

National cross-sectional survey of health workers perceptions of COVID-19 vaccine effectiveness, acceptance, and drivers of vaccine decision-making

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This public opinion research report presents the results of an online quantitative survey (N= 5,372) and a qualitative component (n = 33) that included in-depth interviews and focus group sessions conducted by Ipsos Public Affairs on behalf of the Public Health Agency of Canada. The research study was conducted among Canadian health care professionals, allied health workers, and auxiliary health workers, from May 8 to August 14, 2023.

Cette publication est aussi disponible en français sous le titre : **Enquête nationale transversale sur les perceptions des travailleurs de la santé à l'égard, de l'efficacité vaccinale, de l'acceptation et des facteurs décisionnels liés aux vaccins contre la COVID-19.**

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cpab_por-rop_dgcap@hc-sc.gc.ca
Health Canada, CPAB
200 Eglantine Driveway, Tunney's Pasture
Jeanne Mance Building, AL 1915C
Ottawa, Ontario K1A 0K9

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Abbreviations

AB	Alberta
ALHW	Allied Health worker
AUHW	Auxiliary Health worker
ATL	Atlantic
BC	British Columbia
BIPOC	Black, Indigenous, and other people of colour
CDC	The Centers for Disease Control and Prevention
COVID-19	Coronavirus Disease 2019
CIHI	Canadian Institute of Health Information
HCP	Health care professional
HCW	Health care worker
HW	Health worker
MB	Manitoba
mRNA	Messenger ribonucleic acid
NACI	National Advisory Committee on Immunization
NU	Nunavut
NWT	Northwest Territories
ON	Ontario
PHAC	Public Health Agency of Canada
QC	Quebec
SAGE	Strategic Advisory Group of Experts on Immunization
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2
SK	Saskatchewan
UNWGT	Unweighted
VE	Vaccine Effectiveness
VH	Vaccine hesitancy
WGT	Weighted
WHO	World Health Organization
YK	Yukon

Executive summary

Background and objectives

Mass vaccination campaigns have significantly reduced the Coronavirus Disease 2019 (COVID-19) burden across the world. Although vaccines are considered the most effective tools for consistently preventing severe COVID-19 diseases, there are many barriers to vaccine uptake that threaten the health of Canadians and people across the world. Worldwide vaccine hesitancy (VH) has posed significant global concerns and become a widespread public health issue for successful immunization. VH and acceptance among the general population and health workers (HWs) play an important role in successfully controlling the COVID-19 pandemic.

Vaccinating HWs against COVID-19 has been a public health priority since rollout began in late 2020. Health care workers (HCWs) in contact with COVID-19 patients are at a higher risk of infection than the general population. Mitigating and reducing this risk is essential to protecting HWs' well-being and reducing the spread of COVID-19.

Limited information is available about SARS-CoV-2 infection rates, COVID-19 vaccines uptake, perceptions of COVID-19 vaccine effectiveness (VE), acceptance, and drivers of vaccine decision-making among different categories of HWs, such as health care professionals (HCPs), allied health workers (ALHWs) and auxiliary health workers (AUHWs) in Canada. Evaluating the real-world COVID-19 vaccine uptake and performance is critical for understanding the characteristics that influence these behavioural and attitudinal decisions among these different HW categories in Canada.

Overall objectives of the quantitative and the qualitative survey were to:

- Measure self-reported SARS-CoV-2 infections and COVID-19 vaccination status among HCPs, ALHWs and AUHWs in Canada;
- Understand HWs' perceptions of COVID-19 vaccines effectiveness;
- Identify factors influencing HWs' decisions about COVID-19 vaccination, including drivers of hesitancy and acceptability;
- Assess HWs' attitudes toward COVID-19 vaccination mandates and other public health measures; and
- Identify HWs' COVID-19 information sources for future communications.

Methodology

To address the research objectives, a multi-mode research design was undertaken that included a quantitative and a qualitative component. Both components took place concurrently between May 8 and August 14, 2023, and were delivered in both official languages. Participants were HWs ≥ 18 years of age residing in Canada who were eligible for COVID-19 vaccination and exposed directly or indirectly to COVID-19 patients during our study period, from 2020 to 2023. This includes those who have stopped working for various reasons linked or not to public health measures related to mandatory vaccination in Canada.

The quantitative survey was disseminated using different approaches to reach the targeted HWs and collect the perspectives of as many HWs as possible: an open-link survey to HCPs', ALHWs', and AUHWs' organizations (regulatory bodies and professional associations); a unique link survey via panel sources (including general population panels and professions-based panels); and a snowballing method to share the survey with eligible peers and colleagues.

A total of 5,425 HWs (unweighted) participated in the quantitative online survey, of which respondents were excluded as they did not report their age or province of residence (n = 53). The remaining N= 5,372 eligible HWs (unweighted) were categorized into three main groups (unweighted): 2,278 HCPs; 2,278 ALHWs; and 807 AUHWs.

While this multi-frame approach reached a wide cross-section of the target population, the samples are based on self-selection and not a probability sample. The Standards for the Conduct of Government of Canada Public Opinion Research—Online Surveys state that results of non-probability online surveys should not be generalized to the overall target population. Therefore, the results cannot be extrapolated to the actual Canadian HWs' population, and no margin of sampling error can be calculated.

The qualitative research design was national in scope and delivered in both official languages. Additional effort was made to include equity-seeking groups. The qualitative findings are directional in nature and may not be extrapolated to a broader audience. A total of 33 HWs participated in the qualitative component conducted between May 2 and June 5, 2023, which consisted of eighteen (n = 18) in-depth interviews and four (n = 4) online focus groups with four to eight participants depending on the session. Data were analyzed using a framework approach. Key behavioural determinants of COVID-19 vaccination decision-making were identified among the different categories of HWs by using the World Health Organization (WHO) Behavioural and Social Drivers of COVID-19 vaccination framework to inform the online quantitative and quantitative survey design and to frame the results.^{1,2}

Incentives

For the quantitative component, only respondents recruited through research panels (<15%) were incentivized to complete the survey.

For the qualitative component, Ipsos provided an honorarium to participants to attend in-depth interviews or focus groups to encourage full attendance and engagement.

Further details on incentives provided to quantitative and qualitative participants can be found in the Appendix.

Interpretation of report findings

For the purposes of analysis, the data for HCPs and ALHWs has been statistically weighted by profession/role and region to match proportions published by the Canadian Institute of Health Information (CIHI). The data for AUHWs has been weighted by region based on general population Census data. Unless otherwise stated, all data and proportions presented in this report are weighted data.

Contract value

The total contract value for the project was \$295,579.75 including applicable taxes.

Key findings

The following section presents the main findings of the quantitative and qualitative research components. First, HWS' self-reported SARS-CoV-2 infection and vaccination history are described. This is followed by a discussion of their perceptions about the safety and effectiveness of COVID-19 vaccines, the factors that influenced their decisions about vaccination uptake, and lastly their attitudes toward COVID-19 vaccines and public health measures.

For the weighted results, a total of 5,372 respondents divided into three HWs categories was analyzed: n = 3,134 HCPs; n = 1,431 ALHWs; and n = 807 AUHWs. In each HW category, the majority of respondents were identified as female and approximately half of respondents were 40-59 years old. The proportion of HWs identified as Black, Indigenous, or other people of colour (BIPOC) were 34%, 32% and 43% respectively among HCPs, ALHWs and AUHWs. Most respondents reported residing in Ontario or Quebec, followed by Alberta and Northwest Territories, British Columbia, and Yukon. Fewer respondents reported residing in Atlantic provinces.

Self-reported SARS-CoV-2 infections and COVID-19 vaccination history

- The proportion of self-reported SARS-CoV-2 infections varied among HW categories and were highest among HCPs, followed by ALHWs and AUHWs. The proportion was higher among those working in hospital settings than non-hospital settings, and the first SARS-CoV-2 infection was more serious than subsequent infections, regardless of the workplace setting. Younger HWs reported a higher number of SARS-CoV-2 infections than older workers.
- Most respondents in each HW category (87-89%) reported being vaccinated against COVID-19 between 2020 and 2023. There was a notable variation in COVID-19 vaccination history between respondents employed in different workplace settings.

Perceptions of COVID-19 vaccine safety and effectiveness

- HWs generally expressed strong support for vaccination in general.
- However, when it came to COVID-19 vaccines specifically, perceptions of safety and effectiveness were lower, particularly among nurses and ALHWs.
- Concerns about the safety and effectiveness of COVID-19 vaccines were among the largest factors contributing to VH.

COVID-19 vaccine decision-making

Degree of COVID-19 vaccine acceptance and hesitancy

- Physicians were more accepting of COVID-19 vaccines than other HW categories, whereas AUHWs reported higher levels of hesitancy.
- COVID-19 VH was expressed to varying degrees among respondents who decided to get vaccinated, with 49-59% of HWs reporting some degree of hesitancy in their decision to get vaccinated.
- Survey respondents who hesitated getting vaccinated also reported receiving their first vaccination later on in the pandemic than respondents who did not report any hesitancy.
- HCPs and ALHWs who remained unvaccinated were very hesitant about their decision to get vaccinated and none of the unvaccinated HCPs planned to get vaccinated in the future.

Drivers of acceptance and hesitancy

There were several factors that influenced HWs' decisions to get vaccinated or not.

- **COVID-19 vaccine safety:** Most HWs based their vaccination decisions on how safe they thought the vaccines were. Their perception of COVID-19 vaccine safety was influenced by their perception of the risk of long-term side effects of vaccination and their willingness to trust expert sources and federal government recommendations. HWs who were more accepting of the COVID-19 vaccines were more likely to agree that they were safe and to trust the information provided by the federal government. Those who hesitated getting vaccinated or were unvaccinated thought the COVID-19 vaccines were not safe, believing COVID-19 vaccination would pose a risk to their health.
- **COVID-19 vaccine effectiveness:** HWs who were more accepting of the COVID-19 vaccines believed that getting vaccinated would better protect their patients, families, and communities, and reduce the burden on the health care system. Those who hesitated getting vaccinated or were unvaccinated believed that COVID-19 vaccines were not effective and would not provide any additional benefit to the immunity they would gain from SARS-CoV-2 infection.
- **COVID-19 vaccine mandates:** Vaccine mandates were one of most commonly reported reasons for getting vaccinated among respondents, with a high proportion of nurses indicating it as the sole reason for vaccination. Many HWs wanted to adhere to recommendations from public health officials. The majority (>70%) of unvaccinated respondents reported that they did not get vaccinated in part because they rejected being mandated to get vaccinated. Moreover, those who remained unvaccinated were the least likely to adhere to public health measures.
- **Level of confidence in regulatory systems:** HWs who were more accepting of the COVID-19 vaccines tended to have more confidence in Canada's regulatory informational systems for immunization, whereas many unvaccinated HCPs reported that their lack of confidence in these systems influenced their decision to not get vaccinated.

Attitudes toward COVID-19 vaccination

HWs were categorized into five distinct attitudinal groups based on key behavioural determinants and social factors in COVID-19 vaccination decision-making. Their COVID-19 vaccination status, degree of COVID-19 VH, and the role that vaccine mandates played in their decision to get COVID-19 vaccine were used to name and describe the following attitudinal groups as follows with their weighted proportions:

- **Vaccine Confidants (44.4%):** This group was defined as those who received their COVID-19 vaccine primary series and answered "not at all hesitant" on the COVID-19 VH Likert scale. They were likely to receive their vaccine primary series without hesitation and were motivated primarily by the novelty of COVID-19, lack of available treatment options, and the desire to protect themselves and their family.
- **Vaccine Supporters (15.8%):** This group was defined as those who received a COVID-19 vaccine primary series and reported being "not very hesitant" on the COVID-19 VH Likert scale. They shared similar motivations and attitudes toward a COVID-19 vaccine primary series as the Vaccine Confidants but have since become complacent and have a reduced sense of urgency toward receiving the COVID-19 booster doses.

- **Vaccine Hesitants (7.4%):** This group tended to receive the COVID-19 vaccine primary series despite their initial hesitancy. They were identified based on having been “very hesitant” or “somewhat hesitant” in receiving a COVID-19 vaccine primary series and answering that they “somewhat disagree” or “strongly disagree” that the prospect of losing their employment played a role in their decision to get vaccinated or not. They expressed initial concern toward the COVID-19 vaccine primary series, related to the speed of the COVID-19 vaccine development and the potential for side effects.
- **Mandate-Driven Vaccinees (21.1%):** This group only received COVID-19 vaccines to comply with the vaccine mandate for HWs. They were defined as respondents who reported being “very hesitant” or “somewhat hesitant” in receiving their COVID-19 vaccine primary series and answering that they “strongly agree” or “somewhat agree” that the prospect of losing their employment played a role in their decision to get vaccinated or not. They expressed significant hesitation towards COVID-19 vaccines, due to the speed of the COVID-19 vaccine development and their perception of the potential for side effects.
- **Unvaccinated respondents (8.0%):** This group chose to either leave their profession or to remain working in their position within the private health care sector where the COVID-19 vaccine mandate did not apply. They had similar concerns as those identified among Mandate-Driven Vaccinees but decided not to receive a COVID-19 vaccine.

The qualitative analysis of the attitudinal groupings was further supported by the VH Matrix created by the Strategic Advisory Group of Experts on Immunization (SAGE) of the World Health Organization (WHO).^{1,2} The Matrix groups determinants of VH are based on three spheres of influence: individual and group influences, contextual influences, and vaccine-specific influences.

Attitudes toward public health measures

Participants’ attitudes toward public health measures, specifically mask mandates and other public measures taken during the pandemic (e.g., social distancing, quarantine protocols), tended to align with their levels of hesitation toward the COVID-19 vaccines. For example, Vaccine Confidants and Vaccine Supporters were more likely to be supportive of vaccine mandates than participants who were considered Mandate-Driven Vaccinees. In terms of other public health measures, there was slightly more variation in participants, with some contention around the pandemic lockdowns, and largely positive reactions toward other public health measures such as masking and social distancing.

Sources of COVID-19 related information

Participants got their information about COVID-19 vaccines from different sources, and the types of sources they consulted differed depending on their level of aversion or hesitancy toward the COVID-19 vaccines.

- All participants leveraged trusted networks in some form; however, those with more positive attitudes toward COVID-19 vaccines tended to consult professional networks (i.e., working physician groups, medical experts, and colleagues), while those with more hesitancy toward the COVID-19 vaccines tended to consult informal networks for information (e.g., Facebook groups).

- Vaccine Confidants and Vaccine Supporters were most likely to actively engage with and express high levels of trust in workplace-provided information, government sources (including various public health officers), and statistics provided by traditional media sources.
- Vaccine Hesitant participants tended to consult their personal physician to ease their concerns about COVID-19 vaccines.
- For Mandate-Driven Vaccinees, information provided by their personal physician tended to contribute to their hesitation, as they saw the information their physicians provided as supporting the broader pro-vaccine narrative that they tended to be opposed to.

Conclusions

Throughout this research there were some common conclusions and implications that emerged, in both qualitative and quantitative components. The majority of HWs reported having received at least the COVID-19 primary series between 2020 and 2023. The most common reason for vaccination was to protect themselves, their families, or individuals living in their household from COVID-19. Vaccine mandates were another commonly reported reason for getting vaccinated, indicating that maintaining their job was one of the reasons they decided to get vaccinated, and 11% of HWs indicating it was the only reason.

The qualitative findings on drivers of VH aligned with the quantitative finding. HWs had strong support for vaccines in general. However, Vaccine Hesitants, Mandate-Driven Vaccinees and Unvaccinated respondents tended to mention concerns around the safety and effectiveness of COVID-19 vaccines, particularly among nurses and ALHWs. These may act as areas for further research or analysis, or simply considerations moving forward when looking at larger scale public health responses.

1. Introduction

1.1. Background

Mass vaccination campaigns have significantly reduced the Coronavirus Disease 2019 (COVID-19) burden across the world. The COVID-19 pandemic and rapid development of vaccines has brought extensive challenges in vaccine deployment and uptake to the forefront of both public and scientific discourse. Despite the development of safe and highly effective COVID-19 vaccines, there are many barriers to vaccine uptake that threaten the health of Canadians and people across the world, and the fight against the pandemic.³⁻⁵

Worldwide vaccine hesitancy (VH) has posed significant global concerns and become a widespread public health issue for successful immunization. VH refers to the delay in acceptance or refusal of a vaccine despite the availability and accessibility of vaccination services. While acknowledging the phenomenon of VH, vaccine confidence is defined as trust in the effectiveness and safety of vaccines and the health care system that delivers them. VH, in particular, under-vaccination and vaccine confidence have emerged as polarizing social and political issues. The broader phenomenon of COVID-19 VH is complex and may include elements of ideological vaccine resistance or delays in acceptance, and encompasses an array of social and structural barriers, as well as knowledge and beliefs, and vaccine-specific factors. VH and acceptance among the general population and HWs play an important role in successfully controlling the COVID-19 pandemic.^{1, 2, 5-14}

Vaccinating HWs against COVID-19 has been a public health priority since rollout began in late 2020. HWs play a critical role not only in the clinical management of patients, but also in ensuring that adequate infection prevention and control measures are implemented in health care facilities and communities. In Canada, before the COVID-19 pandemic, 89.2% of HWs' jobs typically involved close or very close physical contact with others. HWs in contact with COVID-19 patients are at a higher risk of infection than the general population. Mitigating and reducing this risk is essential to protecting HWs' well-being and reducing the spread of COVID-19. Low vaccination uptake among HWs also has ramifications for the ongoing function of the health care system, where absenteeism and labour shortages can have lasting societal impacts. HWs include any staff within a health facility, including medical staff as well as the support and administrative positions essential for the operation of the facility and for patient care. Moreover, HWs, especially those in communities, remain the most trusted advisor and influencer of vaccination decisions, and they must be supported to provide trusted, credible information on vaccines. Public health measures that reduce HWs' chances of contracting COVID-19 and other infectious diseases are crucial for protecting the health and safety of workers and patients and are important to ensure the quality of care and availability of health services within communities.¹⁵⁻²⁰

Many critical questions remain about SARS-CoV-2 infection rates, COVID-19 vaccines uptake, perceptions of COVID-19 vaccine effectiveness (VE), acceptance, and drivers of vaccine decision-making among different categories of HWs, such as health care professionals (HCPs), allied health workers (ALHWs) and auxiliary health workers (AUHWs) in Canada. As a priority group for vaccination, evaluating real-world COVID-19 vaccine uptake and performance among HWs is critical for understanding these behavioural and attitudinal decisions, as well as for addressing any barriers to effective HW vaccination campaigns in Canada.

The results of this study will help to better understand the successes and drawbacks of the COVID-19 HWs vaccination rollout and will help public health professionals and governments prepare for future pandemics.

1.2. Research objectives

The Public opinion research consisted of two components, a quantitative and a qualitative survey, conducted concurrently between early May and mid-August 2023 among Canadian HWs.

The objectives of the quantitative survey were to:

- Measure self-reported SARS-CoV-2 infections and COVID-19 vaccination status among HCPs, ALHWs and AUHWs in Canada;
- Understand HWs' perceptions of COVID-19 vaccine effectiveness;
- identify factors influencing HWs' decisions about COVID-19 vaccination, including drivers of hesitancy and acceptability;
- Assess HWs' attitudes toward COVID-19 vaccination mandates and other public health measures; and
- Identify HWs' COVID-19 information sources for future communications.

The qualitative research was designed to provide a deeper understanding of the following among Canadian HWs:

- HWs' current sentiments toward the COVID-19 pandemic
- Factors influencing COVID-19 vaccine uptake
- Attitudes toward COVID-19 vaccination mandates for HWs
- COVID-19 information sources and messaging for future communications regarding COVID-19 protective measures

This multi-modal research design with a quantitative and a qualitative component was undertaken to achieve the research objectives. This combined approach has proven to be cost effective and time efficient.

1.3. Quantitative methodology

The quantitative component of the research was a cross-sectional online survey and took place between May 8 and August 14, 2023. The survey was offered in both official languages (i.e., English and French) and hosted on an accessible and device agnostic survey platform.

Target population

Respondents were HWs ≥ 18 years of age residing in Canada who were eligible for COVID-19 vaccination, who worked at least 20 hours per week and who were directly or indirectly exposed to COVID-19 patients or the public during our study period, from 2020 to 2023. This includes those who have stopped working for various reasons linked or not to public health measures related to mandatory vaccination in Canada.

For the purpose of this survey, a HW was defined as any member of staff in the health care facility or in the community who was involved in the provision of care for a COVID-19 patient. This includes HCPs, ALHWs and AUHWs who were present in the same area as the patient as well as those who may not have provided direct care to the patient.

A health care facility was the location where a patient is being treated for COVID-19, and may include hospitals, long term care facilities, congregate living settings, as well as General Practitioner office and community outpatient clinics for COVID-19.

Eligible HWs were divided into three categories:

- **HCPs:** This category included physicians, nurses, pharmacists, occupational therapists, and physiotherapists.
- **ALHWs:** This category included specialized HWs such as medical laboratory and radiation technologists, paramedics, pharmacy technicians, respiratory therapists, social workers, dietitians, or dental hygienists or assistants.
- **AUHWs:** This category included facility support and administrative personnel, such as patient transporters, admission or reception clerks, catering staff, or cleaning or laundry personnel.

Survey instrument and pre-testing

The quantitative survey instrument was created in collaboration with PHAC and Health Canada and consisted of a series of closed- and open-ended questions designed to meet all of the research objectives. The survey was offered in both official languages (i.e., English and French) and was hosted on an accessible and device agnostic survey platform. The survey was pre-tested on May 3, 2023, with a total of 28 respondents (18 questionnaires completed in English and 10 in French). It was launched on May 8, 2023, and promoted for 14 weeks before closing on August 14, 2023.

Additionally, the quantitative survey included a recontact question, allowing for anyone to also be recruited for participation in the qualitative component of the research. The final survey instrument meets federal government standards for public opinion research and is included in the Appendix. The average length of the survey was 15 minutes.

Data collection

The quantitative survey was disseminated using different approaches to reach the targeted HWs and collect the perspectives of as many HWs as possible:

- An open link to the survey was emailed directly to regulatory bodies and professional organizations across Canada,¹ representing HCPs and ALHWs, so that they could then promote or email it to their members.
- A unique link to the survey was emailed directly to identified HCPs, ALHWs, and AUHWs through panel sources, such as general population panels, and occupation-based panels, or through their participation in the associated qualitative sessions.
- The survey was also emailed to a panel of non-probability online respondents to reach out to those who may have left the sector or worked in unreported occupations in the settings included.
- A snowball method was used, in which survey respondents were encouraged to share the survey link with their peers and eligible colleagues to reach a wider range of professionals with different opinions.

¹ A complete list of participating organizations is provided in the Appendix.

While this multi-frame approach reached a wide cross-section of the target population, the samples are based on self-selection and not a probability sample. Therefore, the results cannot be extrapolated to the actual HWs’ population, and no margin of sampling error can be calculated. The opportunity to advocate for survey completion among like-minded professionals introduces an aspect of self-selection bias. Consequently, incidence of opinions and attitudes among the respondents cannot be considered reflective of the study population. The reported percentages are not generalizable to any group other than the sample studied, and no formal statistical inferences can be drawn between the sample results and the broader target population it may be intended to reflect. This methodology also does not allow for non-response analysis. However, respondents and non-respondents may differ. The Standards for the Conduct of Government of Canada Public Opinion Research—Online Surveys states that results of non-probability online surveys should not be generalized to the overall intended population. Additionally, due to disparities in how each type of HW receives information and the regulatory and professional frameworks for vaccination for different types of HWs in different regions in Canada, no direct statistical comparisons were made between professions in different regions and no attempt is made to provide an overall measure for HWs in Canada. More information about how to interpret the online survey results and limitations to this method are provided in the Appendix. Despite these limitations, the data was useful evidence of the perceptions and experiences of HWs who participated in the survey.

Incentives

Only respondents recruited through research panels (less than 15% of respondents) were incentivized to complete the survey. The incentives were directly proportional to the length of the survey and in line with comparable incentives offered by other online panel sources. Further details on incentives provided to quantitative respondents can be found in the Appendix.

Sample size and weighting

For the purpose of analysis, the data for HCPs and ALHWs has been statistically weighted by profession/role and region to match the proportions published by the Canadian Institute of Health Information (CIHI). The data for AUHWs has been weighted by region based on general population census data.

A total of 5,425 HWs (unweighted) participated to the quantitative online survey, of which respondents were excluded as they did not report their age or province of residence (n = 53). The remaining **N= 5,372** eligible HWs (unweighted) were categorized into three main groups (unweighted): 2,278 HCPs; 2,278 ALHWs; and 807 AUHWs (Table1). Unweighted and weighted sample size and proportions are provided below and detailed information on the weighting methodology is presented in the Appendix.

Table 1. Unweighted and weighted HW category for the qualitative online component

HW sample size	Total	Health care professionals (HCPs)		Allied health workers (ALHWs)		Auxiliary health workers (AUHWs)	
		n	%	n	%	n	%
Quantitative survey							
Unweighted	5,372	2,278	42.4	2,287	42.6	807	15.0
Weighted	5,372	3,134	58.3	1,431	26.6	807	15.0

Data analysis

Analyses performed are mainly descriptive. They provide a simple, comprehensive overview of data collected for the quantitative survey. Frequency tables were used for categorical variables, and central tendency and dispersion measurements were used for continuous variables. These analyses included: sociodemographic characteristics; HWs' self-reported SARS-CoV-2 infection and vaccination history; perceptions about COVID-19 vaccine safety and effectiveness; the factors that influenced their decisions about vaccination uptake and their attitudes toward COVID-19 vaccines and public health measures; and lastly, HWs' COVID-19 information sources for future communications related to vaccination. Unless otherwise stated, all data and proportions presented are weighted, and all data presented in a table format reflect column percentages. The Chi-square test was used to compare percentages, and the Student's t-test to compare means. Statistical significance was set at 5% for all analyses, based on alternative hypotheses. All analyses were performed using IBM® SPSS® Statistics 28.0.1.1 software for Windows.

Due to disparities between how each type of HW provides vaccines and the regulatory/professional frameworks for doing so for different types of HWs in different regions in Canada, no direct statistical comparisons are made between professions and no attempt is made to provide an "overall" measure for HWs in Canada.

For quantitative findings presented in Section 2, some response totals do not add to 100% due to rounding or multiple responses. Net results cited in the text may not exactly match individual results shown in the tables due to rounding. In cases where fewer than 10 responses are provided for a given question within a HW group, the results are suppressed to protect anonymity.

For open-ended questions, when common themes found within the "Other, please specify" option amounted to >1% of responses, new codes were created to represent these themes. For this reason, these codes are not shown in the questionnaire. Provided under a separate cover is a detailed set of "banner tables" presenting the results for all questions by HW category and sub-groups. These tables are referenced by the survey question given underneath each table. A detailed description of the methodology used to conduct this research is presented in Appendix.

1.4. Qualitative methodology

Design, data collection and incentives

The qualitative research design was national in scope, made available online in both official languages, and was conducted at the same time as the online quantitative survey between May 2 and June 5, 2023. The same target population of HWs (including HCPs, ALHWs and AUHWs) eligible for COVID-19 vaccination in Canada and the same inclusion criteria were used. Effort was made to include equity-seeking groups, specifically, racialized and Indigenous individuals, women, and people living with a disability.

The qualitative discussion guide was created in collaboration with the PHAC and Health Canada team. The questions were designed to provide a deeper understanding of the following among Canadian HWs: HWs' current sentiments toward COVID-19 pandemic; factors influencing COVID-19 vaccine uptake; attitudes toward COVID-19 vaccination mandates for HWs; COVID-19 information sources and messaging for future communications regarding COVID-19 protective measures.

Recruitment took place through various channels, given the complexity of the sample required for this research:

- HCPs and ALHWs were recruited through a panel of established HWs; and
- AUHWs were recruited from panels consisting of the general population.

The number of interviews were distributed evenly across all three HW categories. Focus groups were arranged according to HW categories, with two groups for HCPs, one group with ALHWs, and one group with AUHWs. Additionally, the quantitative survey included a recontact question, allowing for anyone identified as unvaccinated to be recruited for participation in mini-group discussions and/or interviews. All panel suppliers uphold stringent approved guidelines for conducting market research. Participants were recruited according to the Standards for the Conduct of Government of Canada Public Opinion Research – Qualitative Research.

Online fieldwork was necessary, given the national scope of this project and the importance of obtaining perspectives from diverse and geographically dispersed participants. Discussions were hosted on MS Teams and lasted 60 minutes in the case of in-depth interviews and 90 minutes in the case of focus groups. Arrangements were made for the PHAC and Health Canada teams to view a subset of the sessions. For sessions with participant consent, focus groups were recorded and transcribed.

Ipsos provided an honorarium to participants to attend in-depth interviews or focus groups to encourage full attendance and engagement. Incentives differed based on the HW category and whether they were attending a focus group or an in-depth interview. The range was between \$150 to \$600. Further details on the incentives provided to qualitative participants can be found in the Appendix.

Analysis and sample

Data were analyzed using a framework approach. Key behavioural determinants of COVID-19 vaccination decision-making were identified among the different categories of HWs by using the World Health Organization (WHO) Behavioural and Social Drivers of COVID-19 vaccination framework to inform the design and to frame the results.^{1, 2}

A total of **n = 33** HWs participated to the qualitative component conducted between May 2 and June 5, 2023, which consisted of 18 (n = 18) in-depth interviews and four (n = 4) online focus groups with four to eight participants depending on the session. The numbers of participants are provided below, and a more detailed breakdown of the participant profiles can be found in the Appendix (Table 2).

Table 2. HW category for the qualitative in-depth interviews and focus groups

HWs participating	Total	HCPs	ALHWs	AUHWs
	n			
Qualitative component				
Total number of participants	33	18	9	6
In-depth interviews participants	18	9	5	4
Focus groups participants	15	9	4	2

The qualitative findings in Section 3 are intended to reveal a range of opinions and interpretations, and should not be extrapolated to the broader population, as they are not statistically projectable.

2. Quantitative findings

This section reports on results from the quantitative online component of the research by discussing SARS-CoV-2 infections, vaccination status, vaccine acceptance and hesitancy, attitudes toward public health measures, and COVID-related sources of information used by survey participants.

Among the eligible respondents of **5,372 HWs** (weighted), **58.3%** were **HCPs**, **26.6%** were **ALHWs**, and **15.0%** were **AUHWs** (Table 3). The majority of respondents in each HW category identified as female (78% of HCPs, 71% of ALHWs, and 67% of AUHWs). Notably, AUHWs had the highest proportion of male respondents at 31%. Across all HW groups, approximately half of respondents were 40-59 years old, with around 40% being between 18 and 39 years old. A small percentage of individuals reported being over 60 years old (15% of HCPs, 11% of ALHWs, and 12% of AUHWs). Roughly a third of HCPs (34%) and ALHWs (32%) identified as Black, Indigenous, or other people of colour (BIPOC). The proportion of BIPOC respondents was highest among AUHWs (43%). Most respondents reported residing in Ontario or Quebec, followed by Alberta and Northwest territories, and British Columbia and Yukon. Fewer respondents reported residing in Atlantic provinces (8% of HCPs, 7% of ALHWs, and 7% of AUHWs).

