

Student Perceptions of Integrating Interprofessional Education and Overcoming Barriers: A Case Report

Molly M. Figgins, PhD, LAT, ATC*; Sharon D. Feld, EdD, LAT, ATC*; Kathryn J. DeShaw, PhD†
Departments of *Athletic Training and †Kinesiology, Loras College, Dubuque, IA

Context: Health care education programs require interprofessional education (IPE) as a curricular requirement to prepare students for collaborative practice upon entrance to the field of health care. However, there are still barriers to integrating IPE, and there is a need for more research regarding athletic training student perceptions and learning from IPE education and how program faculty can overcome barriers to IPE.

Objective: The purpose of this case report is to examine how program faculty have overcome barriers to IPE within a professional-level, master's degree-granting athletic training program (ATP) at a small liberal arts institution in the Midwestern United States. In addition, we investigated the students' perceptions of IPE.

Design: We examined one ATP and how specific barriers to IPE were overcome, and student perceptions of IPE.

Intervention(s): The ATP program faculty developed relationships with 3 different disciplines to develop and host 3 separate workshops. Collaborative workshops were designed with physician assistant, graduate mental health counseling, and undergraduate social work programs. We used the Interprofessional Collaborative Competencies Attainment Survey as a pre- and post-workshop assessment for student perceptions and learning.

Results: All participants reported higher scores after each workshop with no significant differences between the disciplines. Initial results from each workshop revealed no student benefited more than any of the other students. In addition, program faculty were able to overcome common barriers to achieve planned IPE within the ATP curriculum.

Conclusions: Health care is a collaborative field, and to ensure patients receive the best care possible, health care students must be educated in collaborative practice. While barriers exist to integrating IPE into health care education programs, faculty who collaborate with one another can overcome these barriers to develop meaningful IPE.

Key Words: collaboration, health care, pedagogy

Dr Figgins is currently the Director of the Graduate Athletic Training Program in the School of Science and Health at Loras College. Address correspondence to Molly M. Figgins, PhD, LAT, ATC, Athletic Training Program, Loras College, 1450 Alta Vista Street, Dubuque, IA 52001. molly.figgins@loras.edu.

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KEY POINTS

- Barriers to IPE can be overcome through reaching out to collaborate with other health care education programs.
- Advocating the need for IPE is a pathway to best patient care.
- Workshops including 2 disciplines with straightforward patient cases are effective pedagogical methods for improving collaboration between students preparing to become health care professionals.

INTRODUCTION

Interprofessional collaboration practice (IPCP) among health care professionals is a key factor to providing best patient care.¹ The Health Professions Accreditors Collaborative² recommends future health care professionals be educated to work in partnership with other health care providers to provide both cost-effective and superior patient care. As a result, many accredited health care education programs (eg, Accreditation Council for Occupational Therapy,³ Council on Academic Accreditation: Audiology – Speech-Language Pathology,⁴ Commission on Accreditation in Physical Therapy Education,⁵ Commission on Collegiate Nursing Education⁶) are required to incorporate interprofessional education (IPE) within their curricula; however, there are inherent barriers to integrating IPE within health care programs, which must be overcome. Specifically, logistic considerations must be addressed^{7–9} including the selection of the health care disciplines to be included in the IPE activities.⁷ Further barriers include institutional leadership,^{8,10} finding willing academic programs and faculty to partner with,⁷ coordinating the timing of each curriculum or institution,^{8,10} the housing and organization of each academic unit,^{7,11–13} and financial resources.^{8,9} Some facilitators for IPE integration include institutional support either through a dedicated committee or director for these educational opportunities,^{7,8,10} or infrastructure within the institution in which all health care programs are housed together.^{7,10–13} As described, there are specific challenges and facilitators to IPE, but these may not be the same for health care education programs located within smaller institutions where barriers to IPE may include a lack of other health care programs, organizational structure, and limited personnel and financial resources. While not unique barriers to IPE, the lack of facilitators required creativity and perseverance from the program faculty to introduce IPE into the curricula and educate students about the link between IPE and best patient care.

