

## LEARNING FROM RAPID SOLUTIONS

# More than moving online: Implications of the COVID-19 pandemic on curriculum development

David A. Keegan<sup>1,2</sup>  | Susan L. Bannister<sup>3</sup> 

<sup>1</sup>Family Medicine, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

<sup>2</sup>Faculty Development and Performance, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

<sup>3</sup>Paediatrics, Cumming School of Medicine, University of Calgary, Calgary, AB, Canada

**Correspondence:** David A. Keegan, Family Medicine, Cumming School of Medicine, University of Calgary; G21, 3330 Hospital Drive NW, Calgary, AB, T2N 4N1 Canada.

Email: dkeegan@ucalgary.ca

Curriculum leaders in medical education responded to the COVID-19 pandemic in 2020 by converting in-person formal learning (lectures, small groups, etc) to online formats, removing medical students from clinical environments, creating interim learning opportunities to replace in-person clinical learning, developing plans to keep learners safe for their eventual return to clinical environments, and restructuring schedules. In this article, we describe and discuss five strategic implications of the pandemic's impact on curriculum development in medical education.

## 1 | ROLE OF NETWORKS

Curriculum collaborations provided important support to medical education leaders charged with moving their curricula online. Through these collaborations, networks of educators were able to pool resources and scholarly abilities. Pre-existing platforms of resources provided a strong foundation for educators, with some networks augmenting these platforms in response to the pandemic.<sup>1-5</sup> New networks had the additional challenge of developing principles, processes, goals and objectives urgently, and sometimes concurrently, yet were still able to support the transition to online learning.<sup>6-9</sup> Educator networks also provided opportunities for curriculum leaders in different programmes and institutions to support and guide each other, and share what was happening at different schools, allowing others to use insights to help their own programmes and students. Such educator networks should not only be supported, but fostered to further their growth, development, impact and reach.

## 2 | CURRICULUM LEADER RESILIENCY

Course, clerkship, residency and fellowship leaders bore direct responsibility for responding to the pandemic and shifting their curricula to the online environment. The majority of these curriculum leaders were practising physicians and were simultaneously responding to the calls related to clinical care during the pandemic, including extra clinical work, urgent department meetings, requirements to stay up-to-date with multiple correspondences per day from a variety of organisations, personal protective equipment fitting and training, and engaging in clinical management discussions to reorganise the care of their own patients. Many of these curricular leaders were also parents or guardians, and when schools and daycares closed, they needed to support, teach and care for their children at home during the day. While curriculum leaders rose to the challenge of quickly changing curriculum in response to the pandemic, for some it may have been at the expense of their mental, physical and social health, and by deferring academic projects and other personal priorities.

Many curriculum leaders received messages of support from senior educational leaders, professional organisations and colleagues, including encouragement to seek care if feeling burnt out. We suggest that senior leaders and professional organisations should assume curriculum leaders are already at significant risk of burnout and pro-actively develop programmes to help this group do their work. Such options could include assigning available faculty members and/or staff to assist with tasks that can be delegated, and mobilising funding (possibly from savings from not sending people to conferences) to purchase equipment, services and training to assist curriculum leaders.

### 3 | MEDICAL STUDENT CLINICAL LEARNING ENVIRONMENTS

While postgraduate trainees (residents and fellows) generally stayed in clinical environments as contributors to patient care, medical students were commonly removed from clinical training environments for several months early in the pandemic. On their return, many found their ambulatory training sites to have converted a large proportion of patient appointments from in-person to virtual. As a result of both issues, this cohort of medical students will graduate with less time spent in-person with patients during their training than preceding cohorts. This is concerning; it threatens their skill development in patient-centred care and physical examination.

To address both issues, curriculum leaders could provide guidance to clinical supervisors and medical students on how to maximise student engagement with in-person patient care. In any clinical environment with a blend of virtual and in-person patient appointments, medical students could prioritise seeing in-person patients over virtually scheduled patients and engage in patient contact activities which they might otherwise not normally have been involved with (such as checking vitals, applying dressings, and handing prescriptions, requisitions and other documents to patients). Medical students could also be trained as health coaches, which has been shown to increase their professional development and patient-centredness.<sup>10</sup> Finally, with the consent of patients, medical students could expand the scope of physical examinations they conduct. For example, a student could examine all major joints when a patient presents with an ankle sprain and conduct daily full physical examinations on the patients they follow in hospital.

