

The North American Pre-Clerkship Medical Student's Experience during the COVID-19 Pandemic: A Harvard-McGill Peer Conversation with Recommendations for Progress

Sara Al-Zubi, B.S.¹ | Julianna Coleman, B.A., B.S.¹ | Sarah Kordlouie, DEC² |
Caroline Lee, B.A.¹ | Kaitlin Nuechterlein, B.Sc.² | Ferial Rahmani, B.Sc.² | Jamie E.
Shade, B.S.¹ | Zahra Talat, B.Sc.² | Michael Teutenberg, B.Sc.² | Emily Wu, DEC²

¹Harvard Medical School, Harvard University, Boston, Massachusetts, United States

²McGill Faculty of Medicine, McGill University, Montreal, Quebec, Canada

Correspondence

Kaitlin Nuechterlein

Email: kaitlin.nuechterlein@mail.mcgill.ca

Publication Date

October 30, 2020

MJM 2020 (18) 25



www.mjmmed.com



This work is licensed under a Creative Commons BY-NC-SA 4.0 International License.

ABSTRACT

In response to the spread of SARS-CoV-2 across North America in early March of 2020, Canadian and United States medical schools swiftly virtualized medical education for pre-clerkship students. With remote learning arrived novel challenges: barriers to students' comprehension of course material, difficulties conveying the nuances of patient interaction, and social hardships hindering students' continued progress. The 2020 Harvard-McGill Medical Student Exchange, a group of ten McGill University and Harvard medical students, analyzed their institutions' respective responses in the virtualization of medical education and their personal experiences with remote pre-clerkship education. The authors' work provides insight into opportunities for mutual progress and cross-cultural exchange between Canadian and American medical schools, in the context of the COVID-19 pandemic. This commentary details potential faculty recommendations for didactic teaching, student support, and clerkship preparation projects that the authors hope would benefit pre-clerkship students in an ever-changing biomedical landscape. With gratitude toward their respective programs for their applaudable efforts in transitioning to virtual learning, the authors look toward a future of medical education increasingly interwoven with digital technology and responsive to social change.



KEYWORDS

Medical Education, COVID-19 Pandemic, International Perspectives

1 | PRELUDE

The McGill-Harvard Exchange program, established by McGill alumnus and Harvard Medical School (HMS) Assistant Professor Jeffery Semaan gives select pre-clerkship medical students from each institution the ability to collaborate with their medical colleagues across borders.(1) Together, they are immersed in each city's hospital settings and experience world-class lectures from their respective institutions, reflecting on the similarities and differences of American and Canadian healthcare systems and medical education. With the dawn of the COVID-19 pandemic, the 2020 exchange was postponed. However, the collaborative spirit of the participating students inspired an analysis of the virtualization of medical education from the unique perspective of first- and second-year Harvard and McGill medical students in the wake of the COVID-19 pandemic. In this paper, we consider the disruptions to preparation for clerkship in our cohort of pre-clerkship students – highlighting the experience of the graduating classes of 2022 and 2023. These challenges are compounded by concerns surrounding all medical students' financial, mental and personal well-being, which have been underlined by remote learning during the pandemic. However, we envision a way forward which we hope will empower pre-clerkship students to transition into clinical training with the support of our respective institutions.

2 | DISRUPTIONS IN PREPARATION FOR CLERKSHIP

In the recent years, pre-clerkship medical education has experienced a paradigm shift, placing heightened emphasis on preparation for clinical practice.(2) However, for the classes of 2022 and 2023 – the pre-clerkship students who underwent remote learning during the COVID-19 pandemic – the shift to virtual medical education has severely limited clinical exposure by halting in-person patient interaction and engagement with physicians and mentors through shadowing and volunteering opportunities in clinical settings, thus threatening the

Oslerian emphasis on early bedside learning.(3)

Among the many aspects of medical education that our respective institutions have tried to faithfully replicate, we have found clinical teaching to pose the most challenges.(4) Without hands-on experiences in clinical settings, we have been unable to continue developing practical medical knowledge. We have faced particular challenges in learning key components of the pre-clinical medical curriculum, such as physical exam skills, medical documentation and the multifactorial aspects of patient care, including the socioeconomic, cultural and environmental needs of our patients.

