

Capstone for Impact Submission | GY2021

**Project Title:** Using an interprofessional educational approach to improve pre-clinical student knowledge and skills in quality improvement methodologies

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**Summary (~250-500 words):**

Interprofessional education in the setting of QIPS has become a major part of improving healthcare. Towards this end, the medical school in partnership with other health professional schools, has sought to incorporate interprofessional education into its curriculum. By exposing pre-clinical medical students to the importance of working together in interprofessional teams, they will have a better understanding of the importance of collaboration, roles and responsibilities of the various team members in a clinical setting, how to approach problems systematically and efficiently, and how to work with others to achieve common goals and objectives. The M1 IPE session in QI was one of the sessions included as part of this expansion of interprofessional opportunities. The session evaluations from prior years have demonstrated opportunities for improvement thus my project is focused on redesigning this session to better meet its goals and objectives, ensure that it fits into the broader context of curriculum and improve the session evaluation scores.

I have used the AAMC QIPS Competencies and our own UMMS QIPS curriculum objectives to re-build the M1 IPE session. In this session, the students learned about process mapping, the current state, problem solving, and creating problem statements. This session will serve as the foundation for the other material that will be covered in the realm of QIPS throughout their medical curriculum. In addition, students will learn about the institutional resources at their disposal such as the newly created Quality Department website for student use which can be utilized to develop into agents of change within the healthcare delivery system.

**Methodology:**

Based on some of the feedback from previous sessions, with the help of my mentors, I worked on developing more creative and relevant ways to teach some of the concepts in this M1 IPE session. I made informational videos that played throughout this session (4 in total) to serve as the baseline information and also to standardize the delivery of this content across groups. I have been working closely with the educators from the Michigan Medicine Quality Department and also content experts throughout the medical school to refine the content. I used the AAMC QIPS Competencies and our own UMMS QIPS curriculum objectives to ensure that we are meeting the overarching goals.

Prior to the COVID-19 pandemic, we planned to have the first year (M1) medical students work with students from the School of Nursing and School of Social Work to identify problems within a previously developed emergency room case and then develop process maps as a team as an in-person small group session which was scheduled for Wednesday April 15, 2020 from 3-5pm. We piloted this revised module with a smaller group of participants earlier this year and utilized feedback from the pilot to adjust the content as needed. This was utilized in the initial iterations of the M1 IPE session but has been modified to better emphasize the different roles of the members of the healthcare team. The process maps completed by the students will be compared to the gold standard one to allow for formative assessment for the students. We had estimated that approximately 300 students would be distributed across 20 different rooms.

However, in light of the need for social distancing, the course was adapted into an asynchronous online module on the Canvas platform. This module still required the students to work through the case and planned educational content, but the interprofessional component was achieved via responses to discussion questions throughout the course. This version was also reviewed by a small group of students for feedback as well. The online module opened on Wednesday April 15, 2020 and closed on May 1st, 2020. We plan for future iterations to be done in-person as initially proposed.

**Results:**

Prior to the pandemic, close to 400 students were expected to participate from across the School of Nursing, School of Social Work, and the medical school. However, as a result of the pandemic, the School of Nursing and the School of Social Work made the session optional, while the medical school kept the session mandatory for its students. There were a total of 195 students enrolled in the Canvas-Instructure Inc. online module, with 185 page views of the online module (94.9%).

Regarding the quizzes, there were three in total, two of which were multiple choice, one required a free response. Quiz 1, titled “Build a Process Map”, yielded an average score of 92%, with the range of scores of 29%-100%, SD=0.99. Quiz 3, titles “S.M.A.R.T Goals”, resulted in an average score of 52%, with the range of scores from 0%-100%, SD=0.39. The second quiz, titled “Develop a Problem Statement,” had a total of 184 free responses, 123 students (66.8%) properly identified a gap to close, whereas 61 (33.2%) developed a problem statement that did not have a gap to close.

Of those students participating, 145 (74.4%) completed the module evaluation. The majority of the students were from the medical school (n=139, 95.2%) and the majority (124, 86.11%) reported they strongly agreed that they recognized the value of multiple roles participating in the improvement process.

