Identifying and capitalizing organic interprofessional touchpoints during clinical education experiences for health profession students through continuous quality improvement

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Abstract

Efforts of healthcare educators and clinicians who focus on interprofessional education (IPE) and interprofessional collaborative practice (IPCP) has yielded improved patient outcomes. With a primary goal to produce clinicians who are collaborative practice ready, continuous quality improvement (CQI) assessment is necessary for systems improvement for healthcare stakeholders. The CQI project sought to understand how to efficiently capture IPE and IPCP experiences occurring during clinical education experiences through understanding the percentage of students participating, number occurring, and how to improve the quality of organic IPE and IPCP experiences. The study was conducted as a CQI project using aims and key drivers. Run charts were integral to analyzing outcomes for change indicators. Project outcomes support IPE and IPCP experiences are happening organically which serve to train students to function as care team members. The use of CQI assessment confirmed how to improve capturing, tracking, and improving these IPE and IPCP experiences during clinical education experiences so that they can become sustainable and enable greater future student success.

Key Words:

interprofessional education interprofessional collaboration continuous quality improvement healthcare professions accreditation

INTRODUCTION

The World Health Organization's (WHO) Framework for Action on interprofessional education (IPE) and interprofessional collaborative practice (IPCP) illustrates how a fragmented healthcare system can become a strengthened system with improved health outcomes, by using IPE to produce a collaborative practice-ready workforce.[1] Therefore, IPE is a key component in preparing collaborative, effective healthcare team members.[1]

Taking a step further, the National Academies of Practice (NAP) position statement emphasizes the use of communication, collaboration, and a diverse team to promote aligning practice with the Quintuple Aim.[2,3] The Quintuple Aim adds health equity and healthcare provider well-being to the Triple Aim.[3-5] In an effort to support NAP's position statement and the Quintuple Aim, health professions' educators are being challenged to breakdown traditional silos and to reach across to other disciplines to provide IPE experiences.[6]

This publication will discuss the use of continuous quality improvement (CQI) assessment during clinical education experiences to help academic faculty capture organically occurring IPE and IPCP touchpoints. The purpose of doing so is to help ensure health professions students are on a pathway to become collaborative practice ready upon entering the workforce in today's healthcare climate.

BACKGROUND

Educators have responded to the challenge of preparing today's healthcare graduates and as a result, it is notable that IPE in healthcare education has grown significantly in the past decade. This is, in part, because of growing accreditation requirements for health profession education. With this growth, it has become imperative for CQI assessment of the interprofessional education and collaborative practice (IPECP) experiences to occur. CQI has been utilized both for systems improvement as well as for health profession student participation.[7-10] However, there is an identified gap regarding in-depth CQI investigations of clinic-based IPECP experiences.

An interdisciplinary quality improvement team from a large, midwestern university sought to understand key IPECP drivers in the clinical education environment. Drivers are what help contribute to the achievement of the project's purpose and help propel a project forward.[11] The researchers chose to use CQI to better understand and implement long term, clinic-based IPECP touchpoints for health care profession students in order for them to be collaborative practice ready health professionals and explore the scope of organic, clinic-based IPECP experiences.

With this in mind, the quality improvement team utilized both a conceptual framework with Deming's System of Profound Knowledge and a Core Methodology with the Model for Improvement.[12,13] This model includes a rigorous, iterative process of setting aims, establishing measures, selecting and testing changes using a Plan-Do-Study-Act (PDSA) cycle, implementing and then spreading changes. [12,13] Using the aforementioned methodology, the quality improvement team sought to understand how to efficiently capture IPECP learning experiences occurring in clinic utilizing the following questions as a framework:

1. What percentage of students are participating in planned, organic IPECP experiences in clinic?
2. What are the number of documented IPECP experiences?
3. How do we improve the quality of documentation of these IPECP experiences?

METHODS

The Institutional Review Board (IRB 2020-0528) reviewed the quality improvement project and determined it be "non-human subjects research."

Study Team, Participants, and Setting

Audiology (AuD), nutrition and dietetics (DIET), occupational therapy (OT), physical therapy (PT), and speech language pathology (SLP) students participated in the quality improvement project. See Table 1 for listing of the number of students by discipline.

Table 1. Disciplines and number of students involved in the quality improvement project.

