Original Article

CanMEDS curriculum in Saudi Arabian context: Lessons learned and way forward

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ABSTRACT

Background: Saudi Commission for Health Specialties (SCFHS) has adopted CanMEDS competency framework for developing curriculum for postgraduate training programmes.
Purpose: The purpose of this paper is to share the process of developing postgraduate curricula under SCFHS's patronage and to identify potential barriers to implement newly developed curricula and suggest strategies to overcome the barriers.
Methods: The process of consensus building started with one-one interview with key stakeholders, review of literature, and comparison of various curricular models. A prototype curriculum was developed with inputs from international advisors. The proposal for the curriculum development and outcomes was reviewed amongst SCHS education committee members and approved. Two medical education experts have been involved in coordinating the process of curriculum development.
Results: Over the last two years, SCFHS has been working with several residency and fellowship programmes to develop formal curricula. The goal is to complete formal curriculum for all residency and fellowship programmes using CanMEDS competency frameworks.

Keywords: CanMEDS, curriculum development, Saudi Arabia

INTRODUCTION

The purpose of this article is to describe the process of postgraduate curriculum development under the auspice of Saudi Commission for Health Specialties (SCFHS) and lessons learned from doing so. This is meant to be a reflective exercise with a critical analysis of events leading to identification and anticipation of future challenges that might follow.

At the outset, it is imperative to understand the notion of a curriculum as it is applied to medical education and its overarching influence on training of future physicians. Although, definitions of curriculum abound, there are many misconceptions and lack of a common understanding in describing the process of curriculum development. A pragmatic approach is to start with the end in mind[1] that is, detailing the expected abilities or competencies of the graduates first; then progressing backward to identify suitable teaching and learning strategies, content and support systems required to achieve the goals. A robust assessment system should be in-built within the curriculum to support learning by the trainees and satisfy public and professional organisations regarding trainees' ability to provide safe and effective healthcare.

There are several competency-based curricular models available around the world to guide the education of future physicians. Some of the better known and well-established models from the English-speaking world

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include that from the Accreditation Council of Graduate Medical Education's Milestones,[2] the General Medical Council's (GMC) Outcomes for Graduates[3] and Canadian Medical Council's CanMEDS Competencies framework.[4] Recently, the Saudi Dean's Council has finalised the process of defining graduate outcomes in Saudi Arabia.[5]

To an uninitiated reader, it might be perplexing that there are so many different frameworks of competencies surrounding training of the physicians which is, after all, based on universal values. However, a critical analysis of these frameworks reassuringly identifies common themes: Knowledge in medical sciences, clinical competency, communication and collaboration, professionalism and ethical behaviour, scholarship including a life-long learning and research and improving the delivery of healthcare. Therefore, it matters less which framework we choose to develop the curriculum; what is more important is the process undertaken to develop the curriculum, disseminating the curriculum to all the stakeholders and creating an environment where a curriculum can be delivered effectively.

The leadership of the SCFHS adopted the CanMEDS framework as a way of defining the competencies for postgraduate programmes under its purview. The CanMEDS curriculum has seven roles; the central role is that of a medical expert. Other roles include: Communicator, collaborator, manager, scholar, health advocate and professional [Figure 1]. Adopting an already existing and well-established framework has several advantages: It expedites the time needed to develop the curriculum, allows benchmarking and comparisons with other international programmes, facilitates cross-border training of physicians, and allows easier sharing of resources including faculty training and assessment materials.
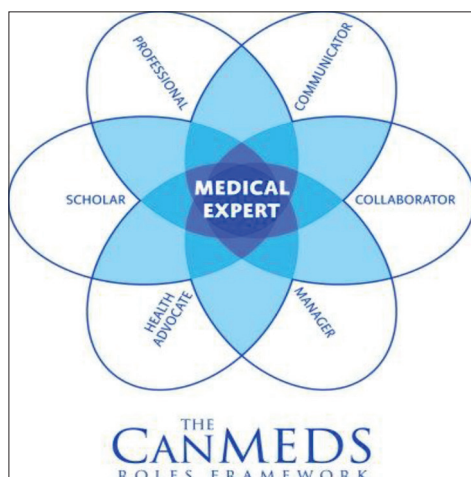

Figure 1: CanMEDS competency framework (copyright: Canadian Medical Council)

Adaptation of a curriculum, originally intended for another country, should take into account the context of local healthcare delivery, demographic characteristics, cultural practices, epidemiology and disease prevalence within in the country, prevailing socioeconomic norms, levels of preparedness and maturity of trainees and trainers, as well as available resources. Needless to say, wholesale adoption of any curriculum is not ideal. A more pragmatic approach is to accept the general principles, modify the existing curriculum for local needs, then review the existing local curriculum and identify the elements that could be incorporated within the new framework and incorporate other best practices from around the world.

