

SURVEILLANCE REPORT

COVID-19 Vaccine Uptake in Ontario: December 14, 2020 to June 30, 2024

Updated: August 2024

This report describes COVID-19 vaccine uptake using data extracted from the Ontario Ministry of Health's (MOH) COVaxON application. Data in this report includes the most current information extracted from COVaxON as of July 2, 2024 at approximately 7:00 a.m., and describes vaccinations reported up to June 30, 2024.

Background

The COVID-19 vaccination program began in Ontario on December 14, 2020. Currently, all individuals in the province 6 months of age and older are eligible for a Health Canada (HC) authorized COVID-19 vaccine.¹

In accordance with guidance from the MOH, for the Fall 2023 vaccine campaign (beginning September 14, 2023) individuals 6 months of age and older who had been previously vaccinated against COVID-19 were recommended to receive a dose of XBB.1.5-containing COVID-19 vaccine if it had been at least 6 months from their previous COVID-19 vaccine dose or known SARS-CoV-2 infection (whichever was later).¹ For the Spring 2024 vaccine campaign (April 1 to June 30, 2024), individuals at increased risk of severe illness from COVID-19 were eligible to receive an additional dose of XBB.1.5-containing COVID-19 vaccine (see MOH COVID-19 Vaccine Guidance Version 11.1 for groups at increased risk of severe illness).¹ Additionally, since the fall of 2023, XBB.1.5-containing COVID-19 vaccine doses have been offered to individuals who are initiating or completing a COVID-19 vaccine series (see Appendix B in the MOH COVID-19 Vaccine Guidance Version 11.1 for dose recommendations).¹

Definition of Terms

The following definitions are used to describe vaccination coverage among individuals **6 months of age and older**:

