

2016/17 SEASONAL INFLUENZA VACCINE COVERAGE IN CANADA



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TABLE OF CONTENTS

INTRODUCTION	2
METHODOLOGY	3
Survey Sampling.....	3
Data Collection	3
Statistical Analysis	3
RESULTS AND DISCUSSION	4
1. Vaccine coverage in adults.....	4
2. Month and place of vaccination among vaccinated adults	5
3. Reasons for vaccination among adults.....	6
4. Reasons for non-vaccination among adults	7
5. Receiving advice to get the influenza vaccine	8
6. Receiving advice not to get the influenza vaccine.....	10
7. Vaccine coverage in children.....	11
STRENGTHS AND LIMITATIONS	12
CONCLUSIONS	12
REFERENCES	13



This report summarizes the results of the 2016/17 National Influenza Immunization Coverage Survey in Canada. Telephone interviews were conducted between February 14th, 2017 and March 5th, 2017, to collect information on uptake of the influenza vaccine during the 2016/17 season. In total, 2,024 Canadian adults were interviewed. Coverage was estimated for adults in general and specifically in two subgroups for which the vaccine is particularly recommended: seniors (65 years or older) and adults aged 18-64 years with a chronic medical condition (CMC). The uptake of vaccine in children inhabiting participants' households was also measured (n=861).

Key findings

- Vaccine coverage was higher among adults 65 years of age and older (69%) than adults 18–64 years with CMC (37%). Vaccine coverage in both groups remains below national targets of 80%.
- Most adults who received the influenza vaccine were vaccinated early in the influenza season in October or November 2016 (75%). Doctor's offices (33%) and pharmacies (28%) were the most commonly reported places for vaccination.
- Adults aged 65 years of age and over, or aged 18–64 years with CMC are at increased risk of influenza-related complications. Only 36% and 47%, respectively, reported being advised to receive the influenza vaccine in the previous year.
- Receiving advice from a health care provider to receive the influenza vaccine was significantly associated with uptake among adults aged 18–64 years with and without CMC.
- The most frequent reason cited for getting the vaccine among adults was to prevent infection and to avoid getting sick (45%). The most frequently reported reason for not getting the vaccine was that it was not needed/not recommended or individuals were not at high risk (48%).

INTRODUCTION

Influenza, or flu, usually occurs between November and April in the northern hemisphere. In Canada, an average of 12,200 hospitalizations and 3,500 deaths can be attributed to the flu each year (1). The risk of hospitalization due to influenza infection is greatest in very young children and elderly persons.

The best way to prevent influenza and its potential complications is to get vaccinated against it. It is important to get a new influenza vaccine every year for two reasons. First, the effectiveness of the vaccine can wear off, it is therefore important to get immunized every year to stay protected. Second, the type of flu virus—or strain—in circulation usually changes from year to year and experts create a new vaccine based on the virus strain(s) that will be circulating that season.

Provinces and territories (P/T) usually launch their vaccination programs in October, and the best time to get the vaccine is between October and December, before influenza begins spreading in the community. However, vaccination continues to be offered throughout the flu season, as long as flu viruses are circulating.

The National Advisory Committee on Immunization (NACI) recommends that all individuals six months and older receive the annual seasonal influenza vaccine, especially populations at high-risk for influenza-related complications including:

- Children aged six months to 59 months
- People with certain chronic medical conditions, and
- Seniors (aged 65 years and older) (2)

In Canada, national vaccination coverage goals of 80% are set for influenza, for both adults aged 65 and older and for persons less than 65 years of age with high-risk conditions (3). Internationally, the World Health Organization has set a coverage goal of 75% among elderly people (4).

Measuring influenza vaccine coverage every year is important to evaluate vaccination programs, to identify sub-populations with low coverage, and to monitor the attainment of Canada's national vaccine coverage goals. This information is also important for informing influenza vaccination program planning in subsequent seasons.

This report describes influenza vaccine coverage for the general adult population, children and, specific target groups in the 2016/17 influenza season, based on data from the 2016/17 cycle of the National Influenza Immunization Coverage Survey.

