COVID-19: Guidance for School Operation during the Pandemic

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Executive summary

The majority of schools in Ontario, and across Canada, safely reopened in September 2020 with enhanced health and safety measures in place, following a prolonged closure at the start of the coronavirus disease 2019 (COVID-19) pandemic. At the time of reopening, it was recognized that it would not be possible to eliminate all risk of infection in schools as Severe Acute Respiratory Syndrome coronavirus-2 (SARS-CoV-2) was well-established in the community. As such, the original guidance from June and July 2020 provided recommendations to reduce the transmission risk in schools and emphasized the importance of keeping community transmission low.

Unfortunately, community infection rates in Ontario and most of Canada have risen considerably, increasing the likelihood that infections will be introduced into schools. In response to this, the Government of Ontario declared a second provincial state of emergency and stay-at-home order on Jan. 14, 2021. While schools in northern Ontario reopened on Jan. 5, 2021, most of those in southern Ontario were closed to in-person learning until at least Jan. 25, 2021. Some jurisdictions, including Hamilton, Peel, Toronto and Windsor-Essex, were closed until at least Feb. 10, 2021.

In considering decisions about ongoing regional closure of schools for in-person learning, it is important to balance the health risks of SARS-CoV-2 infection in children and their role as potential transmitters of SARS-CoV-2 with the significant harms of school closure on children's physical health, developmental health, mental health and learning. Given the significant negative impact that the initial prolonged school closure (to in-person learning) had on children and youth, it is our strong opinion that an in-person school model with robust application of the recommended risk mitigation interventions is the best option from an overall health and learning perspective for children of all ages allowing for consistency, stability and equity. Therefore, school closures for in-person instruction should be a last resort for pandemic control (last to close and first to open) and delay in reopening schools for in-person learning must be as time-limited as possible. Additional delays will inevitably further exacerbate the harms to children and the inequities caused by school closures. Emphasis needs to be placed on reducing community transmission and strengthening the recommended school mitigation measures.

From an operational standpoint, due to high SARS-CoV-2 community prevalence in many regions in Ontario and the emergence of SARS-CoV-2 variants with increased transmissibility (e.g., B.1.1.7 variant), it is imperative that robust testing and contact tracing alongside the infection prevention and control (IPAC)

measures discussed in this document be implemented in order to resume in-person learning and keep schools open even when community transmission is high. Furthermore, SARS-CoV-2 community rates vary by region; prioritizing enhanced IPAC measures and community supports to the highest risk regions is likely a more effective approach than broad-based provincial mandates/interventions.

Moving forward, it will be important to continually gather information on transmission in schools when cases are identified (e.g., robust testing of symptomatic staff and students and exposed cohorts in addition to contact tracing) in order to evaluate and adjust the health and safety measures if needed. With this in mind, strategies to improve uptake of testing in schools are critical, with a focus on easy access to testing for symptomatic students and staff and comprehensive testing of exposed cohorts. In addition, risk mitigation interventions for the school setting should continue to include daily screening of children and staff for symptoms (staying home if sick), cohorting with the smallest cohorts possible (facilitated by reduced in-person class sizes), hand hygiene, physical distancing, non-medical mask (NMM) use, enhanced environmental cleaning procedures and improving school and classroom ventilation.

Major updates/changes to the recommendations are highlighted in yellow throughout the document. The most significant updates include:

- Testing recommendations for symptomatic students and considerations for asymptomatic testing.
- More robust physical distancing and NMM use, particularly for high school and middle school students for the highest risk/epidemiology regions.
- Emphasis on cohorting rather than strict enforcement of physical distancing for younger students because of the centrality of play and socialization to their development and learning.
- Update to section on mental health awareness and support for all children.

The COVID-19 pandemic has amplified previously existing inequities in our health-care and educational systems and our society. Many of the regions most impacted by the pandemic are the same regions where children are most adversely impacted by the absence of in-person learning. It is therefore critical to provide more targeted support to schools and families in these communities to ensure that schools open, and remain open, for in-person learning in an equitable fashion.

Preamble

The main objective of this living document is to advocate for the safe continued return of children and youth to school by emphasizing the importance of school for broader child health, balanced against the potential and important risks of COVID-19.

This document is meant to provide information to policymakers by highlighting paediatric-specific considerations based on our collective experience with children and their families/caregivers. The first version of the document was created by a core group of health-care workers at The Hospital for Sick Children (SickKids) and Unity Health Toronto, including those with expertise in paediatrics, infectious diseases, infection prevention and control, school health, psychiatry and mental health.[1] The updated versions include contributions and endorsements from other Ontario hospitals with paediatric expertise (CHEO, Holland Bloorview Kids Rehabilitation Hospital, Kingston Health Sciences Centre, Children's Hospital at London Health Sciences Centre, McMaster Children's Hospital and Unity Health Toronto), adult infectious diseases physicians, epidemiologists, public health physicians, and a volunteer advisory group of teachers and parents.

Given that educators of elementary and secondary school students are best positioned to appreciate the operational and logistical considerations in adapting school and class routines to incorporate new health and safety protocols, the following is not intended as an exhaustive school guidance document or implementation strategy. The ongoing safe operation of schools is the primary responsibility of the Ministry of Education and should include input from several key stakeholders, including the Chief Medical Officer of Health, Ministry of Health, Ministry of Labour, public health authorities, teachers and other educators, principals, other school-related authorities, parents and children.

The recommendations in this document were drafted, reviewed and approved by the authors. Areas of disagreement are highlighted. Evidence from the literature was routinely reviewed and used to form the basis of recommendations. However, several statements are made based on expert opinion with the rationale provided and evidence gaps highlighted. We acknowledge the existence of various support documents from other jurisdictions, including but not limited to those referenced herein.[2-4]

It is important to note that the recommendations reflect the epidemiology of SARS-CoV-2, the causative agent of COVID-19, in Ontario as of January 18, 2021 and may evolve as the epidemiology of SARS-CoV-2 changes and as new evidence emerges. **Keeping schools open safely will be facilitated by low community transmission of**

SARS-CoV-2 and, therefore, it is imperative that strategies to reduce disease prevalence and community transmission continue to be emphasized. As a society and individuals, we all have a significant role in remaining vigilant and adhering to public health recommendations to keep community transmission as low as possible. As academic clinicians and scientists, we are also committed to the conduct of rigorous academic research that will help generate evidence where there may be gaps, which will in turn inform policy.

The ability of the public school system to effectively carry out its mission depends in part on the resources made available to schools. Personnel considerations include health-care providers working with schools (e.g., telephone or virtual support, on-site support), an expanded number of teachers, guidance counsellors, social workers, psychologists and support teachers, and additional custodian and cleaning staff. The adaptation of the curricula to permit expanded outdoor education and the development of distance learning options (i.e., e-learning) will also presumably require resources. Adequate supplies of personal protective equipment (PPE), hand-hygiene supplies (soap and hand sanitizer) and environmental cleaning materials will be needed as well. Addressing structural deficiencies, such as large class sizes, small classrooms and poor ventilation, must be part of any plan to reopen schools.

Lastly, it is imperative that there are rigorous testing and contact tracing strategies in place, with clear roles and responsibilities outlined between schools and public health authorities around case, contact and outbreak management to help mitigate the impact in the event of students or teachers/school staff becoming sick at school and/or testing positive for SARS-CoV-2. In Ontario, the roles and responsibilities for case, contact and outbreak management are currently outlined in the Ministry of Health School and Outbreak Guidance.

Introduction

In considering the ongoing safe operation of schools during the COVID-19 pandemic in Ontario, it is critical to balance the risk of infection and transmission of SARS-CoV-2 in children and youth, school staff and the community, with the harms of school closure on children's physical health, developmental health, mental health and learning. While school closures were reasonable as part of the early pandemic response, current evidence and experience support the concept that children and youth can attend school in a manner that maximizes their health and minimizes risks from a public health perspective.[5-8] The American Academy of Pediatrics,[9] the Canadian Paediatric Society,[10] The European Academy of Pediatrics,[11] the World Health Organization (WHO)[12] and UNICEF[13] all issued statements emphasizing the importance of children and youth attending school. We also believe education to be absolutely critical for the development of children and youth, a human right and a sine qua non for the future well-being of our society.

Maximizing children's health

During the first wave of the SARS-CoV-2 pandemic children and youth less than 19 years of age accounted for less than 5-10% of symptomatic SARS-CoV-2 infections.[14-16] The proportion of cases in this age group rose to 10% to 20% during the summer and early fall months of 2020,[17, 18] which may have been related to loosening of public health restrictions and changes to testing recommendations. In Canada, of 708,619 COVID-19 cases reported as of January 17, 2021, 109,342 (16.1%) were in individuals 19 years of age and under.[17] Multiple reports showing lower infection rates in children, particularly in those less than 10 years of age, suggested that they may be less susceptible to infection,[19-28] although other factors such as lower exposure risk (related to early school closure), lower rates of symptomatic disease (early testing strategies focused on symptomatic cases), and differences in test performance between children and adults have likely contributed to this observed difference. Studies of household secondary attack rates in China, South Korea and Israel did show lower infection rates in young children compared to older children and adults.[20, 22, 27, 29] In contrast, some data suggest that children of all age groups can, depending on the circumstances, become infected at high rates. For example, a seroprevalence household study conducted in Barcelona, Spain, showed similar infection rates for adults and children of all ages.[30] A population-based seroprevalence study from Switzerland demonstrated antibody prevalence in children 10-17 similar to older age groups (but notably lower in those 5-9 years).[31] An analysis of data from an overnight camp in the state of Georgia, U.S., showed infection rates of 51%, 44% and 33% for children aged 6-10 years, 11-17 years and 18-21 years, respectively.[32]

While the directionality of transmission could not be determined in this study, it does suggest that with high-intensity exposure and insufficient infection prevention and control measures, significant infection rates can be anticipated for children, including in those less than 10 years of age.