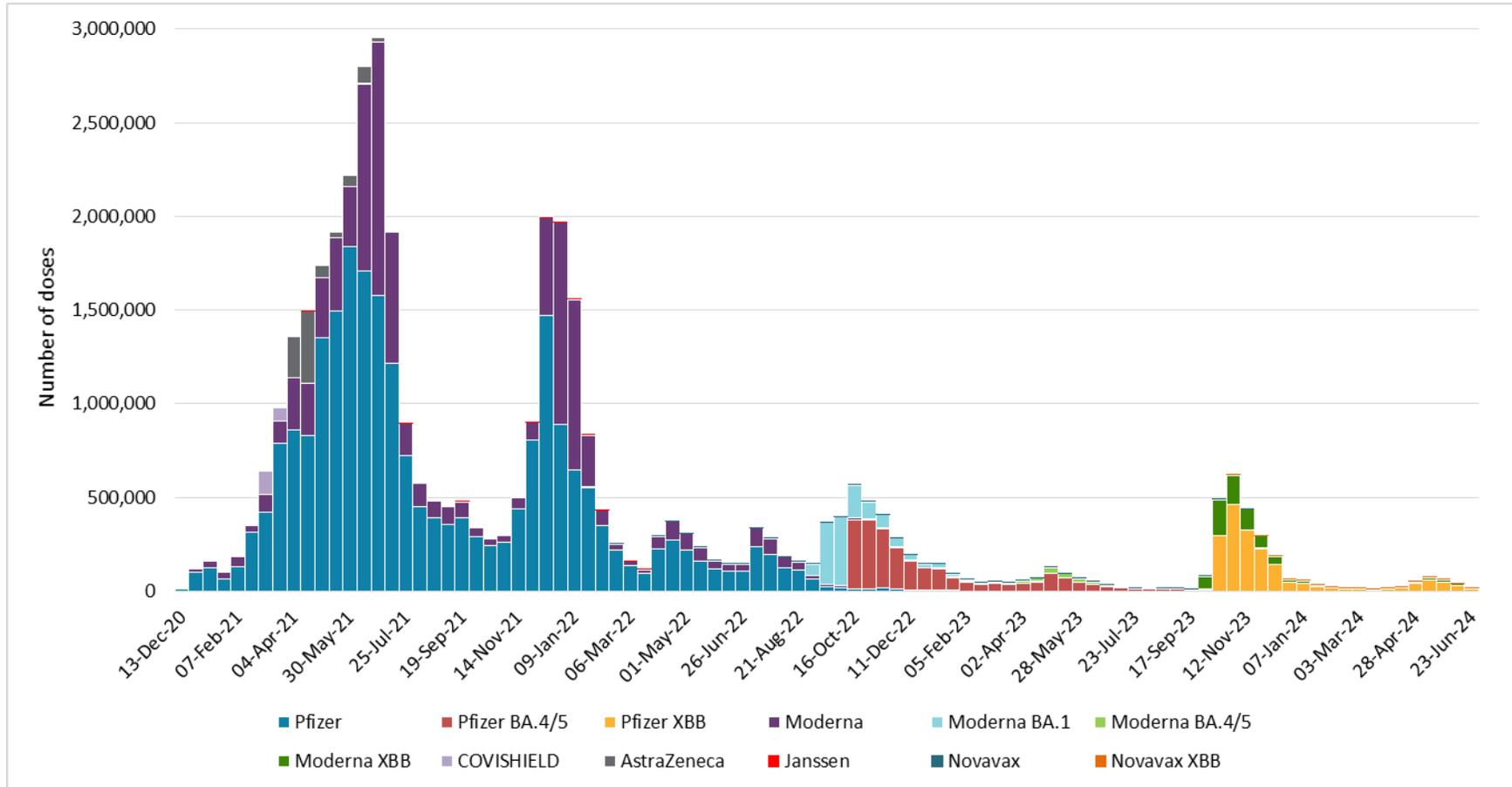
- **XBB dose within the previous 3 months** refers to individuals who received their last dose of XBB.1.5-containing COVID-19 vaccine within the previous 3 months.
- **XBB dose 3 to less than 6 months ago** refers to individuals who received their last dose of XBB.1.5-containing COVID-19 vaccine 3 to less than 6 months ago.
- **XBB dose over 6 months ago** refers to individuals who received their last dose of XBB.1.5-containing COVID-19 vaccine over 6 months ago.
- **No XBB dose** refers to individuals who were previously vaccinated against COVID-19, but have not received a XBB.1.5-containing COVID-19 vaccine dose (i.e. no doses received during the Fall 2023 or Spring 2024 COVID-19 vaccine campaigns).

Highlights

- Since September 14, 2023, 2,569,623 doses of XBB.1.5-containing COVID-19 vaccine have been administered in Ontario (i.e. Fall 2023 and Spring 2024 COVID-19 vaccine campaigns) (Table 1a).
- Since April 1, 2024, 215,340 doses of XBB.1.5-containing COVID-19 vaccine have been administered in Ontario among individuals who already received at least one XBB.1.5-containing COVID-19 vaccine dose (i.e. Spring 2024 COVID-19 vaccine campaign) (Table 1b).
- Among individuals 6 months of age and older who were previously vaccinated against COVID-19:
 - 1.8% received their last dose of XBB.1.5-containing COVID-19 vaccine in the previous 3 months (Figure 2, Table 2).
 - 1.0% received their last dose of XBB.1.5-containing COVID-19 vaccine 3 to less than 6 months ago (Figure 2, Table 2).
 - 12.2% received their last dose of XBB.1.5-containing COVID-19 vaccine dose over 6 months ago (Figure 2, Table 2).
 - 66.0% have not received a XBB.1.5-containing COVID-19 vaccine dose (i.e. no doses received during the Fall 2023 or Spring 2024 COVID-19 vaccine campaigns) (Figure 2, Table 2).

