

Supporting Public Health Human Resource Planning: A Survey of Canadian Universities' Public Health Training Programs



SUMMARY

2023

FOREWORD

This summary provides an overview of the report *Supporting Public Health Human Resource Planning: A Survey of Canadian Universities' Public Health Training Programs*, produced by the National Collaborating Centre for Healthy Public Policy and the National Collaborating Centre for Methods and Tools. The full report was commissioned by the Public Health Agency of Canada.

The full document and this summary are intended to inform individuals and organizations involved in discussions about the training capacities of public health programs in Canadian universities, and about Canada's public health workforce planning in the context of public health system transformation and the post-COVID-19 era.

KEY MESSAGES

- 28 out of 96 of Canada's universities offer at least one public health program of more than 30 credits leading to bachelor's-level, graduate-level and postgraduate-level degrees;
- The 28 universities are located in 8 provinces: 12 in Ontario, 4 in Québec, 4 in British Columbia, 3 in Alberta, 1 in Saskatchewan, 1 in Manitoba, 2 in Nova Scotia and 1 in Newfoundland and Labrador;
- In 2021, there were 2846 students enrolled in the public health programs reporting, representing an increase of 821 students (41%), as compared to 1325 students enrolled in 2017;
- In 2020, there were 1691 students who graduated from public health programs, representing an increase of 439 students (35%) as compared to 2017, when 1252 students graduated;
- The following actions are suggested to complement the current understanding of Canadian universities' public health training capacity:
 - Complete the analysis of the current training available;
 - Analyze employer demand;
 - Analyze career paths;
 - Standardize indicators and data collection methods.



1 INTRODUCTION

This document presents a summary of the report *Supporting Public Health Human Resource Planning: A Survey of Canadian Universities' Public Health Training Programs*. It is intended to inform ongoing discussions about the training capacities of public health programs in Canadian universities, and the implications for Canada's public health workforce planning in the context of public health system transformation and the post-COVID-19 era. This summary starts by describing the research methods used to produce the full report. It then outlines the report in three parts. The first part summarizes some of the initiatives undertaken from 2000 to 2019 that have contributed to a better understanding of the training capacity of university public health programs in Canada. The second part presents key findings from our 2022 data collection, including the geographic distribution of universities offering public health programs, the types of programs and degrees they offer, and the students enrolled in 2017 and 2021 and graduating in 2017 and 2020. Finally, the third part lists proposed actions to deepen current understanding of the public health training capacities of Canadian universities, with a view to informing discussions from a perspective of planning and strengthening the public health workforce in Canada.

2 INFORMATION ON THE METHODOLOGY

The full report relies on two research methods: a purposive review of literature and a data collection.

2.1 Purposive review of literature method

The purposive review of literature had the following objectives:

1. Understand the context in which our project of documenting university-based public health programs in Canada in 2022 takes place;
2. Provide a retrospective of key initiatives related to public health workforce planning and university public health education programs in Canada since the early 2000s; and
3. Identify data collected previously on university-based public health training programs and their components since 2000.

In total, 25 documents were used to reconstruct the contexts of interest for sections 2 and 3 of the full report.

2.2 Data collection method

The data collection, conducted from January to June 2022, provided a portrait of:

- i. the 108 Canadian university programs related to public health leading to a degree of more than 30 credits¹ at the undergraduate (bachelor's), graduate (master's and doctoral), and postgraduate (residency program in public health and preventive medicine in university faculties of medicine) levels; and of
- ii. the students enrolled in and graduating from these programs.

As a first step, the websites of all 108 programs were accessed to collect all publicly-available data. Data collected were emailed to all program leaders as of January 2022. They were asked to validate the information from the websites and complete any missing information.

The data received were verified and cleaned up by removing cases of inconsistent data. If necessary, the program leads were contacted to revise or clarify the data relating to their programs. All data was compiled in an Excel spreadsheet for statistical processing.

Data presented in the report may refer to 2022 (when referring to programs offered) and to 2017, 2020, or 2021 (when referring to students enrolled in or graduating from those programs). The term "reporting programs" used in the analysis means the number of programs for which the data collected allowed for a statistically reliable treatment.

