British Columbia COVID-19 Situation Report for K-12 Schools

March 2022 Update

Key Findings

- **Vaccination coverage:** By March 28, 2022, provincial-level one-dose COVID-19 vaccination coverage among 5-11 year-olds and 12-17 year-olds was 56% and 89%, respectively. Two-dose coverage was 37% and 85%, respectively. Booster dose coverage among 12-17 year-olds was 33% across BC. There is variation in vaccination coverage across communities in BC.
- **Adverse events following immunization:** As of March 26, 2022, there have been 27 (9 reports per 100,000 doses administered) and 177 (28 per 100,000 doses administered) reported adverse events following a COVID-19 vaccine among 5-11 and 12-17 year-olds, respectively. Among all adverse events reported among 5-17 year-olds, 20 were considered serious enough to involve hospitalization and all have been discharged.
- **Cases:** Due to changes in testing strategies in BC, reported cases based only on PCR tests since late December are an underestimate of the true incidence of COVID-19 cases. The reported case incidence among 5-11 year-olds in BC overall was elevated with the emergence of the Omicron variant and it has been decreasing since the end of January. The COVID-19 case incidence among 12-17 year-olds has continued a declining trend since peaking in early January.
- **Outcomes:** Between December 21, 2021 and March 26, 2022, the hospitalization rate among unvaccinated 5-11 and 12-17 year-olds was 3.3 and 3.8 times higher than their vaccinated counterparts, respectively. Critical care admissions from COVID-19 continue to be rare (29 admissions since January 2020) among all school-age children in BC. There have been no COVID-19 deaths among school-age children in BC.

			Ages 0-4 No school	Ages 5-11 Elementary school	Ages 12-17 Secondary school
	VACCINATIONS As of March 28, 2022	have 1 dose have 2 doses have booster dose	*Not eligible for vaccination*	56% 37% *Not eligible*	89% 85% 33%
	CASES As of March 29, 2022	new this report new this school year total cases	526 8,671 12,844	309 15,671 24,841	251 7,775 18,161
	HOSPITALIZATIONS As of March 29, 2022	new this report new this school year ever hospitalized	61 216 299	13 79 117	26 119 153
	CRITICAL CARE As of March 29, 2022	new this report new this school year ever in critical care	9 25 33	3 11 13	2 9 16
	DEATHS As of March 29, 2022	new this report new this school year total deaths	0 0 2	0 0 0	0 0 0

- New this report for cases, hospitalizations, critical care, and deaths are net new since February 16, 2022; new this school year numbers are since September 7, 2021.

Figure 1: March 2022 summary of BC pediatric COVID-19 vaccine coverage, cases, and outcomes

Please note that the content of this report may change as more information becomes available. Links to the most recent available reports, dashboards and other resources are included in section G. Additional Resources.

Contents

A. Introduction

There have been significant changes to BC's public health measures throughout the 2021-2022 school year in line with the level of risk of acquiring COVID-19. The emergence of the Omicron variant and the rapid increase in COVID-19 cases in December and January resulted in additional strain on BC's health care and public health systems. Changes in the characteristics of the virus necessitated changes to the province's testing, case management, and contact tracing strategies, which were announced on January 7, 2022.

In response to these changes, there have been adjustments to public health guidance specific to the school setting. Public health measures implemented in BC schools since the beginning of the 2021-2022 school year have included the mandating of masks in schools in October 2021, the availability of vaccination to 5-11 year-olds in November 2021, and the dissemination of rapid tests in schools starting in February 2022.

Since early January there has been a steady decline in the number of COVID-19 cases in the province. Changes to the Provincial COVID-19 Communicable Disease Guidelines for K-12 Settings were announced on March 10, 2022 and state that students would no longer be required to wear masks in K-12 schools following their return from spring break.

Increasing COVID-19 vaccine coverage among all eligible individuals remains the most effective strategy to reduce the risk in K-12 schools for the remainder of the 2021-2022 school year. Not only does vaccination help protect the individual, particularly against severe outcomes, it can also help protect others in the community who are not able to be vaccinated.

Schools provide essential support for students' academic, social, and emotional development. A previous report from the BCCDC outlined the importance of schools remaining open to support child and family wellbeing during the pandemic. According to the 2020 BC COVID-19 SPEAK survey, 60% of households with children reported increased child stress, while 79% of households with children reported decreased connection with friends amidst school closures and other pandemic response measures.

The purpose of this report is to provide a situational update on COVID-19 in BC K-12 schools since the start of the 2021-2022 school year. School reporting will transition over the remainder of the school year in line with other COVID-19 data products. Much of the data in this report continues to be found in other surveillance products on the BCCDC COVID-19 Data webpage. More details about actions being taken to reduce risk in schools are included in section E. Looking Forward.

B. Vaccination

Vaccine Coverage

Vaccination is the most effective way to protect against severe illness, hospitalization, and death from COVID-19. The primary series (first and second dose) of mRNA vaccines provides protection against hospitalization caused by COVID-19. The protection against infection and severe illness improves after receiving a booster dose. A report from the CDC estimated that for individuals aged 12-18 years-old, the effectiveness of two doses of Pfizer Comirnaty vaccines against multisystem inflammatory syndrome in children (MIS-C) was 91%.

As part of the BC vaccination strategy, starting May 2021, everyone 12 years and older became eligible to receive the vaccine. Booster doses are available to individuals 12 years and older six months after the date of their second dose. Effective November 29, 2021, eligibility of the primary series was expanded to children 5-11 years-old with an eight-week interval between first and second dose. Parents and guardians can register their children aged 5 years and above with Get Vaccinated, and invitations to book appointments are delivered by text and/or email.

As of March 28, 2022 (**Figure 2**, **Figure 3**),

- For children 5-11 years-old (elementary school),
  - First dose coverage is 56% across BC.
    - The coverage rate for the same age group in Canada is 57% as of March 27.[1]
    - Coverage ranges from 37% in Northern Health to 71% in Vancouver Coastal Health.
    - There is greater variation among coverage rates at the Local Health Area (LHA) level within Northern Health compared to other health authorities.
  - Second dose coverage is 37% across BC.
    - The coverage rate for the same age group in Canada is 40% as of March 27.[1]
    - Coverage ranges from 21% in Northern Health to 53% in Vancouver Coastal Health.
- For youth 12-17 years-old (secondary school),
  - First dose coverage is 89% across BC.
    - The coverage rate for the same age group in Canada is 88% as of March 27.[1]
    - Coverage ranges from 72% in Northern Health to 96% in Vancouver Coastal Health.
    - There is greater variation among coverage rates at the LHA level within Interior Health compared to other health authorities.
  - Second dose coverage is 85% across BC.
    - The coverage rate for the same age group in Canada is 85% as of March 27.[1]
    - Coverage ranges from 67% in Northern Health to 93% in Vancouver Coastal Health.
  - Booster dose coverage is 33% across BC.
    - The coverage rate for the same age group in Canada is 15% as of March 27.[1]
    - Coverage ranges from 18% in Northern Health to 46% in Vancouver Coastal Health.

