

# COVID-19 and the ConVal School District

## Review, Update, and Recommendation

### Introduction

The purpose of this report to the School Board is to provide an overview of COVID-19 in the ConVal School District, both historically and as it relates to the potential of reinstating in-person learning on January 19, 2021. Amy Greer, an infectious disease epidemiologist at the University of Guelph in Ontario, Canada, points out, “I don’t think the right question is, at what point do we close schools....Instead, it’s what do we need to do to keep schools open?” (Vogel, & Couzin-Frankel, 2020, November, p. 1027).

Since the beginning of the COVID-19 crisis, ConVal administrators and staff have balanced this question with a careful risk analysis for our students, our staff, and our community. We have reviewed, and continue to review, evolving research related to mitigation strategies with one thought in mind: How do we create the safest environment possible for our students and staff?

We have continuously made measured decisions based on expert advice and have found that our implementation of mitigation strategies have met national and local guidelines. Following is a review of: a) the different levels of community transmission and modes of instruction, b) COVID-19 case numbers in our local context, c) the mitigation strategies that are in place throughout the ConVal School District, d) the potential harm associated with school closures, e) the potential risk to staff, and f) the recommendation of the COVID-19 Monitoring Team to move back to the green phase of the ConVal [Reopening Plan](#).

### Community Transmission and Instructional Modes: Descriptions and Characteristics

The section on community transmission and mitigation in the District’s [Reopening Plan](#) identifies four instructional modes:

No detectable or minimal community transmission	Minimal to moderate community transmission	Substantial, controlled transmission	Substantial, uncontrolled transmission
Return to full in-person instruction	In-person available, remote available, segmented calendar	Remote for most students, in-person for small groups of priority students	Remote for all students and staff
CDC recommends low mitigation	CDC recommends moderate mitigation	CDC recommends significant mitigation	CDC recommends shelter in place

The District’s four instruction modes were designed to align with the Centers for Disease Control and Prevention’s [four levels of community transmission and mitigation](#) which provide additional, important information on the characteristics and description associated with each level of community transmission:

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CDC Level of Community Transmission	Characteristics and Description
No to minimal community transmission <ul style="list-style-type: none"> <li>• ConVal's <b>Blue Phase</b></li> </ul>	Evidence of isolated cases or limited community transmission, case investigations underway; no evidence of exposure in large communal setting
Minimal to moderate community transmission <ul style="list-style-type: none"> <li>• ConVal's <b>Green Phase</b></li> </ul>	Sustained transmission with high likelihood or confirmed exposure within communal settings and potential for rapid increase in cases
Substantial, controlled transmission <ul style="list-style-type: none"> <li>• ConVal's <b>Orange Phase</b></li> </ul>	Large scale, controlled community transmission, including communal settings (e.g., schools, workplaces)
Substantial, uncontrolled transmission <ul style="list-style-type: none"> <li>• ConVal's <b>Red Phase</b></li> </ul>	Large scale, uncontrolled community transmission, including communal settings (e.g., schools, workplaces)

