

## SURVEILLANCE REPORT

# Immunization Coverage Report for Routine Infant and Childhood Programs in Ontario: 2019-20, 2020-21 and 2021-22 School Years

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## Purpose

This report describes immunization coverage for Ontario's [publicly-funded routine infant and childhood immunization programs](#).<sup>1</sup> The objectives of this report were to assess the impact of the coronavirus disease 2019 (COVID-19) pandemic on these immunization programs for the 2019-20, 2020-21 and 2021-22 school years and to assess the impact of any catch-up activities and/or delayed reporting of immunizations for pandemic-affected school years, by extending the period of assessment by up to two years. Details on the data sources and methods used for this coverage report can be found in the [Technical Notes](#).

This report builds on established methods used by Public Health Ontario (PHO) for up-to-date (UTD) immunization coverage assessment. Please see the *Immunization Coverage Report for School Pupils in Ontario, 2018-19 School Year* [Full Report](#) and [Technical Annex](#) for more details on coverage assessment methods.<sup>2,3</sup> Immunization coverage for Ontario's school-based programs can be found in the [Immunization Coverage Report for School-Based Programs in Ontario: 2019-20, 2020-21 and 2021-22 School Years with Impact of Catch-up Programs](#).<sup>4</sup>

## Background

### Immunization Coverage

Immunization coverage refers to the proportion of a population that is appropriately immunized against a vaccine preventable disease (VPD) at a point in time. Achieving and maintaining high immunization coverage is essential for effective prevention and control of VPDs. Accurate and timely immunization coverage assessments are necessary for evaluating immunization programs, predicting population-level susceptibility to VPDs, and identifying sub-populations with inadequate coverage that may be at risk of VPD outbreaks.<sup>2,3</sup> The Canadian [National Standards for Immunization Coverage Assessment](#) recommend that antigen-level coverage should be reported annually for 2-, 7- and 17-year-olds, in addition to coverage for school-age programs.<sup>5</sup>

### Ontario's Publicly-Funded Routine Infant and Childhood Immunization Programs

In Ontario, infant and childhood immunizations offered under Ontario's [publicly-funded routine infant and childhood immunization programs](#) are primarily delivered by community-based primary care providers.<sup>1</sup> Immunization coverage for school-aged children is assessed using data from the Digital Health Immunization Repository (DHIR), Ontario's provincial immunization repository; these data are accessed using Panorama, the public health interface to the DHIR. The collection and entry of immunization information in the DHIR is largely driven by the *Immunization of School Pupils Act (ISPA)*, and thus the DHIR

does not contain complete information for all immunizations administered to Ontario residents.<sup>6</sup> Accordingly, coverage for children before school-entry and among adults cannot be reliably assessed using immunization data in the DHIR.

The *ISPA* directs the Medical Officers of Health (MOHs) for each public health units (PHUs) to maintain a record of immunization for designated diseases for each pupil attending school in their jurisdiction, with students at risk of suspension if they do not receive immunizations against *ISPA* designated diseases or if documentation of a medical exemption or religious/conscientious exemption is not provided.<sup>6</sup> This process relies on parental reporting of immunizations administered by healthcare providers in Ontario, vaccines administered elsewhere (e.g., out-of-province/country), and vaccines administered that were privately purchased (if reported to the PHU).<sup>6</sup>

Ontario's *Child Care and Early Years Act (CCEYA)* Ontario Regulation 37/15 requires child care operators to collect proof of immunization or a valid exemption for children who are enrolled in their child care facility and not otherwise subject to *ISPA*.<sup>7</sup> While child care operators may submit records of immunizations to their local PHU, they may not be regularly assessed, and immunizations received in infancy and toddlerhood may not be captured in the DHIR until school enrollment. In addition, not all children in Ontario attend child care facilities.

## Impact of COVID-19

The COVID-19 pandemic caused significant disruptions to the delivery of routine immunizations.<sup>8-11</sup> The disruption of immunization services, even for short durations, can lead to outbreaks of VPDs when there is an accumulation of susceptible individuals.<sup>12</sup> With the World Health Organization (WHO) declaring COVID-19 a public health emergency of international concern on March 11, 2020,<sup>13</sup> many primary care offices initially restricted in-person visits and pivoted to telephone and/or virtual appointments.<sup>8-11,14</sup> The implementation of public health measures to mitigate Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) transmission and reduce the impact on the healthcare system led to the deferral of non-essential medical visits and treatments, and perceived risk of COVID-19 transmission in healthcare settings contributed to diminished health care seeking behaviours among Canadians, including deferred immunizations.<sup>8-10</sup>

Several jurisdictions reported early declines in routine infant and childhood vaccine uptake during the first few months of the pandemic, leading the National Advisory Committee on Immunization (NACI) and others to issue interim guidance and statements emphasizing the importance of prioritizing routine immunizations during the COVID-19 pandemic.<sup>11-12,14-17</sup> In the context of strained health care system capacity, early guidance recommended maintaining primary series and boosters for children under the age of two; whereas children and adolescents with complete primary series could have boosters deferred until the time of school-entry/re-opening.<sup>14</sup>

In Ontario, province-wide school closures from March 2020 until the end of June 2020 and throughout much of the 2020-21 school year and the re-deployment of PHU staff to support the COVID-19 response resulted in the suspension of *ISPA* assessment and enforcement activities for school-aged children.<sup>18</sup> The extent to which immunization records were collected, assessed and entered in the DHIR during this period is uncertain, and likely varied substantially based on local COVID-19 epidemiology and PHU capacity. In addition, prioritization of the COVID-19 vaccine program, with the expansion of the COVID-19 immunization program eligibility to include 12- to 17-year-olds (May 23, 2021) and 5- to 11- year-olds (November 23, 2021), and the fall 2021 booster program, may have further postponed PHU *ISPA* and catch-up activities. On August 25 2020, the Ministry of Health released initial guidance, which was further revised in 2022, on maintaining routine immunization services during the COVID-19 pandemic. This outlined general principles, detailed catch-up schedules, and extensions in publicly funded program eligibility for certain vaccines.<sup>16,17</sup> While in-person school resumed for most of the 2021-22 school year, most PHUs did not resume *ISPA*

activities until the 2022-23 school year, albeit some catch-up activities were performed depending on the health unit as early as summer 2021 (e.g., school-based vaccines and adolescent Tdap doses).

## Highlights

### Temporal Trends in Coverage

- The COVID-19 pandemic resulted in a large decline in immunization coverage for many of Ontario's routine publicly-funded immunization programs that are initiated in infancy and early childhood. However it is important to note that this analysis reflects immunization records that were reported to public health units (PHUs) and entered into the DHIR-Panorama at the time of data extraction (April 17, 2023). Disruptions to *ISPA* assessment activities due to school closures and the diversion of public health resources to the pandemic response may have resulted in the under-reporting of immunizations that were administered between 2019-20 and 2021-22, and thus led to an underestimate of coverage estimates.
- Provincial estimates for up-to-date immunization coverage among 7-year-olds for the 2019-20, 2020-21 and 2021-22 school years, respectively are presented in Figures 1a-1c and are outlined below. Antigens included in a multi-component vaccine may have very similar antigen-specific coverage estimates. However in some cases, the number of doses required to be up-to-date may differ among antigens within a multivalent product (e.g., one dose for rubella versus two doses for measles and mumps), thus resulting in different estimates.
  - 85.0%, 58.6% and 52.5 % for measles
  - 84.8%, 58.3% and 52.2% for mumps
  - 96.2%, 93.1% and 86.5% for rubella
  - 82.3%, 54.0% and 49.2% for varicella
  - 84.7%, 58.2% and 52.1% for diphtheria
  - 84.7%, 58.2% and 52.1% for tetanus
  - 84.6%, 58.1% and 52.0% for pertussis
  - 85.1%, 58.3% and 52.3% for polio
  - 83.5%, 82.0% and 76.6 % for *Haemophilus influenzae* type b (Hib)
  - 79.1%, 78.8% and 74.2% for pneumococcal conjugate vaccine
  - 94.5%, 90.6% and 83.5% for meningococcal C conjugate vaccine (MCC)
- Among 7-year-olds, a large decline in immunization coverage for measles, mumps and varicella was observed in 2020-21 and 2021-22 (Figure 1a). The magnitude of the decrease in rubella coverage in 2021-22 was smaller, and may reflect the fact that only one dose is required to be considered up-to-date, whereas two doses are required to be up-to-date for measles, mumps and varicella.
- The decline in measles coverage for 7-year-olds in 2020-21 and 2021-22 was largely driven by children who had only received one dose of measles-containing vaccine; the proportion of

children who had zero doses entered into the DHIR-Panorama also increased during this period (Figure 2).

- Large declines in immunization coverage for 7-year-olds were also observed for diphtheria, tetanus, pertussis and polio in 2020-21 and 2021-22 (Figure 1b). The decrease in coverage for Hib, pneumococcal and meningococcal conjugate C vaccines was smaller, as fewer doses are required to be considered up-to-date and all of the required doses would typically have been administered before two years of age and thus would not have been impacted by the pandemic (Figure 1c).
- Provincial estimates for up-to-date immunization coverage among 17-year-olds for the 2019-20, 2020-21 and 2021-22 school years, respectively are presented in Figures 3a-3c and are outlined below. As above, antigens included in a multi-component vaccine may have very similar antigen-specific coverage estimates. However in some cases, estimates may differ as the number of doses required to be up-to-date may differ among antigens (e.g. no further doses are required after 7 years of age to be up-to-date for polio, whereas an adolescent booster is required for diphtheria, tetanus and pertussis).
  - 95.3%, 95.4% and 92.9% for measles
  - 95.1%, 95.2% and 92.7% for mumps
  - 97.1%, 97.3% and 94.9% for rubella
  - 81.4%, 72.5% and 54.8% for diphtheria
  - 81.4%, 72.5% and 54.8% for tetanus
  - 82.3%, 73.4% and 55.8% for pertussis
  - 93.4%, 93.2% and 90.4% for polio
- Among 17-year-olds, measles, mumps, rubella and polio coverage remained consistent with estimates prior to the pandemic, as the immunization series would most likely have been completed in infancy or early childhood prior to the pandemic (Figures 3a, 3b).
- A large decrease in coverage for diphtheria, tetanus and pertussis was observed among 17-year-olds in 2020-21 and 2021-22 (Figure 3b). This suggests many children missed receiving their adolescent tetanus-diphtheria-pertussis (Tdap) booster dose during the pandemic, which is typically administered between 14-16 years of age.

