

What are the fundamentals for a Medical School Curriculum in the 21st Century?

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INTRODUCTION

Challenging the Conformity of Medical Schools Training

As the twenty-first century hits its stride, health professions training and education programs are re-examining their validity and relevance in the context of their social accountability. The 2010 Lancet Commission Report, *“Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World”*¹, called for change with both the need to transform education, to strengthen widespread health systems internationally and to train health professionals to meet the needs of society. One of the most translated and internationally disseminated Reports in The Lancet’s history; it highlighted a call from 20 professional and academic leaders for major reform in the training of doctors and other healthcare professionals for the next century. Fragmented, outdated, and static education models widely adopted, now produce graduates who fail to meet the needs of society. A mismatch between these health education programs and the health system is at the heart of this problem. The Commission argued for major reform across the entire medical education system, in order to produce competency-led curricula for the future. Massive

and disruptive instructional and institutional reforms were recommended as well as enabling actions producing new leadership that could collaborate work across health professions in community, hospital and primary care settings and lead health system transformation.

Reform movements across the world from the UK to Europe, in the USA and Canada, Australia and New Zealand have all been asking the question: *What does a twenty-first century doctor need to know? What changes are needed to the education curricula to ensure that medical students graduate with the competencies that are required to address societal need?*

Competency-Based Education

In response to the reforms that occurred around the world, a worldwide competency-based education movement is happening in medical education. The concepts of community engagement and social responsibility play major roles in defining the appropriate, culturally and politically relevant curriculum for a region, a population and even a country. These concepts are having an immeasurable impact on entire systems of medical school curricula, accreditation standards, graduate training, and the overall life-long assessment of practicing physicians.

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The seven roles of the Canadian CanMEDS Competency Framework² (Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional) have been widely adopted as critical for the emerging medical practitioner and indeed for all health practitioners.

The words *competency* and *competency-based education (CBE)* have rapidly become vogue and are becoming the norm in many technical and interventional based training programs where achievement of competency is more readily measured than in the cognitive programs which make assessment more difficult. The latter still rely on the traditional measurement of knowledge-skills-attitudes (KSA). As defined by Frank et al.³, competency-based medical education is, “*An outcomes-based approach to the design, implementation, assessment, and evaluation of medical education programs, using an organizing framework of competencies*”.

Adding to the development of the CBE platform, the *entrustable professional activity (EPA)*⁴ concept has emerged. The EPAs are set up to link competencies to clinical practice and make them more relevant and meaningful. EPAs are defined as tasks or responsibilities that can be entrusted to a learner, that once sufficient, a specific competence is reached to allow for unsupervised execution. As this trend continues, EPAs will form a significant part of medical school standards in the next few years.

Due to the challenges of today’s health care systems, the redesign of medical schools using CBE and EPAs is being undertaken. In order to ensure that the reforms address the health needs of the world’s population, the Institute of Medicine (now known as the National Academies) Report, “*Health Professions Education: A Bridge to Quality*”⁵ identified core competencies that all health clinicians should possess to meet the needs of the 21st century health care system. These are:

- **Provide patient-centered care** — *identify, respect, and care about patients’ differences, values, preferences, and expressed needs; relieve pain and suffering; coordinate continuous care; listen to, clearly inform, communicate with, and educate patients; share decision making and management; and continuously advocate disease prevention, wellness, and promotion of healthy lifestyles,*

including a focus on population health;

- **Work in interdisciplinary teams** — *cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable;*

- **Employ evidence-based practice** — *integrate best research with clinical expertise and patient values for optimum care, and participate in learning and research activities to the extent feasible;*

- **Apply quality improvement** — *identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification; continually understand and measure quality of care in terms of structure, process, and outcomes in relation to patient and community needs; design and test interventions to change processes and systems of care, with the objective of improving quality;*

- **Utilize informatics** — *communicate, manage knowledge, mitigate error, and support decision-making using information technology.*

With new medical and scientific knowledge coming to light each day, medical educators around the world have concluded that memorizing a tedious list of facts and data is no longer the ideal way to assimilate knowledge nor is it contemporary to adult based learning. The reaction against the old “*garbage in, garbage out*” approach recognizes that medical information becomes quickly obsolete and does not prepare tomorrow’s doctors to practice and learn in an ever-changing clinical environment.