METHODOLOGY

Survey Sampling

The survey was carried out by Léger Marketing. Respondents from every P/T were selected using random digit dialing of land lines and known cellphone-only household numbers. Approximately 23.7% of Canadian households use a cell-phone exclusively (5); therefore, stratification was used to select respondents such that 23.7% of the final survey sample was derived from cell-only numbers. Sampling was stratified by P/T to ensure a sufficient number of interviews within each region of Canada. Using data from the 2011 National Household Survey, all estimates from the survey of adults were weighted to represent the Canadian population based on age, gender, P/T of residence, and first language. For adults, sampling weights were calculated and provided by Léger for all analyses. As the data were available at the time of analysis, sampling weights for children were calculated in-house using data from the 2016 Canadian Census. Influenza vaccine coverage estimates for children were weighted to represent the population based on age, gender, and P/T of residence.

Data Collection

Interviews were conducted between February 14th and March 5th, 2017 by Léger. Data were collected using computer-assisted telephone interviewing technology. A total of 2024 adults were interviewed on questions regarding their influenza vaccine uptake for the 2016/17 season, reasons for receiving or declining the vaccine, interactions with health and alternative care providers, and select demographic information. Respondents who were parents or guardians of children living in the same household were asked additional questions on influenza vaccine uptake for their children.

Statistical Analysis

Vaccine coverage was estimated as the number of positive responses (i.e. having received the vaccine) expressed as a percentage of the sum of positive and negative responses (those who did not know or declined to respond were excluded). Simple weighted proportions were calculated for place, month of, and reasons for vaccination or non-vaccination among adults. Logistic regression was used to assess potential associations between receiving advice by a health care provider to receive the influenza vaccine and vaccine uptake. Unadjusted (OR) and adjusted (aOR) odds ratio and 95% confidence intervals were estimated. Factors with a p -value <0.1 in simple logistic regressions were included in the multiple regressions to control for potential confounders. For vaccine coverage estimates in children, the analysis was adjusted for clustering, i.e., the fact that children in the same household are more likely to have the same vaccination status as each other. Population weights could not be applied to children with missing information on gender, age, or P/T of residence. As a result, children with missing information ($n=15$) were excluded from the final analyses.

RESULTS AND DISCUSSION

1. Vaccine coverage in adults

A total of 2024 adults were interviewed for the 2016–2017 National Influenza Immunization Coverage Survey. Overall, approximately 36% of adults aged 18 years and older (n=2024) reported receiving the 2016/17 influenza vaccine (Table 1). Vaccine coverage was 37% among adults aged 18–64 years with CMC and 69% among adults 65 years of age or older (Table 1). This is below national targets of 80% for these adults who are at increased risk of influenza-related complications (3).