There continues to be strong evidence that the majority of children and youth who become infected with SARS-CoV-2 are either asymptomatic or have only mild symptoms, such as cough, nasal congestion, runny nose, fever and sore throat.[14, 15, 33-37] Severe acute disease requiring intensive care admission has been described in a small minority of paediatric cases (0.08% of confirmed COVID-19 cases in children under 19 years of age in Canada)[17], particularly among those with certain underlying medical conditions, but the clinical course is much less severe than in adults, and deaths are extremely rare.[15, 16, 38-42] However, it is important to emphasize that children (especially children with complex medical conditions) have largely been isolated, so it is possible that these data may change over time as children attend school and are interacting more with peers and adults. Data from a recent study in Sweden, a jurisdiction where schools were not closed, is reassuring as it found a low incidence of severe COVID-19 among schoolchildren and children of preschool age.[43] Multisystem inflammatory syndrome in children (MIS-C) is a serious condition likely attributable to SARS-CoV-2 infection; current data suggests MIS-C is uncommon, potentially treatable with immune modulatory therapies and associated with a low mortality rate.[44-51]

The community-based public health measures (e.g., provincial lockdown, school closures, stay-at-home orders, self-isolation) implemented to mitigate COVID-19 and "flatten the curve" have significant adverse health and welfare consequences for children and youth.[52] Though unintended, some of these consequences include decreased vaccination coverage,[53] delayed diagnosis and care for non-COVID-19 related medical conditions,[52, 54-57] and adverse impact on their physical health[58, 59] as well as social development and mental health.[60-68] With respect to vaccination coverage, 44.6% of 475 family physicians and paediatricians surveyed in Ontario indicated a negative impact on childhood vaccinations; major factors cited as contributing to this included school closures, parental fears of attending clinic, vaccine supply issues, lack of personal protective equipment, reduced office hours, and lack of office protocols during the pandemic (Shaun Morris personal communication, manuscript in preparation). Regarding mental health, increased rates of depression and anxiety have been observed and increased rates of substance use and addiction, and suicidal behaviour are believed to have occurred. In the United States the proportion of emergency department visits due to mental health concerns increased for children 5-11 and 12-17 years of age by 24% and 31%, respectively, compared to 2019.[65] A survey by Children's Mental Health Ontario during the first wave of the pandemic found one in three Ontario parents reported their child's mental health had deteriorated from being home from school, and more than half of the parents noticed behavioural changes in their child.[69] These ranged from drastic changes in mood, behaviour and personality, to difficulty sleeping and more. Those with pre-existing mental health issues have been hit particularly hard. Several organizations, including the American Psychological Association (APA) and WHO, have highlighted concerns about the potential impact of lockdown on family discord and family violence, including intimate partner violence and child/youth maltreatment.[70, 71] Risk factors that may contribute to the increased risk of child/youth maltreatment in this context include the heightened rates of parental/caregiver unemployment, family financial stress, lack of social supports and parental mental illness, including increased substance use. Furthermore, school closures mean that supervision of at-risk children/youth is reduced, as is the identification by teachers and other school personnel of children/youth experiencing maltreatment.[72] Last, prolonged school closures may have lasting economic impacts for the students themselves. An analysis conducted by the Organization of Economic Co-Operation and Development (OECD) estimated that a loss of one-third of a school year will lower students' future earnings by 3%.[73] **Thus, the primary impetus for keeping schools open is to optimize the overall health and welfare of children and youth, rather than solely to facilitate parent/caregiver return to work or reopening of the economy.**

Public health implications of return to school

While the concerns around infection and infectious complications in children and youth appear to be relatively small, it is important to consider the potential role they play in SARS-CoV-2 transmission and disease propagation, particularly with respect to teachers, other school staff and families. Children and youth are considered to be efficient transmitters of influenza and other respiratory virus infections and this was one of the rationales for school closures early in the COVID-19 pandemic. Unsurprisingly, evidence from household,[74-79] summer camp,[32, 80] school[81, 82] and childcare[83] settings indicate that children can transmit SARS-CoV-2 to others. Emerging evidence suggests that teenagers transmit SARS-CoV-2 at rates similar to adults.[22, 80, 84] For example, widespread SARS-CoV-2 transmission was reported at an overnight summer school retreat involving 152 high school-aged boys, counsellors and staff members in Wisconsin, which may have been precipitated by a single index student.[80] An analysis of household transmission in South Korea found that the secondary infection rate with an index case aged 10-19 years was 18.6%, comparable to that from adult index cases (7.0% to 18.0% depending on age bracket).[22] In contrast, there is a growing body of evidence to suggest that children under 10 years of age are less likely to transmit SARS-CoV-2 than older children or adults.[6, 19, 23, 26, 27, 85-88] For example, in the aforementioned South Korean study, the transmission rate from children less than 10 years was 5.3%, significantly lower than that associated with other age groups.[22] **The specific role children may play in transmission of novel emerging SARS-CoV-2 variants with increased transmissibility, such as the D614G and B.1.1.7 variants, requires further study.**[89-91]

Based on findings of high SARS-CoV-2 viral load in nasopharyngeal samples, several publications have suggested that young children may play a more important role in SARS-CoV-2 transmission than previously thought.[92, 93] In one study, RT-PCR amplification cycle thresholds among individuals with mild to moderate symptoms within seven days of symptom onset were lower (indicating viral load 10 to 100 fold higher) for children less than 5 years of age compared to older children and adults.[92] In the second study, SARS-CoV-2 viral load, measured by quantitative PCR, in nasopharyngeal samples of both asymptomatic and symptomatic children, was equivalent or higher than in adults, although the number of children 10 years of age or younger was small (n=18).[93] Furthermore, recently published data from South Korea indicate that the SARS-CoV-2 can be detected for a mean duration of 14.1 ± 7.7 days in asymptomatic children.[94] However, it is important to note that the findings of these studies do not necessarily equate to high transmission rates from young children, as transmission is likely impacted by multiple factors other than viral load. For example, children have a lower respiratory minute volume compared to adults and may generate fewer droplets, especially if asymptomatic.[95]

Modeling studies examining the impact of schools on SARS-CoV-2 spread have varied in their findings. An early report from China suggested that school closure alone could not interrupt transmission, but could potentially reduce peak community incidence by 40–60%.[96] A more recent modeling study suggested that SARS-CoV-2 transmission would be reduced by 15% 28 days after school closure and increase by 24% 28 days after school reopening.[97] However, an Ontario-based simulation study found that most SARS-CoV-2 infections in schools through the end of October 2020 were due to community transmission rather than transmission within school, and that the impact of school opening/closure was small compared to other community-based non-pharmaceutical interventions.[98]

These findings are supported by a recent report of children and adolescents under 18 years of age in Mississippi, which found that SARS-CoV-2 infection was significantly associated with exposure to a known case of COVID-19, gatherings with persons outside the household or having visitors to the home, but not with attending school or child care.[99]

There is evidence to suggest that school reopening (with variable health and safety measures in place) has not played a significant role in propagating SARS-CoV-2 transmission in the community.[5-8, 100-108] School-based outbreaks, when they have occurred, have mostly been associated with a small number of cases.[5, 6, 101-111] For

example, national surveillance of infection clusters in child educational settings in the United Kingdom during the summer half-term (June 1 to July 17, 2020) showed that outbreaks were uncommon (n=55) and limited in scope (median of one secondary case per outbreak).[103] In an analysis of school-based transmissions in North Carolina, with mitigation interventions in place, there were only 32 secondary transmissions despite 773 documented community-acquired cases in schools; the authors suggested that if transmission dynamics in schools were similar to the community, 800-900 secondary infections would be anticipated.[108] Vigilance is nevertheless warranted given the emerging data on transmission from teenagers noted above,[22, 80] reports of school-based outbreaks (e.g., Israel[81], Chile[82]), overnight camp-based outbreaks,[32, 80] childcare facility-based outbreaks[83] and the high seroprevalence rate observed in a high school in a heavily impacted area in France.[112] Regarding the often touted post-return to school outbreak that occurred in Israel in May 2020, it is noteworthy that both index cases had attended school despite pre-existing mild symptoms, class sizes were large (35-38 students) and crowded, and a heat wave necessitated continuous air conditioning and discontinuation of mask use.[81] Furthermore, of those with confirmed infection, 57% of children/youth and 24% of teachers had no symptoms, symptoms were mild in those who developed symptoms, and no hospitalizations related to the outbreak were reported. A recent report issued by the Ministry of Health, Israel, indicated that some children likely did serve as "super-spreaders," though much less commonly than adults; specifically, of 350 individuals who transmitted SARS-CoV-2 to 10 or more persons, only 17 (4.8%) were children.[113]

Risk of school introductions

The number of students and staff with SARS-CoV-2 infection attending school ("school introductions") will vary regionally based on local community transmission. A recent online model (available at: https://art-bd.shinyapps.io/school_entry/) used the number of lab-confirmed cases within the health unit (over the preceding seven days) broken down by age to estimate the probability that an infected individual would be introduced into the school setting. The findings suggested that it is likely there will be significantly more school introductions in January 2021 compared to September 2020, and that in regions of high community transmission, there is a high probability that two or more cases could be introduced into one or more local schools each day.

Each introduction of SARS-CoV-2 to a school, if identified, has two important implications: (1) it would result in class dismissal for the recommended quarantine period (currently 14 days); (2) may lead to secondary transmission in the class/school (which may result in further spread to the household/community). Both scenarios have a significant impact on students and families/caregivers. As a result, it is essential to not only focus on the strategies that reduce the likelihood of introductions (e.g., reducing overall community rates, robust screening for symptoms with exclusion of symptomatic persons from school, robust testing of symptomatic cases and their contacts), but also ensure that in-school measures are sufficient to prevent onward transmission.

Modelling risk of secondary transmission within schools

Modelling studies have suggested that the risk of secondary transmission in schools is likely impacted by the amount of community transmission and the student age (high school > elementary) and that risk can be reduced by the implementation of mitigation measures, including the use of NMMs and physical distancing (especially when community transmission is low).[114] With respect to the impact of age, one study suggested that over a 30-day period following the introduction of a single infection into a school with no or minimal mitigation interventions in place, an average of two secondary cases would occur in the case of an elementary school compared to 22 cases in the case of a high school (Alyssa Bilinski personal communication to Amy Greer, manuscript under review). With more robust mitigation, the average number of cases would be reduced to less than 0.5 and 1.8 for these age groups, respectively. Furthermore, modelling also suggests that while many school introductions will lead to no secondary transmission, in a small number of simulations introductions can generate larger outbreaks (more than 20 individuals) in the school setting even in the presence of mitigation measures.[114] These lower-probability but

high-consequence events are more likely to occur in the setting of high community transmission. In model simulations where a 30:1 class was broken down into two cohorts of 15:1, there were significant benefits in terms of reductions in the range of possible outbreak sizes observed and student-days missed.[114]

Impact of school mitigation measures on transmission

Overall, the evidence on transmission continues to evolve and, therefore, it is imperative that ongoing surveillance and research be conducted on the role of children and youth who are asymptomatic and symptomatic in propagating SARS-CoV-2 transmission. It needs to be recognized that it will not be possible to remove all risk of infection and disease now that SARS-CoV-2 is well-established in many communities. Mitigation of risk will be needed for the foreseeable future. The mitigation strategies implemented for schools have varied from country to country,[115] in part depending on local epidemiology. While outbreaks have been reported in schools in some countries (e.g., Israel[81] and Chile[82]), the risk mitigation strategies appear to have been largely successful in the majority of other countries.[1, 5, 6, 103, 109, 110, 116, 117] A recent study in the U.S. demonstrated very low rates of secondary transmission in schools with public health measures in place and no incidences of child-to-adult spread.[108] A prospective cohort study in Norwegian primary schools between August and November 2020, where all in-school contacts were systematically tested twice during their quarantine, found minimal child-to-child transmission (0.9%, 2/234) and child-to-adult (1.7%, 1/58) transmission.[118] In this study, public health measures included strengthened hygiene, physical distancing and clear messaging around staying home if symptomatic (face masks were not recommended). Overnight camps have also been successfully run with mitigation interventions in place.[119]

Ontario experience to date (since school reopening)

As of Jan. 13, 2021 (last update issued to date), there were 7,312 cumulative school-related cases including 5,130 students, 1,093 staff and 1,089 other cases (not identified) (http://covid19schooldashboard.com/).[120] Of 4,828 schools, 2,343 were noted to have had at least one case.[120] Based on analysis of data between Aug. 30 and Nov. 7, there were 170 school-associated outbreaks in 19 public health units and the median number of secondary cases associated with school outbreaks was two (range 0-24).[121] Furthermore, in most jurisdictions, community cases started to rise before school reopening with the relaxation of public health restrictions, suggesting that schools did not lead to the initiation of the second wave.

Preliminary data from broader school-based surveillance testing in Toronto region demonstrated that the overall uptake of testing was variable, often less than 30%. Uptake was improved with the use of on-site testing and by offering less invasive samples (e.g., saliva, oral-nasal swab).

