

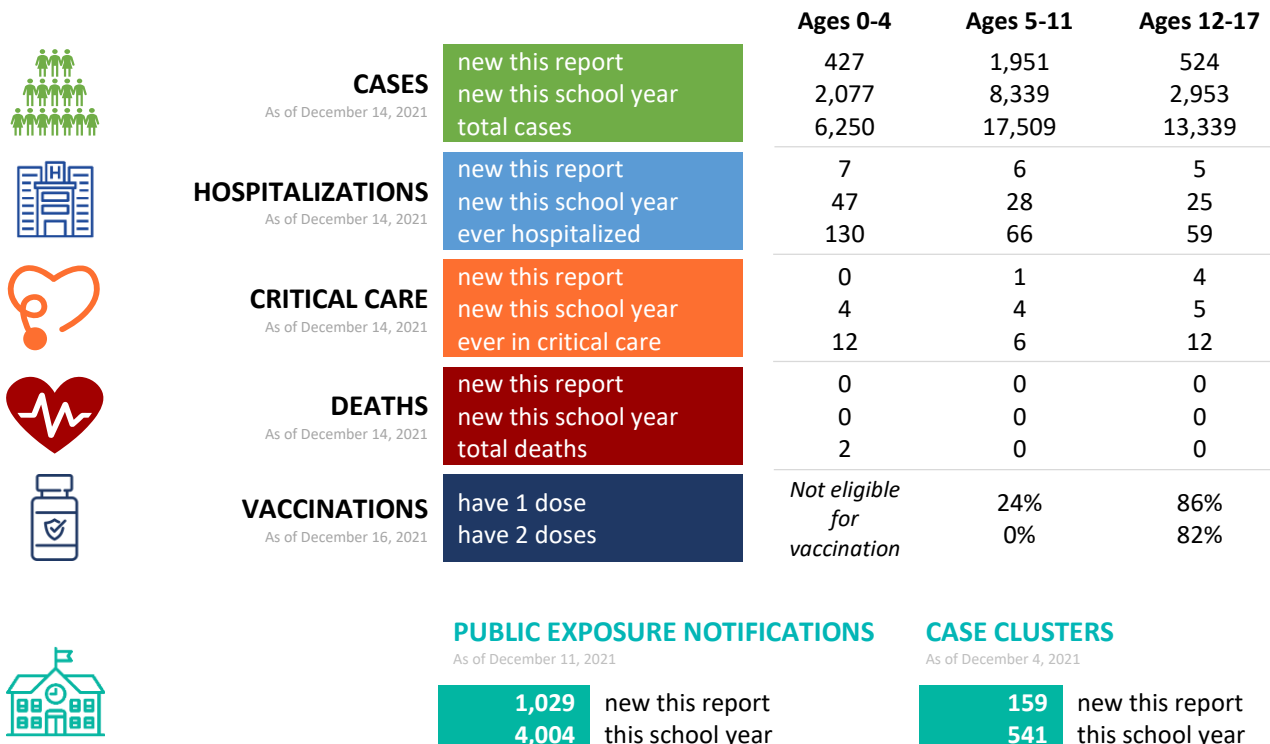
British Columbia COVID-19 Situation Report for K-12 Schools

December 2021 Update



Key Findings

- **Cases:** The case incidence among 5-11 year-olds in BC is trending slightly upward in December in line with other older age groups although variation among the health regions exists.
- **Outcomes:** Serious outcomes from COVID-19 infections continue to be rare among all school-age children in BC. Hospitalization among 12-17 year-olds is less common in those who have at least one dose of vaccine compared to those who are unvaccinated. There have been no deaths among school-age children in BC.
- **Vaccination coverage:** By December 16, 2021, one-dose coverage among 5-11 year-olds and 12-17 year-olds was 24% and 86%, respectively. Two-dose coverage among 12-17 year-olds was 82%.
- **Adverse events following immunization:** There have been 149 reported adverse events following a COVID-19 vaccine among 12-17 year-olds, for a reporting rate of 28.5 reports per 100,000 doses administered as of December 11, 2021. Of these, 15 (10%) were considered serious and all have been discharged from hospital.
- **Exposure notifications:** There have been 4,004 postings among 964 (52%) schools provincially between September 7 and December 11, 2021.
- **Clusters and outbreaks:** A total of 541 COVID-19 case clusters were reported in 304 (16%) K-12 schools in BC since the beginning of the 2021-2022 school year. The median cluster size is 3 as of December 4, 2021. During this period, seven COVID-19 school outbreaks have been declared in distinct schools.



New this report for cases, hospitalizations, critical care, and deaths are net new since November 18, 2021; new this school year numbers are since September 7, 2021; new school notifications this report are since November 14, 2021; new school clusters are net new since November 7, 2021.

Figure 1: December 2021 summary of BC pediatric COVID-19 cases and outcomes, vaccine coverage, and school notifications and case clusters

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 H. Additional Resources.

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A. Introduction

When COVID-19 spreads in a community, there is a risk that it will be introduced in the schools in that community. COVID-19 cases in schools typically reflect the number of cases in their communities.

The risk of COVID-19 in BC K-12 schools looks different this year: there are new [variants](#) of the virus that spread more easily, but there are also highly effective vaccines that have been widely available to those aged 12 years and older since May 2021, and have been made available to 5-11 year-olds since late November 2021.

Increasing COVID-19 vaccine coverage among all eligible individuals is the most effective strategy to reduce the risk in K-12 schools during the 2021-2022 school year. While the majority of the BC population 12 years and older have been vaccinated, there are communities where immunization is much lower than the BC average. [Evidence](#) continues to demonstrate the strong protection provided by two doses of the COVID-19 vaccines available in BC, both against infection and severe disease. Not only does vaccination help protect the individual, it can also help protect others in the community who are not able to be vaccinated.

Schools provide essential support for student 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.

While there have been some changes to the public health guidance for K-12 schools for the 2021-2022 school year, many public health measures from last school year remain in effect. As of [August 25, 2021](#), the Provincial Health Officer mandated people 12 years and older to wear masks in indoor public settings, regardless of vaccination status. In response to increasing rates of COVID-19 among children under 12 years-old, the province updated its [public health and communicable disease guidance for K-12 schools](#) to require masks for Kindergarten to Grade 3 students, effective [October 4, 2021](#). As of October 12, 2021, the provincial indoor masking requirement was extended to anyone aged 5 years and older. [Enhanced measures](#) have also been recommended in some regions with higher rates of COVID-19, such as Fraser Health, Interior Health, and Northern Health.