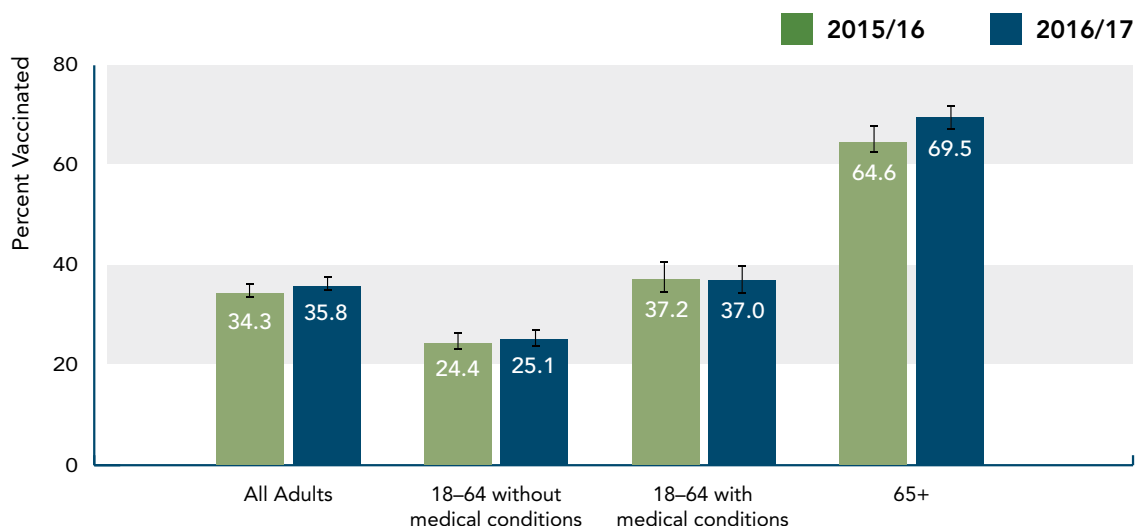
TABLE 1. Influenza vaccine coverage among adults (n=2024) by age group and medical conditions, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	n	INFLUENZA VACCINE COVERAGE (95% CONFIDENCE INTERVAL)
All adults (≥18 years)	2024	35.8 (33.5–38.1)
18–49	804	22.7 (19.4–25.9)
50–64	642	38.2 (34.2–42.3)
≥65	578	69.5 (65.5–73.4)
18–64		
18–64, with chronic conditions	407	37.0 (31.9–42.1)
18–64, without chronic conditions	1039	25.1 (22.1–28.0)

n = number of respondents (unweighted).

Results from the 2016/17 survey are similar to estimates from the 2015/16 National Influenza Immunization Coverage Survey (Figure 1), where vaccine coverage was 34% for adults 18 years and older, 37% for adults aged 18–64 with CMC, and 65% among adults 65 years of age or older (6).

FIGURE 1. Seasonal influenza vaccine coverage, National Influenza Immunization Survey, 2015–2016 and 2016–2017 flu seasons



2. Month and place of vaccination among vaccinated adults

Seasonal influenza activity can begin as early as November in the northern hemisphere (2). Therefore, P/T promotional campaigns encourage Canadian adults to receive the vaccine early in the season, before the flu begins circulating in the community. During the 2016/17 influenza campaign, most adults who received the vaccine ($n=853$) were vaccinated early on in the flu season, in October or November 2016 ($n=646$) (Table 2.1). Similar to findings from the 2015/16 survey, the most commonly reported places of vaccination among adults were doctor's offices and pharmacies (Table 2.2).

TABLE 2.1. Month of vaccination among adults ≥ 18 years ($n=853$)*, National Influenza Immunization Coverage Survey, Canada, 2016–2017.

MONTH	n	PROPORTION VACCINATED IN THIS MONTH (95% CONFIDENCE INTERVAL)
September 2016	36	4.2 (2.6–5.8)
October 2016	312	37.6 (33.8–41.3)
November 2016	334	37.1 (33.5–40.7)
December 2016	73	8.7 (6.60–10.8)
January 2017	31	4.2 (2.5–5.9)
February 2017	7	0.7 (0.2–1.2)

n = number of respondents (unweighted).

* 60 respondents did not remember the month of vaccination.

Similar to findings from the 2015/16 survey, the most commonly reported places of vaccination among adults were doctor's offices and pharmacies (Table 2.2).

TABLE 2.2. Place of vaccination among adults ≥ 18 years ($n=853$)*, National Influenza Immunization Coverage Survey, Canada, 2016–2017

PLACE OF VACCINATION	n	PROPORTION VACCINATED IN THIS MONTH (95% CONFIDENCE INTERVAL)
Doctor's office	289	32.7 (29.1–36.2)
Pharmacy	233	27.9 (24.4–31.4)
Temporary vaccine clinic	98	11.4 (8.9–13.9)
CLSC/Community Health Centre	95	10.2 (8.0–12.4)
Work	66	8.9 (6.6–11.2)
Hospital	48	6.7 (4.7–8.7)
Other [†]	22	2.1 (1.2–3.1)**

n = number of respondents (unweighted).

* 2 respondents did not remember the place of vaccination.

[†] Retirement home was included in the 'other' category.