## Age-Specific Estimates and PHU Variability

- Coverage estimates for 5-17-year-olds during the 2021-22 school year are provided for measles, pertussis and polio in Figures 4a-4c. Although coverage is typically assessed at 7 and 17 years of age, these figures show that coverage among the youngest age cohorts (5-8 years) was much lower compared to older cohorts during the most recent school year, ranging between 29.6%-58.2% for measles, 28.3%-57.7% for pertussis, and 28.3%-57.9% for polio.
- The large drop in pertussis coverage observed among those 14 years of age and older reflects the requirement for the adolescent Tdap booster to be considered up-to-date.

- There was significant geographic variability in coverage among PHUs across all age cohorts. For further details on PHU-specific estimates for all antigens, please refer to Supplementary Tables 1 – 11.

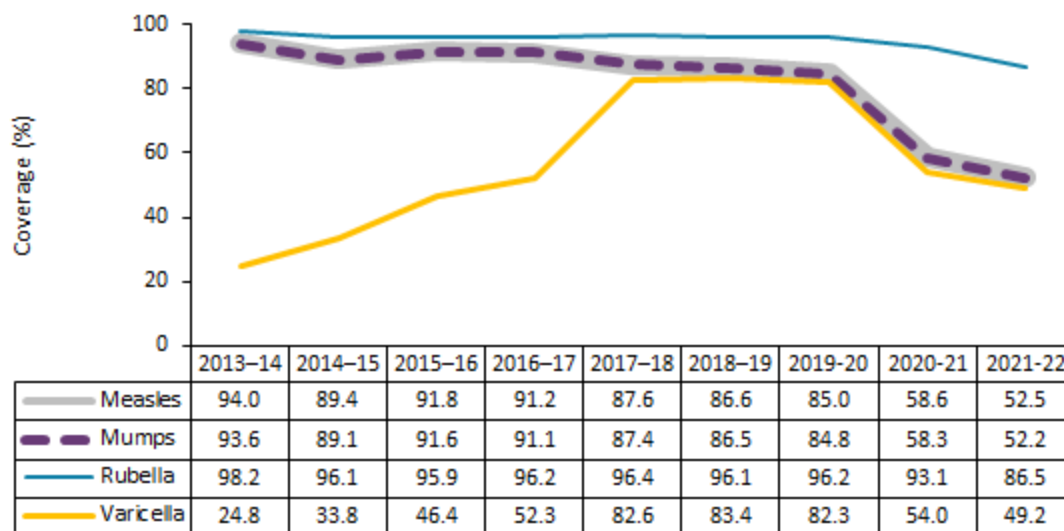
## Extended Period of Assessment

- Extending the period of assessment by up to two years after the 2019-20 and 2020-21 school years did not result in notable gains in coverage among 7-year-olds at the provincial level for measles, pertussis and polio (Figure 5).
- As of August 31, 2022, immunization coverage among 7-year-olds reflecting immunizations received up to two years following the 2019-20 and 2020-21 school years, respectively, are outlined below:
  - 85.3% and 59.4% for measles
  - 85.4% and 59.1% for polio
  - 84.9% and 58.9% for pertussis

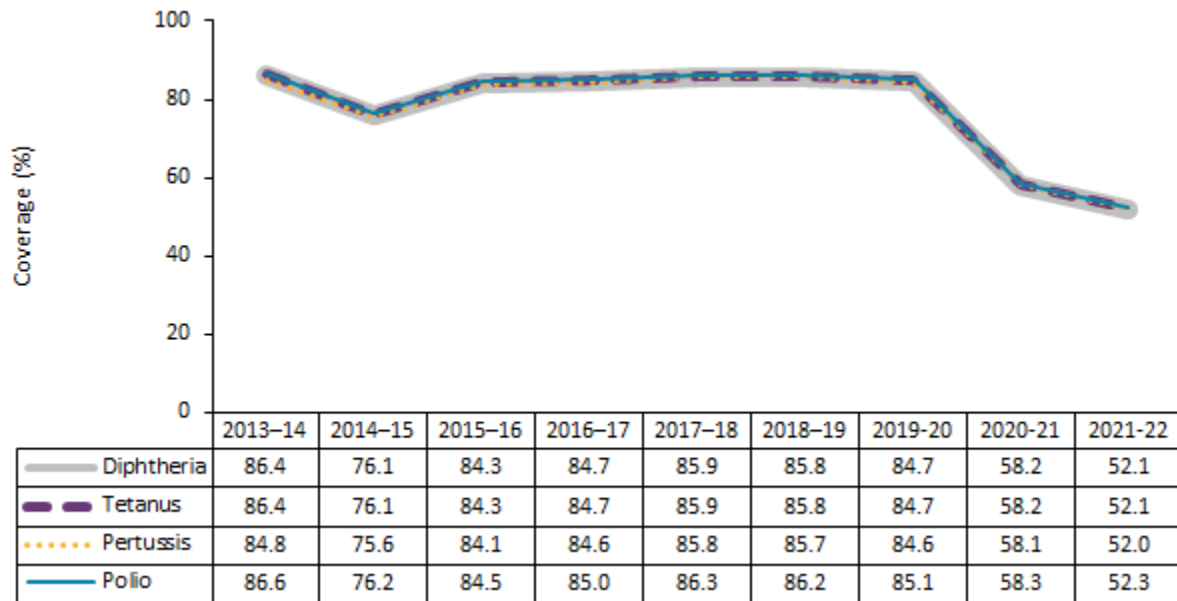
## Results

### Temporal Trends in Coverage

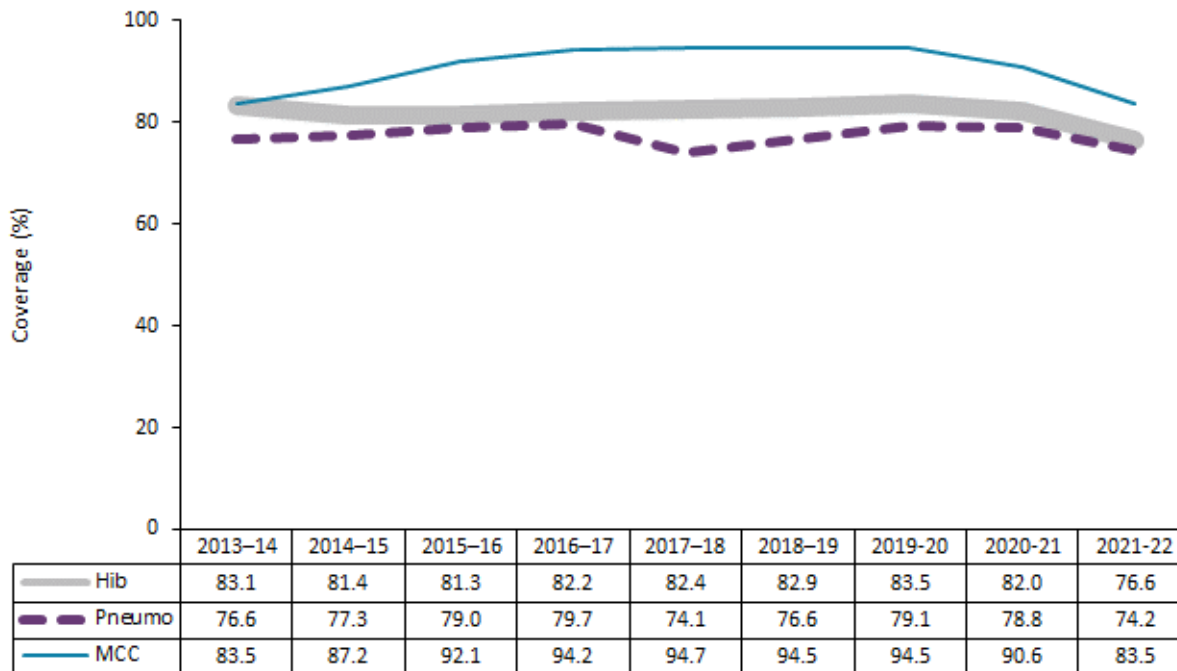
**Figure 1a. Measles, mumps, rubella and varicella immunization coverage among 7-year-olds in Ontario: 2013-14 to 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



**Figure 1b. Diphtheria, tetanus, polio and pertussis immunization coverage among 7-year-olds in Ontario: 2013–14 to 2021–22 school years based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