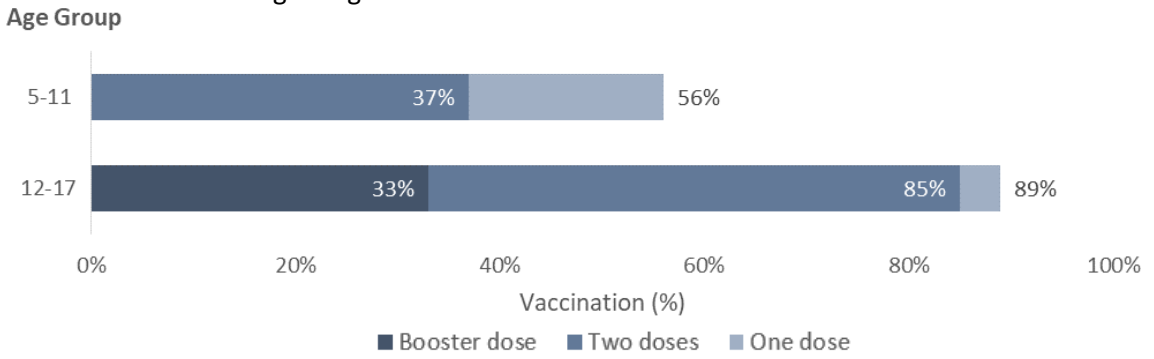


Figure 2: COVID-19 first, second, and booster dose vaccination coverage by age group, 5-11 and 12-17 year-olds, BC, March 28, 2022

[1] COVID-19 vaccination in Canada, data up to and including March 27, 2022.

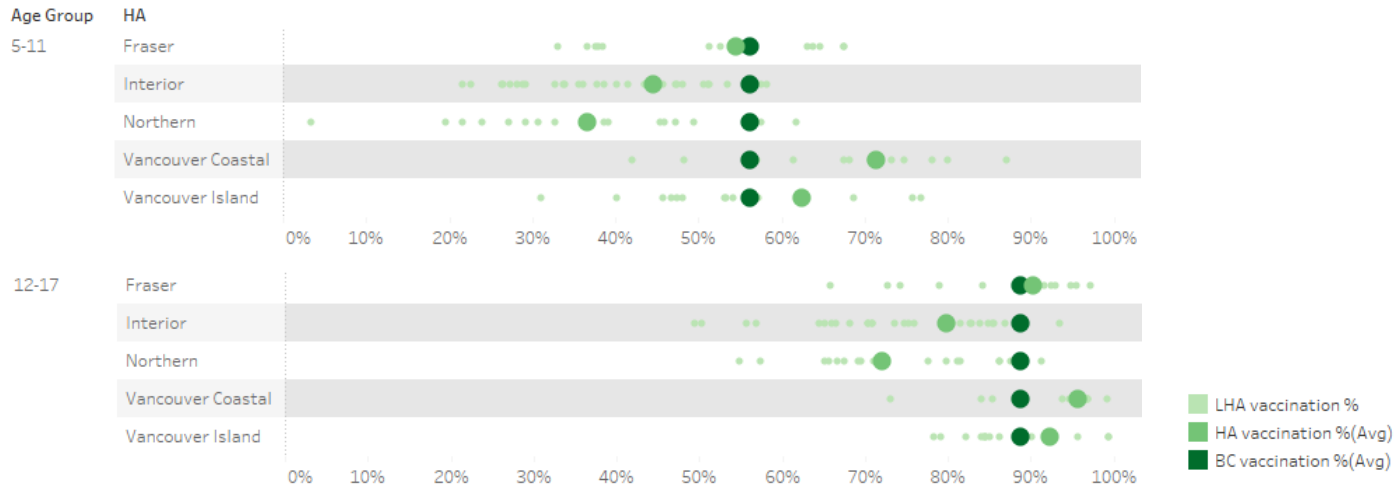


Figure 3: COVID-19 first dose vaccination coverage by BC Health Authority (HA) and Local Health Area (LHA), 5-11 and 12-17 year-olds, March 28, 2022

Vaccine Safety

The COVID-19 mRNA vaccines available to youth aged 12-17 years and children aged 5-11 years (Pfizer Comirnaty is approved for 5-11 year-olds and Moderna Spikevax is approved for 6-11 year-olds) in BC are very safe. Common side effects after vaccination are generally mild, including redness, soreness, and swelling at the injection site, fatigue, headache, chills, mild fever, muscle aches, and joint pain. In a recent CDC report, out of eight million doses of Pfizer Comirnaty administered to 5-11 year-olds in the United States, there have been 11 verified reports of myocarditis (inflammation of a heart muscle), a very rare occurrence. There was also no causal association between any reported deaths and COVID-19 vaccination. The Society of Obstetricians and Gynaecologists of Canada issued a statement indicating that there was no evidence to suspect COVID-19 vaccines cause fertility issues.

Adverse events following immunization (AEFI) are defined as any untoward medical occurrence which follows immunization, and which does not necessarily have a causal relationship with the use of a vaccine. A single AEFI report may contain one or more adverse events.

Serious AEFI meets one or more of the following criteria: life-threatening, results in hospitalization, prolongation of an existing hospitalization, persistent or significant disability/incapacity, is a congenital anomaly/birth defect, fatal outcome. Any medical event which requires intervention to prevent one of the outcomes listed above may also be considered as serious.

