

Quality Improvement Training in Medical Education: The Evidence and a Personal Experience

Marina Abdel Malak, RN, BSc. N, MD Candidate¹

¹University of Toronto

Quality in healthcare is aimed at ensuring that appropriate care and interventions are delivered to each patient, according to their needs and the available resources.¹ Quality improvement (QI) therefore refers to initiatives that promote effective, safe, timely, equitable, and efficient patient-centered care.

An excellent repository for learning about past quality improvement projects in healthcare is ShareIDEAS - Improving and Driving Excellence Across Sectors (shareideas.ca). Participants in QI projects can submit their project experiences to this site, which is available to the public. An example of a successful QI project, which is featured on the ShareIDEAS website, occurred in the Toronto Central Local Health Integrated Network (LHIN), where all nurses were instructed to specifically remind each patient to bring all his or her medications to the next appointment. This simple change resulted in more accurate medication reconciliation records, which reduced the incidence of medication errors. Another QI project in Champlain, for example, provided healthcare providers with education on how to utilize psychiatric screening tools in patient encounters. This education resulted in more patients being correctly identified as struggling with a mental health disorder, and therefore, increased the number of referrals made, which resulted in patients receiving treatment and support for their illnesses. These are only two simple examples of how QI projects can have important impacts on patient care and outcomes.

During their careers, physicians will be faced with a variety of situations that will require them to decide which interventions are the most appropriate for their patients. At times, physicians may question whether current practices and routines are truly efficient and effective, and if there are 'better ways' of doing things that can lead to improved patient outcomes.² This is the first step in QI: realizing that something might not be as effective as was once thought, and then taking steps to determine if specific changes produce better results. For example, a physician might realize that patients are not being routinely asked about their allergies. Upon investigating the problem, brainstorming causes, consulting with the healthcare team, and addressing the literature, the physician determines that one potentially useful intervention would be to incorporate this question as a reminder in the electronic medical record (EMR). The physician and healthcare team take necessary steps to modify the EMR to include the prompt, and then test the idea to determine whether

or not it results in significant change. Once the data is collected, an analysis should be undertaken to see if the change is effective, appropriate, and worth implementing into practice.³ If the change is effective, the team can continue with the proposed change and monitor it for sustainability. If the change was not successful or feasible to sustain, the team can propose another test of change, thereby beginning the process of QI again.

It has been suggested that training and educating physicians in QI should begin, at the very latest, during residency, in order to ensure that trainees are familiar with the processes before entering clinical practice.⁴ In fact, the Royal College of Physicians and Surgeons of Canada has mandated that engaging in QI contributes to the core competencies of physicians as leaders, medical experts, scholars, advocates, collaborators, communicators, and professionals – effectively summarized as the 'CANMEDS' roles.⁵ Thus, there is an impetus for residents to be educated in QI during their training.

How should QI training occur, and in what format? Medical education institutions differ in their approaches to this: some use structured lectures, others utilize online modules to deliver QI content, and still others adopt a blended curricular approach. Each approach certainly has its own advantages and disadvantages. Interestingly, there is data to support the effectiveness of all of these approaches, illustrating that ultimately, the approach chosen should be appropriate for the institution's available resources, residents, and faculty.⁶

When designing and developing or modifying the QI curriculum that is taught to residents, educational institutions will undoubtedly have to make decisions about the structure of the curricula. For example, should residents choose a problem in their current training setting and address it, or should they simply receive education on what QI is? As the QI curriculum is developed, attention to available resources is essential. Does the hospital or healthcare institution have available and interested faculty members who are able to teach QI to residents, and is there sufficient technological expertise (i.e. a technology expert) that will facilitate online learning or resource access for residents? These are just a few of the factors that institutions must consider when designing, developing, and incorporating the QI curriculum into resident training. Throughout this process, ensuring that the curriculum is relevant to residents, and enabling them to understand how they can apply QI into the future practice, is critical.⁷

Teaching **QI** to residents is not an easy process, and frustrations will occur. Barriers and challenges include a lack of time in resident and faculty schedules, ensuring the curriculum is relevant to residents, and educating faculty members in **QI** prior to expecting them to teach it, among others. There are numerous approaches to addressing these concerns, and institutions should elicit feedback from both faculty and residents in order to ensure that the **QI** education is best tailored to their unique context, needs, resources, strengths, and perspectives.⁸ For example, providing training sessions for faculty members allows them to learn how they can best support medical students in learning about **QI**. Eliciting feedback from medical students on their **QI** experiences can provide institutions with information on what is going well, as well as what can be improved in the future.