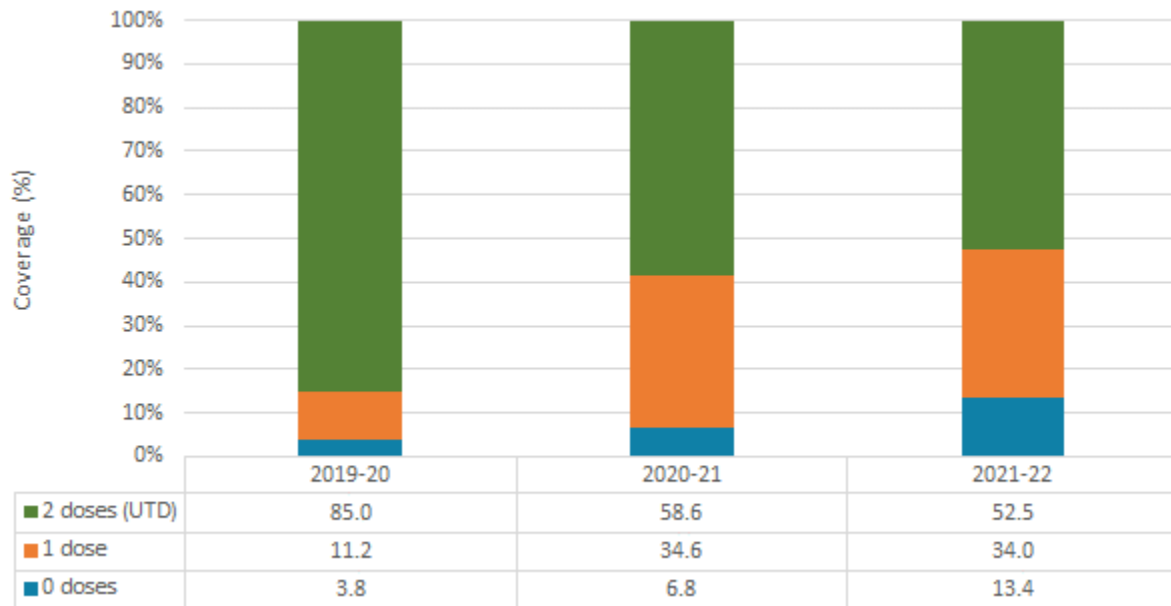
**Figure 1c. *Haemophilus influenzae* type b (Hib), pneumococcal and meningococcal C conjugate (MCC) immunization coverage among 7-year-olds in Ontario: 2013–14 to 2021–22 school years based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



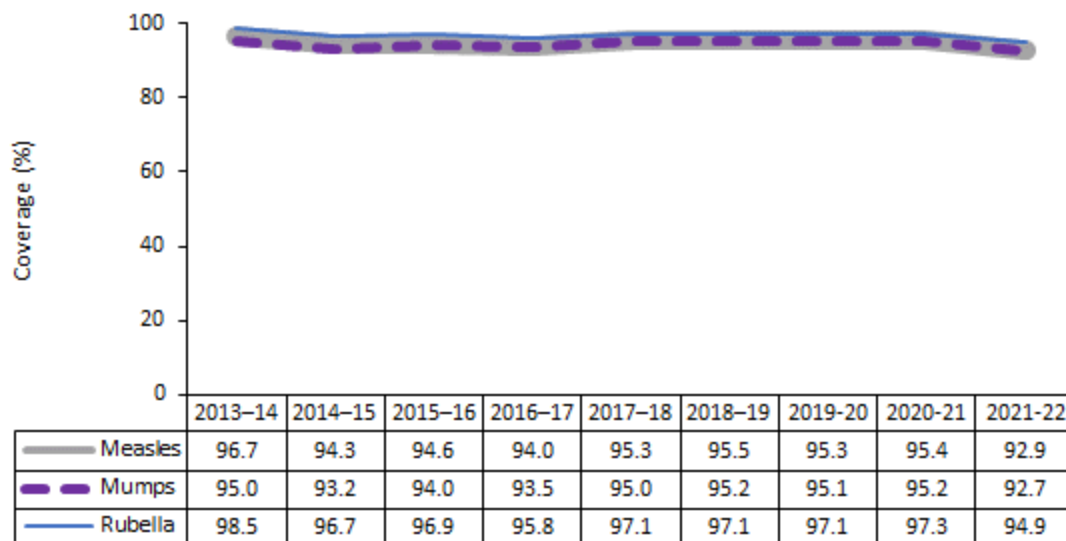
**Notes for Figures 1a-1c:**

- Coverage estimates for previous school years are point-in-time estimates from previous annual reports and were not re-calculated, as new estimates were added for the current school year.
- Effective September 2014, the ISPA was amended to include varicella for children born on or after 2010; this accounts for the steep rise in varicella coverage as of the 2017-18 school year among 7-year-olds.

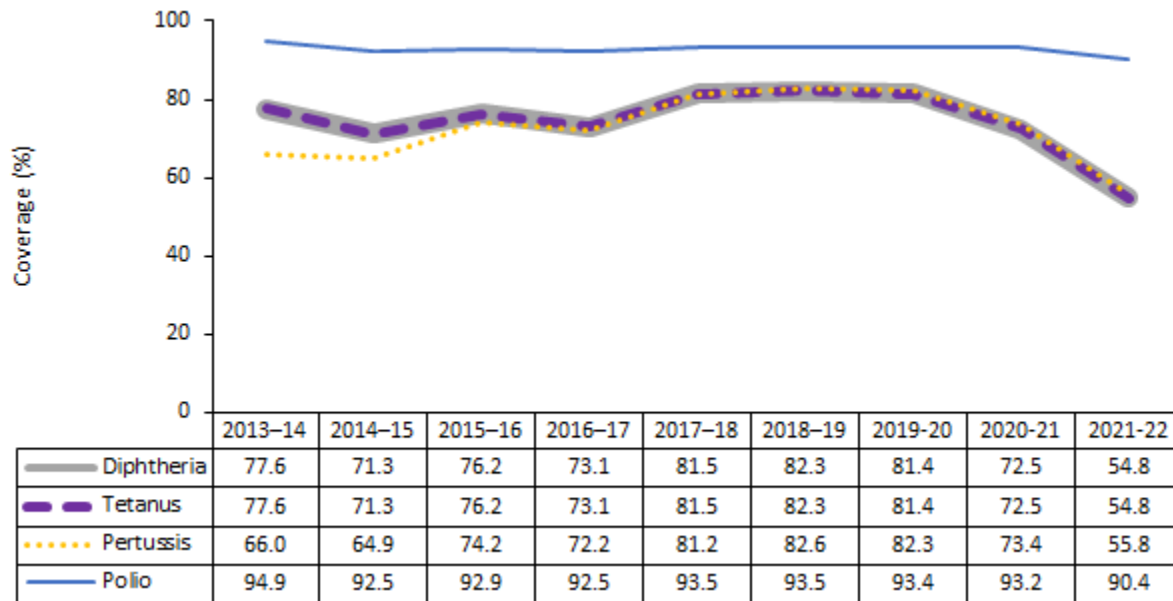
**Figure 2. Measles immunization coverage by number of doses among 7-year-olds in Ontario: 2019-20 to 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



**Figure 3a. Measles, mumps and rubella immunization coverage among 17-year-olds in Ontario: 2013-14 to 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



**Figure 3b. Diphtheria, tetanus, polio and pertussis immunization coverage among 17-year-olds in Ontario: 2013–14 to 2021–22 school years based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



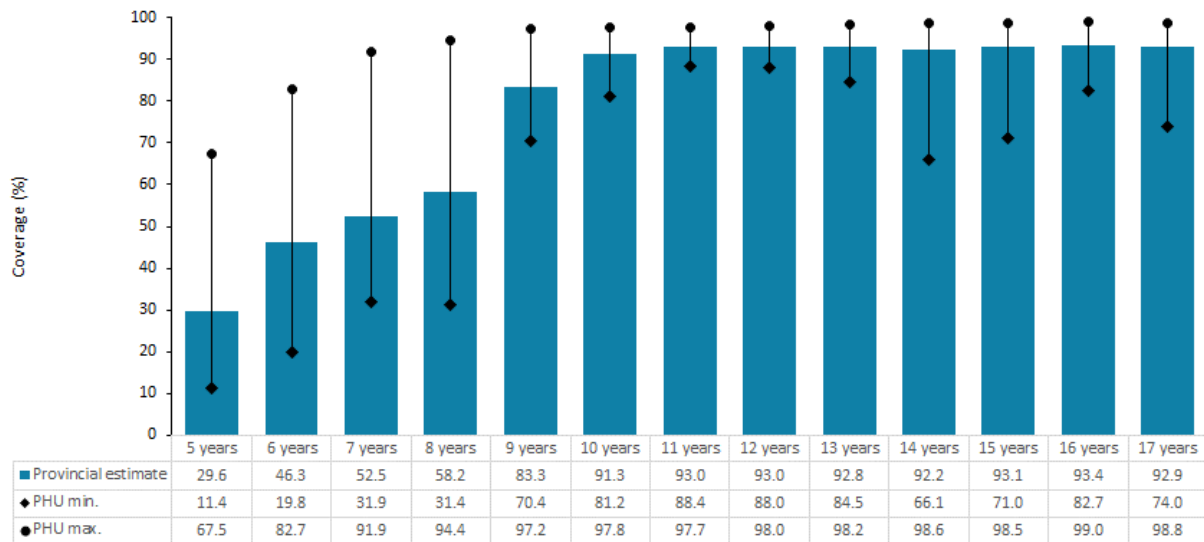
**Notes for Figures 3a-3b:**

- With the exception of diphtheria, tetanus and pertussis, coverage estimates for previous school years (i.e. prior to 2019-20) reflect point-in-time estimates from previous annual reports and were not re-calculated.
- Changes were made to the logic for up-to-date coverage assessment for diphtheria, tetanus and pertussis among 17-year-olds across all years – further details are provided in the Technical Notes. For the period between 2013-14 and 2018-19, this revised methodology was retroactively applied to data extracted for previous annual reports, thus, coverage estimates for these antigens will differ from previously published results.

