

The Development of a New Master's of Science in Healthcare Quality Program

Kim Sears, Briana Broderick, Denise Stockley, D Goldstien, R. Egan, Queens University

Abstract

Working in silos or working within one discipline has not improved the delivery of healthcare. With a goal to advance the healthcare quality agenda and in response to an identified need within both the educational and healthcare sector, Queen's University has established a Master's degree in Healthcare Quality [MSc(HQ)]. The interprofessional MSc(HQ) offers Canadian and international perspectives on quality, risk, and safety in healthcare using both practical and theoretical perspectives. This paper outlines pedagogical principles and approaches, and provides preliminary evidence of the effective mix of theoretical and practical underpinnings. These preliminary findings indicate that the students have entered our program with a minimal understanding of quality and patient safety and our program has expanded their comprehension. Students have claimed to feel more confident that they can apply patient safety principles in their workplace. By engaging a wide interprofessional perspective we can advance the system.

Introduction

The Master's of Science in Healthcare Quality [MSc(HQ)] was first conceived in 2010 at Queen's University in Kingston, Ontario, in response to a need perceived by healthcare professionals to close the gap between the theory and practice of quality, risk, and safety in healthcare. Although healthcare has historically looked with itself to fix the problems of quality, risk and safety it is the belief within the MScHQ program that the problems related to the quality of healthcare require input from professions not always associated with healthcare. It is considered that the workings of our healthcare industry are like a clock; all of the gears turning behind the scenes, producing the steady tick of the hand, the forward motion of all the players: doctors, policy makers, engineers, human resources, financial services, pharmacies, home care providers, business associates, nurses, lawyers, and government agencies.

Improving quality, risk and safety has never been higher on the agenda at both a national and international level. The rate of error occurrence in health care has been identified as 10 - 100 times higher than in other customer-focused industries, such as aviation (Lucian, 1994). According to the Institute of Medicine (IOM) between 44,000 and 98,000 deaths per year which occurs in the United States are caused by medical errors within health care (Institute of Medicine, 2000). In Canada, the Baker and Norton report that of almost 2.5 million annual hospital admissions in Canada from a similar patient population, about 185,000 are associated with an adverse event and close to 70,000 of these are potentially preventable (Baker, Norton, Flintoft, Blais, Brown, Cox et al., 2004).

It is the perception of the MScHQ faculty that to deliver knowledge both practical and theoretical knowledge in a pedagogically sound manner will empower the next generation of healthcare members. This movement to system change could revolutionize a system that is

fragmented and in need of improvement. Although the healthcare system has made advances, to rely on a substantial system change to come from within healthcare system given the heavy workloads, increasing complexity of client needs and the environment and the budget constraints this is unrealistic and frankly irrational.

Program Review

In order to prepare well rounded graduates, the MSc(HQ) must transcend the long held dichotomy between empirical science based research, and the philosophical Socratic teaching of the arts. The challenge lies in successfully integrating these two divergent ways of thinking. For example, a study conducted on graduate students involved in an interprofessional course at Indiana University Kokomo, concluded that students felt they were not only challenged by the interprofessional course structure, but that they achieved a greater level of understanding of the material than they would have in a traditional course (White, Heath, Darr, & Finkler 2010). Similarly, authors Person and Byun McKay, found through their case study of an integrated course that students, given the opportunity, could flourish under such circumstances. They concluded that "...learning cannot and should not be constrained through rigid predetermined objectives...the real challenge is finding a way to encourage that emergence and as professors, accepting the unpredictability," (Pearson & Byun McKay, 2010).

Based on this foundation, the Master of Science in Healthcare Quality at Queen's University is housed in the Faculty of Health Sciences, and is partnered with the School of Nursing and Department of Anesthesiology and Perioperative Medicine, Faculty of Law, Faculty of Engineering and Applied Science, Faculty of Education, School of Business and the School of Policy Studies. It has been designed to bridge the gap between the arts and sciences, theory and practice.

Prior to commencing the MSc(HQ) program, an international and national expert group of leaders in the area of quality, risk and safety was formed to provide direction to the development of the program. Further, weekly meetings were conducted with the Centre for Teaching and Learning at Queen's University to ensure the optimal teaching and evaluation were made throughout the curriculum. Also, a review was conducted of all existing graduate programs in safety, risk and/or quality. Unlike the American programs in patient safety and human factors, which provide a narrower focus, the MSc(HQ) uniquely includes theory, research and practice-based, patient/population orientation in its curriculum. Interprofessional in nature and marrying the concepts of theoretical underpinnings with real world application, the MSc(HQ) is the only program in Canada to address the growing need for interactions across disciplines, professions and communities, while providing the tools to solve real world problems.

