

# Improving Canadian Adult Influenza Immunization Rates Through Knowledge and Action

Technical Report

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## Introduction

The Canadian population is rapidly ageing, with over 7.3 million people aged 65 years and older as of July 2022.<sup>(1)</sup> Population projections estimate this subpopulation to total 12 million people, representing one-quarter of the total population in 2051.<sup>(2)</sup> As a result, investment in the promotion and pursuit of healthy ageing, defined as “the process of developing and maintaining the functional ability that enables wellbeing in older age” has become high on the political agendas of federal and provincial governments around the world.<sup>(3)</sup>

Noncommunicable diseases (NCDs) affect all age groups, regions and countries, however they are most often associated with older age groups, with 17 million NCD attributable deaths occurring before 70 years of age.<sup>(4)</sup> This increase in NCDs, can be attributed to many factors such as population ageing, unplanned rapid urbanization and the globalization of unhealthy lifestyles.<sup>(4)</sup> A natural consequence of ageing is immunosenescence, resulting in the decline of immune responses leading to increases in the incidence of infectious diseases in later life.<sup>(5)</sup> This natural decline in immunity also underscores the need for increased emphasis and awareness with respect to the importance of adult immunization.

Vaccine-preventable diseases such as influenza, pneumococcal pneumonia, shingles, and pertussis present a major health concern for older adults with potentially devastating consequences. Even though vaccines are considered to be the most effective public health intervention of our time, saving many lives in the past 50 years<sup>(6)</sup>, vaccination rates are suboptimal.

## Influenza and its Impact

Influenza is a viral respiratory illness that represents one of the top ten causes of death in Canada, accounting for over 12,000 hospitalizations and 3,500 deaths each year across the nation.<sup>(7)</sup> While the typical recovery period lasts on average 3-7 days, severe complications and illnesses can develop resulting in hospitalization and/or death. People aged 65 years and older and individuals with chronic health conditions are among those who are at high-risk for developing influenza-related complications or hospitalizations and this risk continues to increase with age.<sup>(7)(8)</sup>

With hospitalization often marking the beginning in a decline of overall health, hospitalization for influenza related complications can result in significant decrease in the functional ability of individuals, and lead to a more rapid decline in function post hospitalization.<sup>(9)</sup> Recognizing the elevated risk influenza poses to older adults and the protection vaccination affords, the Canadian National Advisory Committee on Immunization (NACI) strongly recommends vaccination against influenza for any adults aged 65 years and older.<sup>(7)</sup> While NACI sets strong recommendations on the use of vaccines, procurement and distribution of vaccines and inclusion of vaccines in associated immunization programs fall under the jurisdictional responsibility of provincial and territorial governments.<sup>(10,11)</sup>

## Influenza Vaccine Landscape in Canada

The influenza vaccines authorized for administration in Canada are either trivalent or quadrivalent, denoted with a 3 or 4 in the abbreviation to indicate the strains present in vaccines<sup>(8)</sup>. These vaccines then fall within three categories namely, inactive influenza vaccines (IIV), recombinant influenza vaccines (RIV), and live-attenuated influenza vaccines (LAIV)<sup>(8)</sup>. The IIV can be further classified as standard dose (IIV-SD), high dose (IIV-HD) or adjuvanted (IIV-Adj)<sup>(8)</sup>. The IIV-SD contains a standard dose of 15mcg of antigen and is authorized for use in every age group, whereas IIV-HD contains a higher dose of antigen at 60mcg to enhance the immune response and is only authorized for use in individuals aged 65 years and older.<sup>(8)</sup> The IIV-Adj is also authorized for use in Canada, containing the same amount of antigen as the standard dose, however it also contains the adjuvant MF59 for the purpose of generating a stronger immune response.<sup>(8,12)</sup>