Table 3. Demographic characteristics of participants, by HW category

HW characteristics	HCPs n = 3,134 (58.3%)		ALHWs n = 1,431 (26.6%)		AUHWs n = 807 (15.0%)	
	n	%	n	%	n	%
Sex						
Male	616	19.7	390	27.3	250	31.0
Female	2,449	78.1	1,017	71.0	539	66.8
Other	69	2.2	24	1.7	18	2.2
Age group						
18-39	1,220	38.9	557	39.0	326	40.4
40-59	1,437	45.9	716	50.0	386	47.8
≥60	477	15.2	158	11.0	95	11.8
BIPOC						
Yes	1,056	33.7	463	32.4	350	43.4
No	1,954	62.3	899	62.8	406	50.3
Other	124	4.0	69	4.8	51	6.3
Level of education						
≤ High school diploma or equivalent	27	0.9	52	3.6	142	17.6
College/university bachelor's level or equivalent	2,124	67.8	985	68.8	526	65.2
University post-graduate degree above bachelor's level or equivalent	970	30.9	380	26.6	125	15.5
Other	13	0.4	14	1.0	14	1.7
Region						
British Columbia/Yukon	414	13.2	164	11.5	113	14.0
Alberta/Northwest Territories	381	12.2	229	16.0	89	11.0
Manitoba/Saskatchewan/Nunavut	241	7.7	116	8.1	56	6.9
Ontario	1,129	36.0	513	35.8	307	38.0

HW characteristics	HCPs n = 3,134 (58.3%)		ALHWs n = 1,431 (26.6%)		AUHWs n = 807 (15.0%)	
	n	%	n	%	n	%
Quebec	723	23.1	304	21.2	186	23.0
Newfoundland and Labrador/Prince Edward Island/Nova Scotia/New Brunswick	246	7.8	105	7.3	56	6.9
Residential area						
Urban	2,813	89.8	1,316	92.0	707	87.6
Rural	270	8.6	99	6.9	76	9.4
Other	51	2.0	16	1.0	24	3.0
Number of people in household						
1-2	1,053	33.6	424	29.6	285	35.3
3 or more	1,943	62.0	957	66.9	491	60.8
Unknown	138	4.4	50	3.5	31	3.8
Chronic health conditions						
Yes	910	29.0	357	24.9	233	28.9
No	2,224	71.0	1,074	75.1	574	71.1

a1. Please indicate your sex assigned at birth. Please select one only.

pS1. How old are you?

pS2. Would you be willing to indicate in which of the following age categories you belong? Please select one only.

a7. Which of the following best describes the racial or ethnic community that you belong to? We recognize this list of racial or ethnic identifiers may not exactly match how you would describe yourself. Please select all that apply.

a3. Which of the following best describes where you live?

a4. What is the highest level of formal education you have completed?

a5. Between 2020-2023 what is the maximum number of people who reside(d) in your household, including yourself?

pS3. What is your province or territory of residence? Please select one only.

a12. Do you have any chronic health conditions?

The complete breakdown of these HW categories and sub-groups is presented below (Table 4).

Table 4. HW professionals' breakdown and sub-groups

HWs	Professionals' sub-groups	
	n	%
HCPs (n = 3134)		
Licensed practical nurse	665	21.2
Nurse practitioner	31	1.0
Registered nurse	1,528	48.8
Registered psychiatric nurse	31	1.0
Occupational therapist	94	3.0
Pharmacist	218	7.0
General/Family physician	218	7.0
Specialist physician	218	7.0
Physiotherapist	125	4.0
Other HCPs	6	0.2
ALHWs (n = 1431)		
Dental assistant	110	7.7
Dental hygienist	165	11.5
Dentist	96	6.7

HWs	Professionals' sub-groups	
	n	%
Dietitian	41	2.9
Medical laboratory technologist	110	7.7
Medical radiation technologist	138	9.6
Midwife	14	1.0
Optometrist	41	2.9
Paramedic	192	13.4
Pharmacy technician	55	3.8
Psychologist	96	6.7
Respiratory therapist	69	4.8
Social worker	248	17.3
Other ALHWs	56	3.9
AUHWs (n = 807)		
Admission/Reception clerks	153	19.0
Catering staff	39	4.8
Cleaning or laundry personnel	33	4.1
Health care technicians	76	9.4
Janitorial staff	44	5.5
Patient transporter	9	1.1
Personal support worker	143	17.7
Student	54	6.7
Other AUHWs staff in hospital, clinic, or health care facility	256	31.7

pS6. In what capacity were you employed in the "Health Worker" industry in Canada during COVID-19 (from 2020-2023)?

2.1. Self-reported SARS-CoV-2 infection

Self-reported SARS-CoV-2 infections were highest among HCPs, with 76% reporting at least one SARS-CoV-2 infection since January 2020 versus 71% of ALHWs, and 58% of AUHWs. Over half of all HCPs and ALHWs reported a single infection (64% and 65%, respectively), a quarter reported two infections (28% and 26%, respectively), and less than one in ten reported three or more infections (8% and 9%, respectively). AUHWs reported less infections overall, with 33% reporting one infection, 19% reporting two infections, and 5% reporting three or more infections (Table 5).

Among HCPs and ALHWs, self-reported SARS-CoV-2 infections were higher **among younger** respondents. A total of 82% of respondents under age 40 reported at least one infection compared to 73% of those aged 40-59 years and 60% of those aged 60 years or above. A similar pattern was observed among AUHWs, with 43% of individuals aged 60 years and above reporting an infection compared to 61% for those aged 40-59 years and 58% for those aged 18-39 years. Across Canada, the number of self-reported infections among AUHWs was **highest in Quebec** (72%), followed by Ontario (54%), British Columbia and Yukon (49%), and Alberta and the Northwest Territories (NWT) (47%). Among HCPs and ALHWs, the number of self-reported infections was also highest in Quebec (82%).

Across **health care settings**, self-reported infections among AUHWs were highest among those who reported working in hospital settings only (68%). Among HCPs and ALHWs, infections were highest among those who reported working in multiple settings, including hospitals (86%).

The proportion of self-reported infection did not vary significantly based on **vaccination status**. A total of 75% of vaccinated HCPs and ALHWs reported SARS-CoV-2 infections compared to 74% of unvaccinated HCPs and ALHWs. A difference was observed between vaccinated AUHWs (58%) and unvaccinated AUHWs (65%), but this difference did not reach statistical significance.

HCPs and ALHWs were more likely to report **being seriously ill** following their first infection than following subsequent infections. Following the first infection, 21% of HCPs and ALHWs reported being seriously ill but not requiring hospitalization. Reports of serious illness were lower following the second and third infections (12% and 10%, respectively), with 1% of those infected a third time reporting severe illness that required hospitalization.

Following the first infection, 34% of AUHWs reported a **serious illness** that did not require hospitalization, and 1% reported having a severe illness that required hospitalization. Reports of being seriously ill without the need for hospitalization were much lower following a second infection (26%), with 1% reporting severe illness, but this increased incrementally after the third infection. Following a third infection, 30% reported being seriously ill without the need for hospitalization, 3% reported severe illness that required hospitalization, and 1% reported critical or life-threatening illness.

For self-reported cases of suspected or confirmed long COVID, 15% of HCPs, 15% of ALHWs, and 22% of AUHWs reported they may have had or did have **long COVID** in the past. Among HCPs and ALHWs, reports of suspected or confirmed long COVID were four times higher among vaccinated respondents (16%) than unvaccinated respondents (4%). Long COVID was about twice as high among racialized respondents (21%) compared to non-racialized respondents (12%), and nearly twice as high among those aged 18-39 (16%) and 40-59 (15%) than in older adults aged 60 years and older (9%).

Overall, the proportion of self-reported SARS-CoV-2 infections varied by HW sub-category. Infections were higher among those working in hospital settings than non-hospital settings, and the first infection was more serious than subsequent infections, regardless of the workplace setting. Also, younger HWs reported a higher number of infections than older workers.

Table 5. Self-reported SARS-CoV-2 infection and related risk factors, by HW category

SARS-CoV-2 infections and risk factors	HCPs n = 3,134		ALHWs n = 1,431		AUHWs n = 807	
	n	%	n	%	n	%
Self-reported confirmed or suspected SARS-CoV-2 infection						
Yes	2,391	76.3	1,018	71.1	466	57.7
No	646	20.6	333	23.3	290	35.9
Don't know or prefer not to answer	97	3.1	80	5.6	51	6.3
Number of previous SARS-CoV-2 infection						
One	2,006	64.0	930	65.0	266	33.0
Two infections	878	28.0	372	26.0	153	19.0
Three or more	251	8.0	129	9.0	40	5.0
Current workplace setting						
Hospital ONLY	1,101	35.1	343	24.0	220	27.3
Clinic setting ONLY	245	7.8	410	28.7	98	12.1
Community ONLY	487	15.5	222	15.5	112	13.9
Senior care ONLY	343	10.9	20	1.4	96	11.9
Multiple and other setting	958	30.6	436	30.5	281	34.8
Direct contact with patients during COVID-19						

SARS-CoV-2 infections and risk factors	HCPs n = 3,134		ALHWs n = 1,431		AUHWs n = 807	
	n	%	n	%	n	%
Yes	3,035	96.8	1,345	94.0	724	89.7
No	99	3.2	86	6.0	83	10.3

b1: Since January 2020, do you think you have had a COVID-19 infection?

b3: Since January 2020, how many separate times, have you had or think you had the COVID-19 infection?

ps9: Between 2020-2023 with which groups of patients did you have regular face-to-face contact? Please select all that apply.

ps10: Which setting best describes your current workplace? Please select all that apply.

2.2. Self-reported COVID-19 vaccination history

This section discusses the COVID-19 vaccination status as reported by survey respondents, including the number of doses received, the timing of vaccinations, and the vaccine products received.

COVID-19 vaccination status

Most HCPs (89%), ALHWs (90%), and AUHWs (87%) reported having received at least the COVID-19 primary series between 2020 and 2023 (Table 6). For each HW category, 8% reported being unvaccinated and 1% reported being partially vaccinated. Approximately a quarter of respondents in each HW category reported having a single booster dose at the time of the survey. Most survey respondents reported having two booster doses (49% of HCP, 45% of ALHWs, and 41% of AUHWs).

Table 6. Self-reported COVID-19 vaccination status, by HW category

COVID-19 vaccination status	HCPs n = 3,134		ALHWs n = 1,431		AUHWs n = 807	
	n	%	n	%	n	%
Overall COVID-19 vaccination status						
Unvaccinated: didn't receive any COVID-19 vaccine	254	8.1	114	8.0	63	7.8
Partially vaccinated	27	0.9	11	0.8	11	1.4
Completed primary series: received a second dose in a 2-dose series: 2 doses total	473	15.1	253	17.7	171	21.2
Completed primary vaccine series with 1 additional dose/first booster: 3 doses total	769	24.5	385	26.9	199	24.7
Completed primary vaccine series with 2 additional doses/second booster: 4 doses total or more	1,542	49.2	639	44.7	333	41.3
Received at least the COVID-19 primary series						
Total	2,784	88.8	1,277	89.2	703	87.1

ps11: What is your current COVID-19 vaccination status? Please select one only

Note: Unvaccinated: didn't receive any COVID-19 vaccine; Partially vaccinated: received the first vaccine dose in a two-dose series; primary series: received a one-dose vaccine series (Janssen (Johnson & Johnson)) or a second dose in a two-dose series; One booster dose: completed primary vaccine series and one additional dose/first booster; Two booster doses: completed primary vaccine series and two additional doses/second booster.

COVID-19 Vaccination status among HCPs

Overall, most HCPs had either two booster doses (49%), one booster dose (25%), or a primary series (15%) completed (Table 7). Within each occupation, licensed practical nurses, registered psychiatric nurses, nurse practitioners, and occupational therapists had the highest proportion of unvaccinated respondents. Among general/family physicians and specialist physicians, 78% and 73% respectively reported being vaccinated with a second booster dose.

Table 7. Self-reported COVID-19 vaccination status, by HCP sub-groups

HCP sub-groups	Total base	Unvaccinated		Partially vaccinated		Primary series		One booster dose		Two booster doses	
	n	n	%	n	%	n	%	n	%	n	%
General/Family physician	218	18	8.3	0	0.0	13	6.0	18	8.3	170	78.0
Specialist physician	218	0	0.0	3	1.4	27	12.4	30	13.8	159	72.9
Licensed practical nurse	655	82	12.5	0	0.0	136	20.8	237	36.2	180	27.5
Nurse practitioner	31	4	12.9	1	3.2	2	6.5	6	19.4	18	58.1
Registered nurse	1,528	116	7.6	20	1.3	214	14.0	371	24.3	771	50.5
Registered psychiatric nurse	31	4	12.9	1	3.2	9	29.0	8	25.8	9	29.0
Occupational therapist	94	9	9.6	0	0.0	30	31.9	38	40.4	16	17.0
Pharmacist	218	12	5.5	0	0.0	28	12.8	37	17.0	139	63.8
Physiotherapist	125	9	7.2	3	2.4	12	9.6	21	16.8	68	54.4
TOTAL	3,134	254	8.1	27	0.9	473	15.1	769	24.5	1,542	49.2

ps11. What is your current COVID-19 vaccination status? Please select one only

Note: Unvaccinated: didn't receive any COVID-19 vaccine; Partially vaccinated: received the first vaccine dose in a two-dose series; primary series: received a one-dose vaccine series (Janssen (Johnson & Johnson)) or a second dose in a two-dose series; One booster dose: completed primary vaccine series and one additional dose/first booster; Two booster doses: completed primary vaccine series and two additional doses/second booster.

Note: This table reflects row percentages.

COVID-19 Vaccination status among ALHWs

Among ALHWs respondents, 45% had received two booster doses, 27% had received one booster dose, and 18% received a primary series at the time of the survey. Some differences in vaccination status were observed among the sub-categories of ALHWs. A total of 20% of dieticians, 15% of pharmacy technicians, 15% of dental assistants, 13% of dental hygienists, and 9% of dentists reported being unvaccinated. In contrast, 61% of psychologists, 61% of respiratory therapists, 61% of dieticians, 57% of optometrists, and 56% of medical laboratory technologists completed their primary series and received two boosters.

Table 8. Self-reported COVID-19 vaccination status, by ALHW sub-groups

ALHW sub-groups	Total base	Unvaccinated		Partially vaccinated		Primary series		One booster dose		Two booster doses	
	n	n	%	n	%	n	%	n	%	n	%
Dental assistant	110	17	15.5	17	15.5	31	28.2	33	30.0	27	24.5
Dental hygienist	165	21	12.7	21	12.7	32	19.4	53	32.1	51	30.9
Dentist	96	9	9.4	9	9.4	16	16.7	24	25.0	44	45.8
Dietitian	41	8	19.5	8	19.5	0	0.0	7	17.1	25	61.0
Medical laboratory technologist	110	3	2.7	3	2.7	16	14.5	28	25.5	62	56.4
Medical radiation technologist	138	14	10.1	14	10.1	12	8.7	50	36.2	58	42.0
Midwife	14	0	0.0	0	0.0	4	28.6	1	7.1	6	42.9
Optometrist	41	0	0.0	0	0.0	5	12.2	11	26.8	23	56.1
Paramedic	192	5	2.6	5	2.6	32	16.7	67	34.9	86	44.8
Pharmacy technician	55	8	14.5	8	14.5	11	20.0	16	29.1	16	29.1
Psychologist	96	6	6.3	6	6.3	10	10.4	16	16.7	58	60.4
Respiratory therapist	69	2	2.9	2	2.9	5	7.2	17	24.6	42	60.9
Social worker	248	14	5.6	14	5.6	70	28.2	48	19.4	114	46.0
Other allied	56	6	10.7	6	10.7	8	14.3	15	26.8	27	48.2
TOTAL	1,431	114	8.0	11	0.8	253	17.7	385	26.9	639	44.7

ps11. What is your current COVID-19 vaccination status? Please select one only

Note: Unvaccinated: didn't receive any COVID-19 vaccine; Partially vaccinated: received the first vaccine dose in a two-dose series; primary series: received a one-dose vaccine series (Janssen (Johnson & Johnson)) or a second dose in a two-dose series; One booster dose: completed primary vaccine series and one additional dose/first booster; Two booster doses: completed primary vaccine series and two additional doses/second booster.

Note: This table reflects row percentages.

COVID-19 Vaccination status among AUHWs

Table 9 shows the vaccination status of AUHW respondents by occupation. Overall, 41% received two booster doses, 25% received one booster dose, 21% received a primary series, and 8% were unvaccinated. Janitorial staff, health care technicians, and cleaning or laundry personnel had the highest proportion of unvaccinated respondents.

Table 9. Self-reported COVID-19 vaccination status, by AUHW sub-groups

AUHW sub-groups	Total base	Unvaccinated		Partially vaccinated		Primary series		One booster dose		Two booster doses	
	n	n	%	n	%	n	%	n	%	n	%
Admission/ Reception clerks	153	13	8.5	2	1.3	31	20.3	52	34.0	54	35.3
Catering staff	39	3	7.7	1	2.6	16	41.0	4	10.3	16	41.0
Cleaning or laundry personnel	33	4	12.1	1	3.0	12	36.4	7	21.2	8	24.2
COVID clinic staff	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
Health care technicians	76	11	14.5	0	0.0	13	17.1	14	18.4	36	47.4
Janitorial staff	44	7	15.9	3	6.8	12	27.3	8	18.2	11	25.0
Other staff in hospital, clinic, or health care facility*	236	12	5.1	1	0.4	30	12.7	54	22.9	139	58.9
Patient transporter	9	0	0.0	0	0.0	2	22.2	3	33.3	4	44.4
Personal support worker	143	11	7.7	0	0.0	42	29.4	38	26.6	49	34.3
Student	54	1	1.9	2	3.7	14	25.9	17	31.5	18	33.3
TOTAL	807	63	7.8	11	1.4	170	21.1	199	24.7	333	41.3

*Other staff in hospital, clinic, or health care facility, e.g., facilities support or administrative personnel.

Ps11. What is your current COVID-19 vaccination status? Please select one only.

Note: Unvaccinated: didn't receive any COVID-19 vaccine; Partially vaccinated: received the first vaccine dose in a two-dose series; primary series: received a one-dose vaccine series (Janssen (Johnson & Johnson)) or a second dose in a two-dose series; One booster dose: completed primary vaccine series and one additional dose/first booster; Two booster doses: completed primary vaccine series and two additional doses/second booster.

Note: This table reflects row percentages.

Workplace setting

There was notable variation in vaccination history between respondents employed in different workplace settings. For instance, HCPs and ALHWs who worked exclusively in a clinic (outside of a hospital) were twice as likely to report being unvaccinated than HCPs and ALHWs who worked solely within a hospital (14% vs. 7%) and three times as likely to report being unvaccinated than those who worked in a hospital as well as other settings (13% vs. 4%). Among AUHWs, the rates of vaccination did not vary by workplace setting. However, AUHWs who worked exclusively in a hospital setting were more likely to have received four or more doses (51%) compared with individuals working in a clinic only (34%), in the community only (37%), or in an older adult care facility only (27%).

Demographic characteristics

HCPs and ALHWs who worked in urban centres reported the highest percentage of individuals receiving four or more doses in total. Among HCPs and ALHWs living in an area with a population of 1,000,000 or more, 75% reported receiving four or more doses compared to 49% who reside in an area with a population of 100,000 to under 1,000,000, 42% who reside in an area with a population of 1,000 to under 100,000, and 33% who reside in an area with a population of less than 1,000 people.

Among AUHWs, vaccination rates were lowest among respondents in central Canada (aggregate of Manitoba and Saskatchewan/Nunavut). In the central Canada region, 16% of respondents reported being

unvaccinated, which was twice the rate of unvaccinated workers in Quebec (8%) and British Columbia (BC)/Yukon (8%).

There were no significant differences in vaccination by age. However, HCPs and ALHWs aged ≥ 60 years were more likely to have received four or more doses than individuals aged 40-59 years (69% vs. 48%) and 18-39 years (69% vs. 40%). Respondents aged 18-39 years were more likely to have received two doses compared with individuals aged 40-59 years (20% vs. 14%) and ≥ 60 years (20% vs. 5%). Among AUHWs, individuals aged ≥ 60 years were more likely to report receiving four or more doses compared with individuals aged 40-59 years (63% vs. 43%) and 18-39 years (63% vs. 33%).

There were notable patterns in vaccination by ethnicity and race. For instance, a greater percentage of racialized AUHWs reported completing a primary series but no booster compared with non-racialized AUHWs (28% vs. 16%). Racialized AUHWs were also less likely to report receiving a second booster compared to non-racialized AUHWs (36% vs. 48%).

Timing of COVID-19 vaccination

Most HCPs (86%) and ALHWs (84%) who reported being vaccinated against COVID-19 received their first dose before July 31, 2021, including 93% of physicians and 84% of nurses. Approximately two-thirds of vaccinated HCPs (69%) and ALHWs (61%) reported receiving their second dose before July 31, 2021 (78% of physicians and 66% of nurses), compared to 49% of AUHWs. Most respondents who received three or more doses received their third dose between Dec 15, 2021, and June 30, 2022 (46% of HCPs, 50% of ALHWs, and 46% of AUHWs).

Some differences were observed between sub-groups for the timing of vaccination. For instance, non-racialized HCPs and ALHWs were more likely to have received their first dose before July 31, 2021, compared to racialized HCPs and ALHWs (88% vs. 82%). HCPs and ALHWs aged 60 years and older (94%) were most likely to report receiving their first dose before July 31, 2021, compared with individuals aged 40-59 years (87%) and 18-39 years (80%).

Among AUHWs, 78% received their first dose before July 31, 2021. Racialized workers reported receiving their first dose later than non-racialized workers, with fewer racialized workers receiving their first dose before July 31, 2021 (73%), than non-racialized workers (83%).

COVID-19 vaccine products

Monovalent Pfizer-BioNTech (Comirnaty) was the most common vaccine product HWs received. Three-quarters (74%) of HCPs and 67% of ALHWs received monovalent Pfizer-BioNTech for their first dose. AUHWs were less likely to receive monovalent Pfizer-BioNTech for their first dose (58%). AUHWs were more likely to report receiving AstraZeneca (Vaxzervria) (8%) compared to HCPs (3%) and ALHWs (4%).

Differences were observed between sub-groups for vaccine products. For instance, non-racialized HCPs and ALHWs were more likely to report receiving monovalent Pfizer-BioNTech for their first dose (75%) compared to racialized HCPs and ALHWs (68%). A similar pattern was observed among AUHWs, with 65% of non-racialized AUHWs receiving monovalent Pfizer-BioNTech for their first dose compared to 51% of racialized AUHWs.

Self-reported COVID-19 vaccination varied by HW category. The data suggest that a lower proportion of nurses were vaccinated compared to doctors, and a lower proportion of individuals who worked outside of a hospital setting were vaccinated compared with those who worked in a hospital.

2.3. COVID-19 vaccine acceptance

This section examines the factors that influence vaccine decision-making among HWs. It covers the reasons why some HWs decided to get vaccinated, and others decided to remain unvaccinated, as reported by respondents. Additionally, it explores if and how the COVID-19 vaccine mandate influenced HWs decisions to get vaccinated or not.

Reasons for vaccination

HCPs, ALHWs and AUHWs provided several reasons for why they got vaccinated. As shown in Table 10, the most common reason for vaccination was to protect themselves, their families, or individuals living in their household from COVID-19 (69% HCPs, 66% ALHWs, and 53% AUHWs). Other common reasons for vaccination included the following: they wanted to adhere to recommendations by public health officials (58% HCPs/ALHWs and 48% AUHWs), they wanted to prevent the spread of COVID-19 in their community (58% HCPs/ALHWs and 47% AUHWs), and because they had direct involvement in the pandemic response in a health care setting (54% HCPs/ALHWs and 39% AUHWs).

The vaccine mandate had a substantial impact on respondents' decisions to get vaccinated. Vaccine mandates were one of the most commonly reported reasons for getting vaccinated, with 53% of HCPs, 46% of ALHWs, and 47% of AUHWs indicating that maintaining their job was one of the reasons they decided to get vaccinated. Some respondents indicated that the vaccine mandate was the sole reason for vaccination with 11% of HCPs, ALHWs, and AUHWs combined reporting that vaccination was required to maintain their job. Among HCPs who chose this as their sole reason for vaccination, nurses represented a disproportionately high percentage (80%).

It is estimated that without the mandate, up to one-third (32%) of HCPs and ALHWs and 45% of AUHWs may have chosen to get vaccinated.²

Table 10. Self-reported reasons for getting vaccinated against COVID-19, by HW category

Reasons for getting vaccinated	HCPs (n = 2,810)	ALHWs (n = 1,288)	AUHWs (n = 714)
To protect myself and/or family or household members from SARS-CoV-2 infection	69%	66%	53%
Based on public health recommendations	61%	54%	48%
To prevent the spread of COVID-19 in my community	59%	57%	47%
Because I am directly involved in the pandemic response in a health care setting	59%	43%	39%
It was required to maintain my job / continue my employment	53%	46%	47%
To reduce the stress on the health care system	49%	47%	36%
The COVID-19 vaccine was available and offered	47%	47%	36%

² Total Unduplicated Reach and Frequency (TURF) Maximum exclusive of: "It was required to maintain my job/continue my employment" is 67.7%.

Reasons for getting vaccinated	HCPs (n = 2,810)	ALHWs (n = 1,288)	AUHWs (n = 714)
The COVID-19 vaccine was recommended by a health care professional	26%	28%	24%
For travel purposes	20%	22%	19%
I was directly or indirectly encouraged to get vaccinated by family members, colleagues, or friends	16%	19%	18%
I am at risk for more severe outcomes from SARS-CoV-2 infection because of a health condition and/or disability	13%	12%	14%
Because of the type of job, I have*	1%	1%	0%
To be able to access vaccinated-only environments*	0%	1%	1%
Other	0%	1%	1%

c1. What were your reasons for getting the COVID-19 vaccine? Please select all that apply.

*These responses were not offered to respondents in the questionnaire and were created to reflect common themes based on comments in the "Other (specify)" free text box.

Among survey respondents, HCPs and ALHWs in Quebec were less likely to report that vaccine mandates contributed to their decision to get vaccinated than those in other regions (33% vs. 67% in Atlantic Canada, 59% in Ontario, 57% in British Columbia and Yukon, 49% in Alberta and Northwest Territories and 40% in Manitoba, Saskatchewan, and Nunavut). Similarly, vaccine mandates as a factor in decision-making was reported less frequently by HCPs and ALHWs surveyed who responded to the survey in French (34%) compared to those who responded to the survey in English (55%). There were also notable gender differences in how the vaccine mandates influenced AUHWs' decisions to get vaccinated. For instance, among AUHWs, females were more likely to report the mandates as a reason for getting vaccinated than males (51% females vs. 38% males).

Reason for being unvaccinated

Most unvaccinated HWs refused to get vaccinated against COVID-19. Overall, 30% of unvaccinated HCPs and ALHWs reported leaving the sector and no longer working as a HW. In addition, fewer unvaccinated AUHWs reported leaving the health sector compared to vaccinated individuals (23% vs. 14%, respectively). As shown in Table 11, the results from the survey indicate that the prevailing reasons for not getting vaccinated were concerns about the safety of COVID-19 messenger ribonucleic acid (mRNA) vaccines or concerns about vaccines' long-term side effects. These safety concerns were reported more frequently among HCPs than ALHWs, with 85% of HCPs expressing concerns about the safety of mRNA COVID-19 vaccines compared to 67% of ALHWs. 87% of HCPs expressed concerns about long-term side effects of COVID-19 vaccines compared to 71% of ALHWs. AUHWs also had these safety concerns as top reasons for remaining unvaccinated. Among AUHWs, 79% expressed concerns about long-term side effects of COVID-19 vaccines and 75% mentioned the safety of mRNA COVID-19 vaccines.

The vaccine mandate for HWs also played a role in some HWs choosing not to get vaccinated. Among unvaccinated respondents, 72% reported that they did not get vaccinated in part because they rejected being mandated to get vaccinated (72% HCPs, 71% ALHWs, and 72% of AUHWs). However, only 2% of HCPs and ALHWs, and 2% of AUHWs indicated the vaccine mandate as being the only reason for choosing to remain unvaccinated.

Over one-third (38%) of HCPs and ALHWs and 20% of AUHWs chose to remain unvaccinated in part or solely due to religious or spiritual reasons. Some unvaccinated respondents mentioned concerns about

stigma, racism, or discrimination from the health care system (23% of HCPs and ALHWs, and 18% of AUHWs). Sixty-four percent of unvaccinated HCPs reported that their lack of confidence in Canada's regulatory and informational systems for immunization (e.g., Health Canada, PHAC, National Advisory Committee on Immunization (NACI)) influenced their decision to not get vaccinated (56% of ALHWs and 52% of AUHWs).

Table 11. Self-reported reasons for not getting vaccinated against COVID-19, by HW category

Reasons for not getting vaccinated	HCPs (n = 254)	ALHWs (n = 114)	AUHWs (n = 63)
Concerns about safety and effectiveness			
I have concerns about the long-term side effects of COVID-19 vaccines	87%	71%	75%
I have concerns about the safety of mRNA COVID-19 vaccines	85%	67%	79%
I have concerns about the effectiveness of COVID-19 vaccines	79%	71%	70%
I reject being mandated/obligated to get vaccinated	72%	71%	72%
I have concerns about short-term side effects of COVID-19 vaccines	65%	50%	53%
I have already had COVID-19 so I do not need a vaccine	39%	28%	15%
I am concerned that it will affect my fertility	18%	18%	12%
I am pregnant or planning to become pregnant I am afraid of the effects on my baby	20%	7%	3%
Perception of COVID-19 risk			
The impact of SARS-CoV-2 infection is being greatly exaggerated	52%	42%	44%
I do not think I am at risk of getting COVID-19 or at risk of severe effects from SARS-CoV-2 infection	44%	34%	31%
Sources of information			
I lack confidence in Canada's regulatory and informational systems for immunization (e.g., Health Canada, Public Health Agency of Canada, National Advisory Committee on Immunization)	64%	56%	52%
I heard or read negative media (e.g., on social media, blogs, forums) about the mRNA COVID-19 vaccines	10%	17%	14%
I would like to have more discussion about COVID-19 vaccines with my health care provider	8%	3%	7%
I did not know where to get good/reliable information about the mRNA COVID-19 vaccines	4%	7%	8%
People who did not believe in getting vaccinated against COVID-19 offered reasons that made sense to me	13%	18%	20%
Vaccine technology			
I do not think mRNA COVID-19 vaccines (Pfizer-BioNTech or Moderna) would do any good	35%	40%	41%
I don't trust the people who have developed the mRNA COVID-19 vaccines	34%	41%	48%
Historical and cultural reasons			
I have religious or spiritual reasons	45%	23%	20%
I have concerns about stigma, racism, or discrimination from the health care system	28%	11%	18%
Other			
I have concerns surrounding the frequency of injections and vaccine schedules	53%	42%	39%
I had a bad experience or reaction with previous vaccination (e.g., severe vaccine adverse effects)	18%	12%	15%
I don't like needles/injections	0%	3%	6%

c4. For what reason(s) have you not been vaccinated against COVID-19? Please select all that apply. Mentions <5% not shown.

