VACCINE UPTAKE IN CANADIAN ADULTS 2021

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To obtain additional information, please contact:

Public Health Agency of Canada
Address Locator 0900C2
Ottawa, ON K1A 0K9
Tel.: 613-957-2991
Toll free: 1-866-225-0709
Fax: 613-941-5366
TTY: 1-800-465-7735
E-mail: publications-publications@hc-sc.gc.ca

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VACCINE UPTAKE IN CANADIAN ADULTS 2021

TABLE OF CONTENTS

ABOUT

This report summarizes the results from the 2020–2021 Seasonal Influenza Vaccination Coverage Survey. It is an annual survey collecting information on influenza vaccination uptake in the adult Canadian population. Respondents aged 18 years and older were asked if they had been vaccinated against influenza for the 2020–2021 season; their reasons for vaccination or non-vaccination; knowledge, attitudes, and beliefs (KAB) regarding influenza vaccination, and vaccination in general; along with selected demographic information. This year, participants were also questioned regarding four vaccines routinely offered to adults: pertussis, tetanus, pneumococcal and shingles. Information related to COVID-19 vaccination was also collected. Data collection took place between January 6, 2021 and February 11, 2021.

KEY FINDINGS

Influenza vaccine

- Overall, influenza vaccination coverage in the 2020–2021 season (40%) was similar to the 2019–2020 season (42%) and the 2018–2019 season (42%).
- Vaccine coverage was higher in females (45%) than in males (35%).
- Among high-risk groups, vaccine coverage for seniors 65 years of age and older (70%) and adults aged 18–64 years with a chronic medical condition (CMC) (41%) remained below the national vaccine coverage goal of 80% uptake.
- The majority of respondents had received their vaccine in October (42%) or November (38%).
- The main vaccination places were pharmacies (49%) or doctor's offices (23%).
- Almost half of Canadian adults (47%) stated that they had encountered difficulties in scheduling an appointment for getting the flu shot this year due to public health measures in place to reduce the spread of COVID-19.
- The most commonly reported reason for receiving the vaccine was to prevent infection or to avoid getting sick (37%), whereas the most common reason for non-vaccination was the perception that the vaccine was not necessary (29%).
- More than one third of Canadian adults (35%) believed that the flu vaccine is ineffective to protect them against the flu, and 40% believed they might get the flu from the vaccine.
- The majority of the population (74%) agreed that the opinion of their family doctor, general practitioner or nurse practitioner is an important part of their decision for getting the flu vaccine.

Other adult vaccines

- About one in three Canadian adults (34%) reported having received a pertussis-containing vaccine in their adulthood.
- Two thirds of the adult population (67%) reported having received a vaccine against tetanus in the previous 10 years.
- 55% of older adults over 65 years of age reported having received a pneumococcal vaccine in their adulthood as compared to 26% of younger adults aged 18 to 64 years with a CMC.
- Among individuals over 50 years of age, 27% reported having received their shingles vaccine in adulthood.
- Across all adult vaccines, the most frequent reasons for non-vaccination were the perception that these vaccines are not necessary and the lack of awareness of the availability of vaccines.

COVID-19 vaccines

- Most Canadian adults (72%) intended to get a COVID-19 vaccine, while 17% had not decided yet, and 10% did not intend to get a COVID-19 vaccine.
- The main reasons why Canadian adults intended to receive a COVID-19 vaccine were to protect themselves (32%) or their family members (18%) from the disease.
- The main reason for being hesitant to get vaccinated against COVID-19 among adults aged 18–64 with underlying medical conditions was concerns about the safety and/or side effects of the vaccine.
- The main reason for being hesitant to get vaccinated against COVID-19 among seniors was not enough testing or research on the vaccine was perceived to have been done.
- Overall, the most common reason for not intending to get a COVID-19 vaccine among all adults was that they do not trust vaccines in general (20%).
- The proportion of those who intended to get vaccinated against COVID-19 was higher among individuals who had received their influenza vaccine (89%) that season than those who had not been vaccinated against the flu (60%).

INTRODUCTION

Vaccination is a safe and effective way of preventing morbidity and mortality associated with many common infectious diseases. While the majority of routine vaccinations occur during childhood and adolescence, some vaccines are recommended in adulthood, such as the seasonal influenza vaccine and vaccines against pertussis (whooping cough), tetanus, pneumococcal and shingles. Being up-to-date on adult vaccinations is important for the following reasons:

- Immunity against certain vaccine-preventable diseases (VPDs) wanes over time and requires boosting for continued protection against infections;
- Some VPDs are more harmful in adulthood and can cause serious health complications and even death (e.g. varicella);
- Adult vaccination can help strengthen immunity against certain VPDs that are more common in adulthood (e.g. shingles);
- Adult vaccination helps prevent individual infection and decrease the risk of transmission to those who are unable to be vaccinated (e.g. for medical reasons), not yet fully vaccinated or unable to build a strong immunity following vaccination.

Measuring vaccination coverage is necessary to track Canada's progress towards reaching its vaccination coverage goals by 2025 for the decrease of VPDs, and to help identify under- and un-immunized populations. Identification of these populations will provide a better understanding of the determinants of vaccine uptake and acceptance. The national vaccination coverage goals for adults include:

- Achieving increased vaccination coverage for the seasonal influenza vaccine (one dose per season) as follows:
  - 80% vaccination coverage among adults 65 years of age and older;
  - 80% vaccination coverage among adults 18–64 years of age with chronic medical conditions (CMC)
- Achieving 80% vaccination coverage of a pneumococcal vaccine (one dose) among adults 65 years of age and older.[1]

Influenza (also known as the flu) is a common cause of pneumonia, especially among the elderly, younger children, pregnant women and individuals with certain CMCs. It is one of the leading causes of death in Canada, averaging 12,200 hospitalizations and 3,500 deaths in Canada each year.[2] Flu viruses are constantly changing. They can change from one season to the next or they can even change within the course of the same flu season. Based on the circulating virus strains expected to be dominant during the upcoming season, scientists and experts must choose which strains of virus to include in the vaccine in advance in order for vaccines to be produced and delivered on time.[2,3] Since the flu vaccines are different from year to year, it is important to get the influenza vaccine every year. In Canada, the best time to get the influenza vaccine is between October and December, before the virus begins spreading

in the community.[2,4] The National Advisory Committee on Immunization (NACI) recommends that all individuals aged six months and older get the annual seasonal influenza vaccine, especially for populations at increased risk for influenza-related complications or hospitalization including:

