

A Guide to Returning Students to Ontario Schools During the COVID-19 Pandemic

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April 2020

Abstract

The total return to normalcy in the workplace, business, and school will not occur overnight; gradual steps must be taken until life as we know it (before COVID-19) returns. This paper discusses a method of gradually returning students to a high school environment, specifically Hillfield Strathallan College (HSC), while reducing the risk of infection and adhering to government guidelines. There is no specified date of this method being implemented as of April 2020. Government response and approval need to be taken into consideration before implementation.

Introduction

As the government is concerned with the ongoing financial crisis, the healthcare system, and controlling the spread of COVID-19, it is unlikely that a comprehensive plan for the return to school will be implemented in the near future. As an independent school with additional resources, HSC is able to take the lead in developing a safe way for in-class learning.

The return to an in-person learning environment should be taken in several steps: low-risk, medium-risk, and high-risk of infection systems. These are defined relative to the number of students present on the school campus and each class, the size of large assemblies and gatherings, personal protective equipment (PPE) for students and staff, the screening of symptoms, and the length of the school day.

Number of Students on Campus

In a low to medium-risk environment, the number of students on a school campus should be relative to the number of classrooms. If social gatherings are not to be above N people, then a maximum of N students should be in C classrooms at once (Figure 1). The maximum number of S students will be equal to $N \times C$. In the context of HSC, the Senior School has roughly 30 classrooms, and assuming $N = 10$, a maximum of 300 students can be in the building at once. This does not imply that gatherings may occur with more than N students, let alone S students. For HSC, this would mean that busing, lunch, assemblies, and chapel would all be prohibited. As the number of students that attend a school is likely greater than S , having one grade at a time per day on campus would be best. For HSC this would mean values of S would fluctuate between 100-130 students, likely remaining below $N \times 30$.

Organization and Planning

Another concern is the interaction with students in the hallway, before, between, and after classes. For this reason, it should be mandated that students go directly to their designated classroom upon entering the building. Student interactions outside of school cannot be controlled and decisions should be made at the discretion of the individual.

Class Schedule and Locations

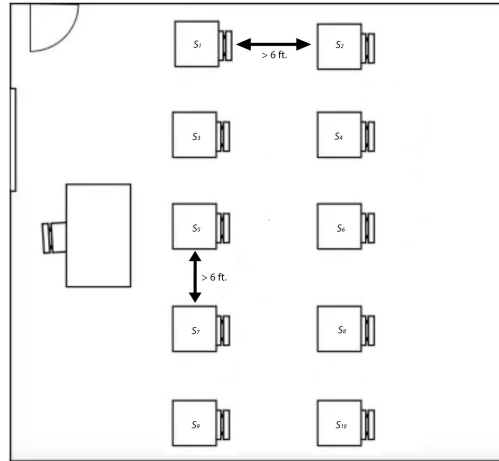
In order to minimize the time of exposure and accommodate for the absence of lunch, flextime, and after school activities, a short school day is recommended. Similarly to the schedule that is used for parent-teacher-student interviews, a class timeline that would range from 8:45 - 11:45 would be optimal (Table 1).

Table 1: Sample Class Schedule

Time	Class
8:45 - 9:25	Period 1
9:25 - 10:05	Period 2
10:05 - 10:45	Period 3
10:45 - 11:30	Period 4

*Time between classes is non-existent to prevent socializing in hallways

Figure 1: Classroom Arrangement



Since class sizes may range from values less than or greater than N , class schedules will need to be adjusted. In the case of a class with more than N students, this may involve a teacher walking from two classrooms side by side to teach a lesson. In the case of a class with less than N students, this action is not required. With the use of a master schedule— one that contains all classes that occur during each period, their location, and the number of students — classes can be rearranged to make these accommodations possible. For example, an English class with $2N$ students located in C_{26} could be split into two classes of N students, C_{26} and C_{27} (Figures 2 and 3).