In conclusion, the most common reasons respondents gave for getting a COVID-19 vaccine were to protect themselves, their family, or members of their household from COVID-19, and because vaccination was recommended by public health officials. The vaccine mandate for HWs was an important and pervasive factor in motivating HWs to get vaccinated. The common reasons why HWs chose to remain unvaccinated included concerns about the safety of COVID-19 vaccines, and specifically, the perceived risk of side effects following vaccination. The survey results also suggested that some HWs rejected the vaccine mandate, which contributed to their decision to remain unvaccinated. However, this rejection of the mandate was not the sole reason for individuals refusing vaccination.

2.4. COVID-19 vaccine hesitancy

This section discusses COVID-19 VH among survey respondents and the various factors that contributed to their hesitancy, with the goal of understanding the attitudes influencing COVID-19 VH in the HW population. Recommendations are also provided for policy makers and health communicators that can be used to reduce hesitancy and promote uptake of COVID-19 vaccines.

As shown in Table 12, HWs reported varying degrees of hesitancy in making their decision about whether to get vaccinated against COVID-19. AUHWs reported higher levels of hesitancy than HCPs and ALHWs. Forty-five percent of AUHWs reported being very or somewhat hesitant, compared to 37% of ALHWs and 35% of HCPs.

Table 12. Self-reported level of COVID-19 VH, by HW category

Level of VH	HCPs (n = 3,134)	ALHWs (n = 1,431)	AUHWs (n = 807)
Very hesitant	20%	19%	20%
Somewhat hesitant	15%	18%	25%
Not very hesitant	16%	16%	16%
Not at all hesitant	48%	46%	37%
Do not know	0%	1%	1%
Prefer not to answer	1%	1%	1%

c7. To what extent were you hesitant about whether or not to get vaccinated against COVID-19? For this survey, being hesitant refers to a delay or reluctance in your decision to get vaccinated or not to get vaccinated as soon as the vaccine was available and convenient for you to receive it.

Physicians reported lower levels of hesitancy than other HWs, with 31% reporting some level of hesitancy compared to 56% of nurses. Nurses were nearly twice as likely to report being very hesitant about getting vaccinated compared to physicians (22% of nurses vs. 12% of physicians).

VH was expressed to varying degrees among respondents who decided to get vaccinated, with 49% of HCPs and ALHWs combined and 59% of AUHWs reporting some degree of hesitancy in their decision to get vaccinated. As shown in Table 13, HCPs who had been vaccinated with a primary series at the time of the survey reported a higher degree of hesitancy than those who have received booster doses (56% very hesitant vs. 14% of those who received one booster dose and 1% of those who have received two booster doses).

Respondents who remained unvaccinated reported hesitancy in their decision to not get vaccinated, with unvaccinated HCPs and ALHWs being most likely to say they were very hesitant about their decision. As shown in Table 13, 72% of unvaccinated HCPs reported being very hesitant in their decision to not get vaccinated. Only 15% of unvaccinated HCPs reported no hesitancy in their decision to not be vaccinated.

Among HCPs who received a primary series, 56% reported being very hesitant in their decision to get vaccinated. None of the unvaccinated HCPs planned to get vaccinated in the future.

Table 13. Self-reported level of COVID-19 VH among HCPs, by self-reported vaccination status

Level of VH	Unvaccinated (n = 254)	Partially vaccinated (n = 27)	Primary series (n = 473)	One booster dose (n = 769)	Two booster doses (n = 1,542)
Not at all hesitant	15%	0%	7%	38%	74%
Not very hesitant	1%	0%	12%	20%	19%
Somewhat hesitant	8%	25%	25%	28%	6%
Very hesitant	72%	74%	56%	14%	1%

c7. To what extent were you hesitant about whether or not to get vaccinated against COVID-19? For this survey, being hesitant refers to a delay or reluctance in your decision to get vaccinated or not to get vaccinated as soon as the vaccine was available and convenient for you to receive it. Percentage don't know or prefer not to answer not shown in table.

The same pattern was observed among ALHWs (Table 14). Among unvaccinated ALHWs, 75% reported being very hesitant in their decision and 11% of ALHWs reported no hesitancy in their decision to not get vaccinated. Notably, just under half (47%) of those who received a primary series at the time of the survey reported being very hesitant in their decision. Among unvaccinated ALHWs, 5% indicated that they planned to get vaccinated in the future.

Table 14. Self-reported level of COVID-19 VH among ALHWs, by self-reported vaccination status

Level of VH	Unvaccinated (n = 114)	Partially vaccinated (n = 11)	Primary series (n = 253)	One booster dose (n = 385)	Two booster doses (n = 639)
Not at all hesitant	11%	0%	17%	37%	72%
Not very hesitant	2%	2%	8%	25%	17%
Somewhat hesitant	11%	49%	28%	31%	8%
Very hesitant	75%	39%	47%	6%	2%

c7. To what extent were you hesitant about whether or not to get vaccinated against COVID-19? For this survey, being hesitant refers to a delay or reluctance in your decision to get vaccinated or not to get vaccinated as soon as the vaccine was available and convenient for you to receive it. Percentage don't know or prefer not to answer not shown in table.

A similar pattern was observed among AUHWs (Table 15). Among the unvaccinated AUHWs, 67% reported being very hesitant in their decision about vaccination, and 22% reported no hesitancy in their decision. Among AUHWs who received a primary series, 30% reported being very hesitant in their decision to get vaccinated. None of the unvaccinated AUHWs indicated that they planned to get vaccinated in the future.

Table 15. Self-reported level of COVID-19 VH among AUHWs, by self-reported vaccination status

Level of VH	Unvaccinated (n = 63)	Partially vaccinated (n = 11)	Primary series (n = 171)	One booster dose (n = 199)	Two booster doses (n = 333)
Not at all hesitant	22%	19%	15%	29%	59%
Not very hesitant	7%	2%	16%	17%	18%
Somewhat hesitant	2%	10%	37%	40%	17%
Very hesitant	67%	58%	30%	12%	6%

c7. To what extent were you hesitant about whether or not to get vaccinated against COVID-19? For this survey, being hesitant refers to a delay or reluctance in your decision to get vaccinated or not to get vaccinated as soon as the vaccine was available and convenient for you to receive it. Percentage don't know or prefer not to answer not shown in table.

Survey respondents who reported hesitancy also reported receiving their first vaccination later than respondents who did not report hesitancy. As shown in Table 16, 95% of HCPs and ALHWs who reported being not at all hesitant received their first vaccine dose before July 31, 2021. For respondents who were not very hesitant, 81% reported receiving their first dose before July 31, 2021. Seventy percent of AUHWs and 85% of HCPs and ALHWs who reported being somewhat hesitant received their first vaccine before July 31, 2021. Among AUHWs who reported being not at all hesitant, 90% received their first vaccines before July 31, 2021 (Table 17). Only 56% of AUHWs who reported being very hesitant received their first vaccines before July 31, 2021.

Table 16. Self-reported timing of COVID-19 vaccination among HCPs and ALHWs, by self-reported level of VH

Timing of vaccination	Very hesitant (n = 578)	Somewhat hesitant (n = 671)	Not very hesitant (n = 728)	Not at all hesitant (n = 2,105)
First dose before July 31, 2021	56%	85%	81%	95%
Second dose before July 31, 2021	39%	60%	62%	77%

B11/B11a. [first second] Please indicate the time period of your first COVID-19 vaccination.

Table 17. Self-reported timing of COVID-19 vaccination among AUHWs, by self-reported level of VH

Timing of vaccination	Very hesitant (n = 100)	Somewhat hesitant (n = 199)	Not very hesitant (n = 121)	Not at all hesitant (n = 283)
First dose before July 31, 2021	57%	70%	81%	90%
Second dose before July 31, 2021	33%	42%	56%	58%

B11/B11a. [first second] Please indicate the time period of your first COVID-19 vaccination.

Attitudes toward COVID-19 vaccine efficacy and safety

Concerns about the safety and effectiveness of the COVID-19 vaccines were a major factor influencing VH. HWs had strong support for vaccines in general, with 89% of HCPs (93% of physicians and 88% of nurses) and 89% of ALHWs agreeing that vaccines in general are safe and effective. However, perceptions of the safety and effectiveness of COVID-19 vaccines were much lower, particularly among nurses and ALHWs. Only 66% of nurses and 68% of ALHWs agreed that COVID-19 vaccines are safe and effective compared to 82% of physicians.

There was a notable difference in HWs' attitudes about the safety and effectiveness of the COVID-19 vaccines between those who did and did not hesitate to get vaccinated. As shown in Table 18, 29% of HCPs and ALHWs who reported hesitancy agreed (strongly or somewhat) with the statement "COVID-19 vaccines are safe and effective," with a larger proportion of individuals who did not report hesitancy

agreeing with this statement (91%). A similar pattern was observed among AUHWs: 36% of hesitant individuals agreed that “COVID-19 vaccines are safe and effective” and 80% of individuals who did not report hesitancy agreed with this statement.

HWs who had concerns about vaccine safety were often specifically concerned with the long-term side effects of COVID-19 vaccination. Among HCPs and ALHWs who reported hesitancy, 28% agreed with the statement “the benefits of the COVID-19 vaccine outweigh the risk of side effects”; 92% of non-hesitant HCPs and ALHWs agreed with this statement. This perceived safety concern was also expressed by respondents who disagreed that vaccination is a safer way to build immunity against COVID-19 than getting infected. One third (33%) of vaccine hesitant HCPs and ALHWs, and 45% of AUHWs agreed with the statement that “vaccination is a safer way to build immunity against COVID-19 than getting infected.” One third (33%) of HCPs and ALHWs, and 44% of AUHWs who hesitated getting vaccinated agreed with the statement that “getting the COVID-19 vaccine will decrease the spread of COVID-19.”

Additionally, HWs’ COVID-19 vaccine safety and effectiveness concerns did not stem from concerns about the safety and effectiveness of vaccines in general but were unique to COVID-19 vaccination. As shown in Table 18, 77% of hesitant HCPs and ALHWs agreed with the statement “I believe in immunizations, in general vaccines are safe and effective.”

Sources of COVID-19 related information

Hesitant HWs reported having access to enough trustworthy information about COVID-19 vaccines to make an informed decision about vaccination. A total of 69% of HCPs and ALHWs, and 67% of hesitant AUHWs agreed with the statement “I have access to enough trustworthy information about COVID-19 vaccines to make an informed decision.” HCPs and ALHWs who hesitated getting vaccinated were just as likely to consult scientific literature, such as published or preprint studies, for information about COVID-19 as those who did not hesitate (66% respectively among each group), but less likely to consult expert sources such as the Centers for Disease Control and Prevention (CDC) in the United States or the NACI in Canada. Half (50%) of hesitant HCPs and ALHWs reported they would consult expert sources compared to 77% of those who were not hesitant. The same pattern was observed among AUHWs: 51% of those who reported hesitancy indicated that they would consult scientific literature for information compared to 50% of those who did not report hesitancy. A lower proportion of hesitant AUHWs (46%) said that they would consult expert sources such as the CDC or NACI than those who were not hesitant (68%).

It is unclear if COVID-19 information provided by the federal government motivated respondents who reported hesitancy to get vaccinated. About one in four (27%) hesitant HCPs and ALHWs, and one in three (34%) hesitant AUHWs agreed with the statement “I trust the information from the federal government about COVID-19 vaccines.” Moreover, 66% of hesitant HCPs and ALHWs, and 60% of hesitant AUHWs agreed with the statement “I lacked confidence in Canada’s regulatory and informational systems for immunization (e.g., Health Canada, Public Health Agency of Canada, NACI).”

Table 18. Self-reported attitudes toward COVID-19 public health measures, by HW category and self-reported level of COVID-19 VH

Attitudes toward COVID-19 public health measures	% Agree (Strongly and Somewhat)			
	HCPs/ALHWs		AUHWs	
	Very or somewhat hesitant (n = 1,624)	Not very or not at all hesitant (n = 2,894)	Very or somewhat hesitant (n = 363)	Not very or not at all hesitant (n = 423)
Concerns about vaccine safety and effectiveness				
I believe in immunizations, in general vaccines are safe and effective	77%	96%	68%	89%
COVID-19 vaccines are safe and effective	29%	91%	36%	80%
The benefits of the COVID-19 vaccine outweigh the risk of side effects	28%	92%	37%	83%
You cannot get a SARS-CoV-2 infection from the vaccine	61%	87%	45%	72%
If I get vaccinated against COVID-19, then I will be less likely to infect family members	34%	88%	43%	81%
Vaccination is a safer way to build immunity against COVID-19 than getting infected	33%	89%	45%	81%
Getting the COVID-19 vaccine will decrease the spread of COVID-19	33%	88%	44%	83%
If I get vaccinated against COVID-19, then I will be less likely to infect patients	34%	86%	43%	82%
I believe that I don't need to be vaccinated against COVID-19 if I got infected with it already	60%	13%	50%	19%
COVID-19 vaccines are safe for people who are pregnant/want to conceive children in the future	21%	74%	22%	59%
mRNA COVID-19 vaccines do not change my DNA	46%	87%	42%	73%
Additional/booster (more than 2) doses are important to be administered to stay protected against the virus	22%	82%	36%	76%
Perception of COVID-19 risk				
The risk of severe effects from SARS-CoV-2 infection for me is low	71%	63%	62%	57%
Vaccine decision-making				
The prospect of losing my employment played a role in my decision to get vaccinated or not	66%	18%	59%	29%
Spiritual or ethical reasons played a role in my decision to get vaccinated or not	38%	25%	37%	24%

Attitudes toward COVID-19 public health measures	% Agree (Strongly and Somewhat)			
	HCPs/ALHWs		AUHWs	
	Very or somewhat hesitant (n = 1,624)	Not very or not at all hesitant (n = 2,894)	Very or somewhat hesitant (n = 363)	Not very or not at all hesitant (n = 423)
Attitudes toward public health measures				
I follow all public health measures to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask)	65%	89%	72%	88%
Public health measures are important to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask)	57%	91%	62%	87%
All health care workers should be vaccinated against COVID-19	27%	86%	44%	88%
COVID-19 vaccination should be a requirement in school settings and/or any setting with a large group of children (e.g., daycare, sports venues)	19%	74%	31%	74%
Sources of information				
I have access to enough trustworthy information about COVID-19 vaccines to make an informed decision	69%	94%	67%	88%
I trust the information from the federal government about COVID-19 vaccines	27%	85%	34%	80%
I lack confidence in Canada's regulatory and informational systems for immunization...	66%	17%	60%	24%
People close to me think it is important for me to be vaccinated against COVID-19	41%	82%	51%	78%
Other				
Employees at my health care facility are encouraged to go home if they have respiratory symptoms at work	73%	84%	75%	81%
I get sick with influenza and other respiratory viruses more easily than other people of my age	11%	22%	22%	28%

c14 Please indicate your level of agreement with the following.

The survey results suggest that hesitancy may be related to a lack of trust in information or in government or confidence in expert sources. To test this, a correlation analysis was conducted to evaluate the strength of various factors associated with VH as measured in the survey. The strongest driver of COVID-19 VH among respondents was the degree to which they accepted that COVID-19 vaccines are safe and effective (-0.744 coefficient among HCPs/ALHWs respondents). Generally, the more respondents agreed that the COVID-19 vaccines are safe and effective, the less likely they were to be hesitant about their decision around vaccination.

Given the concerns about safety, the degree to which respondents accepted that the benefits of getting the vaccine outweigh their perception of risk was also strongly correlated with VH (-0.743 coefficient among HCPs/ALHWs respondents). This association may suggest that health worker education about the safety of vaccines may reduce hesitancy and provide information that would be most trusted from government and expert sources. In terms of demonstrating evidence or compelling messaging around safety, a strong correlation was also found with the statement “COVID-19 vaccines are safe for people who are pregnant/want to conceive children in the future” (-0.711 coefficient among HCPs/ALHWs respondents). The majority (86%) of HCPs/ALHWs who agreed that vaccines are safe for people who are pregnant also reported that they were not hesitant. This association may suggest that further presenting evidence for the safety of COVID-19 vaccines for fertility and pregnancy may reduce hesitancy in some HWs.

Associations were also observed for “Vaccination is a safer way to build immunity against COVID-19 than getting infected” (-0.699 coefficient among HCPs/ALHWs respondents) and “Getting the COVID-19 vaccine will decrease the spread of COVID-19” (-0.667 coefficient among HCPs/ALHWs respondents) in reducing COVID-19 VH. The correlation results are similar for AUHWs and are available under separate cover.

COVID-19 related attitudinal groups

The survey results indicated levels of COVID-19 VH that were classified into five attitudinal groups.

- **Vaccine Confidants** (1,464 HCPs, 640 ALHWs, 283 AUHWs) were identified based on the fact that they received their primary vaccine series without hesitation by answering “not at all hesitant” on the COVID-19 VH Likert scale.
- **Vaccine Supporters** (505 HCPs, 223 ALHWs, 121 AUHWs) were identified based on their “not very hesitant” answer on the COVID-19 VH Likert scale with regard to receiving their primary vaccine series.
- **Vaccine Hesitants** (187 HCPs, 123 ALHWs, 85 AUHWs) were identified based on their “very hesitant” or “somewhat hesitant” answers on the COVID-19 VH Likert scale about receiving their primary vaccine series and their “somewhat disagree” or “strongly disagree” answers to the statement “The prospect of losing my employment played a role in my decision to get vaccinated or not.”
- **Mandate-Driven Vaccinees** (650 HCPs, 283 ALHWs, 200 AUHWs) were identified based on their “very hesitant” or “somewhat hesitant” answers on the COVID-19 VH Likert scale about receiving their primary vaccine series and their “strongly agree” or “somewhat agree” answers to the statement “The prospect of losing my employment played a role in my decision to get vaccinated or not.”
- **Unvaccinated** (254 HCPs, 114 ALHWs, 63 AUHWs) self-reported as not receiving any COVID-19 vaccine, despite being eligible for vaccination.

As shown in Table 19, Vaccine Confidants were vaccinated and did not report any hesitancy at all about their vaccination decision; they comprised the largest group (47% of HCPs, 45% of ALHWs, and 35% of AUHWs). Specifically, 69% of physicians, 43% of nurses fell into this attitudinal group. Vaccine Supporters

were vaccinated and had a small degree of hesitancy. A total of 16% of HCPs, 16% of ALHWs, and 15% of AUHWs were classified as Vaccine Supporters.

Respondents who were vaccinated but who reported hesitancy about their decision (very or somewhat hesitant) represented 27% of HCPs, 29% of ALHWs, and 36% of AUHWs. Among these respondents, some came to their decision to get vaccinated without being influenced by the vaccine mandates. These respondents who were not influenced by the vaccine mandate but who reported hesitancy were defined as Vaccine Hesitants, and represented 6% of HCPs, 9% of ALHWs, and 11% of AUHWs.

Another group of HWs were motivated at least in part by the vaccine mandates and the potential loss of employment if they did not get vaccinated. These respondents were classified as Mandate-Driven Vaccinees and represented 21% of HCPs (23% of nurse, 10% of physicians), 20% of ALHWs, and 25% of AUHWs.

For each HW category, 8% of respondents reported being unvaccinated despite being eligible for vaccination. There were no differences in the number of unvaccinated individuals between HCPs, ALHWs, and AUHWs.

Table 19. Five attitudinal groups representing self-reported COVID-19 VH, by health worker category

Attitudinal groups	HCPs (n = 3,134)	ALHWs (n = 1,431)	AUHWs (n = 807)
Vaccine Confidants	47%	45%	35%
Vaccine Supporters	16%	16%	15%
Vaccine Hesitants	6%	9%	11%
Mandate-Driven Vaccinees	21%	20%	25%
Unvaccinated	8%	8%	8%

Table 19 and Table 20 below show the variation in attitudes about COVID-19 vaccines across the five distinct attitudinal groups among HCPs and ALHWs, the results of which are discussed in the following sections.

Most individuals in the four vaccinated attitudinal groups agreed with the statement “I believe in immunizations, in general vaccines are safe and effective.” The differences in attitudes between these groups tended to be unique to COVID-19 vaccines, not vaccines in general. However, the unvaccinated group was mixed in their views on the safety of vaccines generally. Fifty-four percent of unvaccinated HCPs and ALHWs agreed with the statement “I believe in immunizations, in general vaccines are safe and effective.”

Table 20. Self-reported concerns about COVID-19 vaccination among HCPs/ALHWs, by attitudinal groups

Concerns about COVID-19	% Agree (Strongly or Somewhat)					
	Total (n = 4,565)	Vaccine Confidants (n = 2,105)	Vaccine Supporters (n = 728)	Vaccine Hesitant (n = 310)	Mandate-Driven Vaccinees (n = 932)	Unvaccinated (n = 368)
SARS-CoV-2 infection may cause serious health problems	84%	96%	96%	85%	69%	40%
Health care workers are at greater risk than the	70%	83%	79%	70%	58%	18%

Concerns about COVID-19	% Agree (Strongly or Somewhat)					
	Total (n = 4,565)	Vaccine Confidants (n = 2,105)	Vaccine Supporters (n = 728)	Vaccine Hesitant (n = 310)	Mandate-Driven Vaccinees (n = 932)	Unvaccinated (n = 368)
general public of contracting COVID-19						
I am likely to get COVID-19 if I do not get vaccinated	48%	68%	52%	34%	21%	14%
I am at high personal risk of getting a SARS-CoV-2 infection in the future	45%	55%	48%	38%	35%	12%
The thought of getting COVID-19 scares me	42%	55%	51%	33%	26%	5%

c13. Please indicate your level of agreement with the following about COVID-19.

Table 21. Self-reported views about COVID-19 vaccination among HCPs/ALHWs, by attitudinal groups

Views about COVID-19	% Agree (Strongly or Somewhat)					
	Total (n = 4,565)	Vaccine Confidants (n = 2,105)	Vaccine Supporters (n = 728)	Vaccine Hesitant (n = 310)	Mandate-Driven Vaccinees (n = 932)	Unvaccinated (n = 368)
Concerns about vaccine safety and effectiveness						
I believe in immunizations, in general vaccines are safe and effective	89%	98%	95%	89%	81%	54%
COVID-19 vaccines are safe and effective	68%	97%	83%	62%	28%	3%
The benefits of the COVID-19 vaccine outweigh the risk of side effects	69%	97%	85%	62%	27%	3%
You cannot get a SARS-CoV-2 infection from the vaccine	77%	91%	80%	76%	59%	48%
If I get vaccinated against COVID-19, then I will be less likely to infect family members	68%	93%	80%	67%	37%	2%
Vaccination is a safer way to build immunity against COVID-19 than getting infected	68%	93%	83%	67%	33%	3%
Getting the COVID-19 vaccine will decrease the spread of COVID-19	67%	92%	81%	65%	33%	4%
If I get vaccinated against COVID-19, then I will be less likely to infect patients	67%	91%	79%	63%	37%	0%
I believe that I don't need to be vaccinated against COVID-19 if I got infected with it already	30%	9%	19%	33%	58%	85%
COVID-19 vaccines are safe for people who are pregnant/want to conceive children in the future	55%	81%	60%	45%	21%	2%
mRNA COVID-19 vaccines do not change my DNA	72%	91%	80%	71%	52%	13%
Additional/booster (more than 2) doses are important to be administered to stay protected against the virus	60%	89%	67%	43%	22%	4%
Perceptions of COVID-19 risk						

Views about COVID-19	% Agree (Strongly or Somewhat)					
	Total (n = 4,565)	Vaccine Confidants (n = 2,105)	Vaccine Supporters (n = 728)	Vaccine Hesitant (n = 310)	Mandate-Driven Vaccinees (n = 932)	Unvaccinated (n = 368)
The risk of severe effects from SARS-CoV-2 infection for me is low	66%	63%	61%	64%	69%	86%
Vaccine decision-making						
The prospect of losing my employment played a role in my decision to get vaccinated or not	35%	13%	30%	0%	100%	36%
Spiritual or ethical reasons played a role in my decision to get vaccinated or not	30%	25%	24%	23%	31%	70%
Attitudes toward public health measures						
I follow all public health measures to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask, etc.)	80%	92%	87%	81%	73%	30%
Public health measures are important to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask, etc.)	78%	94%	87%	85%	63%	21%
All health care workers should be vaccinated against COVID-19	65%	92%	75%	60%	27%	2%
COVID-19 vaccination should be a requirement in school settings and/or any setting with a large group of children (e.g., daycare, sports venues)	54%	81%	60%	37%	20%	2%
Sources of information						
I have access to enough trustworthy information about COVID-19 vaccines to make an informed decision	84%	97%	87%	79%	64%	72%
I trust the information from the federal government about COVID-19 vaccines	64%	92%	71%	55%	26%	4%
I lack confidence in Canada's regulatory and informational systems for immunization...	35%	12%	25%	39%	67%	85%
Other						
Employees at my health care facility are encouraged to go home if they have respiratory symptoms at work	80%	86%	79%	81%	75%	62%
I get sick with influenza and other respiratory viruses more easily than other people of my age	18%	21%	24%	13%	15%	2%

c14. Please indicate your level of agreement with the following about COVID-19.

The description of the attitudinal groups presented below focuses on the HCP and ALHW population. The differences between the attitudinal groups among HCPs and ALHWs mentioned are generally consistent with differences observed between attitudinal groups among the AUHWs. The AUHWs data is presented under a separate cover.

Vaccine Confidants

Vaccine Confidants were defined by their lack of hesitation to get vaccinated. This group also tended to receive the most boosters. Seventy-four percent of HCPs and ALHWs in the Vaccine Confidants group received a total of four doses, compared to 55% of respondents classified as Vaccine Supporters.

As shown in Table 21, 83% of Vaccine Confidants also tended to agree with the statement that “Health care workers are at greater risk than the general public of contracting COVID-19.” However, concerns about the personal risk of contracting COVID-19 were mixed among respondents in this group. For instance, just over half of Vaccine Confidants (55%) agreed with the statement “I am at high personal risk of getting a SARS-CoV-2 infection in the future.” Despite not all agreeing that they are at an increased personal risk, this percentage is still notably higher than other attitudinal groups (38% of Vaccine Hesitants, 35% of Mandate-Driven Vaccinees, and 12% of Unvaccinated). This group was the most likely to indicate they had a chronic health condition (34%) compared to 27% of Vaccine Supporters, 25% of Vaccine Hesitants, 20% of Mandate-Driven Vaccinees, and 19% of the Unvaccinated individuals.

As shown in Table 21, the Vaccine Confidants group reported the highest level of agreement across many of the vaccine attitude statements. This group was most likely to agree that COVID-19 vaccines are safe and effective, and that COVID-19 may result in serious health problems. In total, 96% of HCPs and ALHWs who fell into this group agreed that “SARS-CoV-2 infection may cause serious health problems.” In addition, Vaccine Confidants were also most likely to agree with the statement “I trust the information from the federal government about COVID-19 vaccines.” This group also supported requiring health care workers to be vaccinated, 92% of Vaccine Confidants agreed with the statement that “All health care workers should be vaccinated against COVID-19.”

Vaccine Supporters

The Vaccine Supporters attitudinal group was similar to Vaccine Confidants, except that they showed a small degree of hesitancy in making the decision to get vaccinated against COVID-19. Vaccine Supporters reported being “not very hesitant” in their decision to get vaccinated against COVID-19 instead of “not at all hesitant.”

As shown in Table 20, this group was less likely than Vaccine Confidants to agree with the statement “I am likely to get COVID-19 if I do not get vaccinated” (52% vs. 68%, respectively) and less likely than Vaccine Confidants to agree with the statement “I am at high personal risk of getting a SARS-CoV-2 infection in the future” (48% vs. 55%, respectively).

As shown in Table 21, most Vaccine Supporters agreed with the statement that “COVID-19 vaccines are safe and effective” (83% HCPs and ALHWs) and that “All health care workers should be vaccinated against COVID-19” (75% HCPs and ALHWs). This group was also found to be among the most likely to trust the COVID-19 vaccine information provided by the federal government (71% among HCPs and ALHWs, and 64% among AUHWs). A total of 25% of HCPs and ALHWs, and 25% of AUHWs in this group reported a lack of confidence in Canada’s regulatory and informational systems for immunization (e.g., Health Canada, PHAC, and NACI).

A greater sense of duty to protect the health care system and community also distinguished Vaccine Supporters from Vaccine Confidants. Vaccine Supporters were less likely than Vaccine Confidants to say the reason for getting the vaccine was because “I am directly involved in the pandemic response in a health care setting” (54% vs. 69%, respectively) or “To prevent the spread of COVID-19 in my community” (63% vs. 78%, respectively) or “To reduce the stress on the health care system” (50% vs. 66%, respectively). These differences between the two attitudinal groups were also observed among AUHWs: Vaccine Confidants and Vaccine Supporters were less likely to say their reason for getting vaccinated was

“Because I am directly involved in the pandemic response in a health care setting” (38% vs. 53%, respectively), “To prevent the spread of COVID-19 in my community” (49% vs. 65%, respectively), or “To reduce the stress on the health care system” (38% vs. 52%, respectively).

Vaccine Hesitants

The Vaccine Hesitant group represented a smaller group of respondents (6% of HCPs, 9% of ALHWs, and 11% of AUHWs). This group reported getting vaccinated but did so very or somewhat hesitantly and disagreed with the statement “The prospect of losing my employment played a role in my decision to get vaccinated or not.”

As shown in Table 21, this group was nearly as likely as Vaccine Supporters to agree that “SARS-CoV-2 infection may cause serious health problems” (85% vs. 96%, respectively), but were less likely than Vaccine Supporters to agree with the statement “COVID-19 vaccines are safe and effective” (62% vs. 83%, respectively). Most (67%) of the Vaccine Hesitant group agreed that vaccination is a safer way to build immunity against COVID-19 than getting infected with COVID-19 and 62% agreed that “The benefits of the COVID-19 vaccine outweigh the risk of side effects.” About half (55%) agreed that they trusted the information from the federal government about COVID-19 vaccines. In addition, a lower proportion of Vaccine Hesitants (55%) indicated that public health recommendations influenced their decision to get vaccinated compared with Vaccine Confidants (76%) and Vaccine Supporters (63%); however, Vaccine Hesitants were more likely to agree with this statement than the Mandate-Driven Vaccinees (17%).

Vaccine Hesitants may have been disproportionately influenced by their peers to get vaccinated. When asked the reason for choosing to get vaccinated, 31% of respondents in this group indicated that “I was directly or indirectly encouraged to get vaccinated by family members, colleagues, or friends.” This influence observed in the Vaccine Hesitant group is in contrast to 19% of Vaccine Confidants, 14% of Vaccine Supporters, 9% of Mandate-Driven Vaccinees who indicated that they were influenced by their peers.

Mandate-Driven Vaccinees

Mandate-Driven Vaccinees represented 21% of HCPs, 20% of ALHWs, and 25% of AUHWs. The majority (54%) of this group were comprised of nurses compared to 30% of ALHWs and 5% of physicians. This group reported that they were vaccinated but did so very or somewhat hesitantly and agreed with the statement that “The prospect of losing my employment played a role in my decision to get vaccinated or not.” Hence, the COVID-19 vaccine mandate for HWs appeared to have an impact on this otherwise reluctant group. The survey data also suggest that they did not generally support the vaccine mandate. As shown in Table 21, after Unvaccinated respondents, Mandate-Driven Vaccinees were the least likely attitudinal group to agree with the statement that “All health care workers should be vaccinated against COVID-19” (2% and 27%, respectively).