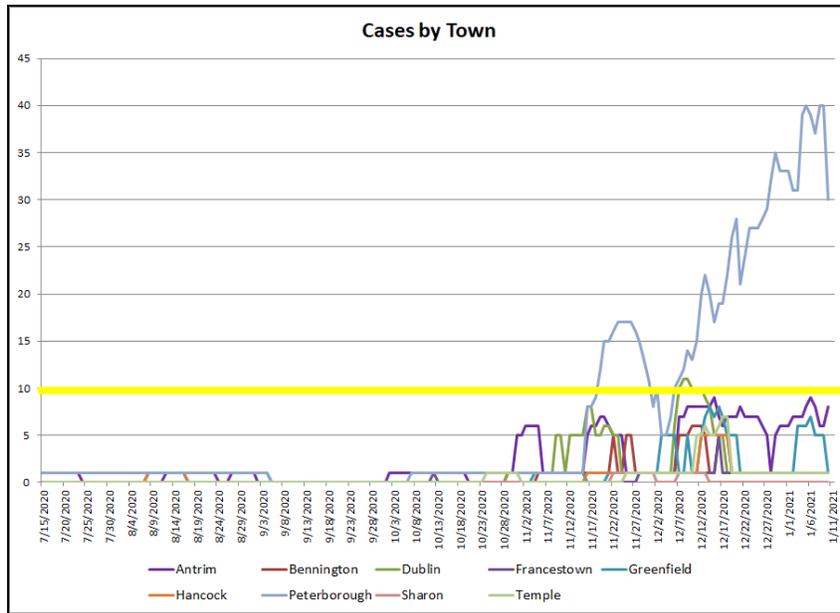
### Local Context of COVID-19

As part of the ConVal Reopening Plan, the COVID-19 Monitoring Team was established. This team consists of two pediatricians, an administrator from Monadnock Community Hospital (MCH), a ConVal school nurse, two public health officers, the MCH Infection Prevention Specialist, the Cheshire County Administrator, the ConVal Superintendent, Assistant Superintendent, Facilities Director, and Athletic Director. The team meets daily, Monday through Friday at 8 a.m., and reviews state, county, town, and school data to issue recommendations related to school phases. The process ensures that data is examined in real time, and recommendations are made by assessing the trends, contexts, locations, and risks that are represented by the data examined.

The initial meeting of the COVID-19 Monitoring Team was on August 11, 2020. At that time, the data for the nine towns in the District was trending lower than those surrounding areas and the state. This trend continued through the fall, with cases slowly beginning to increase in some of the nine communities the week of October 25. It is important to note that the number of cases still remained minimal across the nine communities, averaging less than ten in all communities until mid-November when the cases in the town of Peterborough began to increase. Following Thanksgiving, the data seemed to increase more rapidly across all nine communities, peaking just prior to the holiday break.

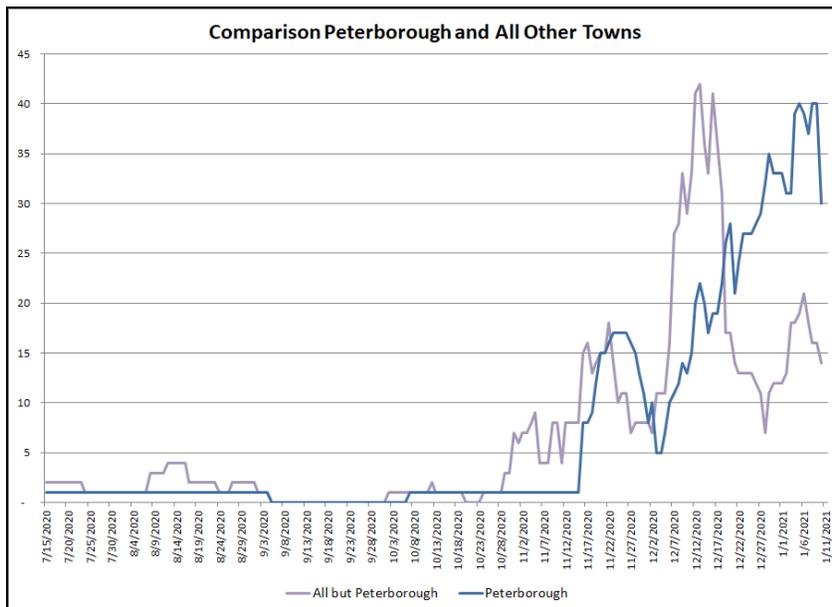
Cases by Town, Chart 1 below, shows the daily cases for the nine ConVal towns. On December 10, the COVID-19 Monitoring Team noted a significant and rapid increase in the trend lines in almost all of the communities. By that time, the segmented calendar had gone into effect and a change in phase would not change the day-to-day instructional model across the District. Nevertheless, the team felt that, consistent with the purpose of the committee, a recommendation should be made to the School Board to move to the "Orange Phase," indicating that there had been a demonstrable change in the positivity and transmission rates within the nine communities.