[During the 2020-2021 school year in BC](#), most cases of COVID-19 among students and staff were acquired outside of school, in their community or household. COVID-19 exposures at schools did not typically result in transmission. When they did, it was usually one or two other cases. While the experience from the last school year provided insight into how COVID-19 spread within the K-12 school environment, the emergence of variants, including the more transmissible Delta variant over the summer and the newly identified Omicron variant in BC in November, means that it is important to continue to monitor and respond as necessary to reduce the spread of COVID-19 in schools.

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.

B. Vaccination

Vaccine Coverage

Vaccines are the most effective way to reduce the risk of COVID-19. As part of the BC [vaccination strategy](#), starting May 2021, everyone 12 years and older became eligible to receive the vaccine.

On November 19, 2021, [Health Canada](#) authorized the use of the Pfizer Comirnaty vaccine in 5-11 year-olds. The pediatric vaccine is at one-third of the dose (10 micrograms) formulated for older children and adults. The clinical trial showed that the immune response in 5-11 year-olds was comparable to the immune response in 16-25 year-olds. For 5-11 year-olds, the vaccine was 90.7% effective at preventing COVID-19 and no serious side effects were identified. The National Advisory Committee on Immunization (NACI) advises a two-dose series with an interval of at least eight weeks between the first and second dose. This latest approval means that all children and youth in K-12 schools are eligible to receive the COVID-19 vaccine.

There are approximately 350,000 children aged 5-11 in BC eligible to receive the COVID-19 pediatric vaccine. Parents and guardians can register their children with [Get Vaccinated](#) and invitations to book appointments are delivered by text or email. Effective [November 29, 2021](#), BC children aged 5-11 can receive their first dose of vaccine by appointment.

Since masking requirements and vaccination eligibility are the same for children between 5 and 11 years-old, age groups 5-8 and 9-11 are combined into one age group, 5-11, effective this report.

As of December 16, 2021,

- For children 5-11 years-old, first dose coverage is 24% ([Figure 2](#))
 - The coverage rate for the same age group in Canada is 31.6% as of December 11, 2021.¹
- For youth 12-17 years-old ([Figure 2](#), [Figure 3](#))
 - First dose coverage is 86%
 - Coverage ranges from 69% in Northern Health to 94% in Vancouver Coastal Health.
 - There is greater variation among coverage rates at the Local Health Area (LHA) level within Interior Health and Northern Health compared to other health authorities.
 - Second dose coverage is 82%

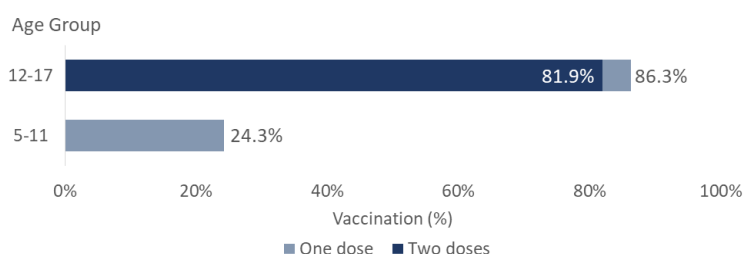


Figure 2: COVID-19 first and second dose vaccination coverage by age group, 5-11 and 12-17 year-olds, BC, December 16, 2021

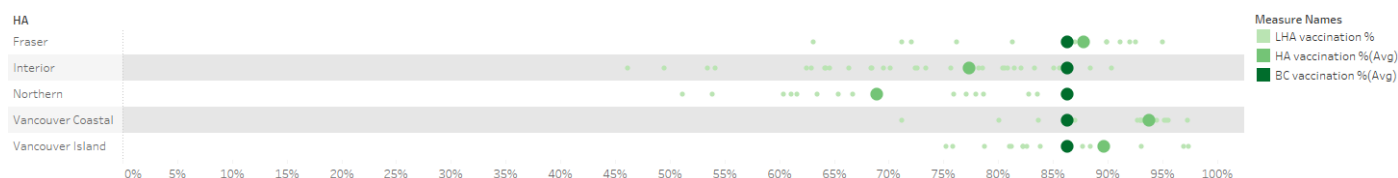


Figure 3: COVID-19 first dose vaccination coverage by BC Health Authority (HA) and Local Health Area (LHA), 12-17 year-olds, December 13, 2021

¹ [COVID-19 vaccination in Canada](#), data up to and including December 11, 2021

Vaccine Safety

The COVID-19 mRNA vaccines available to youth aged 12-17 (Moderna Spikevax and Pfizer Comirnaty) and children aged 5-11 (Pfizer Comirnaty) in BC are very safe and side effects are generally mild. 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.

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.

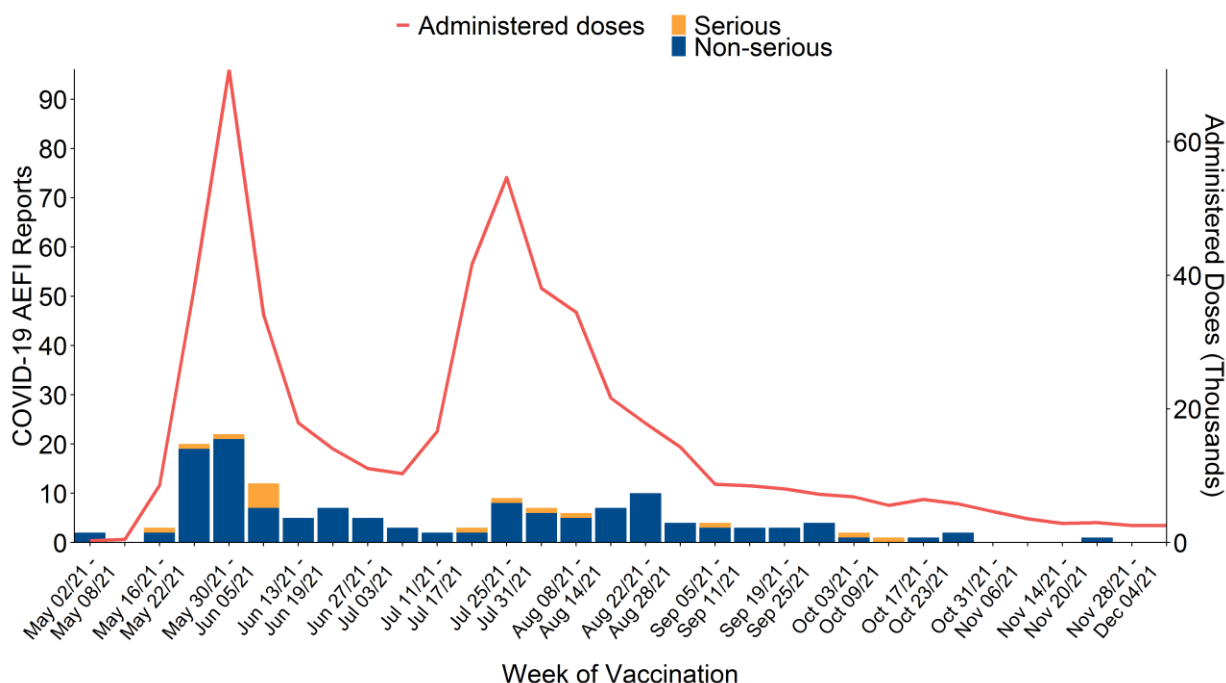
Serious AEFI meets one or more of the following criteria: life-threatening, results in hospitalization, prolongation of an existing hospitalization, persistent or significant disability/incapacity, is a congenital anomaly/birth defect, fatal outcome. Any medical event which requires intervention to prevent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

