

COVID-19: Canadian medical students ready to step up

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Abstract

On January 30, 2020, the World Health Organization declared the 2019 novel coronavirus (COVID-19) outbreak a Public Health Emergency of International Concern. By April 24, 2020, nearly 3 million cases of COVID-19 with nearly 200 thousand deaths have been confirmed globally. Shortages are being experienced around the world and due to these inefficiencies, physicians are being forced to decide who is more deserving of resources. In response, the world is making the effort to “flatten the curve” so that health care resources and facilities are able to accommodate. As such, the world has employed social distancing measures and encouraged people to stay home. COVID-19 has undoubtedly impacted the world in numerous ways and continues to do so. One such way is its impact on medical education. Medical schools across Canada have cancelled all in-person teaching, including classes and clinical placements. As clerkship rotations are purely clinical in nature, this kind of learning cannot be replicated online, effectively leaving clerkship medical students with their education on hold. Despite no organized placement of medical students into roles, many have organized roles and initiatives for themselves. Medical students across Canada have volunteered in a variety of means, as well as joined together to develop and lead extraordinary initiatives. However, with an uncertainty in establishing an “end” to the pandemic and in determining whether Canada will face a physician shortage, is it worth looking forward and further planning how best to utilize Canadian senior medical students? Medical education prepares students to not only care for the sick, but to function as part of a team and support a larger goal. With the unique skills to be able to assist and the national possibility of needing increased physician support, it may be worth considering how senior medical students can be transitioned into helpful roles in the hospital.

Background

On January 30, 2020, the World Health Organization declared the 2019 novel coronavirus (COVID-19) outbreak a Public Health Emergency of International Concern.¹ By April 24, 2020, nearly 3 million cases of COVID-19 with nearly 200 thousand deaths have been confirmed globally, according to data published by John Hopkins University.² In Canada, there are over 43,000 confirmed cases and 2,200 deaths. Shortages are being experienced around the world and due to these inefficiencies, physicians are being forced to decide who is more deserving of resources, including time and ventilators. Shortage of medical equipment and personal protective equipment (PPE) places frontline medical personnel in danger. In response, the world is making the effort to “flatten the curve”, a term used repeatedly to describe slowing the rate of increase of new cases so that health care resources and facilities are able to accommodate. As such, the world has employed social distancing measures and encouraged people to stay home. COVID-19 has undoubtedly impacted the world in numerous ways and continues to do so. Non-essential travel has been cancelled, large gatherings such as conferences and festivals have been cancelled, and employees are being encouraged to work from home.

Furthermore, COVID-19 is impacting education across Canada. Since late February, we have heard on the news that elementary schools, high schools, and universities have closed and content changed to online delivery to complete the semester's material and examinations. Initially, medical schools sought to limit transmission and therefore protect both medical students and the greater public by prohibiting medical students from being involved in the care of patients with suspected or confirmed COVID-19. However, by mid-March, medical schools across Canada came to similar decisions and cancelled all in-person teaching, including classes and clinical placements. First- and second-year pre-clerkship classes have been changed to a purely online format and third- and fourth-year clerkship rotations have been cancelled. As clerkship rotations are purely clinical in a hospital or clinic environment, this kind of learning cannot be replicated in an online format, effectively leaving clerkship medical students with their education on hold.

This has caused a myriad of emotions. Some have experienced initial disappointment over a change in routine or removal from clinical duties and opportunities for learning. Others have experienced anxiety over cancellation of planned elective experiences, uncertainties in learning opportunities prior to graduation – or for fourth-year students – postponement of medical licensing board examinations. But medical students have rallied and risen to the challenge, finding ways to support each other,

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frontline workers, their families, and local communities. However, with an uncertainty in establishing an “end” to the pandemic and in determining whether Canada will face a physician shortage, is it worth looking forward and further planning how best to utilize Canadian senior medical students?

COVID-19 has called into focus the real reason for going into medicine

As the news brings us daily updates on the growing pandemic, there is increasing recognition of the deadliness and severity of this virus. With the numbers of infected and dying across the world reaching new record highs daily, shortages on medical equipment and staff, and public lockdowns to decrease transmission, many are living with a certain degree of fear. There is an unprecedented appreciation for health care workers as we recognize the risks they are taking to care for the sick. As a third-year medical student, just over one year shy of entering the profession myself, this presents the question of commitment and courage: How prepared am I to stand on the frontlines? In times of uncertainty, fear, and resource shortages, am I still as eager to show up and care for the sick as on a “routine” day? In reflecting on this, I acknowledge I had an initial moment of fear and hesitancy, but overwhelmingly I feel that I want to be on the frontlines with the staff and residents I have worked with over the past several years.

It is this desire to help – strengthened at a time when help is needed most – that drove many of us into the field of medicine in the first place. We wanted to prevent adverse health outcomes, to heal others, and support the physical, mental, and emotional health of the people in our local and broader global communities.