Minimizing individual and public health risks

As described in the preceding sections, it is critical to balance the risk of direct infection and transmission of SARS-CoV-2 in children and youth, school staff and the community with the harms of school closure, which is impacting children and youth's physical health, developmental health, mental health and learning. **Based on the available evidence, it is our view that the adverse impacts of school closure on children and youth are such that school closures should be a last resort.**

To prevent school closures, and limit school closure duration if they do occur, robust public health interventions, including readily available testing with fast turnaround and contact tracing, should be prioritized. It is important that all outbreaks be thoroughly investigated to determine their causes and, specifically, to investigate the role of children and youth versus adults in order to better understand SARS-CoV-2 spread dynamics in general, and to be able to improve mitigation strategies.

School delivery

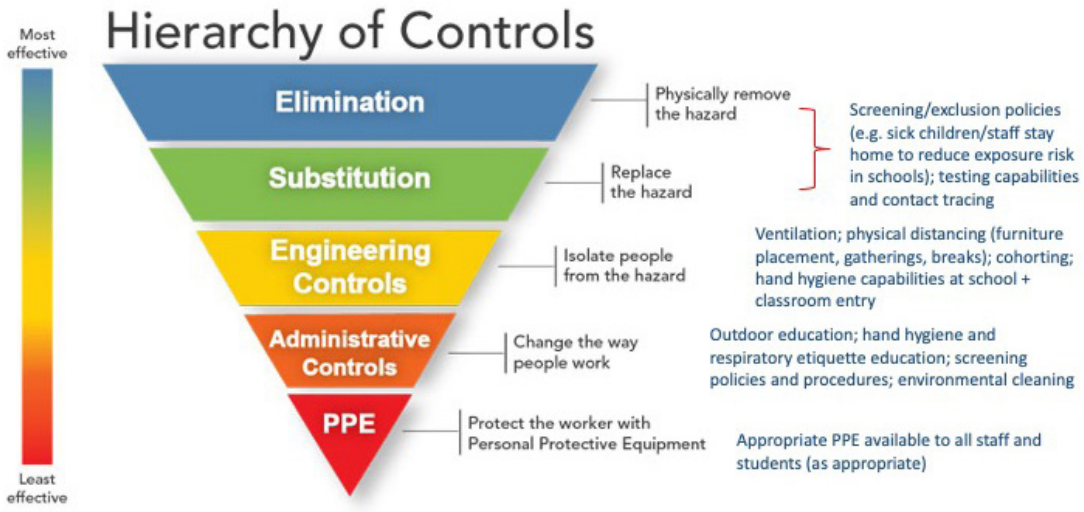
The Ontario Ministry of Education guidance around the return to school identified several options for education delivery, including remote, hybrid/adapted and daily in-person.[122] Updated guidelines were most recently issued on Nov. 27, 2020.[123] Currently, both in-person

and remote schooling strategies are being employed. Potential advantages and disadvantages of various school models are summarized in Appendix 1. It remains our view that a daily in-person school model is best for educational and developmental needs of children as it allows for consistency, stability and equity, regardless of the region in which children and youth live. Though full-time remote learning may diminish the likelihood of SARS-CoV-2 transmission, it is insufficient to meet the needs of the majority of Ontario children and youth, leads to increased screen time and is likely detrimental to overall health. A hybrid/adapted model is also likely inferior (especially in elementary school) to a daily school model in terms of educational outcomes, is problematic for working parents and caregivers, and may not lead to reduced risk of SARS-CoV-2 spread because of the potential need for families to find care on off days (e.g., many families may engage grandparents or high-school students as babysitters or combine resources with other families). Irrespective of the model being employed, educators need to be prepared for transition from one model to another depending on local SARS-CoV-2 epidemiology. For example, temporary transition to hybrid or full-time distance learning may be needed if a large-scale school-based outbreak were to occur.

Emerging evidence indicates that the social and economic burden of COVID-19 disproportionately impacts racialized communities and those with less wealth.[40, 41, 124] This is likely related to a variety of factors, including more crowded living spaces, reduced access to health care, PPE or testing, and, for some, frontline work with increased exposure risk.[124] Distance learning further disadvantages children and youth living in higher-burden COVID-19 areas where socioeconomic and language barriers limit access to quality online learning, including access to technology. The education of children and youth has already been impacted significantly and further delays of return-to-school or school closures are likely to further compound educational disparities.

Our recommendation is that an in-person school model with risk mitigation strategies in place is best from an overall health perspective for children of all ages. Educators must be engaged to provide input on how well the various models have been working from a learning impact lens. The use of informal leaders or "champions" within each school may help with the implementation, review and ongoing improvement in the policies and procedures related to health and safety. It is important to acknowledge that there is not one specific measure that will prevent infections from occurring in schools, but rather a bundle of infection prevention and control measures that need to be put into place to help reduce infection risks (see Figure 1, Hierarchy of Controls; adapted from CDC, available at: https://www.cdc.gov/niosh/topics/hierarchy/default.html).[125] Equity of resources and management/auditing of these risk mitigation strategies will be critical, and policymakers must ensure that an ethical framework with transparent rationale is provided to the public to ensure buy-in and trust in the decisions made.

Figure 1. Hierarchy of Controls (Adapted from CDC)125



Considerations for the safe continued operation of schools

It is important that the new normal in school is designed to optimize learning and social development, while ensuring that the health and safety of teachers and school staff remain a top priority. With this in mind, the following sections of the document summarize the considerations for the safe continued operation of schools based on the available evidence, as well as expert opinion, organized into the categories that follow. Where appropriate, recommendations have been provided for elementary school (kindergarten to Grade 5), middle school (Grades 6-8) and high school (Grades 9-12) classes/students.

1. Active screening to prevent symptomatic individuals from entering the school
2. SARS-CoV-2 testing for schools (New Section)
3. Hand hygiene
4. Physical distancing
5. Non-medical and medical masks for students
6. Cohorting
7. Environmental cleaning
8. Ventilation
9. Mitigation of risk for students at higher risk for severe disease
10. Special considerations for children and youth with medical, physical, developmental and/or behavioural complexities
11. Mental health awareness and support for all children
12. Protection of teachers and school staff
13. Protection of at-risk persons or families
14. Management of suspected and confirmed SARS-CoV-2/COVID-19 cases and their contacts
15. Communicating about COVID-19 to children, youth and parents/caregivers
16. Opportunities to improve evidence-based decision making
17. Additional considerations

1. Active screening to prevent symptomatic individuals from entering the school

In order to prevent the spread of SARS-CoV-2 infection, students, teachers and other employees who have signs/symptoms of COVID-19 (according to Ministry of Health and local public health guidance) must stay home, and decisions about testing and return to school should be guided by provincial public health authorities. In addition, return to school decisions for those who have had an exposure to SARS-CoV-2 should be in accordance with local public health recommendations.

Consensus Guidance Statement(s):

- It is essential that strict screening and exclusion policies are in place for students and employees who

are symptomatic or have been exposed to SARS-CoV-2 and directed to self-isolate by public health.

- Teachers, school staff and principals should be provided with information on symptoms of COVID-19 in children126 so that appropriate action can be taken if children develop symptoms during the day.
- Active screening for students, staff and visitors for signs and symptoms of SARS-CoV-2 infection should occur prior to arrival at school, on site (i.e., at the school) or a combination.
  - Screening by parents and caregivers prior to arrival at school
    - We would strongly recommend that parents and caregivers be empowered to play an active role in daily screening of their children and youth prior to them leaving for school. A standard checklist should be provided for parents/caregivers/older students for this purpose (language and literacy considerations will be important). Parents/caregivers may require access/support from a health-care provider and/or local public health unit when they are unsure. This is especially the case for children and youth with underlying medical conditions and chronic symptoms.
    - Provision of an attestation of completion of the daily screening (either virtual, such as a cell phone app, web-based, QR-based or paper for those unable to do so virtually) would add extra assurance, but consideration should be given to ensure that the process is not onerous such that it disadvantages groups with limited technological supports.
    - Parents/caregivers should be educated around the importance of providing truthful information both for their child and others' safety. This has been the approach taken by public health for other communicable disease.
  - Screening by school staff at school entry
    - Daily screening on site provides reassurance that the screening has been completed, however, it may result in safety concerns because of increased lines (e.g., crowding and mixing between children, youth and parents/caregivers) and the need to use non-school property (e.g., waiting on sidewalks blocking traffic flow, overflow onto streets). Therefore, it is not practical without significant staggering of start times. Consideration would also need to be given to the process during inclement weather conditions (i.e., very cold weather, rain).
    - If screening students as they enter the school is selected as a strategy, additional staff and infrastructure resources would be required and appropriate training provided to them to effectively complete the task.
    - Especially at the high school level, multiple entry points to the school should be considered to reduce crowding, lines and unnecessary interactions between cohorts.
    - On-site temperature measurement or pulse oximeter checks are not recommended because fever and hypoxia are not consistent symptoms in children and youth (present in only a minority of cases)[127] and would result in lines and delayed school entry for what has not been shown to be an effective screening strategy to date.
- The specific symptoms to screen for should take into consideration their positive predictive value as well as community rates of SARS-CoV-2 and other respiratory viruses. In situations where there is moderate to high SARS-CoV-2 community transmission, the threshold for school exclusion and testing should be lower (i.e., screen for any single symptom).[128]
  - There is large variation in signs and symptoms of SARS-CoV-2 in children. Predominant symptoms have included fever and cough in more than half the cases, followed by rhinorrhea/nasal congestion, myalgia/fatigue and sore throat in 10–20% of cases and gastrointestinal symptoms and headache in fewer than 10% of cases.[129]
  - Using one symptom will be a more sensitive screening approach. However, it will lead to more children being excluded from school.
- In regions with moderate to high SARS-CoV-2 community transmission, consideration should be given to keeping siblings of symptomatic students home from school until test results are available.
- Easy access to non-invasive testing is an essential implementation consideration of any screening program as it is likely to promote adherence to

recommendations.

- Employers and the government play a critical role in supporting parents/caregivers who need to stay at home with their child because their child is sick or in isolation due to SARS-CoV-2 infection or exposure. This support is essential to reduce the burden on parents/caregivers and reduce the likelihood parents/caregivers will need to send their child/youth to school with symptoms (e.g., paid sick days available for workers, financial supports for families).
- Virtual learning or other forms of structured learning should be put in place for children and youth who are required to stay home because they are sick or in isolation due to SARS-CoV-2 infection or exposure. It will be important to continue to work to identify options for students who have limited internet availability or other barriers to online learning.

2. SARS-CoV-2 testing for schools

Molecular laboratory-based testing (i.e., PCR) currently remains the gold standard for the diagnosis of SARS-CoV-2 infection. However, rapid testing methodologies, including rapid molecular or antigen detection tests, have been developed which could, in the appropriate context, be helpful in the overall approach to SARS-CoV-2 testing. Decisions around which tests to utilize should take into account test properties such as sensitivity and specificity, purpose (diagnosis versus surveillance) and practical aspects including ease of collection (site being sampled and its acceptability to those being tested), ease of processing and the time required to obtain test results.