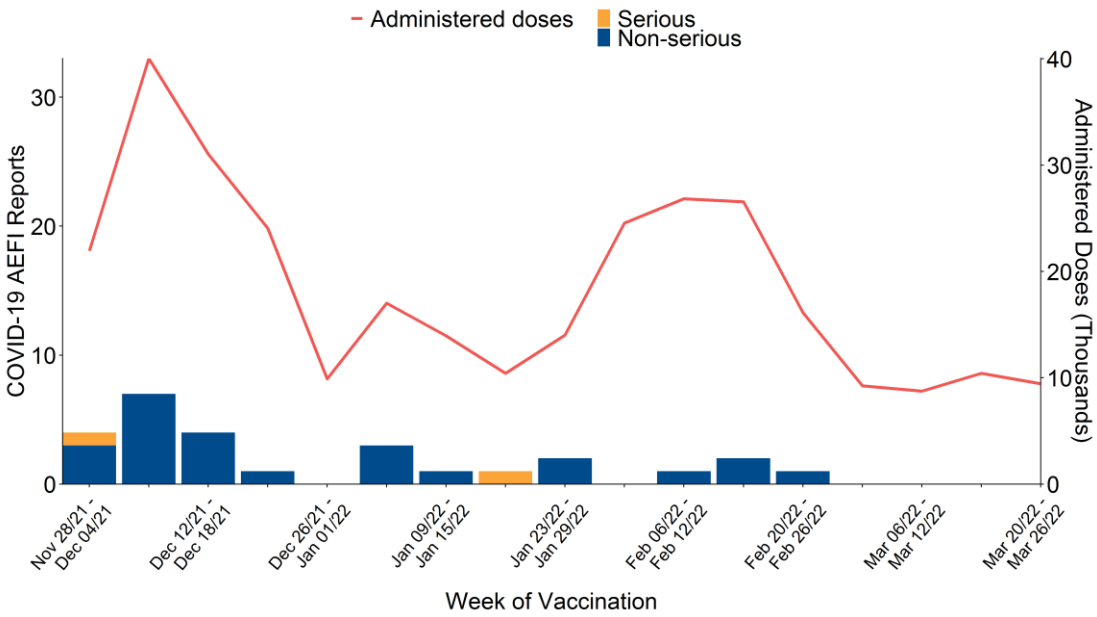
Health Canada, the Public Health Agency of Canada, the provinces and territories, and manufacturers continue to closely monitor the safety of all COVID-19 vaccines through provincial and national reporting of adverse events. The risk of adverse events following immunization (AEFI) is lower among the pediatric population when compared to the entire population.

Reports of adverse events are often delayed after vaccination as the time to onset varies by event, as well as the time it takes to receive, investigate, and process a report for submission. While reported events are associated with the timing of vaccine administration (i.e., occur after vaccination within a biologically plausible timeframe), the investigation may find that they were not caused by the vaccine.

Weekly report counts, especially for recent weeks, are expected to increase over time as these are submitted, but **Figure 4** and **Figure 5** show that reports have declined as the immunization campaign has progressed.

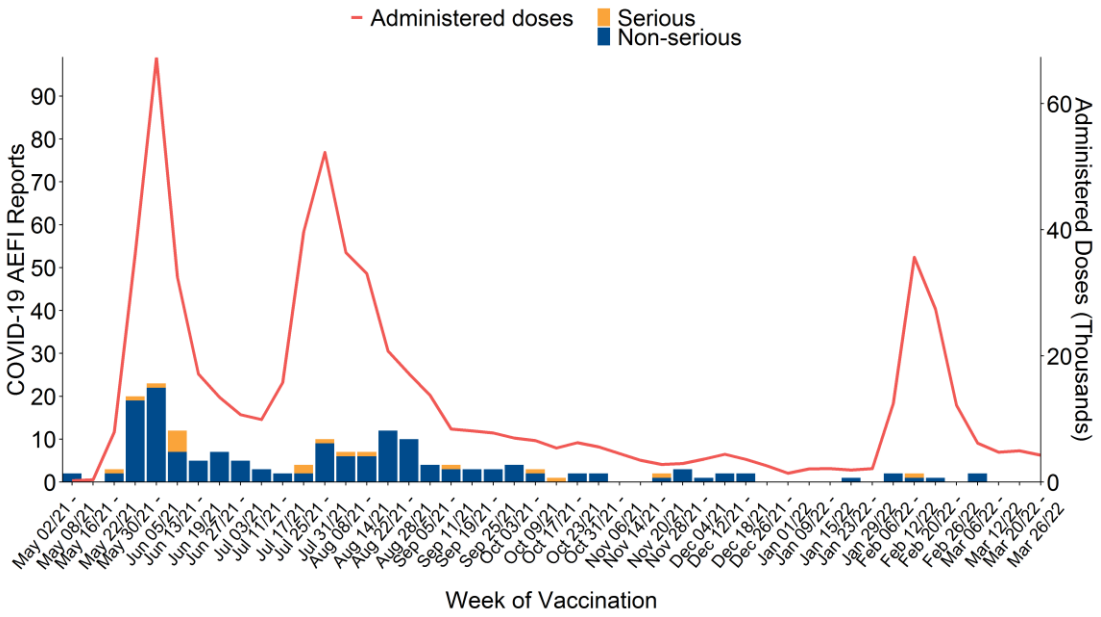
As of March 26, 2022,

- 314,402 first and second doses have been administered among 5-11 year-olds since November 2021 (**Figure 4**).
  - There have been 27 AEFI reports following a COVID-19 vaccine in this age group, for a reporting rate of 9 reports per 100,000 doses administered.
  - These reports contained 33 adverse events, with the most frequently reported event as 'other allergic events' (e.g., allergic rash, hives, pruritus, and gastrointestinal symptoms) (n = 13; 39%).
  - There were 2 adverse events reported that were considered serious, all of whom were admitted to hospital and have since been discharged.
- 626,348 first, second and booster doses have been administered among 12-17 year-olds since May 2021 (**Figure 5**).
  - There have been 177 AEFI reports following a COVID-19 vaccine in this age group, for a reporting rate of 28 reports per 100,000 doses administered.
  - These reports contained 212 adverse events, with the most frequently reported events as 'other allergic events' (n=64; 30%), 'events managed as anaphylaxis' (n=15; 7%), and 'anaesthesia/paraesthesia' (n=9; 4%).
  - There were 18 adverse events reported that were considered serious, all of whom were admitted to hospital and have since been discharged.



- COVID-19 AEFI reports are based on the date of when the AEFI was reported, not the date when the AEFI occurred.

Figure 4: COVID-19 vaccine administration and adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, 5-11 year-olds, BC, November 28, 2021 to March 26, 2022



- COVID-19 AEFI reports are based on the date of when the AEFI was reported, not the date when the AEFI occurred.
- Ten reports of 11 year-olds who received the same dosage as 12-17 year-olds are included in this graph.

Figure 5: COVID-19 vaccine administration and adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, 12-17 year-olds, BC, May 1, 2021 to March 26, 2022

While adverse events following immunization do occur, these events are uncommon and are vastly outweighed by the risks associated with COVID-19 (**Figure 6**).

- For children 5-11 years-old,
  - Between December 21, 2021 and March 26, 2022, unvaccinated children were 3.3 times more likely to be hospitalized for COVID-19 compared to their vaccinated counterparts.
  - Between May 1, 2021 and March 26, 2022, the rate of a serious AEFI, which includes hospitalizations, was 0.6 per 100,000 doses administered.
  - There have been no deaths in this age group regardless of vaccination status to date.
- For youth 12-17 years-old,
  - Between December 21, 2021 and March 26, 2022, unvaccinated youth were 3.8 times more likely to be hospitalized for COVID-19 compared to their vaccinated counterparts.
  - Between May 1, 2021 and March 26, 2022, the rate of a serious AEFI, which includes hospitalizations, was 2.9 per 100,000 doses administered.
  - There have been no deaths in this age group regardless of vaccination status to date.