Regarding understanding of important concepts, 47.92% (69, SD 1.05) of students, 43.06% (62, SD 1.10) of students, and 36.11% (52, SD, 1.16) of students somewhat agreed that they had a better understanding of what quality improvement in healthcare is, of how IPE in the setting of quality improvement can be applied to their professional fields, and of their role on an IPE team respectively. Finally, 40.97% (59, SD 1.07) strongly agreed they had a better understanding of root cause analysis and 41.67% (60, SD 1.08) somewhat agreed they had a better understanding of the types of measures used in quality improvement.

Majority of students (74, 51.39%) somewhat agreed that this session helped them understand the process mapping problem solving method, while 45.07% (64, SD 1.06) somewhat agreed that they had an increase in comfort level in functionally creating a problem statement.

For the session overall, the students had mixed responses to the helpfulness of the videos, with 36.62% (52, SD 1.03) finding them somewhat helpful. Students found the quality of the ED case study good (76, 52.78%), and rated the session overall good as well (63, 43.45%).

**Conclusion (~250-500 words):**

In effort to introduce important concepts surrounding interprofessional education, problem solving, and QIPS early on in medical student education, an IPE Quality Improvement workshop was created with the goal that students are better prepared to apply these skills on the wards and in turn contribute to their clinical teams. Based on the overall results, feedback, discussion responses, and reflection as a group after the implementation of this online module, there were aspects of this session that went well and others that could be improved.

Regarding some of the positive takeaways, students seemed to enjoy the videos and understood that the concepts in this session (particularly process mapping and root cause analysis) are important going forward in their respective careers. Moreover, it was understood that interprofessional education is valuable to delivering health care. The case study itself, having to brainstorm problems, and some aspects of reflection were also perceived well.

The COVID-19 pandemic presented unique challenges for the planned implementation of this course and thus steps were necessary to allow for the education to still occur but in a fashion that allowed for social distancing. However, the acuity of changes required for learners in our institution to manage the pandemic resulted in participation in this module becoming optional for both social work and nursing students. Thus, their participation was significantly limited which in turn limited our ability to provide a robust IPE experience. Although we tried to amend this through discussions on the online module and requiring students to respond to one another, aspects of collaborative-based thinking and interprofessional education were lost as a result of this as well, particularly concerning the exercises surrounding process mapping and root cause analysis. Given that this session was no longer held in classroom settings with facilitator leads, there was also the limitation of not having a QI coach or faculty member with more experience in these subject matters leading discussions and guiding students. It was difficult to make up for this foreseen limitation through the online module.

The need to adapt this session into a virtual exercise on such short notice lends itself to improvement going forward, in addition to the improvements that can be made from the feedback given from the initial pilot sessions and from the session overall. For example, while the videos were received relatively well, we can potentially add transcriptions of the videos for learners who prefer to read the content versus receiving it virtually. If there is a need for the online version of this session next year due to the pandemic, there are changes we can make to the module, such as lessening the amount of discussion questions or, perhaps more importantly, finding a way to moderate the discussion better given the loss of facilitator guides. Finally, while a survey was distributed at the end of the module, going forward, we can ask open-ended questions to better evaluate the effectiveness of this session and get more variety of feedback.

**Reflection/Impact Statement:**

My Capstone Project has been part of my medical education since my first year of medical school. As a result, I felt as though while I have grown as a future physician, I have been able to grow with my project. I had little experience with being one of the leads on a big project, and this has taught me so much, from what goes on behind the scenes of curriculum development, to the process of developing a manuscript. This capstone allows for further research and development as this is a course that will take place every year for first year medical students for the foreseeable future. To another student completing their CFI, I would greatly advice starting as early as possible to give yourself time to complete what you set out to do. There was a lot of planning that went into implantation of my capstone and then a lot of analysis that had to take place afterwards. Most importantly, however, find mentors that will support you. My mentors have been so influential to me, and I know I can come to them for anything at any time during this process and beyond.