



Report 11: Influenza Vaccination

March 2018

Summary

- The 2016 Oxford Health Matters Survey (OHMS) was conducted for Oxford County Public Health (Public Health) to inform public health program development in new and emerging areas based on the needs and concerns of the community.
- Influenza vaccination is an annual event that is recommended for all individuals aged 6 months and older, with a particular focus on people at high risk of influenza-related complications or hospitalizations.¹ Influenza vaccination rates have been declining over time in Ontario, but appear to be fairly stable in Oxford County.^{2,3}
- Over one-third (37.5%) of residents reported that they had a seasonal influenza vaccine (i.e., flu shot) between September 2015 and December 2016, which may reflect the previous flu season and/or part of the current flu season. Coverage was higher among older adults (65 years and older), at 68.1%.
- Almost half (45.0%) of residents aged 18 to 64 years with at least one chronic condition including asthma, diabetes, heart disease or lung disease reported that they had a seasonal flu shot.
- Residents who were taking care of family, students, retirees or those unable to work were more likely to report getting a seasonal flu shot than residents who were employed or self-employed (51.2% versus 29.3%). Urban residents were more likely than rural residents to report getting a seasonal flu shot (42.9% versus 27.3%).
- Almost half (43.6%) of residents who received the seasonal flu shot were vaccinated in October and about one-third (31.5%) were vaccinated in November.
- The most common location where residents reported getting the flu shot was at a doctor's office (40.0%), followed by at a pharmacy (29.9%).

Background

Influenza (the flu) is a preventable respiratory illness caused mainly by the influenza A and influenza B viruses.⁴ Influenza is easily spread from person-to-person via airborne droplets and through indirect contact with contaminated objects (e.g., doorknobs, toys).⁴ The flu can have mild symptoms or become a serious illness, particularly among high risk individuals. During the 2016/2017 flu season, there were 37 lab-confirmed influenza-related hospitalizations and three deaths among Oxford County residents.⁵ This can be compared to 3,839 hospitalizations and 260 deaths in Ontario.⁶

The best way to prevent getting the flu is to get vaccinated every year with the seasonal flu shot.⁷ The National Advisory Committee on Immunization (NACI) recommends influenza vaccination for all individuals aged six months and older, with a particular focus on people at high risk of influenza-related complications or hospitalizations (i.e., young children, older adults, people with chronic conditions, pregnant women, residents of long-term care facilities and Indigenous peoples).¹ In October 2000, the influenza vaccine became publicly funded in Ontario and available free of charge for all residents through the Ministry of Health and Long-Term Care's Universal Influenza Immunization Program.⁸ In 2012, a policy permitting pharmacists to administer publicly funded influenza vaccine to residents five years of age and older was implemented in Ontario.² Despite the availability of the vaccine, recent research using the Canadian Community Health Survey (CCHS) has shown that influenza vaccination rates in Ontario have been declining over time.² However, local CCHS data from 2007/08 to 2013/14 suggests that Oxford County's rates have remained fairly stable over time; around 39% among residents 12 years and older.³

The aim of this report is to estimate local influenza immunization coverage for the general population and two high priority groups: adults aged 65 years and older and adults aged 18 to 64 years with chronic conditions. This information will support Public Health to achieve the outcomes outlined in the 2018 Ontario Public Health Standards, including identifying priority populations facing barriers to immunization, improving uptake of publicly funded vaccines, reducing the incidence of vaccine preventable diseases and increasing public confidence in immunizations.⁹ Please see methods in the Data Notes for more information about the survey, sample, and how the numbers are calculated and displayed.