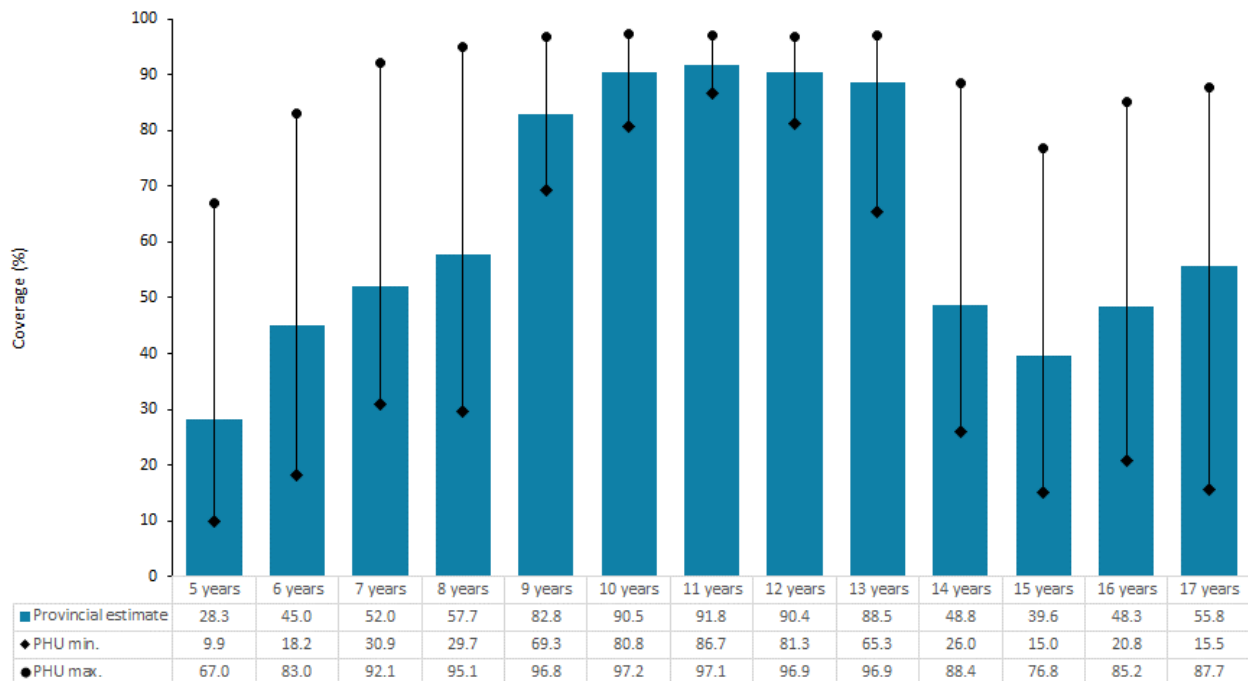


## Age-Specific Estimates and PHU Variability

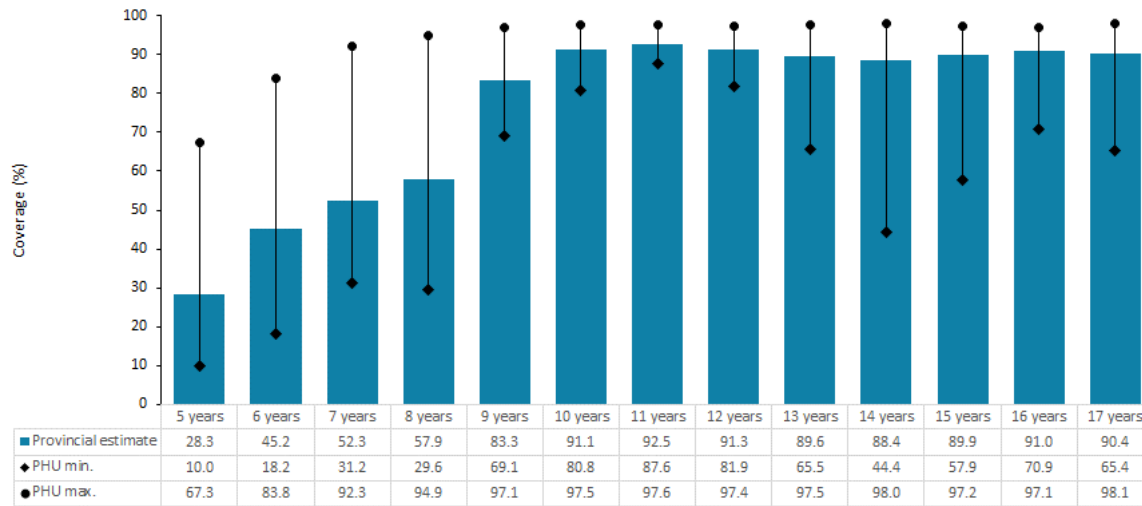
**Figure 4a. Measles immunization coverage among 5- to 17-year-olds in Ontario: 2021–22 school year based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



**Figure 4b. Pertussis immunization coverage among 5- to 17-year-olds in Ontario: 2021–22 school year based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



**Figure 4c. Polio immunization coverage among 5- to 17-year-olds in Ontario: 2021–22 school year based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

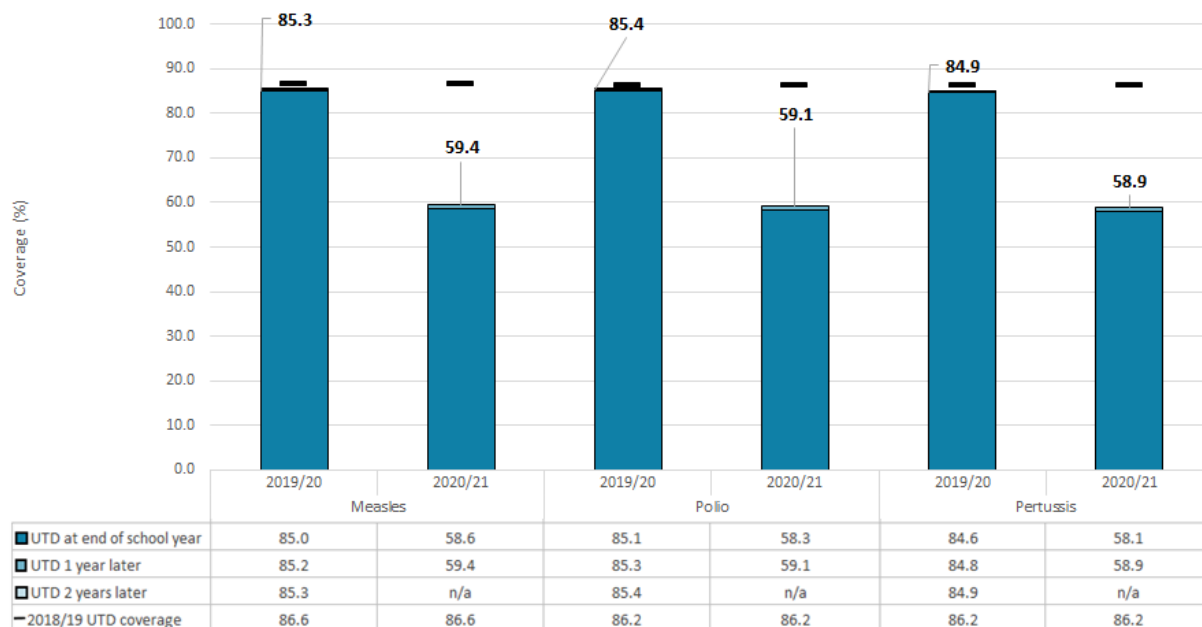


**Notes for Figures 4a-4c:**

- The diamonds and circles attached to the black bars represent the minimum and maximum PHU-specific estimates, respectively.
- Age shown is as of December 31, 2021, while immunization records in the DHIR-Panorama with an administered date up to the end August 31st, 2022 are included in coverage estimates.

## Extended Period of Assessment

**Figure 5. Immunization coverage reflecting extended period of assessment for measles, pertussis and polio among 7-year olds for the 2019-20 and 2020-21 school years in Ontario based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**



### Notes:

- Immunization coverage estimates reflect the proportion of students who received the recommended number of doses for their age by August 31st of the corresponding school year or the subsequent one or two years following the corresponding school year. Coverage estimates for the 2020/21 school year with two years of follow-up are not presented as these data will not be available until August 2023.
- 2018-19 coverage estimates are included for comparison; they are from previous annual reports and have not been re-calculated.

## Supplementary data tables

**Table 1. Immunization coverage for measles vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

Public Health Unit	7-year-olds: 2019-20 UTD* (%)	7-year-olds: 2020-21 UTD* (%)	7-year-olds: 2021-22 UTD (%)	17-year- olds: 2019- 20 UTD (%)	17-year- olds: 2020- 21 UTD (%)	17-year- olds: 2021- 22 UTD (%)
Algoma Public Health	73.5	61.7	48.2	96.4	96.6	95.5
Brant County Health Unit	87.0	70.6	72.8	95.5	94.7	95.7
Chatham-Kent Public Health	93.4	80.3	73.8	97.5	96.8	95.3
City of Hamilton Public Health	91.0	57.4	48.1	90.1	96.0	92.0
Durham Region Health Department	91.3	69.4	56.0	97.9	97.5	97.0
Eastern Ontario Health Unit	90.3	64.8	54.1	96.1	96.2	92.0
Grey Bruce Health Unit	93.1	71.4	60.4	93.9	96.5	95.6
Haldimand-Norfolk Health Unit	81.7	56.0	48.8	92.2	85.4	74.0
Haliburton, Kawartha, Pine	87.4	55.7	70.1	96.1	96.0	96.7
Halton Region Public Health	82.8	30.8	33.5	97.4	96.9	95.5
Hastings Prince Edward Public	91.4	81.4	77.4	97.6	97.4	96.3
Huron Perth Public Health	88.8	66.4	53.1	91.9	95.4	95.2
Kingston, Frontenac and Lennox & Addington	97.4	94.4	91.9	98.2	97.5	96.3

