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Quality improvement in curriculum development

Victor Maddalena, Amanda Pendergast and Gerona McGrath
Faculty of Medicine, Memorial University of Newfoundland, St John's, Canada

Abstract

Purpose – There is a growing emphasis on teaching patient safety principles and quality improvement (QI) processes in medical education curricula. This paper aims to present how the Faculty of Medicine at Memorial University of Newfoundland engaged medical students in quality improvement during their recent curriculum renewal process.

Design/methodology/approach – In the 2013-2014 academic year, the Faculty of Medicine at Memorial University of Newfoundland launched an undergraduate medical education curriculum renewal process. This presented a unique opportunity to teach quality improvement by involving students in the ongoing development and continuous improvement of their undergraduate curriculum through the implementation of quality circles and other related QI activities.

Findings – The authors' experience shows that implementing QI processes is beneficial in the medical education environment, particularly during times of curriculum redesign or implementation of new initiatives.

Originality/value – Student engagement and participation in the QI process is an excellent way to teach basic QI concepts and improve curriculum program outcomes.

Keywords Education, Quality, Quality improvement, Medical curricula

Paper type Viewpoint

Viewpoint

The principles of quality improvement (QI) are well-established in the health-care environment. It is, therefore, no surprise that there is a growing emphasis on teaching patient safety principles and QI processes as part of medical education. This is a laudable goal considering that when medical students graduate and work as physicians they will be called upon to take leadership roles and participate in various QI activities at all levels of the health-care system – from individual clinical practice environments to large health institutions. Classroom, modular, online teaching of QI principles and trainee participation in clinical settings are helpful ways to teach QI principles and processes (Wong *et al.*, 2012; Liao *et al.*, 2015).

In the 2013-2014 academic year, the Faculty of Medicine at Memorial University of Newfoundland launched an undergraduate medical education curriculum renewal process based on the concept of a spiral curriculum. In a spiral curriculum, students are introduced to concepts repeatedly during their program of studies with increasing levels of complexity each time a topic is revisited (Harden and Stamper, 1999). That same year, the size of the incoming undergraduate medical education class expanded from 60 to 80 students. Curriculum renewal and an increase in class size brought myriad logistical issues and challenges. Understandably, this situation led to high levels of stress for students (and curriculum planners) and commensurate levels of anxiety. These circumstances presented a unique opportunity to teach quality improvement by involving students in the ongoing development and continuous improvement of their undergraduate curriculum through the implementation of quality circles and other related QI activities.

Most of the challenges associated with implementing a new curriculum and expanding class size were because of curricular content changes, sequencing of class sessions, developing new evaluation methods or modifying assessment plans. Those responsible for evaluation of the undergraduate medical education program believed this was an opportunity to develop more timely and responsive course evaluation processes. The previous curriculum had been characterized by short, topic-specific courses based on a systems approach to medical education. In the "old curriculum" courses and instructors were evaluated at the end of each semester. The new curriculum required a more timely and responsive formative evaluation process.

One of the criticisms of the previous approach to course evaluation was that any required changes or improvements could only be implemented in the following academic year, meaning the class providing the feedback would not necessarily benefit. With the new spiral curriculum, topics were integrated into longer courses taking place within phases or segments of the curriculum distinguished by theme or overall health stage of patients. The three phases comprising the first two years of medical school are as follows: Phase 1, the healthy person; Phase 2, the patient with acute and/or episodic problems; and Phase 3, the patient with chronic medical conditions. There were changes taking place on many levels, and this rendered the traditional approach to course and faculty evaluation inadequate or not responsive to meet the needs of students, faculty or administrators.

A means of soliciting real-time feedback from students on changes to the new curriculum was designed using basic QI techniques. Curriculum managers introduced a series of QI sessions (quality circles) with the students to solicit their feedback and to relay information to key individuals responsible for various aspects of the curriculum. Administrative and logistical support for the QI sessions was provided by the evaluation staff.

As part of the regular curriculum, integrated learning sessions (ILS) were scheduled every two to three weeks during the semester. The ILS provided a venue to periodically consolidate curriculum content in the form of small group sessions and a facilitated large group discussion. A portion of the ILS was dedicated to QI activities. Time was set aside during the ILS small group sessions for students to discuss and identify strengths, weaknesses and ideas for program, curricular or student services improvement. These small group sessions served as quality circles. The input was collected from each of the small groups and documented centrally and disseminated to the relevant person/office to address the issue. This information (a list of what worked well, what did not work well and suggestions for improvement) was compiled and presented at the facilitated large group QI session with the entire class of students.

In the facilitated large group session, the curriculum Phase Lead met with the full class and engaged in an open two-way discussion about the issues that had been identified in the small group sessions. The discussion involved identifying what worked well, what needed improvement, as well as providing updates on "work in progress" to address previously identified issues and brainstorming potential solutions. In some cases, the problems identified were resolved with a "quick-fix" that could be implemented almost immediately.

A tracking sheet outlining the identified items and actions was created and posted within the learning management system that students used for accessing course materials. This centralized and easily accessible online location meant students could monitor progress on each of the identified items.

Others problems identified were more complex and required further study, involvement of other faculty or curriculum management staff and as a result took longer to resolve. There were also several *ad hoc* QI sessions held during the school year at the request of students to

address particular areas of concern. A similar format in terms of problem identification, follow-up and monitoring was followed for each of the *ad hoc* QI sessions.

Results of quality improvement sessions

The QI sessions provided administrators with a real-time mechanism to gather student feedback efficiently and this facilitated timely feedback to students. Some of the more important outcomes from QI session participation included:

- teaching students the basics of QI through active participation;
- decreasing student anxiety by providing a channel to express themselves in a supportive environment with their peers (and having curriculum administrators listen!);
- reducing feelings of isolation by seeing that peers were having many of the same issues/concerns;
- giving students a sense of empowerment at a time when they were likely overwhelmed with both the pressures of medical school and uncertainty around expectations;
- providing an opportunity for students to show leadership and develop professionalism skills, for example, articulating criticisms in a collegial, respectful manner; and
- permitting faculty and curriculum managers the opportunity to identify and resolve curriculum or student issues in a timely manner.

In terms of overall curriculum and program evaluation, the sessions provided a necessary mechanism for timely, ongoing evaluation and continuous improvement. The QI sessions have now become an integral part of the evaluation framework of the undergraduate medical education program and updates from the QI sessions are presented at the curriculum management meetings, the program evaluation sub-committee meetings and at the undergraduate medical studies committee meetings.

Evolution of Quality Improvement

Currently, we are in the fifth year of the new spiral curriculum, and the first cohort of students graduated in 2017. Since they started medical school, the QI process has changed and evolved as problems in the curriculum were identified and resolved. Initially, sessions were held every two to three weeks and indeed this frequency was necessary during the first years of the new curriculum because of the fluidity of processes and the rapid changes required. After the initial three years, the QI sessions reached a point where fewer new issues were arising or longer-term issues requiring longer-term solutions were being revisited. As a result, QI sessions are taking place generally three or four times during each phase – one near the beginning, one at the midpoint and one at the end of the phase.

Conclusion

Quality improvement has been shown to improve processes and outcomes in the business and health care environment. Our experience shows that QI processes are equally beneficial in the medical education environment, particularly during times of curriculum redesign or implementation of new initiatives. Student engagement and participation in the QI process is an excellent way to teach basic QI concepts and improve curriculum program outcomes.

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Corresponding author

Victor Maddalena can be contacted at: victorm@mun.ca