Results

Adults (18 years and older)

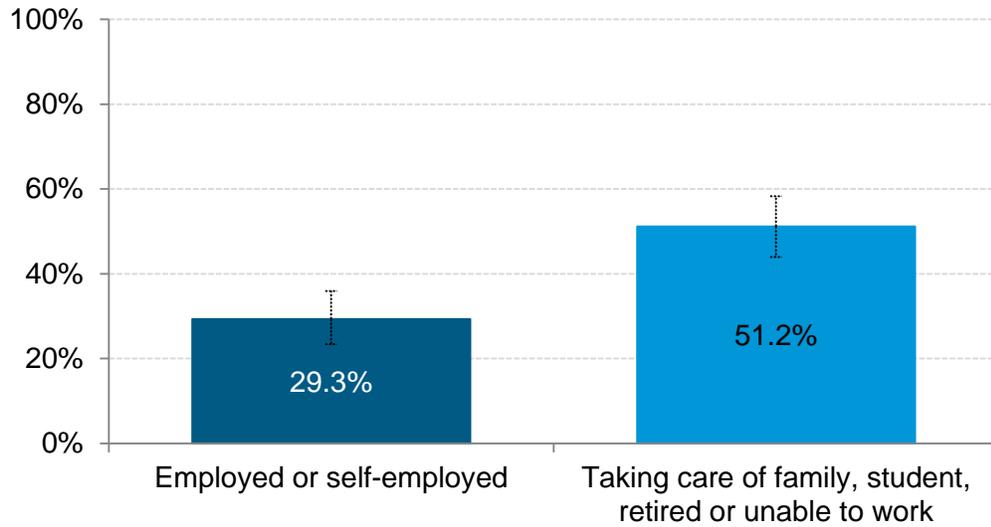
Over one-third of residents (37.5%) reported that they had a seasonal influenza vaccine (i.e., flu shot) between September 2015 and December 2016. Due to the phrasing of the survey questions (i.e., prompting residents to respond for the period between September 2015 and December 2016, depending on when the survey was administered), it is not possible to distinguish if residents were reflecting on the previous flu season (September 2015-August 2016) and/or part of the current flu season (September-December 2016). This may result in increased coverage estimates compared to other surveys which ask about only the current flu season or the past 12 months (e.g., Canadian Community Health Survey).

Of those who had a seasonal flu shot (n=262), almost half were vaccinated in October (43.6%) and about one-third were vaccinated in November (31.5%). However, 15.1% did not remember when they were vaccinated. The most common locations where residents reported receiving their last seasonal flu shot were:

- Doctor's office (40.0%)
- Pharmacy (29.9%)
- Public health unit or public health clinic (7.1%)
- Work (7.1%)

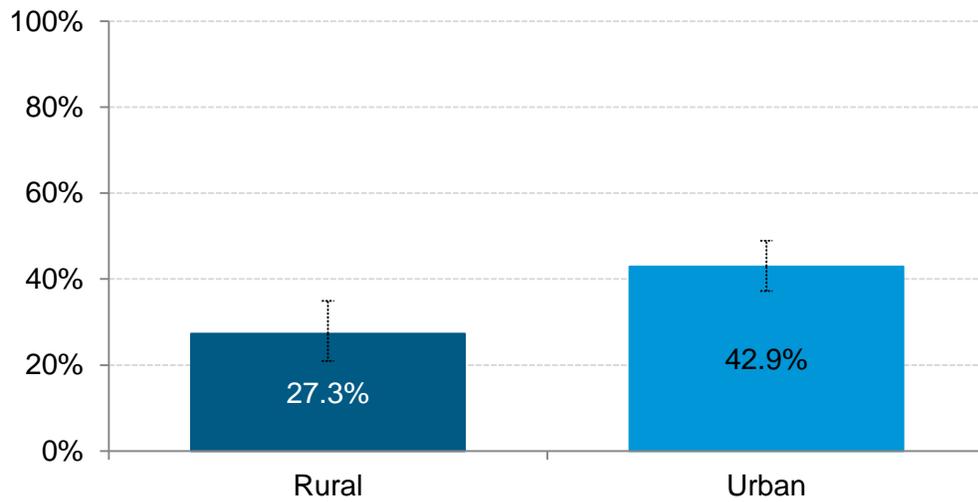
There were some subgroups of residents who were more likely to report getting the flu shot than others. Residents who were taking care of family, students, retirees or those unable to work were more likely to report getting a seasonal flu shot than residents who were employed or self-employed (51.2% versus 29.3%) (Figure 1; Appendix, Table 1).

Figure 1. Had a seasonal flu shot by employment status, Oxford County, September 2015 to December 2016



Additionally, urban residents were more likely than rural residents to report getting a seasonal flu shot (42.9% versus 27.3%) (Figure 2; Appendix, Table 2).