	5-11 year-olds		12-17 year-olds	
Rate of…	**Among unvaccinated**	**Among partially or fully vaccinated**	**Among Unvaccinated**	**Among partially or fully vaccinated**
Being hospitalized due to COVID-19[1] (per 100,000 population)	16.3	4.9	70.2	18.5
Experiencing a serious adverse event after immunization[2] (per 100,000 doses administered)	Not applicable	0.6	Not applicable	2.9

[1] Data are from December 21, 2021 to March 26, 2022. For fully vaccinated 5-11 year-olds, data are from February 13, 2022 to March 26, 2022 due to an eight-week interval between first and second dose.
[2] Data are from May 1, 2021 to March 26, 2022.

Figure 6: Rates of COVID-19 illness and serious adverse event after immunization by vaccination status, 5-11 and 12-17 year-olds, BC

The risk of experiencing a serious AEFI is rare when compared to other general risks, such as being hospitalized for a mental disorder (38 per 100,000 children aged 5-9 years; 321 per 100,000 youth aged 10-14 years; and 922 per 100,000 youth aged 15-17 years[2]) or dying from a motor vehicle crash (0.8 per 100,000 population aged <15 years; 6.2 per 100,000 population aged 15-24 years[3]).

C. Cases

Case Incidence

Due to changes in testing strategies in BC driven by the Omicron variant, case counts and rates reported since late December are based only on PCR tests and underestimate the true incidence of COVID-19 cases in BC. However, the general trends are supported by other measures of COVID-19 prevalence in BC, such as wastewater surveillance.

At the provincial level, the 7-day moving average of COVID-19 case incidence among children aged 5-11 years was elevated with the introduction of the Omicron variant in December and it has been decreasing since the end of January. The COVID-19 case incidence among youth aged 12-17 years has followed similar trends to most adult age groups, where incidence has continued a declining trend since peaking in early January (**Figure 7**). Since the Omicron variant first appeared in various parts of the province at different points in time, there may be geographic variation in the timing of the case incidence peak.

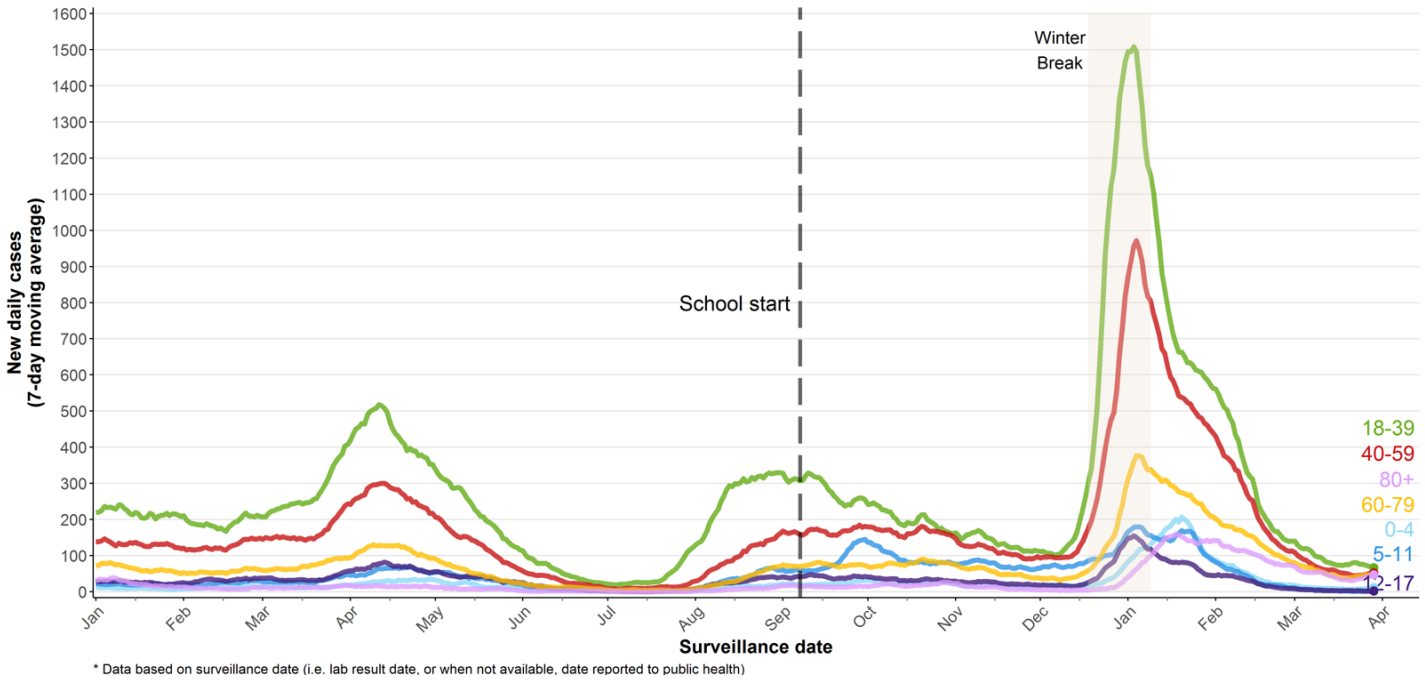


Figure 7: COVID-19 cases by age group, BC, January 1, 2021 to March 29, 2022

There are many factors that contribute to the risk of COVID-19 infection, including rates in the community, vaccination coverage, and contact with others through social networks. Regional differences in case incidence rates among children reflect community vaccination coverage as well as community prevalence (**Figure 8**).

[2] Canadian Institute for Health Information, British Columbia, 2018/19
[3] Ministry of Public Safety and Solicitor General, British Columbia, 2021

