal, non-verbal and listening skills; computer literacy; providing appropriate information to different audiences; working with the media and social marketing techniques."	67	Health Communication Seminar Research Public Health Practice	17	6
7.0 Leadership "This category focuses on leadership competencies that build capacity, improve performance and enhance the quality of the working environment. They also enable organizations and communities to create, communicate and apply shared visions, missions and values."	67	Leadership in Public Health Ethical Issues and Theories, and Integrity in Public Health Foundations Research	30	11

Abbreviations: MPH, Master of Public Health; PHAC, Public Health Agency of Canada.

and Policy." All 18 programs (100%) had at least 1 core required course that was relevant to this category.

For the second PHAC category 2.0 Assessment and Analysis, we found that 389% (n = 98) of the assessed courses had descriptive nouns relevant to this category. Course titles identified for this category included "Biostatistics," "Epidemiology," "Research," and "Health Care Systems." Once again, all programs had at least 1 core required course that was relevant to this category.

Fewer courses appeared to have wordings relevant to PHAC category 3.0 Policy and Program Planning, Implementation, and Evaluation. Of the 267 courses evaluated, 25% (n = 68) had wordings relevant to this category. Some of the course description text identified included "Population and Public Health Policy," "Knowledge Translation," and "Determinants of Health." For all programs, 94% had at least 1 core required course that had wordings relevant to this category.

For PHAC category 4.0 Partnerships, Collaboration, and Advocacy, only 12% of the 267 courses had wordings consistent with this category (n = 31). Some of the course title wordings identified were "Collaboration and Partnerships," "Economic Evaluation of Health Care," and "Engagement and Leadership." For all programs, 67% had at least 1 core required course title that had wordings relevant to this category. Furthermore, only 10% (n = 28) of the 267 courses had wordings consistent with PHAC category 5.0 Diversity and Inclusiveness. Some of the course titles identified were "Indigenous Health," "Health Policy," and "Foundations." For all programs, 56% had at least

1 core required course that had wordings that aligned with this category. For PHAC category 6.0 Communication, of the 267 courses evaluated, 6% had course titles relevant to this category (n = 17). For example, some course title wordings included text such as "Health Communication," "Seminar," and "Public Health Practice." For all programs, 67% had at least 1 core required course that had wordings relevant to this category. Finally, for PHAC category 7.0 Leadership, 11% (n = 30) of the total number of courses assessed had wordings consistent with this category. Some of the course identified were "Leadership in Public Health," "Ethical Issues and Theories, and Integrity in Public Health," and "Foundations." For all programs, 67% had at least 1 core required course that had terms consistent with this domain.

Discussion

The purpose of our study was to map the current course offerings within MPH programs across Canada in order to identify whether current master's level public health curricula in Canada are addressing the PHAC's 7 categories of core competencies in public health. Overall, our findings show that while all of the programs meet the general competency categories of "Public Health Sciences" and "Assessment and Analysis," there is an apparent gap in courses with explicitly defined objectives related to the competencies centered around diversity—sociocultural aspects that relate to effective practice among different groups of people, communication, and leadership. There was a greater prevalence in courses such as

epidemiology, biostatistics, research methods, and public health foundations that could be reflective of the fact that these are important quantitative skills that are required for common roles within public health such as epidemiologists, research analysts, and health promoters. Furthermore, this course selection could be due to the fact that many MPH programs in Canada are housed within faculties of Health Science or Medicine, which are often found in research-intensive universities with such expertise readily available. Moreover, within the top 3 categories of competencies, course titles were heavily focused on quantitative research and fewer on qualitative research or interpretation of other types of research evidence.

Prior to 2018, the Public Health Agency delivered the “Skills Online” program for public health continuing education. Skills Online offered essential knowledge for both public health practitioners and non-public health professionals requiring a better understanding of public health. The Skills Online program delivered continuing education content that aligned with the PHAC competencies and may have filled any gaps for individuals needing professional training in public health. Skills Online also offered a convenient method of continuing education for those in practice needing to develop or refresh their skills. However, this program was discontinued in 2018. Therefore, research on MPH programs is increasingly important in order to understand whether graduates have training in the identified competencies at the beginning of their careers.