As shown in Table 21, concerns about the safety and effectiveness of COVID-19 vaccines were much greater among this group than any of the other vaccinated groups. In total, 28% of HCPs/ALHWs and 40% of AUHWs agreed with the statement that “COVID-19 vaccines are safe and effective.” This concern may be unique to COVID-19 vaccines and not vaccines in general, as 81% of Mandate-Driven Vaccinees agreed with the statement “I believe in immunizations, in general vaccines are safe and effective.”

Among this group, 27% agreed that the benefits of the COVID-19 vaccine outweigh the risks of side effects. Regarding the perceived effectiveness of COVID-19 vaccines in reducing transmission, 37% agreed with the statement “If I get vaccinated against COVID-19, then I will be less likely to infect family members.”

This proportion was notably lower than the other vaccinated groups, with only 33% agreeing with the statement “Getting a COVID-19 vaccine will decrease the spread of COVID-19.”

Fewer than half (45%) of Mandate-Driven Vaccinees decided to get a booster. Boosters in this group were most common among AUHWs (53%). Among Mandate-Driven Vaccinees who did not receive a booster, only 6% of HCPs and ALHWs, and 13% of AUHWs indicated that they plan to get a booster in the future. Mandate-Driven Vaccinees were more likely to work in an older adult care facility (20%) compared to other attitudinal groups such as Vaccine Hesitants (11%), Vaccine Confidants (9%), and Unvaccinated (6%) respondents. A higher percentage of Mandate-Driven Vaccinees also reported working in emergency departments (19%) compared to Vaccine Supporters (12%), Vaccine Hesitants (11%), and Unvaccinated (9%) respondents.

Unvaccinated

Attitudinally, the Unvaccinated group was the most different from all other groups. One of the major differences was this group’s lack of perceived safety of long-term side effects of COVID-19 vaccines, with 3% of unvaccinated HCPs and ALHWs agreeing that “The benefits of the COVID-19 vaccine outweigh the risk of side effects.” Few individuals in this group agreed that COVID-19 vaccines are safe and effective (3% of HCPs and ALHWs, and 5% of AUHWs). The perceived long-term risks noted by this group were about the side effects of vaccination, including concerns about changes to DNA. Only 13% of unvaccinated HCPs and ALHWs and 7% of unvaccinated AUHWs agreed that “mRNA COVID-19 vaccines do not change my DNA.” As shown in Table 21, unlike the other attitudinal groups, many unvaccinated respondents tended to have concerns about the safety and effectiveness of vaccines in general, with just over half (54%) agreeing with the statement “I believe in immunizations, in general vaccines are safe and effective.” When it comes to perception of the effectiveness of vaccines, 4% of unvaccinated HCPs and ALHWs, and 6% of AUHWs agreed that “Getting the COVID-19 vaccine will decrease the spread of COVID-19.” Most unvaccinated respondents believed that vaccination was not necessary if they had had a previous infection. Notably, 85% of the unvaccinated HCPs and ALHWs agreed with the statement “I believe that I don’t need to be vaccinated against COVID-19 if I got infected with it already.”

As shown in Table 21, unvaccinated respondents, like the other attitudinal groups, reported having access to enough trustworthy information about COVID-19 vaccines to make an informed decision. However, unlike the other attitudinal groups, unvaccinated respondents were highly distrustful of information from the federal government about COVID-19 vaccines. Most (95%) disagreed with the statement “I trust the information from the federal government about COVID-19 vaccines” and 85% agreed with the statement “I lack confidence in Canada’s regulatory and informational systems for immunization....” In addition, this group was also least likely to have peers around them who supported vaccination. For instance, 22% of AUHWs agreed with the statement “People close to me think it is important for me to be vaccinated against COVID-19.”

Despite the majority having concerns about the safety and effectiveness of COVID-19 vaccines, the reasons for choosing to remain unvaccinated were varied among the Unvaccinated. This may suggest that the unvaccinated group was not attitudinally homogenous and that many factors contributed to their decision to not get vaccinated. For example, 70% indicated that “Spiritual or ethical reasons played a role in my decision to get vaccinated or not.”

Most unvaccinated respondents appeared to be unsupportive of vaccine mandates, with 2% agreeing that “All HWs should be vaccinated against COVID-19.” It is not clear what percentage of unvaccinated respondents rejected the idea of a vaccine mandate as public policy. A low proportion (2%) of unvaccinated HCPs and ALHWs rejected being mandated to get vaccinated and stated that as their only reason for refusing vaccination. The vaccine mandates were likely unpopular in this group, but the vaccine

mandate on its own was not a strong driver for respondents to refuse vaccination. A total of 30% of unvaccinated HCPs and ALHWs reported that they are no longer working in the health care system.

The quantitative component of this research revealed variation in the degree of COVID-19 VH among respondents. Perceptions of the safety and effectiveness of COVID-19 vaccines had the strongest influence on VH in this group. The survey results indicate that it may be possible to reduce VH by communicating the benefits of vaccination, as reported in scientific literature, to the most hesitant HWs, including those who remain unvaccinated.

2.5. Attitudes toward public health measures

The survey also explored respondents' attitudes toward public health measures other than vaccination. Most respondents reported adhering to public health measures, with physical distancing and wearing a mask being nearly universal among Vaccine Confidants and Vaccine Supporters.

The percentage of respondents who agreed with the statement "Public health measures are important to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask, etc.)" ranged from 94% among Vaccine Confidants to 63% among Mandate-Driven Vaccinees and dropped to 21% among the Unvaccinated. In terms of adherence, as shown in Table 21, the percentage of respondents who agreed with the statement "I follow all public health measures to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask, etc.)" ranged from 92% among Vaccine Confidants, 73% among the Mandate-Driven Vaccinees, and 30% among the Unvaccinated.

Unvaccinated respondents were more likely to report adhering to public health measures than they were to agree that the measures were important to preventing the spread of COVID-19 (30% vs 21%). A greater proportion of HWs reported following public health measures compared with the proportion who agreed that the measures were important to reducing the spread of COVID-19. These findings suggest that some respondents were willing to put their personal opinions aside and follow public health measures. There was some disagreement among respondents about whether public health measures are effective in reducing the spread of disease; these results may raise questions about whether individuals adhere reliably to public health measures in the workplace. Three in 10 (30%) unvaccinated HWs said they followed public health measures such as physical distancing and wearing a mask, potentially raising concerns about how well protected unvaccinated HWs, who work in health care settings, are against contracting COVID-19 and spreading the virus to others.

2.6. Sources of COVID-19 vaccine-related information

When asked about the sources they consulted for information about COVID-19 vaccines, all respondents said they were likely to use reliable sources such as the CDC, NACI, and scientific literature. Physicians were most likely of all occupations to consult these sources (84% consulted scientific literature and 78% consulted expert sources). A lower proportion of nurses, ALHWs, and AUHWs reported that they are likely to consult scientific literature (49-65%) or expert sources (56-64%). Half (50%) of physicians and fewer than half (41-43%) of other HWs reported they are likely to consult government sources. Few (7%) physicians and some (21-28%) nurses, ALHWs, and AUHWs indicated they would consult information provided by their direct employer.

Table 22. Self-reported COVID-19 vaccine-related sources of information, by HW category

Sources of information	HCPs and ALHWs			ALHWs (n = 1,431)	AUHWs (n = 807)
	Total (n = 4,565)	Physicians (n = 438)	Nurses (n = 2,259)		
Expert sources such as the Centers for Disease Control and Prevention (CDC), National Advisory Committee on Immunization (NACI), etc.	67%	78%	64%	66%	56%
Scientific literature, such as published or preprint studies	66%	84%	65%	61%	49%
Government sources	44%	50%	42%	43%	41%
Information from my employer	23%	7%	28%	21%	25%
Traditional media/news programming (e.g., television, news websites)	14%	15%	11%	20%	18%
Family and friends	5%	1%	5%	7%	13%
Information found on social media/social networking (e.g., Facebook, Instagram)	3%	3%	2%	6%	7%
Doctors/professionals	2%	2%	2%	3%	2%
Information from my union	2%	-	2%	4%	3%
Those silenced by government/speak out against vaccination/not “paid off”	2%	0	2%	1%	1%
Don't know	2%	2%	3%	1%	2%

c15. Which of the following sources of information are you most likely to consult to get information about COVID-19 vaccines? Please select up to three (3) main sources.

Unvaccinated HWs said they were likely to consult scientific literature, such as published or preprint studies (80%), but far fewer would consult expert sources such as the CDC, NACI (25%), and other government sources (9%).

3. Qualitative findings

This chapter presents the qualitative findings. It begins by outlining the five key attitudinal groups and associated vaccination journeys that emerged in the qualitative research. The chapter then considers participants’ vaccine history, followed by a deeper dive into the factors that underpinned vaccine acceptance and hesitancy among participants. It then considers attitudes toward public health measures and the sources participants relied on for COVID-19-related information.

Throughout this section, the term “health worker” is used to refer to all categories of HWs (e.g., HCPs, ALHWs, and AUHWs); however, any nuances that emerged among certain categories of HWs are specifically indicated in the text.

3.1. Key attitudinal groupings

HWs who took part in the qualitative research displayed a range of attitudes toward the COVID-19 vaccination and these are presented below.

Vaccine Confidants

Vaccine Confidants were most likely to receive their primary COVID-19 vaccination series (i.e., doses 1 and 2) without any hesitation; the thought of not getting vaccinated did not appear to have crossed their minds. The novelty of COVID-19, the severity of the virus's effects on health, along with the lack of available treatment protocols during the outset of the pandemic underpinned much of the urgency to obtain the primary series. In other words, Vaccine Confidants were motivated to get the vaccine because of their desire to protect themselves and their family from the potential of adverse COVID-related health outcomes, as well as protect their patients and the broader community.

The Vaccine Confidants met the news of the availability of the vaccine with joy and were “first in line” to obtain their first COVID-19 vaccine. Moreover, Vaccine Confidants displayed high levels of trust in the vaccine development process and in the messaging and information provided by health care and public health authorities at varying levels of government. The motivation to obtain subsequent boosters remained high as the pandemic progressed and, at the point of qualitative fieldwork for this study, participants reported that they would continue obtaining future shots as per public health guidance. Their ongoing motivation was in part a function of a sense of duty to “do their part” as HWs.

Vaccine Supporters

Vaccine Supporters shared similar motivations and eagerness as Vaccine Confidants with respect to the primary COVID-19 series. They differed from Confidants in their attitudes toward booster shots. As the pandemic progressed, these participants were more likely to admit that they had become complacent and expressed considerably less urgency in obtaining subsequent and future boosters. The initial “fear” of COVID-19 waned over time as the severity of infection declined, treatment protocols became available, and many became personally infected with COVID-19.

Notably, unlike those who were Mandate-Driven Vaccinees, Vaccine Supporters did not question the efficacy of the vaccine following an infection. They were of the belief that vaccines are effective in lessening the effects of SARS-CoV-2 infections. Pressure from others in their lives and convenience of obtaining booster shots appeared to have some influence in overcoming complacency that had set in for Vaccine Supporters.

Vaccine Hesitants

VH, for the most part, tended to set in at the start of the COVID-19 vaccination journey, though a small number of participants initially expressed hesitation following vaccination. Concerns about the speed of the vaccine development and the potential for unknown long-term side effects were prevalent among participants who expressed initial hesitation toward the primary series. These concerns were compounded in some cases by the presence of pre-existing health conditions or the fact that participants were pregnant at the time.

The sources that Vaccine Hesitant participants turned to for information about their concerns tended to be within the “mainstream” realm. For example, they consulted with their family physician, colleagues or friends who were physicians or infection disease specialists, websites of vaccine manufacturers and scientific journals. In a couple of cases, participants turned to trusted religious leaders and their place of worship that shared vaccine-related information (e.g., related to effectiveness).

Vaccine Hesitant participants were cognizant of the anti-vaccine—or anti-vax—positions that were shared online through social media and even had friends or extended family who adopted these positions. Although they did not identify with these views and were less likely to trust sources shared online, a few did admit that these views had the effect of heightening the concerns they had with the vaccine. These participants adopted a “wait and see” approach when the COVID-19 vaccine became available, taking

comfort from hearing about the experiences of others. Ultimately, these participants' decision to obtain their first dose came by rationalizing it through a cost-benefit analysis approach. The risk of adverse COVID-related outcomes was deemed to be higher than the potential risk of vaccine-related side effects.

They “followed through” with the second dose in order to be fully protected against the virus. These participants did not experience any negative side effects and even though some went on to contract COVID-19, they did not express any regret for obtaining the vaccine. They were firm in the belief that obtaining the primary series of COVID-19 vaccines was the right decision at the time. Their attitudes to boosters were less uniform: some continued to accept the boosters based on the “following through” mentality; for others, complacency had set in as per Vaccine Supporters; others still felt that the two doses provided the urgent protection that they needed at the start of the pandemic but were averse to having to continually boost due to a perception of unknown long-term side effects.

There were a handful of instances where hesitation set in *post*-vaccination and stemmed from negative side effects. Development of blood clots were cited, and these were based on experiences of colleagues or cases that colleagues had come across. Participants and their colleagues had discussed these cases at length and concluded that the COVID-19 vaccine was a contributing factor to blood clots. As a result, these participants started their journey as Vaccine Supporters but became hesitant in relation to boosters.

Mandate-Driven Vaccinees

Mandate-Driven Vaccinees tended to express significant hesitation about the COVID-19 vaccine by the time of participation in the research. There was a palpable sense of fear and anger as they recounted their vaccination journeys. As with Vaccine Hesitant participants, they shared the same concerns about the side effects and the long-term safety of the COVID-19 vaccines. Notably, many participants in this group emphasized that they were not “anti-vaccinees” and had taken their childhood vaccines. They took specific issue with the COVID-19 vaccines because of the speed with which the vaccines were developed compared to previous vaccines, which they believed took years of development and study. They interpreted the priority they were given to accessing the new COVID-19 vaccines as being treated as “guinea pigs” and were of the view that only through the passage of time will long-term side effects become evident.

This group's safety concerns with the COVID-19 vaccines were amplified as time went on rather than being eased, similar to Vaccine Hesitants. The dominant public discourse about the urgency of the pandemic situation, that vaccines were safe, and the pro-vaccination social norms that developed did little to mitigate these concerns. In fact, this discourse and social norms had the opposite effect of marginalizing these participants further and pushing them away from “traditional” sources of health information. A couple of participants recounted how their COVID-19 hospital ward did not receive the influx of patients that they were seeing covered in major media sources.

A few participants shared how for the first time they lost trust in their family doctors when they were urged by their family doctors to get vaccinated. They felt uneasy being asked to give patients advice that they did not personally agree with. Furthermore, they reported becoming scared of disclosing their feelings and opinions to colleagues because of the strong pro-vaccine social norm that developed during the pandemic. As a result of these circumstances, participants started seeking information about COVID-19 and vaccination and were drawn to sources, often on social or “alternative” media, that spoke to the underlying concerns they held.

Mandate-Driven Vaccinees received the primary COVID-19 vaccine series solely because of the vaccination mandate for HWs. The option of getting vaccinated or losing their job in turn led to feelings of resentment and hardening their position against COVID-19 vaccines. They held out for as long as possible before being “forced to” or “left with no choice” but to get the vaccine. They could not

understand why their “personal choice” was being taken away, even though they were happy to comply with the COVID-19 testing regime and were diligent with following other public health protection measures against COVID-19 such as masking and physical distancing.

Mandate-Driven Vaccinees were of the strong opinion that long-standing precautions and testing measures, such as wearing masks and sanitization, were effective and sufficient. None of these participants reconsidered their positions on boosters and were unlikely to do so in the future. While these participants did not report experiencing major side effects, they did contract COVID-19, which led to questioning the effectiveness of the vaccine. The fact that additional boosters were required also made them question the effectiveness of COVID-19 vaccines.

The rehiring of HWs who left as a result of refusing the vaccine since the mandate was lifted has led to further resentment. Moreover, these participants tended to express degrading trust moving forward in the information and messaging put forth by health care and public health authorities at various levels of government.

Unvaccinated

The qualitative research captured a couple of HWs who were not vaccinated against COVID-19. Their concerns about the COVID-19 vaccine and vaccination journeys generally aligned with those who received the COVID-19 vaccine mandate. However, these participants either 1) went on to leave the health care profession following the implementation of the vaccine mandate, rather than receiving the COVID-19 vaccine, or 2) continued working within the private sector (in which the vaccine mandate was not applicable).

In one of the two cases, the participant had a history of not being vaccinated, and opting for “alternative medicines” and “alternative” health sources. This participant was also highly suspicious of government messaging, having immigrated from a communist country. In the other case, the participant did not have a history of being averse to vaccines and had received vaccines in the past. However, this participant was unsure about the COVID-19 vaccine and held a deep resentment toward the mandate, perceiving it as stripping their “right to choose.” This participant, upon the implementation of the vaccine mandate, chose to leave the profession. However, as the mandate is removed from health care professions and some unvaccinated HWs are now returning to their previous positions, they question whether they will return to the profession in the future.

Conclusion

Five main attitudinal groupings and associated vaccination journeys emerged from the qualitative research: Vaccine Confidants, Vaccine Supporters, Vaccine Hesitants, Mandate-Driven Vaccinees, and Unvaccinated. The small number of participants in the qualitative research made it difficult to detect whether certain types of HCPs, health care settings, or demographic characteristics were more closely aligned with one grouping. As a result, the quantitative research has attempted to provide details on the size and profile of these groupings.

3.2. COVID-19 vaccine history

This section explores participants' experiences and attitudes toward vaccines, including the COVID-19 vaccine. Specifically, it considers the ways in which these attitudes and experiences informed their behaviour or attitudes with regard to the COVID-19 vaccination.

Attitudes toward and reception of COVID-19 vaccines

Most participants in the qualitative research reported having taken past vaccines as children or adults (e.g., measles vaccine, rubella vaccine, flu shot). Receiving a vaccine was therefore a behaviour many were comfortable with, and participants recognized the role vaccines have played in eliminating some diseases, which some hoped to be the case with the COVID-19 vaccine.

“So, we were vaccinated as kids against measles, mumps, Rubella. And those diseases dissipated thankfully because of the vaccines. So, my thinking was, ‘Okay people, let’s get our COVID vaccines, and let’s make COVID extinct just like all the other infectious diseases.’” – HCP, Vaccine Confident

As noted, for some Mandate-Driven Vaccinees and Vaccine Hesitant participants, despite a history of previous vaccinations and a pro-vaccine attitude, they expressed reservations in receiving a COVID-19 vaccine specifically due to their concerns about the speed of development and the potential for side effects. These participants emphasized that they did not personally identify with the ‘anti-vaxxer’ label, and rather their aversion to the COVID-19 vaccine was the exception to their otherwise pro-vaccine position.

“I was vaccinated all my life growing up, I’ve vaccinated my child, and things like that. But it’s just because these things have been around for so long, there’s a lot of research behind it. It’s not something new that was developed in a matter of a couple months that’s being handed out like candy at this point. It makes me feel a little bit more at ease. But because it was so fast, [...] I was like, hey, I don’t know how believable this stuff is.” – ALHW, Mandate-Driven Vaccinee

Participants who had a history of vaccine aversion, either not receiving vaccines in their childhood or avoiding vaccines in adulthood, were likely to carry that hesitation into their attitudes around the COVID-19 vaccine. They tended to fall within the Mandate-Driven Vaccinees and Unvaccinated groupings. They expressed a preference for “natural” or homeopathic medicine and methods of infectious disease prevention (e.g., adopting a healthy and active lifestyle, ginger shots, vitamins, and supplements). For some, their vaccine aversion was related to their tendency of avoiding putting “unnatural” substances in their body that extended beyond vaccines, including standard medication (e.g., Aspirin or Advil) or other substances (e.g., alcohol and drugs).

“My husband and I, I have always just been trying to do more natural things to keep myself healthy. I got [the flu shot] probably my first year of nursing, but other than that I never got the flu shot.” – HCP, Mandate-Driven Vaccinee

Conclusion

In the qualitative component of this research, most participants were comfortable with vaccines in general and acknowledged their role in controlling infectious diseases. However, some participants expressed reservations about the COVID-19 vaccine specifically due to concerns about the speed of development and the potential for side effects. These participants did not identify as “anti-vaccinees” and their hesitation toward the COVID-19 vaccine was an exception to their otherwise pro-vaccine stance. Participants with a history of vaccine aversion tended to carry that hesitation into their attitudes toward the COVID-19 vaccines, often preferring alternative methods of disease prevention.

3.3. COVID-19 vaccine acceptance

The themes that emerged in the qualitative findings were very much aligned with, and will be presented according to, the VH Matrix created by the Strategic Advisory Group of Experts on Immunization (SAGE) at the World Health Organization (WHO). The Matrix groups factors are based on three spheres of influence:

- Individual and group influences arising from personal perceptions and experiences of the vaccines or influences of their social or peer environment
- Contextual influences arising due to historic, socio-cultural, environmental, health system or institutional, and economic or political factors
- Vaccine-specific influences that are directly related to the vaccines or vaccination

The findings with respect to each sphere of influence have been presented below. The spheres and constituent factors have been ordered by their relevance to the qualitative research. A discussion on sources of information and media landscape is presented in Section 3.6.

Individual and group influences

Desire to protect oneself and family

For the majority of vaccinated participants, the desire to protect themselves and their family from a SARS-CoV-2 infection was at the forefront driving vaccine acceptance. Participants tended to acknowledge their position in the health care field as being one that was associated with significant risk given their exposure to COVID-19 in the workplace. As such, participants saw the value of getting vaccinated to mitigate the chance of severe health outcomes following a SARS-CoV-2 infection.

“Just because a lot of the information that we heard is that if you have the vaccine, if you do tend to get it, then it’s not quite as severe. You may not even have any symptoms. The fact that again, because nobody had ever seen this before, I depended on science to keep us safe. So, again, I had no hesitation whatsoever to do the vaccines in the beginning. I figured it was important to do it, not only for myself, but for people I’m around. So, yeah, I had no hesitation.” – AUHW, Vaccine Supporter

Sense of duty

For several participants, their sense of professional duty played a role in driving vaccine uptake. These participants were of the opinion that by receiving their COVID-19 vaccinations they were fulfilling their duty and responsibility to serve and protect the health and wellness of their patients and the broader community. Meanwhile, refusing the COVID-19 vaccine was believed to go against the ethos of what it means to be a health worker.

“I just think that that was the thing to do. That’s what they were telling us we should be doing as a human race, basically. So, that’s what I did. Again, in the hospital, you had to get them to keep your job, so that was another factor. But that was just a minor factor. I just thought it was the right thing to do.” – AUHW, Vaccine Supporter

“I felt a duty to protect the people I was working with too. Absolutely, I felt like I had to kind of protect not only my family, but I had to protect them [co-workers] as well.” – HCP, Vaccine Hesitant

Experience of a SARS-CoV-2 infection

Almost all qualitative participants had contracted COVID-19 at least once over the course of the pandemic. COVID-19 symptoms were relatively minor for most (fatigue, muscle aches, headaches, etc.). Most participants, apart from Mandate-Driven Vaccinees and Unvaccinated, reported that the experience of infection left them feeling justified in their decision to become vaccinated against COVID-19. Some contrasted their relatively mild cases against the much more severe cases of infections among extended family, acquaintances, or reports they had read or heard about. The prevailing attitude was that COVID-19 vaccines prevent severe symptoms and complications rather than preventing the contraction of COVID-19 entirely.

“I felt if I did not get it, I might be even sicker, that I would have got pneumonia and I would have been hospitalized. Because I was in a very bad stage, but not that bad to be admitted in the hospital, but I was having laboured breathing and everything. But I felt if I did not vaccinate, maybe there was a chance that I would have ended up being in the hospital.” – AUHW, Mandate-Driven Vaccinee

“I had a few friends that were impacted by COVID adversely, and honestly, it does put fear, you know. Because it’s like, again when it was all new and we didn’t know what the treatment was, and nobody knew what they were doing, it did put a lot of fear as to, ‘Could I be next, could my family be next?’, you know?” – HCP, Vaccine Hesitant

Contextual influences

Novelty of the COVID-19 virus

At the outset of the pandemic, the COVID-19 virus was understood by many as new and without established treatment protocols or management mechanisms. The novelty of the virus created significant fear and anxiety among HWs and the general public, which in turn motivated many participants to act with urgency in getting vaccinated. COVID-19 vaccines were perceived by vaccinated participants as a critical layer of protection against the severe outcomes of infection observed at the beginning of the pandemic.

Vaccine Confidants specifically, and many Vaccine Supporters, tended to get their vaccine as soon as it became available. Some participants noted having already made the decision to receive a COVID-19 vaccine while they were still in the research and testing process and “waiting” for it to become available. These participants expressed relief and gratitude when the COVID-19 vaccine was made available, and they were among the initial groups that could receive it.

“It was like that relief of, ‘Oh my gosh, I can be protected,’ like I can have my helmet, I can have my seatbelt. This thing that everyone is so afraid of, I can have some form of protection.” – HCP, Vaccine Confident

“As soon as it was available, I contacted them and made my appointment. I thought it was important to have it. It was something new, nobody had ever seen this kind of outbreak before. I trusted the information that was coming out, so I had no hesitation to get the vaccines when they first came out.” – AUHW, Vaccine Supporter

The novelty of the COVID-19 virus appeared to have the greatest effect on uptake of the primary series of COVID-19 vaccines and was no longer a relevant factor at the time of the qualitative fieldwork. Almost all had contracted COVID-19 and had come to accept that COVID-19 is “here to stay” and that societies will have to learn to “live with it.”

High-risk COVID-19 exposure environments

Being around patients or long-term care residents infected by COVID-19 in their workplace added to the sense of urgency and ongoing need to stay up to date with COVID-19 vaccines. Participants described witnessing first-hand the severe complications patients experienced from COVID-19, which heightened their motivation to take all necessary precautions to mitigate the risk of contracting and spreading COVID-19. The scenes and general accounts in the media of outcomes for unvaccinated individuals nudged some hesitant participants toward vaccination.

“It was really just firsthand experience, seeing patients with COVID-19 and how sick they were. Some people had very severe outcomes, and it was just kind of being able to see that and realize, I do not want to be that person, so I’d better go get this vaccine. So, even if I do get COVID, I’ve got a less severe outcome from it, not getting as sick. So, that was kind of the real decision-maker for me, seeing how sick people got from it.” – ALHW, Vaccine Hesitant

Influential or trusted figures

The visibility and public endorsement of the COVID vaccine by influential or trusted figures was a driver of vaccine acceptance in many cases for vaccinated participants. There were some nuances in the type of figures that appeared to resonate the most with participants.

For participants who held a more pro-vaccine attitude, their focus was on the public endorsement of the COVID-19 vaccine by senior public health figures such as Dr. Robert Strang in Nova Scotia, Dr. Theresa Tam at PHAC, and Dr. Bonnie Henry in British Columbia. The messages on the importance of COVID-19 vaccination were well received and internalized as these broadly aligned with participants' existing beliefs on vaccination.

"When these professionals started getting vaccinated, and... you know, it carried a lot of weight." – HCP, Vaccine Confident

For those who were hesitant toward the vaccine, the endorsement of the vaccine by trusted individuals who were directly within their network had a stronger impact in encouraging their acceptance of the vaccine. Specifically, for participants who were pregnant when the primary COVID-19 vaccine series became available, their acceptance of the vaccine tended to be a result of extensive consultation with their family doctor, whom they viewed as a trusted source of health information. These participants were concerned about the potential for side effects, both for themselves and their unborn child. However, these participants were persuaded by their family doctors on the importance of receiving the vaccine to keep their child safe and healthy. In a small number of instances, the endorsement of the vaccines by religious leaders and community members had a positive effect in swaying hesitant individuals.

"A lot of it was encouragement from certain family members and church members too, that we should. It's more like love of neighbour and, you know, you don't want to spread it to other people. That's mostly why, I didn't want to spread it to anyone." – ALHW, Vaccine Hesitant

Ease of COVID-19 vaccine access

Most participants reported a relatively seamless process in accessing the COVID-19 vaccine and being able to secure a vaccine appointment at a time and location that was convenient for their schedule. Participants were among the first groups eligible for the vaccine, and, for several participants, vaccines were administered within their workplace by trained nurses. The ease of access played an important contextual role in facilitating vaccine uptake. It was evident in a small number of Vaccine Supporters that, as complacency set in about their decision to receive a booster doses, convenience in accessing vaccination play an important role in the uptake of booster shots.

"I think it was pretty straightforward. People were talking about how they were waiting in line for so many hours, I didn't have that issue at all for the first one, and it was a very seamless process. I actually did like it; it was very organized." – HCP, Vaccine Hesitant

COVID-19 vaccine mandate

For Mandate-Driven Vaccinees, the vaccine mandate was the primary trigger for vaccine acceptance. Without the mandate, this group would have held out on receiving a COVID-19 vaccine. As employers began to mandate vaccines for HWs, these participants felt as though they were being “stripped of their freedom of choice” on health decisions. The bleak employment landscape during the pandemic meant that participants had limited prospects for finding new employment outside of the health care field. As a result, they felt “forced” to receive the COVID vaccine for the sake of themselves, their families, and to maintain their economic livelihood.

“But I have a family and a mortgage. I was like, what would I be able to do to make the same amount of money and provide for my family? As much as I did not want to get it, I was like, I can’t do that to my family. I can’t put them in that risk of not being able to pay the bills, and losing our house, and all of that. If we were in a position that we financially did not need it, I don’t know whether I would have stayed with my job. It was the financial thing too that I was like, okay, my husband and I sat down, and I said, “We can’t afford it if I lose my job.” He said, “I know.” I said, “I’m going to have to.” That was our decision there. I did think about it briefly, but I am still frustrated with it.” – HCP, Mandate-Driven Vaccinee

One participant reflected on being financially incentivized by their employer in a private long-term care home to receive the vaccine prior to the mandate. This fueled outrage within the workplace and further resentment toward the mandate for COVID-19 vaccination.

Vaccine-specific influences

Trust in COVID-19 vaccine development process

Vaccine Confidants and Supporters were knowledgeable and comfortable with the development process for the COVID-19 vaccine. They displayed “complete trust,” which was underpinned by the belief that once the vaccine was tested and approved by Health Canada, it was safe for use by the public. As previously mentioned, trust in the vaccine was bolstered by its endorsement from trusted figures. Few participants in these groupings had consulted scientific evidence on the risks and benefits of the COVID-19 vaccine.

A small number of Vaccine Hesitant participants questioned the speed with which the vaccine was developed and decided to do their own research. They were sufficiently reassured by information they found on the manufacturers’ websites and other sources they came across. It was clear that these participants had a level of trust toward manufacturers to begin with.

