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Stuart Slavin et Marcel F. D'Eon

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Editorial

Overcrowded curriculum is an impediment to change (Part B)

Le programme d'études surchargé est un obstacle au changement (Partie B)

Stuart Slavin,[1] Marcel F D'Eon[2]

[1]Accreditation Council for Graduate Medical Education, Michigan, USA; [2]Educational Innovation Institute of the Medical College of Georgia, Augusta University, Georgia, USA;

Correspondence to: Marcel D'Eon, email: marcel.deon@usask.ca

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This is the second part of a two-part editorial on the chronic overcrowding in medical school curricula. In the first part,[1] we introduced the context and some reasons for the overcrowded curriculum. We pointed out the serious negative consequences for both learner well-being and for deep and lasting learning. In this final part, we will explore some of the substantial barriers to change and map out a few ways that may free us from this self-defeating entanglement with excessive content.

Barriers and resistance to reducing content

Why have we not adequately addressed the problem of content overload? From our own observations and conversations we believe one important factor is the resistance to change exhibited by some faculty and course directors. Some are willing, in principle, to reduce the amount of material but are uncertain as to what they could or should eliminate. This is not an insurmountable barrier. The second, a more serious obstacle to change we can attribute to long-held beliefs that we have heard espoused in curriculum committee meetings and informal exchanges. We contend that each of these arguments, and the mental models that undergird them, are incomplete or erroneous in some ways.

1. "You are dumbing down the curriculum." "We have to uphold academic standards." "You want to make this into a trade school."

High academic standards are essential and entail a certain level of academic challenge. Such statements are based on the false belief, however, that teaching more content leads to better academic outcomes. As demonstrated by the Yerkes Dodson curve (see Part A from issue 12.4[1]), no human endeavor follows an endless improvement in outcomes. As more is added—with respect to curricular content as well as curricular time—academic outcomes begin to level off and then eventually decline. Preclerkship education is too far on the right side of the Yerkes Dodson performance curve; counterintuitively, by reducing content, medical schools can improve the academic performance of their students for the long-term.

If an overcrowded curriculum leads to surface learning and rote memorization with limited retention, then we have unintentionally "dumbed down" the curriculum through a failure to filter the content. Memorization and cramming are crowding out higher order thinking which is necessary for long-term memory and ultimately effective medical practice: comparing, applying, analyzing, and synthesizing.

Finally, we should not define high standards by scores students get on a mid or end-of-course examination; we should define that by what is remembered long-term. Substantial evidence indicates that much of the basic sciences learned in medical school is not retained.[2-4]

2. "They will need to know this when they are practicing medicine."

Many faculty may have a limited idea of what students will actually need when they commence their practice as

physicians, including subspecialists with relatively narrow clinical interests. This is not to say that a strong foundation in the biomedical and clinical sciences is not important, rather, we contend that much of the information we teach as vital may not be so. As mentioned earlier, this is a problem of filter failure.[5]

Debates about what is most relevant and important need to occur, but relevance for practice must stand at the top of any priorities for content selection.[6] As we carry on that debate, we also need to recognize the reality that many physicians who graduated from medical schools a decade or more ago did not learn, and will likely never learn, much of the detail associated with medical scientific advances in recent years and their practice is not likely to suffer from this.

3. "We shouldn't coddle the students. We have to be tough on them because it will only get harder."

Residency and, ultimately, medical practice are inherently demanding and challenging, and challenges are indeed essential for learning and development. Being too easy on learners can have negative effects. Yet filtering the content is not about making medical school too easy, or "coddling." Filtering the content allows us to focus on the most relevant content while fostering higher order thinking and long-term retention.[7,8] Medical school should be demanding, but these arguments should not close off discussions of how demanding it should be. Furthermore, with 28% of medical students clinically depressed, it is hard to imagine that materially reduced mental well-being will prepare them for their future practice. We need to equip students with the skills, knowledge, problem-solving capacity, and positive attitudes that will allow them to succeed. Overwhelming our students with content for the sake of providing challenge does not prepare them to accomplish these goals.

4. "Some students can master my material, so they all should be able to."