Consensus Guidance Statement(s):

Testing for symptomatic children and youth:

- All children with symptoms compatible with COVID-19 should undergo testing for SARS-CoV-2 as soon as possible after symptoms develop.
- Laboratory-based molecular tests are preferred for children displaying symptoms of COVID-19.
  - Laboratory-based molecular tests are more sensitive than current point-of-care rapid molecular or antigen tests.
  - Testing with a rapid **molecular test** may be considered if accessibility to laboratory testing is a barrier, for example, due to geographic concerns (rural area). In these situations, a lower sensitivity test with rapid turnaround is preferred over limited or significantly delayed test results.
  - Testing with a rapid **antigen test** is not recommended.
- The nasopharyngeal swab (NPS) is the preferred specimen type for SARS-CoV-2 testing.
  - The NPS has superior sensitivity compared to other specimens.
  - Alternative specimens, including saliva, buccal-nares swab or throat-nares swab, may be considered (in discussion with local laboratory partners), as this will likely increase cooperation among children and promote willingness for future testing among households.
- A process to monitor absenteeism and ensure that symptomatic students are appropriately tested and/or self-isolate (e.g., avoid school attendance) may help to promote adherence to public health guidance.

Testing for asymptomatic children and youth with a known school exposure (i.e., dismissed cohorts):

- Asymptomatic children who have been exposed to a student or staff with SARS-CoV-2 infection should be tested for SARS-CoV-2.
  - The rationale for testing is to both ensure that SARS-CoV-2 status is determined and to enhance our understanding of transmission dynamics in schools, which could lead to adjustments in the health and safety measures and public health guidance around class dismissals.
- Laboratory-based molecular testing is recommended for this population. The use of alternative specimens, particularly saliva or buccal-nares swab, is acceptable and may increase compliance with testing recommendations and willingness for future testing.
  - At this time, rapid testing using molecular or antigen methods is not recommended based on the lower sensitivity of the test, inferior performance in asymptomatic individuals and the less clear need for a rapid turnaround in the setting of a cohort already in self-isolation.
  - The optimal timing of testing after an exposure is

unclear. Testing immediately after case identification would determine if transmission has already occurred and identify infected secondary cases sooner, which may improve adherence with public health guidance. Testing later (five to seven days after the last close contact) is more likely to identify if a student has become infected after an exposure. While testing at multiple time points post-exposure is ideal to identify both scenarios, this is likely not practical in schools and would have implications on regional testing capacity. For this reason, we recommend testing asymptomatic contacts at five to seven days after exposure, to balance the need to catch secondary cases early with the optimal timing to detect cases post exposure.
    - Whether or not testing of an exposed cohort at a specified time point can be used to facilitate early return to school requires further data and should be a focus moving forward as a potential strategy to minimize the impact of school interruptions.

Testing for asymptomatic children as part of a one-time surveillance initiative:

- Targeted large-scale one-time surveillance (i.e., point prevalence) programs for presymptomatic or asymptomatic children are not generally recommended.
- Targeted surveillance may be reasonable in situations where the pre-test probability of SARS-CoV-2 infection is higher (as this will increase the yield and help preserve testing capacity).
    - Low prevalence setting: no asymptomatic surveillance recommended.
    - Moderate to high prevalence settings and in schools with outbreaks identified: surveillance testing can be considered in discussion with local public health unit, taking into consideration the potential benefits and negative consequences (outlined in considerations below).
- If a broad asymptomatic surveillance program is instituted, there should be clear public health objectives defined prior to initiation and evaluation of the plan in place, including local and provincial public health partners.
- Consistency with respect to measures that trigger targeted surveillance campaigns is important to ensure equity across the system and transparency.
- Any surveillance program needs to include a clear communication strategy to all stakeholders that includes the purpose of the surveillance. Uptake of voluntary surveillance testing will be improved if families know they understand the rationale for the surveillance testing and are supported on how to manage a positive test result (i.e., no housing insecurity/job loss). Confidentiality needs to be assured and communication optimized to reduce stigma. Critical communication points include, but are not limited to the following:
    - Cases identified through school-based testing do not necessarily reflect transmission events having occurred at school, especially in areas with high community prevalence. However, identifying multiple cases should trigger enhanced support for the school and community and a review of the health and safety measures with adjustments as indicated.
    - Identification of cases though surveillance testing is expected and should not, by itself, be a reason to close schools.
- Laboratory-based molecular testing is recommended given the higher sensitivity and larger capacity for testing.
- The use of rapid tests is not routinely recommended in this context because of their lower sensitivity, volume limitations and logistical challenges (outlined in considerations below).

Testing for asymptomatic children as part of a routine screening program:

- Routine (e.g., twice-weekly) testing of asymptomatic students, prior to entering the school, is a screening strategy that could be considered during periods of moderate to high community transmission. However, it is not currently recommended or feasible with the available testing options. This recommendation should be re-evaluated as new tests become available taking into consideration test availability, properties and testing priorities.

Use of on-site mobile testing capacity for exposed cohorts and/or a targeted surveillance initiative:

- In order to optimize testing uptake, ensure equitable access to testing and a timely response to high-risk exposures, we recommend the use of mobile testing teams and partnerships with schools. Saliva or buccal-nares swab testing would be ideal for this purpose (if available) as it minimizes discomfort and allows for ease of testing within a school environment with less human resources need.
- Early partnership with schools and testing partners is recommended in order to minimize organization and logistical burden on schools to produce line lists and administrative set up in a short time frame that may be required for testing.

The following points were considered in developing this guidance:

- There is increasing evidence that upwards of 30%-50% of children with SARS-CoV-2 infection are asymptomatic.[129, 130] As a result, complete case identification in children and youth after an exposure requires testing to better understand transmission dynamics.
- The merits of school-based one-time surveillance testing requires further study, but it may have value as part of a comprehensive public health strategy given the ability to reach out to a large volume of students and families at once.
- Consideration for point prevalence surveillance initiatives:
  - Potential benefits:
    - Identification of asymptomatic cases may lead to more timely and effective contact tracing and improvements in the health and safety measures in schools as well as in households.
    - Epidemiological analysis (in setting of exposure cohorts) may be helpful to clarify transmission in schools.
  - Potential disadvantages:
    - May detect remote cases that are no longer infectious or less commonly false positive results, which could lead to unnecessary quarantine of the children who test positive as well as their families and their classmates.
    - With point prevalence screening, it can be difficult to identify the timing in the course of illness based on the lab test alone, which may lead to unnecessary class dismissal and school closures. Furthermore, the higher prevalence areas where testing is more likely to be positive are often areas where socioeconomic and educational disparities already exist. Thus, strong educational support for teachers, students and families in conjunction with robust trace-isolate-support measures need to be in place to manage these situations.
- Routine periodic testing of asymptomatic students, prior to entering the school, is a proposed screening strategy as 30-50% of children with SARS-CoV-2 infection are asymptomatic. However, this strategy is not currently feasible related to the following factors:
  - Multiple tests per week per student and school staff would be required.
  - It is difficult to perform large-scale rapid testing with the current generation of rapid assays. It would require a rapid and simple to use point-of-care assay that utilizes saliva as the specimen type (currently not available).
  - Testing would ideally occur in the home setting as coordination of testing in the school setting at this frequency and volume may prove unfeasible. Additional concerns for sample collection (i.e., obtaining sample and cleaning) and consent, depending on age are also present.
  - The lower sensitivity of the current generation of rapid tests (compared to PCR-based tests) may be overcome by frequent testing.[131] The performance of the tests is not necessarily changing rather capturing a viral load increasing over time. This requires more evaluation in the setting of asymptomatic children.
- Rapid testing:
  - Currently, two broad categories for rapid testing exist based on either **molecular detection** of viral nucleic acid or **antigen detection** of molecules on the virus surface.
  - The primary advantage of both forms of rapid testing is their ability to produce results in a **short period of time (under 30 minutes)** compared to laboratory-based (non-rapid) testing.
  - Rapid tests are often easier to use and deploy and do not require the same degree of expertise that is

required of traditional testing methods. However, the downside of this is that there can be **operator variability that can impact sensitivity**.

- While it has a rapid turnaround, the current **throughput is low** partly due to the need to train operators, limiting its use to small volume testing (can do about three to five tests an hour).
- Rapid tests currently require appropriate oversight and laboratory quality management structure to ensure accurate results. This may include the deployment of qualified personnel to oversee testing and ensure that all quality controls are met. Logistically, this may provide challenges with respect to scalability unless home-based point-of-care testing is developed.
- Based on current approvals, the rapid molecular test requires nasopharyngeal or nasal swab and rapid antigen tests require nasopharyngeal swabs. Alternative specimens (e.g., saliva) are not currently approved.
- Molecular-based rapid testing
  - Compared to non-rapid based testing, the sensitivity of a single ID Now test has been shown to be as low as 73.9%,[132] however, with moderate to high viral loads sensitivity increased to 100%.
  - Similar sensitivity rates of 71.7% and 76.8% were found in various systematic reviews.[133, 134]
  - Specificity is generally very good approaching 100%
- Antigen-based rapid testing
  - Compared to non-rapid laboratory molecular testing, the sensitivity of a single Panbio assay (rapid antigen) has been shown to be 72.6%, 79.6%, and 81% in symptomatic individuals, while sensitivity is less than 50% in asymptomatic individuals.[135, 136]
  - High viral load was associated with a positive test, while low viral loads were not detected.
- The use of rapid testing for SARS-CoV-2 remains a developing area in terms of availability of tests, implementation logistics, and performance characteristics in various populations based on age or presence/absence of symptoms and community prevalence of SARS-CoV-2. Recommendations may change as further evidence and experience is obtained.

3. Hand hygiene

SARS-CoV-2 and other respiratory viruses are primarily spread by respiratory droplet transmission and should be the focus of preventative measures. As a result, and because virus shedding may occur prior to symptom onset or in the absence of symptoms, routine, frequent and proper hand hygiene (soap and water or hand sanitizer) is important in limiting transmission.[137]

Consensus Guidance Statement(s):

- Children and youth should be taught how to clean their hands properly (with developmentally and age-appropriate material)[138] and taught to avoid touching their face, eyes, nose and mouth as much as possible. This should be done in a non-judgmental and positive manner and should be reinforced regularly.
- Respiratory etiquette; children and youth who have symptoms of a respiratory tract infection must stay home and should be reminded to sneeze or cough into a tissue followed by hand hygiene, or their elbow/sleeve if no tissue is available. In the event a mask is worn and becomes soiled, it should be changed.
- There should be age-appropriate signage placed throughout the school to remind children and youth to perform proper hand hygiene.
- Students and staff should perform hand hygiene upon entering and before exiting the building, after using the washroom, before and after eating, and before and after playtime with shared equipment/toys. In addition, a regular schedule for hand hygiene, above and beyond what is usually recommended, is advised. Possible options would be to have regularly scheduled hand hygiene breaks based on a pre-specified schedule. For practical reasons and to avoid excess traffic in the hallways, the preferred strategy for these extra hand hygiene breaks would be hand sanitizer unless sinks are readily available in the classroom.
- If masks are worn, students and staff should be instructed to perform hand hygiene before putting on and after touching or removing their mask.
- Access to hand hygiene facilities (hand sanitizer dispensers and sinks/soap) is critical with

consideration for ensuring accessibility for those with disabilities or other accommodation needs (See Section 9 for additional considerations). Hand sanitizer (60-90% USP grade alcohol, not technical grade alcohol) should be available in all classrooms. Safety precautions to avoid toxic exposure (e.g., ingestion) from hand sanitizers should be in place.
- Adequate resources and a replenishment process need to be in place to ensure supplies are available to perform hand hygiene frequently. Liquid soap and hand sanitizer will need to be replenished and paper towel available for drying. No-touch waste receptacles should be available for disposal of materials. Electric hand (air) dryers can be used.[139]

