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ORIGINAL RESEARCH

INTERPROFESSIONAL EDUCATION

Implementing Interprofessional Education Into Clinical Experiences: Athletic Training Faculty Perceptions

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Context: Health care students must be prepared to engage in collaborative practice with one another. Because athletic training programs are preparing students to enter this collaborative world, interprofessional education (IPE) must be integrated into the curriculum. One aspect for consideration is clinical experiences, but little is known about how athletic training programs are implementing IPE during clinical education experiences.

Objective: To explore how professional, postbaccalaureate athletic training programs are integrating IPE from a clinical education perspective.

Design: Consensual qualitative research.

Setting: Phone interviews.

Patients or Other Participants: Coordinators of clinical education and program faculty who have a role in IPE implementation. A total of 17 faculty engaged in an interview regarding implementing IPE in their respective athletic training programs.

Data Collection and Analysis: Participants engaged in 30- to 45-minute phone interviews that were audio recorded for accuracy and transcribed verbatim. We used a consensual qualitative research approach to data analysis and developed a codebook collaboratively and continued to code using updated codebooks to ensure codes were accurate. We used member checking, internal auditing, and external auditing to ensure trustworthiness.

Results: Two main themes emerged from the data, with resulting subthemes for each. The theme of clinical experiences comprised four subthemes including intentional placement, assessment, linking to courses, and organic IPE. The theme of preceptor involvement includes the need for preceptor development, clear objectives, and active facilitation. We also used a frequency count to determine how many faculty indicated that IPE was currently occurring during clinical education in their programs.

Conclusions: As IPE continues to grow in necessity, athletic training educators should seek opportunities to allow athletic training students to learn about, from, and with other professions. Faculty will need to be intentional about these opportunities and will need to ensure preceptors are trained to integrate IPE and have clear objectives for IPE.

Key Words: Collaboration, curricular design, preceptor development

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KEY POINTS

- Interprofessional education during clinical education should involve intentional placement, assessment, and direct mapping to programmatic goals and curriculum.
- Preparing preceptors for IPE through development opportunities, clear objectives, and active facilitation should occur before learners are assigned to clinical experiences.
- Assessment of IPE and collaborative practice during clinical education requires intentional effort from program faculty and preceptors.

INTRODUCTION

In response to the ever-changing landscape of health care delivery, accrediting bodies for health care education programs across the United States now include interprofessional education as part of their accreditation standards (eg, Accreditation Council for Occupational Therapy Education,[1] Accreditation Council for Pharmacy Education,[2] Accreditation Review Commission on Education for the Physician Assistant,[3] American Speech-Language Hearing Association,[4] Commission on Accreditation of Athletic Training Education [CAATE],[5] Commission on Accreditation in Physical Therapy Education,[6] Commission on Collegiate Nursing Education,[7] and Liaison Committee on Medical Education[8]). Clinicians entering practice are expected to know their roles and responsibilities and to be able to step into a largely collaborative workspace with other professionals to provide care as a productive, interdisciplinary team.[9,10] To prepare learners for this type of practice, educators and program administrators are using various strategies to integrate interprofessional education (IPE) into curricula.[10,11] The World Health Organization[12] defines IPE as occurring when students from 2 or more professions come together to learn from, about, and with one another. Research suggests health care learners who engage in IPE demonstrate an increase in knowledge regarding the roles and responsibilities of other health care professionals, develop a greater respect for other health care team members and their contributions to patient care, begin to understand the necessity of collaboration to improve patient outcomes, and gain additional perspective on ethics.[13–15]

Whereas IPE is a relatively new emphasis for health care education, clinical education is a long-standing and essential component of professional health care education.[5,6,8,16] During clinical education experiences, learners engage in opportunities designed to prepare them for independent practice and apply their knowledge and skills with a real-time patient population under the direct supervision of a credentialed clinician.[17] Clinical education serves as a period of professional socialization by allowing learners to assume some of their professional roles and responsibilities while applying their clinical skills.[16,18,19] Traditionally, educators and preceptors have focused clinical education experiences on the development of essential clinical skills; however, IPE provides opportunities for learners to engage with individuals from other disciplines during their clinical education experiences.