CASE REPORT

Background

The institution of focus in this case report is a small, private, liberal arts institution affiliated with the Catholic faith. The institution has an enrollment of roughly 1300 graduate and undergraduate students and is in the Midwestern United States. The institution is located near 3 major metro areas and houses 2 additional small, private colleges and universities

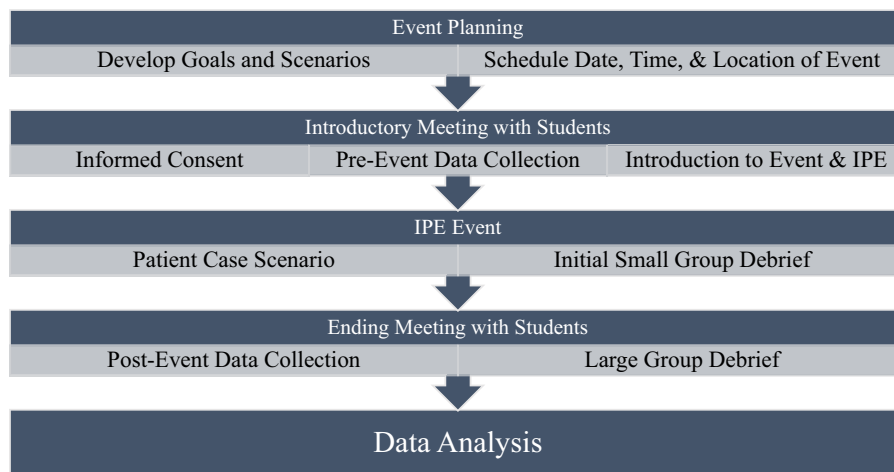
within 2 square miles of one another. There are both positive and negative aspects associated with being near to major metro areas and other similar institutions. The benefit of the location is that it allows for easier recruitment of students from larger cities who may wish to enroll at a small institution, while the drawback is competing for enrollment against the larger institutions located in these major metro areas. The benefit of having 3 small private institutions located in close proximity to one another is that it allows for great collaborative opportunities among the health care education programs located within these institutions.

The health care programs offered at the institution of focus in this study include graduate athletic training program (ATP), graduate mental health counseling (MHC), and undergraduate social work (SW). The ATP and SW programs are accredited, and the MHC program is seeking accreditation. The institution is organized into divisions, which presents a barrier for IPE as the SW, ATP, and MHC programs are not housed in the same academic division. The current institutional organizational structure, along with the timing of each program causes logistic issues for offering shared courses or IPE workshops that include all programs involved. While the institution offers support in many areas, there is no current IPE infrastructure, such as a coordinator or committee to effectively implement IPE broadly across the institution. Hence, there was a need to become resourceful, intentional, and creative with IPE initiatives. Within the community, the other 2 institutions have physician assistant, nursing, and physical therapy programs. Thus, the purpose of this case report is to describe the implementation of IPE in the ATP at one institution, focusing on overcoming common barriers to collaboration, and exploring the students' perceptions of IPE.

Intervention

To effectively implement IPE for athletic training students, the program faculty began with a strategic plan including building relationships with the other programs housed in the same institution as well as other health care education programs within the community. Building these relationships required advocating for the profession of athletic training and intentional collaboration between faculty and students. The overall goal for each IPE interaction was to ensure students learn about, from, and with one another,¹⁴ but these interactions needed to be consistent in the curricula of all the collaborating health care programs. The program faculty developed 3 separate IPE activities with a physician assistant (PA) program at a neighboring institution, and the MHC program, and SW program at the home institution. Participants completed the Interprofessional Collaborative Competencies Attainment Survey (ICCAS)¹⁵ after approval from the institutional review board and completion of informed consent by all participants. The ICCAS has been previously validated and is considered reliable.^{15–17} The ICCAS is a 20-question instrument divided into 6 broader categories that include communication, collaboration, roles and responsibilities, collaborative patient and family-centered approach, conflict management and resolution,

Figure. Methods flow diagram for each interprofessional education workshop.



and team functioning.¹⁵⁻¹⁷ Questions were answered on a Likert scale where 1 indicated *strongly disagree* and 7 indicated *strongly agree*. Students completed the ICCAS before and after the IPE workshops to assess student attitudes and perceptions toward IPE as well as workshop effectiveness. A flow chart depicting the timeline of each workshop is provided in Figure. In addition, we consulted the CARE guidelines for case reports to ensure the transparency of the results.¹⁸

Physician Assistant Workshop. The initial relationship we sought was an external relationship with a peer institution located roughly one mile away, and it began with a request for collaboration. This institution has both PA and nursing education programs, and faculty in both programs were interested in participating in IPE. We scheduled a meeting with the faculty of the health care programs and formed an agreement to move forward with developing a memorandum of agreement (MOA) between the institutions to develop an IPE consortium. An MOA between institutions provides many benefits including accreditation purposes, in the event of faculty turnover or programmatic changes, and the MOA provides documentation on the importance and need for IPE within these programs.