Figure 2. Had a seasonal flu shot by rural or urban residence, Oxford County, September 2015 to December 2016



Older Adults

People aged 65 years and older are at high risk for influenza-related complications and hospitalizations.¹ As a result, the Government of Canada has set a goal to increase influenza vaccination coverage to 80% among older adults by 2025.¹⁰ This goal is part of the 2016-2021 National Immunization Strategy based on international standards and best practices that align with World Health Organization commitments and the Global Vaccine Action Plan.¹⁰

In Oxford County, over two-thirds of older adults (68.1%) reported that they had a seasonal flu shot between September 2015 and December 2016. Of those who had a seasonal flu shot (n=163), most received it in October (47.2%) or November (30.7%), similar to adults in general. However, over half of older adults (52.0%) received their last seasonal flu shot at a doctor's office and 29.0% received it at a pharmacy. There were no differences in influenza vaccination coverage rates by sociodemographic characteristics among older adults.

Residents with Chronic Conditions

Another high priority group for influenza vaccination are people with certain chronic conditions. According to the NACI, these conditions include cardiac or pulmonary disorders (e.g., cystic fibrosis, asthma), diabetes mellitus and other metabolic diseases, cancer, immune compromising conditions (due to underlying disease and/or therapy), kidney disease, anemia and hemoglobinopathy, neurologic or neurodevelopment conditions (excluding migraines), body mass index (BMI) of 40 or higher, and people 6 months to 18 years treated for long periods with acetylsalicylic acid.¹ Similarly to older adults more generally, the Government of Canada set a goal to increase influenza vaccination coverage to 80% by 2025 among people with chronic conditions.¹⁰ Although this survey did not include questions to assess all of these conditions, there is information for people with asthma, diabetes, heart disease and lung disease.

Among people 18 to 64 years with at least one of these chronic conditions (n=50), 45.0% reported that they had a seasonal flu shot between September 2015 and December 2016. Among older adults with at least one chronic condition (n=95), 67.2% reported that they had a seasonal flu shot between September 2015 and December 2016. This was similar to older adults in general.

Considerations

Influenza vaccination coverage among Oxford County residents is slightly higher than national coverage estimates. Data from the 2015/2016 Canadian Community Health Survey indicated that 32.4% of Canadians aged 12 years and older had a flu shot in the previous 12 months compared to 60.8% of Canadians aged 65 years and older.¹¹ The 2015/2016 National Influenza Immunization Coverage Survey found similar results for vaccine uptake in the 2015/2016 flu season, with 34% vaccination coverage among adults 18 years and older, 65% vaccination coverage among adults 65 years and older and 37% coverage among adults 18 to 64 years with at least one chronic condition.¹² The locations where people reported getting the flu shot (i.e., doctor's offices and pharmacies) and the months of vaccination were also similar (i.e., the beginning of the flu season in October and November).⁴ However, influenza vaccination coverage in both Oxford County and Canada remains low, in particular among people 18 to 64 years old with chronic conditions, compared to the 80% targets set by the Government of Canada.¹⁰

Research has shown that there are many factors that impact an individual's decision to get the flu shot. The most common reasons for not getting the flu shot among Canadians in 2015/2016 were that: they did not think it was necessary (58.4%), they were unsure of the flu shot or did not believe in the benefits (14.5%) and they did not have time to be vaccinated (9.6%).¹¹ There may be an opportunity to improve local influenza immunization coverage; for example, by using messaging that addresses these concerns to promote vaccination to the general public. It may also be beneficial to have targeted messaging and/or improved access to influenza vaccination among residents who are less likely to get the flu shot, including rural residents and employed/self-employed residents.

Appendix: Tables

Table 1. Influenza vaccination, by employment status, Oxford County, September 2015 to December 2016

| Indicator | Responses | Per cent of residents (95% CI) | | |
|--|-----------|-----------------------------------|---------------------------|---|
| | | Overall | Employed or self-employed | Taking care of family, student, retired or unable to work |
| Adults (18+ years) who had a seasonal flu shot | Yes | 37.6% (33.0%-42.4%) | 29.3%‡ (23.4%-35.9%) | 51.2%‡ (44.0%-58.3%) |
| | No | 62.5% (57.7%-67.0%) | 70.7%‡ (64.1%-76.6%) | 48.8%‡ (41.7%-56.0%) |

‡ Statistically significant difference between groups based on a 95% confidence interval.

