Rethinking Assessment in Medical Education in the time of COVID-19

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Abstract

The COVID-19 pandemic has impacted the design, delivery and processes in medical education. While the crisis continues, it is important to develop creative ways of assessment that continue to maintain the standards of medical education and accommodate the present environmental and social limitations brought on by COVID. This crisis also offers an opportunity to transition programs to a competency based curriculum.

The transition should be comprehensive but staged to include current and prospective learners.

It is important to first consider the existing framework of assessment and work backwards on design and process. As an immediate and first step would be to add multiple opportunities for formative assessment into the new approaches adopted for teaching/learning (T/L). Standard assessment formats in medical school that include written exams (like MCQs, SAQs and practical skills via OSCE) will need to be re-imagined and re-planned.

It may now be time to consider shifting focus of assessment to attainment of competencies. This is a longer term process but can be phased in. As a start using low stakes assessment as part of entrustable professional activities that are task directed and encompass domain of knowledge, skills and attitude.

Revisiting older modalities and introducing new ways that accommodate distant engagement may need consideration for e.g. structured viva, use of log books for assessment, virtual patients, e-portfolios.

Thus an emphasis in assessment should be on using multimodal tools for formative and summative assessments that focus on mastery in clinical reasoning, problem solving and decision making skills allowing transition to a competency based curriculum.

The key task will be the timely creation and monitoring of a balanced face to face and online assessment program keeping in mind resource availability, faculty buy-in and support of regulatory and licensing bodies.

Keywords: Assessment; undergraduate program; competency based medical education
Background

As of April 16th 2020, 210 countries have been affected by COVID-19 (Worldometer). Most countries are at various trajectory points in this crisis. Some may have flattened the curve, others are in the midst and some still awaiting the full onslaught of the virus. Therefore predicting its end may be difficult. Furthermore the ongoing concerns about acquiring immunity and development of an effective vaccine lend support to this being a longer term scenario for most of the world.

During this COVID lockdown, medical colleges have prudently adopted alternative ways of teaching and learning (Ahmed et al., 2020). Adjustments in assessment are also evident (Boursicot et al., 2020). However a comprehensive strategy is required to gauge not just the effectiveness of these new teaching/learning strategies but to also uphold the standards of medical education.

As COVID may be the first among similar such pandemics (Daszak et al., 2020) we must consider this event as a reset point and an opportunity to transform medical education. While asynchronous and synchronous ways are being readily adopted for teaching/learning (T/L), can we rely on the honesty and honor code of young minds to ensure fairness and transparency using current modalities of assessment? A lot more deliberation will be needed to ensure that we develop safe physicians who are ready for a world altered by a single event.

Assessment redesign: rationale and strategies

It is important to first consider the existing framework of assessment. Formal assessment in most medical colleges is largely centered on satisfactory attainment of knowledge and skills. Students nowadays have multi-source access to knowledge in today's digital world therefore knowledge testing should be embedded in problem solving with increasing complexity overtime (Humphrey-Murto et al., 2017). It may also be time to perform an in-depth review of the most commonly used physical exam skills by practicing physicians to allow a strategic selection and assessment of those very skills. While physical examination can never be completely replaced, COVID-19 has enhanced the role of telemedicine (Leite et al., 2020) that limits the role of physical examination. This practice of distant disease management may continue to grow even after COVID gets contained, transforming medical care for the long term. Now more than ever before, it is important to shift our focus to attaining competencies that allow future physicians to combat a rapidly changing health milieu.

So how should the focus of assessment shift? One hopes that the turmoil seen with COVID does not occur on the side of education and a deliberate and staged plan is developed to achieve the desired outcomes. While assessment is often the endpoint in a curriculum design, but certain immediate steps are required as COVID-19 continues.

The plan should include not only current but prospective learners as well. This is also an opportunity to keep the "end in mind" and gradually introduce strategies used in competency based medical education (CBME).

At an entry level, intake exams maybe forsaken for pre-existing college scores or high school performance and feedback based on a format similar to MSPE (Andolsek, 2016) from previous institutions. Now more than ever may be the time to consider more uniform use of testing for traits of resilience (Howe et al., 2012), problem solving and self-efficacy. With growing risk to the mental well-being of healthcare workers such traits (Greenberg et al., 2020) become essential to ascertain in prospective physicians. Gathering evidence of being socially responsive is another domain worth exploring.