- Children between 6 months and under 5 years of age;
- Adults and children with certain CMCs, such as heart conditions, diabetes, cancer/immune disorder, anemia, renal diseases and morbid obesity;
- Seniors 65 years of age and older; and
- All pregnant people.[5]

Pertussis (also known as "whooping cough") is a highly communicable bacterial infection caused by the bacterium *Bordetella pertussis*. The infection can cause a debilitating cough that may persist for over two weeks in adults. Among infants who are too young to be protected by a complete vaccine series, the infection can be life threatening. Since it is often unrecognized and undiagnosed in adults, infected adults can act as a source of infection for infants and other children. In Canada, the pertussis vaccine is available only in combination with tetanus and diphtheria vaccines.[6] To reduce the risk of transmitting the disease to children, the National Advisory Committee on Immunization (NACI) recommends that all adults receive one dose of the tetanus-diphtheria-acellular pertussis (Tdap) vaccine if they have not previously received a dose of pertussis-containing vaccines in adulthood. Additionally, one dose of Tdap vaccine should be administered every pregnancy to allow for the production and transfer of protective antibodies to the baby before birth. Tdap immunization in pregnancy is estimated to protect approximately 90% of infants less than 3 months of age.[6,7]

Tetanus (also known as "lockjaw"), which occurs worldwide, is caused by a neurotoxin produced by the bacterium *Clostridium tetani*. If spores of the bacteria enter the body, they can cause serious muscle spasms and complications, which can lead to death. The tetanus vaccine is only available in combination vaccines (Tdap or Td). Tetanus toxoid-containing vaccination usually takes place in infancy and childhood. In adulthood, one dose of the Tdap vaccine is recommended if not previously received in adulthood and a booster dose of a tetanus toxoid-containing vaccine (Td) is recommended every 10 years.[8]

Invasive pneumococcal disease (IPD) caused by the bacterium *Streptococcus pneumoniae* is one of the leading causes of morbidity and mortality worldwide. It commonly causes pneumonia, and is more likely to infect very young children, elderly people aged 65 and older and individuals with underlying medical conditions. NACI recommends that these individuals at high risk of IPD receive the pneumococcal vaccine, if not previously vaccinated.[9]

Herpes zoster (also known as shingles) is a manifestation of reactivated primary varicella-zoster virus infection, which causes varicella (also known as "chickenpox"). Herpes zoster causes a rash and neuropathic pain. Any person who has had varicella is at risk of developing shingles. This illness occurs most frequently among older adults and immunocompromised individuals. Immunization with a shingles vaccine is recommended by NACI for individuals 50 years of age and older without contraindications.[10]

Besides measuring adult vaccination coverage, this report also describes knowledge, attitudes and beliefs (KAB) regarding the influenza vaccine in particular, and vaccines in general, along with the reasons for non-vaccination. Understanding positive or negative perceptions regarding vaccination could help inform vaccination promotion efforts in order to increase vaccine uptake within the Canadian population.

Due to the ongoing COVID-19 pandemic, some additional questions were included in the survey to help measure the impact of the pandemic on influenza vaccination uptake and determine the potential difficulties encountered during vaccination. The respondents were also surveyed on their intention to get a COVID-19 vaccine once eligible, with questions on factors behind intention to vaccinate, intention not to vaccinate, and reasons for hesitancy towards the COVID-19 vaccines. Identifying COVID-19 vaccine-related attitudes and intentions helps to inform successful vaccination campaigns given that vaccines are a critical part of the pandemic response.

METHODOLOGY

Survey sampling

The survey was conducted by Léger Marketing. A comprehensive description of the quantitative methodology can be found elsewhere.[11] Briefly, a stratified regional sampling approach was used, with survey respondents from each province and territory selected using random digit dialling of landlines and known cellphone-only household numbers.

Sample weights were calculated by Léger based on age, gender, region, language (mother tongue), education level, and whether the respondent lives in a cellphone-only household.

Data collection

Interviews were conducted between January 6, 2021 and February 11, 2021, using a computer-assisted telephone interviewing (CATI) system. A total of 3,032 adults were surveyed regarding their adult vaccination status, reasons for vaccination or non-vaccination, KAB regarding vaccination, COVID-19 vaccination intent, and select demographic information. Respondents who were unsure of their vaccination status for a specific vaccine were excluded from any subsequent analyses for the vaccine(s) they were unsure of.

Statistical analysis

Vaccination coverage was estimated as the number of respondents who reported having received a given vaccine, expressed as a weighted proportion of the respondents who provided a definitive response (i.e., vaccinated or not vaccinated, excluding those who did not know). Coverage for each antigen was calculated for either all adults or for specific sub-populations defined by age or by health condition, depending on NACI recommendations for specific vaccines. Weighted proportions and 95% confidence intervals were calculated for categorical variables. Chi-square tests with a p-value <0.05 were used to determine significant differences in vaccination coverage between genders within each age or risk group.

RESULTS

The overall response rate calculated using the Marketing Research Intelligence Association's standard calculation method for the response rate of a telephone survey was 16%.[11]

All the proportions (%) reported hereafter are weighted, whereas the sample sizes (n) are unweighted.