Doses Administered

Figure 1. Number of COVID-19 vaccine doses administered over time by vaccine product: Ontario, December 14, 2020 to June 30, 2024



Note: Non-XBB.1.5 COVID-19 vaccine products have now been fully phased out in Ontario.¹

Table 1a. Number of XBB.1.5-containing COVID-19 vaccine doses administered by age group and product: Ontario, September 14, 2023 to June 30, 2024 (i.e. Fall 2023 and Spring 2024 COVID-19 vaccine campaigns)

Age (years)	Moderna XBB.1.5	Pfizer XBB.1.5	Novavax XBB.1.5	Total XBB.1.5
6 months-4 years	21,124	1,906	N/A	23,030
5-11	19,439	23,217	N/A	42,656
12-17	6,615	39,248	181	46,044
18-29	23,568	89,112	388	113,068
30-39	46,092	114,232	640	160,964
40-49	50,475	124,084	829	175,388
50-59	78,786	206,584	662	286,032
60-69	164,140	445,203	760	610,103
70-79	175,805	502,607	635	679,047
80+	136,182	296,884	225	433,291
Total: 6 months+	722,226	1,843,077	4,320	2,569,623

Note: Individuals 6 months to 11 years of age are currently recommended to receive the infant/pediatric doses of Moderna Spikevax XBB.1.5 COVID-19 vaccine or the infant/pediatric formulation of Pfizer-BioNTech Comirnaty XBB.1.5 COVID-19 vaccine.¹

Table 1b. Number of XBB.1.5-containing COVID-19 vaccine doses administered by age group and product among individuals who already received at least one XBB.1.5-containing COVID-19 vaccine dose: Ontario, April 1, 2024 to June 30, 2024 (i.e. Spring 2024 COVID-19 vaccine campaign)

Age (years)	Moderna XBB.1.5	Pfizer XBB.1.5	Novavax XBB.1.5	Total XBB.1.5
6 months-4 years	360	123	N/A	483
5-11	77	61	N/A	138
12-17	31	202	63	296
18-29	111	699	69	879
30-39	246	1,269	165	1,680
40-49	420	1,684	241	2,345
50-59	840	3,552	180	4,572
60-69	6,943	34,188	301	41,432
70-79	14,800	77,296	329	92,425
80+	14,765	56,213	112	71,090
Total: 6 months+	38,593	175,287	1,460	215,340

Note: Individuals 6 months to 11 years of age are currently recommended to receive the infant/pediatric doses of Moderna Spikevax XBB.1.5 COVID-19 vaccine or the infant/pediatric formulation of Pfizer-BioNTech Comirnaty XBB.1.5 COVID-19 vaccine.¹

Vaccination Coverage

Figure 2. Coverage estimates by age group and last dose status: Ontario, December 14, 2020 to June 30, 2024

