

Impact of In-Person vs. Virtual Class Instruction on Interprofessional Education

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Background: Interprofessional education (IPE) is the practice of students from different health professions learning about, from, and with each other in order to develop a greater understanding of and appreciation for other disciplines, and to foster collaborative practice between different healthcare providers. The World Health Organization recognizes that medical teams with members of diverse professional backgrounds provide the highest quality of patient care. Interdisciplinary teams are used to provide comprehensive patient care and improve the Quadruple Aim: improving population health, improving patient experience, reducing cost of medical care, and improving wellbeing. The value of IPE is further demonstrated in its inclusion as an accreditation standard for multiple healthcare related professional programs. Team-Based Clinical Decision Making (TBCDM) is a 13-week IPE course focused on clinical decision making that is required for all third-year dental students, third-year pharmacy students, advanced practice nursing students, and masters of social workers training for clinical care. Beginning in 2019, first-year medical students were required to participate in three weeks of the course. Their involvement expanded to five weeks of participation in 2021. In response to the COVID-19 pandemic, there were changes in the pedagogy of the TBCDM course beginning in March 2020. The course was fully in person in 2019, primarily in person in 2020 with a shift to remote in the last 3 weeks of the semester and was fully synchronous remote in 2021. Studies have demonstrated that online learning encourages student centered learning and may be problematic for interprofessional teamwork. It is unknown how the format of the course (in-person, partially in-person, fully remote) impacted student outcomes. The purpose of this study was to analyze the impact of these pedagogical changes on the ICCAS and post-course survey for students enrolled in 2019-2021.

Methods: This was a retrospective cohort study that included all students enrolled in TBCDM during the 2019, 2020, and 2021 offerings. Data on IPE outcomes was assessed for each cohort (2019-2021), with comparisons of outcomes done across cohorts to assess the impact of change in pedagogy. Outcomes data were collected from the Canvas course assignments that are required components of the course. Only deidentified data were analyzed. The ICCAS survey was administered to students when they completed the course (end of semester for non-medicine students, end of the participation period for medical students). ICASS uses a retro-pre/post Likert-scale approach asking students to rate their ability for 20 items before participating in the course and after participating in the course. In addition to ICASS, all students responded to several faculty-developed Likert-based assessment questions that further measure the impact of the course on assisting students in gaining skills for working on an interprofessional team. These questions asked students to indicate their familiarity with the education/training and roles/responsibilities of the other disciplines, and their perceived learning about teamwork, communication, and representing their profession on the team. The primary outcome is change in IPE competencies scores, derived from the ICCAS and faculty-developed questions, for each of the three student cohorts. Data are being analyzed by cohort and by student discipline.

Results: There were approximately 1500 students included in the data analysis consisting of 514 medical students, 354 dentistry students, 268 nursing students, 239 pharmacy students and 170 social work students. The percentage of students reporting very good/excellent to each item on the ICCAS were compared between pre/post course. Because medical students participated in the course for less time,

their results were reported separately. Difference in pre/post course percentages for each item were assessed using a two-tailed T-test with a p-value of less than 0.05 indicating significance. There were significant increases in the percent of students indicating very good/excellent in pre/post scores for each cohort (2019-2021). Interestingly, the gains seen with medical students, while significant, were lower than the gains seen with non-medical students. This is likely a reflection of the reduced amount of time that medical students spent working with their teams. Preliminary analysis of ICCAS data for in-person vs remote offerings show similar outcomes across students. Preliminary data analysis for the faculty-developed outcomes reveals different findings when comparing in-person to remote pedagogy. While there was at least 75% agreement with all items in 2020 and 2021, the overall percent agreement was lower when the course was offered remote vs in person. This will be monitored moving forward as there were many other factors that affected student engagement and learning during the pandemic when all courses were remote. In contrast, there were notable increases in level of agreement in all items for medical students in 2021 vs 2020, with 86% of students reporting learning about the other healthcare disciplines and 87% reporting learning how to see different perspectives. This change likely reflects the positive impact of having medical students with their team for more weeks, allowing for improved team formation and team communication.

Lessons Learned: The findings reveal that there were significant increases in ICCAS outcomes for all three cohorts and for each discipline. The increase in perceived competency was lower when remote and was lower with medical students who spent less time in the course. This suggests that time spent working together on a team matters - longer time led to greater improvement in scores. It will be important to monitor these outcomes moving forward to determine whether the differences seen continue to exist with the remote synchronous offering in 2022 when much of students' other academic programming returned to in person

Future Applications and Next Steps: Data learned from this study can help inform the pedagogical approach for future IPE offerings, with the goal of identifying ways in which virtual learning can be optimized. While virtual learning offers many advantages, most notably increased ease in bringing people together, the lack of in-person contact with team members may adversely affect teams. Finding ways to mirror the benefits of in person engagement while utilizing a virtual platform will be necessary in order to address some of the logistical barriers that exist in bringing learners physically together. It will also be important to explore whether these results help learners work on healthcare teams in practice.