Learners are engaging in didactic educational opportunities regarding IPE and understanding the importance of collaboration through IPE programs.[13,20] However, reinforcing these concepts during clinical education and allowing learners the opportunity to practice these collaborative skills in a realistic clinical setting may result in greater collaboration upon entrance to their desired profession. There is a relative paucity of research related to IPE during clinical education.[21] The majority of interprofessional clinical opportunities seem to occur as short-term experiences[21,22] or in student-run clinics where learners from different disciplines provide care collaboratively.[23,24] Whereas the design and implementation of interprofessional clinical education experiences vary, they appear to have a positive effect on learners' perceptions of their ability to work as a team.[25,26] To improve student learning outcomes and ultimately patient care, the methods in which IPE is implemented in athletic training clinical education requires further investigation. Therefore, the purpose of our study was to explore how professional postbaccalaureate athletic training programs are integrating IPE from a clinical education perspective.

METHODS

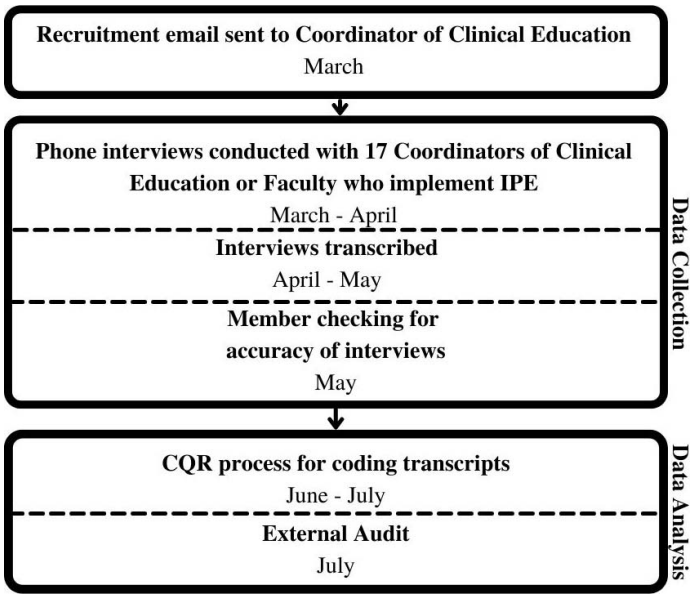
Research Design

Because the aim was to explore athletic training educators' experiences connecting IPE to student experiences, we chose a consensual qualitative research (CQR) design.[27,28] CQR finds its roots in grounded theory, phenomenology, and comprehensive process analysis, and its design allows members of the research team to use an inductive approach to explore the phenomenon and data naturally while limiting bias.[27] For this study, the research team consisted of 4 athletic training educators/researchers, and we collaborated on all aspects of study design including developing the procedures and interview protocol. This study was approved by the university institutional review board before participant recruitment. In addition, we provided a flowchart for the procedures of data collection, analysis, and trustworthiness measures (Figure 1). To ensure that we thoroughly explained the processes we used for this research, we consulted a criteria checklist for reporting qualitative research while writing and presenting the procedures.[29]

Participants

We used purposive sampling and invited the coordinators of clinical education from graduate professional athletic training programs to participate in our study. Individuals were eligible

Figure 1. Flow chart of procedures. Abbreviations: CQR, consensual qualitative research; IPE, interprofessional education.



to participate in the study if they had been employed by their current institution for at least 12 months and if the program was in good standing with the CAATE. If the coordinator of clinical education felt there was another program faculty member who had more knowledge regarding the integration of IPE in the program, we asked them to forward the invitation to that faculty member. A total of 17 program faculty participated in our study, and all met the inclusion criteria. Demographic information for participants can be found in Table 1, and information regarding their institution can be found in Table 2. All program faculty provided consent to participate via email and again verbally before the phone interview.

Procedures

One member of the research team (D.A.H.) contacted all potential participants via email and asked program faculty to respond if they were interested in participating and met the inclusion criteria. Once faculty members responded, we sent a link to a demographic survey via Qualtrics and inquired about their availability to complete a 30- to 45-minute phone interview with a member of the research team (S.D.F.) trained in qualitive interviewing. A semistructured interview guide that was validated for content validity[30] was used to collect data. At the start of the interview script, we provided each participant with the World Health Organization's definition of IPE[12] to establish a baseline. Each interview was audio recorded to ensure accuracy, and participants provided their informed consent via phone.