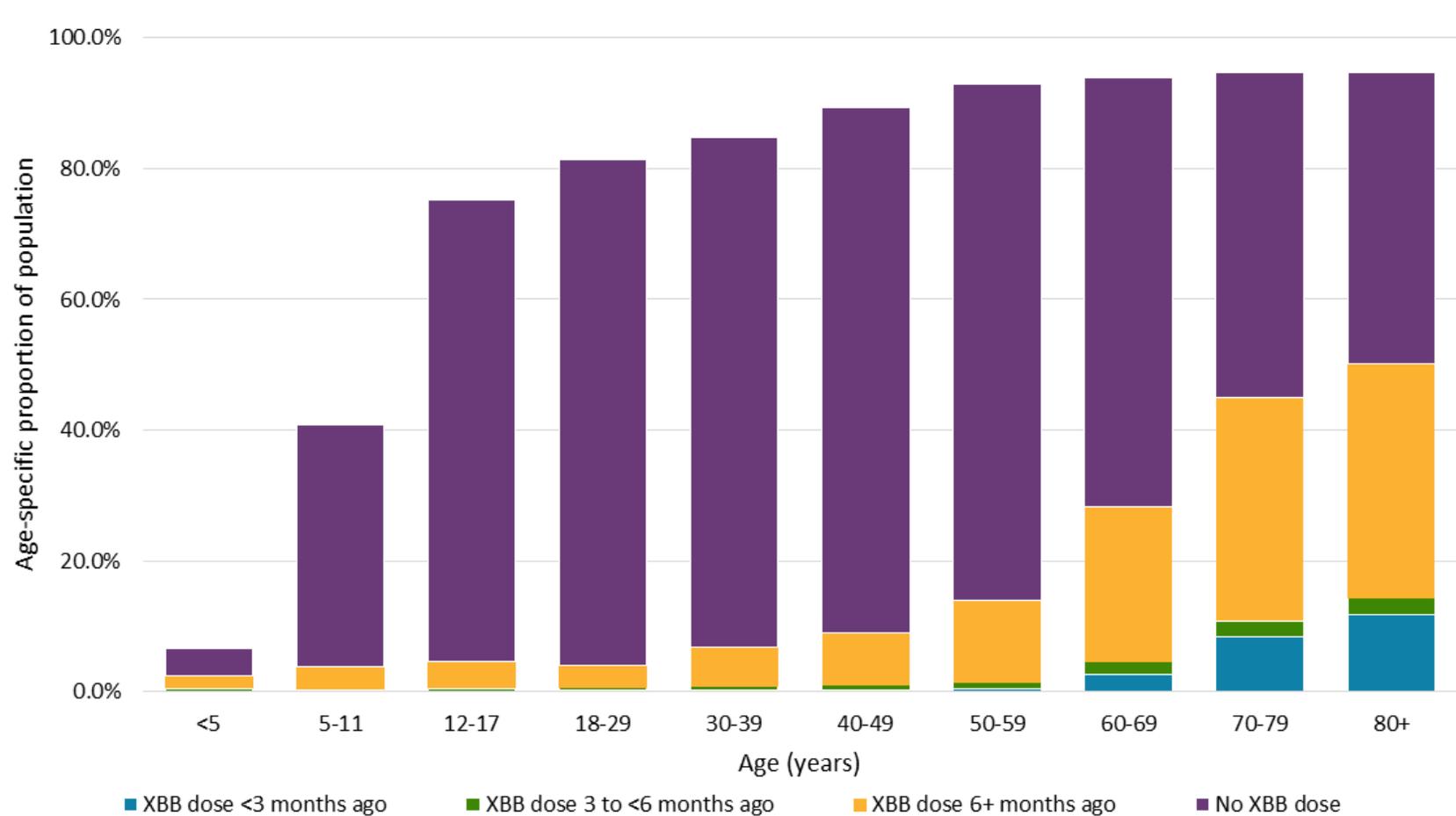


Table 2. Number of individuals vaccinated and coverage estimates by age group and last dose status: Ontario, December 14, 2020 to June 30, 2024

Age (years)	Number of individuals: XBB dose <3 months ago	Number of individuals: XBB dose 3 to <6 months ago	Number of individuals: XBB dose 6+ months ago	Number of individuals: No XBB dose	Coverage (%): XBB dose <3 months ago	Coverage (%): XBB dose 3 to <6 months ago	Coverage (%): XBB dose 6+ months ago	Coverage (%): No XBB dose
6 months-4 years	930	2,983	14,017	30,860	0.1	0.4	1.9	4.2
5-11	445	3,393	37,576	403,123	0.0	0.3	3.5	37.0
12-17	851	3,684	40,820	702,277	0.1	0.4	4.1	70.7
18-29	4,635	11,641	92,183	2,037,330	0.2	0.4	3.5	77.3
30-39	5,018	14,012	137,204	1,775,804	0.2	0.6	6.0	78.0
40-49	5,063	12,915	153,697	1,557,843	0.3	0.7	7.9	80.4
50-59	8,132	18,664	239,627	1,516,009	0.4	1.0	12.5	79.1
60-69	51,932	35,706	464,499	1,281,547	2.7	1.8	23.8	65.6
70-79	109,430	33,532	450,398	654,821	8.3	2.5	34.2	49.8
80+	87,239	19,220	267,898	332,087	11.7	2.6	35.9	44.5
Total: 6 months+	273,675	155,750	1,897,919	10,291,701	1.8	1.0	12.2	66.0