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The team has continued to review the daily data and has noted that the present data continues to remain below ten active cases in eight of the nine communities. The exception to this is Peterborough which includes a significant number of cases (N=25 within the last 14 days) related to long-term/congregate facilities. This is a change from the previous data that was indicative of higher levels of community spread. While these cases should not be discounted as indicators of continued coronavirus spread, the isolation of these cases should be considered as an important piece of information as we look at the risks of exposure within the schools and among students and staff.

Both Chart 1 and Chart 2 (Comparison Peterborough and All Other Towns) illustrate that active cases within the nine towns have begun to decrease following the most recent peak.



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The [COVID-19 School Reopening Indicators to Inform Decision Making](#), below, also provides an illustration of the context of our ConVal community as it relates to the risk of COVID-19 being introduced or transmitted with the ConVal Schools.

Indicators	Lowest risk of transmission in schools	Lower risk of transmission in schools	Moderate risk of transmission in schools	Higher risk of transmission in schools	Highest risk of transmission in schools
<b>Core Indicators</b>					
Number of new cases per 100,000 persons within the last 14 days*	<5	5 to <20	20 to <50	50 to ≤ 200	>200 ✓
Percentage of RT-PCR tests that are positive during the last 14 days**	<3%	3% to <5%	5% to <8% ✓	8% to ≤ 10%	>10%
<b>Ability of the school to implement 5 key mitigation strategies:</b> <ul style="list-style-type: none"> <li>• Consistent and correct use of masks</li> <li>• Social distancing to the largest extent possible</li> <li>• Hand hygiene and respiratory etiquette</li> <li>• Cleaning and disinfection</li> <li>• Contact tracing in collaboration with local health department</li> </ul> Schools should adopt the additional mitigation measures outlined below to the extent possible, practical and feasible.	Implemented all 5 strategies correctly and consistently  ✓	Implemented all 5 strategies correctly but inconsistently	Implemented 3-4 strategies correctly and consistently	Implemented 1-2 strategies correctly and consistently	Implemented no strategies
<b>Secondary Indicators</b>					
Percent change in new cases per 100,000 population during the last 7 days compared with the previous 7 days (negative values indicate improving trends)	<-10%	-10% to <-5%	-5% to <0% ✓	0% to ≤ 10%	>10%
Percentage of hospital inpatient beds in the community that are occupied***	<80%	<80%	80 to 90% ✓	>90%	>90%
Percentage of intensive care unit beds in the community that are occupied***	<80%	<80%	80 to 90% ✓	>90%	>90%
Percentage of hospital inpatient beds in the community that are occupied by patients with COVID-19***	<5%	5% to <10%	10% to 15% ✓	>15%	>15%
Existence of localized community/public setting COVID-19 outbreak****	No	No	Yes ✓	Yes	Yes

\*Number of new cases per 100,000 persons within the last 14 days is calculated by adding the number of new cases in the 9 towns in the last 14 days divided by the population and multiplying by 100,000.

\*\*Percentage of RT-PCR tests in the community that are positive during the last 14 days is calculated by dividing the number of positive tests over the last 14 days by the total number of tests resulted over the last 14 days. Diagnostic tests are viral (RT-PCR) diagnostic and screening laboratory tests (excludes antibody testing and RT-PCR testing for surveillance purposes)

\*\*\*Hospital beds and ICU beds occupied: These indicators are proxies for underlying community burden and the ability of the local healthcare system to support additional people with severe illness, including those with COVID-19.

\*\*\*\* Sudden increase in the number of COVID-19 cases in a localized community or geographic area as determined by the local and state health department.

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The work accomplished by the COVID-19 Monitoring Team has allowed the District to be agile and responsive to the data on all levels. Since the data examined includes both community-based data from the State as well as school-based data from ConVal, it is possible to examine the transmission levels at a macro level (overall across the nine communities), a contextual level (where those cases are occurring), and a micro level (school by school, pod by pod). This triangulation provides information that can be acted upon quickly to limit exposure to students, staff, and the larger community.

To date, the School District has had to close one pod and one program. In both situations very few staff or students had to be isolated due to potential exposure. Furthermore, there has been no case of COVID-19 as a result of exposure at school. This is due, in large part, to the mitigation strategies that are being followed by staff and students as well as the commitment by members of the community to support mitigation efforts in the ConVal School District.

