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SURVEY

Interprofessional Collaborative Practice in Professional and Residency Athletic Training Programs: A Report from the Association of Athletic Training Education Research Network

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Context: Interprofessional collaborative practice (IPCP) is a required component of athletic training education, yet more needs to be learned about how professional and residency programs integrate IPCP into their curricula.

Objective: Identify current strategies used in the integration, assessment, and quality of IPCP clinical experiences in athletic training programs.

Design: Cross-sectional survey.

Patients or Other Participants: Forty-two of the 288 (14.6% response rate) invited individuals participated. All reported being faculty members affiliated with a professional or residency athletic training program.

Data Collection and Analysis: The IPCP implementation and assessment was e-mailed to all accredited professional and residency program directors to evaluate: (1) institutional or organizational support for and integration of IPCP; (2) faculty, learner, or preceptor preparation for IPCP engagement; and (3) tools for assessment and quality of IPCP experiences. Survey instrumentation was validated through peer and expert review. Descriptive statistics were calculated for quantitative data, and open coding was used to analyze open-ended questions.

Results: Respondents reported favorable support from their institution or organization (administrative, financial, and organizational structure) to integrate IPCP experiences. The most common methods for IPCP implementation included clinical simulations (n = 22, 22.9%), grand rounds (n = 13, 13.5%), morbidity and mortality conferences (n = 3, 3.1%), journal clubs (n = 6, 6.3%), direct patient care (n = 14, 14.9%), and intentional clinical education experiences (n = 28, 29.2%). Respondents reported formal IPCP training for faculty (n = 7, 16.7%) and learners (n = 23, 54.8%) but not for preceptors (n = 25, 73.5%). While programs assess their learners' IPCP experiences (n = 25, 59.5%), the quality of those experiences is not formally captured (n = 19, 45.2%).

Conclusion(s): Interprofessional collaborative practice experiences within athletic training education continue to evolve. As such, in this study, we highlight the need for formalized training in IPCP for faculty, learners, and preceptors. Additionally, program faculty should consider implementing quality assessments of IPCP experiences to assess the quality and degree to which learners experience interprofessional collaboration.

Key Words: interdisciplinary, patient-centered care, curriculum

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KEY POINTS

- The inclusion of interprofessional collaborative practice within athletic training professional programs and residencies is evolving, and the implementation of interprofessional collaborative practice experiences across programs needs to be more consistent.
- Professional and residency programs should incorporate strategies for a more formalized assessment of interprofessional collaborative practice.
- The differences between interprofessional collaborative practice and interprofessional education in athletic training are still not fully understood.

INTRODUCTION

Contemporary health care delivery has evolved to become more holistic and patient centered, resulting in the need to create strong interprofessional teams to address patient needs. Team-based health care, also known as interprofessional collaborative practice (IPCP), involves shared decision making between patients, their families, and/or caregivers, and 2 or more health care providers in a manner that optimizes the quality of care.[1,2] As health care providers continue to manage the complexities associated with patient care, effective collaborative care must improve patient satisfaction, eliminate redundancies, and decrease the chance of medical errors.[3] Additionally, researchers have shown that this team-based approach is essential for optimal patient outcomes related to the quintuple aim of health care.[4–7] The quintuple aim comprises cost reduction measures, improvement in population health, overall patient experiences, health care team wellbeing, and health equity.[4–6] The intention of identifying health equity as a separate aim in this model is to recognize and elevate the systemic inequities faced in historically underrepresented and/or marginalized groups.[7] Collaborative care is essential to addressing the components of the quintuple aim.

While IPCP may still be unfamiliar to some, athletic trainers are inherently engaged in this practice, as they often work with other health care providers to ensure high-quality patient care.[8,9] Pre-event protocols (eg, medical timeouts or team huddles) are rooted in the Interprofessional Education Collaborative core competencies,[2] which focus on ensuring that all members of the care team have a clear understanding of their roles and responsibilities while establishing distinct lines of communication between care team members. Although athletic trainers in both the collegiate and secondary school settings view IPCP as beneficial,[10,11] challenges exist in the effective implementation and consistency of collaborative practice in these settings. Those in the athletic health care model found in the secondary school setting reported approximately one-third of patient care was done in collaboration with a health care provider outside of athletic training.[11] Additionally, those in the secondary school setting may be siloed and lack access to opportunities to engage in authentic, collaborative practice with other providers.[11] Conversely, athletic training residency programs in a medical model offered collaborative practice opportunities with several providers.[12]