With so many critical teachings to cover in their pre-clinical years, Harvard and McGill students were in a precarious situation with the unknown implications of the new pandemic. At McGill, most first-year clinical teaching ended in mid-March, without any substitutions. Previously, the Longitudinal Family Medicine Experience (LFME) served as an important opportunity for us to shadow family doctors on a regular basis, and learn the fundamentals of primary care in community clinics. This program, along with standardized patient interviews at the Steinberg Simulation Centre had helped us become more familiar with patient interaction.(5) With no initial replacement for these, our early clinical exposure was largely put on hold. Only through informal, remote interactions were some students able to connect with patients they had met before the pandemic. While these interactions shed light on the patients' perspectives on healthcare access during the pandemic, they felt less enriching to pre-clerkship than in-person medical consultations. At large, virtual environments pose challenges of blunted nonverbal cues and muted social context, influencing the organic patient-doctor relationship as it would occur in-person. What learning has been lost in the interim is yet unclear. Nevertheless, pre-clerkship students will enter the wards in a matter of months. The clinical environment entered will be marked by the unprecedented burden of COVID-19.

Like students at McGill, HMS students had been engaging in frequent patient interaction before the pandemic. The Harvard University's "Pathways" curriculum is notable for accelerated (14-month) pre-clerkship time-

line, which emphasizes interactive case-based learning in small groups, an integrated approach to organ systems, and weekly clinical sessions as opposed to didactic learning. By the end of our first year at HMS, we had become proficient in taking histories and performing foundational physical exams. To maintain students' early clinical education during remote learning, HMS utilized the online resource Aquifer, which provides online clinical cases for students. The Aquifer format is somewhat interactive, prompting students to think about certain aspects of a patient's history or physical exam findings, construct a differential and produce a summary. We worked through these cases and gave oral presentations during many of our dedicated clinical skills sessions.

While enabling some continuation of clinical learning, the online format of our clinical skills course blunted some of the humanistic complexities of bedside medicine. Through this virtual platform, we could very efficiently study high-yield clinical scenarios. However, the lack of real in-person imperfections and unique intricacies strips us of the opportunity to adapt, learn and feel empathic towards the multitude of non-standard, nuanced profiles that are inherent to real, human patients. We must become adept at navigating the messiness of bedside medicine to work through a thorough assessment. Moreover, we must develop the interpersonal skills of validating patients' emotions, active listening, and empathic communication to earn patients' trust. Such skills are challenging to acquire in an online clinical setting, as screens that separate us can take away our hard-wired mode of communication as human beings: face to face.

To supplement remote pre-clerkship education at both HMS and McGill, some primary care physicians involved students in telemedicine visits. Government agencies, such as the Centers for Medicare & Medicaid Services and the *Collège des Médecins du Québec*, have recently approved physician remuneration for medical care rendered via video, telephone, and e-mail.(6) However, despite the recent advancement of telemedicine, we have often had little instruction on how to deliver care virtually: surveys from the American Association

of Medical Colleges showed that only 60% of United States medical schools included any formal instruction in telemedicine by 2017/18.(7) Given the new platform, both students and educators faced unique challenges of clinical teaching via telemedicine: limited time to discuss next steps privately with clinical preceptors, artificiality of interactions with patients in a virtual environment and concerns of confidentiality and security. In order to be better prepared for clerkship, as well as an increasingly technologically advanced medical landscape, we believe telemedicine and formal instruction of virtual delivery of care should be incorporated into early clinical education.