### Implementation of Mitigation Strategies

While no single mitigation strategy completely eliminates the risk of COVID-19, the successful implementation of multiple mitigation strategies significantly reduces the risk (American Academy of Pediatrics, 2021, January 5). The CDC (2020, September 15) also emphasizes the importance of layering mitigation strategies. The following table outlines the specific mitigation strategies recommended by the CDC and indicates those that are being implemented by the ConVal School District.

Being Implemented by ConVal	Centers for Disease Control and Prevention (CDC) Recommended Mitigation Strategies to Reduce Transmission of SARS-CoV-2 in Schools
✓	<b>Masks:</b> Encourage consistent and correct use of face masks, by all students, teachers, and staff to prevent SARS-CoV-2 transmission through respiratory droplets.
✓	<b>Social Distancing to the extent possible:</b> Maintain a distance of at least 6 feet between people.
✓	<b>Hand hygiene and respiratory etiquette:</b> Teach and reinforce handwashing with soap and water for at least 20 seconds and increase monitoring to ensure adherence among students and staff. Encourage students and staff to cover coughs and sneezes with a tissue and immediately wash their hands after blowing their nose, coughing or sneezing.
✓	<b>Cleaning and disinfection:</b> Clean and disinfect frequently touched surfaces (e.g., playground equipment, door handles, sink handles, toilets, drinking fountains) within the school and on school buses at least daily or between use as much as possible.
✓	<b>Contact Tracing:</b> Systematic contact tracing of infected students, teachers, and staff in collaboration with local health department.
✓	<b>Cohorting:</b> Cohorts (or “pods”) are groups of students, and sometimes teachers or staff, that stay together throughout the school day to minimize exposure for students, teachers, and staff across the school environment.
✓	<b>Staying home when appropriate:</b> Educate staff and families about when they and their child(ren) should stay home and when they can return to school.

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Being Implemented by ConVal	Centers for Disease Control and Prevention (CDC) Recommended Mitigation Strategies to Reduce Transmission of SARS-CoV-2 in Schools
✓	<b>Adequate supplies:</b> Support healthy hygiene behaviors by providing adequate supplies, including soap, hand sanitizer with at least 60 percent alcohol (for staff and older children who can safely use hand sanitizer), a way to dry hands, tissues, disinfectant wipes, face masks (as feasible) and no-touch/foot-pedal trash cans.
✓	<b>Staggered scheduling:</b> Stagger school arrival and drop-off times or locations by cohort, or put in place other protocols to limit contact between cohorts, as well as direct contact with parents, as much as possible.
✓	<b>Alternating schedules with fixed cohorts:</b> Alternate schedules with fixed cohorts of students and staff to decrease class size and promote social distancing to prevent wide scale transmission.
✓	<b>Shared objects:</b> Discourage sharing of items, particularly those that are difficult to clean or disinfect.*
✓	<b>Visitors:</b> Limit any nonessential visitors, volunteers, and activities involving external groups or organizations as much as possible – especially with individuals who are not from the local geographic area (e.g., not from the same community, town, city, county).**
✓	<b>Ventilation:</b> Ensure ventilation systems operate properly and increase circulation of outdoor air as much as possible, for example by opening windows and doors.
✓	<b>Water systems:</b> Take steps to ensure that all water systems and features (e.g., sink faucets, decorative fountains) are safe to use after a prolonged facility shutdown.
✓	<b>Physical barriers and guides:</b> Install physical barriers, such as sneeze guards and partitions, particularly in areas where it is difficult for individuals to remain at least 6 feet apart (e.g., reception desks).
✓	<b>Communal spaces:</b> Close communal use of shared spaces, such as dining halls and playgrounds with shared playground equipment, if possible; otherwise, stagger use and clean and disinfect between use.
✓	<b>Food service:</b> Avoid offering any self-serve food or drink options such as hot and cold food bars, salad or condiment bars, and drink stations. Have children bring their own meals as feasible, or serve individually plated or pre-packaged meals instead, while ensuring the safety of children with food allergies.