PROCESS OF CURRICULUM DEVELOPMENT

Before the definitive process of curriculum development under the patronage of SCFHS started, a general review of existing curricula within Saudi Arabia was undertaken. This was supplemented by a one-to-one interview with many key stakeholders. It was a revealing exercise. The curricula that existed then varied widely in terms of sophistication, frameworks or models adopted and the amount of information provided within the curriculum. Although there were exceptions, most curricula were rudimentary in nature with some very basic information related to prescribed rules and regulations from the Saudi Commission. There was a serious lack of information regarding expected outcomes of the trainees, teaching and learning methods and assessment. During the consultative process, it was evident that most curricula were not known to the stakeholders. For those specialties with no meaningful pre-existing curriculum, it was clear that the curriculum needs had to be developed *de novo*.

A prototype curriculum was needed for those specialties without any existing meaningful curricula. The idea came from the realisation that in the absence of an 'ideal curriculum' it is imperative to provide a reference for the curriculum developers or scientific committee members with sufficient examples and alternatives so that they could choose from a range of options and customisations. The prototype curriculum should describe minimum requirements that need to be included in the newly developed curriculum, as well as general guiding principles for developing various segments of the curriculum, the philosophical and pedagogical basis for selecting competencies, educational approaches and assessment. The prototype curriculum was thoroughly discussed at SCFHS and approved. The prototype played a crucial role during the initial phase of the curriculum development process; however, it lost some of its importance later as newly developed curricula became more and more available to individual teams who could choose one to follow that was closer to their specialty.

There were few specialties which had taken any independent initiatives to develop their curriculum in recent years which may or may not have been aligned with the intended CanMEDS framework. This created an added challenge; because disregarding their hard work and forcing them to follow the CanMEDS framework would risk resentment and opposition among the committed curriculum developers and ultimately become a barrier to curriculum reform. After careful consideration, a pragmatic approach prevailed over the desire to create a uniform curricular model. Newly developed curricula, even if they did not fit the CanMEDS framework, were approved; provided these curricula specified the competencies to be achieved, described teaching and learning methods and incorporated a robust assessment framework. The specialty teams were encouraged to incorporate fundamental elements of CanMEDS and work towards adopting the CanMEDS framework for future revisions.

In essence, this highlights the importance of timely action. Had it not been the Saudi Commission's initiative to start the process of curriculum development on time, many more specialties might have taken their own initiatives to develop curricula using different models, thereby creating a potentially unmanageable situation, where quality assurance, benchmarking and standardisation of assessment methods would have been extremely difficult.

INNOVATIONS AND CONTEXTUALISATION

As stated earlier, adaptation of CanMEDS to the Saudi context required careful consideration of the context of local healthcare delivery, current and future needs, demographic and cultural differences, epidemiology and disease prevalence, varied preparedness of recent medical graduates, overemphasis on assessment of knowledge, highly distributed clinical training sites across the Kingdom and the prevalent practice of rotation-based training. Therefore, several innovative approaches were incorporated within the CanMEDS framework as a way of making the curriculum relevant to local needs.

HIGH IMPACT CONDITIONS AND PROCEDURES

One of such innovations was to develop a list of the most common conditions and procedures for each specialty. Depending upon the nature of the practice, the common conditions' list might include top causes of morbidity, mortality, admissions, out-patient visits, or emergency department visits. Similarly, for surgical specialties, such a list could be of the most common procedures performed and most common causes of morbidity and complications.

This exercise was highly beneficial. It allowed each specialty to focus on what was more important in the local context. The instructions to the curriculum developers was to ensure that these common conditions were adequately reflected in the competencies, that they were properly taught and assessed during training and proportionate time was allocated to this high priority list. It is explicitly stated that this list was not intended to be comprehensive and the trainees should take their own initiatives to learn beyond the priority list. This would require a fundamental shift of the mindset among the trainees and trainers to learn and teach outside the formal curriculum.