Discipline	**Number of Students**
AuD	43
DIET	30
OT	29
PT	35
SLP	26
Total	163

Criteria for inclusion in the quality improvement project were for students to be involved in an off-campus clinical education experience, the clinical education experience being at least two days per week, successfully completed at least one prior clinical education experience, and have a faculty member participating in the CQI training and project implementation. Clinical education experiences ranged in length from 12 weeks to 15 weeks during the semester.

The research team was composed of a team of stakeholders including one AuD faculty member who also served as the Director of Clinical Education (DCE) and Program Director (PD), one DIET faculty member who also served as the DCE and PD, one OT faculty member who served as the DCE, one PT faculty member who served as the DCE, one PT faculty member who served as the PD, and one SLP faculty member who served as the DCE.First, the determination of the Global Aim, or the overarching goal of the project, occurred under which each of the three projects would operate. The Global Aim was to improve community health outcomes through increasing provider teamwork, communication, understanding roles and responsibilities, and awareness surrounding values and ethics.[12,13] A consensus was reached to confirm determination of the subsequent SMART (**S**pecific, **M**easurable, **A**chievable, **R**elevant, and **T**imely) Aims for each project and the operational definitions for each SMART Aim. [12,13] The team mapped the current process of students reporting IPECP touchpoints in their respective clinical education setting and potential failure points with the current process using a Failure Mode Effects Analysis (FMEA). [12,13] Next, a root cause analysis was performed to examine failures and potential barriers to performing, documenting, and reflecting on IPECP touchpoints in the clinical education setting. Using a Key Driver Diagram, a systematic approach allowed for the examination of the application of interventions to improve the number of IPECP touchpoints, improve the number of documented IPECP touchpoints, and improve the quality of reflection after interprofessional interactions in the clinical education settings in health professional students.

The team utilized PDSA cycles to plan and test specific interventions, observe results, learn from results, and act on the learnings prior to implementation.[13,14] CQI reliability principles were utilized with planning interventions. **Survey Responses**

Survey responses were generated from an array of sources including 1) a weekly survey completed by students who were involved in clinical education experiences during the semester 2) input from two student stakeholders as a part of a feedback session 3) DCEs and PDs involved in the project through team discussions. The responses gathered from the sources guided decisions regarding interventions and PDSA testing.

Project Selection

QI Project #1: Increasing Number of Documented IPCP Touchpoints within the Clinical Setting in Health Profession Students

For the purposes of this study, an IPCP touchpoint was defined as an event that occurs when two or more health professionals from different professional backgrounds work together with patients, families, carers, and communities to deliver the highest quality of care.[1] The SMART Aim was to increase the number of documented IPCP touchpoints from 0% to 75% by the end of semester. It was hypothesized that students would need to have faculty or clinical site organized IPCP opportunities.

*QI Project #2: Increasing Weekly Interprofessional Education Touchpoints within the Clinical Setting in Health Profession Student*s

An IPE touchpoint for this study, as defined by WHO, "occurs when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health of a patient."[1] The SMART Aim was to increase the percentage of students that participated in IPE touchpoints from 0% to 50% by the end of semester. It was hypothesized that students would need to have faculty or clinical site organized IPE opportunities.

QI Project #3: Increasing Quality of Reflection after Interprofessional Interactions within the Clinical Setting in Allied Health Students

The third project targeted increasing quality reflection after a student experienced an IPE or IPCP touchpoint in the clinical education setting. Because the CQI project involved multiple steps, this measure included a bundled measurement meaning that to count the response, the entry must meet all requirements of the bundle measurement. The SMART Aim operationally defined quality reflection after an interprofessional interaction in the clinical education setting as a full completion of a bundle measurement. The bundle measurement was as follows:

1. Completion of the Microsoft Forms survey by Sunday at 11:59pm each week
2. Student responds to all three questions about the interprofessional experience
3. Student responds to questions with quality as defined by rubric and graded by one consistent team member

The SMART Aim was to increase the percentage of students that completed quality reflections of their IPECP touchpoints from 0% to 75% by the end of semester term.

The three questions required for reflection were:

1. In what ways do you understand the similarities and differences between your discipline and the other(s) based on the interprofessional experience you had this past week?
2. How do you feel this experience affected the patient and care providers?
3. How did this experience this past week impact your future practice?