Noteworthy research has been published on interprofessional education (IPE) in athletic training.[8,13–17] Interprofessional education occurs when learners from 2 or more professions learn about, from, and with others to enable effective collaboration and improve health outcomes.[1,2] Interprofessional education has been shown to improve health care learners' knowledge, skills, and attitudes across several disciplines, yet little is known about the clinical outcomes related to IPE.[18] In response to the evolving emphasis on collaboration in health care practice, increased emphasis has been placed on intentionally incorporating and modeling IPCP throughout health care education. Currently, IPCP content is evident in accreditation standards across 25 health professions, including the Commission on Accreditation of Athletic Training Education (CAATE).[19] Implementing the 2020 CAATE standards for professional programs[20] and the 2022 CAATE standards for residency and fellowship programs[21] should ensure learners have comprehensive clinical experiences that facilitate collaboration with other health care professionals. In preparation for active collaboration in future clinical practice, implementing learning opportunities that include simulations, standardized patients, and/or team-based patient care can also help engage learners and build a culture of IPCP and collaborative care.[8]

With the introduction of these interprofessional standards, athletic training educators are charged with creating, developing, and evaluating the efficacy and quality of IPCP experiences. While some research on the incorporation, assessment, and evaluation of IPCP in other health care professions exists,[22] the research on IPCP specifically related to athletic training education is limited. As such, in this study, we aim to investigate the current strategies professional and residency athletic training programs use to implement IPCP. Additionally, we aim to determine how programs assess and ensure the quality of IPCP of their learners.

METHODS

Study Design

A cross-sectional, online survey was used to determine the methods of implementation and assessment of IPCP in CAATE-accredited athletic training professional and residency programs. The university's institutional review board approved the study.

Participants

The names and e-mail addresses of the 294 CAATE professional (n = 274) and residency (n = 20) program directors were obtained through a publicly available Webpage. The inclusion criteria for participation were a faculty-level appointment (any level) within

Table 1. Respondent Demographic Data

Demographic Characteristics	No. (%)
Primary program affiliation	
Professional program	33/39 (84.6)
Residency program	6/39 (15.4)
Years of accreditation	13 ± 13.6
Primary role in ATP	
Program director	36/39 (92.3)
Core faculty	1/39 (2.6)
Coordinator of clinical education	2/39 (5.1)
Years in current role	6.8 ± 5.0
IPCP incorporation	
Yes	40/42 (95.2)
No	2/42 (4.8)
Years incorporating IPCP	6.6 ± 3.5
Formal training in IPE	
Yes	12/39 (30.8)
No	27/39 (69.2)
Formal training in IPCP	
Yes	7/39 (18.0)
No	32/39 (82.1)
IPCP committee or team	
Yes	16/35 (45.7)
No	14/35 (40.0)
I do not know	5/35 (14.3)

Abbreviations: ATP, athletic training program; IPCP, interprofessional collaborative practice; IPE, interprofessional education.

a CAATE-accredited athletic training professional program, CAATE-accredited residency program, or those programs officially categorized as seeking CAATE accreditation. The recruitment process did not include programs that were voluntarily withdrawing their accreditation. Demographic information of the respondents and their affiliated programs are found in Table 1.

Data Collection Procedures

Data collection occurred for 6 weeks during September and October 2022. E-mails were sent to the 294 program directors that met the inclusion criteria; 4 e-mails bounced back, and 2 were duplicates, totaling 288 e-mails. Program directors were asked to complete the survey or send it to the faculty member who could best address the program's implementation of IPCP. The initial e-mail included (1) the purpose of the study, (2) inclusion criteria for participation, (3) estimated time to complete the survey, (4) a link to the online survey (Qualtrics), and (5) the researcher's contact information. A reminder e-mail was sent 2 and 4 weeks after the initial e-mail, thanking those who had completed the survey and reminding those who had not participated that their participation was requested. At the end of a 6-week period, the survey was closed, and all responses were finalized.