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD* (%)</b>	<b>7-year-olds: 2020-21 UTD* (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year- olds: 2019- 20 UTD (%)</b>	<b>17-year- olds: 2020- 21 UTD (%)</b>	<b>17-year- olds: 2021- 22 UTD (%)</b>
Lambton Public Health	93.7	75.6	66.3	98.3	97.6	97.3
Leeds, Grenville & Lanark District	83.0	74.0	72.8	91.5	89.1	89.2
Middlesex-London Health Unit	89.8	77.1	74.4	93.5	94.5	90.0
Niagara Region Public Health	87.9	77.4	66.8	96.7	96.4	95.4
North Bay Parry Sound District	96.0	91.8	87.3	97.5	97.8	95.5
Northwestern Health Unit	94.4	94.8	90.4	94.6	98.1	97.3
Ottawa Public Health	86.6	64.0	58.8	96.7	96.3	94.7
Peel Public Health	77.7	39.9	37.2	96.6	96.9	95.0
Peterborough Public Health	69.8	59.1	73.6	96.6	95.1	95.5
Porcupine Health Unit	95.5	92.0	86.6	99.1	99.2	98.8
Public Health Sudbury & Districts	90.9	80.7	70.7	97.5	97.0	96.5
Region of Waterloo Public Health and Emergency Services	86.8	74.5	67.4	95.1	95.3	93.7
Renfrew County and District Health	92.8	82.2	81.1	98.0	96.7	96.0
Simcoe Muskoka District Health Unit	93.1	40.5	32.9	95.5	88.7	91.0
Southwestern Public Health	83.1	75.7	70.2	94.5	94.2	94.2
Thunder Bay District	90.9	73.0	63.9	96.5	97.5	94.9

Public Health Unit	7-year-olds: 2019-20 UTD* (%)	7-year-olds: 2020-21 UTD* (%)	7-year-olds: 2021-22 UTD (%)	17-year-olds: 2019- 20 UTD (%)	17-year-olds: 2020- 21 UTD (%)	17-year-olds: 2021- 22 UTD (%)
Timiskaming Health Unit	90.9	89.5	85.3	98.6	96.6	97.7
Toronto Public Health	80.2	51.8	38.9	95.3	96.8	92.1
Wellington-Dufferin-Guelph	94.4	81.9	78.0	96.8	96.8	94.5
Windsor-Essex County Health Unit	92.0	87.1	85.6	93.0	85.8	86.0
York Region Public Health	80.6	44.3	31.9	92.3	93.2	87.0
Ontario	85.3	59.4	52.5	95.3	95.4	92.9

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year; UTD\* reflects immunizations received as of August 31, 2022.

**Table 2. Immunization coverage for mumps vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Algoma Public Health	73.0	61.6	48.2	96.4	96.6	95.4
Brant County Health Unit	86.0	70.1	72.8	95.6	94.6	95.6
Chatham-Kent Public Health	93.4	75.8	73.7	97.2	96.7	95.3
City of Hamilton Public Health Services	90.6	56.8	47.9	89.8	95.8	91.8
Durham Region Health Department	91.0	68.5	55.7	97.9	97.4	97.0
Eastern Ontario Health Unit	90.2	64.6	54.0	95.9	96.2	91.9
Grey Bruce Health Unit	92.9	70.8	60.4	93.9	96.4	95.6
Haldimand-Norfolk Health Unit	81.3	55.0	48.8	92.3	85.5	73.8
Haliburton, Kawartha, Pine Ridge District Health Unit	87.1	55.2	70.1	96.1	95.8	96.8
Halton Region Public Health	82.5	30.5	33.3	97.3	96.7	95.2
Hastings Prince Edward Public Health	90.7	77.5	77.4	97.4	97.3	95.8
Huron Perth Public Health	88.3	65.4	53.0	91.8	95.2	95.1
Kingston, Frontenac and Lennox & Addington Public Health	96.8	92.6	91.9	98.1	97.5	96.2
Lambton Public Health	93.4	73.7	66.3	98.3	97.5	97.3
Leeds, Grenville & Lanark District Health Unit	82.5	71.1	72.7	91.5	89.0	89.2

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Middlesex-London Health Unit	89.0	73.5	74.0	93.3	94.2	89.7
Niagara Region Public Health	87.6	76.8	66.6	96.3	96.2	95.1
North Bay Parry Sound District Health Unit	95.4	89.7	87.3	97.4	97.7	95.5
Northwestern Health Unit	94.3	94.1	90.4	94.6	98.1	97.2
Ottawa Public Health	86.3	63.6	58.6	96.5	96.2	94.5
Peel Public Health	77.1	38.9	36.5	96.3	96.7	94.8
Peterborough Public Health	69.2	58.7	73.5	96.6	95.1	95.4
Porcupine Health Unit	94.5	90.1	86.5	99.1	99.2	98.6
Public Health Sudbury & Districts	89.0	79.0	70.5	97.5	96.9	96.5
Region of Waterloo Public Health and Emergency Services	86.1	73.2	67.0	95.1	95.2	93.5
Renfrew County and District Health Unit	92.1	78.9	81.1	97.9	96.7	95.9
Simcoe Muskoka District Health Unit	93.1	40.1	32.9	95.3	88.4	90.8
Southwestern Public Health	81.7	75.1	70.2	95.0	94.8	94.3
Thunder Bay District Health Unit	90.3	72.0	63.9	96.5	97.4	94.9
Timiskaming Health Unit	85.9	89.2	85.3	98.6	96.6	97.7
Toronto Public Health	79.8	51.2	38.4	95.1	96.6	91.9



<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Wellington-Dufferin-Guelph Public Health	94.0	77.2	77.8	96.6	96.7	94.5
Windsor-Essex County Health Unit	91.4	82.6	85.4	92.7	85.5	85.6
York Region Public Health	80.4	44.1	31.8	91.6	92.7	86.0
Ontario	84.8	58.3	52.2	95.1	95.2	92.7

**Table 3. Immunization coverage for rubella vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

Public Health Unit	7-year-olds: 2019-20 UTD (%)	7-year-olds: 2020-21 UTD (%)	7-year-olds: 2021-22 UTD (%)	17-year-olds: 2019-20 UTD (%)	17-year-olds: 2020-21 UTD (%)	17-year-olds: 2021-22 UTD (%)
Algoma Public Health	97.7	95.8	91.8	97.3	97.9	96.8
Brant County Health Unit	94.7	89.6	91.0	97.4	96.2	97.0
Chatham-Kent Public Health	97.0	95.3	92.9	98.9	97.8	97.4
City of Hamilton Public Health Services	97.3	95.8	90.9	92.2	97.8	93.3
Durham Region Health Department	97.6	97.2	95.8	98.7	98.4	98.0
Eastern Ontario Health Unit	97.0	96.4	93.0	97.7	97.3	93.8
Grey Bruce Health Unit	95.9	95.7	95.4	95.1	97.1	96.5
Haldimand-Norfolk Health Unit	91.5	81.1	74.5	95.2	89.7	80.6
Haliburton, Kawartha, Pine Ridge District Health Unit	97.0	97.7	96.5	97.1	97.2	97.8
Halton Region Public Health	96.2	86.4	74.2	98.7	98.2	97.0
Hastings Prince Edward Public Health	97.8	97.1	97.3	98.2	98.6	97.0
Huron Perth Public Health	95.7	95.2	95.2	93.1	96.5	96.6
Kingston, Frontenac and Lennox & Addington Public Health	98.6	98.7	98.1	99.3	98.3	97.0
Lambton Public Health	97.2	97.6	95.5	98.9	97.9	98.3
Leeds, Grenville & Lanark District Health Unit	93.6	95.0	95.4	92.6	91.9	91.8

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Middlesex-London Health Unit	95.2	90.7	88.9	96.1	96.9	93.2
Niagara Region Public Health	95.9	95.7	92.1	98.7	98.2	96.7
North Bay Parry Sound District Health Unit	97.6	98.1	96.8	98.5	98.3	96.4
Northwestern Health Unit	97.5	98.3	97.6	97.6	98.7	97.7
Ottawa Public Health	98.3	96.6	93.3	98.3	97.9	96.3
Peel Public Health	98.0	96.6	91.9	98.6	98.3	96.6
Peterborough Public Health	97.1	96.3	95.1	98.2	96.2	97.0
Porcupine Health Unit	97.6	96.7	97.6	99.6	99.3	99.1
Public Health Sudbury & Districts	98.0	97.4	97.1	98.5	98.0	97.2
Region of Waterloo Public Health and Emergency Services	96.5	95.8	93.1	96.9	96.8	95.3
Renfrew County and District Health Unit	98.1	98.4	97.8	98.7	97.8	97.0
Simcoe Muskoka District Health Unit	96.6	89.5	85.5	97.5	96.2	95.7
Southwestern Public Health	91.7	91.0	90.9	95.8	95.4	95.4
Thunder Bay District Health Unit	97.0	97.3	93.1	97.8	98.1	96.0
Timiskaming Health Unit	98.4	97.7	94.4	99.0	97.6	98.4
Toronto Public Health	96.2	96.3	83.4	97.3	98.6	93.9

Public Health Unit	7-year-olds: 2019-20 UTD (%)	7-year-olds: 2020-21 UTD (%)	7-year-olds: 2021-22 UTD (%)	17-year-olds: 2019-20 UTD (%)	17-year-olds: 2020-21 UTD (%)	17-year-olds: 2021-22 UTD (%)
Wellington-Dufferin-Guelph Public Health	97.1	96.7	96.0	98.3	97.7	95.3
Windsor-Essex County Health Unit	96.3	96.2	95.9	96.3	91.8	92.1
York Region Public Health	90.6	72.7	49.2	94.7	95.5	89.7
Ontario	96.2	93.1	86.5	97.1	97.3	94.9

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year.