While virtual clinical learning via online cases and engagement in telemedicine visits can help develop students' clinical reasoning skills, they are not without limitation. We believe that simulated patient interactions, such as through recorded interviews, might serve as an optimal method to build our history-taking, communication and interpersonal skills.(8) Indeed, patient interactions simulated through student role-playing have been shown to increase student empathy for the patient experience.(9) Such practices were previously utilized during the 2003 SARS-CoV outbreak, and with emerging communication technologies, this would be a feasible alternative for virtual clinical teaching. We recommend that medical curricula consider these and other creative alternatives to both ensure our continued progress in clinical skills and prepare us adequately for a clinical landscape increasingly reliant on technological innovations.

3 | FINANCIAL, SOCIAL, AND PERSONAL IMPACTS OF COVID-19 ON PRE-CLERKSHIP MEDICAL STUDENTS

Beyond its direct effects on medical students' ability to prepare for clerkships, the COVID-19 pandemic has posed more personal challenges affecting students' ability to continue working and learning. These challenges have highlighted areas in which medical schools might bolster their support mechanisms, helping better pre-

pare trainees for clinical learning and future clinical practice.

3.1 | Financial Challenges Exacerbated by Socioeconomic Disparities

Far from immune to socioeconomic challenges brought on by the pandemic, medical students have experienced difficult living situations and financial strain. For many pre-clerkship students at McGill and HMS, the pandemic prompted a hurried move from on-campus housing to sharing living quarters with multiple friends and/or family members. For some students, the move meant a shift in time zones, which added complexity to remote learning schedules. Other students shared households with roommates while attempting to continue studying and examination with limited personal space and internet bandwidth.

Student socioeconomic disparities became exacerbated by the crisis and thus much more pressing to remedy. Some students struggled with certain previously granted resources, such as ensuring a reliable internet connection, the new main artery to education. Others had difficulty in securing a quiet place to work, study, or take exams. Some students faced new responsibilities brought on by the pandemic as well, such as watching young children who would otherwise be at daycare, supporting family members with disabilities, or caring for elderly family members and neighbors at heightened risk for COVID-19. Students who previously worked part-time jobs to offset the costs of medical school might have suddenly found themselves clocking in longer hours, facing more stringent rules at work, or even struggling to make ends meet after losing their jobs. Such responsibilities and problems affect the diverse medical student cohort differentially, but financial and emotional burdens broadly hinder students' academic progress.

In recognition of the novel financial strains on their students, both HMS and McGill's Faculty of Medicine attempted to alleviate students' concerns. To respond to students' financial concerns, HMS offered a COVID-19 emergency fund and a prorated refund for on-campus

housing. While some HMS students were eligible for government aid efforts like the United States' Economic Impact Payment (EIP) program, a plurality of pre-clerkship students had been claimed as dependents on their parents or guardians' most recent tax returns, precluding them from receipt of the EIP. McGill offered expedited financial aid with additional considerations for new financial challenges brought on by the pandemic.⁽¹⁰⁾ The Canadian benefit options for students were vague, causing distress over eligibility criteria to meet the financial needs of medical students.⁽¹¹⁾ Vital to each country's COVID-19 response, medical students should receive government and private financial aid to benefit those facing financial challenges during the pandemic.

3.2 | Novel and Intensified Challenges to Mental, Spiritual, and Emotional Health

Heightened because of financial challenges imposed by the crisis, pre-clerkship medical students are now facing unprecedented stressors that pose mental health risks.⁽¹²⁾ Medical school training is known to be distressing, and is associated with mental health problems.^(13,14) While the pandemic has alleviated stressors for some students, offering free time to explore interests outside medicine and unexpected leisure time with family previously residing in distant cities, it has also created novel concerns that reveal areas in which medical schools could better support students.