Seasonal influenza vaccination

Vaccination coverage

Overall, four in ten adults (40%) aged 18 years and older received the 2020–2021 influenza vaccine. Influenza vaccine uptake was significantly higher in females (45%) than in males (35%, $p<0.001$). The vaccination rate was lowest among adults 18–64 years of age without any CMC (29%). A significant difference in influenza vaccine uptake between females and males was observed among those 18–64 years of age, with or without CMC. However, this difference was not significant among seniors aged 65 years and older, which is consistent with other studies.[12,13] (Table 1.1)

Although the national influenza vaccination coverage goal for those at high risk of influenza-related complications or hospitalization (80%) has not been achieved, vaccine uptake among seniors 65 years of age and older is approaching this goal (70%). (Table 1.1)

TABLE 1.1: Seasonal influenza vaccination coverage, by gender[a] and risk group[b]

	ALL		MALE		FEMALE		
Age group (years)	n	Vaccination coverage, % (95% CI)	n	Vaccination coverage, % (95% CI)	n	Vaccination coverage, % (95% CI)	*p*
All adults ≥18	3,014	40.4 (38.4–42.4)	1,399	35.2 (32.5–38.0)	1,595	45.2 (42.4–48.1)	<0.0001[c]
18–64	2,152	32.4 (30.1–34.6)	1,024	27.3 (24.3–30.3)	1,115	37.4 (34.1–40.7)	<0.0001[c]
18–64 with CMC	646	40.5 (36.2–44.8)	286	36.9 (30.7–43.1)	354	43.5 (37.5–49.4)	0.1361
18–64 without CMC	1,498	29.2 (26.6–31.8)	734	24.2 (20.8–27.6)	757	34.6 (30.6–38.5)	<0.0001[c]
≥65	862	70.4 (67.1–73.8)	375	68.0 (62.8–73.2)	480	72.8 (68.4–77.1)	0.1645

n: Number of respondents (unweighted).

CI: Confidence interval.

***p*:** p-value

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

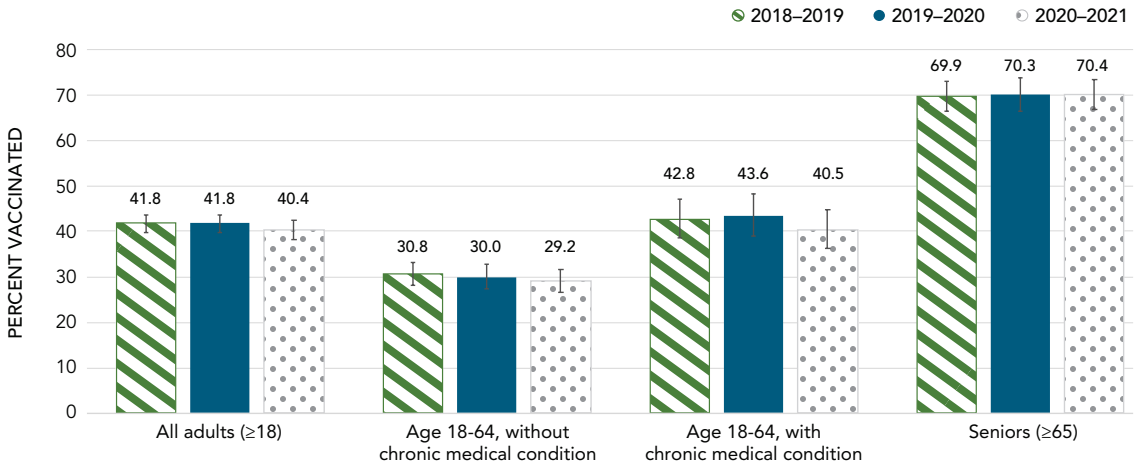
[a] 11 people did not disclose their gender and 9 people did not identify themselves as male nor female. They were excluded from the stratified analysis.

[b] 8 people aged 18–64 years did not disclose whether they had any chronic medical conditions (CMC) and were excluded from the stratified analysis.

[c] Significant difference between males and females (p<0.05).

Overall, the influenza vaccination coverage rates for the 2020–2021 flu season are very close to the vaccination coverage estimates for previous seasons in Canada.[14,15] (Figure 1.1)

FIGURE 1.1: Seasonal influenza vaccination coverage, by risk group and influenza season



Among high-risk groups, vaccination coverage rates for adults 18–64 years of age with a CMC and seniors 65 years of age and older remained steady over the past three seasons. Consistent with the previous cycles of the survey, the proportion of vaccinated respondents was highest among seniors aged 65 years and older (70%), lower among those 18–64 years of age with a CMC (41%), and lowest in those 18–64 years of age without a CMC (29%). (Figure 1.1)

Month and place of vaccination

Among respondents who recalled the month they received their influenza vaccination (n=1,330), the majority received the vaccine in October (42%) or November (38%) 2020. (Table 2.1) Vaccination early in the influenza season allows time for the development of antibodies against the influenza virus.[4] Optimal antibody levels, which correlate with vaccine protection, are generally achieved by two weeks following vaccination.[2]

TABLE 2.1: Month of influenza vaccination among vaccinated respondents

MONTH	PROPORTION VACCINATED IN THIS MONTH, % (95% CI)
September 2020	7.8 (6.1–9.5)
October 2020	42.3 (39.3–45.4)
November 2020	38.3 (35.3–41.4)
December 2020	10.9 (8.8–12.9)
January 2021	0.7 (0.2–1.1)[a]

CI: Confidence interval.

A total of 1,394 respondents were vaccinated and 1,330 respondents (95%) recalled the month of influenza vaccination.

[a] Interpret with caution because of high variability (>33%).

Consistent with previous seasons, the most commonly reported places of vaccination among adults were pharmacies (49%) and doctor's offices (23%). (Table 2.2) More and more people reported having received their flu vaccine in pharmacies, which may be due in part to the increasing number of jurisdictions allowing pharmacists to administer the influenza vaccine. Several provinces have implemented policies permitting pharmacists to administer influenza vaccines in community pharmacies to ease access to flu vaccination.[16] A study has shown that influenza vaccine uptake has modestly increased in Canadian jurisdictions where pharmacists were allowed to administer influenza vaccines.[16]

TABLE 2.2: Place of influenza vaccination among vaccinated respondents

PLACE OF VACCINATION	PROPORTION VACCINATED BY PLACE, % (95% CI)
Pharmacy	48.6 (45.6–51.7)
Doctor's office	23.0 (20.4–25.6)
Workplace	6.7 (5.0–8.4)
Temporary vaccine clinic	6.4 (4.9–7.9)
CLSC/Community health centre	5.8 (4.4–7.2)
Hospital	3.1 (2.1–4.2)[a]
Retirement residence	1.7 (1.0–2.5)[a]
Other	4.6 (3.4–5.8)

CI: Confidence interval.

A total of 1,394 respondents were vaccinated and recalled their place of influenza vaccination.

[a] Coefficient of variation between 16% and 33%; therefore, estimates should be interpreted with caution due to a higher level of error.