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

3. Reasons for vaccination among adults

Among adults who received the vaccine during the 2016/17 season ($n=853$), 99% ($n=848$) provided at least one reason for being vaccinated (Table 3).

To prevent infection was the most commonly reported reason across all adults (45%) and sub-groups (35 to 51%). Among adults aged 18–64 years with CMC, *being at risk due to a health condition* was also a commonly reported reason for receiving the vaccine (31%), whereas for adults aged 65 years or older, *receiving the vaccine on a yearly basis* (23%) and *receiving a recommendation from a health care provider* (12%) were frequently reported.

TABLE 3. Top three most frequent reasons for receiving the influenza vaccine among adults aged ≥ 18 years, National Influenza Immunization Coverage Survey, Canada, 2016–2017

	REASON	%	(95% CI)
All adults (≥ 18 years) (n=848)*	To prevent infection/don't want to get sick	44.6%	(40.8–48.5)
	Required by workplace	16.0%	(12.8–19.2)
	Receive vaccine yearly	13.3%	(10.9–15.7)
18–64 without CMC (n=282)	To prevent infection/don't want to get sick	43.9%	(37.1–50.7)
	Required by workplace	25.3%	(19.2–31.4)
	If not vaccinated, can transmit disease to at-risk people	9.0%**	(5.6–12.4)
18–64 with CMC (n=165)	To prevent infection/don't want to get sick	35.2%	(27.1–43.2)
	At risk because of a health condition	31.0%	(23.1–38.9)
	Required by workplace	18.0%**	(11.1–24.9)
≥ 65 (n=401)	To prevent infection/don't want to get sick	51.0%	(45.9–56.2)
	Receive the vaccine yearly	22.6%	(18.3–26.8)
	Recommended by a health care professional	12.4%	(8.8–15.9)

Note: Respondents could provide more than one reason for receiving the vaccine.

n = number of respondents (unweighted).

CMC – Chronic medical condition(s).

CI – Confidence interval.

*5 respondents refused to provide a reason for receiving the vaccine during the 2016/17 influenza season.

**Coefficient of variation $>16\%$ therefore estimates should be interpreted with caution due to a higher level of error.

4. Reasons for non-vaccination among adults

Among adults who did not receive the influenza vaccine during the 2016/17 season (n=1171), 98% (n=1149) provided at least one reason for not receiving the vaccine (Table 4).

The most commonly reported reason was the belief that the *vaccine was not needed or that the individual was not at high risk* (48%). This was consistent across all adult groups, including adults that are in fact at increased risk of complications from the flu. *Lack of belief in the vaccine's effectiveness* and *lack of time* were also consistently reported in all adult sub-groups (Table 4). Media reports of low levels of vaccine effectiveness or poor match between virus strains in the vaccine and circulating strains during certain influenza seasons may contribute to these beliefs (7).

TABLE 4. Top three most frequent reasons for not receiving the influenza vaccine among adults aged ≥ 18 years, National Influenza Immunization Coverage Survey, Canada, 2016–2017

	REASON	%	(95% CI)
All adults (≥ 18 years) (n=1149)*	Don't need it/not a person at high risk/not recommended for me	48.5	(45.2–51.8)
	Do not believe in vaccine's effectiveness	19.2	(16.6–21.7)
	No time	15.1	(12.5–17.6)
18–64 without CMC (n=738)	Don't need it/not a person at high risk/not recommended for me	49.1	(45.0–53.2)
	Do not believe in the vaccine's effectiveness	20.0	(16.8–23.2)
	Didn't get the time to do it	15.6	(12.4–18.9)
18–64 with CMC (n=237)	Don't need it/not a person at high risk/not recommended for me	46.7	(39.7–53.8)
	Do not believe in vaccine's effectiveness	16.6	(11.5–21.7)
	No time	15.3**	(10.3–20.4)
≥ 65 (n=174)	Don't need it/not a person at high risk/not recommended for me	47.7	(39.8–55.6)
	Do not believe in vaccine's effectiveness	18.3	(12.3–24.2)
	No time	10.2**	(5.9–14.6)

Note: Respondents could provide more than one reason for not receiving the vaccine.

n = number of respondents (unweighted).