“So, Pfizer was one of the first ones that was... doing their research. I read a lot about what they had said about their vaccine process. Somebody in Pfizer said we recognize there’s a lot of hesitancy and nervousness about this because of how quickly it was rolled out. But then, he said we can use the analogy of computing technology. He says, nowadays the computing technology is so much quicker. He says, your computer is obsolete in six months, and that’s just because we know what we’re doing, and we know how to make computers better. He said the same thing with vaccines. They’ve been out for over 100 years. We just know how to develop them better, and we know how to get the research and data that we need out of it more quickly. I trusted in that. I thought these guys, Pfizer, they’ve been making vaccines for a long time. They know what they’re doing. I’m just going to have to trust that what they’re doing is right.” – ALHW, Vaccine Hesitant

COVID-19 Brand preference

There tended to be a preference among participants for the Pfizer COVID-19 vaccine. This was a soft preference, rather than “vying for one or the other,” and largely based on brand recognition. There was a common perception that Pfizer was the “better” vaccine; however, the level of effort undertaken by participants to support their view varied. A few had done a fair amount of research to support their position, and others tended to associate vaccine efficacy with brand recognition. They tended to consult information and research posted on manufacturers’ websites. Pfizer was believed by several to have an “edge” in terms of safety. For others, they acknowledged that their preference was largely based on hearsay; they were of the impression that the Pfizer vaccine had the least associated side-effects.

“Just because I felt that it had a higher safety profile than the Moderna, especially when I started hearing about the pericarditis occurring. That was more so in the Moderna than the Pfizer. Then I just, chose the Pfizer over the Moderna. I just felt that it was a much safer vaccination than the Moderna. But then again, that wasn’t based on any type of like, concrete evidence, because later, you know, because medicine changes, I said, you know what, the Moderna does give us a higher antibody response. So, what I ended up doing was I did two Pfizer and a Moderna to get a better antibody response for better protection.” – HCP, Vaccine Hesitant

For some nurses and nurse practitioners in particular, Pfizer was their vaccine of choice due to their past experience of working with Pfizer-branded medications. They were unaware of any proven benefits of Pfizer compared to other available brands yet expressed a strong preference regardless. Thus, name recognition and previous experience appeared to have a stronger role in fostering trust in the vaccine in these cases.

“I wanted the Pfizer dose. And it’s just because, being a nurse and dealing with medications, Pfizer is kind of a trusted company, I guess. Not that Johnson & Johnson isn’t, but it seemed like the Pfizer dose, I don’t know why... I just knew the name, I guess that’s why. I never gave it a second thought; I signed up for Pfizer.” – HCP, Vaccine Confident

Opinions varied on the effectiveness of “mixing” different COVID-19 vaccine brands. Some felt that they would receive higher levels of protection if they were to “stick with” one vaccine brand for all their COVID-19 vaccine doses. Others were of the belief that a combination of different brands (Pfizer and Moderna) would instead offer better protection. Ultimately, choices on COVID-19 vaccine brand were largely dictated by availability on the day of vaccine appointments.

Knowledge of vaccine technology

There was a limited depth of knowledge regarding COVID-19 vaccine technology (i.e., bivalent vaccines, mRNA technology), with most Vaccine Confidents, Supporters and Hesitants expressing minimal concern. There was a general sense of ambivalence around vaccine technologies, which was linked to general trust in the development process. Few participants could recall whether they were offered a bivalent COVID-19 booster.

“I believe my third shot was bivalent then, but I’m not 100% sure on that. At that time, I just thought, I don’t really care. You guys know what you’re doing, you do what you do. Just give me the drugs.” – ALHW, Vaccine Hesitant

The small number of participants who displayed higher levels of familiarity with mRNA technology had positive views on the topic. These participants were more likely to be HCPs or ALHWs (e.g., physician,

specialist, optometrist, personal support worker). The evidence they had come across regarding vaccine technology gave them comfort in the safety of the vaccines and a recognition of the benefits of new technology, specifically in speeding up vaccine development.

"I think you have to use technology to do things fast. If that's a safe method and it was implemented properly, yeah, there was no manipulation at all of each person's human genes because of that. It was just how the vaccine was available with a very specific type of technique, but nothing that will influence on the genomics of each patient getting the vaccine. So, I think again, there was lots of misunderstanding about that in the general population. And even sometimes when there are important efforts to provide education, always things that are not good are the ones that take more attention from people." – HCP, Vaccine Confident

Acceptance of future COVID-19 vaccine boosters

Nearly all participants expressed decreasing levels of concern regarding COVID-19, which further manifested in a decreasing sense of urgency to receive COVID-19 booster shots. While Vaccine Confidents and Vaccine Supporters did not identify as being opposed to receiving future boosters, the latter tended to note that it would not be a "priority." Receiving future booster shots tended to be conceptualized as simply a matter of "following through" with the recommended vaccine schedule. This was especially true for Vaccine Confidents who were motivated to follow the guidelines from public health authorities as part of their sense of duty as HWs. However, it was noted that should a new variant emerge with a higher risk of or more severe symptoms, they would be more likely to prioritize receiving the booster for increasing protection against infection.

Future COVID-19 booster vaccine shots were equated to flu shots by several Vaccine Confidents, Supporters and Hesitants, and in this context, participants emphasized the importance of convenience. While many had questions around the format and structure of COVID-19 booster rollout and strategy in the future, there was an overarching preference for a single annual shot, much like the annual influenza vaccine. These participants expressed a willingness to receive the vaccine once a year, preferably in the same appointment or combined with the influenza vaccine.

"I could see myself getting another one. I don't think that it would be a top priority for me. I get the flu shot annually. I kind of told myself, if I got the flu shot and the COVID vaccine at the same time annually, I'd be fine with that. But if they want to start doing every six months, get another booster or whatever, I'd be like, no, that's enough. I don't need to be poked that many times and loaded up with this that many times. If it was convenient, and if it wasn't too frequent, I suppose annually would be my max." – ALHW, Vaccine Hesitant

Conclusion

In sum, consistent with the quantitative findings, the qualitative component of this research found that there were several motivations that underpinned vaccine acceptance among participants. Chief among them was the desire to protect oneself and one's family, preventing the spread of COVID-19 among patients and community, combined with public health recommendations to receive the COVID-19 vaccine, given the novelty of the virus.

Table 23 summarizes the key factors and spheres of influence driving vaccine acceptance discussed in this section, in order of importance within each sphere of influence that emerged the qualitative research. The findings on sources of information are presented in Section 3.6.

Table 23. Self-reported factors driving COVID-19 vaccine acceptance among HWs

Sphere of influence	Factors driving vaccine acceptance
Individual and group influences	<p>Desire to protect oneself and one’s family. A primary motivator especially among Vaccine Confidants, Vaccine Supporters, and Vaccine Hesitants. Given their exposure to the virus within the workplace, these participants were further motivated to prevent “bringing the virus home.”</p>
	<p>Sense of duty. The duty as HWs to vaccinate and protect vulnerable patients was most prevalent among Vaccine Confidants and Vaccine Supporters. In the case of Vaccine Confidants, a sense of duty also seemed to drive strong interest in future booster doses.</p>
	<p>Experience of a SARS-CoV-2 infection. Validated decision to become vaccinated among Vaccine Confidants and Supporters. Many recited public health messaging that the COVID-19 vaccines prevent severe disease or complex outcomes, rather than preventing the infection itself. Mandate-Driven Vaccinees held the opposite perception, wherein they believed the vaccines should prevent SARS-CoV-2 infections entirely.</p>
Contextual influences	<p>Novelty of the COVID-19 virus. Created a sense of urgency to obtain the primary series of vaccines among Vaccine Confidants, Supporters, and Hesitants. The influence of this factor waned as the virus was perceived to decrease in severity and participants gained immunity from prior vaccines and previous infection.</p>
	<p>High-risk COVID-19 exposure environments. Particularly for participants working in hospital or emergency medicine settings, their exposure to severe or complex COVID-19 outcomes was a factor in their vaccine acceptance.</p>
	<p>Influential and trusted figures. Vaccine Confidants and Supporters were motivated to follow the advice and guidelines issued by public health officials whom they trusted. For some Vaccine Hesitant participants, trusted figures whom they had a personal connection with appeared to have influence in mitigating concerns about vaccination.</p>
	<p>Ease of vaccine access. Seamless and convenient process for all to receive an appointment. Access to COVID-19 vaccines was an important enabler of vaccine uptake for booster doses as complacency set in.</p>
	<p>Vaccine mandate. A significant driver only for Mandate-Driven Vaccinees, for whom their position of employment within the health care field was dependent on them getting vaccinated.</p>
Vaccine-specific influences	<p>Trust in the vaccine development process. While not a stated driver, it was evident that underlying trust in the vaccine development process was one of the pre-conditions for participants to fall into the Vaccine Confidants and Supporter groupings.</p>
	<p>Brand preference. Past familiarity with manufacturers that offered COVID-19 vaccines appeared to foster trust in the vaccines.</p>
	<p>Knowledge of vaccine technology. Limited depth of awareness around the use of vaccine technology (e.g., bivalent vaccines, mRNA technology), and thus, vaccine technology did not tend to drive acceptance of the COVID-19 vaccine. The small number of participants familiar with mRNA technology had positive views on the topic.</p>

3.4. COVID-19 vaccine hesitancy

In addition to exploring the drivers of vaccine acceptance, the SAGE VH Matrix was also used in the qualitative analysis to explore the drivers of VH among participants. This section outlines drivers of VH, through the lens of the three spheres of influence (i.e., vaccine-specific influences, contextual influences, and individual and group influences) and in the order of importance as it was identified among participants.

Vaccine-specific influences

Speed of vaccine development

Concerns about the speed of vaccine development were common among participants, but the level of concern varied among Vaccine Hesitants compared to Mandate-Driven Vaccinees and Unvaccinated participants. Many participants who fell into these groups were adamant that the timeline for development and trial with the COVID-19 vaccine did not align with what they perceived to be the standard timeline. This fueled the belief that the COVID-19 vaccine had been approved based on insufficient research and evidence. A few participants stated that they had talked to doctors and individuals within their social network or had seen videos of YouTubers who shared these concerns.

"When this vaccine came out, I didn't want to put anything in me, when I didn't feel like they did enough research. Because I had talked to multiple doctors before they even got the vaccine out, and they were like, if they come up with a vaccine before three years, then they don't feel like they did enough research on it. And then, lo and behold, they come out with one in how many months? I was like, whoa. How did they all of a sudden come up with this vaccine for something that they didn't know was going to be happening? I don't know, it seemed too quick." – HCP, Mandate-Driven Vaccinee

"Most of the vaccines take years to come in action, you know, they do a lot of research and they do it on guinea pigs, they do it on rats. But this one, it happened in a matter of a few months, and there was a lot of stuff going on that pharmaceutical people, like you know, they are trying to make it faster so they can earn money. So, I had a close friend who was working in pharmaceutical, and he resigned because he said it's against his principles to approve. So, that affected me a lot, so there's a lot of factors where we didn't have 100-percent proof, which nobody can say, but at least, like she said, we had to sign a waiver if something happens, you know, you can't sue the company, we don't know – it's still in the starting stage." – AUHW, Mandate-Driven Vaccinee

In stark contrast to the relief and gratitude that Vaccine Confidants felt, Mandate-Driven Vaccinees felt "very scared" and as though they were being used as "guinea pigs," as they were first to be offered the vaccine as HWs. One participant recalled being asked to sign a waiver, which magnified her fears. The participant was of the impression that the waiver would preclude seeking compensation, if they were to experience negative effects.

"And then it kind of felt like because you were a health worker, you were kind of like the first guinea pig to try it out, and then we'll see what happens for the rest of the world. Because remember at the beginning, it was only for HWs, and then afterwards the rest of Canada, depending on where you work or depending on what you do, you could have it as well. So, I guess that really, really made me hesitant as well, because like we had to sign away that if anything were to happen, we can't seek any type of compensation or any type of, you know, like help afterwards, that also made me hesitant. So, it's like a lot of things that came into play that really, I wasn't going to take it, but

ultimately, I had to in order to afford, you know, school and life at the time, yeah.” – AUHW, Mandate-Driven Vaccinee

COVID-19 vaccine safety concerns

Concerns regarding the speed of development often went together with the fear of short and long-term side effects from COVID-19 vaccines. While the majority of participants personally experienced minimal side effects after receiving the vaccine (e.g., fatigue, muscle soreness, headaches), often only lasting for a day or two, several had heard of others who experienced more severe side effects or health issues (e.g., blood clots, vasculitis), which contributed to their fears about COVID-19 vaccines. Fears of contracting COVID-19 from the vaccine were uncommon in the qualitative research.

“Not to mention I saw patients come into the hospital, one young guy came in, had the vaccine, the next day he was paralyzed from the nipples down. We had to rush him to Toronto. I had another lady come in with blood clots, another one come in with vasculitis. Then, other weird things happening with patients that couldn't explain what was going on with them. The family said, some of the family said to me, ‘They never had any of these problems until after they got those vaccines.’ I didn't say anything, I was just like, ‘Okay, well the doctors are trying to look into it.’” – HCP, Mandate-Driven Vaccinee

Some participants emphasized having fears about the unknown long-term side effects of vaccination. Participants felt that this gap they perceived in the scientific evidence could only be filled with the passage of time. In a couple of interviews, rising cases of autoimmune diseases in individuals who had previously received the COVID-19 vaccine were mentioned. Another example that was brought up was the recall of the Johnson & Johnson COVID-19 vaccine, which led to questions on safety of that specific brand.

“And not only that, but I guess also the fact that the vaccine was created so quickly and there weren't many studies on it. I became very nervous because, you know, there's always the talk about side effects when you put anything in your body, you don't know what the side effects are, you don't know what anything, like what could lead to you taking this vaccine. So, I think that that was the more concerning part for me, personally. And then afterwards, now, I work somewhere where the majority of our patients are prescribed a different medication because of their reaction to the vaccine. So, that's why I, after taking the second dose, I limited myself. I didn't want to add anymore, knowing how a good number of Canadians are now reacting to it. So, it's weird because on the one hand I feel comfortable if I'm in a plane and I know everyone's vaccinated and, you know, everyone's safe. But then on the other hand, I know that there are some serious side effects that I luckily didn't have. So yeah, that's why I was hesitant with the vaccine.” – AUHW, Mandate-Driven Vaccinee

These participants were highly skeptical of public health messaging emphasizing that COVID-19 vaccines are safe. Many Vaccine Hesitants and Mandate-Driven Vaccinees adopted a “wait and see approach,” holding off on receiving a vaccine for as long as possible.

“The speed of the long-term effects. We had one doctor, she was a medical intern, she said she saw this one autoimmune disease maybe once every seven years or so. And she said after the vaccine, after a year after the vaccine, she saw so many of them she reported it to the health centre, wherever they report things like that to. Because she said, she was like, ‘That is very strange.’ Because it was so rare. Those long-term effects of it afterwards, and even the whole thing, this is the whole trust thing too. They were saying, it doesn't happen within so many days or weeks after the vaccine, then it can't be the vaccine. I don't believe that at all. There are so

many things long-term, they didn't look to see, how come now we're getting all these weird autoimmune diseases?" – HCP, Mandate-Driven Vaccinee

"Also, I don't know if you remember when the Johnson & Johnson one came out, there was a huge outbreak because of that saying, hey, this one is not effective, and whatever the case was. It's just like, how are you guys providing so much of this vaccination to the public and then later on taking it back saying, hey, this one's no good, let's use these guys instead? I don't know." –ALHW Mandate-Driven Vaccinee

COVID-19 vaccine effectiveness concerns

For Vaccine Hesitants and Mandate-Driven Vaccinees, the effectiveness of the vaccines was less of a concern for the first dose of the primary vaccine series. Safety concerns were at the forefront for these participants. Effectiveness of the vaccines became a secondary issue for several participants as they or others in their social network contracted COVID-19 after receiving the vaccine.

"But obviously, hearing the stories of people that were vaccinated that still got infected, that was a huge light that went off in my head, because I was like, if this is supposed to be protecting us, then how is it possible that people are still getting infected? It just made me lose trust and hope in it. I felt like, hey, you know what? If I want to have some type of income coming in, especially during the pandemic, then this is what I'm going to have to do." – ALHW, Mandate-Driven Vaccinee

Unlike Vaccine Confidants and Supporters, Mandate-Driven Vaccinees were less likely to focus on the vaccine's benefits in mitigating severe health complications. There was a belief that the narrative surrounding the vaccines had shifted over the course of the pandemic. They felt that earlier in the pandemic, health authorities had endorsed the vaccine as a means of preventing COVID-19 entirely and subsequently adopted a new narrative, positioning the COVID-19 vaccine instead as a means to reduce the severity of COVID-19 symptoms. This perceived shift in narrative created a lack of trust in the information being presented about the COVID-19 vaccine, which may have contributed further to VH.

"I think there was a false thing of that. Because I think originally when they first started saying about the vaccine, they said it would prevent you from getting it. The original thing is that if you got it, you wouldn't get COVID. And then, it changed to, your symptoms will be less. So, that part too, the original statement they said, that's what they said, and then they went to, actually your symptoms will be better. No, originally let's go back to your original statement. You said we weren't going to get it. That was part of my hesitancy too, is because they themselves said it would protect us against COVID-19. And then it was like, it will lessen your symptoms." – HCP, Mandate-Driven Vaccinee

Belief in the efficacy of other preventative public health measures served to further undermine trust in COVID-19 vaccines in some Mandate-Driven Vaccinees and Unvaccinated participants. For example, one participant who was vaccinated and had not contracted COVID-19 attributed this to their "naturally healthy" lifestyle, with a healthy diet and sufficient exercise. Handwashing and staying home while sick were seen as proven measures, and by conforming to these, some participants did not feel the need to receive a COVID-19 vaccine.

COVID-19 brand and vaccine technology

There were only a handful of instances where the use of mRNA technology influenced VH. These participants were aware of the technology being “different” from other vaccines they had encountered in the past. Their concerns seemed to be related to their perceived lack of research overall, rather than specific concerns regarding the mRNA technology.

Contextual influences

Pro-vaccine discourse and social norm

It was evident in the qualitative discussions that the pro-vaccine narrative had negative effects on Mandate-Driven Vaccinees and Unvaccinated participants. There was a sense that the pro-vaccine narrative—both the broader societal narrative and that which existed within individual workplaces and social circles—tended to lump together individuals who were unvaccinated, categorizing them as “irresponsible.” For these participants, this narrative was seen as failing to recognize or engage with the rationale and genuine concerns behind the choices and perspectives of individuals who were hesitant or did not wish to get vaccinated. Conversations with family physicians were seen as challenging and in one case, for the first time ever, a participant felt distrustful of their doctor.

“I didn’t really appreciate that, how do I word this, ‘you have to be vaccinated,’ everybody, to save lives. And they didn’t have any consideration for the people who truly did not want to be vaccinated. I wouldn’t even go to the extreme, I’m not talking about the extreme anti-vaccinees that were protesting. But just the people who were hesitant, and that was the only information they were getting was you ‘have to’ be vaccinated. Or the other choice was to listen to those underground websites that were phony and making, ‘plandemic’ [statements] and all of that stuff.” – HCP, Vaccine Supporter

“We were all put in one big category, and that was it. It’s like, if you are trying to give information to people, or you want people to do things, maybe you need to look [like] an organization, not a government, because obviously they can’t do that. But in an individual place, they need to talk to people individually, the employers need to talk to their employees individually and treat them as an individual instead of a whole number where everybody is the same. That was my thing, is we weren’t looked at as an individual. We were all categorized in one, and they didn’t care what you did for them or what kind of employee you have been to them over the years. It was just, I guess that it’s like you have to treat people like they’re humans. Forcing them to do things and not even giving any discussion to them is not the way you go about it.” – HCP, Mandate-Driven Vaccinee

As a result of the pro-vaccine narrative and the sense of alienation, some Mandate-Driven Vaccinees and Unvaccinated participants reported finding solidarity within colleagues or within their social network of individuals who held similar positions. In addition, some participants sought out media that validated their positions on COVID-19 vaccines. This may have functioned to strengthen or reinforce their hesitancy about vaccination.

Historical and cultural influences

The qualitative research captured two instances where VH was partially driven by historical or cultural influences—one of whom was a Black AUHW, and the other was a psychologist in a private practice. One participant reflected on their African heritage as a significant factor in their hesitation toward the COVID-19 vaccination, noting a history of forced vaccination and experimentation. This was flagged by this

participant as a broad hesitation among Black people toward vaccinations in general. Despite their initial hesitation, this participant did receive the primary series of the vaccine in order to remain in their position of employment. The participant who reported historical influences as a driver of hesitancy recounted that their experience growing up in a communist country led to their perception of COVID-related messaging as not being dissimilar to the “propaganda” that they witnessed growing up.

High-risk COVID-19 exposure environments

As mentioned, exposure to severe or complex COVID-19 cases in the workplace was a significant driver of vaccine acceptance among participants. For Mandate-Driven Vaccinees, the severity and number of COVID-19 cases they encountered in their workplaces did not align with the narrative in the media. Participants mentioned that the majority of the COVID-related deaths that they were aware of involved elderly individuals or those with pre-existing conditions, not a “healthy person” contracting COVID-19 and passing away, as they believed was portrayed in the media. This perceived lack of alignment between their personal experience and exposure to COVID-19 contributed to VH and a decreasing trust in health care institutions and the general media (discussed further in Section 3.6).

“I had a few friends who actually had parents that passed away from COVID. And so, that was a good source to me, but it almost seemed like the common thing between all of the friends that were talking about their loved ones that passed away, is that they already had existing health conditions. This was not a person who just woke up in great shape, and then one day was infected, and then died right away. There were already things that were happening, pre-existing conditions. And so, that’s when I was like, and they were all older people above 50 and 60, and that’s what made me feel like, hey, you know what? What they’re telling us is not completely right, and there’s something else here.” – ALHW, Mandate-Driven Vaccinee

Experience of SARS-CoV-2 infection

As mentioned previously, experiences of a SARS-CoV-2 infection were often taken as proof that the vaccine was ineffective and therefore driving up VH.

Hesitancy around future COVID-19 booster vaccines

There was little interest in receiving future booster vaccines among Mandate-Driven Vaccinees and Unvaccinated participants. The factors driving vaccine hesitation remained and their positions on vaccines appeared to have hardened over time. Among Vaccine Supporters and Vaccine Hesitant participants, there was some aversion toward obtaining additional boosters. These participants referred to stories of colleagues and others in their social network who, after receiving COVID-19 vaccines, began to experience severe side effects, including elevated troponins, myocarditis, and blood clots. The effect of these stories was to make these participants reconsider whether to obtain additional boosters in the evolving context of the pandemic.

“So, I’ve been seeing some side effects of, but I’ve had, you know, a physician, a close physician friend of mine... like elevated troponins, myocarditis, blood clots, you know, that they’re healthy and now they’re having blood clots. And you hear about healthy physicians who are getting strokes and things like that. So, now it’s kind of like, you know, like is this something that I really want to do?” – HCP, Vaccine Hesitant

A lack of urgency and complacency toward the COVID-19 virus emerged as the biggest potential driver of reluctance in obtaining booster doses. This was also true among groups that were not defined by their VH. Participants mentioned they would be more motivated to receive future boosters should a new variant emerge or should boosters be identified as having significant value.

“That’s a very important question that I think I still need to discuss with my friends from Infectious Diseases and see what they think these days. How much additional value a booster will have? Because my infection is recent, so I still have time to think about it.” – HCP, Vaccine Confident

Conclusion

The qualitative findings on drivers of VH aligned with the quantitative findings: Vaccine Hesitants, Mandate-Driven Vaccinees and Unvaccinated participants tended to mention concerns around the safety of the COVID-19 vaccine and took issue with the speed with which the vaccine was developed. The research revealed that additional factors were at play in driving VH, including the dominant pro-vaccine discourse and social norm, and a disconnect between their personal experiences and what was portrayed in the media. Table 24 summarizes the key factors discussed in this section, in order of importance, within each sphere of influence that emerged or that was probed for in the qualitative research.

Table 24. Self-reported factors driving COVID-19 VH among HWs

Sphere of influence	Factors driving VH
Vaccine-specific influences	Speed of vaccine development. Fear of the COVID-19 vaccine was underpinned by belief that the COVID-19 vaccine was developed too fast, and thus did not involve sufficient testing and research.
	Vaccine safety concerns. The danger of short-term and unknown long-term side effects weighed heavily on the minds of all participants who displayed hesitancy.
	Vaccine efficacy concerns. Emerged as a driver of hesitancy for subsequent booster shots, as a result of contracting COVID-19 despite being vaccinated.
	Brand and vaccine technology. mRNA technology was brought up very infrequently as the reason behind VH.
Contextual influences	Pro-vaccination discourse and social norm. Participants were resentful of being painted as “irresponsible” and not being heard by the mainstream about the genuine concerns and reasons behind their choices.
	Historical and cultural influences. Forced vaccination of Black people in Africa was brought up by a Black participant to explain general distrust toward vaccination among the Black community.
	High-risk COVID-19 exposure environments. Disconnect in a small number of cases between lower COVID-19 patient caseload in their workplaces and what was reported in the media, which in turn sowed distrust toward traditional information sources and the need for vaccination.
Individual and group influences	Experience of SARS-CoV-2 infection. Complementary driver to perceived inefficacy of the COVID-19 vaccine.

3.5. Attitudes toward public health measures

This section will explore participant attitudes toward public health measures during the COVID-19 pandemic. Specifically, it will address attitudes toward the vaccine mandate and other mandates, including both standard public health protocols (e.g., masking, washing hands) and those introduced during the COVID-19 pandemic (e.g., social distancing, limiting contact to one's "bubble").

COVID-19 vaccine mandates

Participants who received the COVID-19 vaccination without any hesitation were supportive of the vaccine mandates for HWs. These participants believed that vaccination against COVID-19 was part of their duty as HWs and in line with similar mandates that require other types of vaccines and medical licensing. A few participants felt that to a certain degree, HWs represent the government and therefore should act in accordance with public health guidance.

Supporters of the mandate had difficulty grappling with the idea of HWs refusing COVID-19 vaccination, while others were grateful that the mandate was put in place to protect patients. Although the mandate resulted in some HWs exiting the profession, these participants felt that it would be irresponsible to have unvaccinated workers in close contact with vulnerable patients.

"So, I think it's totally justified. I felt like it was the right move. I cannot see the reason why anybody would disagree with HWs being mandated to be vaccinated. When I got hired as a paramedic, there was a list of vaccinations that I had to have before I could get hired. So, I don't know why people had such a big problem with this one being added to that list. Yeah, I had no issues with it whatsoever being mandated." – ALHW, Vaccine Hesitant

"Having to get it? I think it made sense. I think it made perfect sense. Again, it was something new. Nobody was 100% sure how quickly it would spread. And so, you have people coming into the hospital who were compromised. So, yeah, I thought that was totally reasonable, and totally agreed with if you didn't want to get the vaccine, then you lost your job. That I totally agreed with." – AUHW, Vaccine Supporter

Attitudes toward the HW vaccine mandate were negative among Mandate-Driven Vaccinees and Unvaccinated participants. They used strong words such as "totalitarian", "oppressive" and "abusive" to describe the mandate. It was seen as an infringement to their rights that was unnecessary given their compliance with additional testing and other public health measures, which these participants believed to be just as effective in protecting against COVID-19.

"If people want to get the vaccine, that is totally fine. That is on them. But if I personally don't want to get it, I just felt like why am I being made to? Because I was being compliant in all the things that the hospital had asked me. Okay, you have to have testing three times a week. Okay, came in before my shift and did my testing three times a week. I did everything that they said I was supposed to do. And then, they still are like, actually, just kidding, now you're going to be made to get the vaccine, or we're going to fire you. They literally were just going to fire me after 25 years. That's where I got jaded. I was like, I've put 25 years into this building, barely ever called in sick. Even though you've worked the last year-and-a-half, never had COVID, never been off sick, was not sick for a year, off once for the whole thing of COVID, not one time. And then they were like, oh yeah, we're going to fire you. You have until this day, and you're done." – HCP, Mandate-Driven Vaccinee

Aligning with the quantitative findings, the consensus among qualitative participants was that the vaccine mandate was effective in driving vaccine acceptance among HWs, this was noted by some with undertones of resentment, as they would have been unlikely to receive the vaccine without the mandate. The perception was that most HWs stayed within the profession. A few reported that HWs who exited the profession as a result of the mandate were being hired back when the mandate was lifted. This added to further resentment among Mandate-Driven Vaccinees.

Other public health measures

There tended to be broad support among all participants for standard public health protocols (i.e., masking, washing hands, staying home when ill) as well as those introduced as part of the COVID-19 response (i.e., social distancing, limiting contact to one's "bubble"). All participants reported high levels of compliance with these protocols and measures, especially in the initial stages of the pandemic. There were only a handful of admissions of lapses around social gatherings, and these tended to be later in the pandemic and justifiable according to participants (e.g., outdoor gathering that exceeded the stated limit on people). Even for those who contracted COVID-19, despite adhering to all public health measures, they still tended to view these measures as effective in managing the spread of the virus throughout the course of the pandemic.

"We followed that. We did what everybody else did at the beginning. I didn't see my parents when we weren't supposed to. We followed all those at the beginning. We did all those. And then, even obviously I did end up getting COVID at some point, whatever. I don't even know when it was, and I didn't go see anybody or go anywhere. We followed all those guidelines." – HCP, Mandate-Driven Vaccinee

There was some minor debate on the effectiveness of some of the public health measures. A few participants noted that the majority of the general public are not trained or informed on the proper use of masks and gloves, which can do "more harm than good" if used incorrectly. Some also felt that the guidelines around social distancing and "bubbles" were only useful for those who chose to adhere to them, as people who wanted to "break the rules" would do so.

The only public health measure that elicited a strong negative reaction among several participants was the use of lockdowns to prevent the spread of COVID-19. Some took issue with the framework of continued lockdowns and the criteria for coming out of lockdowns. These participants were concerned about the effects of extended lockdown periods on mental health—particularly the mental health of children and youth—and the difficulties for working parents as they navigated the closure of schools and working from home.

For others, their primary frustration was that the criteria for coming out of lockdowns was dependent on the percentage of the population that was vaccinated, which was deemed to be arbitrary for some participants. This added another source of "doubt" for Mandate-Driven Vaccinees and Unvaccinated participants who felt that another "agenda" may be at play.

Conclusion

Among qualitative participants, support for the vaccine mandate tended to broadly align with attitudinal groupings. Vaccine Confidants and Supporters were among those with the highest levels of support for the mandate, which was largely due to their sense of "duty" as HWs in protecting their patients. In contrast, Mandate-Driven Vaccinees and Unvaccinated participants were vocal in their opposition to the vaccine mandate, as it was perceived as infringing on their rights.

For other public health measures, both standard measures (e.g., hand washing, masking, etc.) and those introduced during the pandemic (e.g., social distancing, “bubbles”), there was a sense of broad support among participants regardless of attitudinal groupings. However, there was some minor debate among participants around the efficacy of public health measures during the pandemic (e.g., related to improper use of PPE and people “breaking the rules”). The only public health measure that elicited a strong negative reaction among participants was the implementation of lockdowns, which were seen as having negative effects on mental health and lacking a clear structure or criteria.

3.6. Sources of COVID-19-related information

Workplace-provided information

Nearly all participants consumed COVID-related information from their workplace, although participants differed in their levels of engagement with this information. Some were more active in their consumption of workplace-provided information and received weekly emails that outlined changes in protocols as well as COVID-related information and updates. Vaccine Confidants and Supporters tended to view workplace-provided information as trustworthy, as it consisted of information sourced from government agencies, health authorities or experts.

“You know, we had COVID update bulletins, and they would come in our email every week, and all the up-to-date hyperlinks were there for us to read and refer to. And so, I think being in health care was helpful, because it made us really informed, really well-informed, and then we were able to pass that along to anybody who was concerned or wanted to know, you know, what was going on and what protocols were. We were just kind of up to date on them.” – HCP, Vaccine Confident

Other participants adopted a more passive or selective approach toward workplace-provided information. They felt somewhat overwhelmed with the amount of information provided and found changing workplace protocols and “refreshers” (e.g., on use of PPE) to be most useful. A few felt “unsupported” with a lack of information and long delays in receiving that information.