Reasons for vaccination

Among adults aged 18 years and older who provided a reason for receiving the vaccine (n=1,393), 37% were vaccinated because they wanted to prevent infection or to avoid getting sick. It was also one of the most commonly cited reasons for having received the influenza vaccine among high-risk groups, including seniors (34%) and those aged 18–64 years with a CMC (39%). In addition, 11% of Canadian adults aged 18 to 64 years without a CMC decided to vaccinate because they were more concerned about flu because of the COVID-19 pandemic. (Table 3.1)

TABLE 3.1: Top three reasons for influenza vaccination among vaccinated respondents, by risk group

REASON	% (95% CI)
All adults ≥18 (n=1,393)	
1. To prevent infection/don't want to get sick	37.1 (34.1–40.0)
2. Receive it yearly (no specific reason)	30.1 (27.4–32.8)
3. At risk because of health condition	10.5 (8.6–12.3)
18–64 without CMC (n=497)	
1. To prevent infection/don't want to get sick	38.9 (33.9–43.9)
2. Receive it yearly (no specific reason)	19.6 (15.7–23.6)
3. More concerned about flu because of the COVID-19 pandemic	11.2 (8.0–14.4)
18–64 with CMC (n=280)	
1. To prevent infection/don't want to get sick	38.8 (32.2–45.3)
2. At risk because of health condition	21.1 (15.6–26.7)
3. To prevent transmitting the disease to family members, colleagues or friends	10.3 (6.2–14.4)[a]
≥65 (n=614)	
1. Receive it yearly (no specific reason)	42.5 (38.2–46.8)
2. To prevent infection/don't want to get sick	33.9 (29.8–38.0)
3. At risk because of age	13.3 (10.3–16.2)

n: Number of respondents (unweighted).

CI: Confidence interval.

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

A total of 1,394 respondents were vaccinated and 1,393 respondents provided reasons for vaccination.

Respondents could provide more than one reason.

[a] Coefficient of variation between 16% and 33%; therefore, estimates should be interpreted with caution due to a higher level of error.

Reasons for non-vaccination

Among unvaccinated respondents who provided their main reason for not getting the vaccine (n=1,602), the most common answer was the perception of being healthy or never getting the flu (29%). The most commonly provided reasons for non-vaccination did not vary much among different risk groups, except for seniors for whom concerns about vaccine safety was one of the top reasons for not receiving the vaccine (9%). (Table 4.1)

TABLE 4.1: Top three reasons for influenza non-vaccination among unvaccinated respondents, by risk group

REASON	% (95% CI)
All adults ≥18 (n=1,602)	
1. I am healthy/ never get the flu	28.7 (26.1–31.2)
2. No specific reason, just didn't get it	14.4 (12.4–16.4)
3. I did not get around to it	8.1 (6.5–9.7)
18–64 without CMC (n=994)	
1. I am healthy/ never get the flu	30.6 (27.4–33.9)
2. No specific reason, just didn't get it	14.3 (11.9–16.8)
3. I did not get around to it	8.4 (6.4–10.5)
18–64 with CMC (n=361)	
1. I am healthy/ never get the flu	21.3 (16.5–26.1)
2. No specific reason, just didn't get it	15.8 (11.5–20.1)
3. I did not get around to it	7.9 (4.8–11.0)[a]
≥65 (n=241)	
1. I am healthy/ never get the flu	31.7 (25.4–38.0)
2. No specific reason, just didn't get it	11.6 (7.3–16.0)[a]
3. I do have concerns about the influenza vaccine, and/or its side effects	8.9 (5.1–12.7)[a]

n: Number of respondents (unweighted).

CI: Confidence interval.

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

A total of 1,620 respondents were unvaccinated and 1,602 respondents (99%) provided reasons for non-vaccination.

Respondents could only select one reason.

[a] Coefficient of variation between 16% and 33%; therefore, estimates should be interpreted with caution due to a higher level of error.

Impact of the COVID-19 pandemic on influenza vaccination

In the context of the COVID-19 pandemic, the 2020–21 influenza vaccination coverage survey also aimed to identify the potential impact of the pandemic on flu vaccine uptake. All of the respondents were asked if their likelihood of getting vaccinated against the flu had been affected due to the COVID-19 pandemic. Among those who provided a valid answer to the question (n=2,934), the majority (64%) stated that the COVID-19 pandemic did not affect their likelihood of getting the flu vaccine this year, while 25% were more likely to receive the flu vaccine and 11% were less likely to get the flu vaccine. (Table 5.1)

TABLE 5.1: Impact on the likelihood of getting the flu vaccine due to the COVID-19 pandemic

RESPONSE	% (95% CI)
More likely to get the seasonal flu shot	24.9 (23.1–26.7)
Less likely to get the seasonal flu shot	11.2 (9.9–12.6)
Did not affect the likelihood of getting the seasonal flu shot	63.9 (61.9–65.9)

CI: Confidence interval.

A total of 2,934 respondents provided a valid answer to this question.

Moreover, among individuals who had taken action to get vaccinated against the flu this year (n=1,795), less than half (47%) reported having encountered difficulties in scheduling an appointment for getting the flu shot due to the public health measures in place to reduce the spread of COVID-19. The most common difficulties encountered were limited appointment availability (23%); concerns about being exposed to COVID-19 (17%); and a lack of walk-in options (9%). (Table 5.2)

TABLE 5.2: Difficulties encountered in scheduling an appointment for getting the influenza vaccine

RESPONSE	% (95% CI)
Limited appointment availability	23.4 (21.0–25.8)
Concern about being exposed to COVID-19	16.7 (14.6–18.8)
Lack of walk-in options	9.0 (7.4–10.7)
Transportation to get to the appointment was a problem	2.6 (1.6–3.6)[a]
No one could take care of my children during the appointment	1.7 (1.0–2.5)[a]
Other reasons	10.0 (8.3–11.6)
I didn't encounter any difficulties in scheduling an appointment	53.3 (50.6–56.0)

CI: Confidence interval.

1,237 of respondents have not taken any action to get vaccinated this year, they are therefore excluded from the analysis.

[a] Coefficient of variation between 16% and 33%; therefore, estimates should be interpreted with caution due to a higher level of error.