A research assistant transcribed each interview verbatim but removed any identifying information, including proper names and places, to protect the participants' identity. To further protect each participant's identity, a pseudonym was assigned to each participant and their demographic data. Only members of the research team had access to the information linking the pseudonyms to the participants' identity and demographic data. After transcription, we sent each transcript back to the participant and asked them to review it for accuracy member checking. We achieved data saturation after 10 interviews, but we had already scheduled interviews with an additional 7 program faculty and wanted to add to the richness of the data.

Data Analysis and Trustworthiness Measures

To ensure trustworthiness of the data we used multiple researchers, an internal auditor, and an external auditor throughout the consensual qualitative research process. Discussion and consensus are fundamental to the consensual qualitative methodology, so to begin the data analysis process, each team member independently read and took notes on the same three transcripts, being sure to note recurring ideas or

Table 1. Program Faculty Demographic Data

Participant Pseudonym	Age, y	Sex	ATC Experience, y	Faculty Experience, y	Role in Athletic Training Program
Andrew	56	M	35	26	Program Director
Angel	45	F	24	2	CEC
Benjamin	31	M	10	6	CEC
Charlotte	33	F	15	2	CEC
Christine	31	F	11	3	CEC
Fred	45	M	21	17	CEC
Joanne	43	F	22	3	CEC
Leslie	41	F	19	2	CEC
Maria	37	F	11	3	Faculty, nonadministrative
Mark	47	M	23	8	CEC
Maureen	44	F	17	3	Faculty, nonadministrative
Max	32	M	11	3	CEC
Meg	33	F	12	8	CEC
Mimi	33	F	11	6	CEC
Raoul	43	M	21	11	CEC
Roger	31	M	10	3	CEC
Tom	33	M	11	4	CEC

Abbreviations: ATC, certified athletic trainer; CEC, clinical education coordinator.

Table 2. Characteristics of Participant Institutions

Participant Pseudonym	Carnegie Classification[a]	Institution Type	Years as Professional Master's Program	School ATP Is Housed Within	IPE Director or Coordinator on Campus	IPE Committee on Campus
Andrew	M1	Public	4	College of HS	No	Yes
Angel	R2	Private	4	College of HS	No	No
Benjamin	R1	Public	2	College of Health Professions and Sciences	No	No
Charlotte	M1	Private	4	Nursing and HS	No	No
Christine	R1	Private	4	College of Medicine	No	Yes
Fred	R2	Private	3	College of Health Professions	No	Yes
Joanne	R2	Private	2	College of Health Care Sciences	Yes	Yes
Leslie	M2	Private	1	College of Education	No	No
Maria	R1	Public	6	College of Nursing and Health Innovation	No	In proposal phase
Mark	R2	Private	10	College of HS	Yes	Yes
Maureen	M3	Public	3	College of Arts and Sciences	Yes	Yes
Max	Baccalaureate Colleges, Arts & Sciences	Private	4	Division of Graduate Health Sciences	No	No
Meg	R2	Private	4	School of Behavioral and Applied Sciences	No	Yes
Mimi	R2	Public	14	Human Development and Education	No	No
Raoul	R1	Private	4	College of Health and Rehabilitation Sciences	Yes	Yes
Roger	R3	Private	2	School of Health Professions	Yes	Yes
Tom	M2	Private	2	College of Health Sciences	No	Yes

Abbreviations: ATP, athletic training program; HS, health sciences; IPE, interprofessional education.

[a] Carnegie Classification: R1, doctoral universities, very high research activity; R2, doctoral universities, high research activity; R3, doctoral/professional universities; M1, master's colleges and universities, larger programs; M2, master's colleges and universities, medium programs; M3, master's colleges and universities, smaller programs.

topics that could be used to create codes later in the analysis process.[27] After that initial read, the team met to discuss the findings and reach a consensus for the initial codebook. Using this version of the codebook, each team member independently coded one more transcript and made notes regarding any changes that were needed for the codebook. We met again after completing this round of coding to discuss and reach a consensus on modifications and finalize the second draft of the codebook. With the second draft of the codebook, three members of the research team (D.A.H., S.D.F., J.L.K.) coded four more transcripts and shared their results with one another to check alignment of the codes with the additional transcripts. We did not make any additional codebook modifications after this round of coding. With the finalized codebook, one researcher (D.A.H.) coded the remaining nine transcripts. One member of the research team (S.A.M.) served as the internal auditor and ensured consensus judgments aligned with the data throughout the process. To finalize the analysis process, we sent the finalized themes and a selection of quotations to represent each theme to an external auditor and asked them to confirm the alignment of themes and quotes.