Despite pre-clerkship classes being changed to a purely online format and clerkship rotations being cancelled, medical students across Canada have risen to the challenge. Initial disappointment over changes in routine, removal from clinical duties and opportunities for learning, cancellation of planned elective experiences, and postponement of medical licensing board exams have been set aside. Medical students across Canada have volunteered in a variety of means, as well as joined together to develop and lead extraordinary initiatives. Examples of such roles for University of Toronto medical students, gathered from both public postings as well as platforms dedicated to medical students, are listed in Tables 1 and 2.

Table 1. Volunteer positions for University of Toronto medical students

| Role | Description |
|---|--|
| Screeners or clinical assessors | Volunteer at hospital entrances to address concerns of patients and families standing in line and identify patients in line who should be fast-tracked through screening, given their respiratory and/or other symptoms. |
| Contact tracing and public health counselling | Volunteer with Toronto Public Health and the Ministry of Health to serve as contact tracers and public health counsellors. |
| Kids Help Phone hotline | Volunteer with a crisis text line to support concerned children and adolescents. |
| Friendly Neighbour hotline | Volunteer with University Health Network's OpenLab to help deliver essential items – including food, pet supplies, diabetes supplies, and others – to isolated seniors living in the Toronto area. |

Table 2. Initiatives led by University of Toronto medical students

| Role | Description |
|--|--|
| Health Care Providers (HCPs) Support Initiative | Support HCPs with life tasks outside the wards, including childcare or babysitting, pet care, grocery and pharmacy runs, and general errands. |
| Student-Senior Isolation Prevention Partnership during COVID (SSIPP: COVID Edition) | Partner with the Home-Based Care Program run by family physicians at Toronto Western Hospital to match medical students with elderly patients in the community. Assignments are determined by a Toronto-based Family Health Team and seek to provide regular phone check-ins with elderly patients for patient education on COVID-19 and social comfort. |
| “Skype a Scientist” | Teach a classroom of students, of any grade, about a field of study online. |
| COVID-19 Startup | Develop an app or tool to support contact tracing through dynamic risk assessment and targeted outreach. |
| Mask Building Initiative | Produce mock masks for training health care providers in proper donning and doffing, so as not to waste real N95 masks, given the context of national resource shortages. |
| COVID-19 Web Resource Centre | Develop a webpage that gathers and summarizes all credible information for the public. Create a social media profile that the public can follow, linking them to new updates on the webpage. |
| COVID-19 Communications App | Create an app to address the communication between public health agencies (municipal, provincial, and federal) and the general public. |
| Sourcing personal protective equipment (PPE) | Source PPE to support frontline workers by searching for unused PPE (such as masks, gloves, and gowns), asking for donations, and picking up and dropping off PPE at designated locations. |
| Ontario-wide coordinated 3D printing of Personal Protective Equipment (PPE) for HCPs | Collaborate with teams from McMaster and Queen's Universities on an initiative to 3D-print PPE (face shields and masks) for HCPs. |
| National Blood Drive | Coordinate a national blood drive competition in partnership with the Canadian Federation of Medical Students to support the current blood donation shortage. |
| Frontlines' Positive Encouragement | Organize a letter-writing campaign to send notes of personal support to Toronto physicians. |
| COVID Women's Initiative | Partner with women's shelters in the Greater Toronto Area to raise awareness of how COVID-19 may impact women's health and to further assist them. |
| Ethics Resource for COVID-19 | Create a guide providing information regarding ethical considerations in the COVID-19 pandemic. |
| UoT Med Music | Create student-produced and personalized music content for patients who cannot be visited by family, volunteers, or other visitors (currently partnered with Mount Sinai Hospital, Toronto Rehab Institute, Baycrest, and Holland Bloorview). |

These initiatives demonstrate that we as medical students are wholly invested in the health and well-being of our community. Medical students have led by example, choosing to self-isolate and educate those around them on the importance of doing so. They have initiated prevention initiatives and initiatives to maintain the health of our peers, families, and local communities. In addition to caring for our immediate social circles, initiatives are much broader to reach even the most vulnerable in our community.

Filling the gap: student initiatives

The cessation of clerkship and other clinical activities raises the following question: How significant is the practical value of medical education? The government and Faculty of Medicine should have been able to plug every class into some support role during this crisis. While we may not be able to learn from “normal” clinical encounters, we are armed with knowledge and practical experience from our pre-clerkship courses, undergraduate degrees, and numerous extra-curricular involvements that we can apply to helping the medical community during this time.

It can be reasoned that medical students are “unnecessary” in the hospital milieu, and thus their removal aligns with social distancing measures and protects students from the risk of acquiring COVID-19. However, as the situation continues to evolve and health care systems become increasingly strained across the globe, it is not only physical resources that are lacking, but also healthcare professionals.