Survey Responses

The weekly survey form created at the inception of this project served as a repository of responses over the course of the study. As this was a new initiative, there were no baseline responses. Responses were included for AuD, DIET, OT, PT, and SLP students' off-campus clinical experiences who were enrolled during the semester. Responses were monitored weekly for accuracy and to adjust PDSA cycles as needed.

RESULTS

PDSA Cycles and Interventions

Using the Model for Improvement, several PDSA cycles were performed across the six-month quality improvement initiative. Interventions and drivers of those interventions were documented on Key Driver Diagrams.

Throughout the project, overlapping, synchronous interventions occurred that influenced all three projects. Two examples of these synchronous interventions included making the survey form accessible to both students and faculty by switching the survey response collection platform to an easier one to use and adding key stakeholders to the team. More details about each intervention are below. *Accessible Form*

After analyzing the survey response rate from early weeks in the project, it became clear from the root cause analysis, FMEA, and student stakeholders that utilization of a web-based, data collection system and ease of access was a limiting factor of tracking IPE and IPCP touchpoints and documenting reflection on these touchpoints. PDSA cycles, which targeted making an accessible form, involved revising the current surveys and moving them to a more user-friendly, web-based platform. This allowed for ease of use from the student's perspective and increased accessibility from the faculty perspective as well. The students were able to access the surveys from any electronic device, increasing the completion rate.

Learning Management System

Prior to the start of the clinical education experiences, a targeted education intervention using the university's Learning Management System (LMS) was implemented. The LMS messaging informed the students of the CQI project, as well as the purpose and need for interprofessional education and collaboration.

Additionally, effective communication and minimization of redundancy occurred by creating assignments within the LMS. This enabled students to receive reminders to complete the weekly surveys. By embedding surveys into assignment links through the LMS, consistent language across multiple courses and disciplines in the college ensued which, in turn, built redundancy into the coursework.

Effective and Clear Communication

A secondary web-based platform was engaged to send notifications to a group which would display on a person's device or devices in many ways. The notification is displayed on the individual's home screen of a cell phone, in the chat of the secondary platform, or in an email inbox. Additionally, synchronized announcements through the LMS were made across all courses

with consistent language to ensure communication was standardized across all clinical education experiences.

Adding Key Team Members

A minor intervention that was initiated as the project continued was hosting a small feedback session with two students. An announcement was made through the LMS to ask for two to five volunteers from a variety of disciplines to provide feedback on how the project was progressing. Two students who were actively involved in the clinical education experiences at the time of the quality improvement project volunteered (one DIET, one PT). The purpose of obtaining feedback was twofold: to get the students' perspective of how the project was unfolding and how the team could better enable students to complete the weekly surveys. The feedback received centered on the students not knowing how to approach clinical supervisors or ask about initiating interprofessional education and collaborative practice touchpoints in the clinical setting.

After the feedback session, the two students remained on the team as consultants to provide continued input and give voice to their fellow students as the project continued to progress.

Intervention benefits leading to Certificate of Recognition

Students who completed a certain number of IPECP touchpoints based on the length of their program during their clinical rotations were offered an IPECP Certificate of Achievement at the completion of the semester.

QI Project #1: Increasing Number of Documented IPCP Touchpoints within the Clinical Setting in Health Profession Students

The first QI project aimed to increase the number of documented IPCP touchpoints within a clinical education experience for health professions students. At the beginning of the testing cycles which occurred at the start of clinical experiences, students reported confusion on the differences between IPE and IPCP and why it was important to know the differences. The first intervention was aimed at modifying the survey to include definitions of each. This improved student knowledge and decreased confusion. Through the weekly survey responses, the team members found that some students had opportunities to engage in IPCP touchpoints, but not opportunities to engage in IPE. By the conclusion of the semester, 38% of students had a documented IPCP touchpoint during the clinical education experience.

*QI Project #2: Increasing Weekly IPE Touchpoints within the Clinical Setting in Health Profession Student*s

The second QI project aimed to increase the number of IPE touchpoints during a clinical education experience for health professions students. In this project, students reported a variety of naturally occurring touchpoints including case study discussions, clinical observations simulations, and cotreats. Interestingly, the key drivers observed in this quality improvement project were the student and instructor understanding of IPE, positive reinforcement for students, and most importantly, existing IPE opportunities at each clinical site and duplication of these successes. By the end of the six months approximately 45% of the students had completed at least one IPE touchpoint.