RESULTS

The results presented here are part of a larger study.[30] Although the previous publication of these data focused on the didactic portion of the results; the program faculty were also asked about integrating IPE into clinical education. The results related to clinical education are presented here.

Participant responses varied regarding how programs were integrating IPE into clinical education. Some programs were intentional about learner placement for interprofessional experiences during clinical education experiences, whereas others identified examples of unintentional IPE occurring. Some program faculty described the inclusion of health care professionals during clinical education as opposed to other learners from other health care disciplines. A frequency summary of programs describing each of these situations can be found in Table 3.

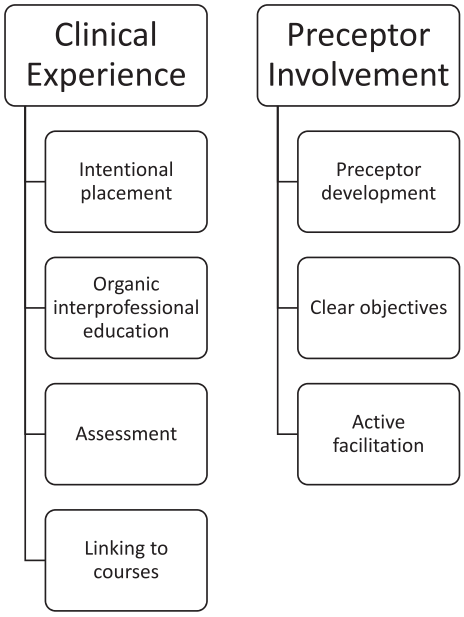
Table 3. Frequency Counts for Clinical Integration

Category	Faculty Indicated/Total	Percentage
Intentional placement[a]	4/17	23
Accidental placement[b]	6/17	35
Placement with other health care professionals only	7/17	41

[a] Faculty knows there are other health care students and intentionally place students at the same time.

[b] Faculty found out that there were other students at the clinical site but did not know it at the time of student placement.

Figure 2. Themes and subthemes.



Two themes emerged regarding the integration of IPE during clinical education: clinical experience and preceptor involvement. *Clinical experience* included four subthemes of intentional placement, organic IPE, assessment, and linking to courses. *Preceptor involvement* included three subthemes of preceptor development, clear objectives, and active facilitation (Figure 2).

Clinical Experience

When we asked program faculty how they integrated IPE into clinical education, they described various methods. Commonalities among these responses led us to the formation of the subthemes of intentional placement, organic IPE, assessment, and linking to courses.

Intentional Placement. Some program faculty described being very intentional regarding student placement and ensuring students were interacting with other health care professionals and learners. Clinical sites where learners from other health care disciplines were present alongside the athletic training student were deemed essential for IPE. Raoul described his approach like this:

> *We'll assign athletic training students to be with those physicians, and those physicians are usually supervising second- and third-year [medical] residents who are completing a part of their sports rotation. In those experiences, this is probably one of the most directly specifically identified ways we will try to approach this [IPE].*

Mimi found intentional scheduling was essential to ensuring IPE occurred during clinical experiences. She explained it like this:

> *At the PT [physical therapy] clinics, there is almost always at least one additional PT student there with them [the AT student]. In the ortho[paedic] setting, they have medical residents usually there with them.... We probably could go at opposite times of those students, but I have intentionally tried to make it so they are around there [the clinical site] at the same time so they can chat.*

Like Mimi, Fred was intentional with including IPE into the clinical experiences of his learners. He told us,

> *I had previously worked in collaboration with the dean of the College of Osteopathic Medicine to coordinate clinical experiences for our students. They have an osteopathic manipulative medicine clinic, teaching clinic here on this campus. I had worked in collaboration with her to coordinate student experiences there. When she heard about the clinic we were running, she reached out to me and said, "I think this would be a great opportunity to get medical students involved." We were open to it.*