Knowledge, attitudes and beliefs regarding vaccination

Most Canadian adults (92%) strongly or somewhat agreed that vaccines are important for their health and 90% thought that they know enough about vaccines to make a decision about getting vaccinated. A large majority (91%) believed that the flu vaccine is safe and a similar proportion (92%) understand why the flu vaccine is recommended annually. (Table 6.1)

TABLE 6.1: Knowledge, attitudes and beliefs (KAB) regarding vaccination

STATEMENTS	n	STRONGLY OR SOMEWHAT AGREE % (95% CI)
All vaccines in general		
In general, I consider vaccines to be important for my health.	3,014	92.0 (90.8–93.2)
I know enough about vaccines to make an informed decision about getting vaccinated.	2,998	89.5 (88.2–90.9)
Influenza vaccine		
The flu vaccine is ineffective to protect you against getting the flu.	2,907	34.1 (32.0–36.1)
Sometimes you can get the flu from the flu vaccine.	2,815	40.3 (38.1–42.4)
The flu vaccine is safe.	2,942	90.6 (89.3–91.8)
I understand why the flu vaccine is recommended annually.	2,995	91.5 (90.3–92.6)
My family doctor, general practitioner, or nurse practitioner is an important part of my decision when it comes to getting the flu vaccine.	2,931	74.3 (72.5–76.2)
COVID-19 vaccines		
It's a good thing for children to get natural immunity (protection) against COVID-19 by being exposed to coronavirus	2,790	35.3 (33.2–37.4)
It's a good thing for healthy adults under the age of 60 to get natural immunity (protection) against COVID-19 by being exposed to coronavirus.	2,879	29.6 (27.7–31.6)

n: Number of respondents (unweighted).

CI: Confidence interval.

However, more than one third of respondents (34%) believed that the flu vaccine is ineffective to protect them against the virus. In addition, four in ten adults (40%) believed that they can get the flu from the flu vaccine, which is not true. Flu vaccines cannot cause flu illness since flu vaccines are made with inactivated viruses that cannot cause disease.[2] These findings suggest the need to dispel the myth that the influenza vaccine can transmit the disease and to educate the Canadian population about the importance of getting the influenza vaccine and the safety of influenza vaccines.

About three quarters of adults (74%) strongly or somewhat agreed that the opinion of their family doctor, general practitioner or nurse practitioner is an important part of their decision for getting the flu vaccine. This indicates that there is public trust in health care professionals and suggests that advice from a health care provider and the frequency of interaction with the health care system may play an important role in influenza vaccine uptake.

Regarding COVID-19 vaccines, more than one third of the population (35%) strongly or somewhat agreed that it is a good thing for children to get natural immunity against COVID-19 by being exposed to coronavirus. Moreover, 30% believed that it is good for healthy adults under the age of 60 to get natural immunity against COVID-19 by being exposed to coronavirus. A previous COVID-19 infection or COVID-19 vaccination can both provide immunity and protection from serious outcomes. However, some research has shown that vaccination provides a higher, more robust, and more consistent level of immunity to protect people from COVID-19 than infection alone. These studies suggest that COVID-19 vaccines are more effective at preventing hospitalization than a previous infection.[17] Moreover, although severe disease from COVID-19 is less frequent in healthy young adults than in older adults or those with chronic disease, severe and lasting symptoms of COVID-19 do occur in younger adults.[18]

Pertussis and tetanus vaccinations

For adults, the pertussis booster is given in combination with tetanus and diphtheria (Tdap) in Canada.[6,8] Approximately one third of Canadian adults (34%) reported having received a pertussis-containing vaccine in adulthood. Vaccine uptake is higher among adults aged 18–44 years (40%), and it declines as age increases. (Table 7.1) Overall, vaccination coverage was significantly higher in females (37%) than in males (30%, $p<0.05$). The gender difference was not observed in older age groups (45 years and older). (Table 7.1)

TABLE 7.1:. Pertussis vaccination coverage among adults 18 years of age and older, by gender[a] and age group

	ALL		MALE		FEMALE		
Age group (years)	**n**	**Vaccination coverage, % (95% CI)**	**n**	**Vaccination coverage, % (95% CI)**	**n**	**Vaccination coverage, % (95% CI)**	***p***
All adults ≥18	2,582	33.8 (31.6–35.9)	1,191	30.2 (27.2–33.2)	1,373	37.4 (34.3–40.4)	0.0011[b]
18–44	844	40.0 (36.2–43.8)	422	33.1 (28.1–38.1)	415	47.5 (41.9–53.1)	0.0002[b]
45–64	987	32.3 (29.0–35.6)	450	29.4 (24.6–34.1)	532	35.0 (30.5–39.6)	0.0942
≥65	751	23.7 (20.4–27.1)	319	25.1 (19.9–30.3)	426	22.7 (18.4–27.1)	0.4994

n: Number of respondents (unweighted).

CI: Confidence interval.

***p*:** p-value

[a] 11 people did not disclose their gender and 9 people did not identify themselves as male nor female. They were excluded from the stratified analysis.

[b] Significant difference between males and females ($p<0.05$).

In the survey, it was mentioned to the respondents that tetanus vaccines, which can be called Tdap, Adacel or Boostrix, also protect against pertussis, or whooping cough, to clarify that vaccines against pertussis or tetanus could be administered in combination. In Canada, 67% of the population received a vaccine against tetanus in the previous 10 years. No difference in gender-specific coverage for tetanus-containing vaccine was observed. (Table 7.2)

In general, the coverage for pertussis- and tetanus-containing vaccines was lower among seniors aged 65 years and older. (Table 7.1 and Table 7.2)

TABLE 7.2: Tetanus vaccination coverage among adults 18 years of age and older, by gender[a] and age group

	ALL		MALE		FEMALE		
Age group (years)	n	Vaccination coverage, % (95% CI)	n	Vaccination coverage, % (95% CI)	n	Vaccination coverage, % (95% CI)	*p*
All adults ≥18	2,828	67.0 (65.0–69.0)	1,325	67.3 (64.4–70.1)	1,486	66.9 (64.2–69.7)	0.8786
18–64	2,027	71.0 (68.8–73.2)	977	70.5 (67.3–73.6)	1,039	71.7 (68.6–74.9)	0.5837
≥65	801	51.8 (48.0–55.6)	348	53.7 (48.0–59.5)	447	50.3 (45.3–55.4)	0.3879

n: Number of respondents (unweighted).