NACI utilizes a two-tiered approach to provide recommendations on authorized influenza vaccines namely, individual-level decision making and public health program-level decision-making.<sup>(8)</sup> For public health program-level decision making, NACI does not provide any recommendations for the preferential administration of vaccine types for this age group, as comprehensive comparative analysis of the more novel quadrivalent vaccines have not yet been conducted. For individual-level decision making however, NACI explicitly recommends that individuals aged 65 years and older receive the high-dose (HD) over the standard dose (SD) citing better protection for this age group as indicated by previous comparative analyses of trivalent SD and HD vaccines.<sup>(8)</sup> These recommendations are also in line with the Advisory Committee on Immunization Practices (ACIP) in the United States which recommends individuals aged 65 years and over to preferentially receive the IIV4-HD vaccines, however in the United States RIV4 and IIV4-Adj, are also preferentially recommended citing their relative benefit over IIV-SD vaccines.<sup>(13)</sup> Due to the importance of vaccination, NACI and ACIP both recommend the usage of any of the authorized vaccines in the absence of a specific vaccine.<sup>(8,13)</sup>

Despite NACI recommending the IIV-HD vaccine for individual-level decision making, it is unclear if Canadians are aware of this recommendation or the fact that there are differences and/or options with respect to the influenza vaccines available to them. The differences in recommendations between the two tiers underscore the urgent need to ensure Canadians are equipped with the necessary knowledge to make appropriate and informed decisions regarding their choice to be vaccinated and in protecting their health and wellbeing. Foundational to this is an understanding of the comparative effectiveness between available vaccines.

The COVID-19 pandemic has proven that Canadians have a desire to be well-versed and informed regarding their vaccination choices. As we move forward, awareness regarding choice, efficacy and availability should be reflected across a variety of vaccine preventable diseases including influenza, allowing individuals to make informed decisions that afford them the greatest protection.

## Methodology

In order to improve influenza vaccination uptake in older Canadians, it is first imperative that the awareness of influenza vaccination practices and the knowledge of influenza vaccines available is assessed among older Canadians to identify gaps in knowledge to shape policies at federal and provincial levels.

The *Improving Canadian adult influenza immunization rates through knowledge and action* project is a multi-phased project conducted by the International Federation on Ageing (IFA) to help increase the awareness and knowledge of available influenza vaccines among older Canadians with the goal of increasing uptake rates.

## Study Design

The first phase of the project is the design and implementation of a semi structured online survey to assess older Canadians awareness and knowledge of influenza vaccination practices and the influenza vaccines available and approved for use in Canada.

The semi structured electronic survey was comprised of 30 questions, which were largely multiple choice and took approximately 15 minutes to complete. The survey contained both open-ended and close-ended questions presented in lay language designed to gain a comprehensive understanding of the awareness of influenza vaccination practices among older Canadian adults and the knowledge they possess on the vaccines available to them. Only the responses from Canadian adults aged 50 years and older were accepted and included in the project.

The survey was administered using the Constant Contact software program and disseminated virtually through a diverse array of channels including IFA's social media, newsletter, and email list. Additionally, organizations and individuals working in the fields of ageing, and those representing individuals who are at increased risk were contacted to assist with dissemination.

The second phase of the project consisted of a series of interviews with older Canadians, to gain additional information and to help further validate and supplement survey findings. A comprehensive interview guide building upon the previously developed survey and further informed by various experts was developed to support the interview process. Interviews were held virtually via zoom teleconferencing software for a duration of approximately 15-20 minutes.

## Ethical Considerations

Ethical issues were taken into consideration to ensure no harm was done. Participation in the survey and/or project was voluntary, and participants were asked to consent to the terms and conditions of the survey. Respondents were able to withdraw from the survey at any point without penalty. The IFA ensured that all data collected through the survey is de-identified to ensure confidentiality.

# Study Findings

## Demographics

The majority of respondents (82%) were over the age of 65 with 45% between the ages of 65-74, 30% between the ages of 75-84 and 7% over the age of 85 respectively. Only 17% of respondents were between the ages of 50-64. There were significantly more female respondents (67%) than male respondents (32%). The majority of respondents lived in Ontario (45%) with prominent additional representation from British Columbia, Alberta and New Brunswick (each representing 12% of respondents) followed by remaining representation from Manitoba, Québec and Prince Edward Island.

Slightly more than half of respondents lived in urban settings (57%) followed by rural settings where 27% of respondents lived and lastly suburban with 15% of respondents. Of note survey respondents were generally highly educated with close to 80% having completed a University Bachelor's degree or higher (University Master's degree or Ph.D.).

The vast majority of respondents indicated that they had a family doctor/General Practitioner (90%) with 30% indicating they saw their family doctor every 3 months and an additional 45% indicating that they would visit their doctor annually. 54% of respondents indicated that they were unsure or suspected that they may have had influenza in the past, while 27% of respondents reported that they had been previously diagnosed with influenza.