The MSc(HQ) program has been designed for young professionals or mid to senior level executives who are looking to further their education without sacrificing their careers. Professionals who may find this program particularly attractive include healthcare practitioners, health professionals, engineers, and leaders in healthcare-related professions including policy, law and business. Through this interprofessional experience and quality inculcation, students will contribute and be a part of the drive for safer health care in Canada and throughout the world. It has been built on solid educational principles including the need for curricular alignment (i.e., Ascough, 2011; Biggs, 2004), and in particular we wanted to ensure the *Seven Principles for Good Practice in Education* (Chickering & Gamson, 1987) were met. The MSc(HQ) will:

1. Encourage student-faculty contact
2. Develop a spirit of reciprocity and cooperation among learners (our intensive on campus sessions have been developed to promote a feeling of community and an inclusive environment.)
3. Encourage active learning
4. Give prompt feedback (We have established a 48 hour email response time and a two week assignment turnaround)
5. Emphasizes time on task
6. Communicate high expectations
7. Respect diverse talents and ways of learning.

Our program offers synchronous and asynchronous delivery via a distance learning platform and two mandatory additional elective face-to-face interactive one week sessions. The optional elective course is offered at Herstmonseaux Castle in Sussex England and provides the backdrop for the International Perspectives course in which world renowned leaders in the areas of quality, risk and safety attend to present, interactive and engage in scholarly discourse with students and program faculty.

In order to facilitate the distance aspect of the program, yet still attain the seminar discussions, which set graduate work apart, we have employed the use of Desire2Learn (D2L). D2L is a content management system, which allows users to access course material in multimedia form, perform quizzes and hand in assignments virtually. Together with Go to Meeting, D2L also facilitates live and interactive virtual classrooms for group projects and seminar discussions. Thusly, the MSc(HQ) offers face-to-face and online synchronous and asynchronous learning opportunities.

This graduate program is designed to help compliment students' existing academic and professional accomplishments and will help them transition to leadership roles to promote excellence. The first class of twenty began in August of 2012. In August of 2013, enrolment had grown to 33 students.

Method

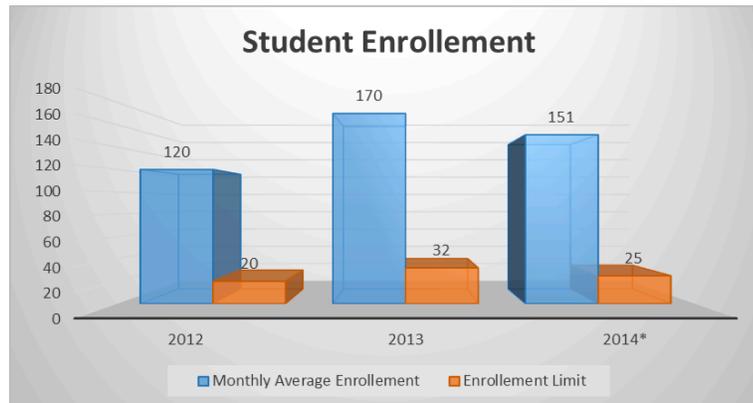
The purpose of this study was to identify if any changes were evident in regards to the students learning following completion of the first year of the program. This study utilized an experimental pre-post design and used a convenience sample from the first student cohort of the MScHQ (n=20). The pre-post survey was designed to analyze the students' confidence in their advancement in the areas of quality, risk and safety. The survey tool included both demographic and quantitative questions. The tool was administered on-line via Fluid Survey. Students were asked to complete the tool on the first day of the program prior to the introduction of content. They were then asked to complete the same tool again at the end of the first year to ascertain what (if any) changes may have occurred. A *3-point scale from Not Satisfied to Very Satisfied* was used. A nonparametric Wilcoxon Rank-Sum Scores test was used to examine student satisfaction with knowledge related to quality, risk, safety, systems management, policy and organizational behaviour in healthcare as well as an understanding of quality, risk and safety related to the students work. The significance level was set at $\alpha=.05$. The data from the surveys were aggregated. Ethics approval was attained through Queen's University Ethics Board.

Results

In total 14 of the 20 students responded to both the pre and post surveys. The majority of the students (87%) reported working in Ontario, Canada, with a small number working from distant locations (Saskatchewan, Canada and Australia). A majority held leadership positions (56%) during the program. The first cohort has a varied mix of backgrounds that one might not have historically anticipated such as design, operation and administration. A Wilcoxon Rank-Sum Test was conducted and indicated that in year one students reported increased satisfaction with their knowledge of quality ($W = 15, p. = .03$), safety ($W = 36, p. = .01$), systems management ($W = 36, p. = .01$), and organizational behavior ($W = 32.5, p. = .03$) (see Table 1).

Table 1 Comparison between knowledge satisfaction and related course ratings

Item	Median (pre)	Median (post)	W	Z	$p.$	
<i>Please rate your satisfaction with your knowledge of...</i>						
quality in healthcare	14	2	3	15	2.12	.03
risk in healthcare	14	2	2	17.5	1.63	.10
safety in healthcare	14	2	3	36	2.83	.01
systems management in healthcare	14	1	2	36	2.71	.01
organizational behaviour in healthcare	14	1.5	2	32.5	2.13	.03
Total	14	1.8	2	76	2.91	.00



*The enrolment period has varied. In 2013, enrollement opened from September 2012-August 2013. In 2014, enrollement was restricted to the September 2013-February 2014 standard admission period.