Upon completion of the MOA, the ATP faculty drafted the initial patient simulation scenario with the intention to design a patient case all students would be able to navigate. Faculty collaborated to include all important aspects of the patient case for their respective disciplines and to define the roles of the students. The initial scenario created through this partnership was a patient simulation scenario regarding opioid overdose, while subsequent IPE workshops have included traumatic brain injury. The program faculty worked to schedule the workshop for a time when all students and faculty would be able to attend, which required logistic coordination between the program faculty.

At the beginning of the workshop, students were briefed with an introduction to the concepts of IPE, which included the importance of learning with and from one another, and focusing on collaboration, communication, and teamwork. Program faculty also introduced the logistic plan for the patient simulation scenario, and students completed both the informed consent form and the pre-event section on the ICCAS. Students were assigned

to groups before the event for even distribution of all disciplines in each of the groups, and one faculty moderator was assigned to each group of students. One student within each group was assigned as the actor and was provided the scenario ahead of time to prepare. During the simulation scenarios, the athletic training students completed the initial evaluation and provided immediate care within their scope and then referred the patient to the PA students for further care.

Upon completion of the scenario, students and their faculty moderator completed a small-group debriefing immediately, and then all participants met again as a large group to debrief. Upon completion of the large group debriefing, students completed the ICCAS postevent section. Immediate verbal feedback from faculty and student participants was overwhelmingly positive, and this became a regular event in both the PA and ATP curricula. It is important to note that the nursing program did not participate in subsequent IPE events as a smaller group setting was desired to strengthen the activities during the early stages of the consortium formation. In addition, the logistics of planning an IPE workshop for 3 programs versus 2 was challenging, and subsequent workshops have been extremely successful between the 2 programs. While including more disciplines in IPE interactions is a goal for future endeavors, keeping these interactions small has been beneficial for scheduling, student learning and engagement, and other logistic barriers for each of the programs involved, including the need for adequate faculty moderators. The partnership between these 2 institutions required teamwork and collaboration between faculty with the central goal of quality IPE for all students involved.

Mental Health Counseling Workshop. After forming a successful external partnership, it was much easier to approach faculty across divisions at the institution of focus. The first internal partnership began with the MHC program with an initial communication with the ATP program director. Initial communications were positive, but there was a lack of understanding regarding the importance of IPE and the role of athletic trainers in patient cases regarding mental health care. Eventually, we scheduled an event, but there were additional barriers with this workshop in comparison with the PA workshop. The initial hurdle was convincing the MHC program director of the value of the workshop for the mental health counseling students as well as the athletic training students.

This required advocating for the profession of athletic training and explaining the role of the athletic trainer in mental health care. Once it was agreed that this educational workshop would be beneficial for all students, the next barrier to overcome was the logistics of scheduling the event at a time that worked for both programs. The MHC program schedules evening classes for students, which is not compatible with the ATP course schedule as most athletic training students attend clinical education during the evening. The MHC program faculty eventually incorporated a requirement to attend the IPE workshop as a part of one course, and the event was scheduled during the daytime.

The scenario for this IPE workshop was linked in the ATP curriculum through a psychology of injury course as there is a mental and behavioral health component included in the course. The athletic training faculty developed a draft of the patient simulation scenario, and the MHC faculty collaborated to develop a patient simulation that would be beneficial for all students. This simulation was designed to challenge the athletic training students by engaging in a difficult conversation with patients about suicidal ideation. Before beginning the workshop, students were prebriefed with an introduction to the concept of IPE and the goals for the workshop. Students also completed the informed consent form and the ICCAS after this initial introduction to the workshop. The MHC students acted as patients with signs of suicidal ideation, and the athletic training students were required to have the initial conversation with this patient. The athletic training student questioned the patient about suicidal ideation and then discussed a plan for immediate care and referral. Once the scenario reached a natural conclusion, the MHC student immediately debriefed and provided feedback to the athletic training student, discussed the referral process, and explained the immediate care for patients with suicidal ideation. A large group debriefing also occurred after this initial debrief. This internal relationship with another program within the institution began with advocacy but continues to grow because of teamwork and collaboration between the faculty in these programs. This successful relationship also paved the way for a relationship with the SW program within the institution.