4. Physical distancing

The objective of physical distancing is to reduce the likelihood of contact that may lead to SARS-CoV-2 transmission and has been a widely used strategy during the pandemic.[140] In the school setting, several control measures can be put in place to encourage physical distancing, especially when prolonged exposure is expected (e.g., in the classroom). However, while physical distancing and its role in the prevention of infection transmission should be discussed with students of all ages, it is likely not justified or practical to enforce strict physical distancing in kindergarten and elementary school children, especially during periods of play. **Interaction, such as playing and socializing with other children, is central to child development and should not be discouraged in younger children. Cohorting (discussed in Section 6) and consideration of masking in moderate to high-incidence regions is a strategy that should be strongly considered in place of strict physical distancing in order to allow for close interactions, while minimizing the number of potential exposures.**

Current distancing recommendations in Canada and the U.S. are two metres and six feet, respectively. The WHO has recommended a distance of at least one metre.[141] A one metre separation does provide a degree of protection[140] which may approach that of two metres particularly in the school setting where children should be asymptomatic,[9] and especially for younger children as they are likely less efficient transmitters of SARS-CoV-2.[6, 19, 23, 26, 27, 85-88] However, risk reduction from physical distancing is likely on a continuum with larger distances (≥ two metres) potentially providing additional protection in high-occupancy indoor settings, such as classrooms. In middle and high school students, physical distancing is an important strategy, especially during periods of prolonged exposure indoors (e.g., the classroom), and they are more likely able to adhere to distancing recommendations. We emphasize that distancing is not an all-or-nothing proposition and optimizing distancing in as many indoor school settings as possible will likely diminish SARS-CoV-2 transmission.

Transmission of the virus will likely be attenuated in outdoor settings and outdoor play and learning opportunities have many benefits for children and youth. Therefore, school boards and educators should incorporate outdoor learning activities into the curriculum wherever possible.

There was not full agreement among contributors on the need for and role of physical distancing in children depending on age and specific circumstances. The guidance statements below were drafted based on the updated survey of the contributing paediatric care providers (n=32) completed in December 2020. Where there was less agreement the percentage of the more common positions are provided.

Consensus Guidance Statement(s):

Education:
- The role of physical distancing to prevent infection transmission should be discussed regularly with elementary, middle and high school students.
- Students should be informed about how physical distancing is being implemented in the school (e.g., desks separated, expected behaviours) and the expected practices in the school environment.
- Physical distancing will be difficult to strictly enforce in kindergarten and younger elementary school children, and is likely detrimental to their well-being. As such, a cohorting strategy and consideration of masking in high-incidence regions should be strongly considered in place of physical distancing within the

classroom. Developmentally and age-appropriate education can emphasize the importance of hand hygiene, avoiding body fluid exposure, avoiding putting their hands and toys in their mouth, good respiratory etiquette and avoiding close contact especially for long periods of time (e.g., touching, hugging, hand holding).

Classrooms

- Smaller class sizes should be a priority strategy as it will aid in physical distancing and reduce potential spread from any index case. Several jurisdictions reopened schools with maximum class sizes ranging from 10-15 students.[115] However, there is limited evidence on which to base a pre-specified class size. Decisions should take into account the available classroom space in addition to the number of exposures that would occur should a student or staff test positive (agree 81%, neutral 16%, disagree 3%). Smaller class sizes reduce the upper bound in terms of outbreak size and result in fewer students impacted by quarantine if an introduction occurs.
- The use of non-traditional spaces should be explored to accommodate smaller class sizes in order to allow daily school attendance. This may necessitate additional teacher/educational resources and needs to be given priority especially in school regions of higher community transmission and vulnerable populations.
- When students are in the classroom, efforts should be made to arrange the classroom furniture to leave as much space as possible between students.[142]
- Physical distancing recommendations should be age-specific:
  - For kindergarten students, strict enforcement of distancing is not recommended. Emphasis should be placed on separating cohorts, not students within cohorts (agree 69%, neutral 25%, disagree 6%).
  - For elementary school students, there was a lack of consensus on the need for and the degree of physical distancing. The majority favoured some degree of physical distancing (22% favoured two metre separation between students, 19% favoured one metre separation between desks if possible or students if not possible, 16% favoured one metre separation between students, 12% favoured two metre separation between desks and 6% favoured a minimum of one metre separation between desks). A significant minority (25%) felt that physical distancing should not be enforced.
  - For middle school students, physical distancing is recommended. There was a lack of consensus regarding the degree of physical distancing required; 38% recommended a separation of two metres between students, while 34% recommended a minimum of one metre separation between desks or if impractical a one metre separation between students.
  - For high school students, physical distancing is recommended. A separation of two metres between students is preferred given the transmission risk may be higher in this age group (53%). A significant minority (28%) recommended that there should be a minimum of one metre separation between desks in the classroom or if impractical a one metre separation between students.
- Classroom set-up:
  - Remove any non-essential furniture.
  - Utilize all available space (including desks against walls and at the back of the class).
  - If class sizes are not reduced, alternative classroom set-ups should be explored to promote physical distancing.
- Educators should be encouraged and supported by school administrator to explore outdoor learning opportunities as weather permits. This will likely require specific programming and resources to optimize learning activities.
  - Accommodations for outdoor learning should focus on making the outdoor learning environment as comfortable as possible to support the well-being and learning environment of students, teachers and staff.
  - Outdoor learning environment could consider using some of the current local recommendations for outdoor spaces.[143]

Large gatherings/assembly

- Large gatherings/assemblies should be cancelled for the immediate future. Any gathering size should be in accordance with local public health guidance.
- Choir practices/performances and band practices/

performances involving wind instruments pose a higher risk of transmission.[144, 145] As such, it is recommended that these be cancelled for the immediate future. When the situation allows, special consideration should be given to safely resuming such activities (depending on local epidemiology and performance venue).

- When and if band practices/performances involving wind instruments resume, ideally instruments should not be shared between students. If sharing is required due to limited supply of instruments, it is essential that the instruments be thoroughly cleaned and disinfected between use.

Lunch and recess breaks

- Stagger breaks and lunch times (or have lunch in classrooms) to reduce larger crowds in cafeteria settings and keep groups of students together (see cohorting below).
- Hand hygiene should be performed prior to eating and after lunch breaks, with easy access to hand sanitizer.
- If weather permits, lunch and nutrition breaks could be held outside.
- Shorter lunch breaks with more frequent nutrition breaks may help reduce the length of less supervised interactions.

Outdoor and other activities

- The affordances of outdoor play and learning opportunities is linked to a plethora of physical, mental, social, and developmental benefits for children and youth.[146]
  - Regularly embrace the outdoors for learning, socialization, and physical activity opportunities, in various weather conditions—including rain and snow. Outdoor active play is an important part of childhood and should not be eliminated from the school yard.
    - The Council of Chief Medical Officers of Health recommends access to active play in nature and outdoors – with its risks – is essential for healthy child development and recommends increasing children's opportunities for self-directed play outdoors in all settings, including at school.[147]
    - When children are outside they move more, sit less and play longer — all of which is associated with improved cholesterol levels, blood pressure, body composition, bone density, cardiorespiratory and musculoskeletal fitness and aspects of mental, social and environmental health.
    - Extreme weather limiting outdoor learning and play is infrequent in Ontario. Children and staff should have adequate clothing for the changes in temperature and parents/caregivers should be encouraged to send their child to school with a change of clothes and shoes/boots.
    - Outdoor play should be avoided if the temperature or the wind chill falls below -25°C (-13°F). At this temperature, exposed skin can freeze in a few minutes.[148, 149]
- During outdoor activities, such as recess, physical distancing should not be strictly enforced, especially in kindergarten and elementary school children. A cohorting strategy (see Section 6) is preferred.
- All students should perform hand hygiene before and after sports activities/outdoor play/playground use.
- Schools should endeavour to offer as many of their usual clubs and activities as possible during periods of low community transmission. Most clubs and activities, with the exception of choir/band, should involve less crowding than regular classes, and so should be feasible inside or outside. In the context of moderate to high community transmission, these activities should be suspended, in part due to mixing of cohorts.
- Sports and physical education classes should be encouraged and continue with risk mitigation strategies in place (including NMMs, as appropriate). Close contact sports (e.g., wrestling, rugby, football), as well as indoor team sports (e.g., basketball, volleyball), should be cancelled for the time being. When the situation allows, based on regional epidemiology, consideration should be given to their safe restart. We note that physical education classes will be much easier to have outside on a regular basis than other pedagogic activities.
  - Sports equipment (e.g., balls, hockey sticks etc.) should be cleaned at the conclusion of the activity.
  - Sharing of personal sports equipment should not occur.

5. Non-medical and medical face masks for children

The use of NMMs in the school setting is a complex and nuanced issue, especially in younger children. Given the current moderate to high community transmission, we recommend the use of masks for high school and middle school students at all times while indoors (provided there is no contra-indication for developmental, medical or mental health reasons). It is important to try to find periods in the day where NMMs can be safely removed. For elementary school students, there was a lack of consensus around a masking recommendation, but most agreed that in areas of moderate to high community transmission, NMMs should be recommended in this age group. There was agreement that masking should not be mandated in kindergarten.

The considerable disagreement between authors reflects differences in opinion on the evidence for NMM use and the potential downsides of mask use in children, particularly young children where the strict enforcement of both NMM use and physical distancing will preclude close interaction and play between children. It will be important to assess the use of masks on an ongoing basis throughout the school year and adjust accordingly based on new evidence and SARS-CoV-2 epidemiology. The following paragraphs highlight some of the important complexities of using masks in children, in particular as it relates to kindergarten and elementary school students.

The main benefit of NMMs and medical masks is that they can reduce transmission from individuals who are shedding the virus, as they help to prevent the respiratory droplets from the wearer from coming into contact with others, if worn correctly.[150] While NMM use has been recommended and/or mandated for use by public health authorities in Ontario in indoor spaces,[151] it is important to note that their use is recommended primarily for source control (i.e., preventing infectious particles from spreading from the wearer), not as PPE. In children and youth, there are limited data on the effectiveness of NMM use for source control, but there remains a theoretical benefit especially for older children and youth. However, in order to be effective, NMMs would need to be worn correctly, which for many otherwise healthy children and youth will be difficult to do for a full school day; even more significant barriers exist for children and youth with underlying medical, developmental and mental health conditions.

In some countries, particularly in Asia where masking culture is more ingrained and longstanding, children have worn NMMs upon return to school. However, during the first wave of the pandemic several European countries had children successfully return to school without NMMs (often with reduced class sizes).[6, 118] Evidence specific to children and youth on NMMs is extremely limited. There have been four cluster randomized trials that evaluated mask use for prevention of influenza virus transmission in the household setting that included children as the index case.[152-155] Two studies (with 33% and 96% children) found a possible benefit of hand hygiene and masking as a combined intervention, when implemented within 36 hours of symptom onset,[152, 153] while the other two studies (with ~50% children) demonstrated no protective effect.[154, 155] In all four studies, adherence to mask wearing was poor, and in three of four studies mask wearing was also promoted for the contacts and, as such, the beneficial effects may have been related to mask wearing by the contacts. In the one study that evaluated masking for source control, where 33% of index cases were children, no protective benefit was demonstrated.[154]

Decisions around NMM use in schools should take into consideration the benefit from source control (which may vary by age) balanced with the negative consequences/risks (e.g., impact on communication) of NMM use. As noted above, the practicality of wearing a NMM for prolonged periods of time is an important consideration. Other factors to consider include availability of other risk mitigation strategies, local epidemiology and community public health directives. Finally, the perspective of educators on the front lines has to be taken into account when deciding on policy and implementation considerations relating to masking. Preferences in this regard might well vary across jurisdictions in relation to local epidemiology and perceived risks.