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** shows that reports have declined as the immunization campaign has progressed.

As of December 11, 2021,

- 64,656 first doses have been administered among 5-11 year-olds and no AEFIs have been reported, although reports of adverse events are often delayed.
- 268,035 first doses and 253,929 second doses have been administered among 12-17 year-olds since May 2021 (**Figure 4**).
- There have been 149 AEFI reports following a COVID-19 vaccine among 12-17 year-olds in BC, for a reporting rate of 28.5 reports per 100,000 doses administered (**Figure 4**).
 - These reports contained 178 adverse events, with the most frequently reported events as 'other allergic events' (e.g., allergic rash, hives, pruritus, and gastrointestinal symptoms) (n=53; 29.8%), 'events managed as anaphylaxis' (n=13; 7.3%), and 'anaesthesia/paraesthesia' (n=8; 4.5%).
 - There were 15 adverse events reported among 12-17 year-olds that were considered serious, all of whom were admitted to hospital and have since been discharged.






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

Figure 4: 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 to December 11, 2021

While adverse events following immunization do occur, these events are very uncommon and are vastly outweighed by the risks associated with COVID-19.

- For children 5-11 years old, risks of acquiring COVID-19 and being hospitalized due to COVID-19 will be examined in January 2022.
- For youth 12-17 years old (**Figure 5**)
 - The risk of acquiring COVID-19 is 14 times higher among unvaccinated youth compared to their vaccinated counterparts.
 - The rate of being hospitalized for COVID-19 among unvaccinated youth is 53.5 per 100,000 population, which is 134 times higher than their vaccinated counterparts.
 - The risk of a serious AEFI, which includes hospitalizations, is 2.9 per 100,000 doses administered.
 - There have been no deaths in this age group regardless of vaccination status to date.

	Risk of...	Among unvaccinated	Among partially or fully vaccinated
	Getting COVID-19¹ (per 100,000 population)	5,847.3	410.2
	Being hospitalized due to COVID-19¹ (per 100,000 population)	53.5	0.4
	Experiencing a serious adverse event after immunization² (per 100,000 doses administered)	Not applicable	2.9

¹ Data are from July 18 to December 11, 2021.

² Data are from May 1 to December 11, 2021.

Figure 5: COVID-19 illness-related risks compared with COVID-19 vaccine-related risks, 12-17 year-olds, BC

The risk of experiencing a serious AEFI is extremely uncommon when compared to other general risks, such as being hospitalized for a mental disorder (321 per 100,000 youth aged 10-14 years, and 922 per 100,000 youth aged 15-17 years²) or dying from a motor vehicle crash (7.3 per 100,000 population aged 15-24 years³).

C. Cases

Case Incidence

At the provincial level, the 7-day moving average COVID-19 case incidence rate among children aged 5-11 increased sharply in early September 2021, peaked during the week of September 26, 2021, and was generally stable from mid-October to November. It is now trending slightly upward in December in line with older age groups (Figure 6).

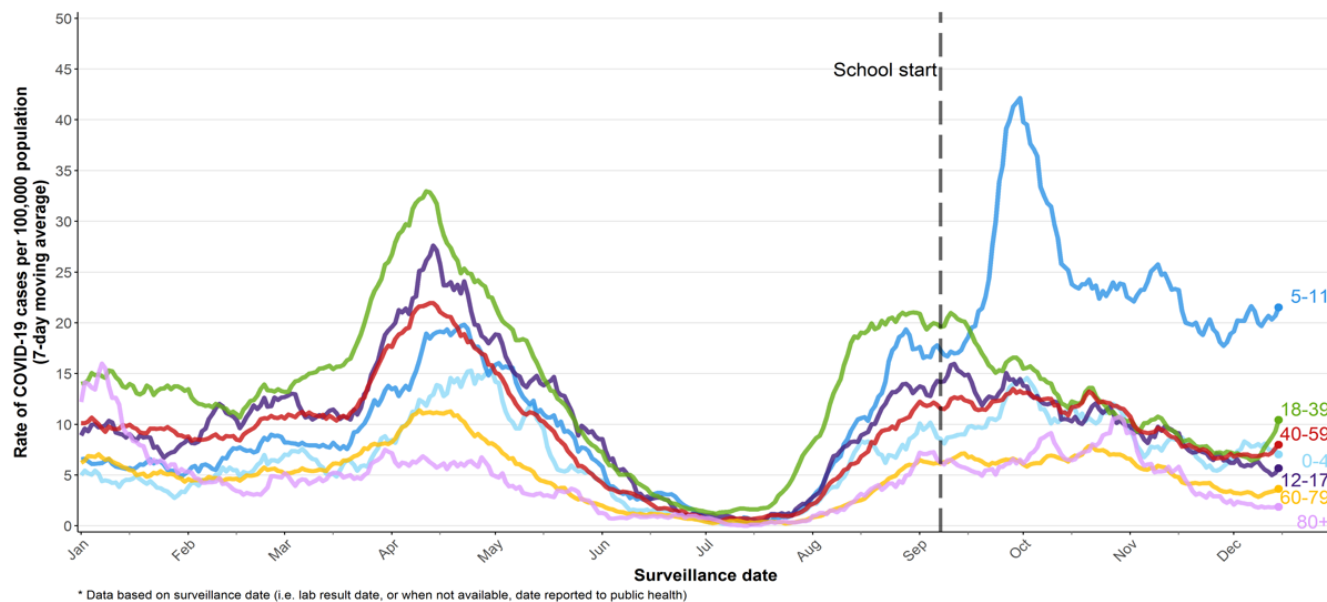


Figure 6: Rate of COVID-19 cases by age group, BC, January 1 to December 14, 2021

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 reflect community vaccination coverage as well as community prevalence: regions with higher community vaccination rates, such as Vancouver Coastal Health, have generally experienced lower case rates among children (Figure 7, Figure 8).