## Vaccination Practices

The vast majority of respondents (90%) indicated that they should be vaccinated against influenza annually, the additional 10% of respondents indicated that they were unsure. Similarly, 92% of respondents indicated that they should receive both influenza and COVID-19 vaccinations. Of interest, 5% of respondents indicated that they did not need an influenza vaccine if they received a COVID-19 vaccine. 87% of respondents indicated that they received influenza vaccinations on an annual basis however over a quarter of all respondents were unaware or unsure of which influenza vaccine they had received.

The majority of respondents received influenza vaccinations from a local pharmacy (60%). The second most popular site was the family doctor's office (22%) followed by walk in and pop-up clinics. Only 35% of respondents indicated that they had asked their doctor/general practitioner about influenza vaccinations, however 37% of respondents indicated that their doctor raised the issue of influenza vaccination with them. Of note 12% of respondents (those who had a family doctor) indicate that their doctor had never spoken to them about influenza vaccination.

## Influenza Vaccination Knowledge

The majority of respondents indicated that they felt confident in their understanding about influenza and their ability to protect themselves against influenza (77% and 87% respectively). Similarly, respondents self-reported high levels of confidence in their understanding about influenza and its serious complications (83%), its impact on older adults (95%), the influenza vaccines available to older Canadians (70%) and even annual influenza vaccination as an effective prevention measure (89%).

Almost all respondents (97%) indicated that they knew that people aged 65 years and older and individuals with chronic health conditions were at high-risk for developing influenza-related complications and being hospitalized. Similarly (97%) of respondents knew that the risk for influenza-related complications and hospitalizations increases with age.

While the majority of respondents (70%) were aware that there were different types of influenza vaccines authorized for various age groups (18-59 years of age, 60-64 years of age, adults 65 years of age and older), remaining respondents indicated that this was either untrue (12%) or they were unsure (17%).

Half of all respondents were either unsure or unaware that there are different types of influenza vaccines, namely inactive influenza vaccines (IIV), recombinant influenza vaccines (RIV), and live-attenuated influenza vaccines (LAIV). This number rose to more than 60% when respondents were asked whether they knew the difference between the trivalent and the quadrivalent influenza vaccines, with only 37% of respondents indicating their understanding. Similar trends were seen when respondents were asked whether they were aware that inactive influenza vaccines (IIV) could be further classified as standard dose (IIV-SD), high dose (IIV-HD) or adjuvanted (IIV-Adj), with more than half of respondents stating that they were either unsure (10%) or unaware (42%).

Interestingly and despite these gaps in knowledge, 77% of respondents indicated that they were aware that the Canadian National Advisory Committee on Immunization (NACI) recommends that individuals aged 65 years and older receive the high dose vaccine over the standard dose vaccine. When asked whether they had ever requested their family doctor/general practitioner to administer a specific type of influenza vaccine only 22% of individuals indicated an affirmative response. That being said, 70% of respondents indicated that they would feel comfortable asking their family doctor/general practitioner for a specific type of influenza vaccine.

## Receiving Health Related Information

The majority of respondents (70%) indicated that factsheets were their preferred format for receiving health-related resources, with “Myth vs Fact” infographics (40%) and brochures (20%) representing popular formats as well. A slight preference was seen towards digital media (60%) when respondents were asked for their preferred medium for receiving health-related information on influenza. Interestingly, despite digital media (social media, emails, e-newsletters etc.) being preferred over print media (brochures, information cards, flyers etc.), when respondents were asked which sources they use and trust to receive health related information, print media was trusted significantly more (52%) than social media (7%).

By far the most influential and trusted source of information among respondents was health care professionals (95%) with government agencies (55%) representing a somewhat distant second. Mirroring these findings, when asked what types of organizations respondents used and trusted to receive health information, 90% indicated that they trusted government agencies (e.g., Health Canada, NACI). More than half of respondents also indicated trust in non-profit organizations (e.g., CARP, Immunize Canada) (60%) and academic or research organizations (67%) (universities, laboratories, etc.). Of note less than a quarter (20%) of respondents felt like they could trust information from industry (pharmaceutical companies, health and wellness stores, etc.).