**Table 4. Immunization coverage for varicella vaccine among 7-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Algoma Public Health	69.9	60.1	46.6
Brant County Health Unit	84.0	67.1	69.5
Chatham-Kent Public Health	93.7	75.2	73.2
City of Hamilton Public Health Services	88.6	51.2	43.5
Durham Region Health Department	89.0	64.2	52.7
Eastern Ontario Health Unit	88.6	60.8	51.3
Grey Bruce Health Unit	91.7	68.7	58.9
Haldimand-Norfolk Health Unit	78.8	51.5	47.4
Haliburton, Kawartha, Pine Ridge District Health Unit	84.8	51.9	68.7
Halton Region Public Health	79.9	26.2	30.2
Hastings Prince Edward Public Health	88.5	75.3	75.8
Huron Perth Public Health	85.5	62.2	50.9
Kingston, Frontenac and Lennox & Addington Public Health	95.3	91.4	90.9
Lambton Public Health	92.2	69.8	62.6
Leeds, Grenville & Lanark District Health Unit	81.1	69.4	71.4

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Middlesex-London Health Unit	87.0	69.8	71.6
Niagara Region Public Health	85.7	73.2	62.9
North Bay Parry Sound District Health Unit	94.8	88.7	85.3
Northwestern Health Unit	94.3	93.3	89.0
Ottawa Public Health	84.4	58.4	54.9
Peel Public Health	73.6	32.4	31.9
Peterborough Public Health	65.7	55.9	71.7
Porcupine Health Unit	93.4	88.1	85.2
Public Health Sudbury & Districts	86.9	76.6	68.1
Region of Waterloo Public Health and Emergency Services	84.5	69.4	63.6
Renfrew County and District Health Unit	89.9	76.3	78.7
Simcoe Muskoka District Health Unit	91.9	37.6	30.9
Southwestern Public Health	78.5	72.2	68.2
Thunder Bay District Health Unit	87.9	68.3	61.1
Timiskaming Health Unit	83.4	88.0	87.3
Toronto Public Health	76.3	45.3	34.4

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Wellington-Dufferin-Guelph Public Health	93.1	73.9	76.1
Windsor-Essex County Health Unit	89.9	79.2	82.9
York Region Public Health	77.2	41.1	30.3
Ontario	82.3	54.0	49.2

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year.

**Table 5. Immunization coverage for diphtheria vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Algoma Public Health	72.4	58.9	47.6	71.8	59.0	46.7
Brant County Health Unit	84.6	69.5	71.6	80.3	72.1	64.7
Chatham-Kent Public Health	93.8	75.8	74.3	80.5	76.0	55.2
City of Hamilton Public Health Services	89.9	57.2	47.4	73.5	76.8	63.2
Durham Region Health Department	90.5	67.9	55.7	85.4	76.1	66.7
Eastern Ontario Health Unit	89.6	64.2	53.5	86.3	83.4	61.4
Grey Bruce Health Unit	93.5	70.6	59.8	80.0	74.2	54.2
Haldimand-Norfolk Health Unit	80.9	54.4	48.0	76.4	61.5	15.5
Haliburton, Kawartha, Pine Ridge District Health Unit	87.4	55.6	71.8	77.5	72.3	59.8
Halton Region Public Health	82.8	29.2	32.6	87.2	80.4	60.5
Hastings Prince Edward Public Health	90.4	77.2	77.2	87.7	83.1	61.1
Huron Perth Public Health	88.3	66.2	53.5	80.9	76.5	59.0
Kingston, Frontenac and Lennox & Addington Public Health	96.8	92.5	92.1	86.0	82.5	81.4
Lambton Public Health	93.3	72.2	67.5	83.0	73.8	61.1
Leeds, Grenville & Lanark District Health Unit	82.6	70.2	72.8	79.0	62.9	48.2



<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Middlesex-London Health Unit	88.0	72.3	73.5	72.8	62.7	37.7
Niagara Region Public Health	87.7	76.6	66.1	83.5	76.5	58.3
North Bay Parry Sound District Health Unit	95.6	90.1	86.8	87.5	78.8	70.4
Northwestern Health Unit	94.3	94.8	90.5	88.0	89.4	84.9
Ottawa Public Health	85.7	63.3	58.2	84.0	80.4	65.8
Peel Public Health	78.5	41.7	38.6	81.4	75.5	59.1
Peterborough Public Health	68.4	56.6	73.4	79.9	67.6	51.1
Porcupine Health Unit	94.3	90.0	86.6	89.6	86.5	82.5
Public Health Sudbury & Districts	88.6	78.1	69.8	83.9	81.4	71.1
Region of Waterloo Public Health and Emergency Services	86.7	73.6	66.9	81.0	71.0	54.1
Renfrew County and District Health Unit	92.0	77.9	80.7	91.6	85.9	74.9
Simcoe Muskoka District Health Unit	93.0	39.3	32.3	85.1	23.6	27.2
Southwestern Public Health	81.4	75.2	70.2	82.2	77.3	73.8
Thunder Bay District Health Unit	89.9	71.4	64.3	85.9	80.8	69.8
Timiskaming Health Unit	85.3	88.3	87.3	92.2	90.4	87.7
Toronto Public Health	79.6	51.3	37.5	79.9	78.8	64.7

Public Health Unit	7-year-olds: 2019-20 UTD (%)	7-year-olds: 2020-21 UTD (%)	7-year-olds: 2021-22 UTD (%)	17-year-olds: 2019-20 UTD (%)	17-year-olds: 2020-21 UTD (%)	17-year-olds: 2021-22 UTD (%)
Wellington-Dufferin-Guelph Public Health	94.5	77.6	78.4	87.8	82.4	76.6
Windsor-Essex County Health Unit	90.4	82.6	84.5	71.8	18.2	32.0
York Region Public Health	79.8	42.3	31.1	80.6	75.8	15.8
Ontario	84.7	58.2	52.1	81.4	72.5	54.8

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year.

**Table 6. Immunization coverage for tetanus vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Algoma Public Health	72.4	58.9	47.6	71.8	59.0	46.7
Brant County Health Unit	84.6	69.5	71.6	80.3	72.1	64.7
Chatham-Kent Public Health	93.8	75.8	74.3	80.5	76.0	55.2
City of Hamilton Public Health Services	89.9	57.2	47.4	73.2	76.8	63.2
Durham Region Health Department	90.5	67.9	55.7	85.4	76.2	66.7
Eastern Ontario Health Unit	89.6	64.2	53.5	86.2	83.4	61.4
Grey Bruce Health Unit	93.5	70.6	59.8	80.0	74.2	54.2
Haldimand-Norfolk Health Unit	80.9	54.4	48.0	76.3	61.5	15.5
Haliburton, Kawartha, Pine Ridge District Health Unit	87.4	55.6	71.8	77.5	72.3	59.9
Halton Region Public Health	82.8	29.2	32.6	87.2	80.5	60.5
Hastings Prince Edward Public Health	90.4	77.2	77.2	87.7	83.1	61.1
Huron Perth Public Health	88.3	66.2	53.5	81.0	76.4	59.0
Kingston, Frontenac and Lennox & Addington Public Health	96.8	92.5	92.1	86.0	82.5	81.4
Lambton Public Health	93.3	72.2	67.5	83.0	73.8	61.1
Leeds, Grenville & Lanark District Health Unit	82.6	70.2	72.8	79.0	62.9	48.2

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD (%)</b>	<b>7-year-olds: 2020-21 UTD (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year-olds: 2019-20 UTD (%)</b>	<b>17-year-olds: 2020-21 UTD (%)</b>	<b>17-year-olds: 2021-22 UTD (%)</b>
Middlesex-London Health Unit	88.0	72.2	73.5	72.8	62.7	37.7
Niagara Region Public Health	87.7	76.6	66.1	83.5	76.5	58.3
North Bay Parry Sound District Health Unit	95.6	90.1	86.8	87.5	78.8	70.4
Northwestern Health Unit	94.3	94.8	90.5	88.0	89.4	84.9
Ottawa Public Health	85.7	63.3	58.2	84.0	80.4	65.8
Peel Public Health	78.4	41.7	38.6	81.4	75.6	59.1
Peterborough Public Health	68.4	56.6	73.4	79.9	67.6	51.2
Porcupine Health Unit	94.3	90.0	86.6	89.6	86.5	82.5
Public Health Sudbury & Districts	88.6	78.1	69.9	83.9	81.4	71.1
Region of Waterloo Public Health and Emergency Services	86.7	73.6	66.9	81.0	71.0	54.1
Renfrew County and District Health Unit	92.0	77.9	80.7	91.6	85.9	74.9
Simcoe Muskoka District Health Unit	93.0	39.3	32.3	85.2	23.6	27.2
Southwestern Public Health	81.4	75.2	70.2	82.2	77.3	73.8
Thunder Bay District Health Unit	89.9	71.4	64.3	85.9	80.8	69.8
Timiskaming Health Unit	85.3	88.3	87.3	92.2	90.4	87.7
Toronto Public Health	79.6	51.2	37.5	79.9	78.8	64.7

Public Health Unit	7-year-olds: 2019-20 UTD (%)	7-year-olds: 2020-21 UTD (%)	7-year-olds: 2021-22 UTD (%)	17-year-olds: 2019-20 UTD (%)	17-year-olds: 2020-21 UTD (%)	17-year-olds: 2021-22 UTD (%)
Wellington-Dufferin-Guelph Public Health	94.5	77.6	78.4	87.9	82.4	76.7
Windsor-Essex County Health Unit	90.4	82.6	84.5	71.8	18.2	32.0
York Region Public Health	79.7	42.2	31.1	80.5	75.8	15.9
Ontario	84.7	58.2	52.1	81.4	72.5	54.8

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year.