QI Project #3: Increasing Quality of Reflection after Interprofessional Interactions within the Clinical Setting in Allied Health Students

The SMART Aim of QI project three was to increase the number of students completing the bundle measurement from 0% to 75% by the end of the semester. The goal of this project was reached with the median completion rate of 95% of the respondents having completed weekly quality reflections on their IPE and IPCP touchpoint experiences as defined on the bundle measure (Figure 3).

DISCUSSION

Prior efforts by the research team to create and manage IPECP touchpoints for large numbers of students had been ineffective and overwhelming. However, findings from the three CQI projects together provided valuable insight to the educators on how to capture IPECP learning experiences efficiently and effectively occurring organically in the clinical setting and leveraging these experiences for improved student learning.

In QI Project #1, it was determined that IPE and IPCP must be clearly defined for students to accurately identify their occurrence. By separating the questions on the weekly surveys and providing examples, students were able to determine events more accurately they were engaged in within the clinical setting as IPE or IPCP. Additionally, many clinical supervisors reported not being familiar with these terms, which was primarily found to be due to the recency of their education and training. By educating students on distinct definitions and providing them with scripts to engage their supervisor in discussion, this knowledge was then passed to supervisors which supports the continual learning process.[15] An additional benefit included providing students with the confidence to work with their supervisor as a collaborative team, modeling key concepts of IPECP and enabling the process to become student driven rather faculty or clinical supervisor driven.

In QI Project #2, it was determined that more naturally occurring IPE touchpoints were occurring than the research team previously assumed. At least 45% of students involved in the project experienced at least one IPE touchpoint during their semester rotation. Prior efforts by faculty to create these experiences for students inorganically was not efficient and caused more frustration for clinical education stakeholders including students, supervisors, and faculty members by adding more to their workload. For healthcare workers already facing burnout this could potentially result in added stress to a clinical supervisor and resistance to IPE for clinical student learning.[16] An additional insight from the surveys showed that some disciplines and settings tended to have higher rates of IPE. When students rotated through a single provider private practice for example, the IPE opportunities were more limited. Alternatively, when students rotated through a hospital-based setting, IPE opportunities were more abundant. While this result fell short of the expected goal, discovering the amount of existing IPE opportunities available at current clinical sites proved promising for scheduling these in future rotations and therefore establishing a systematic process for IPE in clinical rotations.

Lastly, in QI Project #3, the aim was to capture student IPE and IPCP touchpoint data and to ensure that these students were learning from these experiences in a valuable and effective way. Engaging the students in conversations about what they needed from faculty was a critical step in

ensuring this objective was met. After meeting with students, it was determined that the required student reflections needed to be easily accessible to the students across multiple mediums with multiple reminders to ensure timely completion. Faculty members setting automations for deployment of reminders using the web-based platform was helpful as well as providing students with a grading rubric outlying expectation.

CONCLUSION

Throughout this study we found CQI methodology extremely valuable to our healthcare educator team when determining how to increase IPE and IPCP experiences within our training program. While each training program is unique, most encounter overarching barriers. These hurdles include efficiency of implementation and ensuring adequate student learning outcomes. Without continued improvement, these factors inhibit the advancement of clinical training for students to meet the guidelines set by the WHO and the Institute for Health Care Improvement.[1,17]

Through the combination of these three CQI projects, the results of this study support IPE and IPCP experiences are happening organically in clinical settings which serve to effectively educate and train students to function as members of a care team. Students may need assistance in identifying opportunities within their clinical settings which include IPE and IPCP, but when equipped with operational definitions and examples, the onus of identifying training opportunities can be a student-driven process, taking the burden off clinical instructors. The outcomes demonstrate that, when possible, care should be taken to balance multiple clinical rotations across a broad range of settings to ensure students will rotate through a setting where they have a higher chance of engaging in IPE.

Additionally, the data suggests that motivators should be considered by healthcare educators to increase student engagement and aid in obtaining quality reflections such as the “IPE Certificate of Recognition” used. Use of a motivator can serve as an effective way to incentivize students to participate in interprofessional training experiences, whether formally planned or naturally occurring.

Lastly, the study outcomes indicate incorporating the student in the academic process for reflection completion and identifying their perceived barriers is a vital step to ensure greater success. Participation in these projects had created intrinsic motivation within students to seek out additional IPE/IPCP opportunities, embraced a collaborative practice ready mindset, and sought a team approach to care as best practice. This process ensured the students were TOPR upon entering the work force.

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