3 OUTLINE FROM THE FULL REPORT

3.1 Short overview of pan-Canadian initiatives related to public health training capacity undertaken during the years 2000 to 2019

According to the information gathered, in the aftermath of the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003, the National Advisory Committee on SARS and Public Health (Naylor Committee) reported that a thorough review of public health training programs was needed and that new entrants to the public health workforce would have to be appropriately qualified (Naylor & National Advisory Committee on SARS and Public Health, 2003). The committee's recommendations led to the creation of the Pan-Canadian Public Health Network (Public Health Network), a key intergovernmental mechanism for public health collaboration (Pan-Canadian Public Health Network, 2008). Through its various activities, the Public Health Network Council (part of the Pan-Canadian Public Health Network) oversaw the implementation of actions recommended in the report *Building*

¹ In order for a program to be retained, its title had to contain the words "public health", include or be combined with related programs, notably epidemiology, health promotion, population health or community health. Some programs closely related to public health (e.g., occupational health, social dimensions of health, Indigenous health, health evaluation, health sciences) were also included following case-by-case review. See also *Table 2 Selection Criteria for Public Health Programs* in the full report available at <https://ccnpps-ncchpp.ca/supporting-public-health-human-resource-planning-a-survey-of-canadian-universities-public-health-training-programs/>.

the Public Health Workforce for the 21st Century – A Pan-Canadian Framework for Public Health Human Resources Planning (Joint Task Group on Public Health Human Resources, 2005), among which were those targeting a better understanding of public health training capacities in Canadian universities.

Prior to our 2022 data collection, four others were conducted on academic public health training programs: in 2005-2006 (Spasoff, 2005), 2011 (Moloughney & Lederer, 2011), 2014 (Jung et al., 2015) and in 2019 (Apatu et al., 2021). The 2005-2006 data collection presented an initial pan-Canadian portrait of the professional master's programs in public health offered by Canadian universities. The 2011 data collection characterized Master of Public Health (MPH) programs in Canada and outlined ways to improve the Guidelines for MPH Programs in Canada² (Public Health Agency of Canada [PHAC], 2010). Jung et al.'s (2015) work presented data collected in 2014 from public health programs at Canadian universities at undergraduate and graduate levels, and also studied the number of students graduating from these programs. Apatu et al.'s (2021) work examined the extent to which, in 2019, MPH programs' course descriptions aligned with PHAC's core competencies for public health in Canada³ (PHAC, 2008) to identify strengths and training gaps in these programs. These four rounds of data collection, of which two focused on MPH programs, showed an important changing context for academic public health training in Canada, characterized by rapid increases in the number of programs, enrollment and graduating students, and a constant diversification of programs at all three degree levels over the years.

3.2 Some key findings of the 2022 data collection on public health programs offered in Canadian universities

Our 2022 data collection provides information on the location of Canadian universities offering public health programs, the types of programs and degrees they lead to, and the number of students enrolled in programs in 2017 and 2021 and graduated from these programs in 2017 and 2020. Of the 108 public health programs identified, information (complete or partial) was obtained from 89 programs, for a response rate of 82%.

In 2022, of the 96 Canadian public universities,⁴ 28 were identified as offering 108 public health programs of more than 30 credits that lead to undergraduate (bachelor's), graduate (master's, PhD) and postgraduate degrees (public health and preventive medicine residency programs).

² The *Guidelines for MPH Programs in Canada* (2010) is a set of voluntary criteria for Master of Public Health degree programs prepared to support their development with sufficient consistency and quality to reconfigure the public health workforce in order to meet the public health systems' needs.

³ The core competencies for public health in Canada are structured around seven categories: public health sciences; assessment and analysis; policy and program planning, implementation and evaluation; partnerships, collaboration and advocacy; diversity and inclusiveness; communication; and leadership (PHAC, 2008).

⁴ See: <https://www.educanada.ca/study-plan-etudes/university-universite.aspx?lang=eng#:~:text=Canada%20has%20exceptional%20quality%20and,French%20speaking%20countries%5B3%5D>.

The 28 universities offering these programs are in 8 provinces: 12 in Ontario, 4 in Québec, 4 in British Columbia, 3 in Alberta, 1 in Saskatchewan, 1 in Manitoba, 2 in Nova Scotia and 1 in Newfoundland and Labrador. Programs identified were:

- Bachelor of Public Health-related programs were offered in 11 universities out of 28 (39%); generally only one type of bachelor's program was offered by each university;
- Master of Public Health-related programs were offered in 23 universities (82%), with some universities offering from one to three different master's degrees in public health-related programs. MPH programs were the most numerous, being offered at 19 of these 23 universities (83%);
- PhDs in public health-related programs were offered in 19 universities (68%), with some universities offering up to 3 or 4 PhD streams and 2 offering a DrPH;
- Public health and preventive medicine residency programs were offered by 14 out of 17 medical schools in Canada (82%).

Our review of public health programs suggested that:

- The supply of public health-related programs of more than 30 credits identified by the 2022 data collection underrepresents the actual supply of universities' public health training programs in 2022;
- The diversity of public health-related programs (bachelor's, master's, PhDs) has increased since 2014;
- The master's and PhD programs identified seem to be evolving towards more specialized fields of public health (e.g., environmental health, social and behavioural health, digital public health).