This is clearly a part-whole fallacy. Just because there are some students who can manage a superabundance of content well enough to score highly on an exam does not mean that everyone can or that it is an appropriate educational strategy. Medical students tend to be extremely proficient learners, but the outstanding test-taking performance by some members of an elite group should not be a yardstick for measuring the appropriateness of the volume of content. Furthermore, as demonstrated by Mateen and D'Eon, just because someone scored high on the exam does not mean they will remember the content a year or two later, an outcome that is much more important.[2]

5. "Faculty have academic freedom; don't tell me what I can and cannot teach."

Yes, faculty are granted a great deal of academic freedom in many areas, especially research. However, medical schools exist to train people for a career in medicine which means mastering a body of knowledge and many essential skills. The Liaison Committee on Medical Education (LCME) clearly identifies in the standards quoted below who is responsible for determining curricular content:

8.1 Curricular management. A medical school has in place an institutional body (i.e., a faculty committee) that oversees the medical education program as a whole and has responsibility for the overall design, management, integration, evaluation, and enhancement of a coherent and coordinated medical curriculum.

8.3 Curricular design, review, revision/content monitoring. The faculty of a medical school, through the faculty committee responsible for the … content and content sequencing, ongoing review and updating of content….

Steps forward

Medical schools are charged with managing the curriculum. We can make a substantial and positive change by taking some simple steps to reduce and better filter the amount and nature of content that we teach medical students in the preclerkship stage of their education. Outside clinicians—ideally generalists—should routinely review courses to help guide and monitor this work. Medical schools must consider across-the-board cuts in curricular time and content as was effective at one medical school.[8] New courses must be carefully designed, and old content identified and removed or minimized. Assessment programs must clearly link objectives to course examinations. The minority of schools that continue to use grades in the preclerkship phase should consider moving to pass/ fail grading to disincentivize pursuit of knowledge for the sake of grades.

Conclusion

As a community that embraces evidence-based approaches to resolving problems, we need address counter-productive curricular bloat that impedes the dynamic adoption of new material while enabling

debilitating educational and mental health conditions. Directly facing the false narratives that promote a "more is better" notion of education is a good place to start. Tackling essential questions of what future physicians need to know will provide a better road map for equipping them with the critical tools they need to become physicians in this challenging career of modern medicine.

We trust that the large number of articles in this issue will not overwhelm you!

Major Contributions

The impact of urban-based family medicine postgraduate rotations on rural preceptors/teachers by Myhre and co-authors[9] examined how rural preceptors are impacted by the rural rotations of urban-based learners. Although preceptors found the experience intrinsically rewarding, it was also time-intensive and, at times, stressful.

The critical role of direct observation in entrustment decisions by Sibbald et al.[10] compared retrospective and real-time ratings to expected performance ratings for a residency objective structured clinical exam (OSCE) for two years. They observed that while both retrospective and real-time assessments were highly reliable, direct observation improved the validity of entrustment ratings even among senior residents.

Shaken and stirred: emotional state, cognitive load, and performance of junior residents in simulated resuscitation by Shayan Van Heer et al.[11] used simulated resuscitation scenarios to examine the relationship between pre-scenario emotional components, cognitive load, and performance scores of junior residents. They found that pre-scenario agitation was associated with lower performance scores. They concluded that residency program curriculums should aim to reduce residents' cognitive burden to improve performance.

Brief Reports

A pre-clerkship simulation-based procedural skills curriculum: decreasing anxiety and improving confidence of procedural skill performance by Battaglia and co-authors[12] evaluated how pre-clerkship procedural skills training affected medical student anxiety and confidence. Their results showed that students who participated in the procedural skills program had decreased anxiety and increased confidence. They maintained that standardizing pre-clerkship procedural skills training within medical school curricula could improve the transition to clerkship.

Level of patients' knowledge, confidence, and acceptance regarding the role of residents in a family medicine teaching clinic by Lise Babin et al.[13] studied the interrelationship between patients' knowledge about the role of medical residents, their confidence in residents' abilities, and their acceptance in receiving care from residents at a teaching clinic. Their results showed that acceptance of receiving care from residents was greater among patients if they had a higher confidence in residents' abilities. They concluded that schools should develop strategies to promote patient confidence in residents' skills.