Many medical schools have already integrated personal wellness programs into their curricula;⁽¹⁵⁾ however, remote learning has created unprecedented stressors requiring intervention. Unreliable internet connections, stress associated with moving on short notice, uncertainty about the timeline of further training stages, and blurred boundaries between living and working spaces are new challenges faced by pre-clerkship students. These issues have challenged some students' productivity in their academic endeavors. The ramifications of distress and mental health problems amongst medical students should be readily addressed as these have been noted to persist into residency training and

beyond.(16) Mental health issues brought on by these troubling times are especially urgent to address given that current pre-clerkship students will begin their clinical training in the midst of this global pandemic.

To directly address pre-clerkship students' mental and emotional well-being during this time, medical schools might choose to implement mental health resources in response to COVID-19. We recommend that these resources specifically address both the current concerns surrounding remote learning, as well as the looming transition to clerkship in a matter of months. Schools could consider implementing discussion forums dedicated to coping with the pandemic.(17) For instance, faculty could specifically advise on developing rapport with patients despite impersonal telemedicine visits and protective face coverings in hospital settings. They could also include instruction about involving family members in care decisions remotely, and building resilience during clinical practice in a historic, global pandemic. These discussion forums could also serve as group therapy sessions in which students would discuss issues affecting them during the pandemic.

During the pandemic or otherwise, medical students' increasing diversity makes the use of students' voices especially relevant in informing curricular changes. Students observing religious obligations like Ramadan, for example, require accommodations that support their values alongside their education. Engagement between the student body representatives and medical school faculty leaders can help to emphasize opportunities to accommodate students' unique needs in the context of their diverse backgrounds. Respecting and honoring these needs are essential aspects of supporting students, particularly during this tumultuous time. Ultimately, medical school faculty and administrators should maintain open communication with students and respond conscientiously to concerns arising while studying, working, and training remotely during the pandemic.

3.3 | Transparency and Adaptability in the Pandemic Era

As COVID-19 becomes a longstanding reality, we maintain that communication and transparency are the essential mechanisms by which medical school faculty and administrators can help ensure pre-clerkship students' success in such uncertain times.

In their remarkably rapid shift to virtual learning, HMS and McGill's Faculty of Medicine each enacted policy which would keep students informed about ongoing changes. When Quebec's government quarantine measures were enacted, McGill medical students were assigned to an immediate lockdown and were converted to a condensed online curriculum within a week. On the other side of the border, HMS courses became virtual early in the second week of March and students were dismissed later that same week. At the time, there was no certainty of the length of the lockdown and what the short-term future of medical curricula would look like.

To delineate and further explain the current situation and protocols, McGill and HMS hosted town hall meetings via Zoom video conferencing, a product of Zoom Video Communications, Inc. McGill also provided a weekly "Frequently Asked Questions" platform, and the HMS Dean of Students offered daily Zoom meetings for those who had more specific questions. Despite these efforts, student inquiries regarding the future of medical curricula and clinical learning have occasionally remained unaddressed. Although this depends on COVID-19 progression in each city, it is a shared opinion that it could be helpful if faculties were to release possible scenarios of how clerkship and medical education may proceed depending on community spread.

Such contingency plans would benefit from open lines of communication between students and faculty. Having liaisons and committees to express our opinions to the faculty, and vice versa, could facilitate medical schools' understanding of student concerns during the pandemic. For fall semester 2020, McGill has delegated these roles to a number of McGill Student Society leaders who report to the Dean and his supporting staff. Depending the course of the pandemic, it may be necessary to establish a permanent student leadership role specific to COVID-19 issues, thus establishing a clear, singular path of communication. It is understood that

beyond the role of the faculties lies the influence of public health officials advocating for the safety of all citizens, including medical students. However, as Canada and the United States establish contingency plans for reopening, medical faculties should be able to create a transparent timeline and protocol, so that students may be informed of the course of their education going forward. As we resume our education this fall, we see reforms implemented in our respective Medical Schools' curricula that accommodate to the ever-evolving government regulations. As such, a majority of our education is being conducted with augmented virtual components and reduced in-person activities. We recognize the U.S. and Canadian governments primarily mandate our educational restrictions during this time; however, we hope that their regulations adapt to suit the specific needs of our countries' future healthcare providers.