Social Work Workshop. Once the program faculty cultivated a successful relationship with the MHC program, we sought a second relationship, with the SW program. Specifically, we contacted the faculty member who directs fieldwork placement for the SW program to schedule an IPE workshop. With this relationship, scheduling was not the most difficult part of developing the IPE workshop. The difficulty was developing a scenario that was beneficial for both the athletic training and SW students. This was a shortcoming on the athletic training faculty, as we did not fully understand the difference between a bachelor's degree in social work and a master's degree in social work, thus an appropriate scenario required substantial collaboration between program faculty. Collaborating with the SW program allowed both the faculty and the students to learn about, from, and with one another at all levels of this patient simulation. After rounds of collaboration, we developed a scenario focused on disordered eating patterns in a high school-aged patient with subsequent issues in their home life.

Before beginning the workshop, students were prebriefed with an introduction to the concept of IPE and the goals for the workshop. At this time, all students were invited to complete

the informed consent form and the ICCAS. Students were separated into groups after the initial introduction, and students were given time to introduce themselves in their small groups to get to know one another and their respective health care disciplines. For this patient simulation, first-year athletic training students portrayed the patient, while the second-year athletic training students performed the initial evaluation. Upon completion of the initial evaluation, the second-year athletic training student discussed the patient case with the SW student and transferred care using essential referral information. The SW students completed further evaluation with the patient based on what they observed. Upon natural completion of the patient simulation, small-group debriefing was facilitated by faculty moderators. A large-group debriefing was then provided by faculty moderators, and students were invited to complete the second portion of the ICCAS.

Initial Feedback and Future Planning. Feedback from students and faculty for all IPE workshops was immediately positive, and we began planning future events. One of the most widely praised components for these small-group IPE interactions was when the athletic training student had to present the case to the other student and include all relevant information in a professional manner. Students explained how they learned a lot about how important it is for health care professionals to collaborate and communicate effectively for patient care. Forming internal and external relationships has allowed the ATP a structured and consistent schedule of IPE for students that spans all 3 terms (summer, fall, and spring) of the program, covers a variety of educational topics, and allows for collaboration with PA, SW, and MHC students. The relationships formed have also led to a great platform for advocacy of the profession of athletic training and collaboration among various health care professions.

By overcoming barriers and building internal and external relationships, athletic training faculty were able to advocate for the profession of athletic training and provide peer faculty with information regarding the skillset of athletic trainers. These relationships have allowed faculty to understand the need for IPE within other health care education programs. Though many peer faculty did not initially understand the need for collaboration with athletic training students, the IPE workshops led to a very clear understanding of the importance of IPE, and why collaboration among health care professionals leads to best patient care and outcomes. The foundation of strong relationships and advocacy for the profession of athletic training has led to effective collaborative efforts among health care faculty and students. These planned IPE workshops within the ATP curriculum will continue and will be adapted according to student and faculty feedback. Specifically, students indicated that they desire a more realistic scenario for the transfer of patient care to another health care provider. We also plan to reach out to additional health care programs to continue to build IPE opportunities for students and increase collaboration with various health care programs. By overcoming barriers to IPE, students have demonstrated positive learning outcomes from these IPE workshops. The specific results of the ICCAS will be presented to demonstrate the effectiveness of these IPE workshops.

RESULTS

Survey data were scored by averaging the responses to the 7-point Likert scale questions for each of the 6 competency categories.

Table 1. Wilcoxon Signed Rank *t* Tests for ICCAS ATP and Physician Assistant IPE Outcomes Data^a

Variable	Pre-IPE Intervention (mean ± SD)	Post-IPE Intervention (mean ± SD)	Percent Change (%)
Communication	5.02 ± 1.30	6.20 ± 0.69	23.51
Collaboration	5.26 ± 1.17	6.22 ± 0.70	18.25
Roles and responsibilities	5.07 ± 1.04	6.21 ± 0.70	22.49
Collaborative patient and family-centered approach	4.88 ± 1.33	6.18 ± 0.78	26.64
Conflict management and resolution	5.44 ± 1.08	6.40 ± 0.74	17.65
Team functioning	4.84 ± 1.29	6.31 ± 0.73	30.37

Abbreviations: ATP, athletic training program; ICCAS, Interprofessional Collaborative Competencies Attainment Survey; IPE, interprofessional education.