Instrumentation

Due to a lack of validated tools that measure how athletic training programs incorporate and assess IPCP, the research team created the IPCP implementation and assessment instrument. Three guiding research questions aided in developing the survey instrument: (1) What methods are athletic training programs using to incorporate IPCP? (2) How are programs assessing IPCP in athletic training education? (3) How are programs ensuring the quality of IPCP in athletic training education? The survey was developed with binary (*yes* or *no*), multiple choice, multianswer, and open-ended questions. Survey logic was built into the survey for specific questions based on previous answers. The survey instrument included definitions of both IPE and IPCP. Specifically, it indicated that the aim and intent of this instrument was to focus on the program's implementation and assessment of IPCP. The IPCP implementation and assessment instrument included 15 demographic questions about the program and the respondent's experience with IPCP as well as lists and open-ended questions aimed at characterizing the program's IPCP strategies. The assessment section of the instrument included 8 questions about how the program assessed IPCP. Respondents were asked to identify IPCP assessment tools they incorporated within the program and answered open-ended questions related to their assessment process. This section also asked respondents to address how they were ensuring the quality of their collaborative practice experiences. The final section of the instrument asked how students and preceptors or mentors were prepared to participate in IPCP clinical experiences.

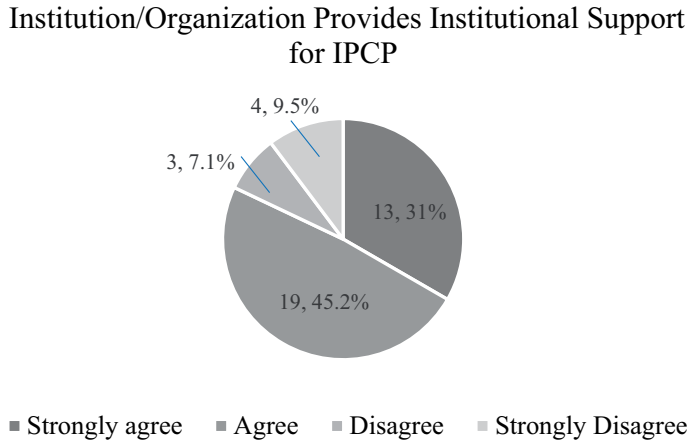
Once the IPCP implementation and assessment instrument was constructed, it was sent to a panel of 7 individuals for a review for content validity. The panel included experts in survey development (n = 2), professional program faculty (n = 2), residency faculty (n = 1), and experts in IPCP (n = 2). Everyone was provided with the guiding research questions, the aim of the study, and a copy of the survey instrument. To establish a content validity index (CVI),[22] reviewers were asked to rate each item for relevance and clarity on a 4-point Likert scale (1 = *not relevant or clear*, 4 = *very relevant or clear*). Panelists were also given the option to provide specific comments or feedback for each instrument item. Scale-level CVI, which quantifies the proportion of items given a rating of 3 or 4 (*quite relevant* or *very relevant*, respectfully), was calculated for the instrument by averaging the scores of individual items. A scale-level CVI score greater than 0.90 (0.00–1.00) is recommended to establish content validity.[23] Upon review, the instrument was deemed to be relevant by the panel with a scale-level CVI score of 0.99. The scale-level CVI score for clarity was 0.86. To improve clarity, panelists recommended changes to syntax and grammar on several items (10/37 items). The requested revisions to the noted items were made, and an internal audit determined that the minor grammatical and syntax-based changes did not alter the overall intent or relevancy of the instrument.

Data Analysis

Data collected via Qualtrics were stored on a university server and exported to IBM SPSS (Version 27). Descriptive statistics were calculated through means ± SD and frequency values for the quantitative data. Due to survey logic, a floating sample size was used for each question, reflecting less than 42 participants per question.

For the 2 open-ended questions, respondents were asked to (1) explain the types of institutional and/or organizational support the program receives for IPCP, and (2) what they would like the program to be doing for IPCP that they are not able to do currently. Three research team members conducted individual open coding by separately reviewing and identifying common themes and categories for each question. After the initial review, these members met to finalize the themes from each open-ended response to establish consensus and identify final themes.

Figure 1. Institutional support.



Subsequent open-ended responses included frequency counts of responses due to the types of responses elicited.