Organic IPE. Whereas some program faculty were intentional with learner placement for interprofessional interactions, others identified that it was occurring naturally. Some program faculty described that when learners were assigned to a clinical experience in a rehabilitation clinic, they also had the chance to work alongside learners from physical therapy. For example, when we asked Christine about how she includes IPE during clinical education, she indicated that she was not intentional with IPE during clinical education, but rather it was occurring organically:

> *Not that we planned. We have, obviously the CAATE requires non-sport and a non-ortho[paedic] clinical experience, but it's not like we are requiring for them to get IPE experience, if that makes sense. It's more of a happy accident right now.*

In a similar vein, other program faculty found that some clinical sites are more suitable to IPE than others without the intentionality to include IPE. Joanne, for example, discussed that her students were interacting with a medical student at one clinical site. She described it like this:

> *I think at least, out of our 9 [students] right now, I think 3 of them have been there [the clinical site] on the same days when the DO [doctor of osteopathic medicine] student is there. It wasn't intentional, a little bit accidental, but they have gotten to interact with him.*

Mark, similarly, described how he felt IPE happened organically during clinical education. When asked about how to make IPE a focus for clinical education, he told us, "I think that it's not [intentional]. I think it happens organically. I don't think it's one of those things that is explicitly stated that this [IPE] has to be the focus."

Assessment. Program faculty also described using assessment techniques to measure and track interprofessional interactions during clinical education. Mechanisms for tracking these data varied among program faculty; some used Excel spreadsheets, whereas others used clinical tracking software. Fred told us:

> *We utilize ATrack to track this [patient encounters]. One of the questions on that patient encounter is "Did you interact with any other health care professionals with this patient?" Trying to get them thinking a bit about other health care professions that played a part in that.*

Using patient encounters allows Fred to see when students interact with other health care professionals, but also encourages students to think about interprofessional interactions. Similarly, Mark describes his approach with students and recording their clinical experiences with other health care professionals. Mark said,

> *They [athletic training students] have to do a minimum of 10 patient encounters over the course of the semester. That patient encounter, in order for it to be counted as a patient encounter, they [students] need to do an evaluation of a patient and do a SOAP [subjective, objective, assessment, and plan] note.*

Raoul, on the other hand, worked to assess the quality of the interactions and the collaboration skills of students during their clinical experiences. Raoul stated,

> *There are assessments that the preceptors are completing about how well students collaborate with other health care providers, so students are assessed on their collaborative practice. Students identify the extent to which collaborative practice is happening at their clinical site.*

Linking to Courses. The final component to clinical experience is linking what students are learning regarding IPE to their courses and vice versa. Some program faculty stated that there can be a gap between didactic learning and clinical education. Benjamin discussed how he felt he could encourage more reflection with his students. He said,

> *I think we can do a lot better with this [incorporating IPE activities into the classroom]. Usually, after the [IPE] event, we do the debriefing all together and then when we come back [to the classroom] the next day, we will have a little bit of a reflection and talk about how this can be applied clinically. But I don't know if we're doing justice to the students in that aspect.*

Angel was in a unique position for linking clinical experiences with classroom learning by serving as a clinical professor and working with other health care professionals while educating students during clinical experiences. Angel told us,

> *I'm a clinical professor so I do have some clinical work that I do in the athletic training room. For example, we were talking about sickle cell trait and hyponatremia, and I'm at football practices where we have students with sickle cell trait where we do work with our dietitian on making sure that they're having sodium supplementation along with Gatorade.... I'm always encouraging them that the classroom is a safe space to discuss things that are going on in clinical. That helps to bridge that gap, so they don't see it as two separate things.*

Preceptor Involvement

Preceptors are an essential component of clinical education, and program faculty described how they involved preceptors in the process of integrating IPE in clinical education. We determined 3 aspects of preceptor involvement program faculty described while discussing IPE in clinical education. These aspects included preceptor development, clear objectives, and active facilitation.