² Canadian Institute for Health Information, British Columbia, 2018/19

³ Ministry of Public Safety and Solicitor General, British Columbia, 2019

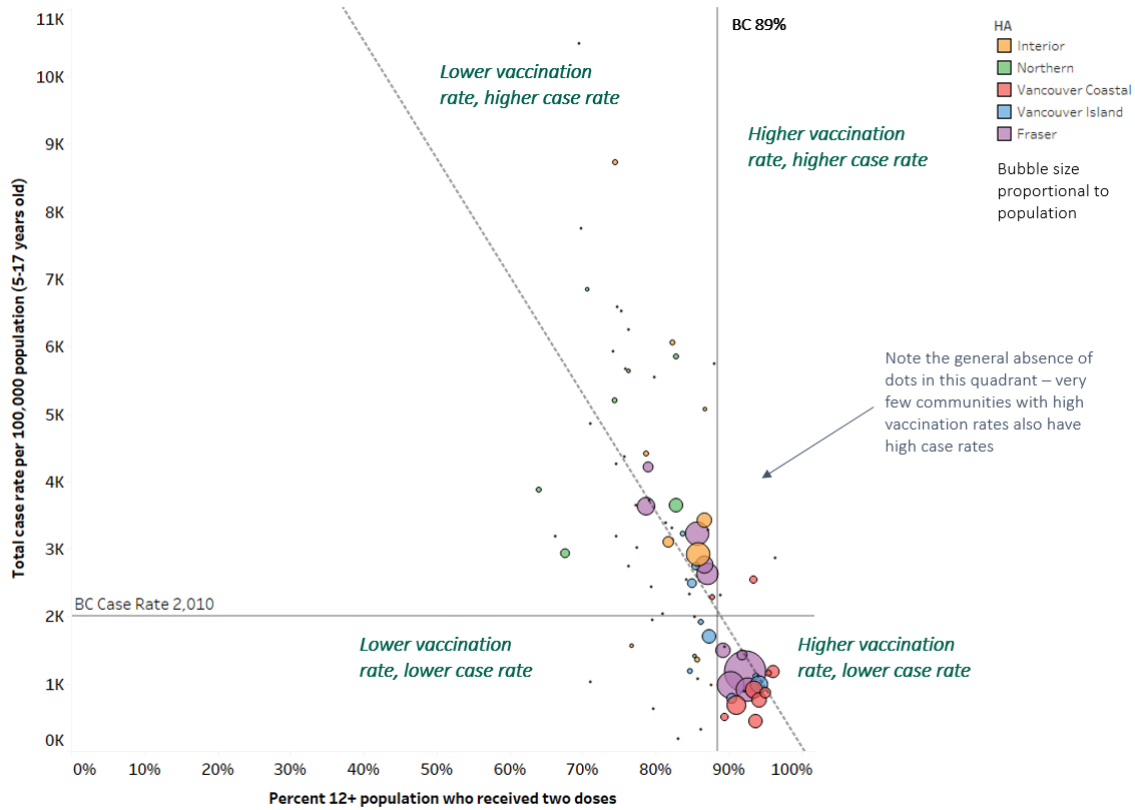


Figure 7: Case rate among school-age population (5-17 year-olds) per 100,000 population vs. percentage population 12 years and older who received a second dose of COVID-19 vaccine, by BC Local Health Area (LHA), August 20 to December 13, 2021

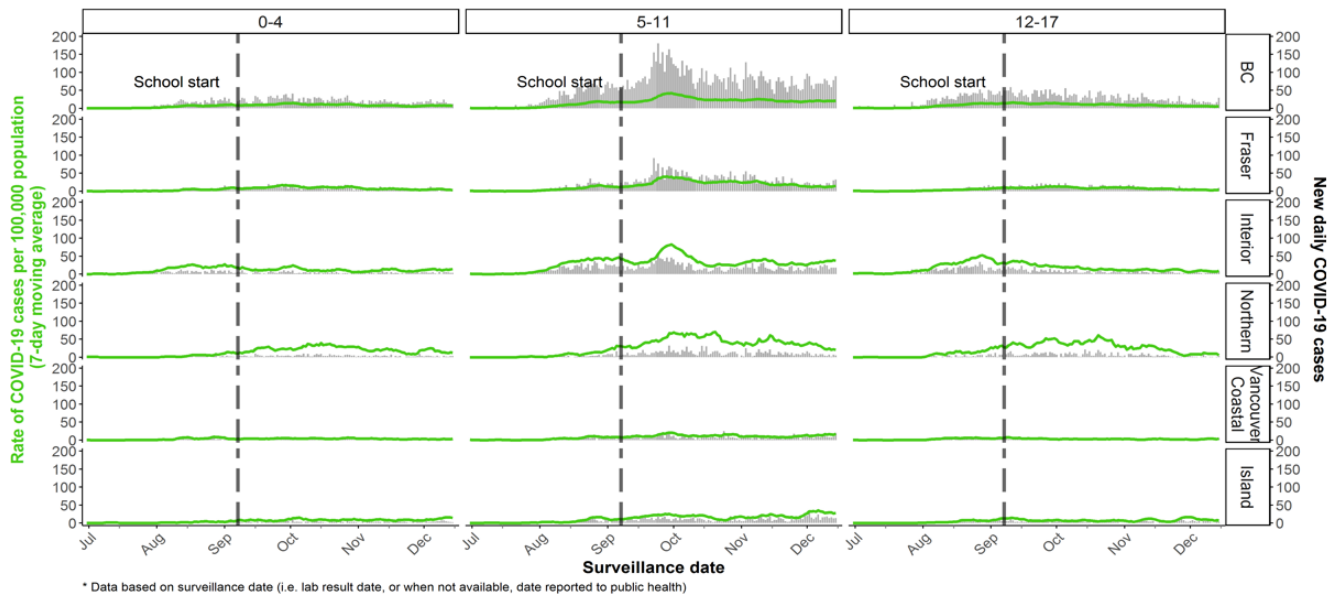


Figure 8: Count and rate of COVID-19 cases by BC Health Authority (BC) and age group, 0-17 year-olds, July 1 to December 14, 2021

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, even after returning to school in [September](#). Case incidence among fully vaccinated individuals is lower compared to unvaccinated individuals across all age groups and time ([Figure 9](#)).