RESULTS

Respondents

Of the 288 invited, 42 (14.6% response rate, 95.2% completion rate) participated and answered at least 1 question. All respondents (100%, n = 42) reported being a faculty member affiliated with a professional (n = 33) or residency (n = 6) athletic training program. Ninety-five percent of respondents (n = 40/42) reported that IPCP had been implemented within their athletic training program (not incorporating IPCP: n = 1; missing: n = 1; Table 1). Following the initial questions, 2 participants did not complete any additional questions, and the 1 participant who did not incorporate IPCP had an alternate survey pathway, therefore leaving a maximum 39 possible responses.

The 1 respondent who reported that he or she did not incorporate IPCP into his or her athletic training program stated:

> *While we incorporate IPE and the core competencies, we have not yet been able to incorporate IPCP into our program … would like to see students doing simulations with students from other professions and put together on teams with students from other professions in clinical experiences.*

Institutional Support for IPCP

Most respondents agreed that their institution and/or organization supports the athletic training program to engage in IPCP (Figure 1). The types of institutional and/or organizational support provided aligned with 3 themes: (1) administrative support from the dean, college, or organization; (2) funding or financial support; and (3) the presence of IPE or IPCP committees. Respondents from professional-level programs cited that support from the dean level was important to their ability to incorporate IPCP. One respondent mentioned that load hours are given for collaboration, stating, "The dean of the school has allocated hours for IPE collaboration among faculty and is encouraging programs to work together." Another respondent echoed the support from the dean, saying:

> *We have an IPE council composed of faculty members from all of our different health care professions. The dean of our college is supportive of faculty receiving load credit or service credit for our role on the council. The dean also supports IPCP financially for experiences that need it.*

Respondents from residency programs echoed similar needs for organizational support to incorporate IPCP. One respondent stated:

> *Our organization funds our residency and supports the organic collaborative practice between [athletic trainers], [physician assistants], and attending physicians in a live clinical practice environment.*

The second theme highlighted how institutions support IPCP through funding such as grants, training of faculty, and hosting events. One respondent shared, "We have financial resources that are available to support training faculty." At the same time, another respondent indicated that his or her IPCP efforts were supported through funding from institutional and external grants. For example, 1 respondent shared he or she had received "high-impact practice grants and assistance with clinical affiliations for rotations."

The last theme specific to the types of institutional support for IPCP focused on organizational structure and the presence of an IPE committee and staff dedicated to developing interprofessional practices. One respondent stated:

> *We work closely and extensively with the IPE office on campus [which] promotes both IPE and IPCP opportunities for all health science programs. However, our athletic training program is still housed in the College of Education, while the IPE office is out of our health science campus.*

Another respondent shared, "We have an office of IPE. We have a [vice president] of IPE with 2 full-time staff members to support the office. We have a leadership team."

Most respondents indicated that their institution and/or organization has an IPCP committee outside of the athletic training program. For professional programs, 48.3% (n = 14) indicated they have an IPCP committee, 41.4% (n = 12) indicated they do not have a committee, and 10.3% (n = 3) of professional programs did not know. Of the residency programs, 33.3% (n = 2) indicated that their institution or organization has an IPCP committee, 33.3% (n = 2) did not, and 33.3% (n = 2) did not know if they had an IPCP committee at their institution and/or organization.

Overall, respondents who disagreed that they were provided with institutional support for IPCP, indicated the following improvements are needed: employing an IPE coordinator (n = 2), administrative support (n = 3), and improved funding (n = 2).

Faculty Training in IPE and IPCP

Respondents were asked about their experience in training or education with IPE and IPCP. Specifically, 11 (33.3%) professional programs and 1 (16.7%) residency program indicated having formal training in IPE. Of the 12 that reported formal IPE training, 10 indicated professional development (ie conferences or professional workshops) as formal IPE training programs. In relation to specific formal training in IPCP, only 7 (22.2%) professional programs and 0 (0%) residency program respondents indicated they had formal training in IPCP. Of the 7 who reported formal

Table 2. Learner Experience With IPCP

	Health Care Professionals at Institution That Learners Participant in IPCP, No. (%)		Health Care Learners at Institutions That Learners Participate in IPCP No. (%)	
Program Type	Yes	No	Yes	No
Professional	25 (86.6)	4 (13.8)	20 (69.9)	9 (31)
Residency	6 (100)	0 (0)	5 (83.3)	1 (16.7)
Overall	31 (88.6)	4 (11.3)	25 (71.4)	10 (28.6)

Abbreviation: IPCP, interprofessional collaborative practice.

training, 6 outlined professional development through conferences or additional education as formal IPCP training techniques.