CI: Confidence interval.

***p*:** p-value

[a] 11 people did not disclose their gender and 9 people did not identify themselves as male nor female. They were excluded from the stratified analysis.

Among adults who provided a reason for not getting vaccinated against either pertussis- or tetanus-containing vaccines, the most commonly cited reason was the perception that the vaccine was not necessary (34% and 48%, respectively). A quarter of adults (25%) stated that they never heard of pertussis vaccine as their reason for non-vaccination. (Table 7.3)

TABLE 7.3: Top three reasons for pertussis and tetanus non-vaccination among unvaccinated adults 18 years of age and older

REASON	% (95% CI)
Vaccine against pertussis (n=1,736)	
1. I did not think it was necessary	33.5 (30.8–36.1)
2. I never heard of this vaccine	25.4 (22.9–28.0)
3. Doctor did not mention it	19.3 (17.1–21.4)
Vaccine against tetanus (n=999)	
1. I did not think it was necessary	48.3 (44.6–52.0)
2. Doctor did not mention it	11.3 (9.0–13.6)
3. I have not gotten around to it	8.6 (6.5–10.6)

n: Number of respondents (unweighted).

CI: Confidence interval.

Respondents could provide more than one reason.

Pneumococcal vaccination

NACI recommends one dose of pneumococcal polysaccharide (Pneu-P-23) vaccine for all seniors aged 65 years of age and older and for individuals with underlying chronic medical conditions, including heart conditions, asthma and/or other lung conditions, diabetes, immune disorders and liver disease, as they are at increased risk for invasive pneumococcal disease (IPD).[9] A greater proportion of seniors (55%) reported having received a pneumococcal vaccine in adulthood as compared to younger adults (18–64 years of age) with a CMC (26%). Pneumococcal vaccination coverage was significantly higher for females (60%) compared to males (48%) in the 65 years and older age group. (Table 8.1)

TABLE 8.1: Pneumococcal vaccination coverage among adults 18 years of age and older, by gender[a] and risk group[b]

	ALL		MALE		FEMALE		
Risk group (years)	**n**	**Vaccination coverage, % (95% CI)**	**n**	**Vaccination coverage, % (95% CI)**	**n**	**Vaccination coverage, % (95% CI)**	***p***
All adults ≥18	2,739	25.8 (24.0–27.7)	1,247	22.5 (20.0–25.0)	1,472	28.9 (26.3–31.6)	0.0006[c]
18–64 with CMC	580	26.2 (22.1–30.2)	253	24.5 (18.6–30.4)	321	27.5 (22.0–33.0)	0.4761
≥65	839	54.8 (51.1–58.5)	358	47.8 (42.1–53.4)	474	60.3 (55.5–65.1)	0.0009[c]

n: Number of respondents (unweighted).

CI: Confidence interval.

***p*:** p-value

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

[a] 11 people did not disclose their gender and 9 people did not identify themselves as male nor female. They were excluded from the stratified analysis.

[b] 8 people who were 18–64 years old did not disclose whether they had any chronic medical conditions (CMC) and were excluded from the stratified analysis.

[c] Significant difference between males and females ($p<0.05$).

Among respondents who provided a reason for not receiving a pneumococcal vaccine, the most commonly reported answer among adults 18–64 years of age with a CMC was that they had never heard of this vaccine (25%). In contrast, the most common reason among seniors (65 years and older) was the perception that the pneumococcal vaccine was not necessary (32%). (Table 8.2)

TABLE 8.2: Top three reasons for pneumococcal non-vaccination among unvaccinated adults 18 years of age and older, by risk group

REASON	% (95% CI)
18–64 with CMC (n=409)	
1. I never heard of this vaccine	24.7 (19.8–29.6)
2. Doctor did not mention it	24.3 (19.3–29.4)
3. I didn't think it was necessary	23.8 (19.0–28.5)
≥65 (n=365)	
1. I didn't think it was necessary	32.0 (26.7–37.4)
2. I never heard of this vaccine	17.5 (13.3–21.8)
3. Doctor did not mention it	16.0 (11.9–20.2)

n: Number of respondents (unweighted).

CI: Confidence interval.

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

Respondents could provide more than one reason.

Shingles vaccination

NACI recommends that adults 50 years of age and older receive one dose of shingles vaccine.[10,19] Among participants 50 years of age and older, 27% reported having received their shingles vaccine. No significant difference by gender was observed. (Table 9.1)

TABLE 9.1: Shingles vaccination coverage among adults 50 years of age and older, by gender[a]

VACCINATION COVERAGE	n	% (95% CI)
All adults ≥50	1,775	27.4 (25.2–29.7)
Male	776	25.5 (22.2–28.9)
Female	988	29.2 (26.1–32.3)

n: Number of respondents (unweighted).

CI: Confidence interval.

No significant difference between males and females (p=0.1118)

[a] 11 people did not disclose their gender and 9 people did not identify themselves as male nor female. They were excluded from the stratified analysis.

Among adults 50 years of age and older who provided a reason for not receiving a shingles vaccine (n=1,224), the most commonly stated response was the perception that the vaccine was not necessary (28%).

15% of respondents stated that they had not gotten around to getting the vaccine and the same proportion of respondents (15%) did not get the shingles vaccine because of the cost of the vaccine, since shingles vaccine is not publicly funded in all provinces.[20] (Table 9.2)

TABLE 9.2: Top three reasons for shingles non-vaccination among unvaccinated adults 50 years of age and older

REASON	% (95% CI)
I didn't think it was necessary	27.7 (24.9–30.6)
I have not gotten around to it	15.2 (12.8–17.6)
Cost of the vaccine	14.6 (12.4–16.8)

CI: Confidence interval.

A total of 1,224 respondents provided reasons for not receiving a shingles vaccine.

Respondents could provide more than one reason.