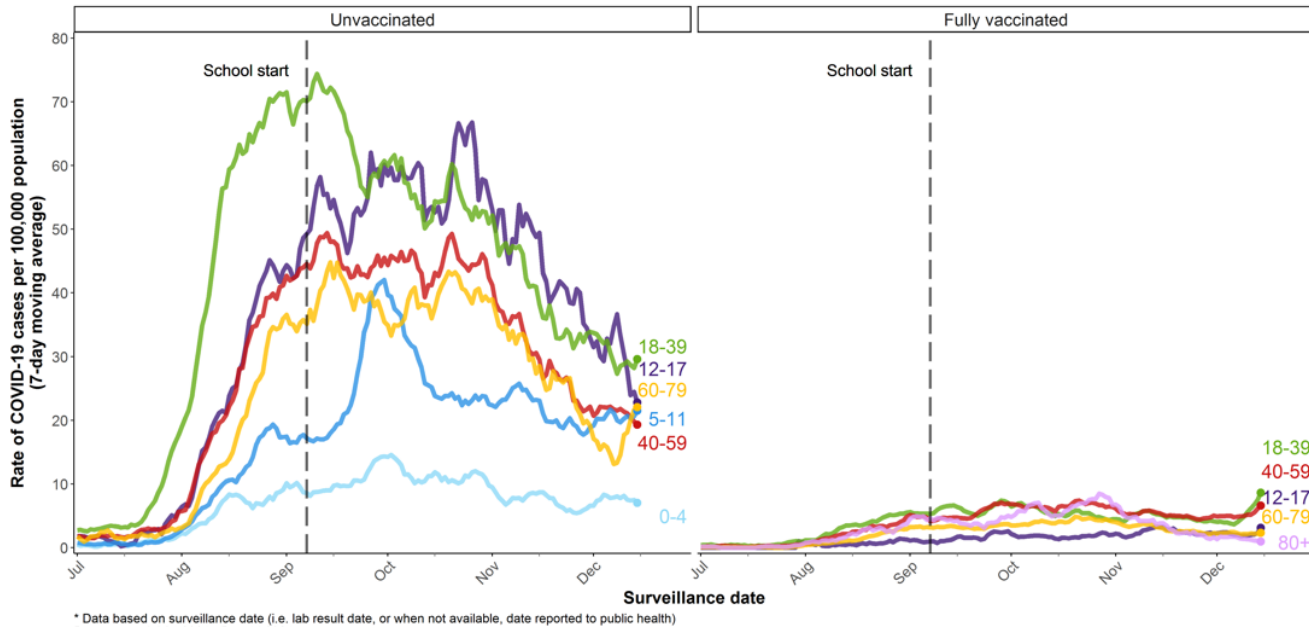


Figure 9: Case rate of COVID-19 by age and vaccination status, BC, July 1 to December 14, 2021

Testing Volumes and Positivity

COVID-19 testing among 5-17 year-olds began to increase soon after the 2021-2022 school year start, peaked in late September, and has since been on general decline across [Health Service Delivery Areas \(HSDAs\)](#) ([Figure 10](#)). The increased testing in the pediatric and adolescent populations 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.

Test percent positivity, the percentage of all tests performed that are positive, shows geographic variation but is declining or showing signs of decline in most HSDAs across the province in November and early December.

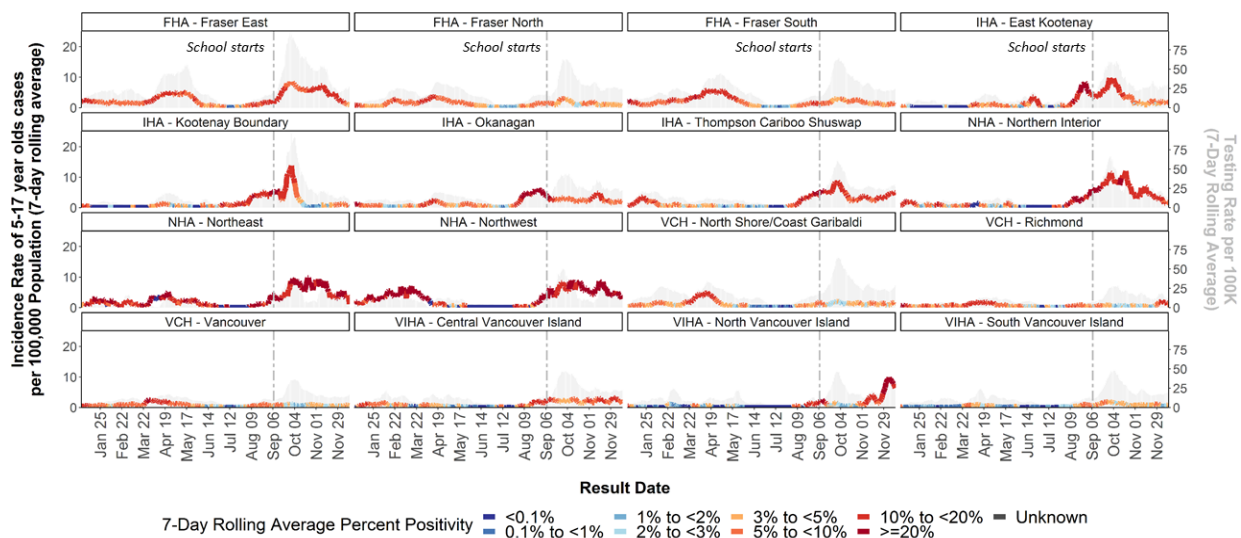


Figure 10: Case incidence rate (line), test percent positivity (colour of the line), and testing rate (gray bars) by BC Health Services Delivery Area (HSDA), 5-17 year-olds, January 1 to December 14, 2021

D. Severe Outcomes

Hospitalization and Deaths

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

From January 1 to December 14, 2021, among 30,848 cases in 5-17 year-olds in BC, there were:

- 125 hospitalizations, including 18 critical care admissions
- 0 deaths

The hospitalization rate for children has remained low and stable throughout the pandemic. Children and youth (0-17 years-old) have consistently experienced the lowest hospitalization rate of all age groups. Rising case rates among children in BC since late summer 2021 have not translated into a significant increase in hospitalizations (**Figure 11**). Additional hospitalization and critical care numbers can be found in the [COVID-19 Regional Surveillance Dashboard](#).