Preparation for Learner Engagement in IPCP

Most respondents (n = 23/34, 67.7%) indicated that their learners received education about IPCP before clinical experiences (no prior IPCP education: n = 11/34, 32.4%). Specifically, 21 (75.0%) professional programs and 2 (33.3%) residency programs indicated their learners received education about IPCP before clinical experiences. The most common educational preparation learners received included training simulations, lectures, and discussions. In addition, 7 (25%) professional programs and 3 (50%) residency programs indicated that their athletic training program provides specific IPCP orientation for learners before engaging in clinical practice. Respondents openly described class discussion (n = 2) or clinical experience onboarding (n = 9) as opportunities to orient learners to IPCP.

When addressing orientation for preceptors or mentors, 28.6% (n = 8) of professional programs and 16.7% (n = 1) from residency programs indicated that preceptors or mentors receive orientation before engaging in an identified IPCP experience. Of all the programs that provide formal orientation, some respondents indicated that, while a form of preceptor training was provided, it was not necessarily focused on IPCP. When securing preceptors for IPCP engagement, approximately 32.1% (n = 9) of professional programs and 33.3% (n = 2) of residency programs identified specific individuals to serve in these roles. Of all those who identified a specific individual to serve as an IPCP preceptor, only 2 of those (18.2%) indicated that the development for serving in IPCP-specific preceptor roles identified this process as different than general preceptor development (no: n = 9/11, 81.8%). One respondent specifically reported:

> *We look for individuals who buy-in or understand what IPCP is and embody that within their clinical practice. Again, being at an academic health center, we have fostered this culture in faculty and students, so it's almost second nature to us.*

Another respondent indicated, "We seek dual credentialed individuals for clinical experiences, and we target specific individuals in other professions to serve as mentors for supplemental experiences."

Learner Experiences With IPCP

Most respondents, 86.6% (n = 25) of professional programs and 100% of residency programs (n = 6) indicated that learners participate in IPCP alongside other health care professionals at their institutions and/or organizations (Table 2). The most reported health care professionals for such engagement were physician assistants (n = 21, 11.7%), nurses (n = 19, 10.6%), physicians (n = 19, 10.6%), and occupational therapists (n = 16, 8.9%; Figure 2).

Figure 2. Interprofessional collaborative practice (IPCP) collaborators by profession.

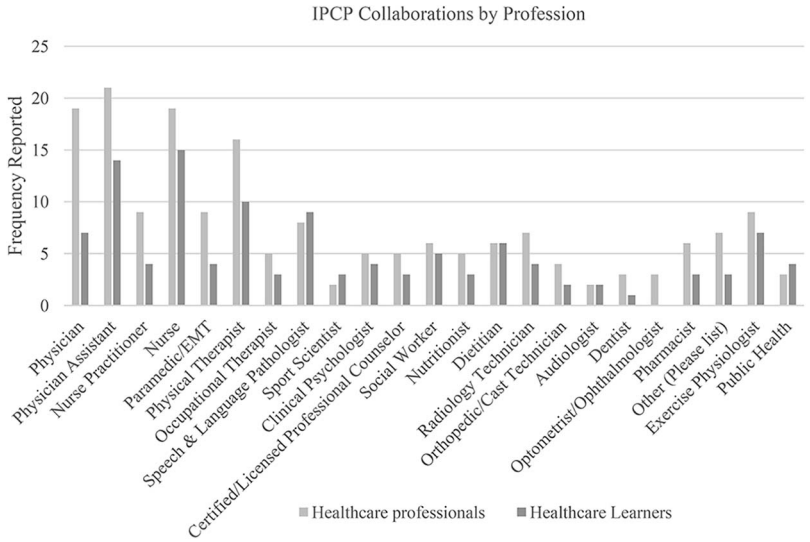


Table 3. Methods Used to Engage Learners in IPCP

Methods for Engaging IPCP	No. (%)
Simulations	22 (22.9)
Grand rounds	13 (13.5)
Morbidity and mortality	3 (3.1)
Other	10 (10.4)
Journal clubs	6 (6.3)
Patient care	14 (14.6)
Clinical experiences	28 (29.2)
I do not know	0 (0.00)
Total	96 (100)

Abbreviation: IPCP, interprofessional collaborative practice.

