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Editorial

Postgraduate Medical Education: Beyond the Role of the Medical Expert and Towards a Socially Responsible Resident

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In a letter to the editor in the current issue, Anne Rowan-Legg points out that physicians must acknowledge that well-intentioned human acts may lead to unwelcome consequences. Similar to the environmental concept referred to as the ecological footprint, she describes a term relevant to medicine called the *medical footprint* defined as, what physicians leave with their patients at the end of an encounter, or more specifically, the patient's perception (or misperception) of their own state of illness or health.

As part of being a socially responsible physician, she describes the concept of the medical footprint as *dealing primarily, and most importantly, with the impact of investigative decisions on patients*, which should not only include a societal dimension of sustainability, but a global dimension of sustainability as well. As effective managers, physicians must be aware of the use of resources and Rowan-Legg proposes a shift in how physicians think and are educated, more specifically, *a green movement of sorts in our hospitals, clinics and classrooms*.

At present, medical education institutions are not held accountable to demonstrate the ways in which their graduates serve society, whether it is related to the medical footprint or otherwise. Clinical teaching in medical education has recently evolved from the apprenticeship model to multi-modal and didactic teaching aids and a more active role for the clinical teacher.^{1,2} Non-conventional teaching, such as simulation, electronic aids, and interactive forms of learning for learner physicians through active participation, are being implemented. Recently educational institutions are taking these developments into account for evaluation and accreditation purposes.²

Social responsibility refers to being accountable to society for actions intended to serve it.² In the area of healthcare, social responsibility involves a commitment to respond as best as possible to the priority health needs of citizens and society.² As Dharamsi and colleagues explain,³

A physician's place in society is closely tied to a moral sense of responsibility related to the agreed-on professional characteristics of physicianhood in

society, the capacity to carry out that role, and the circumstances under which such professionals are called to account for failing to act appropriately according to that role. The requirement for social responsibility is a moral commitment and duty developed over centuries within societies that advanced the notion of a "profession" and the attendant social contract with society.

Throughout medical education, the learner physician will be repeatedly faced by the assessment of skills, ongoing learning processes, namely "lifelong learning" or continuing medical education (CME). The idea that physicians should be accountable to the society they serve is not a new concept. Nonetheless, there is a need for more education and assessment at all stages of the education continuum to ensure that they meet the health and social needs of the populations being served. A curriculum focused on developing social responsibility in future physicians requires pedagogical approaches that are innovative, collaborative, participatory, and transformative.³

The Non-Medical Expert CanMEDS roles in Postgraduate Medical Education

The Royal College of Physicians and Surgeons of Canada (RCPSC) framework for education standards known as the CanMEDS roles situates the *Medical Expert* role centrally, which integrates six other roles (*Communicator, Collaborator, Manager, Health Advocate, Scholar* and *Professional*) to provide an encompassing definition of physician competence. During the last decade, the CanMEDS framework has gained recognition and popularity around the world having been incorporated within medical education in the UK, the Netherlands, Denmark, Australia, New Zealand and the USA.^{4,5}

Medical educators often neglect to ask whether the process of medical education also leads to a socially responsible resident thereby incorporating many competencies of the non-*Medical Expert* CanMEDS roles. While the teaching and assessment of the non-*Medical Expert* CanMEDS roles should occur at all stages of the education continuum, the stage of postgraduate medical education requires further exploration. Most program directors are concerned about how the CanMEDS roles other than that of

Medical Expert are evaluated in their programs. A study that surveyed 149 out of 280 eligible program directors in Canada found that program directors were satisfied with their evaluation of the *Medical Expert* role, but less so with assessment of the other CanMEDS roles.⁵

At present, there is a gap in knowledge about how the aspects of the non-*Medical Expert* roles apply to various stages of resident training and social responsibility, as well as how they are assessed. The process of resident in-training evaluation pertaining to CanMEDS roles at a Canadian medical school showed that the overall effectiveness of the evaluation process in assessing CanMEDS roles differed substantially. Evaluation for the roles of *Medical Expert* and *Communicator* were seen as most effective, and that for *Health Advocate* and *Professional* as least effective.^{6,7} Similar concerns about the *Health Advocate* role were shown in another study where Canadian faculty and residents did not fully understand the concept of health advocacy and more knowledge was required about how to teach and evaluate this role.^{6,8,9} These findings suggest that further investigation into the current teaching and evaluation of non-*Medical Expert* CanMEDS competencies in Canadian postgraduate medical education training programs is required.

Producing Socially Responsible Residents

Medical education is becoming increasingly sophisticated. Conventional didactic teaching is not always useful so there is a need for new educational methods that help the learner to establish their professional self while interacting with their colleagues.^{1,10} Medical Educators are sometimes asked to teach residents content which they themselves were not formally taught during residency, using methods for which they have not received any training. These methods and content include ambulatory care teaching, case-based learning, new electronic instructional methods, and many of the non-*Medical Expert* CanMEDS roles.¹⁰ Evaluation of these teaching and learning methods is thus of importance to ensure that they are time-effective and efficient. If additional resources are to be put into faculty development, equipment purchases, and hiring to address new areas of

content and new teaching methods, we are obliged to study their efficacy in a scholarly way.

Residents may not appreciate the importance of being competent in all the roles despite evidence showing that non-technical competencies play an important part in patient safety and prevention of legal claims.¹¹ Residents may also view the central *Medical Expert* role as the most important competency, holding the incorrect assumption that it represents the possession of medical knowledge.¹¹ Another point of concern is that many assessment tools that lack evidence for reliability and validity appear to be used in assessing the various CanMEDS competencies.⁵ This is detrimental to resident training because, unless adequate teaching and valid and reliable assessment strategies exist, we fail at providing the highest quality of education for our residents. As a result, this leads to suboptimal care for patients and society. In postgraduate medical education, there is a need to establish best practices in CanMEDS roles teaching and assessment beyond the *Medical Expert* role.

