

FOCUS ON

(ARCHIVED) COVID-19 Prevention Measures in K-12 Schools: Optimizing Screening and Masking

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Introduction

Following school closures in wave one of the COVID-19 pandemic, elementary and secondary (K-12) schools in Ontario reopened for in-person attendance in late August to September 2020.¹ In addition to health and safety measures outlined in the Ministry of Education (MEDU) school reopening plan, there are multiple sources of provincial public health guidance on COVID-19 infection prevention and control (IPAC) and management in schools,²⁻⁴ as well as guidance from local boards of education.¹

This Focus On reviews different approaches to COVID-19 prevention in schools in selected public health units (PHUs) in Ontario (as of December 17, 2020) and selected jurisdictions outside of Ontario (as of November 30, 2020), with a focus on symptom and exposure screening and masking requirements. It also outlines enhanced screening and masking measures for consideration in Ontario K-12 schools. Child care settings are outside the scope of this document.

Background

COVID-19 Guidance for Schools

An updated COVID-19 provincial response framework was released on November 20, 2020, prioritizing keeping schools open and sustaining a safe environment for classroom learning, including those PHU jurisdictions in lockdown.⁵ This framework also recognizes the need for additional supports as part of equitable responses for groups disproportionately affected by the pandemic. Existing provincial guidance and resources for schools have not been adjusted to provide differential recommendations for jurisdictions by framework level (i.e., they still apply uniformly across PHUs).¹⁻⁴ However, PHUs and

school boards may choose to adopt more stringent measures, and the provincial screening tool for children attending school or child care includes a provision to prioritize local PHU advice, if it differs from provincial advice.⁶

COVID-19 Guidance in School-aged Children

COVID-19 infection is more likely to be asymptomatic in children than in adults.⁷ Symptoms of COVID-19 infection in children tend to be mild, non-specific, and difficult to differentiate from symptoms of other common childhood infections.^{8,9}

The potential for school-aged children and youth to transmit COVID-19 is recognized,¹⁰ including from those who are infectious and asymptomatic or pre-symptomatic.¹¹ However, to date, syntheses of published and grey literature have found limited observed transmission of COVID-19 in elementary and secondary school settings with multiple IPAC measures.^{9,11} Of note, this literature has limitations (e.g., potential for under-detection of school-associated cases), and given varied and layered approaches to IPAC measures in schools, assessing the relative impact of any individual measure remains a gap.^{10,12}

According to an enhanced epidemiologic summary recently published by Public Health Ontario,¹³ school outbreak-associated cases linked to outbreaks reported from August 30 to November 7 accounted for 9.2% (395/4,271) of all cases in school-aged children reported within this period. Weekly epidemiological reports since November has shown an increase in the volume of school outbreaks and numbers of cases associated with school outbreaks in Ontario, along with overall increasing community transmission.^{14,15} Evidence on the relationship between school and community transmission is still emerging, and assessing whether a student or staff member acquired COVID-19 at or outside of school can be challenging, particularly in the context of increasing proportions of COVID-19 cases with no known epidemiological link.^{14,15} However, the context of increased community COVID-19 activity underscores the importance of optimizing prevention and control measures in school settings.

Harms of School Exclusion

The harms associated with school closures for children, families, and communities and their related equity implications are well described and detailed in other reports.¹⁶⁻¹⁹ An equity-related consideration is that differences exist in enrollment in in-person versus virtual learning by socioeconomic and ethno-racial background.²⁰ Real or perceived increased COVID-19 risk in schools could amplify these differences.

These harms, and equity-focused actions for mitigating harms, are relevant to consider in relation to broadening school screening guidance that would result in more students needing to self-isolate and therefore be excluded from in-person school instruction;²⁰ but also have the potential to reduce actual and perceived risk of COVID-19 transmission in schools serving equity-seeking groups.