When asked what was preventing respondents from seeking additional information on influenza vaccination, popular responses included a lack of time (17%), lack of available information (17%), lack of interest (10%) and difficulty understanding information (10%). Of note 40% of respondents indicated other, highlighting opportunity and need for additional follow up with respect to this question.

While the majority of respondents felt like they received the most current and reliable information regarding influenza vaccine practices and knew where to find information on influenza vaccines and vaccination, a significant minority (29% and 17% respectively) felt ill informed or unsure with respect to this information.

## Discussion

Influenza in Canada is one of the top ten causes of hospitalization and death<sup>(14)</sup>. Despite common misconceptions, healthy people of all ages can face serious health consequences from seasonal influenza, however older people and those with underlying health conditions are especially at risk of serious complications, exacerbation of underlying health conditions, and or flu related death<sup>(15)</sup>. While the risks to the health of older persons and those at increased risk from influenza are well-known, knowledge among Canadians with respect to vaccine recommendations and innovations is not well understood<sup>(16)</sup>.

Ensuring that older Canadians are equipped with the necessary knowledge to make appropriate and informed decisions regarding their choice to be vaccinated and in protecting their health and wellbeing is essential particularly in the face of waning uptake rates seen in recent years. To address this urgent need the IFA conducted the “Improving Canadian Adult Influenza Immunization Rates Through Knowledge and Action” project, leveraging a cross-sectional survey to better understand older Canadians awareness and knowledge of the influenza vaccine landscape in Canada, associated national recommendations and strategies to address identified knowledge gaps.

## Principal Findings

Study findings illustrate that the majority of Canadians have a good understanding of the risks posed by seasonal influenza as well as the disproportionate risk older people and those living with chronic co-morbid conditions face. Similarly, the vast majority of older Canadians indicated that they understood the importance of seasonal vaccination against influenza, felt like they knew how to protect themselves and were even aware that NACI recommended a specific vaccine for individuals over the age of 65.

While this is undoubtedly encouraging, in order to ensure Canadians are able to make informed and evidence-based decisions they must be aware and understand the vaccines that are authorized for use in Canada and those that have been developed with the intention of providing superior protection among older people. Study findings, however, have clearly highlighted a significant disharmony between Canadians perceived knowledge and their reported understanding of available influenza vaccines.

For example, more than half of all respondents were either unsure or unaware that there were different types of influenza vaccines and more than 60% were either unsure or unaware of the difference between trivalent and the quadrivalent influenza vaccines. Of significant importance was the 52% of individuals that were unsure or unaware that influenza vaccines could be further classified as standard dose (IIV- SD), high dose (IIV-HD) or adjuvanted (IIV-Adj). This finding is particularly important given the fact that for individual-level decision making, NACI explicitly recommends that those aged 65 years and older receive the IIV-HD over IIV-SD citing better protection for this age group but does not provide any recommendations for the preferential administration of vaccine types for this age group. (8) This means that there is an increased burden on older people themselves to play a key role in advocating for this enhanced protection. While many doctors and or pharmacies may carry the high dose vaccine, there is no guarantee that older Canadians are receiving this vaccine over the standard dose.

This is further exemplified by the fact that more than 25% of individuals were unaware or unsure of which influenza vaccine they had most recently received and only 22% of individuals indicated that they had previously requested their family doctor/general practitioner to administer a specific type of influenza vaccine.



## Secondary Findings

Given the dissonance between older Canadians perceived confidence with respect to their understanding of influenza and seasonal vaccination and the significant knowledge gaps previously highlighted, the development of educational resources and assets to help close this gap are essential.

In line with previous research the most trusted sources of information among Canadians are health care professionals. Study findings have shown that general practitioners (GPs) already serve as key conduits for important vaccine related information with many individuals having indicated that their GP had previously raised the issue of seasonal influenza vaccination when in for a regular visit (18). While healthcare professionals will continue to play an important role in raising awareness and knowledge, it is essential that parallel efforts are undertaken to ensure Canadians who do not have a GP or have limited access to a GP are still reached. While health care professionals are clearly the most trusted sources of information the majority of older Canadians also have great confidence in government resources and those produced by academia and non-profit organizations.