Of note, the most recent Ministry of Education guidance updated on Jan. 15, 2021, indicates that NMMs must be worn by children in Grades 1-12 while indoors, on school transportation and outdoors during recess when physical distancing cannot be maintained, provided there are no contraindications.[123] For kindergarten students NMMs are encouraged, but not required.

There was not full agreement among contributors on the need and role of NMM use in children in different circumstances. The guidance statements below were drafted based on the updated survey of the contributing paediatric care providers (n=32) completed in December 2020. Where there was less agreement the percentage of the more common positions are provided.

Consensus Guidance Statement(s):

- The use of NMMs in the school setting should be driven by local epidemiology with age-specific considerations (agree 94%, neutral 3%, disagree 3%).
- Kindergarten students:
  - Regardless of community transmission, NMMs should not be required (agree 59%).
    - When community transmission is moderate to high, the majority indicated that NMMs should not be recommended or required (34%), or should be recommended, but not required (25%). Others recommended that NMMs be worn at all times while indoors and outdoors (16%), or at all times when indoors, but not outdoors (16%).
    - When community transmission is low, the majority indicated that NMMs should not be recommended or required (47%), or should be recommended, but not required (13%). Others recommended that NMMs be worn when physical distancing is not possible indoors, but not outdoors (16%), at all times while indoors, but not outdoors (13%), and at all times while indoors and outdoors (6%).
- Elementary school students:
  - When community transmission is moderate to high the majority favored NMM.
    - 31% indicated that NMMs should be mandatory when physical distancing cannot be maintained indoors, but not outdoors, 28% indicated they should be mandatory at all times indoors, but not outdoors and 25% indicated that NMMs should not be mandatory.
  - When community transmission is low, a higher proportion were against mandatory NMMs (41%)
    - Others recommended that NMMs should be worn when physical distancing is not possible indoors, but not outdoors (31%), and at all times when indoors, but not outdoors (19%)
- Middle school students:
  - When community transmission is moderate to high, the majority supported NMM use at all times when indoors, but not outdoors (53%). A minority recommended that NMMs be worn at all times indoors and outdoors (19%), when physical distancing is not possible indoors, but not outdoors (13%), and when physical distancing is not possible indoors and outdoors (9%).
  - When transmission in the community is low, the majority recommended that NMMs should be mandatory only when physical distancing is not possible indoors, but not outdoors (34%). Others recommended that NMMS be worn at all times indoors, but not outdoors (31%), when physical distancing is not possible indoors, but not outdoors (19%), and NMMs should be recommended, but not required (9%).
- High school students:
  - When community transmission is moderate to high, the majority supported NMM use, but there was a lack of consensus around timing. The majority recommended that NMMs be mandatory at all times when indoors, but not outdoors (56%). A minority recommended that NMMs be worn at all times while indoors and outdoors (22%), when physical distancing is not possible indoors and outdoors (9%) or only when physical distancing is not possible indoors, but not outdoors (9%).
  - When transmission in the community is low, the majority recommended that NMMs should be mandatory only when physical distancing is not possible indoors, but not outdoors (34%). Others recommended that NMMs be worn at all times indoors, but not outdoors (31%), when

physical distancing is not possible indoors, but not outdoors (19%), and NMMs should be recommended, but not required (13%).

- It is important to try to find periods in the day where NMMs can be safely removed.
- Any recommendation or requirement to wear NMMs needs to address issues around equitable access to masks.
- School-aged children and youth who are not able to remove their NMM without assistance should not wear a NMM due to safety concerns.[151] NMMs should also not be worn by children or youth who cannot tolerate a NMM due to cognitive, sensory or mental health issues.
- Rationale should be provided to children and youth to reconcile any differences in guidance between school and other indoor spaces (if public health mandates exist in their region). This could be accomplished by discussing the other safety measures in place (e.g., screening, hand hygiene, physical distancing, cohorting) that are being used to protect students and teacher/staff.
- In the winter months, students and staff should be recommended to bring several masks, as they may need to be changed more frequently if worn outside.[156]
- Face shields as a mitigation strategy are not routinely recommended for students of any age group.

The following points were considered in developing this guidance:

- Public NMM wearing is likely beneficial as source control when worn by persons shedding infectious SARS-CoV-2 virus when physical distancing is not possible in public spaces (e.g., public transit, grocery store).[150]
- There is a lack of evidence that wearing a NMM prevents SARS-CoV-2 transmission in children and youth, though it is likely for older children and youth. The benefit for younger children is uncertain, both because they are probably less likely to transmit the virus and because of their higher likelihood of improper NMM use. This may evolve as more information is obtained on transmissibility of the new SARS-CoV-2 variants in children.
- Children's and youth's social development hinges upon their interactions, facial expressions and body language. Though important for all age groups, this is particularly so for younger children.
- Several school boards have mandated masks in kindergarten to Grade 3 and anecdotally children appear to have adapted well. However, it is impractical to expect all children and youth to wear a NMM properly for the duration of the school day and this should not be relied on as the only measure to prevent transmission.
- The NMM may not be tolerated by certain populations with underlying conditions (e.g., neurodevelopmental disorders, mental health problems) and especially during warm/humid weather conditions.
- The addition of NMMs may increase anxiety, interfere with the therapeutic learning environment, and increase inattention or distraction in children and youth, particularly for those who may already struggle with attention, such as those with attention deficit hyperactivity disorder (ADHD) or other developmental disorders.
- Children and youth with expressive communication difficulties (including those with articulation problems, neurologic issues), those who are learning the primary Canadian language of instruction (English or French) as a second language, and many others may be disproportionately adversely affected by having to wear a NMM at school.
- The school setting is different from most settings where indoor masking is mandated where large numbers of strangers interact (e.g., shopping malls), physical distancing is difficult and contact tracing is not possible.
- Masks should be made of three layers and be large enough to cover the nose, mouth and chin without gaping.[151]
- Face shields have been suggested by some as an alternative to face masks as they may block expelled droplets. However, there is currently no evidence that face shields alone are effective as source control.[157]

6. Cohorting

The purpose of cohorting is to limit the mixing of students and staff so that if a child/youth or employee

develops infection, the number of exposures would be reduced. It also allows for more timely case and contact follow-up. For example, a single class in Grade 1 could represent a cohort and they should avoid close mixing with individuals from other classes/grades in confined indoor spaces. Cohorting is likely most beneficial in kindergarten and elementary school children where physical distancing is less practical. For high school students, the need to take different classes may make strict cohorting difficult and, as a result, physical distancing should be emphasized. We recognize that this poses a significant infrastructure challenge for many schools. The benefits of cohorting will be attenuated in many, such as those who require bus transport to school and those who require after-school care; such children could potentially be present in several cohorts (e.g., class cohort, bus cohort, after-school cohort).

Consensus Guidance Statement(s):

- Cohorting classes should be considered a priority strategy for the younger age groups and for children and youth with medical and/or behaviour complexities (see Section 10), so that students stay mostly with the same class group and there is less mixing between classes and years. This applies to both indoor as well as selected, prolonged outdoor activities with close physical interactions.
- Cohort size should take into consideration local epidemiology, prioritizing resources required for smaller cohorts to regions with higher community transmission.
- Student well-being and mental health should be prioritized, however, such that class or program switching should not be denied on the basis of cohorting.
- Cohorting and mixing should take into consideration the number of children/youth that would be exposed should a student or staff test positive for SARS-CoV-2 with the goal of minimizing the number of contacts.
- Especially at times of high community transmission, the need for rotating staff teaching multiple cohorts should be reconsidered so that the number of students a teacher is exposed to is minimized and a single staff case would not lead to the dismissal of multiple student cohorts.

7. Environmental cleaning

SARS-CoV-2 has been detected on a variety or surfaces[158] and survival depends on the type of surface. It is possible that infection can be transmitted via fomites by touching contaminated surfaces and then touching mucous membranes (i.e., mouth, nose, eyes).[159] While fomite transmission is not the predominant mode of transmission,[160] it likely contributes to transmission given evidence demonstrating presence of SARS-CoV-2 in the vicinity of infected individuals and the fact that fomite transmission does occur with other respiratory viruses, including human coronaviruses.[161] Therefore, environmental cleaning and disinfection should be implemented to reduce the risk of transmission of SARS-CoV-2 and other infections in schools, but should not be the main focus for reducing SARS-CoV-2 transmission.

Consensus Guidance Statement(s):

- A regular cleaning schedule, using Health Canada-approved disinfectants,[162] should be used with emphasis on high-touch surfaces and washrooms at least twice daily.
- Efforts should be made to reduce the need to touch objects/doors (no-touch waste containers, prop doors open where possible).
- Policies to ensure there is “no sharing” of food, water bottles or cutlery should be enforced as a priority.
- The importance of hand hygiene to children after contact with any high-touch surface (such as door handles) should be reinforced.
- When possible, only toys and class equipment that can be cleaned and disinfected by staff and/or students (as appropriate) should be used.
- School closures during school hours for the purpose of more intensive cleaning may carry more harm (in the form of missed instruction time) than benefit.

8. Ventilation

While SARS-CoV-2 is primarily transmitted via respiratory droplets during close unprotected contact, it is now recognized that aerosols play a role in transmission of SARS-CoV-2, especially in indoor and in poorly ventilated areas.[163-165] Several outbreaks and clusters have been reported in indoor spaces, including

an often cited article by Lu et al, which documented transmission of SARS-CoV-2 between families at three tables in a restaurant.[166] Transmission was likely facilitated by a wall air conditioning unit that did not have fresh air intake and may have dispersed infectious particles.[167] Irrespective of the contributions of larger droplets versus smaller aerosols in transmission, it is expected that environmental conditions, exposure time and airflow influence the transmissibility of SARS-CoV-2.[168, 169] As such, adequately ventilated classroom environments (e.g., open windows with air flow even during the winter, improved airflow through ventilation systems and reduction in recirculated air) are important measures to reduce the likelihood of transmission compared with poorly ventilated settings, and fewer infection clusters have been noted in outdoor settings.[163, 170]

Consensus Guidance Statement(s):

- Keeping classroom windows open at all times or periodically as appropriate, if safe, and according to weather conditions. Opening windows for short times at intermittent intervals can be of benefit.
- The use of outdoor learning environments when feasible according to weather conditions is encouraged.
- Attention should be paid to improving classroom ventilation (e.g., optimizing ventilation system maintenance and increasing the proportion of outside air brought in through these systems) in consultation with experts in physical plant design and modification.
    - Heating, ventilation and air conditioning (HVAC) system function should be optimized (e.g., ensuring filters sealed without bypass, filters cleaned and replaced as appropriate, use of filters with higher MERV ratings).[170, 171]
    - If fans or portable air conditioners are used, there should be procedures in place for routine cleaning and preventative maintenance. In addition, the equipment needs to be carefully placed so that air is not blowing person to person.
    - At this time, there is insufficient evidence to routinely recommend portable air cleaners with high efficiency particulate air (HEPA) filter units in all classrooms. However, they may be considered in spaces/classrooms with limited ability to improve ventilation (i.e., unable to open windows, no HVAC ventilation), taking into consideration the transmission risk (e.g., age, need for aerosol-generating medical procedures).[172, 173] If used, there should be consultation with the manufacturer's directions and service professionals to optimize placement. Generally, the placement should take into consideration the likelihood that aerosols/droplets are being captured by the intake and that the exhaust does not blow from person to person. Manufacturer's instructions on maintenance should be followed.[171]