During the 4 or 5 years of medical school, the framework of assessment needs meticulous planning to ensure that
basic principles of assessment are met. Assessments must continue to be valid, reliable and feasible (General Medical Council, 2009). Standard assessment formats in medical school that include written exams (like MCQs, SAQs and practical skills via OSCE) will need to be re-imagined.

Most medical schools currently use physical spaces for summative written examinations that often house large number of students. Such face to face assessments are conducted primarily to ensure integrity and security of examination. Institutions may have to consider creating larger venues that allow physical distancing or plan a greater number of venues to achieve the same goal. A recent article described the specifics of how an OSCE was conducted during the COVID crisis (Boursicot et al., 2020).

It may also be useful to consider strengthening processes for ongoing assessment. As a first step adding multiple opportunities for formative assessment into smaller and larger T/L activities. These opportunities can be created remotely using institutional learning management systems wherever available, to place activities that allow formative feedback. This regular and consistent e-feedback would give students more direction and assume responsibility of their own learning journeys.

Introducing entrustable professional activities (EPAs) may allow (distant) monitoring of some pre-defined tasks e.g. history taking (Sohrmann et al., 2020). Overtime as competency of a pre-defined task is achieved tools like MiniCEX could be used (done either face to face or remotely) for formative, ongoing and final assessment (Mortaz Hejri et al., 2020).

Use of e-portfolios has thus far been limited. This can create opportunities for formative and summative assessment and reflection and greater faculty student engagement (Chertoff et al., 2016). Such portfolios can include activities like students adding videos specific tasks performed as part of formative or ongoing assessment that is seen over time.

Some end of module/clerkship assessment strategies can be converted to non-face to face without compromising integrity or feasibility of assessment. As an example older modalities like viva may need to be revisited (Akimov and Malin, 2020). Using structured viva formats allows it to remain a reliable tool (Ganji, 2017).

Another possible tool to consider is log books. Log books are currently used to monitor the spectrum of patients seen by students’ over time (Denton et al., 2007). Using a student’s own patient log could be used for assessment via creation of structured questions on the particular disease/s seen by a students to gauge knowledge, critical thinking and clinical reasoning skills across the variety of patients seen by the individual student.

Practice OSCEs could be introduced where examiners could observe candidates perform a series of assigned tasks of history and examination skills allowing assessment of communication and clinical reasoning skills while allowing repeated opportunities for practice and mastery. Similarly, high fidelity mannequins could be utilized for physical examination skills and identification of abnormal findings (Tsai et al., 2003).

Virtual patients (VPs) have been used both for formative and summative purposes (Poulton and Balasubramaniam, 2011), with value for knowledge application across differing scenarios and clinical reasoning and as another practice tool that allows opportunities for mastery (Consorti et al., 2012) (Berman et al., 2016). The value of using VPs now becomes more apparent than ever, as a modality to assess critical reasoning and decision making skills. While lots of virtual patient programs exist, locally developed VPs that depict regional disease patterns would make learning and assessment more contextual. This could also lead to the development of virtual rounds, wards and virtual communities.
In summary a greater emphasis in assessment should be on using multimodal tools for low stakes and high assessments that focus on mastery in clinical reasoning, problem solving and decision making in different clinical scenarios and simultaneously allow transition to a competency based curriculum. While some of these strategies may be transient until physical distancing is required, others may become a more permanent part of the assessment program.

What is imperative in the design and placement of such activities is resource availability, faculty buy-in and support. This may also be an opportunity for countries with limited resources to collectively develop and share their online resources. The key task will be the timely creation and monitoring of a balanced face to face and online assessment program that is acceptable to all stakeholders including regulatory and licensing bodies.

**Conclusion**

The COVID-19 pandemic has necessitated the development and implementation of new T/L and assessment modalities. It also offers an opportunity to improve design, planning and implementation of an assessment program that aligns to provision of competency based medical education.

**Take Home Messages**

- Timely modification of low stakes and high stakes assessment is important during the ongoing COVID-19 pandemic
- This time also presents an opportunity to transition to a competency based curriculum

**Notes On Contributors**

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**Appendices**

None.

**Declarations**

The author has declared that there are no conflicts of interest.

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