CMC – Chronic medical condition(s).

CI – Confidence interval.

*22 respondents did not provide a reason for not receiving the vaccine during the 2016/17 influenza season.

**Coefficient of variation $>16\%$ therefore estimates should be interpreted with caution due to a higher level of error.

5. Receiving advice to get the influenza vaccine

The survey assessed whether adults had been advised to receive, or not receive, the vaccine in the past year. This information can help to better understand potential missed opportunities for uptake of the influenza vaccine, as well as potential influencers of non-vaccination.

Approximately 40% of adults reported having been advised to receive the influenza vaccine in the previous 12 months (Table 5.1). This advice came mainly from health care providers (47%), friends (21%), and coworkers/employers (17%) (Table 5.2).

Among adults who are at increased risk of influenza-related complications, 47% of adults aged 18–64 years with CMC were advised to receive the influenza vaccine in the previous year, compared with 36% of adults aged 65 years of age and over (Table 5.1).

TABLE 5.1. Adults who were advised to receive the influenza vaccine in the previous 12 months (n=2024)*, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	%	(95% CI)
Total population (≥18 years)	40.2	(37.7–42.7)
18–64, without chronic conditions	39.1	(35.7–42.4)
18–64, with chronic conditions	47.4	(42.0–52.8)
≥65	36.1	(32.0–40.3)

n = total number of respondents (unweighted).

CI – confidence interval.

*8 respondents refused to provide a response or did not remember whether they had been advised to receive the influenza vaccine in the last 12 months.

TABLE 5.2. Top three most commonly reported sources of information advising to receive the influenza vaccine among adults aged ≥ 18 years, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	SOURCE(S) OF INFORMATION ADVISING TO RECEIVE THE INFLUENZA VACCINE	%	(95% CI)
Total population (≥18 years) (n=782)*	Health care provider [†]	46.9	(42.9–50.9)
	Friends	21.1	(17.7–24.4)
	Co-worker/employer*	17.3	(14.1–20.5)

CI – Confidence interval.

[†] Includes family physicians, nurse practitioners, and pharmacists.

* 787 adults > 18 years reported being advised to receive the influenza vaccine; 5 respondents refused to provide a response as to who advised them to receive the influenza vaccine.

** Coefficient of variation >16% therefore caution should be taken when interpreting estimates due to higher level of error

Note: Respondents could provide more than one response.

Whether adults are advised to receive the influenza vaccine by a health care provider specifically is important information for identifying potential missed opportunities for vaccination. Among adults at increased risk of influenza-related complications, approximately 25% reported being advised to receive the influenza vaccine by a health care provider in the past year (Table 5.3). Among adults aged 18–64 years without CMC, approximately 14% reported being advised by a health care provider. Furthermore, being advised by a health care provider to receive the influenza vaccine was significantly associated with vaccine uptake among adults aged 18–64 years both with and without CMC, but not among adults aged 65 years and over (Table 5.3).

TABLE 5.3. Association between being advised to receive the influenza vaccine by a health care provider[†] and vaccine uptake in adults ≥18 years (n=2024)*, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	ADVISED BY HCP % (95% CI)	UNADJUSTED OR (95% CI)	ADJUSTED OR (95% CI)
18–64, without chronic conditions			
Advised by HCP	14.5 (12.1–16.8)	2.82 (1.91–4.17)	2.79 (1.86–4.19) ^a
Not advised by HCP		Reference	Reference
18–64, with chronic conditions			
Advised by HCP	25.7 (21.0–30.4)	1.87 (1.14–3.07)	1.91 (1.13–3.23) ^b
Not advised by HCP		Reference	Reference
≥65			
Advised by HCP	25.4 (21.6–29.2)	1.31 (0.84–2.05)	--
Not advised by HCP		Reference	--

n = number of respondents (unweighted).

CI – confidence interval.

[†] Includes family physicians, nurse practitioners, and pharmacists.