The benefit realized from the investment in **QI** education for residents is impactful. The literature describes that residents engaging in **QI** projects report an increase in confidence in their knowledge and skills, and demonstrate an appreciation for **QI** in their future clinical practice.⁹ Zenlea et al. (2014) found that 46% of medical students reported **QI** training and projects to be just as important as formal, clinical curricula. Furthermore, receiving education on and completing **QI** projects improves the delivery of healthcare services and contributes to positive patient and healthcare outcomes. Moreover, encouraging residents to identify potential areas of improvement within practice settings, outlining and testing steps that address these challenges, and evaluating the impact of the interventions promotes a culture of inquisitiveness and leadership among future physicians.¹⁰ By teaching residents about **QI** during their training and engaging them in these initiatives, medical institutions help their residents gain an appreciation for their role as physicians who are competent leaders and patient advocates, and who contribute to a culture that provides safe, effective, and patient-centered care.

This summer, I joined the **QI** Program team at the Department of Family and Community Medicine (DFCM) at University of Toronto and contributed to a project related to quality improvement education and curriculum development for residents. This opportunity exposed me to the field of quality improvement, and allowed me to appreciate the importance of **QI** in healthcare. As medical students and professionals, we often feel that our work is divided between clinical practice, research, and/or academic education. Prior to this experience with the DFCM team, I did not consider **QI** as an activity that I would engage in as a student, or as a physician. However, after working on the project I began to see things differently. For example, when discussing potential changes or improvements to the curriculum, it was important to consider not only the evidence from literature, but also the people invested in the project - the residents, the faculty who teach the **QI** curriculum and supervisory project work and the supporting academic site teams who partner with residents to complete **QI** projects. Addressing all of these perspectives enabled me to understand that although

one approach to teaching **QI** might be satisfactory to a certain institution, it may not be suitable for all academic organizations. Therefore, **QI**, like other areas in medicine, is never a 'one-size fits all' endeavour. Rather, one must approach teaching **QI** in a manner that is flexible, adaptable, relevant, and exciting. As a student, I realized the importance of reflection and evaluation in **QI**, like in all other parts of medicine. In this manner, one can very much see the connection between **QI** to various goals of being a healthcare provider: making things better, safer, and more efficient and productive for patients and for ourselves. All physicians can engage in **QI** as part of their journey in healthcare!

These pearls are something I will carry with me as I continue throughout my journey as a medical student, as I believe that **QI** plays a major role in our work as physicians. The wonderful thing about **QI** is that I need not wait until I practice as a physician in order to engage in it – I can start now. All it takes is identifying an opportunity for improvement – a stimulus for change. Then it is simply a matter of contemplating what changes might result in improvement, testing the changed ideas, evaluating the results, and reflecting on whether or not those changes were effective and if/how they can be applied in practice more broadly and sustainably. This is what I find so interesting and exciting about **QI** – it is similar to what physicians do in everyday practice: they see patients, consider what interventions can be effective for the current issue, 'test' a specific treatment option, and then evaluate the outcome! Thus, **QI** really is not much different from the 'typical clinical' work that we often associate with being a physician. It is, ultimately a matter of assessment ('taking a history' with patients, or considering the issue for a **QI** initiative), diagnosing, planning, and intervening (making the changes, testing out interventions or plans), and evaluating the outcomes. Put in this light, medical students and professionals alike can appreciate the importance and relevance of **QI** in clinical practice – just as I do.

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