**Table 7. Immunization coverage for pertussis vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD* (%)</b>	<b>7-year-olds: 2020-21 UTD* (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year- olds: 2019- 20 UTD (%)</b>	<b>17-year- olds: 2020- 21 UTD (%)</b>	<b>17-year- olds: 2021- 22 UTD (%)</b>
Algoma Public Health	72.8	59.1	47.6	71.8	58.9	46.7
Brant County Health Unit	85.8	69.7	71.6	80.5	72.1	65.3
Chatham-Kent Public Health	93.8	80.4	74.3	81.8	76.1	55.0
City of Hamilton Public Health Services	90.1	57.3	47.3	73.4	77.0	63.7
Durham Region Health Department	90.7	68.5	55.7	85.5	76.6	67.5
Eastern Ontario Health Unit	89.8	64.3	53.5	86.3	83.5	61.4
Grey Bruce Health Unit	93.6	71.2	59.8	80.5	74.4	54.3
Haldimand-Norfolk Health Unit	81.3	55.6	47.9	76.2	61.2	15.5
Haliburton, Kawartha, Pine Ridge District	87.6	56.2	71.7	77.5	72.4	59.6
Halton Region Public Health	82.7	29.2	32.5	87.7	81.0	61.3
Hastings Prince Edward Public Health	91.4	81.0	77.2	87.7	83.1	61.2
Huron Perth Public Health	88.9	67.0	53.4	81.0	76.5	58.9
Kingston, Frontenac and Lennox & Addington	97.4	94.4	92.1	86.2	82.5	81.4
Lambton Public Health	93.6	74.4	67.4	83.2	73.8	60.9
Leeds, Grenville & Lanark District Health	83.0	73.3	72.7	79.0	62.8	48.1

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD* (%)</b>	<b>7-year-olds: 2020-21 UTD* (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year- olds: 2019- 20 UTD (%)</b>	<b>17-year- olds: 2020- 21 UTD (%)</b>	<b>17-year- olds: 2021- 22 UTD (%)</b>
Middlesex-London Health Unit	88.7	75.5	73.4	74.1	63.7	38.0
Niagara Region Public Health	87.9	76.9	66.0	84.7	77.2	58.9
North Bay Parry Sound District Health Unit	96.2	92.1	86.8	87.5	79.1	70.4
Northwestern Health Unit	94.6	95.4	90.4	88.0	89.6	84.7
Ottawa Public Health	85.7	63.3	58.1	84.5	81.0	66.2
Peel Public Health	78.4	41.7	38.5	86.0	80.7	64.7
Peterborough Public Health	69.0	56.9	73.3	80.3	68.5	51.6
Porcupine Health Unit	95.7	91.5	86.6	90.5	86.9	83.1
Public Health Sudbury & Districts	90.4	79.8	69.8	84.3	81.3	71.0
Region of Waterloo Public Health and Emergency Services	87.0	74.7	66.8	81.7	71.7	54.9
Renfrew County and District Health Unit	92.7	81.3	80.6	91.6	85.9	74.9
Simcoe Muskoka District Health Unit	93.0	39.4	32.3	84.8	23.4	27.2
Southwestern Public Health	82.6	75.7	70.2	82.2	77.5	74.1
Thunder Bay District Health Unit	90.4	72.4	64.3	85.8	80.5	70.0
Timiskaming Health Unit	91.6	88.6	87.3	91.9	90.4	87.7
Toronto Public Health	79.6	51.2	37.4	80.5	78.7	64.8

Public Health Unit	7-year-olds: 2019-20 UTD* (%)	7-year-olds: 2020-21 UTD* (%)	7-year-olds: 2021-22 UTD (%)	17-year- olds: 2019- 20 UTD (%)	17-year- olds: 2020- 21 UTD (%)	17-year- olds: 2021- 22 UTD (%)
Wellington-Dufferin- Guelph Public Health	94.7	82.0	78.4	87.8	82.8	77.4
Windsor-Essex County Health Unit	90.8	86.2	84.5	71.6	18.0	31.9
York Region Public Health	79.6	42.2	30.9	80.5	76.3	16.6
Ontario	84.9	58.9	52.0	82.3	73.4	55.8

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year; UTD\* reflects immunizations received as of August 31, 2022.



**Table 8. Immunization coverage for polio vaccine among 7- and 17-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD* (%)</b>	<b>7-year-olds: 2020-21 UTD* (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year- olds: 2019- 20 UTD (%)</b>	<b>17-year- olds: 2020- 21 UTD (%)</b>	<b>17-year- olds: 2021- 22 UTD (%)</b>
Algoma Public Health	72.8	59.7	47.6	95.6	95.5	93.9
Brant County Health Unit	86.9	70.7	72.6	95.0	93.7	94.4
Chatham-Kent Public Health	94.1	81.2	75.5	97.1	95.9	95.3
City of Hamilton Public Health Services	91.0	58.0	47.7	87.6	94.1	89.8
Durham Region Health Department	90.9	67.9	55.5	96.4	95.8	95.6
Eastern Ontario Health Unit	90.5	64.3	54.0	94.3	94.3	90.2
Grey Bruce Health Unit	93.8	71.2	60.0	93.2	95.1	94.1
Haldimand-Norfolk Health Unit	81.8	56.4	49.1	88.0	82.5	65.4
Haliburton, Kawartha, Pine Ridge District	87.6	56.0	71.8	95.3	95.4	95.7
Halton Region Public Health	83.0	29.1	32.4	95.9	95.5	93.7
Hastings Prince Edward Public Health	91.8	81.1	77.1	96.0	96.5	94.3
Huron Perth Public Health	89.6	67.2	53.9	91.3	94.6	94.6
Kingston, Frontenac and Lennox & Addington	97.6	94.4	92.3	97.7	96.4	94.8
Lambton Public Health	94.1	74.2	67.7	97.0	97.1	96.3
Leeds, Grenville & Lanark District Health	83.6	73.5	73.0	90.8	87.4	83.8

<b>Public Health Unit</b>	<b>7-year-olds: 2019-20 UTD* (%)</b>	<b>7-year-olds: 2020-21 UTD* (%)</b>	<b>7-year-olds: 2021-22 UTD (%)</b>	<b>17-year- olds: 2019- 20 UTD (%)</b>	<b>17-year- olds: 2020- 21 UTD (%)</b>	<b>17-year- olds: 2021- 22 UTD (%)</b>
Middlesex-London Health Unit	89.5	75.9	73.9	91.8	92.8	87.6
Niagara Region Public Health	88.5	77.1	66.6	96.0	95.8	94.3
North Bay Parry Sound District Health Unit	96.3	92.3	87.4	96.9	96.6	94.3
Northwestern Health Unit	94.7	95.4	90.4	93.2	96.4	95.8
Ottawa Public Health	86.1	63.3	58.6	94.1	94.0	92.0
Peel Public Health	78.5	41.6	38.6	94.6	94.8	93.4
Peterborough Public Health	68.8	57.2	73.9	95.4	94.2	94.5
Porcupine Health Unit	96.0	91.9	86.9	98.0	96.1	97.1
Public Health Sudbury & Districts	90.7	80.1	70.1	96.4	95.7	94.6
Region of Waterloo Public Health and Emergency Services	87.4	75.1	67.1	93.8	93.9	92.1
Renfrew County and District Health Unit	92.8	81.6	80.5	96.9	96.3	94.9
Simcoe Muskoka District Health Unit	93.6	39.7	32.4	94.2	82.6	83.3
Southwestern Public Health	82.8	76.0	70.4	93.3	93.1	92.8
Thunder Bay District Health Unit	91.2	72.7	64.7	96.0	96.7	94.0
Timiskaming Health Unit	92.2	89.8	87.3	98.6	96.2	98.1
Toronto Public Health	80.3	51.6	37.7	91.9	93.4	89.0

Public Health Unit	7-year-olds: 2019-20 UTD* (%)	7-year-olds: 2020-21 UTD* (%)	7-year-olds: 2021-22 UTD (%)	17-year- olds: 2019- 20 UTD (%)	17-year- olds: 2020- 21 UTD (%)	17-year- olds: 2021- 22 UTD (%)
Wellington-Dufferin- Guelph Public Health	95.0	82.4	78.5	95.2	95.1	92.7
Windsor-Essex County Health Unit	91.8	86.8	85.7	90.9	82.1	79.7
York Region Public Health	80.1	42.5	31.2	90.7	91.4	84.5
Ontario	85.4	59.1	52.3	93.4	93.2	90.4

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year; UTD\* reflects immunizations received as of August 31, 2022.