Competency-based medical education is believed to be one answer. CBE relies on a curriculum designed to provide the life-long skills physicians need, and rids the system of mass-produced minutiae and facts that bear little meaning in the clinical care setting.

What does a Medical School using CBE have to do?

A medical school using competency-based medical education must define a set of skills or competencies based on societal and patient needs, and then introduce ways to teach that content across a variety of methods and settings. The competency-based approach still includes scientific knowledge, but puts it in the broader context of a physician’s role as a Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and

Professional. A competency-based curriculum also seeks ways to achieve greater diversity among medical students, factoring in skills and backgrounds that could enable them to meet the needs of the communities where they will practice.

Teaching CBE mean that schools have to restructure larger lecture-based courses and use a variety of other adult learning methods such as small group tutorials, problem-based seminars, group discussions, active community-based clinical learning experiences, and ongoing formative assessments using portfolios, OSCEs (Objective Structured Clinical Examination), 360 evaluations, self-assessment and peer review.

Defining the region, population or country's competencies, and adapting assessments beyond a high-stakes end of year examination, are perhaps the two most significant challenges facing medical schools as they migrate to competency-based medical education.

Critical to the success of the shift to the CBE model, a medical school must: define its competencies; assess their relevance in context of their population needs and societal expectations; use different methods for teaching and develop faculty to teach these new ways; create an evaluation framework that determines if the model is successful; longitudinally follow its graduates to see if they practice in areas of need⁶.

A medical school that is rooted in centuries of traditions using a "time-based" or duration-based model of medical education falls prey to territoriality of Departments and specialties who feel they own that segment of the medical school and to the ransom of remuneration models that reward the delivery of content but not the achievement of excellence. Furthermore, service-based rotations rely on the work of the learners to ensure care is provided to patients make the CBE system difficult for most traditional schools to understand let alone adopt. But, systems based exclusively on time spent *pickling in the juice of a specialty* are simply not optimal for meeting the education and assessment needs of physicians from admissions through to retirement.

CONCLUSION

Change is Needed

The reforms sweeping the globe in health profession

education especially in medical schools are a direct response of the "New World" to the "Old World". In the Old World, we practiced in silos and in the New World we practice in Teams. In the Old World the doctor is at the top of the hierarchy but in the New World, health care is part of a complex living entity and if publicly funded, it demands interprofessional care in teams, transparency and high accountability for the return on investment for monies expended in health education. In the Old World, assimilating large amounts of knowledge and being tested in exams were the means of attestation to being a doctor but in the New World, evidence-based practice, critical appraisal and life-long learning skills predominate, and duration-based education is being replaced in appropriate areas with competency-based education models.

Competency-based education is a framework for designing and implementing education that focuses on the desired performance characteristics of health care professionals. CBE makes competence explicit by establishing observable and measurable performance goals and performance indices that learners must attain to be deemed competent. EPAs, place much of the responsibility for what is learned in the student. EPAs and CBE should be at the center of all new curricular models. CBE explicitly maps the specific health needs of the populations to a set of competencies for the workforce to be trained. Clearly defining the health needs of the community is necessary in order to identify outcome variables that can be mapped to desired changes in health, to ensure program accountability to relevant stakeholders, and to focus learners in these health professions on aligning their own performance with the health expectations of society.

Competency-based education (CBE) provides a useful alternative to time-based models for preparing health professionals if a medical school can achieve the following: defining the competencies, identifying socially relevant standards, setting valid assessment and developing self-regulated and flexible learning options. Modern medical education recognizes that complexity of the health care system relies on interprofessional care, the ability to continue learning as information evolves, the use of technology and the professionalism to care and be compassionate as well as being an expert in the field of medical knowledge.

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