Clear Objectives. Throughout the interview process, program faculty often described the learning objectives tied to clinical education. When describing IPE in clinical education, program faculty expressed a need for clear objectives aligned to IPE or other interprofessional interactions. Roger described it like this:

> *There is always IPE tied into one of the [learning objectives]. We want them to observe multiple professions working together, learning together in the orthopedic setting or in the athletic setting, or in the high school secondary school setting however it is.*

He expressed a desire to set clear objectives for both preceptors and students to encourage interprofessional interactions. Roger went on to describe his approach to integrating IPE in the athletic training program. He explained how IPE is a goal on the programmatic level and this affects how students and preceptors approach these clinical experiences. He said,

> *Just seeing our secondary goals on a programmatic level is continued exposure in a variety of settings. That's something that we never want to look at IPE as a box to check, we wanted to actually turn it into clinical practice that is a meaningful experience for all involved.*

Similarly, Raoul described how he explains the goals of interprofessional interactions during clinical education to preceptors during an annual meeting. He told us,

> *One of the things that we have done specifically is, 2 years ago, we started to incorporate some interprofessional education related content into an annual workshop. Since then, identifying what our program goals were to let them know we were going to start to collect these data and information about who the other health care providers are, what other opportunities the students are getting to collaborate with them, and what is the nature of those opportunities too.*

Active Facilitation. This subtheme within preceptor involvement related to active preceptor inclusion of students in interprofessional interactions and IPE. Preceptors who encourage students to engage with other professionals or students from other health care disciplines may help athletic training students learn the value of these interactions during professional practice. Charlotte explained her experiences with this in the following way:

> *Some of the preceptors are really good at throwing them [athletic training students] into the situation where they are talking to other professionals. Some don't have that opportunity, it does vary. We do try to strongly encourage them [students] to do that though, and pick the doctors mind or anybody else who is working with them at that clinical site.*

Charlotte explained how she noticed some preceptors facilitate interprofessional interactions between students and other health care professionals. Similarly, Fred expressed how he believes athletic trainers (ATs) collaborate regularly, but preceptors may need a reminder to include students in these interactions. Fred told us,

> *I think as athletic trainers, we are used to working interprofessionally. We've been doing it for years. I think as athletic trainers, our biggest challenge is not learning how to work collaboratively. The challenge really is getting people*

recognize us and the role that we can hold in patient care. I think that we inherently do it. Preceptors, no doubt, could use a little reminder about facilitating those experiences for our students, but I think inherently we do it as a profession.

Similar to Fred, Mark explained how he approaches integrating interprofessional collaboration during clinical education. Mark said,

Our preceptors don't necessarily get involved with the didactic portion of things. What they have is access to other medical professionals and I look at the structure of the clinical sites and the affiliations that they all have. Maybe it's a relationship with a team physician and a school nurse and a counselor, maybe it extends beyond that, but every clinical site is a little bit different. Just the fact that preceptors are becoming more in tune to making sure our students are involved with conversations that other health professionals are involved with. I think it's becoming more of a commonality than an outlier.

Need for Preceptor Development. Program faculty described how they realized they were not adequately preparing preceptors to interact with students regarding IPE. Some program faculty described how they could be involving preceptors more in the process. Joanne, for example, explained how she perceives preceptor preparation for IPE in clinical education:

At this point in time, we are not doing a very good job with our preceptors and I think it shows because our preceptors aren't against IPE, they are not necessarily doing anything to support it [IPE]. Because our students aren't seeing it in clinical education as much as we would like.

Like Joanne, Max identified that his program could be doing a better job with preceptor development. He said,

We don't really formally involve them [preceptors], I guess. That's a tough question to answer, because it reveals how we don't have them involved. We don't have them involved formally.

Fred, on the other hand, explained his approach for including preceptors in the IPE events but did not have a planned method beyond these invitations. He stated,

The first way is to invite them [preceptors] when we have events like this on campus. We don't offer any continuing education credits for it. It's always an open invitation to them to participate. I would say that is probably the primary way that we do it at this point. We don't have any planned ways to get them involved.

Some program faculty do not currently involve preceptors in the process of integrating IPE in their educational programs but admit that there would be value in more actively engaging and encouraging preceptors to facilitate IPE.