UNIVERSAL TOPICS

With the proliferation of medical schools in Saudi Arabia along with their varied curricula and available resources, there has been no assurance that some of the core topics needed for practice in a contemporary healthcare delivery system were being taught adequately in the medical schools. Therefore, there has been a need to develop high-quality teaching materials that could be accessed 24/7 by any trainee from any given site throughout the Kingdom. The idea of 'Universal Topics' was born out of that need. To be included in the Universal Topics, a topic must meet one or more of the following criteria:

- Impactful: These are topics that are common or life-threatening; such as diabetic emergencies and chest pain
- Interdisciplinary: Topics that are difficult to develop and be taught by a single discipline; such as blood transfusion and cancer prevention
- Orphan: Topics that are poorly represented in the undergraduate curriculum; such as care of the elderly, safe prescribing and smoking cessation
- Practical: Topics that trainees encounter in hospital practice; such as acute and chronic pain management, sepsis

After several reiterations, a final list of 36 topics across seven modules was approved by the SCFHS [Table 1]. Each topic will be delivered online in an audio-visual format with pre- and post-test multiple-choice questions to ensure learning has taken place. Each specialty was given the freedom to choose topics that were most relevant to their needs and distribute those topics across the programme years. A professional CME provider has also been appointed by the SCFHS to coordinate the developmental process and implementation.

Table 1: List of universal topics

Module: Introduction
  Safe drug prescribing
  Hospital-acquired infections
  Sepsis; SIRS; DIVC
  Antibiotic stewardship
  Blood transfusion
Module: Cancer
  Principles of management of cancer: Chemotherapy; radiotherapy, surgery, immunotherapy
  Side effects of chemotherapy and radiation therapy
  Oncologic emergencies
  Cancer prevention
  Surveillance follow-up of cancer patients
Module: Diabetes and metabolic disorders
  Recognition and management of diabetic emergencies
  Management of diabetic complications
  Comorbidities of obesity
  Abnormal ECG
Module: Medical and surgical emergencies
  Management of acute chest pain
  Management of acute breathlessness
  Management of altered sensorium
  Management of hypotension and hypertension
  Management of upper GI bleeding
  Management of lower GI bleeding
Module: Acute care
  Pre-operative assessment
  Post-operative care
  Acute pain management
  Chronic pain management
  Management of fluid in the hospitalised patient
  Management of electrolyte imbalances
Module: Frail elderly
  Assessment of frail elderly
  Mini-mental state examination
  Prescribing drugs in the elderly
  Care of the elderly
Module: Ethics and Healthcare
  Occupational hazards of HCW
  Evidence-based approach to smoking cessation
  Patient advocacy
  Ethical issues: Transplantation/organ harvesting; withdrawal of care
  Ethical issues: Treatment refusal; patient autonomy
  Role of doctors in death and dying

HCW: Health care workers, GI: Gastrointestinal, ECG: Electrocardiogram, SIRS: Systemic inflammatory response syndrome

CORE SPECIALTY TOPICS

Universal Topics are supplemented by core specialty topics: A set of essential topics specific to the given specialty. Core specialty topics include theoretical knowledge-intense topics as well as practical, hands-on experience in the form of workshops and simulation. The need for this arises from the fact that training centres are distributed widely across the Kingdom;

this has resulted in the great variability of, for example, available faculty across training sites. Unsurprisingly, there is also variability in the quality and content of teaching delivered to trainees at the training sites.

The development of core specialty topics was easier as some of the established training sites already have well-developed teaching programmes. However, most of the teaching was still didactic, providing opportunities to introduce workshops and simulation courses with other educational activities related to clinical practice. Each specialty was then tasked to develop a comprehensive list of workshops and simulation activities focusing on practical procedures, communication and counselling. The intention has been that the core specialty topics will be delivered locally at individual training sites based on agreed learning outcomes. In future, it is expected that at least some of the Specialty Boards will develop these topics centrally and make them available to all trainees as E-learning modules.

Furthermore, trainees and individual training sites are given the freedom to choose additional topics based on their own interest and needs. It is estimated that about 10 - 20% of the topics would be selected by trainees themselves. Figure 2 illustrates the relationship between universal topics, core specialty topics and trainee selected topics.
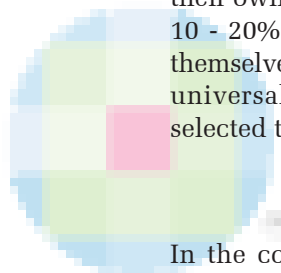
HOLISTIC ASSESSMENT

In the context of postgraduate training, assessment serves several crucial functions. It should support and create learning, reassure the public and regulatory bodies about the trainees' competency and preparedness for practice and monitor the progress of trainees. In this respect, separating the learning from assessment would be counter-productive as the two are intimately linked. Therefore, several guiding principles were proposed to create a robust assessment:

- Judgments should be based on holistic profiling of a trainee rather than individual traits or instruments
- Assessment should be continuous in nature
- Trainees and faculty must meet to review portfolios and logbooks at least once every 2 months and at the end of the rotation
- Assessments should be strongly aligned with the curriculum and its content