Methods

Two rapid environmental scans were performed to review school measures in Ontario PHUs and international jurisdictions. The environmental scan of Ontario PHUs looked at recommendations for symptom and exposure screening and masking requirements in school-aged children, with a focus on PHUs in the highest two restriction levels and those known to have more stringent guidance than the general Ontario guidance for schools. (Information and PHU framework level current as of December 17, 2020)

A second environmental scan was performed, involving convenience searching of government websites and online media reports, for school measures in jurisdictions with schools open for in-person attendance in the highest restriction levels. This scan focussed on identifying mask use requirements and additional measures in schools that are beyond the restrictions in place in Ontario. (Information current as of December 17, 2020)

Ontario PHU School Screening and Masking Guidance

SCREENING GUIDANCE: HOUSEHOLD MEMBERS OF A SYMPTOMATIC INDIVIDUAL/STUDENT

Current provincial school screening guidance does provide recommendations for household members of students who screen positive.⁶ In comparison, multiple PHUs have implemented more stringent recommendations for asymptomatic household members of symptomatic individuals. For PHUs in Ottawa, Peel, Toronto, Middlesex-London, Kingston Frontenac and Lennox & Addington (KFLA), and Niagara, this includes recommending that household members (e.g., siblings, parents) of a symptomatic student self-isolate (i.e., stay home from school/child care/ work) while the symptomatic student is tested for COVID-19 (and/or assessed by a health care provider).²¹⁻¹⁶ If a symptomatic student is not tested, all household members must self-isolate, for either 10 days²² or 14 days (from last exposure).^{21,23,24,26} This applies if the symptomatic student meets the PHU's threshold for self-isolation and seeking assessment or testing.

Toronto Public Health advises K-12 students who live with a symptomatic child (e.g., a sibling) to stay home and self-isolate until the symptomatic child has a negative test, or for 10 days if the symptomatic child is not tested. This does not apply to adults in the household without symptoms, who are advised to self-monitor (but not self-isolate).²⁷

In addition, Ottawa Public Health also advises that if a child has a single Category 2 symptom from the provincial school screening tool (e.g., an isolated runny nose), the child and all of their household contacts must isolate at home while monitoring the child's symptoms for 24 hours for improvement.²⁸

SCREENING GUIDANCE: NUMBER OF SYMPTOMS FOR A POSITIVE SCREEN

Effective December 7, both Toronto Public Health²⁵ and Peel Public Health²³ implemented stricter COVID-19 student screening guidelines to recommend self-isolation and testing (or contacting a health care provider/obtaining an alternate diagnosis) for students with **any one symptom** of COVID-19 on their school screening tools (i.e., even if one Category 2 symptom). As above, this would then trigger the self-isolation of siblings or children in the same household,^{23,29} and/or adult members in the household.²³

MASKING GUIDANCE

Some PHUs and/or school boards have more stringent masking advice/requirements than mandated by MEDU (i.e., required provincially for students in grade 4 and above when indoors, versus recommended for students in lower grades). This includes requirements in some school boards for masking indoors for younger students (e.g., JK or grade 1 to grade 3);^{30,31} recommending that masks are worn outdoors anytime a physical distance of 2 metres cannot be maintained;²¹ and requiring that adults (e.g. visitors, parents, guardians) wear a mask when outdoors on school property including in pick-up and drop-off areas.³⁰ Advice related to mask breaks varies between selected PHUs and/or school boards. This ranges from specific advice on mask breaks being recommended ideally outdoors and within cohorts while

maintaining physical distancing³² to more general advice that masks do not need to be worn during recess or other outdoor activities.³³

Table summaries of School Screening and Masking Guidance available upon request.

School Measures in International Jurisdictions in Lockdown

Masking policy ranged widely across jurisdictions in the highest restriction levels, from no mandatory masking (e.g., United Kingdom (UK))^{34,35} to masking for students in all age groups (e.g., Michigan).³⁶

Students approximately 10 to 12 years of age and older and teachers were required to wear face masks in many jurisdictions,³⁶⁻⁴⁴ but the location of use within school grounds varied (e.g., for hallways, classrooms, common areas). For example, Quebec requires masking at all times in common areas (e.g., hallways, elevators) for students in grade 5 (approximately aged 10 years) and older. Only secondary school students were also required to wear masks in the classroom.^{40,41} Victoria, Australia strongly recommends wearing masking indoors and outdoors where physical distancing of 1.5 metres is not possible for students aged 12 years and older.^{37,45}

In terms of symptom screening policies in the UK, students cannot attend school if a household member is showing symptoms of COVID-19,⁴⁶ noting that in general, symptom screening focuses on new cough, fever, or loss of sense of taste/smell.⁴⁷

Please note that a table showing a summary of school measures in international jurisdictions is available upon request from Public Health Ontario.