* 13 respondents did not remember whether they had been advised to receive the influenza vaccine or refused to indicate who advised them to receive the vaccine.

HCP = health care provider.

^a Adjusted for age, sex, highest education level attained, and income.

^b Adjusted for age, sex, and highest education level attained.

6. Receiving advice not to get the influenza vaccine

Among adults aged 18 years and older, approximately 14% reported having been advised not to receive the influenza vaccine in the previous 12 months (Table 6.1). Friends (50%) and family (30%) were the most commonly reported sources of information when survey respondents were asked who advised them against receiving the vaccine (Table 6.2).

TABLE 6.1. Adults who were advised not to receive the influenza vaccine in the previous 12 months (n=2024)*, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	%	(95% CONFIDENCE INTERVAL)
Total population (≥18 years)	14.2	(12.3–16.0)
18–64, without chronic conditions	13.5	(11.0–16.1)
18–64, with chronic conditions	18.2	(14.0–22.3)
≥65	11.9	(9.1–14.7)

n = total number of respondents (unweighted).

*12 respondents refused to respond or did not remember whether they had been advised against receiving the influenza vaccine in the last 12 months.

TABLE 6.2. Top three most commonly reported sources of information advising against receiving the influenza vaccine among adults aged ≥ 18 years, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	SOURCE(S) OF INFORMATION ADVISING TO RECEIVE THE INFLUENZA VACCINE	%	(95% CI)
Total population (≥ 18 years) (n=264)*	Friends	50.4	(43.3–57.5)
	Family	30.0	(23.2–36.8)
	Co-worker/employer	13.5**	(8.5–18.5)

CI – Confidence interval.

*266 adults ≥ 18 years reported being advised against receiving the influenza vaccine; 2 respondents refused to provide a response as to who advised them against receiving the influenza vaccine.

** Coefficient of variation $>16\%$, therefore caution should be taken when interpreting estimates due to higher level of error.

Note: Respondents could provide more than one response.

7. Vaccine coverage in children

NACI recommends that all children aged six months and older receive the seasonal influenza vaccine; particularly those children aged 6 months to 59 months, who are at increased risk of complications from the flu (2). Children between six months and less than nine years of age who are receiving the vaccine for the first time require two doses of the vaccine, with a minimum interval of four weeks between doses (2).

Among children living in the adult respondents' household (n=861), 24% received the vaccine (Table 7). According to the NACI recommendation, surveyed children aged between six months and less than nine years (n=37) should have received two doses of the vaccine during the 2016/17 season. Fewer than half (n=12) had received two doses by the time of the interview.

TABLE 7. Influenza vaccine coverage among children (n=861)*, National Influenza Immunization Coverage Survey, Canada, 2016–2017

AGE GROUP (YEARS)	n	INFLUENZA VACCINE COVERAGE (95% CONFIDENCE INTERVAL)
All children (6 mo–17 years)	861	23.9 (20.8–27.1)
6 months–4 years	210	26.5 (20.1–32.9)
5–12 years	429	23.0 (18.5–27.4)
13–17 years	222	23.2 (17.0–29.4)

*Population weights could not be applied to children that had missing data on gender, age, or P/T of residence. 15 children did not have their gender reported by parents and were thus excluded from the final dataset. 18 children <6 months old were excluded from the analysis as the vaccine is recommended for those 6 months of age or older.

STRENGTHS AND LIMITATIONS

Participants were interviewed within six months after the beginning of the vaccination campaign, which limits the potential for recall bias. However, the survey had a low response rate of 20.3%, which increases the risk of non-response bias (i.e. those who responded to the survey may be different from those that did not) and limits the representativeness of the sample. Coverage estimates are based on self-reported vaccination history and may result in under—or over—estimation of uptake. Survey sampling was designed for estimating adult vaccine coverage only. Since the analysis of children was based on a convenience sample (i.e. adult respondents who had children living in the same household) these results are less representative than a direct sample of Canadian children, and may not be nationally representative.