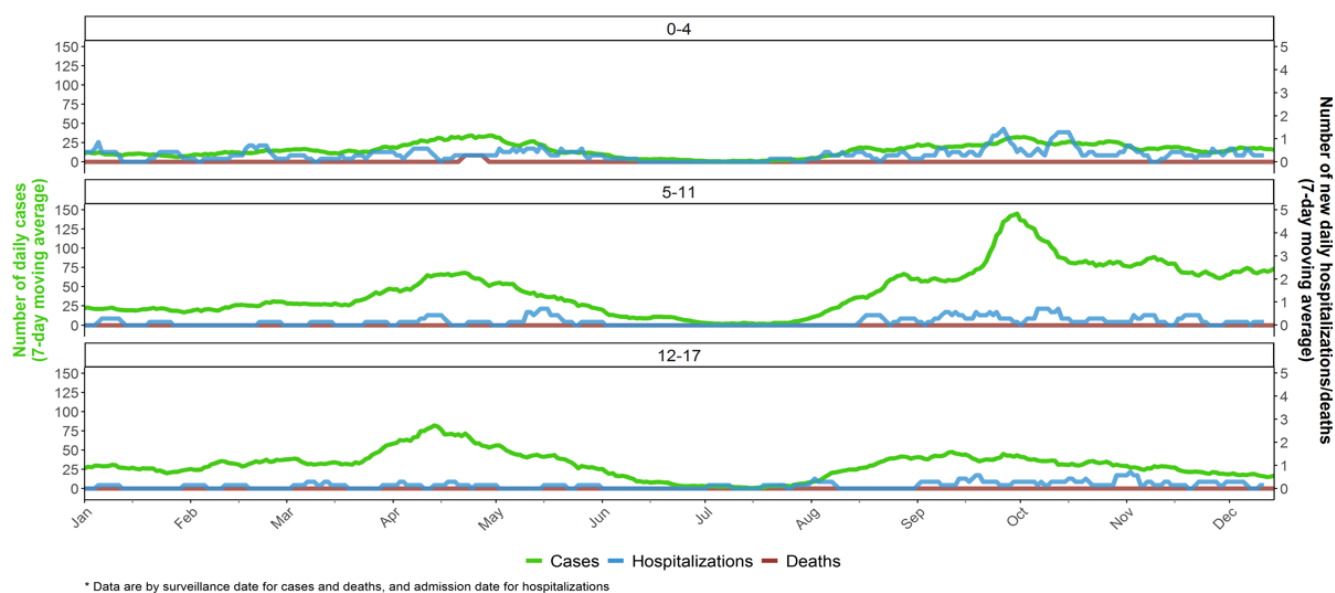


Figure 11: New daily COVID-19 cases, hospitalizations and deaths by pediatric age groups, 0-17 year-olds, BC, January 1 to December 14, 2021

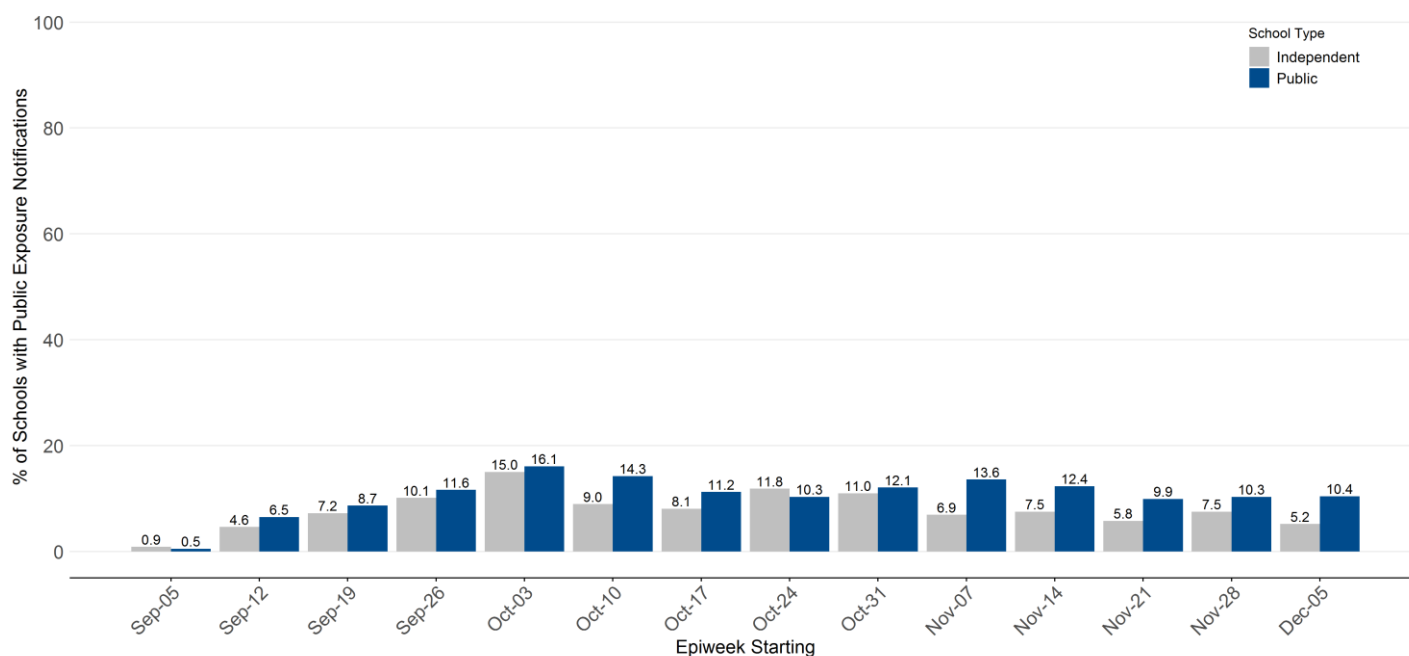
E. Public Notifications of Potential Exposures in K-12 Schools

When a student or staff member of a K-12 school receives a positive COVID-19 test, [public health contact tracing and investigation are triggered](#). If they attended school while infectious and public health staff identify a risk of onward transmission of COVID-19 to others, regional health authorities will post a notification of a potential exposure to their website. Notification of a potential exposure does not mean disease transmission in the classroom or learning environment has occurred. Schools may have had more than one public exposure notifications during a school year.

Overall, the percentage of public and independent schools with potential exposure notifications peaked with the case incidence rate in early October and is currently elevated and relatively stable (**Figure 12**).