Considerations in Ontario

Informed by the background information and environmental scans outlined above, Table 1 identifies potential enhanced school screening and masking measures for consideration in Ontario K-12 schools above the currently recommended measures by MEDU. It briefly describes the rationale for each measure, and identifies key implementation considerations and potential disadvantages, including anticipated harms and equity considerations.

Each measure could be implemented at any level of the provincial framework,⁵ with special considerations for implementing the more stringent measures in jurisdictions in the Lockdown (grey) and/or Restrict (red) levels where community transmission is highest, or implemented across all levels for time-limited periods when there is the potential for an increase in transmission (e.g. post holidays).

Table 1. Considerations for Enhanced Masking Measures and School Screening in Schools in Ontario

Enhanced Measures in Schools	Rationale and Implementation Considerations and Potential Disadvantages
<p>Require masking for all adults anywhere on school property (indoors and outdoors), including parents/caregivers and visitors</p>	<p>Rationale:</p> <ul style="list-style-type: none"> Mask worn for source control.⁴⁸ Crowding/space constraints outdoors may lead to reduced physical distancing. <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> Readily implementable, as some schools already have this measure in place. Supporting adherence and enforcement may require school and/or peer (e.g. parent to parent) resources. Equity of access to masks a possible issue.
<p>Require masking for students in all grade levels when indoors and on buses, including JK - grade 3</p>	<p>Rationale:</p> <ul style="list-style-type: none"> Mask worn for source control.⁴⁸ Physical distancing more challenging for students in JK-3. Higher risk of transmission indoors.⁴⁹ <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> Appropriate and consistent mask use in JK-3 students may be challenging to maintain. However, appears readily implementable, as some PHUs / school boards already have this measure in place. Benefit uncertain in areas with lower community transmission Extent to which this would increase mask use in higher risk areas is uncertain (e.g. if measure already required, or strongly recommended).
<p>Require masking for older children while on school property (indoors and outdoors)</p>	<p>Rationale:</p> <ul style="list-style-type: none"> Mask worn for source control.⁴⁸ Normalize consistent mask use for older students who may be more likely to have close, prolonged interactions without physical distancing. <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> Likely implementable; some jurisdictions (e.g., Quebec)⁴¹ have this measure in place for secondary students. May be more feasible in secondary students with limited time at school. Students need mask breaks, ideally in outdoor settings within their cohorts with physical distancing.

Enhanced Measures in Schools	Rationale and Implementation Considerations and Potential Disadvantages
	<ul style="list-style-type: none"> Supporting adherence and coordinating mask breaks may require school resources and/or have operational implications. Need to ensure any changes do not decrease indoor masking adherence. Potential to increase time off school property for student initiated mask break.
Regular review and audit of IPAC/prevention measures in schools	<p>Rationale:</p> <ul style="list-style-type: none"> Support ongoing adherence to and implementation of recommended prevention measures. Address questions and identify current concerns/challenges. <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> Feasibility depends on adequate school resources (e.g. school-focussed nurses in PHUs, school administrators). May require prioritization of key measures.
Advising childcare/school age household contacts of symptomatic individuals to stay home while the symptomatic individual's testing is pending, or self-isolate for 14 days if the individual is not tested	<p>Rationale:</p> <ul style="list-style-type: none"> In areas with higher community transmission and testing positivity, symptoms are more likely to represent COVID-19 illness. Exclusion of household contacts prevents asymptomatic introduction if they are also infectious. Limiting new requirement to children (e.g. siblings) and not adults in household may help limit burden on families, reduce inequitable harms, and focus risk reduction in schools. <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> Measure has already been implemented by some jurisdictions. More students excluded from school. Increased absenteeism expected to have associated harms^{17,18} and equity implications (e.g., childcare and work/income impacts, burden on households with more children). Requires easy, quick and equitable access to testing and clearance of ill individuals.
Advising children/students who are household contacts of a student who has been dismissed as part of an exposed class cohort to stay home, until the dismissed student has tested negative for COVID-19	<p>Rationale:</p> <ul style="list-style-type: none"> May help to prevent additional school exposures by household contacts (e.g., siblings) who may be asymptomatic or pre-symptomatic and infectious. <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> Requires easy, quick and equitable access to testing of dismissed student to enable other children/siblings in household to return to school (if dismissed student is negative).