In contrast, most professional program programs (n = 20, 69%) and residency programs (n = 5, 83.3%) indicated participation with additional health care learners at their institution and/or organizations who engage in IPCP (Table 2). The most commonly reported health care learners were nurses (n = 15, 12.9%), physician assistants (n = 14, 12.1%), and physical therapists (n = 10, 8.6%; Figure 2). Respondents indicated several methods for engaging in IPCP, which are reported in Table 3.

Respondents were asked to answer the following question, "What would you like the program to be doing for IPCP that you are not able to currently do?" Based on the responses, 3 themes emerged: (1) intentional clinical placements, (2) simulations, and (3) collaboration with others. Respondents expressed a desire for more opportunities for learners to be in clinical situations together. One respondent noted:

> *I would like us to be at clinical sites where there are other health care students also learning. Right now, there seems to be competition for time at those clinical sites where this could happen, and the providers are not willing to have more than 1 student or type of student at a time.*

Another respondent talked about being more intentional in his or her clinical planning by responding:

> *Be purposeful in assigning students to clinical sites together. We have several sites that host students from multiple programs, but it's by happenstance that the students would connect at that clinical site.*

Other respondents discussed the need for more quantity and frequency of IPCP opportunities, saying they would like to "be together in clinical practice scenarios more frequently" and "have more clinical rotations with legit IPC[P] opportunities."

In addition to more structured and intentional clinical placements, respondents expressed a desire to improve their IPCP using simulations for their learners. "I'd be interested to see how we can incorporate simulations with an IPCP focus" and "have more simulation events" were common responses from respondents.

Finally, respondents expressed the desire to see an increase in collaboration with other health care disciplines. For example, some respondents indicated a perception that athletic training learners were not as highly prioritized during collaborations as those from other professions. One respondent shared that he or she would like to

> *have our students interact more with nonphysician professionals during patient care experiences. The problem we face is that, at a large R1 institution with many different health care professions, [athletic training] seems to be at the bottom of the priority list when having our students work with other professions, especially outside of the traditional athletic training/sports medicine settings.*

This sentiment was like that of another respondent who expressed frustration about not having a structure to promote collaboration. He or she shared:

> *We have several other health professions programs on our campus, but they are not willing to practice collaboratively. I would like to form some type of committee dedicated to IPE and IPCP.*

Finally, 1 respondent hoped to begin new collaborations with a new program by saying he or she would like "... more collaboration with recently started [physician assistant] program to have shared experiences with patient care."

Assessment of IPCP

Most from professional programs (n = 19, 65.5%) and all the residency programs (n = 6, 100%) indicated assessment of IPCP occurs when learners are engaged in clinical education. A self-created tool was the most common assessment method used (Table 4). Of the 10 programs that indicated they do not assess IPCP when learners are engaged in clinical education, only 4 (40.0%) indicated that they plan to use an assessment tool in the future; however, they did not know which assessment tool they plan to use (n = 3, 75.0%).

For those that do not plan to use assessment tools for IPCP in the future, the main reasons indicated were (1) they are not required, (2) IPCP has not been implemented yet, and (3) we cannot guarantee that the students engage in IPCP experiences. Knowledge of assessment tools, resources, and lack of training were selected most by respondents who identified constraints when assessing IPCP.