3.2.1 Students enrolled in 2017 and 2021, by program

There were 2846 students enrolled in the public health programs reporting⁵ in 2021, representing a 41% increase, or 821 more students enrolled, as compared to 2017 (1325). In 2021, increases in student enrollment were as follows:

- Bachelor's programs had the largest increase in student enrollment, from 469 in 2017 to 973 in 2021, an increase of 107%. The proportion of enrollees in bachelor's programs to total enrollees in public health programs at all degree levels increased from 23% (469/2022) in 2017 to 34% (973/2846) in 2021;
- Master's programs had the largest number of students enrolled in 2017 (1325) and in 2021 (1594). The proportion of enrollees in master's programs to total enrollees in public health programs at all degree levels decreased from 65% (1325/2022) in 2017 to 56% (1594/2846) in 2021.

⁵ The term "reporting programs" used in the analysis means the number of programs for which the data collected allowed for a statistically reliable treatment.

There were 1039 international students enrolled in the public health programs reporting in 2021, representing a 157% increase, or 634 more international students enrolled than in 2017 (405). In 2021, increases in international student enrollment were as follows:

- Bachelor's programs had the largest increase in the number of international student enrollees, from 185 in 2017 to 577 in 2021, an increase of 212%. The proportion of international students enrolled in bachelor's programs to total international student enrollees in all public health programs increased from 46% (185/405) in 2017 to 56% (577/1039) in 2021;
- Master's programs had the second largest increase in the number of international student enrollees, from 176 in 2017 to 401 in 2021, an increase of 128%. The proportion of international students enrolled in master's programs to total international student enrollees in all public health programs decreased from 43% (176/405) in 2017 to 39% (401/1039) in 2021.

The ratio of international students to total students enrolled in public health programs increased from 20% in 2017 to 37% in 2021:

- In 2017 and 2021, bachelor's programs had the highest proportion of international students enrolled of all programs, representing 39% of enrolled students in 2017 and 59% in 2021.

3.2.2 Students graduating from programs in 2017 and 2020, by program

There was a 35% increase in the number of students who graduated from public health programs in 2020, with 439 more students graduating than in 2017. In 2020, graduating students were as follows:

- Bachelor's programs had a 114% increase in the number of graduates in 2020 compared to 2017, representing the highest increase in students graduating from the three public health program degree levels. The proportion of graduates from bachelor's programs as compared to total graduates from all levels increased from 16% (182/1252) in 2017 to 23% (389/1691) in 2020;
- Master's programs had the highest number of students graduating in 2017 (956) and in 2020 (1168). From 2017 to 2020, the number of students graduating from master's programs increased by 22%. The proportion of master's programs' graduating students to total graduating students decreased from 76% (956/1252) in 2017 to 69% (1168/1691) in 2020;
- PhD programs had a 22% increase in the number of graduates, from 98 graduating students in 2017 to 120 in 2020.

There was a 195% increase in international students graduating from public health programs in 2020 as compared to 2017, with 248 more international students graduating than in 2017. In 2020, international graduating students were as follows:

- Bachelor's programs had a 960% increase in the number of international students graduating in 2020 compared to 2017, representing the highest rate of increase for international students graduating from the three degree levels for public health programs. The proportion of international students graduating from bachelor's programs to international students

graduating from all public health programs increased from 18% (23/127) in 2017 to 65% (244/375) in 2020;

- Master's programs had the highest number of international students graduating in 2017 (90) and the second-highest number of graduates (115) after the bachelor's programs (244) in 2020. From 2017 to 2020, the number of international students graduating from master's programs increased by 28%.

The ratio of international students graduating to total graduating students increased from 10% in 2017 to 22% in 2020:

- The most significant change occurred in the bachelor's programs, where the proportion of international graduates increased from 13% in 2017 to 63% in 2020, with international students representing more than half of the 2020 graduating students;
- Ratios of international graduating students in master's programs increased slightly from 9% to 10%, while those in doctoral programs decreased slightly from 14% to 13%.

3.2.3 Students enrolled in 2017 and 2021, by province

In 2021, 2 provinces (New Brunswick and Prince Edward Island) and the 3 territories (Yukon, Northwest Territories and Nunavut) did not have universities offering public health programs.

From 2017 to 2021, the number of enrolled students in public health programs increased in 7 of the 8 provinces where the universities with public health programs are located. In four provinces, enrollment numbers increased by over 30% between 2017 and 2021:

- Nova Scotia universities had 723 students enrolled in 2021, or 248% more enrolled students than in 2017;
- Québec universities had 618 students enrolled in 2021, or 45% more enrolled students than in 2017;
- Alberta universities had 182 students enrolled in 2021, or 38% more enrolled students than in 2017; and
- A Saskatchewan university had 108 students enrolled in 2021, or 32% more enrolled students than in 2017.