As of December 11, 2021,

- There have been 4,004 [public notifications](#) of potential COVID-19 exposures among 964 K-12 schools⁴ in BC for the 2021-2022 school year (**Table 1**), including:
 - 134 (39%) independent schools
 - 830 (55%) public schools



Data Source: BC Ministry of Education, Updated 2021-12-11

Figure 12: Percentage of BC public and independent schools with public notifications of potential COVID-19 exposures by epi week and school type, September 5 to December 11, 2021

Table 1: Percentage of BC public and independent schools with public notifications of potential COVID-19 exposures, September 7 to December 11, 2021

School Type	Schools with public exposure notice	Total number of schools ⁵	Percent schools with public exposure notice
Independent	134	346	38.7%
Public	830	1,522	54.5%
Total	964	1,868	51.6%

⁴ Facility types included: standard, alternate, continuing education.

⁵ Total school count as of December 10, 2021. Includes standard, alternate, and continuing education facilities that had a student enrollment of at least one as of September 30, 2021.

F. K-12 School COVID-19 Case Clusters

Description of school-aged children in BC

There are 647,843 school-age children (5-17 year-olds) in BC as of 2020, representing approximately 12.6% of the overall BC population. Throughout the course of the pandemic, COVID-19 cases among the school-age population have generally followed community trends and reflected community COVID-19 activity (**Figure 13**). Between September 7 and December 14, 2021, a total of 11,292 reported COVID-19 cases in BC were among those of school age.

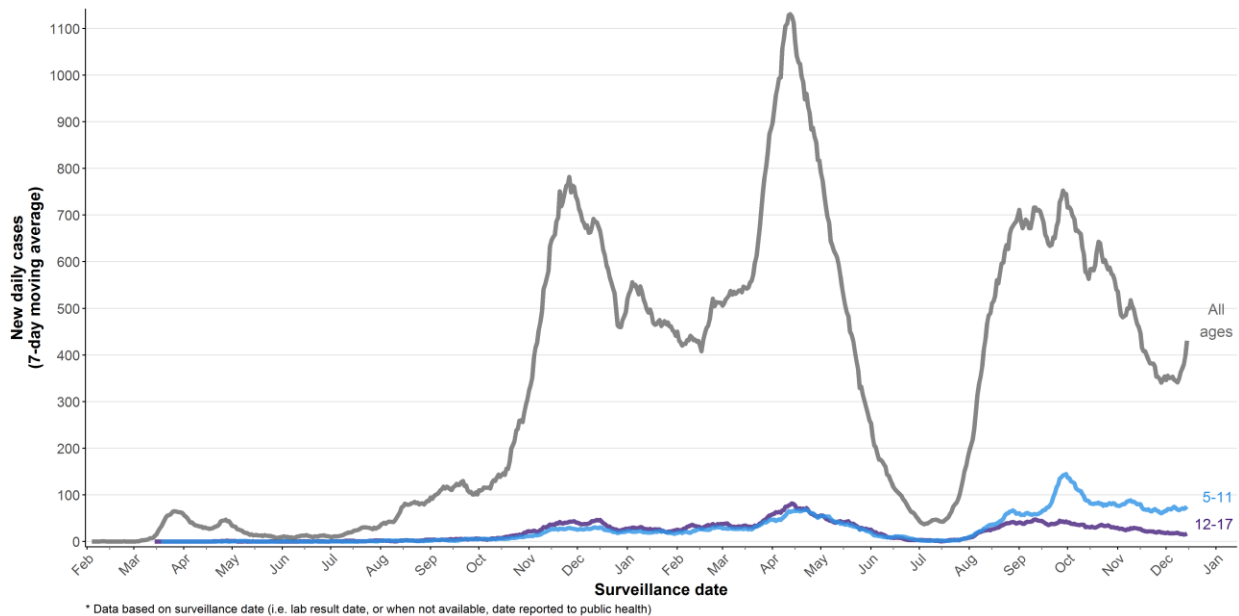


Figure 13: New daily cases of COVID-19, all ages and school-age (5-17 years-old), BC, February 1, 2020 to December 14, 2021

BC K-12 School Cluster Reporting System for COVID-19

The [BC K-12 School Cluster Reporting System for COVID-19](#) is a province-wide system for reporting COVID-19 case clusters (see text box) at K-12 schools. Working in collaboration with the five regional health authorities, the BC Centre for Disease Control co-ordinates and collates cluster-related data for provincial reporting.

Through review of contact tracing records, regional health authorities examined the COVID-19 cases reported since the beginning of the 2021-2022 school year among students and staff in K-12 schools. These analyses assessed where the individual may have acquired the virus as well as any transmission that may have occurred in the school setting.

School case clusters:

- School clusters are defined as two or more cases that were reported within a 14-day period where transmission was likely within the school.
- Multiple clusters may be reported per school.
- A cluster's status transitions from active to closed when no additional case is linked to the cluster for 14 days after the last reported case or last exposure.
- All the data related to case clusters in this report include cases among both students and staff in the school community.

There have been no COVID-19 case clusters identified in 1,564 (84%) BC K-12 schools⁵ since the beginning of the 2021-2022 school year (Figure 14).

Between September 7 and December 4, 2021 (Figure 14, Table 2),⁶

- There have been 541 confirmed COVID-19 clusters⁷ identified in 304 (16%) K-12 schools in BC.
 - This represented a net new of 159 clusters and 87 (5%) schools since the [last report](#).
 - 71 clusters in 54 schools remained active as of December 4, 2021.
- A total of 2,034 cases were linked to these clusters.
 - Cluster size ranged from 2 to 17 cases with a median of 3.
 - A median cluster size of 3 cases was consistent between closed and active clusters.