^a All tests were significant at $P < .001$.

Nonparametric techniques were conducted to analyze the ranked categories consisting of a series of Kruskal-Wallis 1-way analysis of variance tests to explore pre- and post-workshop (pre-post) assessment differences between health care program groups at each of the workshops, followed by Wilcoxon signed rank *t* tests to compare pre-post differences within each of the 6 categories among all participants in each workshop.

The Kruskal-Wallis tests reported no significant differences between groups for any competency categories from pre-post among the 3 workshops ($P > .05$). The Wilcoxon rank tests reported statistically significant differences from pre-post scores for all participants in all categories, noting consistent improvements in collaborative competencies after the workshop sessions ($P < 0.05$). Average pre- and post-ICCAS scores and percentage changes are reported in Tables 1–3.

DISCUSSION

The literature^{1,19} supports that IPCP among health care providers typically results in best patient care, quality health care practices, and positive health outcomes. As a result, IPE has been implemented into the curricula of many health care education programs in a similar manner to the current study. In this case report, we present how we overcame common barriers to IPE implementation to develop IPE workshops for AT, SW, and MHC students. In addition, data collected using the ICCAS demonstrates that student learning and perceptions toward IPE improved as a result of these IPE interactions.

Previous studies regarding IPE within athletic training indicate that several common barriers exist, including level of program

(ie, graduate versus undergraduate), institutional resources, potential collaborators, and the academic unit where the ATP is housed.^{7,11–13} While these barriers to IPE can be challenging to overcome, meaningful IPE can be implemented through the identification of willing collaborators, building on those collaborative relationships, and implementing quality IPE educational strategies that lead to positive student outcomes and perceptions. While IPE barriers may continue to exist, such as limited institutional resources and academic program housing, the results of this case report indicate that conquering even a single barrier, such as the identification of willing collaborators, can bring about effective and meaningful IPE. Overcoming these challenges will hopefully lead to increased student understanding of the importance of collaborative health care.

Student attitudes and perceptions toward IPE have been researched previously using the ICCAS to determine the value and effectiveness of emerging IPE pedagogies among a variety of health care students.^{1,20,21} Overall, structured IPE events and workshops generally resulted in positive outcomes among IPE learners. Christian et al¹ completed an IPE workshop, similar to the workshops described in this study, during 2 consecutive academic years. Students attending the events included pharmacy, optometry, medicine, dentistry, nursing, occupational therapy, physiotherapy, and social work.¹ After small-group discussions and case studies, median ICCAS category scores were significantly higher when compared with preworkshop category scores ($P < .001$).¹ Comparable with our case report, results indicated that structured IPE can promote positive learning outcomes for students involved, including the key elements of IPE such as collaboration, communication, and improved role comprehension.¹

Table 2. Wilcoxon Signed Rank *t* Tests for ICCAS ATP and MHC IPE Outcomes Data^a

Variable	Pre-IPE Intervention (mean ± SD)	Post-IPE Intervention (mean ± SD)	Percent Change (%)
Communication	5.45 ± 0.73	6.57 ± 0.42	20.55
Collaboration	5.11 ± 0.74	6.56 ± 0.48	28.38
Roles and responsibilities	5.56 ± 0.76	6.54 ± 0.54	17.63
Collaborative patient and family-centered approach	5.33 ± 0.80	6.44 ± 0.56	20.83
Conflict management and resolution	6.19 ± 0.89	6.81 ± 0.39	10.02
Team functioning	5.42 ± 0.97	6.33 ± 0.78	16.79

Abbreviations: ATP, athletic training program; ICCAS, Interprofessional Collaborative Competencies Attainment Survey; IPE, interprofessional education; MHC, mental health counseling.

^a All tests were significant at $P < .05$.