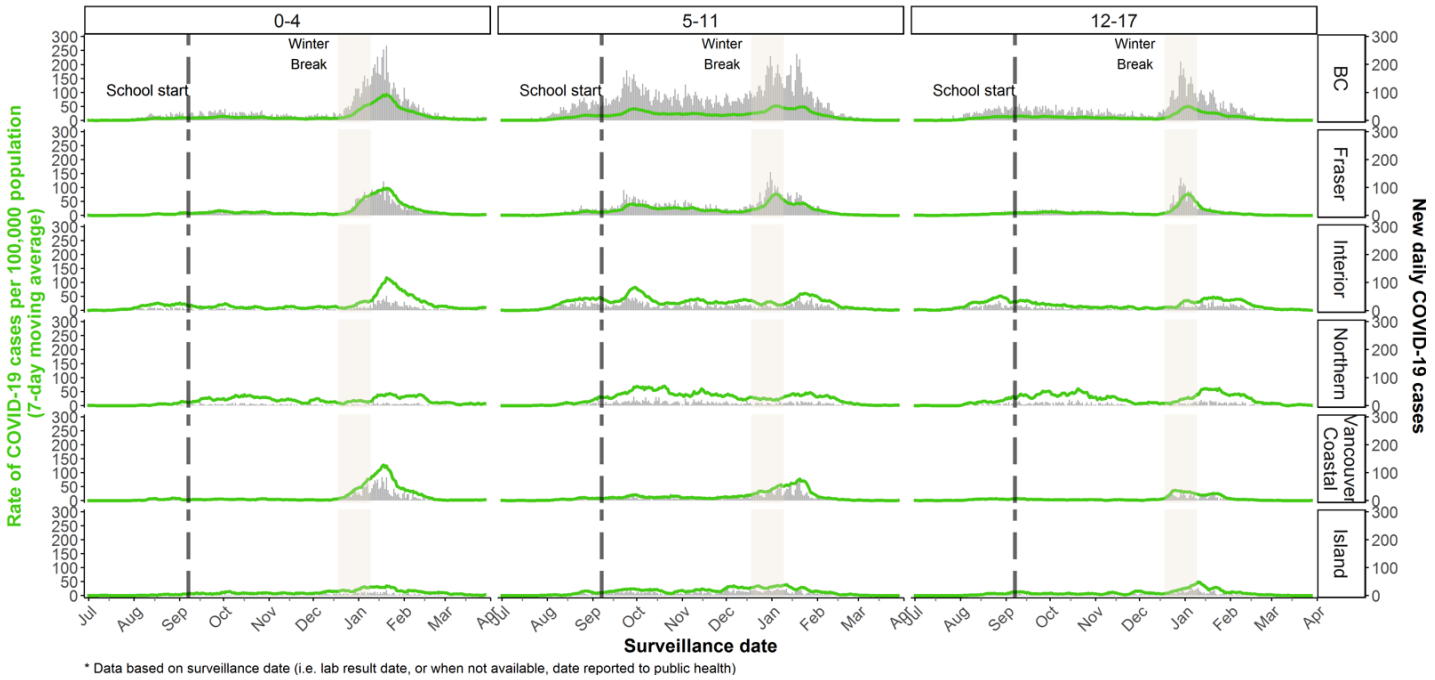
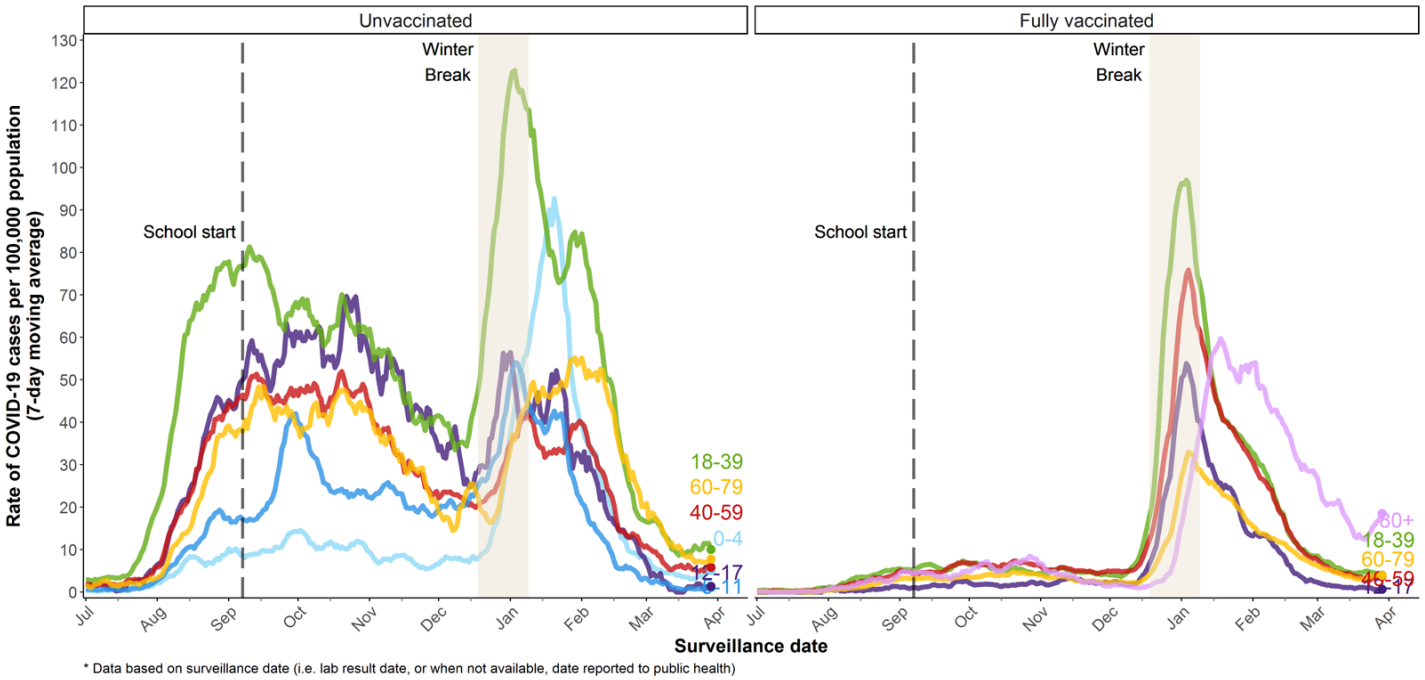


Figure 8: Count and rate of COVID-19 cases by BC Health Authority and age group, 0-17 year-olds, July 1, 2021 to March 29, 2022

Case incidence rates among the unvaccinated population show that children under 12 years-old are generally at lower risk of infection than other age groups. Case incidence among fully vaccinated individuals remained low compared to unvaccinated individuals across all age groups until the emergence of the Omicron variant in mid-December 2021, when case incidence increased among all individuals regardless of vaccination status (**Figure 9**). However, the risk of severe outcomes remains lower for fully vaccinated individuals (see section D. Severe Outcomes).



- The case incidence rate for fully vaccinated children aged 5-11 is suppressed because it is based on a very small number and is therefore an unreliable measure at this time.

Figure 9: Case rate of COVID-19 by age and vaccination status, BC, July 1, 2021 to March 29, 2022

Testing Volumes and Positivity

COVID-19 testing among 5-17 year-olds has been on general decline across all pediatric age groups since peaking in late September 2021 (**Figure 10**). The increased testing in the pediatric and adolescent populations during early fall may be related to other circulating respiratory viruses causing similar symptoms to COVID-19 that often become more common following the return to school and respiratory season. Lower testing volumes since late December are in part due to changes in testing strategies in BC.

Test percent positivity, the percentage of all tests performed that are positive, declined since early February in all pediatric age groups and began showing signs of uptick among 0-11 year olds in late March 2022.