Does the format residents use to give and receive feedback about teaching affect the usefulness of the feedback? by Okpalauwekwe and team[14] compared the quality of resident feedback when residents commented on either *some areas* of teaching or *all areas* of teaching on a feedback form. Their results favoured using the *some areas* condition. They recommend that other teaching workshops consider using this condition.

Black Ice

Developmental Evaluation: six ways to get a grip on the potential of education scholarship to serve innovation by Kathryn Paker and team[15] addressed the need to support students and faculty during a time of crisis. They offered six practical tips to use the Developmental Evaluation framework within medical education for the implementation of innovations forced by the COVID-19 pandemic.

Canadiana

In To lead or to influence? By Do and team,[16] the authors suggested reframing and renaming the CanMEDS *Leader* role to *Influencer.* They proposed that *Influencer* better reflects the scope, applicability, and potential of the role as one who influences team members, patients, the health system, and society as a whole.

You Should Try This

Resident-as-teacher to provide multidisciplinary online medical education on Instagram by Liu and Sharma[17] hosted resident-led education sessions on an Instagram account to publish short clinical "pearls" for medical students. Due to cancellations of out-of-province clerkship electives during the COVID-19 pandemic, their innovation allowed residents to practice resident-as-teacher by delivering structured medical education on Instagram.

The Community Health and Social Medicine Incubator: a service-learning framework for medical student-led projects by Nguyen, Niburski, and team[18] described The Community Health and Social Medicine (CHASM) Incubator. They described the opportunity for students to develop initiatives that promote health equity for historically marginalized communities. CHASM is the first Incubator driven by medical students. They hope to share their program with other medical schools to adapt and implement it in other communities.

Commentary and Opinions

Incorporating sustainability, eco-responsibility, and educational equity in the medical curriculum by Ana Hategan and Mariam Abdurrahman[19] suggested ways to minimize the environmental impact of quality healthcare such as using a digital medical curriculum when possible and reducing unnecessary procedures. They maintained that physicians have the opportunity to take on a leadership role within communities by promoting sustainable medical practices.

In their commentary, The importance of specialty experiences for Canadian medical student career exploration, Huo and MacNevin[20] provided suggestions for how medical schools could increase early specialty experiences in pre-clerkship training. They recognized that although their suggestions would require considerable financial and human resource investments, the efforts would improve specialty exploration and subsequently improve career satisfaction.

Works-in-Progress:

Does metacognitive awareness improve self-regulated learning and ensure academic achievement in the COVID-19 crisis? by Ghosh and Jegathisan[21] is studying how the roles of metacognition and self-regulated learning (SRL) can aid learning in a time of crisis. They will conduct a literature review to see what activities have been done to promote the development of SRL and metacognitive awareness during COVID-19.

Letters to the Editor

In her letter, Equity, diversity and inclusion and the CanMEDS framework,[22] Edsel Ing contended that the CanMEDS framework necessitates revisions to better embrace the principles of equity, diversity, and inclusion (EDI). Ing wrote that further integration of EDI directives into the CanMEDS roles is required to advance patient care and medical education.

In their letter Response to "*Resident-as-teacher to provide multidisciplinary online medical education on Instagram,*" Kassam and Shah[23] supported Liu and Sharma's use of Instagram as a teaching tool during the COVID-19 pandemic.[17] They also offered tips for improving online engagement such as creating polls and quizzes.

Conferences

Change processes to transform health professions education[24] contains the abstracts from the medical education conference organized by the Educational Innovation Institute of the Medical College of Georgia, Augusta University on October 20, 2021. It was hosted on Twitter using the hashtag, #MCGConf2021CP.

Images

In the image, A surgeon's paintbrush,[25] Luckshi Rajendran depicted a surgeon standing at an art easel holding a scalpel. Rajendran described the holistic and humanistic side of medicine as art – where the physician is practicing the art of listening, empathy, and trust.

Enjoy!

Marcel D'Eon, MEd, PhD

Editor, CMEJ

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