The proportion of seniors that reported being advised to get the vaccine in the survey was lower than that of younger adults with CMC. Furthermore, cognitive biases in recalling health information or recommendations for particular health behaviours have been documented in the literature (8). Memory for health information may be biased depending on whether information and recommendations for uptake of health behaviours are consistent with an individual's existing beliefs about a particular health issue (8). Although the literature has not focused on vaccination specifically, it is possible that individuals who received the vaccine may better recall receiving health information that supports their decision-making as compared to those who did not get the vaccine.

CONCLUSIONS

Influenza vaccine coverage in Canada for the 2016/17 flu season remains suboptimal, and below national vaccination coverage goals of 80% for certain groups at increased risk of complications from the flu. According to the results of this survey, coverage was closer to this target of 80% among seniors (69%); however, vaccine uptake was well below the national goal among adults 18–64 years with CMC (37%).

Previous studies have found receiving a recommendation from a health care provider to get the influenza vaccine to be a significant factor associated with vaccine uptake in adults (9, 10). This survey also found that being advised to receive the vaccine by a health care provider was significantly associated with uptake among adults aged 18–64 years, both with and without CMC.

Among adults at increased risk of influenza-related complications, approximately 25% reported being advised to receive the influenza vaccine by a health care provider in the past year. Influenza vaccine uptake remains low among adults aged 18–64 years with CMC, despite being at increased risk of influenza-related complications. Taken as a whole, the results of this survey suggest an opportunity, where health care providers could play a significant role in improving uptake among this group.

REFERENCES

- (1) Public Health Agency of Canada. Know the Flu Facts. 2016; Available at: <http://healthycanadians.gc.ca/publications/diseases-conditions-maladies-affections/fact-sheet-flu-grippe-faits-feuillet/alt/fact-sheet-flu-grippe-faits-feuillet-eng.pdf>.
- (2) National Advisory Committee on Immunization (NACI). Canadian Immunization Guide Chapter on Influenza and Statement on Seasonal Influenza Vaccine for 2016–2017. 2016; Available at: <http://www.phac-aspc.gc.ca/naci-ccni/assets/pdf/flu-2016-2017-grippe-eng.pdf>.
- (3) Public Health Agency of Canada. Vaccination Coverage Goals and Vaccine Preventable Disease Reduction Targets by 2025. 2017; Available at: <https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy/vaccination-coverage-goals-vaccine-preventable-diseases-reduction-targets-2025.html>.
- (4) World Health Assembly. Resolution WHA56.19. Prevention and control of influenza pandemics and annual epidemics. 2003; Available at: http://www.who.int/immunization/sage/1_WHA56_19_Prevention_and_control_of_influenza_pandemics.pdf.
- (5) Canadian Radio-television and Telecommunications Commission. Communications Monitoring Report. 2016; Available at: <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2016/cmr.pdf>.
- (6) Public Health Agency of Canada. Influenza vaccine uptake: Results from the 2015/16 national influenza immunization coverage survey in Canada. 2017; Available at: <https://www.canada.ca/en/public-health/services/publications/healthy-living/vaccine-uptake-results-2015-16-national-influenza-immunization-coverage-survey.html>.
- (7) Schmid P, Rauber D, Betsch C, Lidolt G, Denker ML. Barriers of Influenza Vaccination Intention and Behavior—A Systematic Review of Influenza Vaccine Hesitancy, 2005–2016. *PLoS one*. 2017 Jan 26;12(1):1-46.
- (8) Kiviniemi, M. T., & Rothman, A. J. (2006). Selective memory biases in individuals' memory for health-related information and behavior recommendations. *Psychology & health*, 21(2), 247-272.
- (9) Nichol, K. L., Mac Donald, R., & Hauge, M. (1996). Factors associated with influenza and pneumococcal vaccination behavior among high-risk adults. *Journal of General Internal Medicine*, 11(11), 673-677.
- (10) Jasek, J. P. (2011). Having a primary care provider and receipt of recommended preventive care among men in New York City. *American journal of men's health*, 5(3), 225-235.