The amount of flexibility that the faculty of HMS and McGill exhibited when leading students during these difficult times is admirable and commendable. From the faculty's efforts, we can learn how to confront uncertainty, an intricate and vital skill in medicine. The importance of transparency in times of uncertainty demonstrates the critical need for shared ownership of our education: this phase should be a part of our educational growth and to reinforce that adaptability is an essential component of medical education. Transparent communication is critical for building strong relationships and engaging trainees in such a vital time of undergraduate medical training.

4 | MARCHING TOWARD CLERKSHIP: EXPECTATIONS AND CONSIDERATIONS FOR PRE-CLERKSHIP STUDENTS' ADVANCEMENT

Among the transformative experiences marking the pre-clerkship student's journey, few surpass the transition from the classroom to the wards. At once daunting and gratifying, clerkship is distinguished by unparalleled personal and professional growth. It is a time to solid-

ify medical knowledge while grappling with the realities of clinical practice: challenging professional dynamics, barriers preventing patients from accessing high-quality preventive care, administrative burdens, and other issues. Perhaps most significantly, it is also the first stage at which medical students shoulder veritable responsibility for patients' health.

For students currently preparing for clerkship, the long-term impacts of SARS-CoV-2 on their medical knowledge and eventual clinical performance remain uncertain. As pre-clerkship students are hurtling toward this next step, there is a shared sense of worry that we are not prepared, as our education differs from successful pre-clerkship students and doctors of cohorts past. Nevertheless, our desire always has been, and is now more than ever, to help. Soon, we'll readily join our colleagues in fighting for patients' health in the midst of a pandemic. Because of the extraordinary challenges we will face on the wards, and the limitations imposed on our preparation to meet these challenges, robust medical student support is now more essential than ever.

5 | CONCLUSION

Given the challenges of medical education during the COVID-19 pandemic, Harvard and McGill students have shared our experiences to speak on behalf of all pre-clerkship students during these trying times. We believe additional assistance from medical school faculty is required in three key ways: mental health support, financial aid, and flexibility and transparency. In order to uphold our professional education, medical schools must ensure pandemic-specific mental health resources and financial aid options to acknowledge the unique hardships of every student. Going forward, medical schools are urged to adopt flexible curricula with remote access options that uphold the diversity of their student body, supporting an array of religions, backgrounds, learning styles and socioeconomic circumstances. Furthermore, while a seminal method of remote clinical education will be found in telemedicine, a comprehensive curriculum must be implemented for us to excel in the post-

pandemic world of clinical practice - straying away from our bedside traditions.

Such reforms are not easy to implement and it is evident that transparent communication with medical students throughout this educational transition is imperative for shaping the future generation of physicians. Moving forward, we must bear in mind the past lessons learned, from Osler's establishment of bedside medicine, to challenges during the 2003 SARS-CoV outbreak. Finally, the value of collaboration between medical faculties across borders has become evident. The present exchange between Harvard and McGill medical students is necessary, as it highlights a common experience of two top-ranking North American institutions of medical education during the COVID-19 pandemic, thus inspiring reform. This conversation allowed us to generate new proposals for navigating pre-clerkship education since the onset of social distancing measures, from the perspective of those they affect most: the students. The novel challenges raised by the COVID-19 pandemic must give way to change, to transform medicine and support this new shared reality of pre-clerkship medical students.