There was also a slight preference for digital resources among older Canadians compared to print media. That being said, study findings have also illustrated that preference does not necessarily correlate with trust. Print media for example is trusted significantly more than social media. Factsheets, “Myth vs Fact” infographics and brochures were all identified as preferred formats among older Canadians, reflecting the need for both diverse channels and mediums for the dissemination of resources. The importance of this variability in the type and format of information is further supported by previous IFA initiatives including the 2020 Changing the Conversation on Adult Vaccination (CCAV) initiative and the 2021 Towards Ending Immunization Inequity Study, both of which highlighted the importance of ensuing public health messaging and vaccine related campaigns are diverse in nature and reflective of the target population. <sup>(17, 18)</sup>

## Study Limitations

The “Improving Canadian Adult Influenza Immunization Rates Through Knowledge and Action” project, represented a unique opportunity to gather a deeper understanding of older people’s knowledge and awareness of the influenza vaccination landscape in Canada. While barriers to participation were taken into consideration and steps made to mitigate these to the extent possible, there are still inherent limitations associated with the utilization of online surveys.

In the context of social determinants, lack of access to digital technologies can represent a barrier to participation in this study, as could different levels of digital literacy. Additionally, this survey was only made available in English, as such individuals who may not be fluent in English or who have difficulty with literacy are likely to be underrepresented in this study. Previous research regarding knowledge and understanding of vaccine-related information appear highly dependent on fluency and therefore an assumption can be made that those with less fluency/literacy would likely face increased challenges in understanding vaccine-related information <sup>(18)</sup>. Previous research has also shown that language and ethnicity are associated with reduced comfort level when asking health-related questions and can negatively impact ability to communicate effectively with health care professionals (HCPs) underscoring the importance of not over relying on family doctors/general practitioners for awareness and knowledge raising efforts <sup>(18)</sup>.

Another significant challenge is that the sample of study participants is not representative of the general population. The proportion of respondents having completed a University Bachelor’s degree or higher (80%) is substantially higher than would be seen in the general population of Canada (33%). <sup>(19)</sup> Given the fact that previous research highlights the significant role social determinants such as income, ethnicity, education and language play in a person’s ability to access vaccinations and understand related health information, study findings regarding levels of understanding are likely disproportionately high.

## Conclusions and Recommendations

The evidence regarding the risk and burden of seasonal influenza among older adults in Canada is clear. Yet despite NACI recommending the IIV-HD vaccine for individual-level decision making, study findings have clearly illustrated that older Canadians are ill informed regarding the vaccines available for use in Canada and those specifically developed to provide superior protection among older adults. Understanding these gaps in knowledge however does not readily create opportunities and entry points for governments and or organizations to implement tangible actions. Vaccination campaigns through public health messages are planned and executed with the primary goal of encouraging citizens to be protected against vaccine preventable diseases (VPDs). While current campaigns have been somewhat successful in raising awareness regarding the importance of vaccination against seasonal influenza and the associated risks, there remain essential gaps in information that undermine the ability of older Canadians to advocate for and make informed decisions regarding what vaccine is right for them.

In order to support older Canadians in making informed decisions that afford them the greatest protection, efforts should be made to;

- Ensure resources and educational materials are tailored to and reflective of the target population (older people), including information that would be relevant towards informing evidenced based decision making and increasing vaccine literacy.
- Support and encourage older people to become their own vaccine advocates. Given existing NACI recommendations it is essential that older adults are aware of and supported in personal health advocacy. This includes encouraging older adults to be bold, ask questions and request vaccinations that afford them the best protection.
- Ensure resources and educational materials that are developed to support increased awareness and knowledge are diverse in content, format, and channels of dissemination to help increase uptake and amplify impact.
- Leverage the trust of health care professionals to support dissemination. Establish partnerships and opportunities for collaboration in both the development and dissemination of educational resources, fostering increased dialogue among HCPs and patients and increased trust in resources disseminated through alternative mediums.
- Encourage governments (academia and civil society) to ensure that guidance and information disseminated via public health campaigns reflect NACI recommendation regarding vaccines that provide better protection for older adults.