“Obviously when it first came out, Infection Control gave us little spiels about what we should be doing, and they went over, which was good. Because you're donning off and on, and all that, you do it, like when COVID first came out, they came around and re-educated us about how to do stuff like that. They redid our mask fits and stuff like that. All that was good, because in any kind of pandemic sort of situation, you need to be prepared. It's good to refresh. My work refreshed on all those things, and that part was good. Those were helpful.” – HCP, Mandate-Driven Vaccinee

“And I think there was a lack, and a very long delay of information at the beginning. And I guess, you know, in retrospect, obviously we can think about how to do things differently, but I would have wanted more up-to-date information from my management, which in the end did happen but it obviously took some time to get there.” – ALHW, Mandate-Driven Vaccinee

Workplace information allowed participants to stay current on what was required of them as employees but appeared to have little impact on behaviour outside of the workplace. Most participants felt that they followed the public health guidelines recommended by their workplace.

Government sources

Many participants paid attention to announcements from various Public Health Officers on the latest guidelines and updates on the COVID-19 situation throughout the pandemic. Government websites as a source of information were also mentioned by some participants.

A higher level of trust toward government sources of information were displayed among Vaccine Confidants and Vaccine Supporters compared to Mandate-Driven Vaccinees and Unvaccinated participants. Among Vaccine Confidants and Vaccine Supporters, participants reported that key public health messaging resonated with them and was acted upon.

COVID-19 case counts in local areas sometimes informed daily decisions of participants—for example, whether to visit a grocery store or order groceries online. There was some distrust in one case where a participant felt that public health officials standing next to politicians diluted the strength of public health messaging. It came across for these participants that this messaging may have been influenced by political motives beyond public health.

"Yeah, because if there was an especially bad outbreak in certain areas of the province, because we would get that update as well, where there were real hotspots in the city. If I knew there was an outbreak in the city at the time, I'd order groceries online, versus go to the grocery store. If I went to the grocery store, it was in and out, fully masked and don't talk to anybody, stay away from everybody, sort of thing. Yeah, I did use a lot of that information in my personal life. We had a small group of friends that we stuck to our little bubble, and no more. We did use a lot of that information as well." – AUHW, Vaccine Supporter

Mandate-Driven Vaccinees and Unvaccinated participants were typically more critical of official government announcements. They viewed government sources as promoting a single directive rather than considering all possible alternatives and approaches, and lacking transparency. These participants took issue with the interpretation of COVID-19 data and perceived public health guidelines as ever changing. This lack of trust appeared to stem from the COVID-19 pandemic experience specifically, as opposed to a long-standing attitude toward government. These participants opted to “do [their] own research” instead by consulting a variety of online sources or trusted networks. These participants reported a lower likelihood of turning to government sources or health experts for health-related information in the future.

"They were very closed off. They had a specific thing that they were doing. Anything outside of what they thought, they weren't open to listening to it. I don't feel like when something like this happens, like a pandemic, you have to be open to all options of how to treat something. You can't say, this is the way, and this is only it. This is the way, this vaccine, this is the way we're going to treat it, and that's it, and nothing else. That's why it was a little bit frustrating for me, as there were lots of other doctors from The States that had tried certain things, and they wouldn't even entertain them. [...] I just feel like my trust in the health care, the government system has diminished after this. If I'm looking for information, health stuff, I am not looking under the government stuff, to be honest." – HCP, Mandate-Driven Vaccinee

Traditional media

Participants expressed mixed feelings about the use and trustworthiness of traditional media (e.g., television, radio, newspaper) as sources for COVID-19-related information. For these individuals, traditional media was used for the sole purpose of receiving information about case counts and statistics. There was a sense that these numbers were generally seen as trustworthy in that they were “objective,”

as they sometimes included references or sources for the information provided. The exception was some Mandate-Driven Vaccinees and Unvaccinated participants that felt COVID-19 cases were overreported in the media due to differences between the cases reported in the media and those observed in their workplace. Some participants also questioned the methodology and interpretation of COVID-19 information and perceived that there was a lack of context in the media's reporting. Regardless of levels of trust toward traditional media, there was general agreement that the tone from traditional media was "fear-based" and "scaremongering."

Social media and alternative media

The majority of participants tended to avoid social media (e.g., Facebook, Twitter, Instagram) as a resource for COVID-related information, noting the frequency with which misinformation tends to be spread on social media. There were several participants who entirely disregarded any COVID-related information found on social media, deeming it "unreliable."

A few Vaccine Hesitants mentioned that while they were cognizant of the unreliability of information on social media, elements of the information found on social media reflected their concerns and spoke to them. Some Mandate-Driven Vaccinees and Unvaccinated participants reported using social media, not as an information source, but rather as a social network for sharing personal stories and supporting others with similar perspectives.

"I guess sort of in a roundabout way, information from Facebook was not something that I used. And in fact, if information came from Facebook, I usually discarded that information or considered it untrustworthy just based off of where it came from. But it was interesting that if something did appear on Facebook, I would look into it usually to try to disprove it. Because for whatever reason, it seemed to just be kind of a social media platform that had a lot of misinformation." – ALHW, Vaccine Hesitant

"I don't trust that kind of access of information that way for science-based information. I also am not too engaged on social media in general. It's just not my kind of typical source for any important information." – HCP, Vaccine Confident

Alternative media was only used by a very small number of participants who were in the Mandate-Driven Vaccinees and Unvaccinated groups. They used it to acquire information about the use of potential alternative approaches to combating COVID-19, often based on the advice of doctors in the US.

There was one example of the use of social media that was trusted and helpful. A participant referred to a Reddit page that summarized the daily updates provided by Dr. Hinshaw and included tables with case counts and other pertinent COVID-related information. This Reddit content included links to the sources for all the information, much of which came from the Government of Alberta website. For this participant, the apparent transparency of this resource facilitated a sense of trust and credibility.

Trusted networks

The amount of COVID-related information available along with the constant changes and updates to public health guidelines left many participants feeling overwhelmed. Many recalled how early in the pandemic they were constantly checking for COVID-19 related updates and information. At the time of this research, most participants noted that they barely kept up with the latest information.

The overwhelming amount of information available during the pandemic led many to turn to their trusted networks, both formal and informal, for information about COVID-19 and COVID-19 vaccines. The information networks participants trusted and turned to varied greatly.

Vaccine Confidants, Supporters and Hesitants, particularly HCPs (e.g., physicians, specialists) and those working in hospital settings were more likely to utilize networks of medical experts and colleagues, including epidemiologists, long-term care home networks, and other physician working groups. These networks were used to share COVID-related information and updates, especially regarding changing guidelines and protocols. The belief was that these HCPs were likely to be informed of any changes prior to these changes being shared with the general public.

Some physicians engaged in more formal networks (e.g., attending Pre-Med conferences, University of Toronto COVID-19 lectures, and various other physician systems for information sharing), while others engaged in less formal networks (e.g., WhatsApp group chats or email threads with colleagues). Informal networks were leveraged more extensively during the early stages of the pandemic, both as a support system and to share information, when guidelines were less clear and rapidly changing.

One informal network that some participants trusted included religious sources. A few participants shared how their religious congregations and communities were actively providing COVID-19 related information. This included hosting educational talks on COVID-19 from a congregation member who was a physician, information on the safety and efficacy of the vaccine, and general peer support and encouragement to help “navigate” the pandemic.

These participants tended to have significant trust in their formal and informal networks, particularly those with networks that included medical experts, epidemiologists, and individuals working in infection control. These networks allowed participants to address any questions or concerns they had and be met with advice or information that the individuals considered credible.

“Because friends [at the Infectious Disease Department] are the ones with the most experience on this topic, so I will go to someone who knows about this, and that can provide me with some guidance.” – HCP, Vaccine Confident

“And as far as I know, almost every community had the group, like the working group that were collecting information and sharing it with health care providers and colleagues, that group of nominated physicians. There were five of them in Powell River. And at some point of time, I was involved as well. So, that was the best, just to have a good summary with all of the resources that we found the most reasonable to follow.” – HCP, Vaccine Supporter

“So, I’m one of Jehovah’s Witnesses, and so our organization was very up to date in terms of giving us efficacy, on the vaccines, like the vaccine is safe. They were up to date with all the research that was going on too, and they would dispense it to the congregations around the world. And so, they were letting us know that, ‘Okay, yeah...,’ at the time when a lot of churches were saying don’t get vaccinated, our organization was saying, ‘Looking at the research, it’s a safe vaccination with minimal side effects, and if there is side effects, they can be controlled.’ And then telling us to mask up and things like that. So, they were really helpful in helping us to navigate how we should navigate the pandemic for sure.” – HCP, Vaccine Hesitant

Participants who reported hesitancy toward the COVID-19 vaccines were more likely to leverage informal networks consisting of family, friends, and colleagues. Among these participants, there was a common experience of consulting others working in health care with their questions and concerns about the COVID-19 vaccines and being unable to receive clear answers that addressed their concerns. Therefore, it

became common for these participants to seek support among others who held similar perspectives and attitudes toward vaccines, utilizing informal networks such as Facebook groups.

“Because they didn’t know. They didn’t know because there wasn’t enough time, so they couldn’t give me those. Most, that’s what I’m saying, even people that are pro, it’s like I don’t know the long-term effects. Exactly, you don’t know the long-term effects. That’s why I’m hesitant.” – HCP, Mandate-Driven Vaccinees

Physicians as an information source

Many Vaccine Hesitant and Mandate-Driven Vaccinees tended to turn to their personal physician for specific information related to the vaccine. For these participants, their personal physician was viewed as a trusted source, and their input and reassurances played a significant role in the eventual vaccination of some Vaccine Hesitant participants.

However, the interactions between participants who were Mandate-Driven Vaccinees or Unvaccinated tended to be less positive. In these cases, Mandate-Driven Vaccinees felt that their personal physicians were not providing an “honest opinion,” and rather working to further disseminate the pro-vaccine narrative. This led to the perception of their personal physicians as being “less credible” and noted this was the first time that these participants felt that they could not trust their physician.

“I read during restriction when I was not able to work, and I have a lot of time to read. He can be afraid to lose his license because doctors can lose their license if they say something against vaccines. Then we can’t trust that the doctor is telling the true, is doctor is under danger like this, and we know about this.” – ALHW, Unvaccinated

In terms of how participants themselves handled COVID-19-related conversations, approaches varied and were in part driven by participants’ attitudes toward COVID-19 vaccination. For Vaccine Confidants and Supporters, when managing patients expressing hesitancy toward the vaccine, some leveraged their position as a trusted source to reassure patients about the benefits of vaccines. When dealing with patients who were hesitant, these participants reported trying to address their concerns from an emotional level and determine where they were getting their information from, rather than approaching them as “rational beings.”

“I think we’ve had good advice, especially for pregnant women. Pregnancy is very risky for COVID, and I had no trouble communicating that to my pregnant patients at the time. And again, I think the fact that you could say to the patient, ‘Look, I’ve had my shots and I’m fine,’ I think that went a long way. Again, family doctors who knew their patients, who’ve had patients for 20, 30 years and more, had had that credibility and that went a long way to vaccinating in the population. I think I probably had 80-percent uptake or more in my patients. The kids maybe a little bit less so. There was always the worry about that. But no, I think adults in my practice took it up pretty well.” – HCP, Vaccine Confident

“And so, for us to... basically, we can’t approach, we rarely approach our patients as rational beings because we’re not as people. In that situation with all of those factors, you know, I found it really trying to find out where people got their information from and trying to meet them on that emotional level, was the best. And then saying, ‘Hey, I can understand why you’re concerned, I totally get it, but let’s slowly unpack this and talk about it.’” – HCP, Vaccine Confident

Several Vaccine Confidants, Supporters, and some Vaccine Hesitants chose a different method when engaging with patients who were averse to the vaccine, by attempting to avoid engagement or trying to convince them. Instead of attempting to inform their patients, they let them “vent” and “carried on” when they were finished. For these participants, they did not feel that it was a “good use of their time” to try and convince patients of the merits of the vaccine, particularly those who were in hospitals with “active COVID-19” talking about their vaccine hesitation.

“I’ve had lots of interactions with patients who said... well, when we were interviewing patients before surgery, we had to ask them if they had any COVID vaccines. And a lot of them would answer freely, and a lot of them would say, ‘I’d prefer not to answer.’ And in the moment, you’re really not probing them and asking them why. I did have a couple of people start to go on about, ‘Oh, here’s why we shouldn’t get vaccinated,’ and I just really didn’t pay any attention to it really, because I didn’t have the time, and I didn’t really want to know. Because it didn’t matter what they were going to say, I wasn’t going to agree with them, I wasn’t going to... yeah, because my belief was firm and I wasn’t going to, you know, I just let them vent. And then when they were finished, I just carried on.” – HCP, Vaccine Confident

“Patients, honestly, I didn’t try too much to try to convince people. I know there are a lot of docs who did a lot of communication efforts to try to get people to take the vaccine, but I was taking care of the people with acute COVID. Honestly, it just didn’t feel like a good use of time to be talking to somebody with active COVID about their VH. I felt like if they were hospitalized for COVID and that didn’t wake them up to the importance of vaccination, I wasn’t going to help.” – HCP, Vaccine Confident

There were few participants who were Vaccine Hesitant or Mandate-Driven Vaccinees who had patients coming to them for advice about vaccination. In instances where this did occur, these participants tended to avoid expressing their hesitation about COVID-19 vaccines to their patients. Instead, they would encourage patients to do further research, or point them in the direction of a physician in the case of participants who were ALHWs or nurses.

“Yes, they did ask me. And in the beginning, so when they first asked me, I didn’t tell them not to get it when I was hesitant because that’s not good. What I did say is, ‘Well, do your research,’ you know what I mean? And then I said, you know, ‘Do your research, see what they’re saying in the media, with the Public Health agencies, and then make a decision.’ And then when it came to light about increased risk of severity of illness, if you are immunocompromised, then I would say, ‘You know what, based on the evidence, it is advisable that you do get your vaccination because it’ll limit your severity of risk.’” – HCP, Vaccine Hesitant

“That’s how I kind of feel about it, is that I don’t feel like, because I’ve just seen so many people, my gosh, so many people, I had patients that had four shots and they still got COVID. They’d say to me, ‘How did I get COVID when I have four shots?’ I’m like, ‘I’m not sure. You’ll have to talk to the doctor about that.’” – HCP, Mandate-Driven Vaccinee

Health publications and journals

Health publications and journals were cited as sources for COVID-19 related information, albeit less frequently than other sources and was often mentioned by physicians. Pregnant physicians turned to scientific journals as an additional source of information to inform their decision on whether or not to get vaccinated. Others turned to scientific journals from a professional development standpoint, to stay up to date with latest evidence on COVID-19 and COVID-19 treatment. Participants tended to rely on publications and journals that they were most familiar with, found credible, and trusted.

Conclusion

Overall, participants had diverse sources of information and were varied in their levels of trust and engagement with different sources. The following observations emerged from the qualitative research:

- **Workplace-provided information** was consumed in an active manner by some participants, while others had a more passive or selective approach. Workplace information helped participants stay up to date on rapidly evolving guidelines and protocols but had a minimal impact on their behaviour outside of work.
- **Government sources** were trusted by some participants, particularly Vaccine Confidants and Supporters. However, Mandate-Driven Vaccinees and Unvaccinated participants were more critical of official government announcements and tended to do their own research.
- **Traditional media** was generally seen as a trustworthy source for case counts and statistics, although some questioned the reporting and felt that it employed a “fear-based” tone.
- **Social media** was often avoided due to the spread of misinformation. However, some participants found their concerns and hesitations reflected by others on social media, which some found helpful.
- **Physicians** were perceived to be trusted sources for some, although interactions and levels of trust with personal physicians varied across participants.
- **Health publications and journals** were used by a small number of participants, particularly pregnant physicians and those interested in professional development.

4. Conclusions

Throughout this research there were some common conclusions and implications that emerged, in both qualitative and quantitative components. These may act as areas for further research or analysis, or simply considerations moving forward when looking at larger scale public health responses.

Vaccine mandates played a significant role in the eventual vaccination of HWs, as shown in both qualitative and quantitative components of this research. However, this may have been a double-edged sword of sorts, as it came at some cost. Ultimately, the survey found the vaccine mandates motivated more HWs to get vaccinated as opposed to turning them off. However, it may have contributed to an erosion in trust in government. A common sentiment that emerged, particularly within the qualitative research, was that of resentment among HWs who expressed hesitation toward receiving the vaccine but received it nonetheless because of the mandate. These participants felt that they had been taking measures (e.g., masking, social distances, PPE) that were effective in preventing the spread of the virus. The introduction of the vaccine mandate therefore felt like an unnecessary infringement of their rights. As such, this led to some resentment, as well as perceptions that the measures being taken by health authorities may not be in their best interest. The survey also noted the sizable proportion of HWs surveyed attitudinally who reject vaccine mandates, although there was less evidence that hesitation toward receiving the vaccine was because HWs felt that it was unnecessary, since they had been taking measures that were effective in preventing the spread of the virus.

The use of a top-down narrative during the pandemic may not have had the intended effect, specifically with regard to the dissemination of information and guidelines around protocols and mandates. This research reinforced the notion that, especially during times of fear and uncertainty, individuals are more likely to seek guidance and support from their personal trusted networks, rather than other sources pushing the dominant or overarching narrative. This was particularly the case for individuals who were more doubtful or hesitant, or held views that didn't align with the dominant narrative, as they were then driven to other (sometimes less accurate) sources or networks to find guidance and support. As such, moving forward, there may need to be emphasis placed on addressing and acknowledging concerns, with a bottom-up approach, in order to drive support for and compliance with public health measures. To address VH, it is recommended to use evidence from scientific literature to highlight the safety, efficacy, and effectiveness of COVID-19 vaccines. Specifically, addressing concerns related to fertility and potential long-term side effects can be helpful in motivating those who are hesitant.

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Appendix

A.1 Quantitative methodology

The quantitative component of the research was conducted in the form of an online survey. The survey was offered in both English and French and was hosted on an accessible and device agnostic survey platform. The survey was pre-tested on May 3, 2023, and launched on May 8, 2023. The survey was promoted for 14 weeks (about 3 months) and closed on August 14, 2023. The average length of the survey was 15 minutes.

A.1.2 Study population

Eligible respondents were employed as a health worker in Canada during the COVID-19 pandemic from 2020–2023 with direct or indirect contact with colleagues, patients, or the public. This included paid work of at least 20 hours per week. The definition of health worker included HCPs, ALHWs, and AUHWs including community care and hospital staff (physicians, nurses, personal support worker, cleaning or laundry personnel, patient transporters, catering staff, etc.).

A.1.3 Sampling methodology

The survey was disseminated among the membership of identified HCP and ALHW organizations, representing colleges and associations by occupation across Canada in an attempt to reach all registered HCPs and ALHWs. This was supplemented with an online non-probability panel to reach those who potentially left the sector or work in non-registered occupations in the target settings. Furthermore, to improve the reach among HCPs to identify VH and reach a wider range of professionals with differing opinions, respondents were given the opportunity to share the link with their colleagues.

To supplement key shortfalls in coverage by sub-group (type of profession) and/or increase the coverage of respondents who are no longer working in the sector, M360 Research was engaged to reach HCPs and ALHWs who are active on research panels. The aim was to help bring the number of respondents for each type of profession up to the minimum number required to meet weighting ranges. M360 Research is a trusted Ipsos partner and leader in health care worker engagement and data collection.

A total of $n = 5,372$ eligible HWs completed the survey. While the responses reflect a cross-section of HWs by region, profession, language, and setting, as noted the open-link survey methodology does not allow for the results to be generalized to the target population, and inferential statistics must not be applied when reporting on the collected data. This methodology also does not allow for non-response analysis. However, it is possible that respondents and non-respondents may differ. There is a risk of under-coverage or over-coverage due to the unknown participation of associations and lack of available data about the characteristics of the combined populations; as such, the size of the coverage bias is unknown.

Invitations and information sessions

Over 200 regulatory and voluntary professional organizations were invited to participate in the research. Bilingual invitations were emailed to organizations with an explanation of the study objectives, methodology and request to participate. Two webinars were held, one in English and one in French, to provide interested organizations with the opportunity to meet the study leads, provide more background on the study goals and the ways in which organizations can support the research, and answer questions. Recordings of the information sessions were posted online and made available to interested organizations. The study FAQs and Privacy Notice were also posted online. The research was registered

with the Canadian Research and Insights Council. Questions submitted through the study registry were responded to by email.

To maximize the coverage of the study population while minimizing the risk of eligible respondents receiving multiple invitations to the research, the sampling methodology involved a staggered approach. Invitations were initially sent out to regulatory bodies and organizations. These organizations were chosen first, reflecting their ability to reach to a census of practicing professionals. Regulatory organizations that did not respond or declined to participate were replaced with voluntary professional organizations (national and provincial/territorial) representing members as the second stage of outreach. The third stage involved sending out supplementary invitations to a diverse set of organizations representing BIPOC and other equity-seeking groups to ensure the survey reached under-represented groups. The final stage involved providing unique links to study partners to disseminate with colleagues and interested groups. Invitations were also sent to individuals who participated in the qualitative sessions to allow them to participate in the survey portion of the study as well.

A.1.4 Participating organizations

With gratitude, we thank the following organizations who participated in the survey by promoting and disseminating the survey across their members and throughout the health care sector.

Alberta Dental Association
Association of Alberta Dental Assistants
BC Society of Respiratory Therapists
Canadian Association for Rural and Remote Nursing
Canadian Association of Medical Radiation Technologists
Canadian Association of Midwives
Canadian Association of Optometrists
Canadian Occupational Health Nurses Association
Canadian Society for Medical Laboratory Science
Canadian Society of Gastroenterology Nurses and Associates
Canadian Society of Respiratory Therapists
College of Family Physicians of Canada
College of Licensed Practical Nurses of Newfoundland and Labrador
College of Midwives of Manitoba
College of Physicians and Surgeons of Saskatchewan
College of Physiotherapists of New Brunswick
College of Physiotherapists of Ontario
College of Registered Psychiatric Nurses of Alberta
College of Registered Psychiatric Nurses of Manitoba
College Psychologists of New Brunswick
Dental Association of PEI
Dental Council of Prince Edward Island
Infection Prevention and Control Canada
Manitoba College of Social Workers
Newfoundland and Labrador Dental Association
Newfoundland and Labrador Pharmacy Board
Nova Scotia College of Respiratory Therapists
Ontario Association of Social Workers
Ontario College of Pharmacists
Ontario Dental Assistants Association
Ontario Dental Hygienists' Association
Ontario Occupational Health Nurses Association

Ontario Paramedic Association
 Ordre des dentistes du Québec
 Ordre des infirmières et infirmiers auxiliaires du Québec
 Ordre des psychologues du Québec
 Ordre professionnel de la physiothérapie du Québec
 Provincial Dental Board of Nova Scotia
 Psychologists Association of Alberta
 Registered Nurses' Association of Ontario
 Saskatchewan College of Pharmacy Professionals

A.1.5 Definitions

The following terms are used throughout the report.

1. **Rate of vaccination** - Proportion of HWs who received at least one COVID-19 vaccination dose.
2. **Vaccination hesitancy** - An attitudinal measure, self-reported, looking back at their decision to vaccinate (or not). This term refers to the delay in acceptance or refusal of vaccines despite availability of vaccination services. They may have hesitancy and still have received a dose or be fully vaccinated.
3. **Vaccinated** - Received one or more COVID-19 vaccination doses.
4. **Vaccinated partially** - Received only one COVID-19 vaccination dose.
5. **Unvaccinated** - Eligible but did not receive a single COVID-19 vaccination dose.

A.1.6 Data analysis and statistical weighting

For the purposes of analysis, the data for health professionals and ALHWs has been combined and statistically weighted by profession/role and region to match proportions published by the Canadian Institute of Health Information (CIHI). The data for AUHWs has been weighted by region based on general population Census data. A Random Iterative Method (RIM) weighting was the approach used. RIM weighting is designed to attempt to weigh all characteristics at the same time. The accuracy of weighting depends on how well the sample matches the known universe. As the rim weighting process runs, it tries to distort each variable as little as possible while still trying to attain all the desired proportions among the characteristics. The “Root Mean Square” figure indicates how much distortion has been introduced (i.e., how reliable the sample is). The larger the number, the more distortion, and thus the less accurate your sample is.

This figure gives an indication of how well balanced the sample is. The calculation is as follows:

Let:

- P_j is the pre-weight for person j
- R_j is the RIM weight for person j

Then the Rim Weighting Efficiency is:

$$\frac{100.0 \left(\sum_j P_j R_j \right)^2}{\sum_j P_j \sum_j P_j R_j^2}$$

If the data for many respondents needs to be weighted heavily up or down, the efficiency percentage will be low. The greater the percentage, the more well-balanced the sample.

To reach large sample sizes across a high number of professional and worker populations, the methodology required outreach to individual organizations representing the populations. This approach was chosen with knowledge of the risk of achieving an over-representation in certain areas and the need to weigh some groups down. In the end, only a few groups required weighting up.

Table A1 indicates the unweighted distribution of the sample by profession, in counts and proportions. Weighting was applied to the sample to ensure that the final data reflects the correction proportions in the population based on Canada’s Health Care Providers, 2015 to 2019, 2021 — Methodology Notes on CIHI’s website: cihi.ca.

Table A1. HCP population

HCP role	Survey sample (UNWGT)		Population in Canada	
	Count	Proportion	Count	Proportion
Family medicine/General practitioner	129	6%	46,132	7%
Specialists	43	2%	45,243	7%
Licensed practical nurses	117	5%	127,097	21%
Nurse practitioners	69	3%	6,159	1%
Registered nurses	1,468	65%	300,669	49%
Registered psychiatric nurses	194	9%	6,050	1%
Occupational therapists	27	1%	18,906	3%
Pharmacists	153	7%	43,744	7%
Physiotherapists	62	3%	25,294	4%
TOTAL	2,262	100%	619,294	100%

Number of health care providers and number per 100,000 population, by type of provider and total for provinces/territories with available data, 2019. Note: Two respondents identified themselves as a physician but did not specify if they were a family doctor/general practitioner or specialist. Fourteen (14) respondents identified themselves as a nurse but did not specify the sub-group. These respondents have been categorized as “physician other” and “nurse other” respectively and were excluded from this table.

Note: UNWGT = unweighted.

Table A2. ALHW population

ALHW health worker role	Survey sample		Population in Canada	
	Count	Proportion	Count	Proportion
Dental assistants	215	10%	19,599	8%
Dental hygienists	417	19%	30,219	12%
Dentists	131	6%	19,455	7%
Dietitians	24	1%	9,114	3%
Medical laboratory technologists	543	24%	20,048	8%
Medical radiation technologists	56	3%	25,451	10%
Midwives	27	1%	1,643	1%
Optometrists	26	1%	6,609	3%
Paramedics	327	15%	35,384	14%

ALHW health worker role	Survey sample		Population in Canada	
	Count	Proportion	Count	Proportion
Pharmacy technicians	46	2%	9,564	4%
Psychologists	99	4%	19,103	7%
Respiratory therapists	238	11%	12,294	5%
Social workers	82	4%	52,823	18%
TOTAL	2,231	100%	261,306	100%

Number of health care providers and number per 100,000 population, by type of provider and total for provinces/territories with available data, 2019. Note: some groups of ALHWs have been excluded from the scope given the low incidence and/or challenge locating sample for these roles. Note: A total of 56 respondents identified themselves as an ALHW but in a role that did not fit within the roles outlined in the table above.

Table A3. Weighting of HCPs and ALHWs, by role

HCPs and ALHWs role	Unweighted sample size	Unweighted proportions	Weighted proportions
Dental assistant [ALHW]	215	5%	2%
Dental hygienist [ALHW]	417	9%	4%
Dentist [ALHW]	131	3%	2%
Dietitian [ALHW]	24	1%	1%
General/Family physician [HCP]	129	3%	5%
Licensed practical nurse [HCP]	117	3%	14%
Medical laboratory technologist [ALHW]	543	12%	2%
Medical radiation technologist [ALHW]	56	1%	3%
Midwife [ALHW]	27	1%	0%
Nurse practitioner [HCP]	69	2%	1%
Occupational therapist [HCP]	27	1%	2%
Optometrist [ALHW]	26	1%	1%
Other ALHW [ALHW]	56	1%	1%
Other nurse [HCP]	14	0%	0%
Other physician [HCP]	2	0%	0%
Paramedic [ALHW]	327	7%	4%
Pharmacist [HCP]	153	3%	5%
Pharmacy technician [ALHW]	46	1%	1%
Physiotherapist [HCP]	62	1%	3%
Psychologist [ALHW]	99	2%	2%
Registered nurse [HCP]	1,468	32%	33%
Registered psychiatric nurse [HCP]	194	4%	1%
Respiratory therapist [ALHW]	238	5%	2%
Social worker [ALHW]	82	2%	5%
Specialist physician [HCP]	43	1%	5%
TOTAL	4,565	100%	99%

Note: Two respondents identified themselves as a physician but did not specify if they were a family doctor/ general practitioner or specialist. Fourteen (14) respondents identified themselves as a nurse but did not specify the sub-group. These respondents have been categorized as “physician other” and “nurse other” respectively. A total of 56 respondents identified themselves as an ALHW but in a role that did not fit within the roles outlined in the table above. These individuals were assigned a weight of 1.

Table A4. Weighting of HCPs and ALHWs, by province or territory

Province or territory	Unweighted sample size	Unweighted proportions	Weighted proportions
Alberta	457	10%	13%
British Columbia	248	5%	13%
Manitoba	157	3%	1%
New Brunswick	95	2%	1%
Newfoundland and Labrador	94	2%	5%
Northwest Territories	13	0%	1%
Nova Scotia	111	2%	1%
Nunavut	1	0%	0
Ontario	2,317	51%	36%
Prince Edward Island	31	1%	<1%
Quebec	494	11%	23%
Saskatchewan	545	12%	7%
Yukon	2	<1%	<1%
TOTAL	4,565	100%	101%

Table A5. Unweighted distribution of AUHWs by role

Auxiliary health worker role or position*	Unweighted sample size	Unweighted proportion
Admission/reception clerks	165	20%
Catering staff	38	5%
Cleaning or laundry personnel	41	5%
COVID clinic	1	<1%
Health care technicians	71	9%
Janitorial staff	37	5%
Other	13	2%
Other staff in hospital, clinic, or health care facility (e.g., facilities support or administrative personnel)	253	31%
Patient transporter	11	1%
Personal support worker	129	16%
Prefer not to answer	2	<1%
Student	46	6%
TOTAL	807	100%

*For AUHWs, the composition of this workforce by role is unknown. Therefore, no statistical weighting was applied by role/position, only by region.

