

Open letter from MI4  
COVID-19, Community Transmission and Classrooms  
March 12, 2020

Dear Mr. Legault,

Since its appearance in China in late 2019, SARS-2-CoV (the virus) and COVID-19 (the disease) have spread to over 100 countries. In the absence of a vaccine or a definitive treatment, COVID-19 control relies on two tools: testing (to identify people who are known to be contagious) and social distancing (to decrease transmission). The first modality leads to data that inform the spread of the agent, but on its own, cannot combat transmission. The second modality can be used both for test-positive individuals (self-quarantine) and for society at large. Natural experiments in epidemiology tell us that areas of high density are associated with viral transmission (e.g. cruise ships); likewise, reduced community interactions were associated with a lower peak mortality during the 1918 influenza outbreak. Together, these observations argue for 'flattening the curve', to attenuate the surge of cases and maintain healthcare capacity, for COVID-19 cases and all individuals with healthcare needs.

It is well established that respiratory viruses spread in indoor spaces where individuals congregate, such as classrooms, and that transmission in the younger, healthier segment of our society can be epidemiologically important, if not clinically severe. Until now, COVID-19 cases in Montreal have been seen in travelers but the epidemiologic situation is largely unknown and changing day-to-day. Further, limited use and technical limitations in coronavirus testing have severely compromised our ability to detect community transmission of the virus in Quebec.

As a result, we are advocating immediate cessation of face-to-face classroom-based teaching across the country, moving to an e-learning model for the duration of the crisis.

Key points:

- Public health and social distancing interventions are designed to attenuate the rate of community spread of SARS-CoV-2 to levels within the capacity of the Quebec health care system (aka. flattening the curve)
- The institution of aggressive social distancing interventions in China and S. Korea has proven their efficacy in reducing COVID-19 disease
- Closing of universities and enforced social distancing measures were introduced in Italy within days of documentation of community spread of SARS-CoV-2. The effects of these measures are now only beginning to become evident after more than a week and failed to prevent overwhelming of the health care system. We need to learn from this experience and act earlier.
- Currently, diagnostic testing suffers from a number of critical limitations including test performance; limited supplies of reagents; and poor access to testing
- Given these limitations in testing, our ability to detect community spread of the virus has been severely compromised. In light of the marked increase in the number of

cases of COVID-19 in the last few days, we strongly believe the virus is already circulating in Quebec

- In recognition of these issues, Ontario schools and some Quebec schools have already closed

We ask the Quebec Government to please close all schools and daycares immediately.

Drs. Sheppard, Behr and Hudson are co-leads of MI4, the McGill Interdisciplinary Initiative for Infection and Immunity, created in 2017 thanks to a commitment by McGill and the MUHC Foundation to raise \$120 M to build ground zero in Montreal for the global battle against infectious and immune diseases.