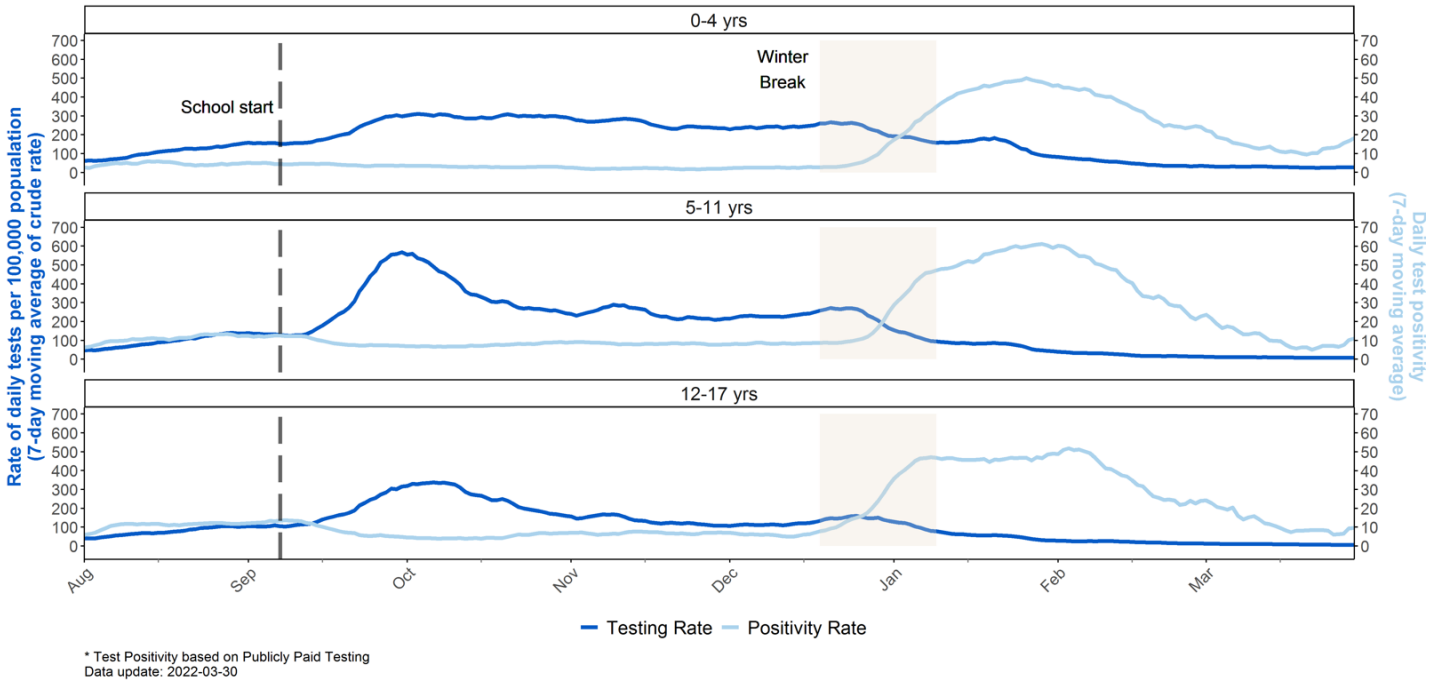


Figure 10: COVID-19 rate of daily testing and test positivity (%) by pediatric age group, 0-17 year-olds, August 1, 2021 to March 30, 2022

D. Severe Outcomes

Hospitalization and Deaths

Most children are at lower risk of acquiring COVID-19 and, if they do, they most commonly have mild or no symptoms.

> From January 1, 2020 to March 29, 2022, among 43,002 cases in 5-17 year-olds in BC, there were:
> - 270 hospitalizations, including 29 critical care admissions
> - 0 deaths

The number of hospital and critical care admissions for children and youth aged 0-17 have been consistently low in comparison to other age groups throughout the pandemic. Rising case incidence among children and youth in BC due to the emergence of the Omicron variant led to an increase in hospitalizations and a slight increase in critical care admissions starting in January 2022; both hospital and critical care admissions have generally declined since the beginning of February. Critical care admissions continue to be rare among children (**Figure 11**). Additional hospitalization and critical care numbers can be found in the COVID-19 Regional Surveillance Dashboard.

A recent analysis of hospitalizations among December COVID-19 cases residing within the Vancouver Coastal Health region revealed that nearly half were incidental hospitalizations – people who were in hospital for reasons unrelated to COVID-19 but tested positive during screening. More work is underway to understand and quantify incidental hospitalizations specific to children.