REFERENCES

1. International Studies: McGill-Harvard Exchange Program. (2018, June 7). Retrieved September 24, 2020, from <https://publications.mcgill.ca/medenews/2018/06/07/international-studies-mcgill-university-exchange-program/>
2. Peters M, Cate OT. Bedside teaching in medical education: a literature review. *Perspectives on Medical Education* 2013;3:76-88. doi:10.1007/s40037-013-0083-y.
3. Johns Hopkins Medicine. (2020). *The Four Founding Physicians*. Johns Hopkins Medicine. <https://www.hopkinsmedicine.org/about/history/history5.html>
4. Newman, N. A., Lattouf, O. M. (2020). Coalition for medical education—A call to action: A proposition to adapt clinical medical education to meet the needs of students and other healthcare learners during COVID-19. *Journal of Cardiac Surgery*, 35(6), 1174-1175. doi:10.1111/jocs.14590
5. Willoughby, K. A., Rodríguez, C., Boillat, M., Dove, M., Nugus, P., Steinert, Y., Lalla, L. (2016). Assessing students' perceptions of the effects of a new Canadian longitudinal pre-clerkship family medicine experience. *Education for Primary Care*, 27(3), 180-187. doi:10.1080/14739879.2016.1172033
6. COVID-19: The CMA supports Quebec's decision to expand access to telemedicine. (2020, March 14). Retrieved September 24, 2020, from <https://www.cma.ca/news-releases-and-statements/covid-19-cma-supports-quebecs-decision-expand-access-telemedicine>
7. Pourmand A; Ghassemi M; Sumon K; Amini SB; Hood C; Sikka N; Lack of Telemedicine Training in Academic Medicine: Are We Preparing the Next Generation? *Telemedicine Journal and e-Health : the Official Journal of the American Telemedicine Association*. <https://pubmed.ncbi.nlm.nih.gov/32294025/> (accessed August 22, 2020).
8. Bosse HM, Schultz J-H, Nickel M, Lutz T, Möltner A, Jünger J, et al. The effect of using standardized patients or peer role play on ratings of undergraduate communication training: A randomized controlled trial. *Patient Education and Counseling* 2011. <https://www.sciencedirect.com/science/article/pii/S0738399111005611> (accessed August 22, 2020).
9. The Challenges of "Continuing Medical Education" in a ... <http://www.annals.edu.sg/pdf/38VolNo8Aug2009/V38N8p724.pdf> (accessed August 22, 2020).
10. COVID-19 FAQ. (2020, September 01). Retrieved September 27, 2020, from <https://www.mcgill.ca/studentaid/faq/covid-19-faq>
11. Government of Canada. (2020, September 17). Retrieved September 24, 2020, from <https://www.canada.ca/en/revenue-agency/services/benefits/emergency-student-benefit.html>
12. Meo, S. A., Abukhalaf, A. A., Alomar, A. A., Sattar, K., Klonoff, D. C. (2020). COVID-19 Pandemic: Impact of Quarantine on Medical Students' Mental Wellbeing and Learning Behaviors. *Pakistan journal of medical sciences*, 36(COVID19-S4), S43-S48. <https://doi.org/10.12669/pjms.36.COVID19-S4.2809>
13. Dyrbye, L.N., Thomas, M.R., Shanafelt, T.D. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Academic Medicine : Journal of the Association of American Medical Colleges*. <https://pubmed.ncbi.nlm.nih.gov/16565188/> (accessed August 22, 2020).
14. Dyrbye LN, Harper W, Durning SJ, Moutier C, Thomas MR, Massie FS, et al. Patterns of distress in US medical students. *Medical Teacher* 2011;33:834-9. doi:10.3109/0142159x.2010.531158.
15. Mcneill KG, Kerr A, Mavor KI. Identity and norms: the role of group membership in medical student wellbeing. *Perspectives on Medical Education* 2013;3:101-12. doi:10.1007/s40037-013-0102-z.
16. Ishak W, Nikraves R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *The Clinical Teacher* 2013;10:242-5. doi:10.1111/tct.12014.
17. Kazerooni, A. R., Amini, M., Tabari, P., Moosavi, M. (2020). Peer mentoring for medical students during the COVID-19 pandemic via a social media platform. *Medical Education*, 54(8), 762-