Our findings are congruent with previous research by Yassi et al⁵ that suggest Canadian public health training programs lack in qualitative and sociocultural aspects of public health training. This is especially concerning because as Canada’s population gets more diverse, there will be need for public health practitioners who can lead, apply, and communicate culturally relevant and appropriate approaches with individuals and populations from various cultural, socioeconomic, and educational backgrounds in order to achieve their health goals.¹² However, since many programs are practicum based, it is possible that practicums may be preparing learners with these skills through immersion in diverse placements. Moreover, without a strong grounding in communication and leadership, public health practitioners may not be adequately trained to disseminate epidemiologic evidence in a way that effects needed public health change. In addition, given that the Canadian public health system is constantly evolving, and our diversifying population, the core competency categories should be reassessed in order to determine whether they are in fact meeting their purpose.

The misalignment we have identified with course descriptions and the PHAC category of competencies can be rectified by further support from the National Collaborating Centres (NCCs) for Public Health that seek to promote and support evidence-informed public health. The NCCs could provide provision of accessible training in competency categories that are less represented in MPH course content. In addition, the PHAC and NCCs could create a repository of sample course outlines and syllabi to assist instructors of MPH programs on how to incorporate these important knowledge and skills into curricula. While this study did not assess the dimension of continuing education for MPH graduates and others, the lack of the Skills Online program for upgrading and refreshing skills in a Canadian context adds to the future skills concerns. Furthermore, an assessment of the core and subcompetencies might be warranted to determine currency and fit for workforce needs.

Our study is one of the first to describe national trends in MPH education in Canada. There is currently a major gap in scholarship around an understanding of such trends. The MPH degree is an important professional degree that trains learners how to practice in the field. We provide preliminary findings that can inform more detailed competency reviews and study by the PHAC and the Canadian Network of Schools and Programs for Population and Public Health Schools and Programs (NSPPH). We intend to work with the NSPPH and others to decide on next steps to achieve better academic alignment with workforce needs. The inconsistencies in core competencies that we have identified point to a challenge in the workforce readiness and reputation of MPH graduates. Our research could inform the groundwork for future developments in MPH education.

Limitations

Our content analysis was limited by our reliance on program Web sites to extract course information. As such, these informational sources shared only a cross section of the detailed course outline and syllabus for the courses reviewed. Course descriptions on the Web site could have been inaccurate or outdated and may not have conveyed the full details of the courses necessary for coding to the core competencies. Therefore, this preliminary analysis only provides a snapshot summary of MPH courses offerings in Canada. In addition, we mapped course descriptions onto the high-level category competencies and not the 36 competencies, due to the inconsistency of competency reporting in course descriptions.

Implications for Policy & Practice

- The first release of the core competencies for public health in Canada has helped to shape Master of Public Health programs across the nation; however, they have not been refreshed in over a decade.
- Therefore, the Public Health Agency of Canada should work with relevant stakeholders to assess if there are indeed curricular gaps as they relate to workforce needs.
- This effort would help to enhance the Canadian public health force's readiness to address current and future public health challenges.

Conclusions

Canada's population will continue to face complex public health issues. Therefore, the nation's response to these problems is dependent on the skills, knowledge, and attitudes of the public health workforce. Our findings indicate that MPH programs are placing more emphasis on "Public Health Sciences" and quantitative related courses and less emphasis on diversity and inclusion, communication, and leadership competency domains that are important for the practice of public health, given Canada's diverse populations. Furthermore, the gaps that we found may be indicative of a reality where there may be some academic misalignment with the core competencies. Academic programs and the core competencies should be reassessed to determine whether they are "fit for purpose" in the current Canadian public health system. Academic institutions that offer public health programs have a duty to ensure that workforce needs are reflected in their curricular. Therefore, future research should include a more detailed examination of MPH programs and related graduate-level training to determine whether the apparent inconsistencies we identified or whether other unrecognized gaps are leading to a less prepared workforce. This would help shed light on both whether the competencies need to be updated with an impetus for a regular review process and whether some current MPH course offerings

need to be adjusted to meet the core competencies in public health. Moreover, we recommend that the PHAC should provide support to the NSPPH and the Canadian Public Health Association to mobilize key stakeholders such as the Joint Task Group on Public Health Resources and NCCs as well as provincial/territorial and local levels to conduct an extensive study of gaps and strengths of graduate training in public health. With this type of effort, current workforce skills could be better integrated into curricula.

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