Figure 2: HSC Floor 1 Layout

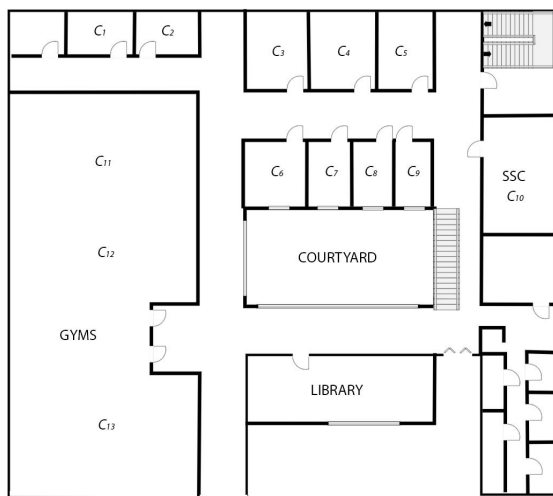


Figure 3: HSC Floor 2 Layout



*diagrams shown are not blueprints. They are neither fully accurate nor to scale.

Self-Assessment and Screening

One of the concerns with younger people exposed to COVID-19 is the possibility that they are pre-symptomatic [1]. This poses risk as the infection can be spread from these “silent” carriers. While the World Health Organization (WHO) states that temperature screening alone may not be effective because of pre-symptomatic individuals [2], measuring temperature using an infrared thermometer can still be effective in decreasing the probability that mildly symptomatic people are entering a public space [3]. For this reason, it is recommended that temperature is taken as students and staff enter the school building. This would serve as one of several screening tools.

As another precaution, students who have been exposed to anyone who has tested positive or will likely test positive to COVID-19 are not to come to school. This includes themselves, family members, or anyone they have been in contact with. One of the reasons that China was so successful in identifying and isolating cases was the use of technology to track not only those who had tested positive, but also anyone who had come in contact with someone who had tested positive [4].

Questions should be asked daily in a time-stamped online self-assessment form and an approval card will be given to those who answer as demonstrated below (Table 2). This is similar to many hospitals, who use self-assessment forms for medical staff [5]. A single person at a sole entrance to the school can confirm that the student has passed the screening test and can verify the absence of fever with an infrared no-touch thermometer. Any student that fails the screening questionnaire taken or has a temperature of 38 degrees celsius or higher would be refused entry. As perfect screening is not possible, the honesty of form responders is required.

Table 2: Example COVID-19 Screening Questions [6]

Question	Outcome
Do you have a fever of 38C or higher OR new onset of worsening cough or difficulty breathing?	Yes - DENIED entry No - APPROVED entry
Do you have any of the following unexplained minor symptoms: runny nose, sore throat, headache, muscle ache, nausea, anosmia (loss of smell), or diarrhea?	One of the above - DENIED entry Two or more of the above - DENIED entry None of the above - APPROVED entry
Has someone in your household, whom you have had close contact with and not worn PPE, tested positive for COVID-19?	Yes - DENIED entry No - APPROVED entry
In the past 14 days, have you returned from travel anywhere outside of Canada?	YES - DENIED entry No - APPROVED entry

* if any of the above questions trigger the outcome “DENIED”, entry is always denied.

In addition to these self-screening measures, it would be optimal to have widespread testing for all students and staff going to school. This is not possible at the time of writing, but this may change with future developments (such as the DNA-based Spartan Cube as opposed to the traditional nasopharyngeal swab) [7].

Personal Protection and Self-Risk

The use of Level 1 PPE for students in staff would also decrease the probability of infection. A face mask is sufficient, preventing large droplets from entering and exiting a person's mouth and nose [8]. This equipment could be provided in moderation to students and staff, ideally one mask per person each day. Ideally, this would be a surgical mask, but since this may not be feasible from a monetary or supply perspective, it could be recommended that students and staff bring their own PPE. Sanitization stations should be easily accessible and set up around the school [3]. This will avoid overuse of restroom facilities, lowering the probability of infection and decreasing load on cleaning staff.

The classroom setup should take into account some form of social distancing. By placing desks as far as possible from each other (ideally greater than 6 feet apart), close contact and spread are mitigated [8].

Self-determined risk should be made clear to both students and staff upon a return to school plan. Those who have any of the following conditions— (1) are immunocompromised, (2) at risk due to age, (3) have a pre-existing respiratory condition, (4) are at risk of a cardiac event, (5) have someone living in their house with any of the previous conditions, or (6) feel unsafe with returning for any reason — should be made exempt from returning to the school environment [9]. This would apply to any staff or students at HSC. Online support would be continued for students who cannot return to school and responsibilities will be adjusted accordingly for staff members that cannot return.

Conclusion

With the aforementioned steps taken, a return to school is within the realm of possibility before the end of the 2019/2020 school year. However, there has been no determined date made by the government or health officials when this could occur. It would be recommended that this proposal is approved by these officials before implementation.

References

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