Figure 1 Program application and enrolment

Discussion

Although the first cohort of the program was primarily from Ontario, this is not expected to be the future demographic within the program as applications are currently coming from an international, national as well as local pool. Further, there is increasing diversity in the disciplinary backgrounds of applicants that are applying for the program. Overall, participants reported increased satisfaction with their knowledge of quality, *safety, systems management, and organizational behavior*. Since these topics relate directly with the courses taken in first year, and no significant differences were reported for topics not addressed in year one, there is evidence that students perceive value in the program. Also, consistently high numbers of program applicants (see Figure 1), and overwhelmingly positive student comments about the program support these assertions. Therefore, the course content and delivery appear to be relevant and applicable to the advancement of quality within the healthcare system. There is preliminary evidence to support the impact of the MSc(HQ) within the first year. Topics in courses offered within the first year showed a statistically significant increase in students' perceptions of knowledge satisfaction.

In future studies, we will examine the perceived impact of courses upon completion of the degree program, and the relative association with course specific ratings. Additionally, this program was based on the direction of many experts in the areas of quality, risk and safety in healthcare and has been designed in full collaboration with educational developers and content experts from the Centre for Teaching and Learning at Queen's University. As this point, there is no other program that interweaves the concepts of quality, risk and safety and also offers a blended program (both on-line and face to face). The foci are also interprofessional, bridging many disciplines and cultures. To ensure the learners feel that they are part of a unified program (rather than disparate parts put together) and we have mapped the curriculum to ensure alignment. Further we will include qualitative questions on the survey tool to add to the richness of the data. Importantly, there will also be an assessment of the relationship between course content and practical application in the students' workplaces.

The program presents a model to break down silos to create a truly interprofessional program and subsequently healthcare system. It has been noted that to increase one's awareness of roles, competence and team skills, interprofessional education is essential (Greiner, & Knebel 2003) and as these skills are critical to safety this is envisioned to be a fundamental component of the education delivery model. Although there has been an attempt to create interprofessional opportunities within undergraduate healthcare programs this is still a difficult model to achieve based on navigating schedules between faculties and the appropriate scope of the experience and the level of learning event. However this does not negate the identified need the Institute of Medicine (IOM) has validated that when healthcare professionals comprehend the roles and communication styles of other team members, the care that clients receive is of a higher quality (Kyrkjebø, Brattebo, & Smith-Strom 2006).

This program represents many faculties and schools at our institution. This is the first program at our institution that involves all of the different academic homes. Our students will graduate from the MSc(HQ) with a breadth of understanding of the issues surrounding quality, risk, and safety, and will also have opportunities for depth through interactions with our interprofessional team, courses materials and assignments.

Conclusion

From our own experience and reading of the literature, working within a single discipline has not improved the delivery of healthcare and we need to rethink what it truly means to be part of an interprofessional team. These preliminary findings indicate that the students have entered our program with a minimal understanding of quality and patient safety and our program has expanded their comprehension. Students have claimed to feel more confident that they can apply patient safety principles in their workplace. By engaging a wide interprofessional perspective we can advance the system.

References

- Ascough, R. S. (2011). Learning (about) outcomes: How the focus on assessment can help overall course design. *Canadian Journal of Higher Education, 41*, 44-61.
- Baker, G. R., Norton, P. G., Flintoft, V., Blais, R., Brown, A., Cox, J., et al. 2004. "The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada." *CMAJ, 170*(11):1678-86.
- Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education, 32*, 347-364.
- Chickering, A. W., & Gamson, Z. 1987. "Seven principles for good practice in undergraduate education." *AAHE Bulletin, 40*, 3-7.
- Greiner, A. C., & Knebel, E. (Eds.). 2003. "Health professions education: a bridge to quality." National Academies Press.

- Institute of Medicine, Committee on Health Care Quality in America. 2000. *"To err is human: Building a safer health system."* Washington DC: National Academies Press.
- Kenney, C. 2010. *"Transforming health care: Virginia Mason Medical Center's pursuit of the perfect patient experience."* Boca Raton, FL: CRC Press.
- Kyrkjebo, J. M., Brattebo, G., & Smith-Strom, H. 2006. *"Improving patient safety by using interprofessional simulation training in health professional education."* Journal of interprofessional care, 20(5), 507-516.
- Leape, L. L. 1994. *"Error in Medicine."* JAMA, 272, 1851-7.
- Pearson, N., & Byun McKay, A. 2010. *"Emergent properties: Interdisciplinary team teaching in literature and biology."* Currents in Teaching and Learning, 2(2):87.
- Walshe, K., & Boaden, R. (Eds). 2006. *"Patient safety: Research into practice."* United Kingdom: Open University Press.
- White, E., Heath, S., Darr, C., & Finkler, M. 2010. *"Turning a plague into a posy: team teaching graduate courses at a small campus."* Currents in Teaching and Learning, 3(1).