**Table 9. Immunization coverage for *Haemophilus influenzae* type b vaccine among 7-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

Public Health Unit	2019-20 UTD (%)	2020-21 UTD (%)	2021-22 UTD (%)
Algoma Public Health	90.6	90.5	85.9
Brant County Health Unit	81.9	75.7	75.5
Chatham-Kent Public Health	91.3	90.3	88.9
City of Hamilton Public Health Services	82.4	83.7	80.0
Durham Region Health Department	88.1	89.8	88.6
Eastern Ontario Health Unit	89.2	90.5	87.5
Grey Bruce Health Unit	90.4	90.5	90.4
Haldimand-Norfolk Health Unit	77.4	68.4	60.1
Haliburton, Kawartha, Pine Ridge District Health Unit	86.5	89.8	90.4
Halton Region Public Health	82.4	74.6	62.6
Hastings Prince Edward Public Health	91.4	93.0	92.0
Huron Perth Public Health	91.8	91.4	92.4
Kingston, Frontenac and Lennox & Addington Public Health	92.7	94.0	92.3
Lambton Public Health	87.2	89.4	85.0
Leeds, Grenville & Lanark District Health Unit	85.9	90.4	89.4

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Middlesex-London Health Unit	80.2	77.4	75.8
Niagara Region Public Health	84.7	86.1	82.3
North Bay Parry Sound District Health Unit	93.8	95.0	93.2
Northwestern Health Unit	87.5	90.9	91.2
Ottawa Public Health	88.4	86.9	84.3
Peel Public Health	81.5	81.3	78.1
Peterborough Public Health	91.0	90.3	88.2
Porcupine Health Unit	85.8	86.7	89.4
Public Health Sudbury & Districts	88.1	88.8	90.3
Region of Waterloo Public Health and Emergency Services	85.2	86.0	82.7
Renfrew County and District Health Unit	92.2	93.2	93.5
Simcoe Muskoka District Health Unit	86.0	79.4	75.2
Southwestern Public Health	85.4	84.9	85.0
Thunder Bay District Health Unit	85.6	88.0	82.3
Timiskaming Health Unit	93.1	93.0	91.0
Toronto Public Health	80.2	81.7	72.7

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Wellington-Dufferin-Guelph Public Health	88.4	89.1	88.9
Windsor-Essex County Health Unit	83.6	85.9	84.7
York Region Public Health	74.8	58.6	39.5
Ontario	83.5	82.0	76.6

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year.

**Table 10. Immunization coverage for pneumococcal vaccine among 7-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Algoma Public Health	90.8	90.8	87.4
Brant County Health Unit	82.3	75.5	76.4
Chatham-Kent Public Health	85.3	86.1	85.6
City of Hamilton Public Health Services	79.4	80.2	77.0
Durham Region Health Department	82.3	84.5	85.8
Eastern Ontario Health Unit	88.8	89.4	88.6
Grey Bruce Health Unit	86.8	88.0	89.2
Haldimand-Norfolk Health Unit	72.5	66.1	57.5
Haliburton, Kawartha, Pine Ridge District Health Unit	84.4	85.7	88.0
Halton Region Public Health	77.8	72.9	59.5
Hastings Prince Edward Public Health	90.7	92.5	91.6
Huron Perth Public Health	87.8	87.5	89.6
Kingston, Frontenac and Lennox & Addington Public Health	91.4	93.4	93.3
Lambton Public Health	75.3	79.3	79.1
Leeds, Grenville & Lanark District Health Unit	82.3	85.2	87.5

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Middlesex-London Health Unit	80.7	78.9	76.4
Niagara Region Public Health	85.7	86.3	83.9
North Bay Parry Sound District Health Unit	91.7	91.7	92.4
Northwestern Health Unit	87.4	90.2	92.7
Ottawa Public Health	83.8	83.1	81.5
Peel Public Health	74.3	75.9	72.6
Peterborough Public Health	80.9	81.4	82.6
Porcupine Health Unit	90.6	90.3	91.9
Public Health Sudbury & Districts	83.6	84.6	88.8
Region of Waterloo Public Health and Emergency Services	79.5	81.3	80.1
Renfrew County and District Health Unit	89.9	90.0	91.9
Simcoe Muskoka District Health Unit	83.5	79.7	76.2
Southwestern Public Health	81.9	81.0	82.7
Thunder Bay District Health Unit	82.5	84.9	80.4
Timiskaming Health Unit	96.3	95.9	90.7
Toronto Public Health	72.4	75.9	67.8



Public Health Unit	2019-20 UTD (%)	2020-21 UTD (%)	2021-22 UTD (%)
Wellington-Dufferin-Guelph Public Health	85.2	86.3	87.0
Windsor-Essex County Health Unit	79.5	82.3	82.6
York Region Public Health	73.2	59.8	39.8
Ontario	79.1	78.8	74.2

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31<sup>st</sup> of the relevant school year.

**Table 11. Immunization coverage for meningococcal C conjugate vaccine among 7-year-olds by public health unit in Ontario for 2019-20, 2020-21 and 2021-22 based on immunizations reported and entered into the DHIR-Panorama as of April 17, 2023**

Public Health Unit	2019-20 UTD (%)	2020-21 UTD (%)	2021-22 UTD (%)
Algoma Public Health	96.8	94.8	90.2
Brant County Health Unit	92.4	85.1	87.7
Chatham-Kent Public Health	95.2	93.9	92.3
City of Hamilton Public Health Services	96.4	95.1	89.1
Durham Region Health Department	97.1	96.6	94.7
Eastern Ontario Health Unit	96.2	95.9	92.3
Grey Bruce Health Unit	94.8	95.2	94.4
Haldimand-Norfolk Health Unit	89.0	76.7	67.7
Haliburton, Kawartha, Pine Ridge District Health Unit	96.7	96.7	95.7
Halton Region Public Health	93.8	79.3	66.0
Hastings Prince Edward Public Health	97.3	96.9	96.4
Huron Perth Public Health	94.3	93.3	93.3
Kingston, Frontenac and Lennox & Addington Public Health	98.2	98.4	97.5
Lambton Public Health	96.0	96.5	94.8
Leeds, Grenville & Lanark District Health Unit	90.8	92.9	94.8

<b>Public Health Unit</b>	<b>2019-20 UTD (%)</b>	<b>2020-21 UTD (%)</b>	<b>2021-22 UTD (%)</b>
Middlesex-London Health Unit	92.9	86.8	84.7
Niagara Region Public Health	94.0	93.8	88.4
North Bay Parry Sound District Health Unit	97.1	97.9	96.9
Northwestern Health Unit	97.1	98.0	97.1
Ottawa Public Health	97.3	95.3	91.5
Peel Public Health	96.0	93.6	88.0
Peterborough Public Health	97.0	95.6	93.5
Porcupine Health Unit	97.6	96.5	97.1
Public Health Sudbury & Districts	97.7	96.7	96.6
Region of Waterloo Public Health and Emergency Services	95.3	94.7	90.8
Renfrew County and District Health Unit	97.4	97.5	97.2
Simcoe Muskoka District Health Unit	95.5	86.4	83.0
Southwestern Public Health	90.8	89.5	89.9
Thunder Bay District Health Unit	96.3	96.3	91.0
Timiskaming Health Unit	98.1	97.4	92.1
Toronto Public Health	93.8	94.1	79.8

Public Health Unit	2019-20 UTD (%)	2020-21 UTD (%)	2021-22 UTD (%)
Wellington-Dufferin-Guelph Public Health	96.2	95.9	94.8
Windsor-Essex County Health Unit	96.0	95.3	94.8
York Region Public Health	86.9	66.0	43.4
Ontario	94.5	90.6	83.5

**Notes:**

- UTD reflects up-to-date coverage for immunizations received as of August 31st of the relevant school year.

# Technical Notes

## Data Sources

Data for this report were obtained using from the Digital Health Immunization Repository (DHIR) – Ontario’s provincial immunization repository. Data were extracted on April 17, 2023.

## Methods

- This report describes immunization coverage for Ontario’s publicly-funded routine infant and childhood immunization programs<sup>1</sup>, with the exception of influenza and rotavirus vaccines.
- Please see the Technical Annex from the 2018-19 school year report<sup>3</sup> for a detailed description of the DHIR and methods used for the assessment of student immunization, including details on cohort creation and up-to-date (UTD) coverage assessment by age and antigen, as well as a description of the limitations. The methodologies have not changed from previous years, with the exception of the updates described below made to assess UTD coverage with an extended period of assessment and with respect to diphtheria, tetanus and pertussis coverage assessment among 17-year-olds.
- Coverage was assessed at 7 and 17 years of age for each respective school year for all antigens. For measles, pertussis and polio, 7-year-olds from the 2019-20 and 2020-21 school years were followed for up to two years to assess the impact of any catch-up activities and delayed reporting of immunizations (please see below for cut-off dates used for immunization administration dates); age-specific estimates for 5- to 17-year olds were also derived for the 2021-22 school year for these antigens.
- For the 2019-20 school year:
  - Students were included in the analysis if they had an education record that met the following criteria:
    - Effective From: On or after September 1, 2019 or missing, AND
    - Effective To: On or before August 31, 2020
  - Immunizations with administration dates on or before August 31, 2020 were included in the UTD coverage estimates.
  - Immunizations with administration dates on or before August 31, 2021 were included in the UTD coverage estimates with one year of extended period of assessment.
  - Immunizations with administration dates on or before August 31, 2022 were included in the UTD coverage estimates with two years of extended period of assessment.
- For the 2020-21 school year:
  - Students were included in the analysis if they had an education record that met the following criteria:
    - Effective From: On or after September 1, 2020 or missing, AND
    - Effective To: On or before August 31, 2021

- Immunizations with administration dates on or before August 31, 2021 were included in the UTD coverage estimates.
- Immunizations with administration dates on or before August 31, 2022 were included in the UTD coverage estimates with one year of extended period of assessment.
- For the 2021-22 school year:
  - Students were included in the analysis if they had an education record that met the following criteria:
    - Effective From: On or after September 1, 2021 or missing, AND
    - Effective To: On or before August 31, 2022
  - Immunizations with administration dates on or before August 31, 2022 were included in the UTD coverage estimates.
- The following update was made to diphtheria, tetanus and pertussis up-to-date coverage assessment among 17-year-olds, which is available in the Technical Annex from the 2018-19 school year report<sup>3</sup>. The criteria to be considered up-to-date with 5 valid doses was expanded to include a second condition:
  - Five valid doses and only if satisfies one of the following:
    - Received first valid dose at < 7 years old AND received fourth valid dose at ≥ 4 years old.
    - Received first valid dose at < 7 years old AND received fifth valid dose at ≥ 4 years old AND <10 years between fifth valid dose and assessment date [NEW]

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## Public Health Ontario

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