COVID-19 vaccination

With the COVID-19 pandemic, information related to intention to get vaccinated against COVID-19 vaccination was also collected in the survey this year. At the time of the data collection, between January 6, 2021 and February 11, 2021, two COVID-19 vaccines (Pfizer-BioNTech and Moderna) were authorized for use in Canada.[21] At that time, a majority of Canadian adults (72%) intended to receive a COVID-19 vaccine, while 17% had not decided yet and 10% did not intend to get a COVID-19 vaccine. (Table 10.1)

TABLE 10.1: Intention of receiving a COVID-19 vaccine among all adults 18 years of age and older

RESPONSE	% (95% CI)
Yes, I will definitely get vaccinated	71.6 (69.7–73.6)
Maybe, I am not decided yet	17.1 (15.5–18.7)
Certainly not	10.0 (8.7–11.3)
I am already vaccinated against COVID-19	1.2 (0.8–1.6)[a]

CI: Confidence interval.

A total of 3,001 respondents provided a valid answer to this question.

[a] Coefficient of variation between 16% and 33%; estimates should be interpreted with caution due to a higher level of error.

The main reasons for Canadian adults intending to receive a COVID-19 vaccine were to protect themselves (32%) or their family members (18%) from the disease. Among adults aged 18–64 years without a CMC, one of the common reasons for getting vaccinated against COVID-19 was to prevent the spread of the virus in the community (17%). A higher proportion of seniors intended to vaccinate to protect themselves personally from COVID-19 (50%). As for younger adults without any chronic conditions, 24% of them intended to get vaccinated to protect themselves and 22% would get vaccinated to protect their family members from the disease. (Table 10.2)

TABLE 10.2: Top three reasons for getting vaccinated against COVID-19 among adults 18 years of age and older, by risk group[a]

REASON	% (95% CI)
All adults ≥18 (n=2,653)	
1. To protect myself personally from COVID-19	31.7 (29.7–33.7)
2. To protect family members from COVID-19	18.0 (16.2–19.8)
3. To put an end to the pandemic	16.1 (14.5–17.7)
18–64 without CMC (n=1,273)	
1. To protect myself personally from COVID-19	23.5 (20.8–26.2)
2. To protect family members from COVID-19	21.8 (19.1–24.5)
3. To prevent the spread of COVID-19 in my community	17.1 (14.7–19.5)
18–64 with CMC (n=567)	
1. To protect myself personally from COVID-19	32.9 (28.5–37.4)
2. To protect family members from COVID-19	18.1 (14.4–21.8)
3. To put an end to the pandemic	15.8 (12.3–19.2)
≥65 (n=805)	
1. To protect myself personally from COVID-19	50.1 (46.3–53.8)
2. To put an end to the pandemic	14.5 (11.8–17.1)
3. To protect family members from COVID-19	9.0 (6.8–11.2)

N: Number of respondents (unweighted).

CI: Confidence interval.

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

Respondents could only select one reason.

[a] 8 people aged 18–64 years did not disclose whether they had any chronic medical conditions (CMC) and were excluded from the stratified analysis.

Among those individuals who stated that they are certainly not going to get a COVID-19 vaccine (n=251), the most commonly cited reason was they do not trust vaccines in general (20%), 17% did not intend to receive the vaccine because it is a new vaccine and 15% had concerns about the potential adverse effects of the COVID-19 vaccines. (Table 10.3)

TABLE 10.3: Top three reasons for not getting vaccinated against COVID-19 among adults 18 years of age and older

REASON	% (95% CI)
I don't trust vaccines in general	20.3 (14.5–26.1)
I'm afraid because it is a new vaccine	16.7 (11.3–22.1)[a]
I'm afraid of potential adverse effects	15.3 (10.2–20.3)[a]

CI: Confidence interval.

A total of 251 respondents who did not intend to receive a COVID-19 vaccine provided their main reason for non-vaccination.

[a] Coefficient of variation >16%; estimates should be interpreted with caution due to a higher level of error.

Overall, the main reason for being hesitant to get vaccinated against COVID-19 was concerns about the safety or side effects of the vaccines. Among adults aged 18–64 without underlying medical conditions and seniors aged 65 years and older who did not decide yet to vaccinate, the most common reason for being hesitant was not enough testing or research on the vaccine had been done. (Table 10.4)

TABLE 10.4: Top three reasons for being hesitant to get vaccinated against COVID-19, by risk group

REASON	% (95% CI)
All adults ≥18 (n=452)	
1. I have concerns about the safety and/or side effects of the vaccine	30.3 (25.5–35.0)
2. Not enough testing or research on the vaccine has been done	25.3 (20.8–29.7)
3. I would wait to see if the vaccine is effective	19.3 (15.1–23.4)
18–64 without CMC (n=268)	
1. Not enough testing or research on the vaccine has been done	26.3 (20.4–32.2)
2. I have concerns about the safety and/or side effects of the vaccine	25.7 (20.0–31.4)
3. I would wait to see if the vaccine is effective	21.9 (16.2–27.5)
18–64 with CMC (n=107)	
1. I have concerns about the safety and/or side effects of the vaccine	46.8 (36.0–57.5)
2. Not enough testing or research on the vaccine has been done	21.4 (12.7–30.1)[a]
3. I would wait to see if the vaccine is effective	8.9 (3.7–14.2)[a]
≥65 (n=76)	
1. Not enough testing or research on the vaccine has been done	27.4 (16.7–38.0)[a]
2. I have concerns about the safety and/or side effects of the vaccine	25.4 (14.7–36.0)[a]
3. I would wait to see if the vaccine is effective	24.6 (14.5–34.7)[a]

n: number of respondents (unweighted).

CI: Confidence interval.

CMC: Chronic medical conditions including asthma, lung diseases, heart conditions, cancer, diabetes, liver or kidney diseases, immune disorder, spleen problems, anemia, obesity, cochlear implant and chronic cerebrospinal fluid leak.

[a] Coefficient of variation >16%; estimates should be interpreted with caution due to a higher level of error.