Note: Counts reported for number of individuals vaccinated (e.g. Table 2) and doses administered (e.g. Table 1a and Table 1b) will not align due to different exclusions applied and different methods for calculating age. See Technical Notes for details.

Appendix

Table A1. Authorized ages for COVID-19 vaccine products administered in Ontario

COVID-19 vaccine product	Authorized age	Notes
Moderna Spikevax XBB.1.5	6 months and older	<ul style="list-style-type: none"> • Infant dose for individuals 6 months to 4 years of age • Pediatric dose for individuals 5 to 11 years of age
Pfizer-BioNTech Comirnaty XBB.1.5	6 months and older	<ul style="list-style-type: none"> • Infant formulation for individuals 6 months to 4 years of age • Pediatric formulation for individuals 5 to 11 years of age
Novavax Nuvaxovid XBB.1.5	12 years and older	<ul style="list-style-type: none"> • N/A
Moderna Spikevax Bivalent BA.4/5	6 months and older	<ul style="list-style-type: none"> • No longer in use in Ontario
Pfizer-BioNTech Comirnaty Bivalent BA.4/5	5 years and older	<ul style="list-style-type: none"> • No longer in use in Ontario
Pfizer-BioNTech Comirnaty	6 months and older	<ul style="list-style-type: none"> • No longer in use in Ontario
Moderna Spikevax	6 months and older	<ul style="list-style-type: none"> • No longer in use in Ontario
Moderna Spikevax Bivalent BA.1	6 years and older	<ul style="list-style-type: none"> • No longer in use in Ontario
Novavax Nuvaxovid	12 years and older	<ul style="list-style-type: none"> • No longer in use in Ontario
AstraZeneca Vaxzevria/COVISHIELD	18 years and older	<ul style="list-style-type: none"> • No longer in use in Ontario
Janssen Jcovden	18 years and older	<ul style="list-style-type: none"> • No longer in use in Ontario

Technical Notes

Definition of Terms

Vaccine series refers to the number of vaccine doses required to be considered complete. COVID-19 vaccine products currently approved by Health Canada (HC) and the World Health Organization (WHO) Emergency Use Listing have a two-dose (i.e. Moderna Spikevax, Moderna Spikevax Bivalent BA.4/5, Moderna Spikevax Bivalent BA.1, Moderna Spikevax XBB.1.5 for individuals under 5 years of age, Pfizer-BioNTech Comirnaty for individuals 5 years of age and older, Pfizer-BioNTech Comirnaty Bivalent BA.4/5, AstraZeneca Vaxzevria/COVISHIELD, Novavax Nuvaxovid, Covaxin, Sinopharm, CoronaVac, Skycovione), one-dose (i.e. Moderna Spikevax XBB.1.5 for individuals 5 years of age and older, Pfizer-BioNTech Comirnaty XBB.1.5 for individuals 5 years of age and older, Novavax Nuvaxovid XBB.1.5 for individuals 12 years of age and older, Janssen Jcovden, Convidecia), or three-dose (i.e. Pfizer-BioNTech Comirnaty for individuals under 5 years of age and Pfizer-BioNTech Comirnaty XBB.1.5 for individuals under 5 years of age) schedule.

Interval refers to the period of time (e.g. number of days) between doses. For all available COVID-19 vaccines, there is a recommended minimum number of days that an individual must wait between doses.