Enhanced Measures in Schools	Rationale and Implementation Considerations and Potential Disadvantages
(or until they complete their self-isolation, if not tested)	<ul style="list-style-type: none"> • More students excluded from school. Increased absenteeism expected to have associated harms^{17,18} and equity implications (e.g., childcare and work/income impacts, burden on households with more children), requiring mitigating supports. • Potential harms vs. benefits uncertain, as some students in dismissed cohort may have had low risk exposure to known case⁴ and subsequently pose a low risk of household transmission to their siblings.
<p>Advising students to stay home and be tested (or contact a health care provider) if they have any ONE symptom compatible with COVID-19 from the provincial school screening tool⁶</p>	<p>Rationale:</p> <ul style="list-style-type: none"> • Many COVID-19 symptoms are non-specific, and in areas with higher community transmission and testing positivity, a single symptom is more likely to represent COVID-19 illness. • A more sensitive screening approach could prevent school exposures by infected students with a single/mild symptom. • Would simplify current guidance <p>Implementation Considerations and Potential Disadvantages:</p> <ul style="list-style-type: none"> • Requires easy, quick and equitable access to testing and clearance of symptomatic individual to return to school (if negative and not exposed). • More students excluded from school. Increased absenteeism expected to have associated harms^{17,18} and equity implications (e.g., childcare and work/income impacts, burden on households with more children), requiring mitigating supports. • Cannot prevent school exposures due to asymptomatic infections.

Limitations

The rapid environmental scans included in this review do not represent a systematic examination of COVID-19 school prevention measures in Ontario or globally. Rather, they sought to identify a range of practical measures that extend beyond current screening and masking requirements in Ontario schools.

Although the identified enhanced school measures have been implemented in various jurisdictions across Ontario and internationally, we are not aware of any currently available evidence that has evaluated the impact of implementing any specific enhanced measure in schools, or examined impact of specific measures by framework or community COVID-19 transmission level.⁵

However, in principle, implementing more stringent screening and masking practices, particularly in jurisdictions with high community transmission, could help identify cases early, prevent school exposures and dismissals, and/or further reduce the risk of transmission in schools.

Conclusion

To date, published syntheses on transmission of COVID-19 in elementary and secondary schools have found limited transmission in school settings with multiple IPAC measures in place, although available evidence has limitations.^{10,12} While the updated provincial framework indicated keeping schools open as a priority, there are no specific recommendations for enhanced public health measures in schools by framework level. Compared to current provincial guidance for K-12 schools, some PHUs and other jurisdictions have adopted more stringent school screening and masking guidance.

A number of measures exist for enhancing COVID-19 school screening and masking guidance in Ontario, building on the approaches of PHUs and other jurisdictions with more stringent measures in place. In the absence of evidence evaluating the effectiveness of specific prevention measures in schools, these enhanced measures offer additional precautionary interventions. Key implementation issues to carefully consider, in consultation with relevant partners, include: clear communication about any changes and their rationale (e.g., a mild/single symptom could be due to COVID-19, especially in higher risk areas); access to testing and timely results; reducing inequitable impacts on children and families; and supporting adherence to masking and safe mask breaks.

Any new measures in schools should be implemented as part of a layered approach. Of note, there are other public health measures in schools that were not part of this review, but merit further consideration (e.g., in-person class sizes that promote physical distancing, ventilation infrastructure, and limiting staff interactions with multiple cohorts). To inform decision-making going forward, ongoing monitoring of implementation of any changes is needed, as well as monitoring of the emerging evidence on COVID-19 in schools and in children.

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