Table A6. Weighting of AUHWs, by region*

Province or territory	Unweighted sample size	Unweighted proportions	Weighted proportions
British Columbia	59	7%	14%
Alberta	76	9%	11%
Manitoba	29	4%	1%
New Brunswick	19	2%	2%
Newfoundland and Labrador	16	2%	1%
Nova Scotia	41	5%	3%
Ontario	294	36%	38%
Prince Edward Island	7	1%	1%
Quebec	64	8%	23%
Saskatchewan	202	25%	6%
TOTAL	807	99%	100%

*Given the broad cross-section of positions, a general population regional distribution-based Statistics Canada Census data was used. "[Population and dwelling counts: Canada, provinces and territories](#)". [Statistics Canada](#). February 9, 2022.

A.1.7 Non-response bias and incentives

Non-response bias is a type of bias that occurs when some members of the population do not respond to a survey or census. This can lead to the results of the survey or census being biased, as the results will not be representative of the entire population. There are several potential sources of non-response bias in the sample, including:

- **Sampling error:** This is the error that occurs when the sample is not representative of the population. This can happen if the sample is too small, or if it is not randomly selected.
- **Non-response bias:** This is the error that occurs when some members of the population do not respond to the survey or census. This can happen for a number of reasons, such as if the survey is too long or difficult, or if the respondent does not feel that their participation is important.
- **Selection bias:** This is the error that occurs when the sample is not selected in a way that gives everyone in the population an equal chance of being selected. This can happen if the sample is based on a list that is not up-to-date, or if the sample is selected from a group of people who are more likely to participate in the survey or census.

The potential sources of non-response bias in the sample were addressed in several ways, including:

- **Using a large sample size:** This helped to reduce the impact of sampling error.
- **Inviting each of the regulatory bodies associated with each group of HCPs, ALHWs and AUHWs to participate in the survey, as well as other professional member-based associations (including voluntary professional groups, industry groups and unions etc.).** The fact that so many of these organizations invited their members to participate by sending the survey link helped to ensure that the effort was there to allow for everyone in the population to have an equal chance of being selected.
- **Offering incentives for participation:** This helped to increase the participation rate. The incentives used were directly proportionate to the length of the survey and in line with comparable incentives offered by other online panel sources. For HCPs and ALHWs, incentive amounts ranged between \$50 and \$120. For ALHWs, the incentives provided were part of the general population incentive program, which is point-based. Points are earned by panelists and can be redeemed for various products.

- Weighting the data: This helped to adjust for the fact that some groups of people were more likely to respond to the survey or census than others.

These steps helped to reduce the potential for non-response bias in the sample and to ensure that the results of the survey or census were representative of the entire population.

A.1.8 Participation rate

For the survey, a non-probability sample was used. Therefore, a response rate cannot be calculated. The following table provides the case dispositions and participation rate for this online survey. The participation rate for this survey was 85.5%, and it is calculated as follows:

$$\text{Participation rate} = R/(R+IS+U).$$

Table A7. Participation rate calculation

Disposition	Calculation
Invalid cases	0
Unresolved (U)	0
In-scope non-responding (IS)	1,518
Responding units (R)	8,985
Participation rate	85.5%

Online survey cases can be broken down into four broad categories:

Invalid cases

These can include only clearly invalid cases (for example, invitations mistakenly sent to people who did not qualify for the study, incomplete or missing email addresses in a client-supplied list).

Unresolved (U)

These include all the cases where it cannot be established whether the invitation was sent to an eligible or an ineligible respondent or unit (for example, when email invitations bounce back or remain without an answer before the candidate could be qualified).

In-scope non-responding (IS)

These include all refusals, either implicit or explicit; all non-contacts and early breakoffs of known eligible cases; and other eligible non-respondents (due to illness, leave of absence, vacation or other).

Responding units (R)

These include cases who have participated but who were disqualified afterwards (for example, when admissible quotas have been reached). It also includes all completed surveys or partially completed surveys that meet the criteria set by the researcher to be included in the analysis of the data.

Unresolved (U), in-scope (IS), and responding units (R) are all included in the broad category of “potentially eligible” cases. However, invalid cases are not included in the calculation of outcome rates.

For this survey, a router was used to screen potential respondents and assign them to one of several surveys. Given this, it is not possible to estimate the number of cases “invited” to participate and whether

they were eligible or not. Therefore, it is not possible to estimate the “unresolved” cases. For this survey, responding units is broken down as follows:

Table A8. Responding units

Disposition	Unit
Disqualified	3,560
Qualified completes	5,425
Responding units (R)	8,985

The sample routing technology uses weighted randomization to assign surveys to respondents. Upon entry into the system, panelists are checked to ensure that they have not exceeded survey participation limits. A list of potential survey matches is determined for each panelist based on the information we know about them. Panelists may be asked additional screening questions within the system to ensure that they meet the project criteria. Priority may be given to surveys that are behind schedule; however, this is kept to a minimum as survey randomization must remain in place as a key element for preventing bias. In this case, limited prioritization was applied during the field window; therefore, there is a low chance of sample bias.

A.2 Qualitative methodology

The qualitative component of this research was conducted concurrently to the quantitative survey and comprised eighteen (18) in-depth interviews and four (4) online focus groups (4-8 participants in each) with HWs. Participants were all Canada-based adults aged 18 years or older. The qualitative research design was national in scope, delivered in both official languages, and additional effort was made to include equity-seeking groups—specifically, racialized and Indigenous individuals, women, and people living with a disability. A total of thirty-three (33) participants took part in the research, between May 2 and June 5, 2023.

As with the quantitative component of this research, participants were divided into three categories:

- 1. HCPs:** This category included physicians, nurses, pharmacists, occupational therapists, and physiotherapists.
- 2. ALHWs:** This category included specialized HWs, such as medical laboratory and radiation technologists, paramedics, pharmacy technicians, respiratory therapists, social workers, dietitians, or dental hygienists or assistants.
- 3. AUHWs:** This category included facility support and administrative personnel, such as patient transporters, admission or reception clerks, catering staff, or cleaning or laundry personnel.

Focus groups were arranged according to health worker categories and consisted of two groups with HCPs, one group with ALHWs, and one group with AUHWs. Interviews were conducted across all three health worker categories. Further screening was conducted to include participants from a range of backgrounds as shown in the table below.

Table A9. Profile of qualitative participants

Variable	# of participants
Vaccination status	
Fully vaccinated (received at least primary series)	30
Partially vaccinated (received one dose of primary series – not including Johnson & Johnson single dose vaccine)	1
Unvaccinated	2
Province	
Alberta	7
British Columbia	5
Manitoba	1
Nova Scotia	2
Ontario	10
Quebec	6
Saskatchewan	2
Type of equity-seeking group	
Racialized	17
Indigenous	1
Women	25
Living with a disability	1
Health worker category	
HCPs	18
ALHWs	9
AUHWs	6
Attitudinal group	
Vaccine Confident	8
Vaccine Supporter	7
Vaccine Hesitant	8
Mandate-Driven Vaccinees	8
Unvaccinated	2
Age group	
18-34 years	7
35-44 years	10
45-54 years	10
55-64 years	6

*Note: Some participants were members of multiple equity-seeking groups; therefore, the numbers shown in the table above will not equal the total number of qualitative participants.

Recruitment took place through various channels, given the complexity of the sample required for this research. HCPs and ALHWs were recruited through our recruiters' established HCP qualitative panel, and

auxiliary HWs were recruited from the general population qualitative panels. All panel suppliers uphold stringent approved guidelines for conducting market research. Recruitment for this research was subcontracted to Decision Point, with whom Ipsos has a long-standing relationship. They have extensive experience in recruiting HWs and maintain a qualitative panel of 2,000 physicians. Additionally, the quantitative survey included a recontact question, allowing for anyone identified as unvaccinated to be recruited for participation in mini-group discussions and/or interviews. Participants were recruited according to the Standards for the Conduct of Government of Canada Public Opinion Research – Qualitative Research.

Online fieldwork was necessary, given the national scope of this project and the importance of obtaining perspectives from diverse and geographically dispersed participants. Discussions were hosted on MS Teams and lasted 60 minutes in the case of in-depth interviews and 90 minutes in the case of focus groups. Arrangements were made for the PHAC and Health Canada teams to view a subset of the sessions. For sessions with participant consent, focus groups were recorded and transcribed. The discussion guide was created in collaboration with the PHAC and Health Canada team.

Ipsos provided an honorarium to participants to attend in-depth interviews or focus groups in order to encourage full attendance and engagement. Incentives differed based on category of health worker (e.g., HCPs, ALHWs and AUHWs), as well as based on whether they were attending a focus group or an in-depth interview, given the varying levels of difficulty in securing the participation of these individuals. For HCPs, incentive amounts ranged between \$225 and \$600 for in-depth interviews and between \$350 and \$750 for focus groups. For ALHWs, incentives were \$225 for in-depth interviews and \$350 for focus groups. For AUHWs, incentives were \$150 for in-depth interviews and \$200 for focus groups.

It should be noted that the qualitative findings are intended to reveal a range of opinions and interpretations. Qualitative findings should not be extrapolated to the broader population, as they are not statistically projectable.

A.3 Quantitative survey instrument

The Government of Canada is conducting this research study among HWs in Canada. The Centre for Immunization Surveillance (CIS) of the Public Health Agency of Canada (PHAC) and Health Canada are seeking your participation in a survey with HWs in Canada on COVID-19 vaccine effectiveness. Ipsos has been hired to administer the survey.

Si vous préférez répondre au sondage en français, cliquez sur « English » dans le menu déroulant des langues au coin supérieur droit de la page.

The survey takes about 15 minutes, and your participation is voluntary and confidential. Your answers will not be used to identify you individually and the information you provide will be administered according to the requirements of the Privacy Act, the Access to Information Act, and any other pertinent legislation. Click here to view our privacy policy. If you need an alternative means of accessing the survey, please email surveyqueries@ipsos.com.

For more information about this study and how any personal information collected in this survey is handled, please visit the study's FAQs and Privacy notice website. **[POP-UP IN A NEW BROWSER WINDOW]**.

Privacy Notice

The personal information you provide to the Public Health Agency of Canada is governed in accordance with the Privacy Act and is being collected under the authority of Section 4 of the Department of Health Act in accordance with the Treasury Board Directive on Privacy Practices. We only collect the information we need to conduct the research project.

Purpose of collection: We require your personal information such as demographic information to better understand the topic of the research. Your responses are always combined with the responses of others for analysis and reporting; you will never be directly identified. However, it's possible the responses you provide could be used alone, or in combination with other available information, to identify you. The protection of your personal information is very important to us, and we will make every effort to safeguard it and reduce the risk that you are identified.

You have a right to complain to the Privacy Commissioner of Canada if you feel your personal information has been handled improperly. For more information about these rights, or about how we handle your personal information, please contact the ve.covid-19.ev@phac-aspc.gc.ca.

To verify the authenticity of this survey, please visit
<https://www.canadianresearchinsightscouncil.ca/rvs/home/>

and enter the project code: 20230315-IP400 **[POP UP IN NEW BROWSER WINDOW]**

This research is sponsored by the Public Health Agency of Canada. Note that your participation will remain completely confidential, and it will not affect your dealings with the Government of Canada, including the Public Health Agency of Canada, in any way.

PS1. How old are you?

____ years

1. Prefer not to answer

[IF < 18 THANK AND TERMINATE]

[IF PREFER NOT TO ANSWER (PS1 =1) ASK PS2 OTHERWISE SKIP TO PS3]

PS2. Would you be willing to indicate in which of the following age categories you belong? Please select one only.

1. Under 18 **[TERMINATE]**
2. 18 to 29
3. 30 to 39
4. 40 to 49
5. 50 to 59
6. 60 to 69
7. 70 to 79
8. 80 or older
9. Prefer not to answer

PS3. What is your province or territory of residence? Please select one only.

1. Alberta
2. British Columbia
3. Manitoba
4. New Brunswick
5. Newfoundland and Labrador
6. Northwest Territories
7. Nova Scotia
8. Nunavut
9. Ontario
10. Prince Edward Island
11. Quebec
12. Saskatchewan
13. Yukon
14. Outside of Canada [TERMINATE]
15. Prefer not to answer

PS4. Are you currently employed as a Health Worker in Canada?

A Health Worker is any staff within the health care system. This includes paid work of at least 20 hours per week.

The definition includes physicians, nurses, allied and auxiliary health worker such as: community care and hospital staff (personal support workers, cleaning or laundry personnel, patient transporters, catering staff, medical waste handlers etc.)

1. Yes
2. No

PS5. Were you employed as a Health Worker during the COVID-19 pandemic from 2020-2023 in Canada?

A Health Worker is any staff within the health care system. This includes paid work of at least 20 hours per week.

The definition includes physicians, nurses, allied health professionals, and auxiliary health workers such as: community care and hospital staff (personal support worker, cleaning or laundry personnel, patient transporters, catering staff etc.).

1. Yes
2. No [TERMINATE]

PS6. In what capacity were you employed in the “Health Worker” industry in Canada during COVID-19 (from 2020-2023)?

If you were employed in more than one different position, please tell us the one you worked in the most during this time. Please select one from the list below.

1. Admission/reception clerks [AUX]

2. Catering staff [AUX]
3. Cleaning or laundry personnel [AUX]
4. Dental assistant [ALLIED]
5. Dental hygienist [ALLIED]
6. Dentist [ALLIED]
7. Dietitian [ALLIED]
8. Health care technicians [AUX]
9. Janitorial staff [AUX]
10. Medical laboratory technologist [ALLIED]
11. Medical radiation technologist [ALLIED]
12. Medical waste handler [AUX]
13. Midwife [ALLIED]
14. Nurse [HCP]
 - a. Licensed practical nurse
 - b. Nurse practitioner
 - c. Registered nurse
 - d. Registered psychiatric nurse
15. Occupational therapist [HCP]
16. Optometrist [ALLIED]
17. Paramedic [ALLIED]
18. Patient transporter [AUX]
19. Personal Support Worker [ALLIED/AUX]
20. Pharmacist [HCP]
21. Pharmacy technician [ALLIED]
22. Physician [HCP]
 - a. General/Family Physician
 - b. Specialist Physician
23. Physiotherapist [HCP]
24. Psychologist [ALLIED]
25. Respiratory therapist [ALLIED]
26. Social worker [ALLIED]
27. Student [AUX]
28. Other auxiliary staff (specify) [AUX]
29. Other staff in hospital, clinic, or health care facility (e.g., facilities support or administrative personnel) [AUX]
30. Other (specify) [AUX]
31. Prefer not to answer [**TERMINATE**]

PS8. Between 2020-2023 in what departments, wards, or parts of your health facility did you regularly work? Please select all that apply.

1. Hospital Emergency Department
2. Hospital Critical Care or Intensive Care Unit
3. Infectious Diseases
4. Lung Diseases
5. Internal Medicine and/or Medical Specialties
6. Pediatrics and/or Pediatric Specialties
7. Surgery and/or Surgical Specialties

8. Gynecology and/or Obstetrics
9. Oncology and/or Hematology
10. Dentistry
11. Radiology
12. Outpatient Clinic
13. Pharmacy
14. Laboratory
15. Nutrition
16. Social Assistance
17. Physiotherapy
18. Occupational Therapy
19. Other department or ward, please specify:
20. [exclusive] None of the above

PS9. Between 2020-2023 with which groups of patients did you have regular face-to-face contact? Please select all that apply.

1. Infants aged <1 year
2. Children aged 1-11 years
3. Teenagers aged 12-17
4. Adults aged 18-59
5. Older adults aged ≥60
6. [exclusive] None of the above

PS10. Which setting best describes your current workplace? Please select all that apply.

1. Hospital setting
2. Clinic setting
3. Community setting
4. Older Adult Care Facility setting
5. Telehealth
6. Academic Health Science Centre (AHSC)
7. Other in health care, please specify _____
8. Other not in the health care sector
9. Prefer not to answer [EXCLUSIVE]

PS11. What is your current COVID-19 vaccination status? Please select one only.

1. Completed primary vaccine series and 2 additional doses/second booster: 4 doses total or more
2. Completed primary vaccine series and 1 additional dose/first booster: 3 doses total
3. Completed primary series: received a second dose in a 2-dose series: 2 doses total
4. Completed primary series: 1-dose vaccine series (Janssen (Johnson & Johnson))
5. Partially vaccinated: received the first vaccine dose in a 2-dose series
6. Unvaccinated: didn't receive any COVID-19 vaccine
7. Ineligible for any COVID-19 vaccine: didn't receive any COVID-19 vaccine for medical reason
8. Prefer not to answer

The next few questions are about your experiences with vaccination against COVID-19. COVID-19 is a disease caused by the coronavirus (SARS-CoV-2) that was first identified in Canada in January 2020. COVID-19 was declared a global pandemic in March 2020.

Remember that all the information you provide is not linked to your name or any other directly identifying information and will be kept confidential.

If necessary, please refer to your Provincial Vaccination Certification for verification details to answer the following questions.

[DO NOT SHOW] COVID-19 Status (CS)

B1: Since January 2020, do you think you have had a SARS-CoV-2 infection?

1. Yes
2. No
3. Do not know
4. Prefer not to answer

[IF YES CONTINUE, OTHERWISE SKIP TO INFO SCREEN BEFORE B11]

B3. Since January 2020, how many separate times, have you had or think you had the SARS-CoV-2 infection?

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6+
7. Prefer not to answer

[IF PREFER NOT TO ANSWER, SKIP TO INFO SCREEN BEFORE B11]

[RECORD 1 AS "first"]

[RECORD 2 AS "second"]

[RECORD 3 AS "third"]

[RECORD 4 AS "fourth"]

[RECORD 5 AS "fifth"]

[RECORD 6+ AS "6+"]

[LOOP QUESTIONS ARE B4_1, B4_2 B4_4, B4_5, # OF LOOPS BASED ON RESPONSE TO B3, MAXIMUM NUMBER OF LOOPS 5]

B4_1. When was your < INSERT FROM B3 > SARS-CoV-2 infection or suspected infection? Please select one only.

1. Before July 31, 2021
2. August 1, 2021, to Dec 14, 2021
3. Dec 15, 2021, to June 30, 2022

4. July 1, 2022, to present
5. Prefer not to answer

B4_2. How ill did you feel during your < INSERT FROM B3 > SARS-CoV-2 infection or suspected infection?
Please select one only.

1. No symptoms / asymptomatic or pre-symptomatic
2. Manageable symptoms
3. Seriously ill, but not requiring hospitalization
4. Severe illness (requiring hospitalization)
5. Critical illness (life-threatening)
6. Do not remember
7. Prefer not to answer

B4_4. During your < INSERT FROM B3 > SARS-CoV-2 infection or suspected infection, did you receive a positive test for COVID-19?

There are two common types of COVID-19 tests. The first is a PCR test, often used in health care settings, that is sent to a lab and produces the most accurate result. The second type is a rapid antigen test, often called a rapid test, which produces a result within minutes.

1. Yes [RECORD AS CONFIRMED CASE]
2. No [RECORD AS SUSPECTED CASE]
3. Don't remember [RECORD AS SUSPECTED CASE]
4. Don't know [RECORD AS SUSPECTED CASE]
5. Prefer not to answer

[IF B4_4=Yes, CONTINUE, OTHERWISE SKIP TO NEXT LOOP OR END OF LOOP]

B4_5. What type of test was performed for your < INSERT FROM B3 > SARS-CoV-2 infection or suspected infection? Please select one only.

1. PCR (Nasal Swab)
2. Rapid Test (Nasal Swab)
3. Serology Test (Blood test)
4. Xray or CT scan
5. Don't remember
6. Prefer not to answer

[END LOOP - MAX 5 ITERATIONS]

[IF ALL LOOPS OF B4_2 =NO SYMPTOMS /ASYMPTOMATIC OR PRE-SYMPTOMATIC (IF B4_2. =1) SKIP TO INFO SCREEN BEFORE B11, OTHERWISE CONTINUE]

B5. Do you think you had or currently have long COVID?

Long COVID or post-COVID condition is defined as the continuation or development of new symptoms 3 months after the initial SARS-CoV-2 infection, with these symptoms lasting for at least 2 months with no other explanation (including but not limited to shortness of breath, cognitive dysfunction (brain fog), as well as fatigue).

1. Yes
2. No
3. Don't know
4. Prefer not to answer

SHOW INTRO TEXT IF PS11 = 1-5

The following questions are about which COVID-19 vaccines you received and at what times.

[IF PS11= 1 -5 CONTINUE OTHERWISE SKIP TO C2]

[IF PS11= CODE 1 LOOP 4 TIMES, <first, second, third, fourth >]

[IF PS11= CODE 2 LOOP 3 TIMES <first, second, third >]

[IF PS11= CODE 3 LOOP 2 TIMES <first, second >]

IF PS11= CODE 4 ONE SET OF THE LOOP <first>]

IF PS11= CODE 5 ONE SET OF THE LOOP <first>]

[LOOP QUESTIONS ARE B11, B11A, B12, B13, # LOOPS BASED ON RESPONSE TO PS11. MAX 4 LOOPS]

B11. What was the date of your < INSERT LOOP > COVID-19 vaccination? If you do not know the exact date, please provide your best guess.

1. Exact date: (YYYY/MM/DD) [YEAR] [MONTH] [DAY]
2. Best guess: (YYYY/MM/DD) [YEAR] [MONTH] [DAY] [DAY OPTIONAL]
3. Can't recall **[EXCLUSIVE]**

[when B11 is looped, prevent respondents from entering a date that is older than or same as the previous exact date they entered.]

[IF CAN'T RECALL (B11=3), CONTINUE, OTHERWISE TO B11.A]

B11A. Please indicate the time period of your < INSERT LOOP > COVID-19 vaccination? Please select one only.

1. Before July 31, 2021
2. August 1, 2021, to Dec 14, 2021
3. Dec 15, 2021, to June 30, 2022
4. July 01, 2022, to present
5. Can't recall
6. Prefer not to answer

B12. Which vaccine did you receive for your < INSERT LOOP > vaccination? Please select one only.

1. AstraZeneca Vaxzevria
2. Janssen Jcovden (Johnson & Johnson)
3. Pfizer-BioNTech Comirnaty Monovalent (original)
4. Pfizer-BioNTech Comirnaty Bivalent (BA.1)
5. Pfizer-BioNTech Comirnaty Bivalent (BA.4/BA.5)
6. Moderna Spikevax Monovalent (original)
7. Moderna Spikevax Bivalent (BA.1)
8. Moderna Spikevax Bivalent (BA.4/BA.5)
9. Medicago Covifenz
10. Novavax Nuvaxovid
11. Can't recall
12. Prefer not to answer

B13. Were you infected with COVID-19 **14 days or more** after receiving your < INSERT LOOP > vaccination?

1. Yes
2. No
3. [KEEP ORDER] [exclusive] Can't recall
4. [KEEP ORDER] [exclusive] Prefer not to answer

[END LOOP. MAX 4 LOOPS]

[IF PS11= 1-5 CONTINUE, IF PS11 =7 OR 8 SKIP TO C7, IF PS11= 6 TO C2]

C1. What were your reasons for getting the COVID-19 vaccine? Please select all that apply.

[RANDOMIZE ORDER]

1. To protect myself and/or family or household members from SARS-CoV-2 infection
2. Based on public health recommendations
3. Because I am directly involved in the pandemic response in a health care setting
4. It was required to maintain my job / continue my employment
5. To prevent the spread of COVID-19 in my community
6. To reduce the stress on the health care system
7. I am at risk for more severe outcomes from SARS-CoV-2 infection because of a health condition and/or disability
8. The COVID-19 vaccine was recommended by a health care professional
9. I was directly or indirectly encouraged to get vaccinated by family members, colleagues, or friends
10. The COVID-19 vaccine was available and offered
11. For travel purposes
12. [KEEP ORDER] Other, please specify: _____
13. [KEEP ORDER] [exclusive] Do not know
14. [KEEP ORDER] [exclusive] Prefer not to answer

[IF PS11= 6 CONTINUE OTHERWISE SKIP TO C7]

C2. Did you refuse to get a COVID-19 vaccine?

1. Yes
2. No
3. Prefer not to answer

C4. For what reason(s) have you not been vaccinated against COVID-19? Please select all that apply.

[RANDOMIZE ORDER]

1. I do not think mRNA COVID-19 vaccines (Pfizer-BioNTech or Moderna) would do any good
2. I do not think I am at risk of getting COVID-19 or at risk of severe effects from SARS-CoV-2 infection
3. I would like to have more discussion about COVID-19 vaccines with my health care provider
4. I have concerns about the effectiveness of COVID-19 vaccines
5. I have concerns about the safety of mRNA COVID-19 vaccines
6. I lack confidence in Canada's regulatory and informational systems for immunization (e.g., Health Canada, Public Health Agency of Canada, National Advisory Committee on Immunization)
7. I have concerns about the long-term side effects of COVID-19 vaccines
8. I have concerns about short-term side effects of COVID-19 vaccines
9. I had a bad experience or reaction with previous vaccination (e.g., severe vaccine adverse effects)
10. I heard or read negative media (e.g., on social media, blogs, forums) about the mRNA COVID-19 vaccines
11. I did not know where to get good/reliable information about the mRNA COVID-19 vaccines
12. I have concerns about stigma, racism, or discrimination from the health care system
13. I have concerns surrounding the frequency of injections and vaccine schedules
14. I have religious or spiritual reasons
15. I am concerned that it will affect my fertility
16. I am pregnant or planning to become pregnant/breastfeeding and I am afraid of the effects on my baby
17. I don't like needles/injections
18. I have already had COVID-19 so I do not need a vaccine
19. I don't trust the people who have developed the mRNA COVID-19 vaccines
20. The impact of SARS-CoV-2 infection is being greatly exaggerated
21. People who did not believe in getting vaccinated against COVID-19 offered reasons that made sense to me
22. I reject being mandated/obligated to get vaccinated
23. [KEEP ORDER] Other, please specify: _____
24. [KEEP ORDER] [exclusive] Do not know
25. [KEEP ORDER] [exclusive] Prefer not to answer

[ASK C7 TO ALL RESPONDENTS]

C7. To what extent were you hesitant about whether or not to get vaccinated against COVID-19?

For this survey, being hesitant refers to a delay or reluctance in your decision to get vaccinated or not to get vaccinated as soon as the vaccine was available and convenient for you to receive it.

1. Very hesitant
2. Somewhat hesitant

3. Not very hesitant
4. Not at all hesitant
5. Do not know
6. Prefer not to answer

[IF PS11 = 6-8 CONTINUE, IF PS11 =5 SKIP TO C10, OTHERWISE SKIP TO C11]

C9. Do you plan on getting vaccinated against COVID-19 in the future?

Yes

No

Do not know

Prefer not to answer

[IF PS11 = 5 CONTINUE, OTHERWISE SKIP TO C11]

C10. Do you plan on receiving a second dose of the COVID-19 vaccine in the future?

1. Yes
2. No
3. Do not know
4. Prefer not to answer

[IF PS11 = 1-4 CONTINUE, OTHERWISE SKIP TO C12]

C11. Do you plan on receiving a booster (additional) dose of a COVID-19 vaccine in the future?

1. Yes
2. No
3. Do not know
4. Prefer not to answer

C12. Did you receive a 2022 seasonal influenza vaccination?

1. Yes
2. No
3. Do not know
4. Prefer not to answer

[ASK TO ALL]

C13. Please indicate your level of agreement with the following about COVID-19.

1. I am at high personal risk of getting a SARS-CoV-2 infection in the future
 2. I am likely to get COVID-19 if I do not get vaccinated
 3. Health workers are at greater risk than the general public of contracting COVID-19
 4. SARS-CoV-2 infection may cause serious health problems
 5. The thought of getting COVID-19 scares me
-
- a) Strongly agree
 - b) Somewhat agree

- c) Somewhat disagree
- d) Strongly disagree
- e) Do not know
- f) Prefer not to answer

[ASK TO ALL]

C14. People have many viewpoints on vaccines and their effectiveness or necessity. Please indicate your level of agreement with the following.

To cover the many issues and views on this topic you will see 25 agree/disagree statements. This is a key part of the survey. Please answer all 25 statements. After that, the survey is almost complete.

[GRID ROWS] – RANDOMIZE ORDER

1. I believe in immunizations, in general vaccines are safe and effective
2. COVID-19 vaccines are safe and effective
3. You cannot get a SARS-CoV-2 infection from the vaccine
4. The benefits of the COVID-19 vaccine outweigh the risk of side effects
5. Vaccination is a safer way to build immunity against COVID-19 than getting infected
6. I believe that I don't need to be vaccinated against COVID-19 if I got infected with it already
7. mRNA COVID-19 vaccines do not change my DNA
8. Public health measures are important to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask, etc.)
9. COVID-19 vaccination should be a requirement in school settings and/or any setting with a large group of children (e.g., daycare, sports venues)
10. I have access to enough trustworthy information about COVID-19 vaccines to make an informed decision
11. Additional/booster (more than 2) doses are important to be administered to stay protected against the virus
12. People close to me think it is important for me to be vaccinated against COVID-19
13. If I get vaccinated against COVID-19, then I will be less likely to infect patients
14. If I get vaccinated against COVID-19, then I will be less likely to infect family members
15. Getting the COVID-19 vaccine will decrease the spread of COVID-19
16. All health workers should be vaccinated against COVID-19
17. The prospect of losing my employment played a role in my decision to get vaccinated or not
18. I get sick with influenza and other respiratory viruses more easily than other people of my age
19. Employees at my health care facility are encouraged to go home if they have respiratory symptoms at work.
20. The risk of severe effects from SARS-CoV-2 infection for me is low
21. COVID-19 vaccines are safe for people who are pregnant/want to conceive children in the future
22. Spiritual or ethical reasons played a role in my decision to get vaccinated or not
23. I follow all public health measures to prevent and/or reduce the spread of COVID-19 (e.g., physical distancing, wearing a mask, etc.)
24. I lack confidence in Canada's regulatory and informational systems for immunization (e.g., Health Canada, Public Health Agency of Canada, National Advisory Committee on Immunization)

25. I trust the information from the federal government about COVID-19 vaccines

[GRID COLUMNS]

- a) Strongly agree
- b) Somewhat agree
- c) Somewhat disagree
- d) Strongly disagree
- e) Do not know
- f) Prefer not to answer

C15. Which of the following sources of information are you most likely to consult to get information about COVID-19 vaccines? Please select up to three (3) main sources.

[RANDOMIZE ORDER]

1. Information from my employer
2. Information from my union
3. Government sources
4. Expert sources such as the Centers for Disease Control and Prevention (CDC), or National Advisory Committee on Immunization (NACI) etc.
5. Scientific literature, such as published or preprint studies
6. Traditional media/news programming (ex. television, news websites)
7. Information found on social media/social networking (ex. Facebook, Instagram)
8. Family and friends
9. **[KEEP ORDER]** Other: Please specify
10. **[KEEP ORDER]** **[exclusive]** Do not know
11. **[KEEP ORDER]** **[exclusive]** Prefer not to answer

[ASK TO ALL]

D5. Do you self-isolate when you have been or think you have been exposed to COVID-19?

1. Always
2. Often
3. Occasionally
4. Never
5. Only when mandated
6. Not possible
7. Prefer not to answer

The following are some background and sociodemographic questions. Please be assured that all the information collected throughout this survey is not linked to any directly identifying information and will be kept confidential.

A1. Please indicate your sex assigned at birth. Please select one only.

1. Male
2. Female
3. Prefer not to answer

A2. What is your gender identity? Please select one only.

Gender refers to your current gender which may be different from sex assigned at birth and may be different from what is indicated on legal documents. As a reminder, please do not type any information that may lead to identification such as your name or contact information.