Note: older adults are not included in this table because the majority were not employed, therefore the data was not reportable by employment status.

Table 2. Influenza vaccination, by rural or urban residence, Oxford County, September 2015 to December 2016

| Indicator | Responses | Per cent of residents (95% CI) | | |
|---|-----------|-----------------------------------|-------------------------|-------------------------|
| | | Overall | Rural | Urban |
| Adults (18+ years) who had a seasonal flu shot | Yes | 37.5% (33.0%-42.3%) | 27.3%‡ (20.9%-34.9%) | 42.9%‡ (37.2%-48.9%) |
| | No | 62.5% (57.7%-67.0%) | 72.7%‡ (65.1%-79.1%) | 57.1%‡ (51.1%-62.8%) |
| Older adults (65+ years) who had a seasonal flu shot (based on n=238 older adults) | Yes | 68.1% (61.7%-73.9%) | 68.2% (54.9%-79.0%) | 68.1% (60.6%-74.7%) |
| | No | 31.9% (26.1%-38.3%) | 31.8%* (21.0%-45.1%) | 31.9% (25.3%-39.4%) |

‡ Statistically significant difference between groups based on a 95% confidence interval.

* High variability results, interpret with caution.

Note: older adults with a chronic condition are not included in this table because the majority were urban residents, therefore the data was not reportable by location of residence.

Table 3. Influenza vaccination, by sex, Oxford County, September 2015 to December 2016

| Indicator | Responses | Per cent of residents (95% CI) | | |
|---|-----------|-----------------------------------|-------------------------|------------------------|
| | | Overall | Male | Female |
| Adults (18+ years) who had a seasonal flu shot | Yes | 37.5% (33.0%-42.3%) | 33.1% (26.4%-40.5%) | 41.8% (35.9%-47.9%) |
| | No | 62.5% (57.7%-67.0%) | 66.9% (59.5%-73.6%) | 58.2% (52.1%-64.1%) |
| Older adults (65+ years) who had a seasonal flu shot (based on n=238 older adults) | Yes | 68.1% (61.7%-73.9%) | 66.3% (55.4%-75.6%) | 69.7% (61.9%-76.4%) |
| | No | 31.9% (26.1%-38.3%) | 33.7% (24.4%-44.6%) | 30.3% (23.6%-38.1%) |
| Older adults (65+ years) with a chronic condition who had a seasonal flu shot (based on n=95 older adults) | Yes | 67.2% (56.9%-76.1%) | 75.0% (59.1%-86.1%) | 58.2% (44.6%-70.6%) |
| | No | 32.8% (23.9%-43.1%) | 25.0%* (13.9%-40.9%) | 41.8% (29.4%-55.4%) |

* High variability results, interpret with caution.

Table 4. Influenza vaccination, by education level, Oxford County, September 2015 to December 2016

| Indicator | Responses | Per cent of residents (95% CI) | | | |
|---|-----------|-----------------------------------|-------------------------|---|--------------------------------|
| | | Overall | < High school | High school or some post- secondary | Post- secondary graduate |
| Adults (18+ years) who had a seasonal flu shot | Yes | 37.7% (33.1%-42.5%) | 41.2% (31.0%-52.2%) | 36.3% (28.3%-45.1%) | 37.8% (31.5%-44.5%) |
| | No | 62.3% (57.5%-66.9%) | 58.8% (47.8%-59.0%) | 63.7% (54.9%-71.7%) | 62.2% (55.5%-68.5%) |
| Older adults (65+ years) who had a seasonal flu shot (based on n=238 older adults) | Yes | 68.4% (61.9%-74.2%) | 64.0% (50.2%-75.8%) | 67.2% (56.6%-76.2%) | 72.7% (61.9%-81.4%) |
| | No | 31.6% (25.8%-38.1%) | 36.0%* (24.2%-49.8%) | 32.8% (23.8%-43.4%) | 27.3%* (18.6%-38.1%) |
| Older adults (65+ years) with a chronic condition who had a seasonal flu shot (based on n=95 older adults) | Yes | 67.8% (57.4%-76.7%) | 65.4% (46.9%-80.2%) | 65.7% (48.6%-79.5%) | ** |
| | No | 32.2% (23.3%-42.6%) | 34.6%* (19.8%-53.1%) | 34.3%* (20.5%-51.4%) | ** |

* High variability results, interpret with caution.