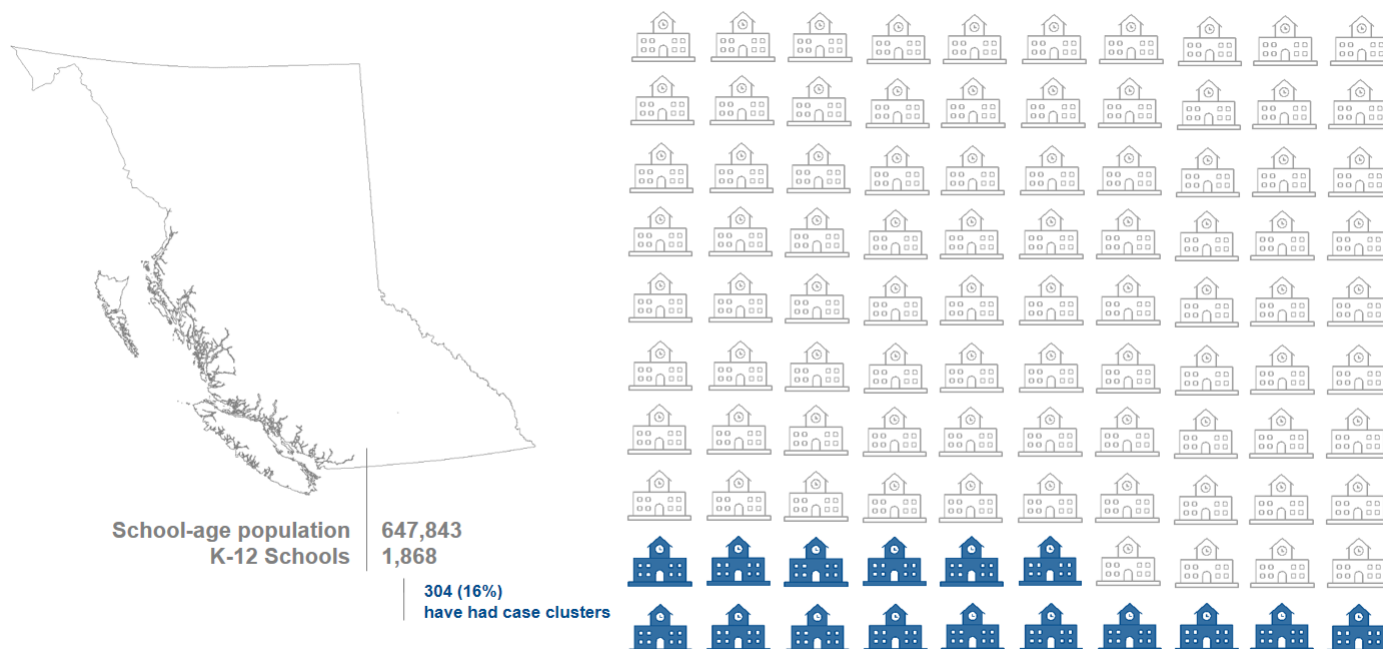


Figure 14: BC K-12 schools⁵ that have had COVID-19 case clusters, September 7 to December 4, 2021

Table 2: Characteristics of BC K-12 school⁵ COVID-19 case clusters by cluster status, September 7 to December 4, 2021

Cluster status	Number of clusters	Total cases	Number of schools*	Percent of schools	Per cluster		
					Minimum case count	Maximum case count	Median case count
Active	71	289	54	2.9%	2	14	3
Closed	470	1,745	264	14.1%	2	17	3
Total	541	2,034	304	16.3%	2	17	3

* While multiple clusters may be reported per school, school counts include unique schools only. Since some schools may have both active and closed clusters, the total number of schools that have had clusters may be less than the sum of the number of schools that have active or closed clusters.

When a COVID-19 case cluster is detected, additional public health measures may be recommended or required by a Medical Health Officer (MHO) to prevent transmission in the school. An outbreak may be declared when there is sustained, uncontrolled, widespread transmission of COVID-19 within a school, and an MHO determines extraordinary public health measures are necessary to stop further transmission in the school or school community. These may

⁶ Data for Interior Health are as of December 7, 2021.

⁷ Total cluster count is cumulative, and new clusters are added to what was previously reported. Where multiple separate clusters have occurred in a school and an outbreak is declared, all clusters may be combined and reported as a single outbreak and excluded from the cluster summary.

include implementing additional health and safety measures within the school, testing of all potentially exposed individuals or in rare cases, ordering the school to close for a certain amount of time. Where multiple separate clusters have occurred in a school and an outbreak is declared, all clusters may be combined and reported as a single outbreak.

There have been seven outbreaks declared in seven BC K-12 schools since the start of the school year, with a case range of 26 to 63 cases per outbreak.

In summary, COVID-19 cases within school-age population make up a small proportion of overall cases in BC. Most of the K-12 school clusters reported in BC during the first three months of the 2021-2022 school year were slightly larger than the median cluster size reported in the previous school year by [Vancouver Coastal Health](#) and [Fraser Health](#) (before the Delta variant was circulating widely in BC) and involved a median of 3 cases.

G. Data Sources and Notes

Data sources include: BC K-12 School Cluster Reporting System for COVID-19, 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.

Daily 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).

Public exposure notifications data were provided by the BC Ministry of Education.

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

BC K-12 School Cluster Reporting System for COVID-19:

- Regional data for BC K-12 School Cluster reporting System for COVID-19 was generated by staff of the Population Health Observatory and COVID-19 School Hub Team (Fraser Health), Epidemiology and Surveillance Unit and Communicable Disease Unit Schools Team (Interior Health), Population Health Assessment Surveillance & Epidemiology Team (Island Health), Population & Public Health Support Unit epidemiologists, Cluster Coordinators, and Communicable Disease Clinical Coordinators (Northern Health), and Public Health Surveillance Unit and Case and Contact Tracing teams (Vancouver Coastal Health).
- Each health authority has their own public health practices and data collection systems for case management and cluster reporting. Variation in data collection and data systems exists among health authorities. Cluster data are based on confirmed transmission in the school learning environment. Asymptomatic transmission, transmission between cases unknown to public health, or cases with multiple sources of potential acquisition may not be captured. Case counts in clusters may change as public health investigations progress and new information becomes available. Clusters are provided at the classroom(s)- or school-level depending on the health authority data collection process. When a start of cluster or outbreak declared date is not recorded, this may have been imputed using the second earliest reported date. Staff who support the entire school and not specific classrooms, such as education assistants, librarians or janitorial staff, may be excluded from the data. Missing cluster end dates may be imputed as the last school exposure date plus 14 days.

H. Additional Resources

COVID-19 Updates

[BCCDC Data Summary](#) - The weekly surveillance deck is a summary of COVID-19 related indicators that can help inform the pandemic response in BC.

[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 Multi-System Inflammatory Syndrome (MIS-C).

[BC COVID-19 Pandemic Update](#) – BC Ministry of Health daily update on COVID-19

Case Definitions

[COVID-19 Case Definition](#)

BC K-12 School Guidance

[Public Health Communicable Disease Guidance for K-12 Schools](#) – 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 Dashboards

[BCCDC COVID-19 Dashboard](#) – Daily provincial and health authority level reporting of case incidence, death, hospitalization and laboratory data.

[BCCDC Regional Surveillance Dashboard](#) – Regional reporting of case and vaccine data at a local level. Updated twice a week.

[BCCDC COVID-19 Epi App](#) – Case incidence, death, hospitalization, laboratory and limited vaccine data for regional and global comparisons. Updated three times a week.

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.