Data Sources

- COVID-19 vaccination data were based on information successfully extracted from the Ontario Ministry of Health's COVaxON application as of **July 2, 2024 at approximately 7:00 a.m.**
- Ontario population estimate data were sourced from the Ministry of Finance.²

Data Caveats

- Data presented may differ from other sources for various reasons, including differing extract times and methodologies for processing COVaxON data.
- COVaxON is a dynamic reporting system, which allows ongoing updates to data previously entered. As a result, data extracted from COVaxON represents a snapshot at the time of extraction and may differ from previous or subsequent reports.
- The data represents vaccination information reported in COVaxON. As a result, all counts may be subject to varying degrees of underreporting due to a variety of factors.
- For certain populations (e.g. immunocompromised individuals) an additional dose is recommended to complete the vaccine series. Due to challenges in identifying these individuals in the COVaxON data, it was not possible to account for some of these extended vaccine series in the analysis.
- Counts reported for doses administered will not align with the number of individuals vaccinated for the following reasons:
 - Counts for the number of doses administered in Ontario exclude doses administered out of province and from non-Ontario stock. However, individuals that received a vaccination out of province or from non-Ontario stock are included in coverage estimates.
 - Counts for the number of individuals vaccinated and coverage estimates exclude individuals reported as deceased or moved out of province. However, doses administered to individuals later reported as deceased or moved out of province are included in dose counts.

- Methods for calculating age differ when reporting on doses administered in the province and vaccinated individuals/coverage estimates. For doses administered, the date of dose administration is used to calculate age and age is interpreted as the age at the time of each dose administration. For individuals vaccinated and coverage estimates the date of data extraction is used to calculate age and age is interpreted as the individual's current age.
- Coverage estimates shown as 100% may represent estimates of 100% or more. Coverage estimates may be over 100% due to limitations in the vaccination data (numerator) or Ontario population estimates (denominator).
- Children 0-6 months of age are included in denominators used to calculate coverage estimates for the <5 age group. However, children 0-6 months of age not eligible for COVID-19 vaccination and therefore are not included in the numerator.

Vaccination Data Processing

- Data includes clients with a dose administration record recorded in COVaxON, which captures a small number of client records with a residential postal code outside of Ontario who may be eligible for vaccination on the basis of working in a high-risk setting (e.g. long-term care home) in Ontario.
- Non-valid dose records are excluded. Non-valid records include doses where the status is reported as 'entered in error', 'invalid', or other similar variations, as well as doses where the status is valid (e.g. 'administered') but that are identified as non-valid client records (e.g. client first and last name were reported as 'test', 'do not use', 'error', 'ignore', or other similar variations).
- For missing dose administration dates and dose administration dates prior to December 14, 2020, the date the administration record was created is used as a proxy.
- Duplicate dose administration records (i.e. clients with multiple dose administration records with the same date) are identified and excluded using personal identifiers, such as health card number, name, date of birth, and postal code, where available, as well as dose administration date.
- After removing duplicate dose administration records, dose number is assigned based on the dose administration dates reported. Dose administration date is also used to determine the dose interval.
 - For clients with multiple doses reported with different administration dates, the first chronological dose is considered the first dose.
 - To determine a date for the second dose, the first subsequent dose administered on or after the product-specific recommended minimum interval of the first dose product, with a 4-day grace period, is used. Doses administered prior to the product-specific recommended minimum interval, with a 4-day grace period, are not considered valid. For example, if there are two subsequent doses that were 7 days and 21 days from a Moderna Spikevax COVID-19 vaccine first dose, respectively, then the dose that is 21 days from the first dose is used as the second dose. Similarly, if there are two subsequent doses that are 10 days and 12 days from the first dose, respectively, then neither dose is used and the individual is not assigned a second dose. The recommended product specific minimum intervals, with a 4-day grace period, as outlined by the National Advisory Committee on Immunization (NACI) are as follows:
 - Pfizer-BioNTech Comirnaty and Pfizer-BioNTech Comirnaty Bivalent BA.4/5 COVID-19 vaccines: 15 days (19 days with a 4-day grace period).