** Not reportable due to small numbers.

Data Notes

Definitions

Rural versus Urban Comparisons: Results are presented for Oxford County as a whole, and where possible, reported by whether the resident lives in a 'rural' or 'urban' area within the County. Although there are a mixture of rural and (sub)urban areas even within the municipalities, for the purposes of this report, they were subdivided as follows:

1. **Rural:** Zorra, East Zorra-Tavistock, Blandford-Blenheim, Norwich and South-West Oxford.
2. **Urban:** Woodstock, Ingersoll and Tillsonburg.

Methods

The 2016 Oxford Health Matters Survey (OHMS) was conducted for Oxford County Public Health by the Institute for Social Research (ISR) at York University. The purpose of the survey was to collect data to help shape public health programs in new and emerging areas based on the needs and concerns of the community. The survey interviewed by telephone a total of 550 randomly selected households from September to December 2016 with Oxford County residents aged 18 years or older. This resulted in an overall response rate of 44%, which is comparable to other recent Canadian health surveys. If the household included a person aged 18-30 years old, they were selected to answer the survey to increase the number of young people in the sample, as they are typically harder to reach with this type of survey. Otherwise, the person with the first birthday in the household was asked to complete the survey. The number of responses for various questions may not total 550 due to survey skip patterns and differing amounts of non-response to each question. Responses to questions relevant to individuals are weighted by age and sex to adjust for fewer males and younger individuals completing the survey. This weighting allows the sample to more closely represent the population of Oxford County.

Confidence Intervals

The per cents in brackets that follow each per cent estimate in the tables are the confidence intervals (CIs). Each estimate is based on the survey sample, and a CI is a range of values that describes the uncertainty surrounding an estimate.¹³ The 95% CI shows a range of values that have a 95% chance of including the true estimate in the population if the survey was repeated. The larger a 95% CI, the more caution should be used when using the estimate. In graphs, the 95% CI is shown by an error bar. Error bars and CIs that don't overlap show statistically significant differences between groups (e.g., when comparing males and females). Statistically significant results indicate the finding is unlikely to be due to chance alone.

Variability

Throughout the report, some numbers may be suppressed because they are unstable due to high variability, as measured by the coefficient of variation (CV). The CV indicates how precise an estimate is. Higher CVs indicate more variability, which often occurs when there is a small sample size. When the CV is between 16.6 and 33.3, the estimate should be interpreted with caution because of high variability. In tables, this is shown with an asterisk (*). Estimates with a CV of 33.3 or more are not reportable and the estimates are replaced with double asterisks (**). Estimates may also not be reportable if they are based on an unweighted denominator of less than 30 or a numerator of less than 5.

Missing Responses

“Don't know” and “Refused” responses are usually removed from the analysis, unless they account for over 5% of the responses. Then they are included as a separate category. Responses are self-reported and may be subject to recall bias (trouble remembering) and social desirability bias (answering in the “expected” or socially acceptable way).