Table 3. Wilcoxon Signed Rank *t* Tests for ICCAS ATP and SW IPE Outcomes Data^a

Variable	Pre-IPE Intervention (mean ± SD)	Post-IPE Intervention (mean ± SD)	Percent Change (%)
Communication	5.41 ± 0.86	6.51 ± 0.57	20.33
Collaboration	5.18 ± 1.30	6.56 ± 0.50	26.64
Roles and responsibilities	5.41 ± 1.09	6.55 ± 0.54	21.07
Collaborative patient and family-centered approach	5.26 ± 0.98	6.50 ± 0.54	23.57
Conflict management and resolution	5.77 ± 1.00	6.74 ± 0.37	16.81
Team functioning	5.18 ± 1.23	6.61 ± 0.41	27.61

Abbreviations: ATP, athletic training program; ICCAS, Interprofessional Collaborative Competencies Attainment Survey; IPE, interprofessional education; SW, social work.

^a All tests were significant at $P < .001$.

Nagge et al²⁰ used the ICCAS to evaluate the effectiveness of 3 IPE activities on a Health Care Interprofessional Education Day for pharmacy and medical students. Two of the IPE activities were similar to the workshops we developed, where small groups of students completed standardized patient simulation scenarios. The ICCAS results were evaluated a bit differently within this study, as each individual question rather than each category was evaluated for postevent differences. However, results indicate that there were significant improvements in all 20 ICCAS questions ($P < .001$) with strongest effect sizes calculated for the collaboration category. Effect sizes in the collaboration category ranged from 1.03 to 1.09 for the 3 questions within this category.²⁰ These results again indicated the positive effect of IPE among health care education students in promoting attitudes and viewpoints that promote IPCP.

Rosler and Hardin²¹ also used the ICCAS in a study that included newly licensed registered nurses (NLRNs). The results of this study were positive, but perhaps a bit limited as the NLRNs in the experimental group were only working together, versus working with other health care professionals, on a simulated patient scenario. The NLRNs in the control group completed a series of online IPE modules. Results indicated that ICCAS scores significantly improved for each question for both the control group ($P < .03$, $r = 0.69$) and the experimental group ($P < .007$, $r = 0.68$) after completion of the online modules for the control group and completion of the simulated patient scenario for the experimental group. However, when the ICCAS categories were examined further, no significant changes in the categories of communication or conflict resolution were found.¹⁴ These results could be attributed to a lack of collaboration with other health care professionals for both the control group and experimental group.

Vaughn et al²² researched IPE between nursing and athletic training students using a similar simulated patient education approach as we used in this case report. The Student Perceptions of Interprofessional Clinical Education-Revised (SPICE-R) measured student attitudes and perceptions after the simulation event, with results indicating that most students strongly agreed, or agreed that IPE will assist them in their future health care careers. Furthermore, including simulation-based IPE into the curricula of health care students leads to positive educational outcomes and perceptions of IPE regarding teamwork, collaboration, and communication, all of which may support students in their future professional health care collaborations.²²

Results from the current study and recent studies indicate that structured IPE events that use some form of simulated or standardized patient scenario or case study result in positive improvements in attitudes and perceptions of IPE and IPCP for a variety of health care students.^{1,20} It remains important that the collaborative goals of IPE remain at the forefront when overcoming barriers that may exist to design an IPE event or workshop for students.

Limitations and Future Research

We were limited in this research by the number of students involved in each of the workshops, as ATP had fewer students than SW or PA. In addition, we only focused on one institution and on workshops that included the pairing of 2 academic programs. We presented a description of the methods we used to overcome the common barriers to IPE to ensure students are learning how to collaborate and communicate with other health care professionals for best patient care; however, there may be many different methods for overcoming these barriers. More research is needed to determine best practices for educating students on the importance of IPE and the translation of these skills into the IPCP when beginning their practice in health care.

Within athletic training specifically, more research is needed using tools such as the ICCAS, and simulation-based educational activities, to determine the most effective pedagogical approaches to IPE that will result in both improved attitudes and perceptions of IPE and IPC, as well as quality patient care.

CONCLUSIONS

While IPE is required in many accredited health care education programs, it is also important to reiterate to students that collaborative health care results in best patient care. The results of this case report indicate that students from ATP, MHC, and SW programs are learning valuable skills such as communication, collaboration, conflict management, and team functioning to help them learn how to provide best patient care. While barriers to IPE often exist and are unique to each academic institution, they can be overcome through relationship building, collaboration, and advocacy for the education of health care students. Overcoming IPE barriers through creativity and perseverance can lead to effective and valuable IPE for ATP and other professional health care students.

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