DISCUSSION

Interprofessional education is increasing in importance at the professional and educational levels across health care disciplines. To prepare learners to engage with other health care disciplines, their education should include learning about, from, and with other health care learners to ensure they understand the roles and responsibilities of each profession.[12] Ideally, this shared learning begins at the programmatic level with intentional learner placement in clinical sites with other health care disciplines to ensure they have an opportunity to engage with these other learners. Intentionality can ensure IPE occurs during clinical education, but capitalizing on the organic interactions may be just as beneficial. It is not enough to have students at the same clinical site; they must work and learn together as part of an integrated team sharing knowledge, values, and skills.[31]

One area where interprofessional development for athletic training students can be fostered in clinical education is through soft skills. For professional health care students to develop the skills of collaboration with other health care professionals, students need opportunities to practice collaboratively during clinical education.[15,32] Encouraging preceptors to engage learners in IPE with other learners or professionals during clinical education may help them develop the skills necessary for collaboration in professional practice. Nursing students, for example, who engaged in a clinical experience specific to mental health were able to develop a greater level of empathy, indicating students can learn more than clinical skills during clinical education.[33] Athletic training students reported realistic clinical experiences provided them with the proper socialization and confidence to practice independently upon graduation.[34] Part of this socialization includes collaborating with other health care professionals. Work by Ponzer et al[15] demonstrated that interprofessional training in clinical education wards improved learners' ability to develop their own professional roles, while also working on understanding their role in a dynamic health care team.

In support of collaboration, the work of Kirby[20] demonstrated that after an IPE learning experience, learners identified the importance of developing an interprofessional mindset, most notably in the area of communication. Specific to the ability to affect and inform clinical practice, learners in Kirby's study illustrated alignment with the IPEC Core Competencies[31] in that they identified respect, listening, and clear explanations, as well as understanding and appreciating the roles and responsibilities of all members of the health care team, as vital to interprofessional collaboration. These learners also described limited opportunities during clinical education where they could actively engage in interprofessional collaborative practice (IPCP). Primarily, they identified instances where they may have witnessed IPCP in the clinical setting but were not able to actively engage in the process.[20] This finding is similar to that of Cavallario and colleagues[35] who found that athletic training students only implemented the IPE core competency during approximately 25% of their clinical patient encounters. Creating clinical education opportunities where learners can engage with other learners or professionals[35] could help bridge the gap and provide additional moments for communication and soft skill development.

It has been noted that regular collaboration with other health care disciplines in clinical education is lacking in athletic training due to lack of relationships and access.[36] Naturally, whereas some clinical education sites may be more suited to implementation of IPE than others, there are opportunities for IPE during clinical education. Despite IPE seeming a

challenge, faculty, preceptors, and students must be prepared to capitalize on these opportunities to engage in interprofessional learning opportunities. Program faculty could consider how to develop and encourage preceptors to engage with learners and facilitate interactions between athletic training students and other health care students and professionals during clinical education. However, other research suggests that collaborative approaches to preceptor development have decreased costs and aided in the quality improvement of preceptor development.[37] Regardless, the development of preceptors is important because learners have reported higher satisfaction and were more positive about their interprofessional clinical experience when they noted stronger satisfaction with their clinical supervisor.[15]

As presented by Schwieterman and colleagues,[38] preceptor development is vital to successful IPE and interprofessional collaboration in health care. As continuing professional education in IPE for preceptors is needed, one way to accomplish this could be through short, online educational modules. Schwieterman et al[38] identified that asynchronous materials taking less than 15 minutes improved preceptor behaviors, beliefs, and attitudes toward IPE and collaborative practice. Program faculty may consider such modules or similar continuing professional education to educate their preceptors in IPE. Additional educational opportunities and resources are available through the Interprofessional Education Collaborative.[39] Other resources include, though are not limited to, educational content for the IPEC Core Competencies for interprofessional collaborative practice,[31] publications on quality practices for developing IPE opportunities,[40] as well as the MedEdPORTAL (https://www.mededportal.org/)[41] which is an open-access journal for health professions teaching and learning. Preparing preceptors to model and facilitate IPE and collaborative practice during clinical education should have a positive effect in helping to cultivate practice-ready ATs who can engage as part of the larger health care team.[38]

From a program communication standpoint, identifying clear objectives for preceptors to emphasize IPE and encouraging them to include students in their interprofessional interactions during clinical education could be beneficial. For example, the University of New England Center for Excellence in Public Health[42] recommends beginning with interprofessional team building where preceptors, learners, and other IPE facilitators develop their team dynamics before interacting with patients. Furthermore, they suggest that selecting and implementing a workflow process that pairs different health care learners together to enhance areas such as patient intake, chart review, visit structures, team debriefing, and referral practices is beneficial to achieving successful teamwork.