9. Mitigation of risk for students at higher risk for severe disease

Some children may be at higher risk of adverse outcome from COVID-19 due to underlying medical conditions, such as immunocompromised states or chronic medical conditions, including cardiac and lung disorders and neuromuscular disorders.[39, 174, 175] Children and youth who have medically complex conditions, particularly those with medical technological supports associated with developmental disabilities and/or genetic disorders, are also at higher risk.[39] At the present time, there is no convincing evidence to suggest the level of medical risk to these children and youth from SARS-CoV-2 is different from other respiratory viruses. Reassuring, though limited, data are emerging which indicate that clinical manifestations and disease severity in immune compromised children are similar to those in otherwise healthy children.[176-180] As a result, given the unintended consequences associated with not attending school, attending school is recommended for the majority of these children and youth (see Section 10 for more details pertaining specifically to medically and behaviourally complex children and youth). Nevertheless, we recognize that the data pertaining to this group of children and youth is limited as they have likely been following isolation rules even more stringently than healthy children and, therefore, it is essential that ongoing monitoring takes place so that adjustment of the school model and preventive interventions can be made according to emerging evidence. Additional details specific for children with cancer are provided

by the Pediatric Oncology Group of Ontario (POGO) (https://www.pogo.ca/healthcare/covid-19-updates/ontario-pediatric-oncology-consensus-expert-opinion-statements/).

Consensus Guidance Statement(s):

- The majority of children and youth with underlying medical conditions should be able to safely attend school provided that the appropriate enhanced safety measures are in place. However, it is recommended that parents/caregivers discuss this with the child's health-care providers so that they can make an informed decision based on individual circumstances. This is particularly relevant for children with newly diagnosed illnesses requiring the first-time use of new or augmented immunosuppression.
- In the event that such children/youth have a documented exposure to SARS-CoV-2, in addition to involvement of the local public health unit, it is recommended that the child's/youth's parent/caregiver(s) contact the child's/youth's health-care provider for further management if they have concerns.

10. Special considerations for children and youth with medical, physical, developmental and/or behavioural complexities

In-person school attendance presents unique challenges to children and youth with medical, developmental and/or behavioural complexities and their families. This includes children requiring intensive supports for activities of daily living and/or medical conditions, such as feeding, positioning, toileting or breathing supports. Many of these families have had a prolonged period of time in home isolation compounded by a lack of respite and/or homecare supports. In particular, the challenges for families and children/youth with neurodevelopmental disorders, such as autism spectrum disorder, caused by cessation of school during the pandemic have been identified.[181] Transitioning medically and behaviourally complex children and youth back to school requires specific focus and should be prioritized as many of these children/youth and families have been disproportionately impacted by the pandemic response and are already in crisis mode.[182] For those who have returned to school, continued attendance during periods of increased SARS-CoV-2 prevalence may also be a significant concern to families. Consultation with their parents and families to better understand their individual circumstances and needs is recommended.

Children and youth with medical, physical, developmental and/or behavioural complexities often have educational assistants (EAs) and nursing support in the school environment who may assist children/youth with toileting, suctioning, respiratory support and enteral feeding. These individuals require additional consideration with regards to measures to help mitigate their personal infection risk and infection transmission to others.

Consensus Guidance Statement(s):

- For children and families considering return to in-person school:
  - Parents/caregivers may consider scheduling appointment(s) with their health-care provider(s) for a return to school consultation(s) if they think their child's/youth's complexities and medical status warrant as such.
  - Parents/caregivers and school staff should liaise to accommodate a more individualized return to school to ensure smoother transitions. Equitable access to school is essential.
  - Children and youth with neurodevelopmental disorders/behavioural challenges should be allowed modified transition back to school. Optimally, this would involve the option to visit the school prior to general school opening. Difficulties with transitioning back to school should not be used to exclude children and youth from school and any delayed transition plans need weekly reassessment.
  - Behaviour/ASD school board teams need to be involved in transition planning prior to school re-entry for children and youth who are likely to have significant challenges. More resources may need to be devoted to these teams due to increased demand.
  - In cases where therapists (both internal and external to the school board) are supporting a child/family, active communication between the

school, parents and therapist are encouraged to develop transition plans.

- Ensure that those families who choose not to send their child/youth to school receive remote learning opportunities and do not lose access to in-home supports, including home care and respite supports.
- Ensure that children and youth with medical, physical, developmental and/or behavioural complexities can readily transition between in-person and remote learning models.
- Ensure that students continue to receive access to therapy and nursing services while in the school. Maximize continuity among those providing services and/or use virtual care for service provision, to decrease exposures. If in-school rehabilitation supports are delayed, accommodations should be made to ensure that their rehabilitation needs are being met either at home or in person at their local children's treatment centre.
- Provide environmental (e.g., smaller class size) and classroom supports (e.g., teacher aides) for those children and youth who may need assistance with hygiene measures.
- Guidelines for children and youth with complex respiratory needs, including ventilation/tracheostomy, have been developed by teams at SickKids, Holland Bloorview Kids Rehabilitation Hospital and CHEO.
  - https://www.sickkids.ca/siteassets/news/news-archive/2020/covid19-school-guidelines-medical-complexity.pdf
  - https://hollandbloorview.ca/sites/default/files/2020-07/HB-BackToSchool-Recommendations.pdf
  - https://www.cheo.on.ca/en/about-us/resources/OHT/Return-to-school-of-students-with-specialized-care-needs_English.pdf
- Policies and procedures should be in place for the cleaning of specialized equipment.
- EAs and nursing staff who support activities of daily living and cannot physically distance require appropriate PPE. Ideally, EAs should be assigned to a single classroom (if appropriate) and every effort should be made to minimize sharing of EAs between classrooms.
- The additional resource requirements to facilitate safe return to school should not be a barrier to return to in-person education for children and youth with medical, developmental and/or behavioural complexities.

11. Mental health awareness and support for all children

A proactive approach to the potential adverse mental health impacts of the COVID-19 pandemic on children/youth is important.[52, 183, 184] Wherever foreseeable, schools and school boards should make every effort to address known sources of distress and extend flexibility within existing administrative processes.

For example, children and youth with pre-existing or newly identified learning needs may experience greater challenges focusing and learning in either the virtual or in-person classroom setting. Ensuring that established individual education plans (IEPs) are implemented, and/or new IEPs continue to be developed for the provision of necessary academic support is critical. These are needed to ensure that children and youth neither become overwhelmed nor bored in the school setting, as these are frequent antecedents to school refusal and mental health problems.

Increasingly, evidence suggests that children and adolescents have experienced increased mental health symptoms over the course of the COVID-19 pandemic worldwide.[61, 65-68] In Ontario, approximately 70% of children and adolescents report a worsening of their mental health since the start of the COVID-19 pandemic.[185] In this study of 1,013 parents and youth, more than 50% of children with pre-COVID-19 mental health problems reported worsening across domains of depression, irritability and inattention. Previously healthy children have also experienced high rates of depression (38%), anxiety (39%), irritability (40%) and inattention (41%).[185] The most significant predictor of worsening mental health symptoms across domains was the degree of social isolation experienced, underscoring the importance of social interactions for children's mental health.

Given the high rates of mental health symptoms in children and youth, it is important that educators have adequate guidance and information about possible signs of mental health struggles. Parents and educators

should be encouraged to engage with their associated school-based health centre where available or encourage families to seek support from the child's/youth's physician.

Consensus Guidance statement(s):

- Increased and timely in-school educational support should be provided to students and classroom teachers to enable early identification and remediation of learning gaps that some students will have incurred during the school closures. Students who were supported with accommodations and modifications that were documented in an IEP during the 2019/2020 school year should be given diagnostic assessments to determine any potential decreases in achievement. Students' progress should be closely monitored and tracked throughout the 2020/2021 school year with ongoing formative assessments.
- Children and youth with and without pre-COVID-19 mental health concerns may be experiencing increased mental health symptoms during the current school year. Accessible mental health support services should be provided, ideally in collaboration with educators, mental health professionals and paediatricians.
- Social interactions should be encouraged wherever possible to mitigate the mental health effects of social isolation on children's mental health. Extracurricular activities should also be offered when possible based on community epidemiology. Any transitions from virtual learning to in-person learning should include active communication between the school, parent and youth. For children with mental health concerns, communication may also require involvement of the child's therapist, and undertaken on a regular basis, to ensure continued progress toward full-time return to in-person school.
- Specific attention should be paid to ensuring that home-school communication occurs on a regular basis, to enable parents and educators to work together to support children's in-classroom learning and mental health.
- Flexibility in program and/or school enrolment should be provided for children and youth who will be transitioning to a new program or school for the 2021/2022 school year. In the event that children and parents are required to make decisions regarding special education programs, school registration, or other specific educational programming in the absence of usual sources of information, including school visits or meetings, every effort should be made to allow program flexibility in the event that children/youth and parents realize they have made an incorrect program or school choice at a later date. It can be anticipated that rigidity in this regard is likely to lead to increased stress, anxiety, depression in the current school year and potentially school refusal in the 2021/2022 school year that could be otherwise avoided.

12. Protection of teachers and school staff

Although this document is focused on school-aged children and youth, we believe the safety of school staff is paramount, with the goal of having teachers and school staff, at a minimum, as safe in the classroom as they would be in other community or other work environments. We recognize the tremendous challenge that teachers and other front-line school staff face from a personal health perspective, as well as from an operational lens. Risk mitigation for teachers and other school staff should take into account situations where close contact and possible body fluid exposure (i.e., saliva, respiratory secretions) may occur.

Emerging data suggest that return to school has not led to high infection rates among school staff. Evidence collated during the first wave of the pandemic in Sweden showed that the relative risk among teachers was close to one, suggesting no increased risk compared to other professions overall.[7, 186, 187] More recent evidence from Germany also show that staff employed in childcare/school/camp settings had a lower infection prevalence than those working in other settings, including hospitals, congregate living and the food sector.[188] Data from the Netherlands show that, since school reopening, few school employees have become infected with SARS-CoV-2 (0.7%) and no reports of employees being infected by children have been noted.[6] Data from the U.S. found that among childcare providers, those who continued to provide direct in-person child care were not at increased risk of SARS-CoV-2 infection compared to those who did

not.[189] In all settings, a variety of health and safety recommendations were in place to protect school staff. We have provided several considerations, but detailed recommendations are beyond the scope of this document.