To mitigate impending or actual shortages in health care staff and to alleviate the strain and burden on those that have been working since the beginning of the epidemic, we have seen numerous professional schools graduate their students early to facilitate their transition into the workforce.³⁻⁵

In light of severe interruptions to medical education programs due to the COVID-19 pandemic,⁶ medical schools in the UK have been granted the power to graduate their students early to allow them to work for the NHS in an effort to help staffing levels.³ On March 25, the UK’s regulatory and training bodies released a joint statement offering final year medical students early provisional registration and foundation year 1 (FY1) doctors early registration.⁴ As fully registered doctors, FY1 trainees are able to practice with less supervision, have a wider range of prescribing responsibilities, and are thus able to work more independently and reduce strain on staff physicians whose focus is better preserved for the acutely ill.⁵ However, as a physician’s duty is first to do no harm, there exists a balance. Medical students and junior doctors still require comprehensive training and clinical and educational supervision, particularly given the difficult circumstances under which they are joining the health care workforce. Thus, it is imperative that safeguards are put in place to ensure sufficient training to support safe medical practice and care of patients. To this end, the UK’s General Medical Council has listed such training and supervision requirements in delineating these new roles.⁵

Other professional schools have done the same. The College of Respiratory Therapists of Ontario has asked programs to fast-track respiratory therapist students’ graduation so they can start work early.⁷ Fanshawe College will enable their students to finish courses virtually while beginning to work on the front line.⁷

While it can be hoped that social distancing measures will be sufficient to flatten the curve and prevent overwhelming the Canadian health care system, there remains the possibility that physician shortages could soon add to the existing medical equipment shortages. Over 3,300 health care workers have been infected in China as of March, with over 22 deaths. In Italy, 20% of health care workers have been infected and the number of deaths continues to rise.⁸ Physician acquisition of COVID-19 is significant in numerous regards. While the majority will be asymptomatic or only experience mild symptoms, they will still be required to quarantine for two weeks due to the risk of viral shedding leading

to transmission, thereby pulling them out of practice. More significantly, those who experience more severe symptoms – including pneumonia, acute respiratory distress syndrome (ARDS) and multi-organ dysfunction – will not only be removed from the workforce, but will require intensive treatment and further burden a health care system already experiencing strain.⁹ Furthermore, studies have observed that elderly patients, aged 60 years and older, make up a larger proportion of severe to critical cases and have higher fatality rates.¹⁰ In 2019, out of 86,092 actively practicing Canadian physicians, the Canadian Medical Association listed 19,957 (23.2%) as aged 55-64 years old and 13,956 (16.2%) as aged 65 years old and greater.¹¹ As almost 40% of Canadian physicians are over the age of 55, they are at high risk and may unfortunately succumb to the illness. With uncertainty in establishing an “end” to the pandemic and in determining whether Canada will face a physician shortage, is it worth looking forward and planning how best to utilize senior medical students?

At present, there is a national focus on prioritizing the health and safety of our patients, providers, and greater community, and limiting the spread of COVID-19. This has rightly taken precedent over continuing medical student learning. However, medical students are in a place where they are able to be more than learners. Equipped with past experiences and several years of medical teaching, they are able to provide some assistance in the health care milieu. Fourth-year medical students are most notably in this position, as they have at present finished their core clinical and elective rotations, and the majority of their selective clinical placements. The decision to end fourth-year clinical placements prematurely will not negatively impact the completion of their MD program requirements or graduation eligibility. Furthermore, over 2,000 Canadian medical students matched to a residency program on March 3, 2020. Aside from having to write the Medical Council of Canada licensing exam, fourth-year medical students are in a unique position of being as ready to practice now as they will be on the arbitrary start date traditionally set as July 1.

Senior medical students possess unique skills after having spent countless hours in the clinical environment. They are familiar with the roles of and able to liaise with the interprofessional health care team, able to respect confidentiality and privacy concerns, and are trained to have difficult conversations with patients and families. Most importantly, they are familiar with the daily tasks that physicians and residents need help with and as such are in a position to be able to lighten their loads so that they can focus their attention on the patients who are sickest. In addition to the increased volume of patients, with increasing patient acuity, more mental effort and time is required to care for patients safely. There is increased cognitive effort in diagnosing and managing using the latest evidence-based medical recommendations. Providers must also dedicate a sufficient amount of time to donning (putting on) and doffing (taking off) PPE using the correct technique to prevent lapses that could prompt transmission. These factors have been noted in numerous studies to be not only challenging but demanding of time.¹²⁻¹⁴ Thus, medical students are in a unique position to assist in non-COVID patient duties, opening time and cognitive space for physicians to be better able to treat the acutely ill.

Conclusion

While there was no organized placement of medical students into roles, many have organized roles and initiatives for themselves. This makes me proud to be a medical student during this time. My faith is renewed by peers who I am proud to work alongside presently, and I am heartened that our community will continue to be well cared for in the years to come.

Medical education prepares students to not only care for the sick, but to function as part of a team and support a larger goal. With the unique skills to be able to assist and the national possibility of needing increased physician support, it is worth considering how senior medical students can be transitioned into helpful roles in the hospital. Future directions include a virtual curriculum on COVID-19 transmission, diagnosis, and management, as well as general disaster preparedness. As future pandemics are likely, becoming involved in the response now is valuable experience that can be drawn on in the future as students move on to staff positions.

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