Medical educators must acknowledge the fundamental importance of individual patient needs, societal needs, and the abilities of residents to meet these needs. This implies a re-emphasis on the abilities of excellent physicians who are also socially responsible rather than a de-emphasis on the core clinical knowledge as well as clinical and procedural skills. The basis of the CanMEDS roles framework rests on both its validity and its utility. For postgraduate medical education, this has required ongoing reorganization of residency curricula and assessment which requires ongoing monitoring and evaluation by medical education researchers.

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This issue covers articles across the various stages of medical education in the areas of teaching or assessment, each relevant to producing socially responsible physicians. In our comments and reactions section, Al Aboud and Ramesh provide a reappraisal of CME, given its importance in providing optimum care to patients. The authors outline seven major points that are important regarding CME. They also suggest establishing an international bank

for CME credits which can be used for conferences and other CME related activities.

We also present two brief reports. The first report highlights clerkship assessment in undergraduate medical education. Veale, Woloschuk, Coderre and McLaughlin compared performance on internally prepared clerkship examinations and National Board of Medical Examiners (NBME) subject examinations. They found a significant but unexpected difference in the failure rate between internal and external examinations across all clerkships and they explore possible explanations.

In the second report, the increasing number of Canadian physicians studying abroad and then returning to Canada to compete for scarce postgraduate medical training positions is explored. Watts, Davies and Metcalfe explain that in 2010, 75% (1232) of International Medical Graduate (IMG) applicants were unmatched following application to the Canadian Resident Matching Service (CaRMS). They coined the term 'Canadian IMG Bottleneck' to describe the funneling effect caused by the growing number of Canadians studying abroad (CSAs) and the limited number of IMG residency positions available in Canada.

We have included 4 major contributions that investigate issues pertaining to competence in learner physicians relating back to the CanMEDS roles framework. Banack, Albert, Byrne and Walters describe a conceptual model using a retrospective study to support the acquisition of health advocacy and the development of socially responsible medical students. The mandatory 4th year clerkship course entitled the Ambulatory/Community Experience (ACE) from the University of Toronto's Faculty of Medicine has 16 years of experience of teaching social responsibility and health advocacy. Nine years of student site evaluations were reviewed to determine whether the ambulatory/community placements supported the acquisition of ACE objectives. The procedure was then followed by a review of student learning agreements for one year to identify whether students customized their learning agreements or adopted the standard learning agreement. Banack and colleagues concluded that the appropriate sites, individualized pedagogical approaches, and the use of narrative

reflective assignments focusing on a patient population are effective means to learn about these concepts. Furthermore, they suggest that although *Health Advocacy* can be learned in academic and community settings, it is more easily learned if immersed in a community setting.

Alakija and Lockyer examined the feasibility, validity, reliability and acceptability of the Rochester Peer Assessment Tool (RPAT) for assessment of professionalism among a group of volunteer first year medical students. While definitions of what being a professional entails vary, they highlight that the CanMEDS description of the *Professional* role is guided by codes of ethics and a commitment to clinical competence, the embracing of appropriate attitudes and behaviors, such as integrity, altruism, and personal well-being, and the promotion of the public good within their domain. A factor analysis of the data identified two factors: interpersonal skills and work study habits. The discrepancy analysis showed that students in the lowest/highest quartiles, as assessed by peers, had higher/lower self-rated means than peer-rated means. The authors conclude that the RPAT appears to be valid and reliable, despite the limitation of having a small sample size of 50 students.

A mixed-methods study in the area of simulation which highlights the competence-related issues of patient safety, professionalism, and communication was contributed by Clark, White, King, and Carbonaro. They conducted a needs assessment of simulation in surgical education with surgeon educators. A survey was distributed to 26 surgeon educators and interviews were conducted. They achieved an 81% response rate and strongest agreement was demonstrated for statements related to a need for learning new skills, training new residents, and the positive impact on patient safety and learning. Survey results were confirmed by the interviews but highlighted inconsistencies for identified perceived barriers and a focus on acquisition of skills only. Clark and colleagues found that the interviews added information about concerns with integration of simulation into existing curricula and a need for more evaluation as a robust educational strategy.

Last, we include a study comparing a computer-based with a paper based modality of instruction. Rai, Glicksman, Wong, Doyle and Fung used different teaching modalities to treat acute-onset anaphylaxis requiring immediate medical intervention. Highlighting the need for patient safety and education, they explain that the majority of anaphylactic reactions occur in the absence of medical professionals. This is why the use of self-injectable epinephrine devices (e.g. EpiPen®) is the first-line treatment in such circumstances. Patients rely on their family physician to demonstrate the use of the device. The sample was a cohort of 35 Post-Graduate Year 1 and 2 family medicine residents who were instructed on the use of the EpiPen® using either a written module or a computer-based module. Rai et al. found that both groups improved in demonstrating use of the EpiPen® following training. They caution that while their findings suggest computer-based modules represent an effective modality for teaching use of the EpiPen®, the small number of residents who were able to perform all steps of the procedure, regardless of modality, needs to be examined in greater detail.

Conclusions

Resident training programs have a responsibility to maintain the quality of resident performance. Medical education researchers can aid in evaluating these programs to assure that quality standards are met. While the *Medical Expert* role is scrutinized within each resident training program, competence in non-*Medical Expert* CanMEDS roles help to ensure that residents are socially responsible physicians. This is not sufficient to ensure competence in practice, however. Performance review of physicians' work in their practice and of the outcomes of their patients is the only truly effective way to ensure quality. Medical educators should emphasize their mission and outcomes for individual patients but also society as a whole across the medical education continuum.

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