Consensus Guidance Statement(s):

- Physical distancing of school staff from children/youth and other staff should be emphasized. Teachers should maintain a distance of two metres from students and other staff as much as possible, recognizing that distancing will not be feasible in classrooms with the youngest children.
- Staff lounges and common areas should be restructured (as needed) to ensure physical distancing, and staff should be reminded of the importance of distancing from other staff. Whenever physical distancing cannot be maintained, whether in the classroom or other parts of the school building, we recommend the wearing a NMM or medical mask.
- Facial expression is a critical part of communication, particularly for younger children, children for whom English/French is a second language, and children with certain underlying conditions such as hearing impairment or speech delay. Facial expression is also important for teacher-student connection, which impacts teacher effectiveness. This should be taken into consideration when developing and implementing NMM and PPE strategies for teachers.
- Depending on community infection rates, if close prolonged contact with others cannot be avoided, the use of PPE is recommended with input from experts in occupational health and safety and the Ministry of Labour. However, if used in the classroom, the teacher should explain the rationale to the children/youth in a developmentally appropriate manner.
- Staff may need to use enhanced PPE, including medical masks, face shields, gowns and gloves, in specific situations (e.g., the child who becomes ill at school and needs close physical attention). Such PPE should be readily available together with the training and policies/procedures to deal with this situation. Having designated staff trained in PPE use may facilitate preparedness and comfort among staff. This training should be done at frequent intervals.
- Policies and procedures need to be developed and updated in consultation with individuals with occupational health and safety expertise for all staff, in particular staff workers that have increased risk of severe outcomes/complications from COVID-19 (e.g., high-risk immunocompromised persons, such as those post-organ transplant, advanced age).
- To the extent possible, consideration should be given to assigning supply teachers to one school for as long a period of time as possible in order to minimize exposures both for their own safety and for the safety of other teachers and students. A minimum two-week interval between assignments would help reduce the risk of infection transmission from one school to another if there is a need for supply teachers to change schools.
- When community SARS-CoV-2 vaccination rollout commences, prioritizing vaccination of school staff should be considered in the ethical framework of vaccine rollout. Optimizing the potential vaccine coverage of the highest risk within the ”school ecology” is essential to keeping schools open and safe.

13. Protection of at-risk persons or families

With regards to children’s and youth’s home environment, it would be appropriate to consider the risk posed by potentially infected children/youth and school staff to household members (e.g., children, siblings, parents, grandparents, roommates). The risk posed by SARS-CoV-2 likely varies in relation to socioeconomic status, household overcrowding, and the presence of other children/youth and adults at increased risk of severe COVID-19 at home.

Consensus Guidance Statement(s):

- A separate document is being prepared by SickKids in collaboration with others to provide guidance to families on how to mitigate risks in the home environment, especially where there is a sibling, parent or older adult with underlying conditions that put them at increased risk for more severe disease reside in the same home.

14. Management of suspected and confirmed SARS-CoV-2/COVID-19 cases and their contacts

It is anticipated that we will continue to detect cases of symptomatic and asymptomatic SARS-CoV-2 infection in schools and it is important that public health authorities and schools be prepared to respond to cases involving both students and staff. This includes the need for readily available testing and contact tracing, which is critical for the timely detection and avoidance of outbreaks.[104] **Parents and caregivers need to be empowered by their employers to be able to take paid sick days and/or work remotely if their children/youth are not able to attend school.** We recognize that neither laypeople nor health-care providers will be able to reliably distinguish between COVID-19 and other respiratory viral illnesses on a clinical basis (i.e., without a diagnostic test). For specific recommendations related to SARS-CoV-2 testing for schools see Section 2.

Consensus Guidance Statement(s):

- Staff, families and children/youth should be aware of the symptoms and signs associated with COVID-19. Individuals with symptoms or signs consistent with COVID-19 must stay home.[126] Staff and students who develop symptoms or signs consistent with COVID-19 while at school must be sent home with exposures to others minimized during this process.
- Special awareness is required for those with medical conditions, such as asthma, allergic rhinitis and conjunctivitis, as the symptoms associated with flares may overlap with SARS-CoV-2 infectious symptoms. Every effort should be made by parents/caregivers in conjunction with the health-care team to maximize the control of these underlying conditions. In the event of an acute flare, depending on extent, children/youth may need to have nasopharyngeal testing for SARS-CoV-2.
- A process should be in place for the management of symptomatic staff and students who are at school. This should include:
  - separation from other students and staff
  - masking of the affected person if tolerated
  - use of PPE for other school staff if close interaction with the affected individual is required
  - cleaning surfaces the individual has been in contact with
  - in the case of symptomatic students, contacting caregivers for pick-up as soon as possible.
- **There should be clear protocols for management of staff and students who are exposed to a confirmed case of symptomatic or asymptomatic SARS-CoV-2 infection.**
- All staff and students who develop signs or symptoms consistent with COVID-19 should undergo testing for SARS-CoV-2 in accordance with public health recommendations. There should be clear testing recommendations by local public health units with information about where testing can be completed.
- Schools should carefully document attendance of students, staff and visitors and ensure up-to-date contact information to facilitate public health management should a case be identified in the school. Schools should have a rapid method to contact students/families with information.
- Rapid involvement of public health for any confirmed symptomatic or asymptomatic SARS-CoV-2 infection cases in the school setting is essential in order to perform timely contact tracing and follow-up. There should be clear testing recommendations for contacts with information about where testing can be completed.
- There needs to be clear guidance from public health for return to school for those who test negative, test positive, and for those who do not get tested.
- Educational materials targeted to school staff, children/youth and parents should be developed for those who are exposed, which are culturally sensitive and clearly delineate subsequent management.
- Consideration must be given as to how to maintain confidentiality of confirmed symptomatic or asymptomatic SARS-CoV-2 infection cases within the school. Strategies should be put in place to manage potential issues when students return (e.g., stigma, bullying).

15. Communicating about COVID-19 to children, youth and parents/caregivers

It is acknowledged that clear, age and developmental stage-appropriate communication about COVID-19 is important. Regular updates should be provided to

children and their parents/caregivers throughout the school year.

Consensus Guidance Statement(s):

- Parents/caregivers, children/youth and the community at large should be educated that SARS-CoV-2 is likely to persist and circulate like other respiratory viruses in the future. It is unlikely that herd immunity will be achieved in Ontario (by vaccination or natural infection) in the near term, and so the operationalization of school in the context of the COVID-19 pandemic will likely be an issue for a prolonged period.
- Parents/caregivers should be made aware that SARS-CoV-2 causes mild disease in the majority of children, youth and young adults.
- Parents/caregivers and children/youth and the community at large should be provided with up-to-date information on local SARS-CoV-2 epidemiology and other emerging evidence pertaining to SARS-CoV-2, such as vaccination. It is felt that provision of such information will aid in reducing anxiety in parents/caregivers and children/youth.
- Ensuring up-to-date childhood immunizations, as well as annual influenza vaccination, should be promoted as a strategy to reduce the circulation of a common infectious agent circulating in fall/winter and thus limit, where possible, other preventable infections.
- The enhanced infection prevention and control measures being used at school should be reviewed with students and parents and the wellness room normalized. School staff should incorporate the wellness room into the dialogue by explaining what happens when someone has symptoms at school.
- Ensure that messaging to school staff and students uses non-judgmental, normalizing strategies taking into account the stigma that students may feel (however unintended) when placed in the wellness room or when they return to school after being away because of illness or quarantine.
- School Mental Health Ontario has created an information sheet regarding social stigma as it relates to COVID-19 and mental health that schools can also access on this topic.

16. Opportunities to improve evidence-based decision making

The continued operation of schools in the safest way possible for students, families, teachers and other school staff is of the utmost importance. In order to optimize success on an ongoing basis it is essential that research take place to assess SARS-CoV-2 transmission dynamics in schools and to determine effectiveness of the various mitigation strategies.

Priority areas of research include but are not limited to the following:

- Understanding optimal surveillance strategies for schools in areas of low and higher community transmission. Considerations include evaluating the use of non-testing-based data (e.g., absenteeism, screening) and testing-based strategies for students and teachers (including serology and PCR testing) for surveillance.
- Utility of innovative technologies for screening and contact tracing in the school setting (e.g., cellphone technologies).
- Assessing the effectiveness and consequences of risk mitigation strategies, such as masking, face shields, physical distancing (one metre versus two metre distance) and cohorting, on learning, health and mental health outcomes for children of different ages in schools within the context of existing school infrastructures.
- Investigation of school outbreaks to determine their causes and, specifically, to investigate the role of children and youth compared to staff/adults in order to better understand SARS-CoV-2 spread dynamics in general and to be able to improve mitigation strategies in the school setting.

In order to facilitate the development of testing-based surveillance and monitoring strategies for SARS-CoV-2, there are various areas of research that require attention:

- The evaluation of point-of-care testing strategies, and contact tracing strategies for surveillance, routine screening and management of potential outbreaks in schools.
- Development of new testing methodologies that are more comfortable, feasible, with rapid return

compared to nasopharyngeal swabs. Experience from our academic hospitals has shown that children who require frequent nasal swabbing develop anxiety for the testing, which in many cases has led to test refusal. Examples for alternative sampling could include anterior nares (front of the nose) testing, buccal swab testing, saliva sampling, as well as swabs of the throat/oral cavity. Additionally, testing is being evaluated by some groups in an attempt to detect the urinary excretion of SARS-CoV-2.

17. Additional considerations

It is recognized that there are other school support staff, in addition to teachers, who may have significant exposure to students and other staff. Guidance for their safety while at work should be developed and updated in collaboration with occupational health and safety and public health groups. In particular, bus drivers and transportation to school is an important consideration that requires detailed recommendations, including bus scheduling options, addressing bus capacity and other safe operational considerations.

Guidance for parents/caregivers and children/youth on alternative travel options should continue to be provided. One potential concern is that more parents/caregivers will drive their children/youth to school, either because of reduced school bus capacity (related to public health measures for buses) or because they feel it is safer, which could increase traffic congestion and risk of pedestrian injury. Strategies to accommodate such a scenario could include enhanced safety supervision and education and expanding drop-off and pick-up locations near the school. For children and youth who do not live far from school, walking or cycling/scootering should be encouraged, weather permitting. Expanded facilities for storage of bicycles and scooters may be needed.

Summary

This document is intended to provide guidance on the continued safe operation of schools in Ontario during the COVID-19 pandemic. A key driver of these recommendations is the need to balance the risks of severe illness from SARS-CoV-2 infection in children, which are relatively small, with the harms of school closure and the public health risks of disease transmission. Current evidence suggests that young children are less likely than teenagers or adults to transmit SARS-CoV-2 and, with few exceptions, school reopening with various mitigation strategies in place has been successful and not usually associated with outbreaks. It is therefore our preferred recommendation that children and youth attend in-person school and that school closure only be considered when significant in-school outbreaks occur. The rationale for the recommendations outlined in this document should be clearly articulated in order to help reduce the fear and anxiety in parents and children/youth. It will also be critical to ensure that safety and wellness of teachers and school staff are prioritized.

In our view, a daily in-person school model is best as it allows for consistency, stability and equity regardless of the region in which children live. An important factor to consider in this respect is emerging evidence indicating inequalities in the social and economic burden of COVID-19, which may further disadvantage children/youth living in areas with higher infection burden where educational inequality and barriers to online learning may be more pronounced. The public school system is uniquely positioned to address some of the inequities that disproportionately impact Black, Indigenous, People of Colour (BIPOC) and other disadvantaged groups in Ontario. In addition, we appreciate that the living conditions for children/youth vary across socioeconomic groups and, therefore, recommend that further work be done to develop targeted guidance and identify supports needed for situations where children/youth reside within the same home as individuals with underlying conditions that put them at increased risk of more severe disease. Finally, it is important to note that these recommendations reflect the evidence available at the present time and are likely to evolve as new evidence emerges and as information is gathered from other jurisdictions that have reopened schools already.

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