References

1. Public Health Agency of Canada. An Advisory Committee Statement (ACS): National Advisory Committee on Immunization (NACI): Canadian Immunization Guide chapter on influenza and statement on seasonal influenza vaccine for 2017–2018 [Internet]. Ottawa, ON: Her Majesty the Queen in Right of Canada; 2017 [cited 2018 Feb 6]. Available from: <https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/healthy-living/canadian-immunization-guide-statement-seasonal-influenza-vaccine/naci-stmt-2017-2018-eng.pdf>
2. Buchan SA, Rosella LC, Finkelstein M, Juurlink D, Isenor J, Marra F, et al. Impact of pharmacist administration of influenza vaccines on uptake in Canada. *CMAJ*. 2017;189(4):E146-152.
3. Statistics Canada. Canadian Community Health Survey. Table 105-0502 - Health indicator profile, two year period estimates, by age group and sex, Canada, provinces, territories, health regions (2013 boundaries) and peer groups, occasional (accessed: November 22, 2016)
4. Public Health Agency of Canada. Causes of flu (influenza) [Internet]. Ottawa, ON: Government of Canada; 2015 [cited 2018 Feb 6]. Available from: <https://www.canada.ca/en/public-health/services/diseases/flu-influenza/causes-flu-influenza.html>
5. Reddick E. Flu in review. Oral presentation at: Infection Prevention & Control Workshop: Oxford County. 2017 Oct 17; Woodstock, ON.
6. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Ontario Respiratory Pathogen Bulletin: 2016-2017 surveillance season (September 1, 2016 – August 31, 2017) [Internet]. Toronto, ON: Queen's Printer for Ontario; 2017 [cited 2018 Feb 16]. Available from: <https://www.publichealthontario.ca/en/DataAndAnalytics/Documents/Ontario%20Respiratory%20Pathogen%20Bulletin%20Season%20Summary%20-%202016-17.pdf>
7. Oxford County Public Health. 2017 community flu clinics [Internet]. Woodstock, ON: Oxford County; 2017 [cited 2018 Feb 6]. Available from: <http://www.oxfordcounty.ca/Infectious-diseases-vaccines/Flu>
8. Ontario. Ministry of Health and Long-Term Care. Universal Influenza Immunization Program (UIIP) [Internet]. Toronto, ON: Queen's Printer for Ontario; 2017 [cited 2018 Feb 6]. Available from: <http://www.health.gov.on.ca/en/pro/programs/publichealth/flu/uiip/>
9. Ontario. Ministry of Health and Long-Term Care. Protecting and promoting the health of Ontarians. Ontario public health standards: requirements for programs, services, and accountability, 2018. Toronto, ON: Queen's Printer for Ontario; 2017.
10. Government of Canada. Vaccination coverage goals and vaccine preventable disease reduction targets by 2025 [Internet]. Ottawa, ON: Government of Canada; 2017 [cited 2018 Feb 6]. Available from: <https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy/vaccination-coverage-goals-vaccine-preventable-diseases-reduction-targets-2025.html?wbdisable=true#1.4>
11. Statistics Canada. Flu shots: Canadian Community Health Survey: 2015/2016 [Internet]. Ottawa, ON: Statistics Canada; 2017 [cited 2018 Feb 7]. Available from: <http://www.statcan.gc.ca/daily-quotidien/171107/dq171107a-eng.htm>
12. Public Health Agency of Canada. Influenza vaccine uptake: results from the 2015/16 national influenza immunization coverage survey in Canada [Internet]. Ottawa, ON: Government of Canada; 2017 [cited 2018 Feb 7]. Available from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/vaccine-uptake-results-2015-16-national-influenza-immunization-coverage-survey.html?wbdisable=true>
13. United States Census Bureau. A basic explanation of confidence intervals. [Internet]. Washington DC, USA: United States Census Bureau; 2013. [cited April 18, 2017]. Available from: <https://www.census.gov/did/www/saipe/methods/statecounty/ci.html>



OXFORD COUNTY PUBLIC HEALTH

410 Buller Street
Woodstock, Ontario
N4S 4N2
519.539.9800 | 1-800-755-0394
www.oxfordcounty.ca/health

Email: healthevidence@oxfordcounty.ca

Author

Melissa MacLeod, B.H.Sc. (Hon), M.Sc.
Epidemiologist
Foundational Standards
Oxford County Public Health

Reviewers

Hilary Caldarelli, B.Sc., MPH
Epidemiologist
Foundational Standards
Oxford County Public Health

Joanne Andrews, B.Sc.N., RN, CCHN(C)
Supervisor
Health Protection
Oxford County Public Health

Peter Heywood, B.A.Sc., MPA, CPHI(C)
Manager
Health Protection
Oxford County Public Health

Lynn Beath, B.Sc.N., RN, MPA
Director/CEO/CNO
Oxford County Public Health & Emergency
Services