In 2021, three provinces (Ontario, Nova Scotia and Québec) accounted for 78% (2225/2846) of students enrolled in public health programs. The distribution was as follows:

- Ontario universities had 31% of enrolled students, or 884 enrolled students;
- Nova Scotia universities had 25% of enrolled students, or 723 enrolled students;
- Québec universities had 22% of enrolled students or, 618 enrolled students.

In 2021, three provinces' universities (Nova Scotia, Saskatchewan and Québec) saw international students making up over 40% of enrollment in their public health programs:

- Nova Scotia universities had 529 international students enrolled, or 73% of their enrolled students were international students;
- A Saskatchewan university had 61 international students enrolled, or 56% of its enrolled students were international students;
- Québec universities had 275 international students enrolled, or 44% of their enrolled students were international students.

3.2.4 Students graduating from public health programs in 2017 and 2020, by province

From 2017 to 2020, the number of students graduating from public health programs increased in 5 provinces, of which three of them (Nova Scotia, Québec and Alberta) saw an increase of over 40% during that period:

- Nova Scotia universities had 215 more graduating students in 2020, or 652% more graduating students than in 2017;
- Québec universities had 133 more graduating students in 2020, or 88% more graduating students than in 2017;
- Alberta universities had 39 more graduating students in 2020, or 42% more graduating students than in 2017.

In 2020, three provinces (Ontario, Québec and Nova Scotia) accounted for 77% of graduating students:

- Ontario universities accounted for 45% of graduating students, or 756 of the 1691 graduating students, with 67 more graduating students than in 2017;
- Québec universities accounted for 17% of graduating students, or 284 of the 1691 graduating students, with 133 more graduating students than in 2017;
- Nova Scotia universities accounted for 15% of graduating students, or 248 of the 1691 graduating students, with 215 more graduating students than in 2017.

In 2020, the percentage of international students graduating compared to total students graduating in Canadian universities located in 6 Canadian provinces ranged from 5% to 88%. In two provinces (Nova Scotia and Saskatchewan) international students made up more than 40% of all graduates:

- Nova Scotia universities had 219 graduating international students, or 88% of graduating students;
- A Saskatchewan university had 22 graduating international students, or 41% of graduating students.

The significant growth in the number of students enrolled in and graduating from public health programs reporting from 2017, 2020 and 2021 revealed a growing interest in public health programs offered by Canadian universities. This is particularly notable among international students, where the proportion of international students enrolled almost doubled, rising from 20% in 2017 to 37% in 2021, and the proportion of international students graduating more than doubled, from 10% in 2017 to 22% in 2020.

3.3 Proposed actions to complement the current understanding of Canadian universities' public health training capacity

In order to complement the information on the supply of public health-related programs offered by Canadian universities, it would be appropriate to:

- Maintain a comprehensive list of all public health academic programs offered by Canadian universities, by identifying and classifying titles of all public health-related programs offered (less or more than 30 credits, continuing or professional education training programs) with a particular focus on program titles that include terms such as global health, environmental health, Indigenous health, Aboriginal health, vulnerable population health, health impact and occupational health.

In order to better understand the diversity of undergraduate and graduate programs related to public health offered by Canadian universities, it would be appropriate to:

- Review the curricula, terms and conditions of bachelor's, master's, doctoral, medical residencies and other academic training programs related to public health that are offered by Canadian universities.

In order to learn about the employment niches of university students graduating from public health programs, it would be appropriate to:

- Continue routinely collecting data on students enrolled in and graduating from university public health programs in Canada, in order to have information on the programs and a breakdown of students by program;
- Collect data on the employment pathways of graduating students in these programs for a minimum of 5 years after graduation, using compatible methodologies.

In order to maintain a knowledge base on the composition, mix and distribution of Canadian universities' public health training capacity at the provincial and territorial levels, it would be appropriate to:

- Continue collecting data on students enrolled in and graduating from university public health programs in Canada, according to the provinces or territories of the universities offering these programs.

4 CONCLUSION

In conclusion, our data collection enabled us to:

- Present an overview of initiatives implemented since the early 2000s which contributed to our understanding of the training capacity of university-based public health programs in Canada;
- Produce relevant, current data on the supply of public health programs offered in Canadian universities in 2022 and on students enrolled in and graduated from these programs in 2017, 2020 and 2021;
- Propose actions for collecting additional data on the supply of university public health programs to better understand public health training capacity in Canada;
- Recognize that information on academic public health training program capacity is only one of the essential components to inform workforce development planning and workforce capacity strengthening;
- Recognize that there is a need to identify the full range of questions and information to comprehensively inform public health workforce development planning and workforce capacity strengthening.

In this way, the information presented here and in the full report provides a better understanding of the public health training capacity of Canadian universities in 2022. While this information is only one component that can contribute to the planning and strengthening of the public health workforce in Canada, it nevertheless provides a step forward for a framework for public health workforce planning and strengthening in Canada that has yet to be established. We invite you to read the [full report](#) for more details.

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