\* Whenever possible, the sharing of supplies has been eliminated in the ConVal School District. For any materials or supplies that need to be shared protocols have been developed for cleaning and disinfecting between use.

\*\* Schools in the ConVal School District are only open to students and staff members. Visitors are not allowed inside buildings at this time.

In addition to the above-noted mitigation recommendations, the ConVal School District has effectively implemented the following mitigation strategies:

- All students and staff are screened upon arrival to the school building.
- Clear procedures have been developed for responding to staff and students who are not feeling well.
- Clear procedures have been developed for what to do if a student or staff tests positive for COVID-19.
- Communication protocols related to positive cases

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Worthy of further note and explanation are the District's efforts related to ventilation and air quality. The below bullets share the District's current state, as well as specific enhancements for the 2020-2021 school year:

- **MERV 8 Filters:** All air delivered and circulated to the classroom passes through this filter. Merv 8 rated pleated filters will trap 20% of particulate .3-3.0 micron in size. They capture 70-85% 3.0 -10.0 micron in size and larger.
- **Demand Control Ventilation/CO<sub>2</sub> Monitoring:** Many classrooms or wings of the schools have CO<sub>2</sub> monitoring. CO<sub>2</sub> monitoring allows the outside air dampers to modulate and bring in the required outside air based on a programmed set point for CO<sub>2</sub> levels. Outside air has a CO<sub>2</sub> level in the 400s parts per million (PPM). Most of the District's classrooms, when full of students, maintain readings around 1,200 PPM of CO<sub>2</sub>. This level is right within standard according to the American Society of Heating, Refrigeration and Air conditioning Engineers (ASHREA).
- **Electronically Monitor/Trend and Adjust Settings for Temperature and Outside Air Introduction:** Building automation systems at all schools allow the District to monitor equipment operation, make adjustments, trend readings remotely, and schedule times of operation.
- **Spot Check CO<sub>2</sub>, Temperature and Humidity Levels with Calibrated Instrumentation:** The District owns and utilizes a hand held FLUKE air meter to double check CO<sub>2</sub> and temperature readings. This instrumentation is calibrated annually and completely independent of our building automation systems. This device can also be used to check CO and humidity levels.
- **Enhancements for the 2020-2021 School Year**
  - *MERV 11 Filters:* All air delivered and circulated to the classroom passes through this filter. Merv 11 rated filters are a higher rated filter and will trap 20% of particulate .3-3.0 micron in size. They capture 65-79% of particulate 1.0 – 3.0 micron in size and they capture 85% and better of particulate 3-10 microns in size and larger.
  - *I Wave Ionization Units:* Bi-polar ionization units have been installed into the ductwork of all HVAC units in the district. The ionizer emits positive and negative ions that kill mold, bacteria, and viruses in the occupied space, thus improving air quality (iWave Air, 2020). This process also reduces allergens, static electricity, as well as controlling odors and traps particulate without creating a harmful by-product. The ionizers are important because they remove hydrogen molecules. Without hydrogen molecules, the pathogens have no source of energy and will die. The ions also attach to allergens like pollen and other particles. This causes them to bond together until they are large enough to be trapped by the air handling filters.
  - *Maximize Outside Air Introduction into Facilities:* As noted in the current state, the District has many classrooms and school wings that are controlled by CO<sub>2</sub> sensors. The air dampers, which control the amount of outside air being brought into the building, will be set to a fixed position so that they stay open 50-60% when in operation, which ensures air changes in classroom spaces

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4-7 times per hour when staff members and students are in school. The District has also programmed the start up and shut down times of HVAC units operation to be three hours before and four hours after the school day start/stop times.

Throughout the development and implementation of plans, the ConVal School District has focused on the importance of mitigation strategies that are science-based and supported by experts in the field:

“Early evidence...suggests schools can stay open even in the face of significant community spread, given strong safety measures and political will” (Vogel, & Couzin-Frankel, 2020, November, p. 1024).