## References

1. Statistics Canada. Older adults and population aging statistics [Internet]. 2023 [cited 2023 Apr 6]. Available from: [https://www.statcan.gc.ca/en/subjects-start/older\\_adults\\_and\\_population\\_aging](https://www.statcan.gc.ca/en/subjects-start/older_adults_and_population_aging)
2. Statistics Canada. The Daily – In the midst of high job vacancies and historically low unemployment, Canada faces record retirements from an aging labour force: number of seniors aged 65 and older grows six times faster than children 0-14 [Internet]. 2022 [cited 2023 Apr 6]. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/220427/dq220427a-eng.htm>
3. World Health Organization. Healthy ageing and functional ability [Internet]. 2020 [cited 2023 Apr 3]. Available from: <https://www.who.int/news-room/questions-and-answers/item/healthy-ageing-and-functional-ability>
4. World Health Organization. Noncommunicable diseases [Internet]. 2022 [cited 2023 Apr 12]. Available from: <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>
5. Public Health Agency of Canada. Basic immunology and vaccinology: Canadian Immunization Guide - Canada.ca [Internet]. 2022 [cited 2023 Apr 3]. Available from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-14-basic-immunology-vaccinology.html>
6. Public Health Agency of Canada. Vaccine Preventable Disease: Surveillance Report to December 31, 2019 - Canada.ca [Internet]. 2022 [cited 2023 Apr 3]. Available from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/vaccine-preventable-disease-surveillance-report-2019.html>
7. Government of Canada. Flu (influenza): For health professionals - Canada.ca [Internet]. 2023 [cited 2023 Apr 3]. Available from: <https://www.canada.ca/en/public-health/services/diseases/flu-influenza/health-professionals.html>
8. Public Health Agency of Canada. Canadian Immunization Guide Chapter on Influenza and Statement on Seasonal Influenza Vaccine for 2022–2023 - Canada.ca [Internet]. 2022 [cited 2023 Apr 6]. Available from: <https://www.canada.ca/en/public-health/services/publications/vaccines-immunization/canadian-immunization-guide-statement-seasonal-influenza-vaccine-2022-2023.html#a2.3>
9. Centers for Disease Control and Prevention. Vaccine Effectiveness: How Well Do Flu Vaccines Work? | CDC [Internet]. 2023 [cited 2023 Apr 6]. Available from: <https://www.cdc.gov/flu/vaccines-work/vaccineeffect.htm>
10. National Advisory Committee on Immunization. National Advisory Committee on Immunization (NACI): Membership and representation - Canada.ca [Internet]. [cited 2023 Apr 12]. Available from: <https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/naci-membership-representation.html>
11. Government of Canada. Vaccine supply - Canada.ca [Internet]. [cited 2023 Apr 12]. Available from: <https://www.canada.ca/en/public-health/services/vaccine-supply.html>
12. Centers for Disease Control and Prevention. Adjuvanted Flu Vaccine | CDC [Internet]. [cited 2023 Apr 17]. Available from: <https://www.cdc.gov/flu/prevent/adjuvant.htm>
13. Grohskopf LA, Blanton LH, Ferdinands JM, Chung JR, Broder KR, Talbot HK, et al. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices – United States, 2022–23 Influenza Season. *MMWR Recommendations and Reports* [Internet]. 2022 [cited 2023 Apr 11];71(1). Available from: <https://www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm>

14. Statistics Canada. (2021). Leading Cause of death, total population, by age group. Retrieved from: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039401>
15. HealthLinkBC. (2020). Influenza (Flu) Immunization: Myths and Facts. Retrieved from: <https://www.healthlinkbc.ca/healthlinkbc-files/flu-vaccine-myth-facts.>
16. Schaffner, W., Van Buynder, P., McNeil, S., & Oesterhaus, A. D. M. E. (2017). Seasonal influenza Immunization: Strategies for older adults. *The International Journal of Clinical Practice*, 72, 1-11.).
17. Sangster AV, Barratt JM. Towards Ending Immunization Inequity. *Vaccines (Basel)*. 2021 Nov 24;9(12):1378. doi: 10.3390/vaccines9121378. PMID: 34960124; PMCID: PMC8707358.
18. Zheng, Y.; Barratt, D.J. Messages Matter: A Spotlight on Influenza Vaccination Campaigns. 20.
19. Friesen J. Census shows high rate of undergraduate and college education among Canadians, but complex trends lie behind it. *The Globe and Mail*. 2022 [cited 2023 Dec 11]. Available from: <https://www.theglobeandmail.com/canada/article-census-2021-university-college-graduate/#:~:text=Nearly%2033%20per%20cent%20of,arrived%20with%20a%20university%20degree.>

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