In parallel, the SCFHS has also taken several initiatives to improve the overall quality of the postgraduate training programmes that would have a very positive effect on the delivery of the curricula. One such initiative was to develop detailed guidelines for the assessment of trainees, which reinforces and extends the guiding
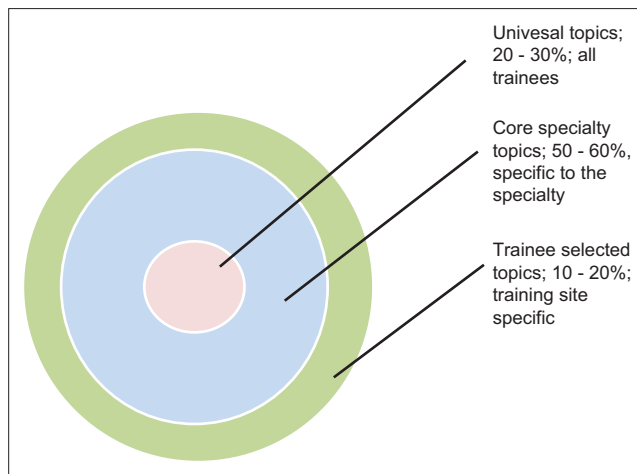
Figure 2: The relationship between universal topics, core specialty topics and trainee selected topics

principles outlined in the curriculum including the comprehensive assessment of all competencies, greater emphasis on clinical examination, testing of higher order cognitive skills such as clinical judgment and decision making and less reliance on pure recall of factual curricular content. Other initiatives from the SCFHS that are expected to have a positive impact on the curriculum include an electronic log-book (T-Res), the creation of large multiple-choice question banks, faculty training and supporting the development of simulation courses.

MOVING FORWARD

Writing a well-developed curriculum is only one of the many steps leading to quality education. It is the first, but not the last. Curriculum implementation with the periodic review as a way of quality improvement should be the norm.

Dissemination of the curriculum to all the stakeholders is an essential step in curriculum implementation that is often ignored. The goal should be a transparent, portable curriculum that is widely accessible to all stakeholders. With the ubiquitous presence of mobile devices, this goal can be easily achieved. Newly developed curricula come in two different formats: A longer version available in print and uploaded on the web and a shorter version with key information and links available on mobile devices.

Stakeholder engagement is needed to have buy-in and ensure continued support for all the new curricula. It is imperative that stakeholders, that is, faculty, trainees, programme supervisors and administrators, view the curriculum as their own. There has to be a shift in mentality from 'their curriculum' to 'my curriculum'. Empowering the stakeholders, celebrating small

successes and getting continuous feedback from the ground are some of the proven strategies to build an alliance for curriculum implementation. There is a plan to conduct a series of workshops for all programme directors, site supervisors and other key personnel by the respective Specialty Boards to disseminate the key messages enshrined within the curriculum and to proactively solicit their views regarding implementation.

Traditionally, faculty training during curriculum implementation focused on pedagogical aspects such as effective teaching and learning strategies, assessment methodologies and feedback. While these are important, faculty training in pedagogy needs to be supplemented by faculty training in the core content areas of the specialty. This is essential as the medical sciences are changing rapidly and many faculty members come from diverse backgrounds. They may not have the same opportunities to be kept abreast with prevalent and evidence-based practices.

Finally, curriculum monitoring with the goal of further improvement should be an integral part of any curriculum reform process. It is very important that careful thought is given to identify what outcome parameters should be measured. Easy to measure but wrong outcomes lead to wide-spread dissatisfaction among stakeholders. The stakeholders need to decide *a priori* what would constitute true success or failure of the curriculum, even though measuring those outcomes could be challenging.

CONCLUSION

Since the beginning of the process, about 2 years ago, more than a dozen curricula have already been developed, and many are in varying stages of advanced development. Even the postgraduate Nursing and Dental programmes have sought advice on their curriculum development with the intention to learn from the ongoing process. The progress so far can be attributed to several factors including the foresight of the SCFHS' leadership to improve postgraduate curricula across all specialty boards with the unwavering support of the specialty teams, as well as the availability of high quality scientific committee members, often with training in pedagogy and the administrative support from the SCFHS.

encouragement and support. Ms. Ghada Al Eidi's and Laila Yousef's diligence and attention to detail have been invaluable in keeping the teams going and paperwork running smoothly.

Conflicts of interest

There are no conflicts of interest.

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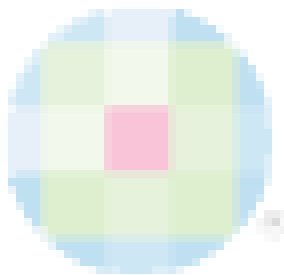
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