“Reopening schools for in-person learning does not seem to significantly increase community transmission of the virus....It depends on whether schools are able to follow COVID-19 public health guidance” (American Academy of Pediatrics, 2021, January 5).

For additional, detailed information about the specific mitigation strategies in the ConVal School District, please refer to the District’s [Reopening Plan](#).

### **Consideration of Potential Harm Associated with School Closures**

As the potential harm associated with school closures is considered, it is important to note that anticipated negative effects are greater for children coming from low-income households and children living with disabilities (World Health Organization, EPI WiN, & Infodemic Management, 2020, October 21).

- Losses and disruptions to instructional time may accrue and affect students’ ability to learn (United Nations, 2020, April 15; World Health Organization, EPI WiN, & Infodemic Management, 2020, October 21).
- “Schools provide more than just academics to children and adolescents. In addition to reading, writing and math, students learn social and emotional skills, get exercise, and have access to mental health and other support services. For many children and adolescents, schools are safe and stimulating places to be while parents or guardians are working. For many families, schools are where kids get healthy meals, access to Internet, and other vital services” (American Academy of Pediatrics, 2021, January 5).
- “The reduction in outdoor activities, free play, and social interactions may be associated with an increase in children’s depressive symptoms, anxiety, irritability, boredom, and stress. These effects are in addition to potential financial stressors, such as unemployment and loss of income in families due to the COVID-19 pandemic” (Ontario Agency for Health Protection and Promotion, 2020, June 8).
- “Risks for child safety: Lockdowns and shelter in place measures come with heightened risk of children witnessing or suffering violence and abuse” (United Nations, 2020, April 15).

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- “Closures disrupt school-based services such as...school meals, mental health and psychosocial support, and can cause anxiety due to loss of peer interaction and disrupted routines” (World Health Organization, EPI WiN, & Infodemic Management, 2020, October 21).

#### **Consideration of Risks to Staff**

The Memorandum of Agreement between the ConVal School District’s School Board and ConVal Education Association states:

Employees who are immunocompromised, identified as high risk, who live with or care for family members who are similarly compromised or at risk, shall be provided the option to perform remote job duties from home for the 2020-2021 year, until which time New Hampshire is no longer in a state of emergency....All other employees are expected in their assigned buildings unless otherwise instructed. The District will use its best efforts to provide the opportunity for a remote assignment to all employees who request it.

While to date scientists have concluded that school outbreaks appear to be less common than initially feared (Vogel, & Couzin-Frankel, 2020, November, p. 1024), the District recognizes that there is a risk of in-person staff acquiring and transmitting the infection. Therefore, the District continues to communicate the importance of mitigation strategies both within and outside of the school day.

Research on school outbreaks has shown that staff-to-student and student-to-staff transmission has been uncommon and that student-to-student transmission has been rare. Where school outbreaks have occurred, they have most commonly been traced back to staff-to-staff transmission. Therefore, it is absolutely critical that staff stay vigilant against exposure both inside and outside the school (World Health Organization, EPI WiN, & Infodemic Management, 2020, October 21).

#### **Recommendation from the COVID-19 Monitoring Team**

After careful consideration of:

- the context of COVID-19 in the nine communities that make up the ConVal School District (particularly that the majority cases in Peterborough relate to long-term/congregate facilities)
- the significant mitigation strategies that have been successfully put into place across the District,
- the upgrades to air handling and air filtration,
- the potential harm done to students who are unable to adequately access remote learning, and
- the minimal risks of exposure for staff and students,

the COVID-19 Monitoring Team recommends that the School Board move the District back to the green phase of the Reopening Plan.

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### Resources

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- United Nations. (2020, April 15). *Policy brief: The impact of COVID-19 on children*.  
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- Viner, R. M., Russell, S. J., Croker, H., Packer, J., Ward, J., Stansfield, C., Mytton, O., Bonell, C., & Booy, R. (2020). School closure and management practices during coronavirus outbreaks including COVID-19: A rapid systematic review. *Lancet Child Adolescent Health*, 4, 398–404. [https://doi.org/10.1016/S2352-4642\(20\)30095-X](https://doi.org/10.1016/S2352-4642(20)30095-X)
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