- Pfizer-BioNTech Comirnaty XBB.1.5, Moderna Spikevax, Moderna Spikevax Bivalent BA.4/5, Moderna Spikevax Bivalent BA.1, Novavax Nuvaxovid, Janssen Jcovden, WHO-authorized, non-HC/non-WHO authorized COVID-19 vaccine products or unspecified/missing products: 17 days (21 days with a 4-day grace period).
- AstraZeneca Vaxzevria/COVISHIELD and Moderna Spikevax XBB.1.5 COVID-19 vaccines: 24 days (28 days with a 4-day grace period).
- To determine a date for the third dose, the first subsequent dose administered 21 days or more after the second dose is used, regardless of the HC-authorized vaccine product administered for the second dose (i.e. the dose 3 interval is not product-specific). If multiple valid doses after the second dose are reported, then the first chronological dose after the second dose is used.
- To determine dates for the fourth to ninth doses, the first subsequent dose administered 56 days or more after the previous dose is used, regardless of the HC-authorized vaccine product administered for the previous dose (i.e. the dose interval is not product-specific). If multiple valid doses after the previous dose are reported, then the first chronological dose after the previous dose is used.
- A maximum of nine doses are assigned for an individual.
- Clients reporting a gender of 'Non-binary/third gender' and 'Other' are combined into an 'Other' category. 'Unknown' gender included clients where gender is reported as 'Prefer not to say', 'Unknown', or where gender was missing.
- Age at the time of dose administration and age at the time of data extraction are calculated using the client date of birth and the date of dose administration or date of data extraction, respectively. Table A1 in the Appendix shows the authorized ages for each of the COVID-19 vaccine products administered in Ontario.¹ Individuals whose age was reported as below the minimum authorized age noted in Table A1 in the Appendix, ≥ 120 years, or missing date of birth were considered to have unknown age.

Vaccination Data Analysis and Reporting

- Out of province dose administration records well as doses administered from non-Ontario stock (e.g. doses from federal stock for populations such as the Armed Forces) are included in coverage estimates. However, out of province and non-Ontario stock dose administration records are not included in dose counts.
- Dose numbers are maintained in doses administered counts. For example, if an individual received doses 1 and 2 out of province and a third dose in Ontario, the third dose is counted as a dose 3 administered in Ontario and the first two doses are not counted as they were administered out of province.
- Clients reported as deceased or moved out of province are excluded when describing the number of individuals vaccinated and in coverage estimates, but are included when describing doses administered in the province.
- Age at the time of dose administration (e.g. age at dose 1, age at dose 2, etc.) is used when describing doses administered in Ontario.
- Age at the time of data extraction is used when describing the number of individuals vaccinated and in coverage estimates.

- Clients with unknown age/gender are excluded for age/gender specific analyses, but are included in provincial totals.
- Dose records where the product is reported as other/unknown/missing are excluded from product-specific analysis, but are included in provincial totals.
- Pfizer-BioNTech Comirnaty, Moderna Spikevax, Moderna Spikevax Bivalent BA.4/5, Moderna Spikevax XBB.1.5, and Pfizer-BioNTech Comirnaty XBB.1.5 vaccine product counts include infant (<5 years of age), pediatric (5-11 years of age), and 12+ years of age doses. Pfizer-BioNTech Comirnaty Bivalent BA.4/5 and Moderna Spikevax Bivalent BA.1 vaccine product counts include pediatric and 12+ years of age doses.
- 90 days is used as the 3-month interval and 180 days is used as the 6-month interval for last dose status.

References

1. Ontario. Ministry of Health. COVID-19 vaccine guidance [Internet]. Toronto, ON: King's Printer for Ontario; 2024 [modified 2024 Apr 08; cited 2024 May 29]. Available from: <https://ontario.ca/files/2024-04/moh-covid-19-vaccine-guidance-en-2024-04-08.pdf>
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Citation

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