### 4 | CONCURRENT CURRICULAR MANDATES

The need to change curriculum in response to the pandemic did not arise in a curriculum vacuum. The social accountability of medical schools to the populations they serve requires ongoing curricular oversight, with the emergence of important mandates from time to time. One key example is the current worldwide discussion of structural racism and the call for medical schools to identify and disrupt racism within their institutions.<sup>11</sup> This and other mandates are important and cannot be discarded in the pandemic context. At the same time, many of the people who will be charged with leading or implementing these initiatives are the same exhausted curriculum leaders describe earlier. While ongoing curriculum changes in response to the pandemic may provide an opportunity to simultaneously implement changes in alignment with social-accountability mandates, following such a dual strategy will require careful planning and additional human and other resources to avoid overwhelming curriculum leaders.

### 5 | FUTURE FINANCIAL CHALLENGES

The economic impact of the COVID-19 pandemic has been massive. It is unlikely governments will be able to sustain their previous levels of fiscal support for post-secondary institutions, including medical schools. The only options available are to increase other revenue or decrease costs, with the latter being the only option fully under their control. There are curricular opportunities which can reduce costs while continuing to provide excellent medical education.

First, many medical schools use small groups as a core curriculum structure, which require one faculty member for each small group of learners. Team-based learning (TBL) is a variation of small-group learning which requires only 2-3 faculty members to facilitate all small groups at the same time in a large room or auditorium and has been shown to increase student engagement and learning outcomes.<sup>12</sup> While converting curriculum to TBL is not a simple or quick process and will require initial development funding, it can yield stronger curriculum outcomes at an overall lower ongoing cost. Second, simulation has grown as a teaching methodology, yet many learning objectives best learned through simulation do not require expensive high-fidelity mannequins and set-ups.<sup>13</sup> Medical schools seeking to expand their simulation programmes could refine their plans to make more efficient use of their existing high-fidelity resources and explore low-fidelity solutions for when simulation is required. Finally, modest school savings can be achieved through medical school use of open-access curricular resources, such as those described earlier, in lieu of subscription-access resources.

#### ORCID

David A. Keegan  <https://orcid.org/0000-0002-9892-2710>

Susan L. Bannister  <https://orcid.org/0000-0003-0131-9649>

#### REFERENCES

1. Merali Z, Carayannopoulos KL, Lai A. All hands on deck: Creation of an online internal medicine redeployment curriculum. *Med Educ.* 2020;54:958-959.
2. Academic Life in Emergency Medicine, accessible at [www.aliem.org](http://www.aliem.org)
3. The Canadian Undergraduate Curriculum in Paediatrics, accessible at [www.canucpaeds.ca](http://www.canucpaeds.ca)
4. Kohlert S, Scherer N, Kherani S, McLean L. The utilization of the iOS platform to create learnENT: an interactive educational app in otolaryngology—Head and neck surgery. *Educ Res Int.* 2012;2012:1-9.
5. LearnFM, the Shared Canadian Curriculum in Family Medicine. Canadian Undergraduate Family Medicine Directors. Accessible at [www.learnfm.ca](http://www.learnfm.ca)
6. Barnes JH, Choby G, Carlson ML. How to create a subspecialty podcast: Headmirror's ENT podcast series. *Med Educ.* 2020;54:956-957.
7. Quick ICU Training for COVID. Critical Care Education Pandemic Preparedness. Accessible at [www.quickicutraining.com](http://www.quickicutraining.com)
8. Urology Collaborative Online Video Didactics (COVID). Accessible at [www.urologycovid.ucsf.edu](http://www.urologycovid.ucsf.edu)
9. Keegan DA, Chan M-K, Chan TM. Helping medical educators worldwide to pivot curricula online: pivotmeded.com. *Med Educ.* 2020;54:766-767.

10. Maini A, Fyfe M, Kumar S. Medical students as health coaches: adding value for patients and students. *BMC Med Educ.* 2020;20(1):182.
11. Disruption of all forms of racism. Policy, Rady Faculty of Health Sciences. accessible at [http://umanitoba.ca/faculties/health\\_sciences/media/Disruption-of-all-Forms-of-Racism\\_Policy-approved-August-25-2020.pdf](http://umanitoba.ca/faculties/health_sciences/media/Disruption-of-all-Forms-of-Racism_Policy-approved-August-25-2020.pdf)
12. Reimschisel T, Herring AL, Huang J, Minor TJ. A systematic review of the published literature on team-based learning in health professions education. *Med Teach.* 2017;39(12):1227-1237.
13. Bruno CJ, Glass KM. Cost-effective and low-technology options for simulation and training in neonatology. *Semin Perinatol.* 2016;40(7):473-479.