1. Woman (cis-gender female; my sex assigned at birth is the same as my current gender)
2. Man (cis-gender male; my sex assigned at birth is the same as my current gender).
3. Non-binary
4. Transgender woman
5. Transgender man
6. Two-spirit/bi-spirit
7. Another gender, please specify:
8. Prefer not to answer

A3. Which of the following best describes where you live? Please select one only.

A remote area includes remote isolated (no scheduled flights or road access and with minimal telephone or radio service) through to non-isolated remote (geographical area where a community is located over 90 km from the nearest health service centre (doctor, hospital, clinic and/or other health services having year-round access by land and/or water)).

1. 1,000,000 people or more
2. 100,000 people to 1,000,000 people
3. 1,000 to 100,000 people
4. Rural (<1,000 people), but not remote
5. Rural (<1,000 people), and remote
6. Prefer not to answer

[ASK TO ALL]

A4. What is the highest level of formal education you have completed? Please select one only.

1. Less than a high school diploma or equivalent
2. High school diploma or equivalent
3. Registered apprenticeship or other trade certificate or diploma
4. College/CEGEP or other non-university certificate or diploma
5. University certificate or diploma below bachelor's level
6. University – bachelor's degree or equivalent
7. University – post-graduate degree above bachelor's level or equivalent
8. Other, please specify: _____
9. Prefer not to answer

A5. Between 2020-2023 what is the maximum number of people who reside(d) in your household, including yourself? [SCRIPTER: ALLOW ANSWERS OF 1-20]

-
1. Prefer not to answer

A6. Do you identify as an Indigenous person? Please select all that apply.

1. First Nations (includes status and non-status individuals)

2. Métis
3. Inuit (Inuk)
4. Native American/North American Indian (U.S.)
5. Other Indigenous
6. [exclusive] No, I do not identify as an Indigenous person
7. [exclusive] Prefer not to answer

A7. Which of the following best describes the racial or ethnic community that you belong to? We recognize this list of racial or ethnic identifiers may not exactly match how you would describe yourself. Please select all that apply.

ASIAN

- East Asian - Chinese
- East Asian - Japanese
- East Asian - Korean
- Southeast Asian - Filipino
- Southeast Asian - Vietnamese, Cambodian, Laotian, Thai
- South Asian (e.g., Indian, Pakistani, Sri Lankan)
- Asian Caribbean (e.g., Guyanese, Trinidadian)
- European (e.g., British, French, Spanish, Portuguese)
- Another (please specify)

BLACK

- African (e.g., Ghanaian, Kenyan, Somali)
- Caribbean (e.g., Haitian, Barbadian, Jamaican, Grenadian)
- European (e.g., British, French, Spanish, Portuguese)
- North American (e.g., Canadian, American)
- South and Central American (e.g., Brazilian, Panamanian)
- Another (please specify)

LATIN AMERICAN/HISPANIC

- Caribbean (e.g., Cuban, Haitian)
- North American (e.g., Mexican)
- Central American (e.g., Honduran)
- European (e.g., Spanish, Portuguese)
- South American (e.g., Brazilian, Argentinian, Chilean)
- Another (please specify)

MIDDLE EASTERN/NORTH AFRICAN/WEST/SOUTHWEST ASIAN

- North African (e.g., Egyptian, Libyan, Moroccan)
- Middle Eastern (e.g., Iraqi, Syrian, Jordanian, Lebanese)
- West Asian (e.g., Iranian, Afghan)
- Another (please specify)

WHITE

- European (e.g., British, French, Polish, Russian)
- North American (e.g., Canadian)
- South American (e.g., Brazilian, Argentinian, Chilean)
- Oceania (e.g., Australian, New Zealand)
- African (e.g., South Africa)

- Another (please specify)

OTHER RESPONSES

- Another (please specify) _____
- None of the above [EXCLUSIVE]
- Prefer not to answer [EXCLUSIVE]

A12. Do you have any chronic health condition?

1. Yes
2. No

[IF A1=2 FEMALE CONTINUE, OTHERWISE SKIP TO A14]

A13. Are you currently pregnant?

1. Yes
2. No
3. Do not know
4. Prefer not to answer

[IF “YES” CONTINUE, OTHERWISE SKIP TO D5]

A14. Which trimester are you currently in?

1. 1
2. 2
3. 3
4. Do not know
5. Prefer not to answer

RECONTACTQ. The research study involves more than just this survey. Qualitative group discussions and conversation-style interviews are also being conducted.

If you would like to be invited to participate in either of these, please complete the information below so we can re-contact you for this purpose.

By consenting to be re-contacted, and providing re-contact information such as your name, email address and telephone number, it may be possible for Ipsos to link your responses to you. Ipsos assures your responses will remain confidential and Ipsos will not provide raw, identifiable data, such as your name, email address or telephone number to other organizations including Health Canada or the Public Health Agency of Canada. It will not be possible to identify any particular individual in the results.

Do you consent to be re-contacted?

1. I consent
2. I do not consent

ASK IF RECONTACTQ =1

CONTACTINFO

As you consented to be re-contacted, please provide your name, surname, preferred contact email address and phone number.

First name _____

Last name _____

Email address _____

Please re-enter your email address _____

Phone number _____

Please re-enter your phone number _____

PRETESTQ. Did you have any difficulty answering any questions in this survey? If so, which one(s).

1. Yes [TEXT BOX]
2. No

PRETESTQ2.

If you have any general comments about your experience of completing this survey and any improvements we can make, please write them in the box below.

[TEXT BOX]

I have no general comments

This is the end of the survey. On behalf of the Public Health Agency of Canada, we would like to thank you for participating in this survey.

Your responses will provide invaluable and insightful information about immunization coverage in Canada

A.4 Qualitative recruitment screener

Hello, my name is _____ from Ipsos, a national market research and public opinion firm. We are conducting a research study with health care workers in Canada. The research is being commissioned on behalf of Health Canada.

This study will involve participation in an interview lasting approximately 45-60 mins, or a focus group discussion, lasting approximately 90 minutes. The interview/mini focus group will be held online on [INSERT DATE] at [INSERT TIME]. If you qualify and are able to attend the interview/mini focus group, you will receive an honorarium ranged between \$225 and \$600 for our appreciation for your time.

Would you be interested in participating in this research?

Yes CONTINUE

No THANK AND TERMINATE

I would like to ask you a few questions to determine if you qualify for the research study. I promise that I have absolutely nothing to sell you.

***IF ASKED:**

The personal information you provide is protected in accordance with the Privacy Act and is being collected under the authority of section 4 of the Department of Health Act and section 3 of the Public Health Agency of Canada Act. The information you provide will not be linked with your name on any document including the consent form or the discussion form. In addition to protecting your personal information, the Privacy Act gives you the right to request access to and correction of your personal information. You also have the right to file a complaint with the Office of the Privacy Commissioner if you feel your personal information has been handled improperly. For more information about these rights, or about our privacy practices, *please contact Health Canada's Privacy Coordinator at [TELEPHONE NUMBER] or [EMAIL].*

HEALTH CARE WORKER ELIGIBILITY SCREENING

1. Were you employed in the health worker industry during the COVID-19 (2020-2022) pandemic? A Health Worker (HW) is broadly defined as all staff in the health care system, whose work actions primary intent is to improve health. Includes paid work of at least 20 hours per week.

The definition includes physicians, nurses, allied health professionals, and AUHWs such as: community care and hospital staff (personal support workers, cleaning or laundry personnel, patient transporters, catering staff, medical waste handlers etc.)

Yes **THANK & TERMINATE**

No **CONTINUE**

2. In what capacity were you employed in the health worker industry during the COVID-19 (2020-2022) pandemic?

Physician - General/Family physician	QUALIFIES AS HEALTH CARE PROFESSIONAL CATEGORY
Physician – Specialist	
Licensed practical nurse	
Nurse practitioner	
Registered nurse	
Registered psychiatric nurse	
Physiotherapist	
Pharmacist	
Occupational therapist	
Dental assistant	QUALIFIES AS ALHWS CATEGORY
Dental hygienist	
Dentist	
Dietitian	
Medical laboratory technologist	
Medical radiation technologist	
Midwife	
Optometrist	
Paramedic	
Pharmacy technician	
Psychologist	
Respiratory therapist	
Social worker	
Personal Support Worker	
Other staff in hospital, clinic, or health care facility (e.g., Facilities or administrative personnel)	QUALIFIES AS AUHWS CATEGORY
Other: WRITE IN	THANK & TERMINATE

CHECK QUOTAS AND RECRUIT AS PER RECRUITMENT TABLE

IF PERSONAL SUPPORT WORKER OR FACILITIES/ADMINISTRATIVE PERSONNEL CODED AT Q2 ASK Q3, OTHERS SKIP TO Q4

3. Which of the following settings did you work in during the COVID-19 (2020-2022) pandemic?

In a hospital

In a long-term care home

In an individual/community clinic/setting

QUALITY SCREENING QUESTIONS

4. Have you participated in a market research study in the past six months?

Yes **THANK & TERMINATE**

No **CONTINUE**

5. How many focus groups or in-depth interviews have you attended in the past five years?

THANK & TERMINATE IF MORE THAN 4

DEMOGRAPHIC QUESTIONS

It is important that our study captures views of health workers from different backgrounds. So, I have some questions about who you are.

6. Can I take your age?

Under 18 **THANK & TERMINATE**

18 – 34

35 – 44

45 – 54

55 – 64

65 and over

RECRUIT MIX ON AGE

7. What is your province or territory of residence?

Alberta

British Columbia

Manitoba

New Brunswick

Newfoundland and Labrador

Northwest Territories

Nova Scotia

Nunavut

Ontario

Prince Edward Island

Quebec

Saskatchewan

Yukon

Outside of Canada **THANK AND TERMINATE**

Prefer not to answer **THANK AND TERMINATE**

CHECK SPECIFICATION FOR QUOTAS AND RECRUIT ACCORDINGLY

8. Do you identify as First Nations, Métis and/or Inuk (Inuit)?

Yes - First Nations (includes status and non-status individuals)

Yes - Métis

Yes - Inuk (Inuit)

Yes - Multiple Indigenous Identities

No

Prefer not to answer

IF YES TO INDIGENOUS AT Q.8 SKIP TO Q.10, OTHERS ASK Q.9

9. Which of the following best describes the racial or ethnic community that you belong to? We recognize this list of racial or ethnic identifiers may not exactly match how you would describe yourself. Please select all that apply to you.

Black (African, Afro-Caribbean, African descent)

East/Southeast Asian (e.g., Chinese, Korean, Japanese, Taiwanese, Filipino, Vietnamese, Cambodian, Thai, Indonesian, other East/Southeast Asian descent)

Latino/Latina (e.g., Latin American, Hispanic descent)

Middle Eastern and North African (e.g., Arab, Algerian, Egyptian, West Asian descent (e.g., Iranian, Israeli, Lebanese, Turkish, Kurdish, etc.))

South Asian (e.g., Afghan, Indian, Pakistani, Bangladeshi, Sri Lankan, etc.)

White European

Other, please specify: _____

Prefer not to answer

10. What is your gender? Gender refers to your current gender which may be different from sex assigned at birth and may be different from what is indicated on legal documents.

Woman

Man

Transgender

Two-spirit

Prefer to self-describe: _____

Prefer not to answer

VACCINE STATUS

The discussions will partly focus on opinions toward the COVID-19 vaccines. Again, it is very important for us to speak to HCPs with a variety of opinions on the issue. I want to remind you that your responses will remain confidential and used for research purposes only. We will not be sharing your answers with anyone outside of the Ipsos research team.

11. To what extent were you hesitant about whether to get vaccinated against COVID-19?

In this case, being hesitant refers to a delay or reluctance in your decision to get vaccinated or not to get vaccinated as soon as the vaccine was available and convenient for you receive it.

Very hesitant

Somewhat hesitant

Not very hesitant

Not at all hesitant

Do not know

Prefer not to answer

AUTOMATICALLY ELIGIBLE AS HESITANT IF PARTICIPANT ANSWERS: VERY HESITANT, SOMEWHAT HESITANT, OR NOT VERY HESITANT. CHECK SPECIFICATIONS FOR QUOTAS AND RECRUIT ACCORDINGLY.

12. To what extent do you agree or disagree with the following statements.

a) COVID-19 vaccines are safe

b) COVID-19 vaccines are effective

c) I believe that I do not need to be vaccinated against COVID-19 if I got infected with COVID-19 already

d) I have access to enough trustworthy information about COVID-19 vaccines to make an informed decision

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

Don't know

ELIGIBLE AS HESITANT IF FOR A MIN OF 3 STATEMENTS (A-D) PARTICIPANT CODES NEITHER AGREE NOR DISAGREE OR SOMEWHAT/STRONGLY DISAGREE. FOR ITEM C, PARTICIPANTS SHOULD CODE NEITHER AGREE NOR DISAGREE OR SOMEWHAT/STRONGLY AGREE AND THIS CAN COUNT TOWARD MIN OF 3 ITEMS.

13. Is there a medical or health reason that prevents you from taking a COVID-19 vaccine?

Yes, **THANK AND TERMINATE**

No **CONTINUE**

14. What is your current COVID-19 vaccination status?

Completed primary vaccine series and 2 additional doses/second booster: 4 doses total or more

Completed primary vaccine series and 1 additional dose/first booster: 3 doses total

Completed primary series: received of a second dose in a 2-dose series: 2 doses total

Completed primary series: 1-dose vaccine series ((Janssen (Johnson & Johnson))

Partially vaccinated: received the first vaccine dose in a 2-dose series

Unvaccinated: didn't receive any COVID-19 vaccine

Prefer not to answer **THANK & TERMINATE**

None

ALL THOSE WHO COMPLETED PRIMARY VACCINE SERIES ELIGIBLE FOR VACCINATED STATUS. CHECK SPECIFICATION FOR QUOTAS AND RECRUIT ACCORDINGLY

CONFIRMATION

FOR THOSE ELIGIBLE FOR GROUPS ASK Q15, IF IDI SKIP TO Q16

15. Participants in discussion groups are asked to voice their opinions and thoughts. How comfortable are you in voicing your opinions in front of others? Are you... (READ LIST)

Very comfortable

Somewhat comfortable

Comfortable

Not very comfortable **THANK & TERMINATE**

Very uncomfortable **THANK & TERMINATE**

I don't know **THANK & TERMINATE**

16. Do you have access to a computer or laptop at home or work, which you would be able to use to participate in an online discussion group or interview?

Yes

No **THANK & TERMINATE**

17. Do you have access to high-speed internet at home or work, which you would be able to use to participate in the online discussion group or interview?

Yes

No **THANK & TERMINATE**

18. Does your computer/laptop have a working webcam that you can use for the session?

Yes

No **THANK & TERMINATE**

[Read to Stand-by Respondents]

Thank you for answering my questions. Unfortunately, at this time, the group you qualify for is full. We would like to place you on our stand-by list. This means that if there is an opening in the group, we would then call you back and see if you are available to attend the group. May I please have a daytime contact number, an evening contact number, and an email address, if you have one, so that we can contact you as soon as possible if an opening becomes available? [RECORD CONTACT INFO]

[Read to Screened in Respondents]

Thank you for taking the time to complete these questions – you qualify to take place in one of these group discussions or interviews which will take place on, (DATE @ TIME)

To recap:

This research involves participating in a focus group OR interview, you will be required to contribute approx. [45-60 minutes for interview, 90 minutes for focus group]

Health Canada is sponsoring this research. An incentive of [\$600 for health care professional specialists, \$300 for other HCPs, \$225 for ALHWs, \$150 for auxiliary health workers] will be offered to everyone who qualifies and who contributes to the research. This will be paid to you at the end of the fieldwork period.

You will require access to a computer/laptop with a camera and a stable internet connection

Are you still happy to participate in this research?

Confirm acceptance of this: YES – continue. NO – thank & terminate.

Please note that any photos or videos shared by you may be collated for the final reporting on this project and may be used by our end client within their organization and in presentations to their clients. Your name would not be included in this report. All information gathered during this project is used for research purposes only unless stated otherwise.

Are you still happy to participate in this research?

Confirm acceptance of this: YES – continue. NO – thank & terminate.

So that we can send you out an email confirmation of this research may we please check the following details for you?

Full Name: _____

Address: _____

Phone: _____ (h) _____ (m)

Email: _____

As we are only inviting a small number of people, your participation is very important to us. As we have invited you to participate based on the questions we went through a moment ago, we ask that you do not send a representative on your behalf should you be unable to participate. **IF FOR SOME REASON YOU ARE UNABLE TO ATTEND, PLEASE CALL SO THAT WE MAY GET SOMEONE TO REPLACE YOU.** You can reach us at 1-xxx-xxx-xxxx at our office. Someone will call you the day before to remind you about the discussion.

A.5 Qualitative discussion guide

INTRODUCTION

- Introduce moderator and welcome participants to the focus group/IDI.
 - As we indicated during the recruiting process, we are conducting focus group discussions/IDIs on behalf of Public Health Agency of Canada (PHAC) and Health Canada. For this evening's discussion, we are particularly interested in your views about SARS-CoV-2 infection and vaccinations. FOR HESITANT UNVACCINATED/PARTIALLY VACCINATED/ FULLY VACCINATED WITH OR WITHOUT BOOSTER DOSE/ ADD: We know that the issue of vaccination has been difficult and divisive. It is important for us to hear from health care workers who were hesitant about the vaccine or decided to not get the full 2 doses and/or booster dose of the COVID-19 vaccines approved in Canada (monovalent or bivalent mRNA [Pfizer-BioNTech or Moderna], AstraZeneca, Janssen, Novavax, Medicago). I want to assure you that today's interview is a safe and judgement-free space.
 - The discussion will last approximately 90 minutes. Feel free to excuse yourself during the session if necessary.
- Explanations re:
 - Audio/video-taping – The session is being video/audio-taped for analysis purposes in case we need to double-check the proceedings against our notes. These video tapes remain in our possession and will not be released to anyone without written consent from all participants.
 - Confidentiality – Please note that anything you say during these groups/interview will be held in the strictest confidence. We do not attribute comments to specific people. Our report summarizes the findings from the groups but does not mention anyone by name. The report can be accessed through the Library of Parliament or Archives Canada or via the web site www.porr-rrop.gc.ca.
 - Client viewing – Observers are watching the sessions live because they are really interested in your opinions.
- FOR GROUPS: Describe how a discussion group functions:
 - Discussion groups are designed to stimulate an open and honest discussion. My role as a moderator is to guide the discussion and encourage everyone to participate. Another function of the moderator is to ensure that the discussion stays on topic.
 - Your role is to answer questions and voice your opinions. We are looking for minority as well as majority opinion in a focus group, so don't hold back if you have a comment even if you feel your opinion may be different from others in the group. There may or may not be others who share your point of view. Everyone's opinion is important and should be respected.
 - I would also like to stress that there are no right or wrong answers. We are simply looking for your opinions and attitudes. It was not a prerequisite coming into the group that you be an authority on health issues. This is not a test of your knowledge.
 - Please note that the moderator is not an employee of Public Health Agency of Canada (PHAC) or Health Canada and may not be able to answer some of your questions.
- Participant(s) should introduce themselves, using their first names only.

- Please tell us a little bit about yourself – type of health care worker, years of experience, city/town that you practice in.

1. CURRENT SENTIMENT TOWARD COVID-19

Let's start off with your feelings about the COVID-19 situation nowadays.

- What's one word that best summarizes your feelings toward COVID-19 right now?
 - Do you feel... optimistic/pessimistic? Scared/empowered? Angry/happy? Tired/rejuvenated? Neutral? Some other emotion?
 - Help me understand the reasons behind your feelings. What's making you feel X about COVID-19? Is it because of... What's happening at work? Related to your personal life? What you are seeing/hearing in the news? What has happened up till this point? Something else?
- How concerned, if at all, are you about getting infected by COVID-19 nowadays? Why is that?
- How concerned, if at all, are you about spreading COVID-19 to patient(s), family, and friends? Why is that?
- Has your level of concern of getting infected or spreading COVID-19 changed over time? What has contributed to that change?

2. COVID-19 INFORMATION SOURCES AND MESSAGING

Thank you for sharing your feelings and thoughts with me. I'd now like to focus on information about COVID-19.

I'd like to understand information that you rely on as a health care worker trying to make sense of the situation and protect yourself and your family from COVID-19.

- How much attention are you paying to COVID-19 information nowadays?
 - How come?
 - How does the amount of attention you are paying now compare to what you were doing at the very start of the pandemic?
 - How did the amount of attention you were paying evolve as the pandemic went on? Why is that?
- What type of information or messages on COVID-19 have you been paying attention to or have looked for?
 - Why has this information caught your attention?
 - Is this information important to you, and if so, why?
 - What COVID-19 public health information or messaging has really resonated with you or that you loved and why?
 - What about on the flip side? Is there any public health information or messaging on COVID that you have hated? Why is that?
 - In what ways, if any, has the information affected what you think about SARS-CoV-2 infection or what you did in your day-to-day life?
- What have been your most trusted sources of information about COVID-19?

- Are there specific figures, organizations, or institutions (national, provincial or international, etc.) that you really trust? What makes these sources trustworthy?
- Are there sources that you find less trustworthy or less reliable? Again, it is helpful if you can provide specific examples. Why is that?
- Has the COVID-19 pandemic changed how you feel about the trustworthiness of different sources of information? How come?

FOLLOW-UP PROBING TO BE TAILORED WHAT HAS COME UP ORGANICALLY IN PRECEEDING OPEN-ENDED QUESTIONS. ANY REFERENCES TO INFORMATION ON COVID-19 VACCINES WILL BE PARKED FOR NOW. What about...

- a) COVID-19 case counts, statistics, and modelling
- b) Updates on variants of concern (Pre-Delta, Delta, Omicron, and sub-lineages)
- c) Updates on public health guidelines on COVID-19
- d) Information on the economic impact of COVID-19
- e) Stories of people and families affected by COVID-19

FOLLOWING PROBES TO BE REPEATED IN RELATION TO EACH TOPIC AREA ABOVE:

- How much attention, if at all, did you pay to this and why?
- In what ways, if any, did this type of information affect what you think about SARS-CoV-2 infection or what you did in your day-to-day life? Did it affect... whether you wore a mask or not? ...physical distancing? ...attending indoor gatherings? ...whether or not you'd get vaccinated?
- Where did you go for this type of information? Which sources did you trust for this type of information? Why those and not others? PROBE IN RELATION TO PUBLIC HEALTH FIGURES, POLITICIANS, TRADITIONAL NEWS OUTLETS, SOCIAL MEDIA, OTHER INSTITUTIONS

My next questions are information about reducing the risk of COVID-19 in the workplace. So far, you've shared with me that... SUM UP WHAT HAS COME UP ORGANICALLY IN OPEN-ENDED QUESTION.

- What type of information on COVID-19 in the workplace did you come across? Who provided this?
- How was this information provided? Did you receive training? IF YES: Was this ongoing or not?
- How has the type of information provided changed over the course of the pandemic?
- How useful if at all was this information in allowing you to protect yourself and others from COVID-19? What makes you say that?
- In what ways, if any, did you change your work habits as a result?

3. FACTORS INFLUENCING COVID-19 VACCINE UPTAKE

Let's move on to talk about the COVID-19 vaccines currently available. FOR THOSE RECRUITED BECAUSE PARTIALLY VACCINATED OR UNVACCINATED ADD: We wanted to speak to you today because you told us that you expressed that you received less than two doses of the COVID-19 vaccine. I want to again emphasize that this is a safe and judgement-free space.

- Can I check how many, if any, doses of the COVID-19 vaccine have you had? May I also check which brand of vaccine did you take, if you remember?

Help me understand your COVID-19 vaccination journey. Walk me through what happened from the point that COVID-19 vaccines became available (COVID-19 vaccination began in Canada on December 14, 2020) until now.

- When did you first start thinking about whether you'd get the COVID-19 vaccine?
 - Was it something that you knew you would get as soon as it became available, did you have to think about it or is it something you are still thinking about? Why is that?
 - IF RELEVANT: How long did you think about it and why was that? What else was going on in your personal life that might have affected how quickly you booked an appointment?
- What concerns, if any, did/do you have about getting the COVID-19 vaccine?
 - How concerned, if at all, were/are you about ... the safety of vaccine? ...side effects? ... how quickly they had been developed and approved? ... that fact that the first vaccine made available used mRNA technology as opposed to 'traditional' vaccine technology that use part of the virus?
 - IF YES: What was/are the reason(s) behind those concerns? Did you do anything about these concerns? FOR FEMALE PARTICIPANTS PROBE IF THEY WERE PREGNANT AT THE TIME
 - IF NO: How come?
 - Has enough information been provided on the safety of vaccines? What makes you say that?
- What about the effectiveness of COVID-19 vaccines – by that I mean whether or not the vaccines work?
 - Was that something that you thought/think about when deciding whether or not to get vaccinated?
 - Has enough information been provided on the effectiveness of vaccines? What makes you say that?
- What did/do you see as the main benefits of getting the COVID-19 vaccine?
 - PROBE FOR BENEFITS AT AN INDIVIDUAL, FAMILY, PROFESSIONAL AND SOCIETAL LEVEL
 - How important is it to get the COVID-19 vaccine in order to protect yourself?
- Aside from the risk and benefits we just discussed, were there any other factors that affected your decision on whether or not to get vaccinated?
 - PROBE FOR: variant of concern and/or severity of cases
- What were/are your main sources of information about the COVID-19 vaccine?
 - Which sources did/do you trust and why?
 - What type of information have you looked into? Why was/is this information important in your decision on whether or not to get vaccinated?
 - Did you speak to your family doctor about getting the COVID-19 vaccine? What happened in those conversations? Were you swayed in any way?
 - Did patients ask you for your advice on whether or not to get vaccinated? Did any pregnant patients ask for your advice on this? How did you handle these conversations?

- What about your family, friends and co-workers? How much did you talk to them about COVID-19 vaccines?
 - Were they going through the same thing as you were, or did they have a different attitude? Did most of them get vaccinated or not?
 - How did you feel when your family, friends or co-workers told you that they were getting vaccinated? How did that make you feel about your decision?
 - What about those who did not get vaccinated? How did that make you feel about your decision?
 - Would you advise others to get the COVID-19 vaccine or not? Why is that?

FOR THOSE WHO RECEIVED AT LEAST 1 DOSE

- At what point did you decide that you'd get vaccinated?
 - What was the main motivation behind that decision?
 - How long did you wait until you actually booked an appointment? Why was that?
 - How convenient was it to get the COVID-19 vaccine? How easy or difficult was it to get an appointment and get vaccinated? What made it easy/difficult?
 - Earlier you shared with me that you took the [INSERT BRAND NAME]. How did you end up with that type of vaccine? Did you weigh up other vaccines being offered at the time? Why is that?
- What happened after you received your first dose?
 - How did you feel about your decision to get vaccinated?
 - Did you experience any side effects? How long did those last? And did the side effects change your outlook toward the vaccine?
 - Did you have any regrets?
- What happened when you became eligible to receive your second dose?
 - IF TAKEN SECOND DOSE: Did you make an appointment right away or did you delay that decision? How come? Did you receive different vaccine than your first dose (i.e., AstraZeneca followed by a mRNA vaccine); Were your reasons/concerns the same or different to the ones we just discussed? How convenient was it to get the COVID-19 vaccine? PROBE FOR ANY DIFFERENCES
 - IF SECOND DOSE NOT TAKEN: Help me understand why you did not get the second dose. What was the reason behind that? Were your concerns the same as what we already discussed or did something else change? What would need to happen for you to consider taking the second dose?
- What about the boosters?
 - How did you feel about them and why?
 - IF TAKEN BOOSTERS: What motivated you to take the booster? Which one have you received?
 - IF NOT TAKEN BOOSTERS:
 - Help me understand why you haven't taken any additional booster shots.
 - Is it because ... there is a limit to how many COVID-19 shots you are willing to take? ...you don't believe they work anymore? ... you've already had COVID? LISTEN OUT FOR UNAIDED BIVALENT VACCINES
 - What would need to happen for you to consider taking a booster?

FOR THOSE UNVACCINATED

- Do you still think about whether or not you will get vaccinated against COVID-19?
- Of all the things we discussed, what would you say is the main reason for why you are not vaccinated?
- Of all the vaccine options available now, is there one type that you are more likely to consider over others? Is there one that you definitely wouldn't consider? IF NEEDED CLARIFY mRNA OPTIONS FROM PFIZER AND MODERNA VERSUS 'TRADITIONAL' VACCINE TECHNOLOGY OFFERED BY ASTRAZENECA AND NOVOVAX
- What would need to happen for you to change your mind?

RESUME ASKING QUESTIONS BELOW FOR ALL PARTICIPANTS

Thanks for walking me through your COVID-19 vaccination journey.

- What's your take on the COVID-19 vaccine nowadays?
 - Have your opinions toward the vaccine changed at all? In what ways and what has influenced that change?
 - Earlier you shared with me that you SUMMARISE ATTITUDES ON VACCINE EFFICACY AND SAFETY. Have those opinions changed in any way? How come?

My next questions are about the new bivalent vaccines.

- First of all, can I check that you have heard about the bivalent mRNA vaccines?
- What do you know about them? Do you know how they are different from original mRNA (monovalent) and 'traditional' vaccines?
- FOR THOSE WHO HAVE TAKEN BOOSTER: Did you receive a bivalent booster? Why/why not? Do you trust them or not? How come?
- FOR REST: How do you feel about the new bivalent vaccines? Do you trust these new bivalent mRNA vaccines or not? How come?

4. VACCINE MANDATES

Let's move on slightly to talk about vaccination mandates for health care workers implemented by government.

- What's your opinion of vaccination mandates for health care workers?
 - Do you support or oppose the mandates? Why is that?
 - IF NOT ALREADY MENTIONED: How much of an influence, if any, did mandates have in your decision to get vaccinated? To remain HCW?
 - Overall, how effective are these in encouraging health care workers to become vaccinated? What makes you say that?
- What's your opinion on other public health measures?
 - IF NEEDED: Public Health Measures (PHMs) are interventions that can be implemented to help reduce the transmission of COVID-19 in communities, including:
 - Personal measures (e.g., self-monitoring, isolation, quarantine)

- General recommendations (e.g., hand hygiene, non-medical mask use, physical distancing)
- Community measures (e.g., public messaging, education campaigns)
- Restrictive community measures limiting activities or access to resources, facilities, or institutions (these are often referred to as “lockdown” measures)

5. LOOKING TO THE FUTURE

My final questions are about the future.

- Where do you see yourself in ...6 months? ...a year?5 years? Do you still see yourself in the health care sector or not? Why is that?
- In what ways, if any, has SARS-CoV-2 infection changed how you might seek out health information in the future? Where are you more inclined to go for information about health in the future? Has the COVID-19 pandemic affected your life in other ways that you’d like to share with me (in work setting to reduce risk factors and exposure and, in the community)? Other public health measures?
- If there is a third COVID-19 booster dose of the vaccine available, will you consider taking it?
- What advice do you have for Public Health Agency of Canada (PHAC) and Health Canada on how they should communicate with health care workers about how they can protect themselves and other from SARS-CoV-2 infection?
 - What should they CONTINUE doing?
 - What should they START doing?
 - And is there anything they should STOP doing?

6. WRAP-UP

- That is all the time we have for this today, but before we wrap things up, do you have any final comments or anything you feel we haven’t addressed?