In addition to preceptor focus, educators involved in IPE could consider expanding their clinical education preparation to include discussion with IPE stakeholders from other disciplines and settings. For example, Missen et al[43] suggested that varied programs collaborate to share their IPE goals with each other and stakeholders from their health care partners to identify areas of overlap in requirements, patient interaction, accreditation, and outcomes. By establishing these areas of common ground, explicit and intentional opportunities for interprofessional collaboration during clinical education could occur. Furthermore, leadership of regulatory agencies could establish models that value IPE during the clinical learning process.[43] In athletic training, we might consider partnering with physical therapy, occupational therapy, physician assistant studies, or other programs to identify possible community settings where collaborative care could occur. The implementation of intentional collaborative clinical education may enhance ATs' readiness for collaborative practice after graduation. Establishing a scaffolded IPE program that incorporates preceptors as part of the IPE process could lead to expanded ability to assess collaborative practice in the clinical education setting.

Best practices for assessment of IPE in clinical education have yet to be established. At this stage, assessment of clinically based IPE has primarily focused on learner outcomes related to knowledge of roles, responsibilities, and attitudes of and toward team-based care as well as patients.[42,44,45] One example by Garavatti, Tucker, and Pabian[45] highlighted how medical and physical therapy students increased their comfort in rehabilitation situations after a patient encounter featuring patients with disabilities. Other work has evaluated outcomes of interprofessional shadowing in the clinical setting for learners from nursing.[46] Although this study did not directly evaluate learner engagement, it did indicate that nursing students noted communication, role identity, learning from other professions, and confidence in collaboration were achievable through observational modeling in the clinical setting.

Several survey instruments have been developed and published that evaluate various interprofessional aspects in learner development and readiness. Instruments such as the Readiness for Interprofessional Learning Scale,[47] Students Perceptions of Interprofessional Clinical Education Revised,[48] and the Interprofessional Socialization and Valuing Scale [49] are self-report tools that assess learner attitudes and beliefs towards IPE. Although some of these instruments have interprofessional collaborative-practice elements to them, they are targeted to IPE didactic offerings. Although these assessment tools have value to assess IPE, there is also a need to assess the interprofessional collaborative practice that occurs within teams during clinical education. There are instruments that focus more on the collaborative nature of teams such as the Interdisciplinary Team Process and Performance Survey (ITPPS),[50] Assessment of Interprofessional Team Collaboration Scale (AITCS),[51] and the Collaborative Practice Assessment Too (CPAT)l.[52] Educators may want to consider evaluating the resources available through the National Center for Interprofessional Practice and Education[40] that appropriately match their goals and objectives for interprofessional learning. This website includes a collection of measurements tools and guides that could be used to develop an assessment plan for teamwork and performance. Future assessment of IPE in clinical education may expand to include specific practice setting collaborative team and patient outcomes.[40]

Limitations and Future Research

This study is not without limitations. Given that data collection occurred during 1 semester, it is possible that there was recency bias in the participants' responses. It was evident that some participants realized during the interview process that they could have been doing more to facilitate IPE in the

clinical experiences of their students, and therefore, some responses may not have been fully accurate. An additional limitation emerged because some participants believed they were implementing IPE, but the activities described were not truly IPE because learners were not learning from, with, and about other health care disciplines. As such, more education is needed to expand on the realities of IPE and how it is accomplished.

Future researchers could look further into how IPE experiences, both didactic and clinically based, affect learners' ability to practice collaboratively after graduation. There is minimal evidence reported on the assessment of IPE activities or interprofessional collaborative practice experiences from the student viewpoint. In addition, as the need for preceptor development in IPE evolves, best practices should be investigated.

CONCLUSIONS

Interprofessional education is slowly expanding as part of clinical education for learners in athletic training. Athletic training program faculty identified beneficial areas of emphasis for IPE in clinical education as intentionality in placement and preceptor involvement. Preparing preceptors for IPE through development opportunities, clear objectives, and active facilitation should be considered. Program faculty should consider how they are currently assessing IPE during clinical education and how students are able to connect these interactions to didactic learning.

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