The proportion of individuals who intended to get vaccinated against COVID-19 was higher among those who had received their flu vaccine this season (89%) comparing to those who were unvaccinated against the flu (60%). Another study showed that those individuals who had received the seasonal influenza vaccine demonstrated higher intention to receive a COVID-19 vaccine.[22] (Table 10.5)

TABLE 10.5: Intent to get vaccinated against COVID-19 by influenza vaccination uptake among all adults 18 years of age and older

COVID-19 VACCINE INTENT	INFLUENZA VACCINATION	
	VACCINATED AGAINST FLU % (95% CI)	UNVACCINATED AGAINST FLU % (95% CI)
Yes, I will definitely get vaccinated	88.9 (87.0–90.9)	59.8 (57.0–62.5)
Maybe, I am not decided yet	7.6 (6.0–9.3)	23.6 (21.3–26.0)
Certainly not	1.6 (0.7–2.5)[a]	15.7 (13.7–17.8)
I am already vaccinated against COVID-19	1.8 (1.1–2.5)[a]	0.8 (0.4–1.3)[a]

CI: Confidence interval.

A total of 2,983 respondents who provided a valid answer for COVID-19 vaccine intent and influenza vaccine uptake were included in the analysis.

[a] Coefficient of variation between 16% and 33%; therefore, estimates should be interpreted with caution due to a higher level of error.

DISCUSSION

According to the 2020–2021 Seasonal Influenza Vaccination Coverage Survey results, the reported influenza vaccination coverage for target groups at higher risk of severe influenza-related complications, including adults aged 18 to 64 years with chronic diseases and seniors aged 65 years and older, remained below the national vaccination coverage goal of 80%.[1] Despite a higher vaccine uptake among seniors, which was close to the target coverage goal, very little improvement has been achieved in recent years. Individuals unaware that they are considered at high risk of influenza-related complications may contribute to low coverage.[23]

While most Canadian adults thought that vaccines are important for their health, a significant proportion of the population falsely believed that the flu vaccine is ineffective (38%) and that they can get the flu from the flu vaccine (40%). Future influenza vaccination promotion campaigns should strive to dispel the myth that flu vaccines can cause the flu, and increase the Canadian population's awareness of the importance and usefulness of influenza vaccines.

Regarding COVID-19 vaccines, more than one third of the population (35%) strongly or somewhat agreed that it is a good thing for children to get natural immunity against COVID-19 by being exposed to coronavirus. Moreover, 30% believed that it is good for healthy adults under the age of 60 to get natural immunity against COVID-19 by being exposed to coronavirus. Previous COVID-19 infection or COVID-19 vaccination can both provide immunity and protection from the infection. However, some research has shown that vaccination provides a higher, more robust, and more consistent level of immunity to protect people from COVID-19 than infection alone. These studies suggest that COVID-19 vaccines are more effective at preventing hospitalization than a previous infection.[17]

While almost half of the Canadian adults surveyed stated that they had encountered difficulties in scheduling an appointment for getting the flu vaccine this year due to the public health measures in place to reduce the spread of COVID-19, it did not seem to have a significant impact on flu vaccination coverage.

In general, vaccination coverage against pertussis was the lowest among all adult vaccines in Canada. One of the most commonly stated reasons for not getting vaccinated against pertussis among unvaccinated individuals was that they had never heard of this vaccine. This could be due to the fact that the vaccine is administered in combination with other vaccines, and it is often called Tdap, or tetanus vaccines. As identified by another study, there is low awareness among Canadian adults regarding the need to vaccine against pertussis and the existence of pertussis vaccine in the Tdap vaccine.[24]

While a greater proportion of seniors aged 65 years and older reported having received a pneumococcal vaccine in adulthood compared to younger adults aged 18 to 64 years with a CMC, the number still remains below the national goal of 80%.

A relatively low shingles vaccination coverage observed in Canada might be partly explained by the fact that the vaccine is not publicly funded in all jurisdictions. One of the most commonly reported reasons for not receiving the shingles vaccine among adults aged 50 years and older was the cost of the vaccine. Moreover, given this vaccine is unfunded by governments whereas others are, it may contribute to the perception that this vaccine is less needed comparing to other publicly funded adult vaccines.

Generally, the survey revealed favourable attitudes toward COVID-19 vaccination. The majority of the population intended to vaccinate against COVID-19. However, there was still a significant proportion of the population that did not intend to get a COVID-19 vaccine or was hesitant to get vaccinated against COVID-19. Understanding and addressing their concerns is crucial to promoting COVID-19 vaccine uptake.

STRENGTHS AND LIMITATIONS

The major strength of this survey was the timely reporting of seasonal influenza vaccination coverage across Canada. The timeliness of this survey allows Canada to meet its international reporting obligations and help identify priorities for future vaccination program planning. Additionally, the Seasonal Influenza Vaccination Coverage Survey is flexible in allowing question modules to be added or removed on an annual basis in light of changing priorities.

Limitations of this survey included the relatively low response rate of 16%. This response rate can increase the potential for non-response bias, as survey respondents may differ from those who chose not to complete the survey.

Additionally, survey respondents were interviewed within six months of the beginning of the seasonal influenza vaccination campaign to further mitigate recall bias. Other vaccinations, such as pertussis, tetanus and pneumococcal vaccines, may have been administered more than 10 years before the survey was administered, thereby increasing the likelihood of inaccurate self-reporting. Recent studies have found that self-reported pneumococcal vaccination may underestimate the true rate due to unawareness of pneumococcal vaccination.[25] Similarly for the pertussis-containing vaccine, due to the lower awareness of its existence in combination vaccines such as Tdap, the real vaccine uptake may be underestimated in the present study. However, it appears in some studies that self-reported influenza vaccination status is a valid measure of vaccine exposure when medical records or registry data are not available.[25,26]

CONCLUSION

Seasonal influenza vaccination coverage in the 2020–2021 season (40%) was similar to previous seasons. Coverage in those at increased risk of influenza-related complications, namely seniors over 65 years of age (70%) and adults 18–64 years of age with a CMC (41%) remained below the national goal of 80%. Coverage for pneumococcal vaccine was higher in seniors (55%) than in younger adults with a CMC (26%), but again, the goal of 80% for seniors aged 65 and older is still unmet.

The most commonly reported reasons for influenza vaccination were to prevent infection or to avoid getting sick, whereas the most common reason for non-vaccination against influenza and other adult vaccines was the perception that the vaccine was not necessary.

Ongoing efforts to promote and educate the adult population on the benefits of recommended vaccines is required in order to increase uptake, particularly among those who are considered at high risk of severe complications. Continued efforts on understanding and identifying the factors influencing vaccine uptake are needed in order to develop effective strategies and interventions to increase uptake.

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