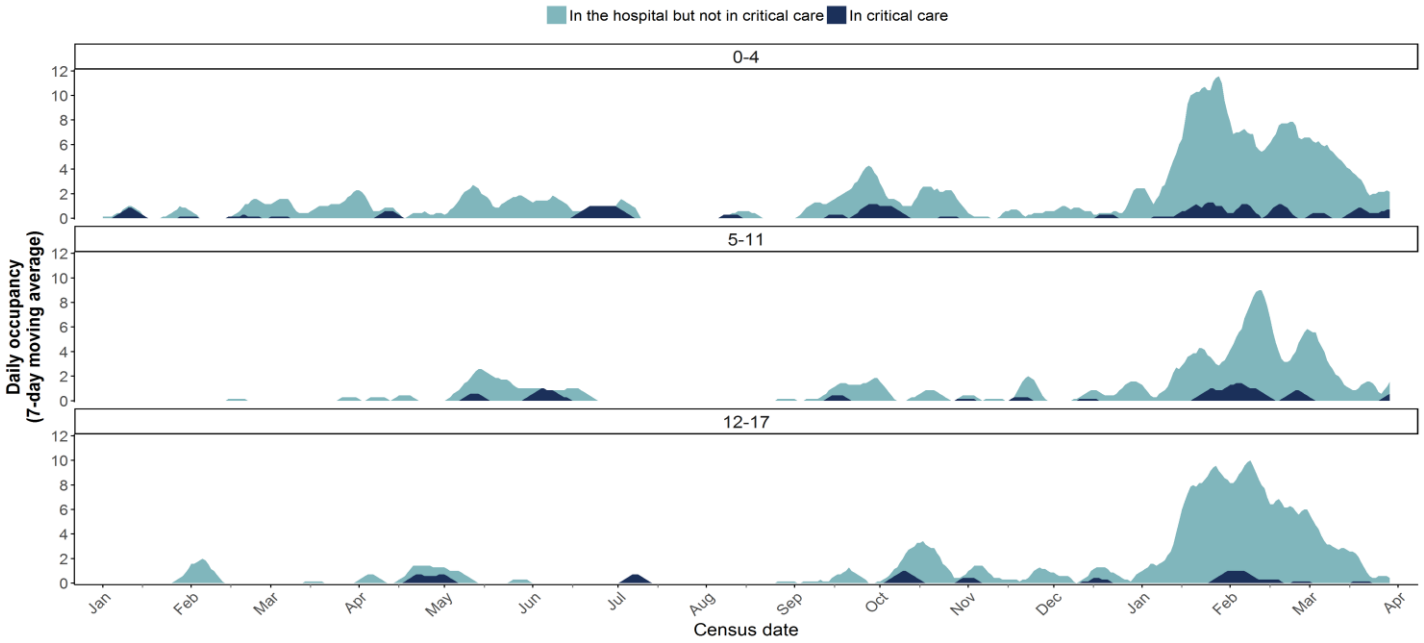
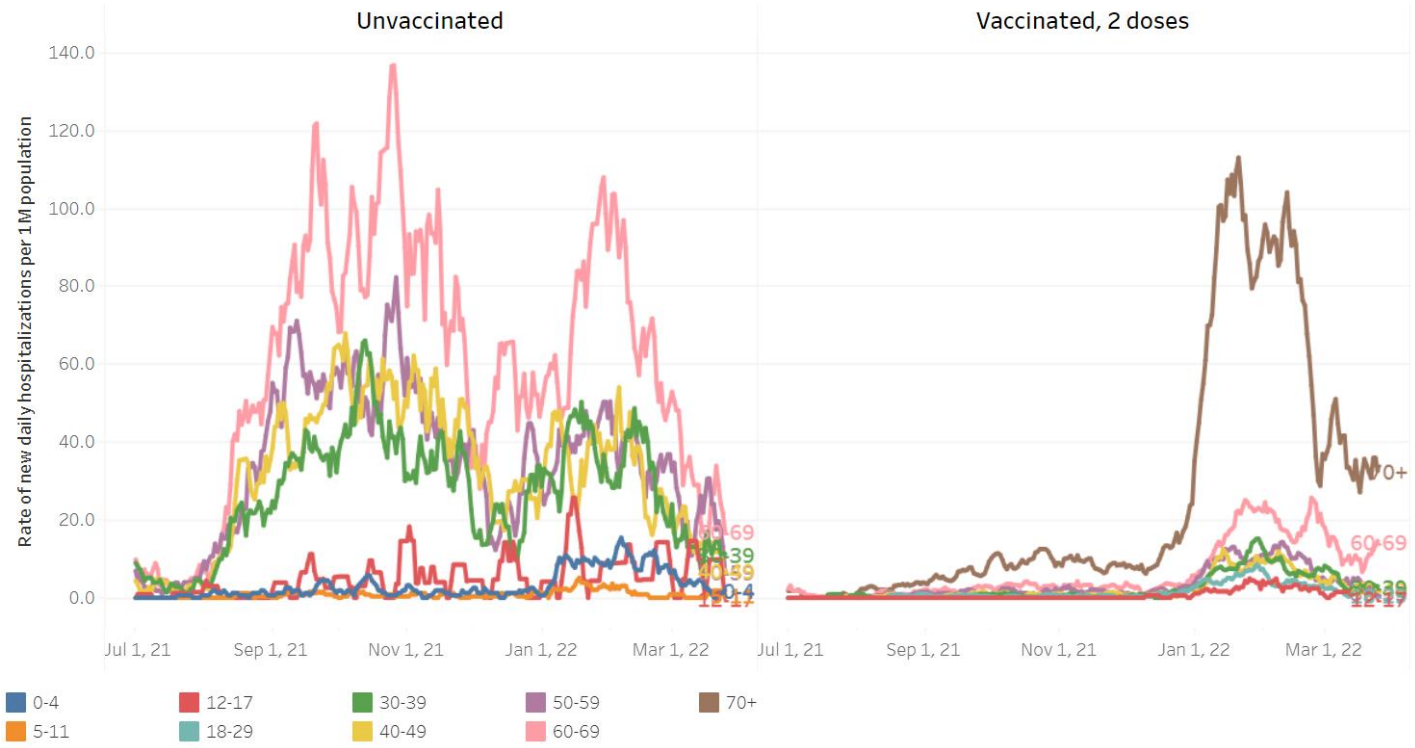


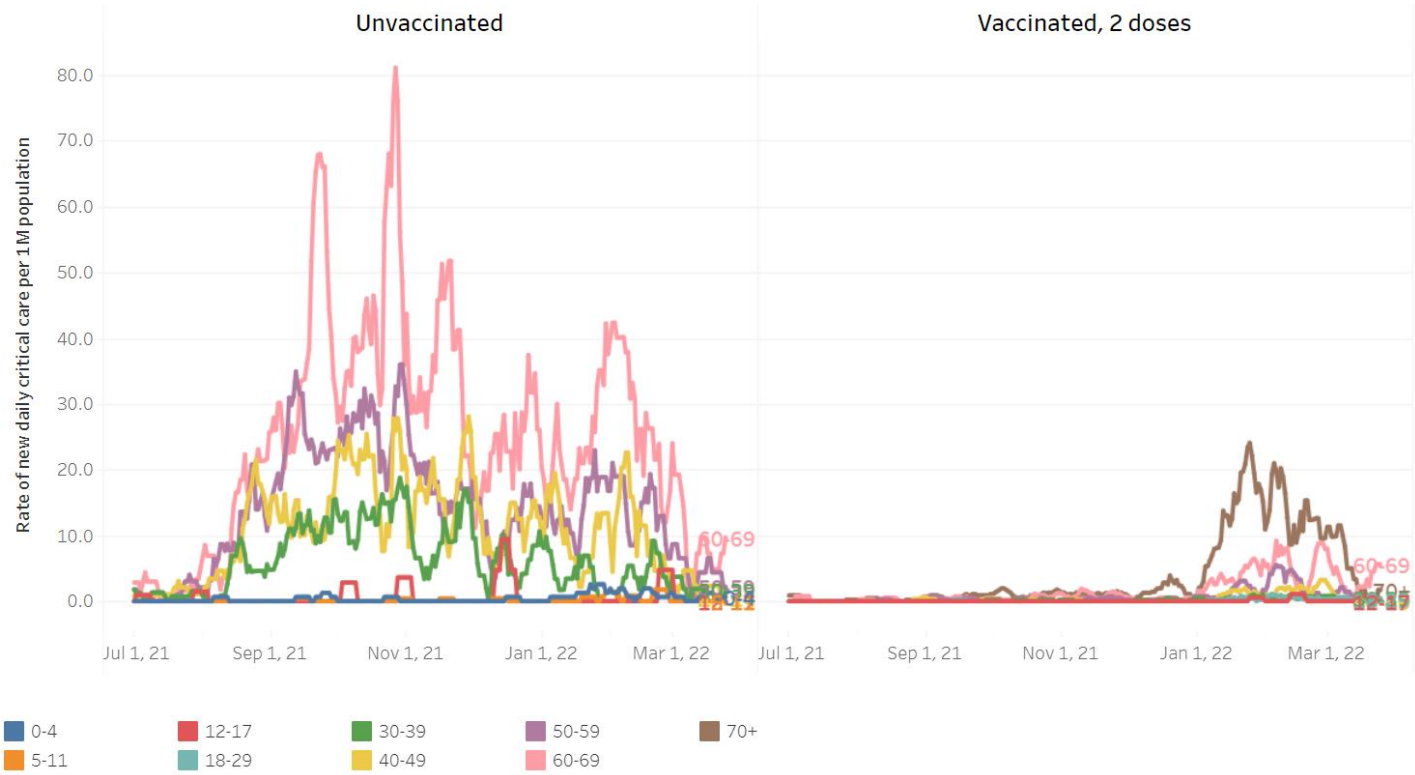
Figure 11: Daily hospital and critical care occupancy by pediatric age groups, 0-17 year-olds, BC, January 1, 2021 to March 29, 2022

The hospitalization and critical care rates among fully vaccinated individuals are lower compared to unvaccinated individuals across most age groups and time, regardless of the dominant circulating strain of COVID-19. Hospitalization and critical care rates among the unvaccinated population show that children under 12 years-old are generally at lower risk of hospitalization than other age groups (**Figure 12**, **Figure 13**). In general, fully vaccinated individuals with COVID-19 are much less likely to need hospital and/or ICU care, or to die from COVID-19. Research also shows that a booster dose can provide more protection against infection from the Omicron variant.



- The hospitalization rate for unvaccinated individuals aged 70 years and over is suppressed because it is based on a very small number of people and is therefore an unreliable measure.

Figure 12: Hospitalization rate of COVID-19 by age and vaccination status, BC, July 1, 2021 to March 25, 2022



- The critical care rate for unvaccinated individuals aged 70 years and over is suppressed because it is based on a very small number of people and is therefore an unreliable measure.

Figure 13: Critical care rate of COVID-19 by age and vaccination status, BC, July 1, 2021 to March 25, 2022

E. Looking Forward

Students benefit from in-person learning. By layering public health measures with the vaccination strategy and through the actions and engagement of the entire school community, BC ensured that in-person learning remained open and that COVID-19 transmission was limited in the K-12 setting. This approach has been informed through ongoing monitoring of provincial COVID-19 surveillance data and focussed investigations into local school-specific data, such as analyses by Vancouver Coastal Health and Fraser Health.

At this time, and in the foreseeable future, COVID-19 will continue to circulate in the population, including within K-12 schools. However, with broad immunization coverage as well as emerging treatment options for people at higher risk of serious disease, BC is transitioning to managing, monitoring, and reporting on COVID-19 in a way that is similar to other communicable diseases.

Updated on March 10, 2022, the Public Health Communicable Disease Guidance for K-12 Schools continues to recommend a number of preventive actions for individuals in the school community to reduce the risk of COVID-19 and other communicable diseases. These actions include getting all recommended doses of COVID-19 vaccines, staying home when feeling unwell, and practicing hand hygiene and respiratory etiquette. In addition, the choice among staff and students to practice additional personal prevention measures, including mask wearing, should be respected. The Guidance, including recommendations for individuals and for school settings, will continue to be modified as needed as the province transitions from an emergency response to the COVID-19 to the recovery and readiness phases.

School reporting will transition over the remainder of the school year in line with other COVID-19 data products. Data will continue to be updated on the BCCDC website, including the BCCDC Regional Surveillance Dashboard to provide provincial and regional data on cases, hospitalization, critical care, and vaccination, and the BC COVID-19 Situation Report to provide an in-depth look at COVID-19 epidemiology, underscoring data and key trends, including information on MIS-C.

F. Data Sources and Notes

Data sources include: HA case line list data, laboratory PLOVER data, PHSA Provincial Immunization Registry (PIR), Ministry of Health Immunization Population Coverage Report, hospital data PHSA Provincial COVID-19 Monitoring Solution (PCMS), and the Ministry of Health's Health Sector Information, Analysis and Reporting (HSIAR) vaccine coverage data.

Cases are reported by surveillance date. For epi-linked cases, this is the date it was reported to public health. For all lab-confirmed cases, the lab result date is used. If a lab result date is not available, the date the case was reported to public health is used.

Population estimates for case incidence, hospitalization, and death rates are from PEOPLE 2021.

Vaccination coverage is estimated using the Client Roster for the denominator as of March 12, 2021. Age is calculated as age as of December 31, 2021.

Laboratory data include Medical Service Plan (MSP) funded (e.g. clinical diagnostic tests) and non-MSP funded specimens (e.g. screening tests).

Data may be corrected over time as additional data flow into the system.

G. Additional Resources

Provincial COVID-19 Dashboards

BC COVID-19 Dashboard –Provincial and health authority level reporting of case incidence, death, hospitalization and laboratory data.

BCCDC Regional Surveillance Dashboard – Provincial and regional reporting of case, hospitalization, critical care, and vaccine data, including interactive maps.

BCCDC COVID-19 Epi App – Case incidence, death, hospitalization, laboratory and limited vaccine data for regional and global comparisons.

COVID-19 Updates

BC COVID-19 Situation Report - Provides a more in-depth look at COVID-19 epidemiology, underscoring data and key trends. This report includes information on MIS-C.

BC COVID-19 Pandemic Update – Regular COVID-19 updates from the BC Ministry of Health.

BC COVID-19 Situation Report for K-12 Schools – Previous situational updates on COVID-19 in BC K-12 schools during the 2021-2022 school year.

Case Definitions

COVID-19 Case Definition

BC K-12 School Guidance

COVID-19 Safe Schools – Information and guidance related to K-12 schools.

Public Health Communicable Disease Guidance for K-12 Schools *(Updated March 10, 2022)* – Outlines the prevention measures recommended for public, independent, and First Nations K-12 schools in BC to reduce the risk of communicable diseases, including COVID-19 in K-12 schools.

Provincial COVID-19 Communicable Disease Guidelines for K-12 Settings *(Updated March 10, 2022)* – Outlines focused actions and additional prevention measures BC public and independent K-12 schools must implement in response to COVID-19.

COVID-19 Protocols for School & District Administrators and Staff: Management of School-Associated Activity *(January 7, 2022)* – This resource provides K-12 school and district staff and administrators with information on roles and responsibilities in managing school-associated COVID-19 activity.

BC Surveillance Bulletin of Influenza and Other Respiratory Viruses

BC Influenza Surveillance Reports – Provides surveillance analysis of the activity of influenza as well as other non-influenza respiratory viruses in BC.