Measuring Quality of IPCP

Some professional program respondents (n = 11, 39.3%) and most respondents from residency programs (n = 4, 66.7%) indicated they measure the quality of IPCP in their athletic training programs. Respondents openly described using evaluations (n = 4), surveys (n = 3), and/or assessments (n = 2) as example measures of IPCP quality. A respondent shared his or her strategy for measuring quality as

> *semistructured interviews during evaluations. The program director works with other departments, ie, [medical] fellowship educational coordinator, education committee, [physical therapy] residency program director, research department, the organization's different departments, and hospital staff to ensure that the communication, teamwork, and collaboration between other health care staff is working well and to facilitate and incorporate new opportunities for collaboration in both education and patient care.*

Table 4. Use of Assessment Tools for IPCP

Methods of Assessment of IPCP	No. (%)
ACE-15—Assessment for Collaborative Environments	0 (0.00)
AITCS-II—Assessment of Interprofessional Team Collaboration Scale II	1 (3.33)
ATHCTS—Attitudes Toward Health Care Teams Scale	0 (0.00)
CPAT—Collaborative Practice Assessment Tool	1 (3.33)
CSACD—Collaboration and Satisfaction About Care Decisions	0 (0.00)
ITPPS—Interdisciplinary Team Process and Performance Survey	0 (0.00)
PINCOM-Q—Perceptions of Interprofessional Collaboration Model Questionnaire	1 (3.33)
TCI—Team Climate Inventory Integrated Team Effectiveness Model	0 (0.00)
TOSCE—Team Observed Structured Clinical Encounter	0 (0.00)
TSS—Team Skills Scale	0 (0.00)
Modified Tool Above—Please indicate which tool(s)	0 (0.00)
Self-Created Tool	10 (33.33)
Other	13 (43.33)
I do not know	4 (13.33)

Abbreviation: IPCP, interprofessional collaborative practice.

Six respondents said they were not doing anything to ensure the quality of IPCP in their program. One respondent stated:

> *Currently, we are probably not [measuring quality]. We read over the surveys from preceptors and students and qualitatively see that they are getting some interactions and seem engaged with a health care team, but we are not really objectively measuring quality.*

The results of this study also demonstrate that misunderstandings between IPE and IPCP still exist. Terminology used in open responses demonstrated that program faculty often view IPE and IPCP interchangeably. For example, our findings revealed conflicting quotations from respondents when asked about IPCP such as "the health majors' programs have contributed to the IPE education development," and "College and university-wide IPE committees receive funding from deans for committee develop IPE and [IPCP] events." Additionally, many of the assessment tools reported as *other* were tools that assess readiness for IPE and learner development like the Readiness for Interprofessional Learning Scale.[23] Finally, respondents noted the presence of an IPE committee when asked about IPCP committees, while others specifically discussed both committees on campus. It is clear at some institutions that these committees work toward 2 different outcomes, yet some respondents may have used the terms interchangeably.

DISCUSSION

Including IPCP within athletic training programs is evolving and has yet to be fully implemented. Considering this evolution, we offer discussion in these areas: strategies for support of IPCP, opportunities for expansion and assessment of IPCP within athletic training programs, and lastly, continuing to delineate IPCP from IPE.

Support for IPCP

We found favorable institutional and/or organizational support for creating and implementing IPCP experiences. While financial support through internal and external funding mechanisms was reported, respondents focused on the importance of having an IPE/IPCP coordinator and an internal IPCP committee to develop and facilitate IPCP experiences. The importance of having individuals dedicated to the oversight of IPE/IPCP is reflected in the literature and allows for intentionally developing, creating, and implementing collaborative curricula and clinical events.[24] Furthermore, this structure also allows for creating specific IPCP-based training for preceptors, which can help reinforce the culture in clinical practice.[25]

For those who identified suggestions for improved institutional and/or organizational support, the need for a dedicated IPE/IPCP coordinator was reported. The data from our survey mirror those of previous research highlighting the positive influence of having dedicated IPE leadership.[24–26] The most significant effect of dedicated leadership for IPE/IPCP is establishing and facilitating strong IPCP cultures within the organizations.[24–26] As reflected by Ho et al, strong cultures are championed by faculty and administrators who were invested in implementing and delivering IPE within their institutions.[24] Additionally, these IPE champions model the collaborative mindset and create the necessary buy-in across departments. Several respondents from our study noted the difficulties of creating buy-in from other health care educators and the desire to move beyond solely incorporating IPCP due to accreditation requirements. As such, a strong centralized leadership team can serve as a powerful conduit to create enthusiasm and champion for building a culture dedicated to IPCP.[24–26]

In addition to a strong IPCP team, respondents supported the use of simulation to address IPCP. Incorporating IPE and IPCP simulations as a learning technique is common in athletic training education, and their use is supported by the 2020 CAATE Professional Program and 2022 CAATE Residency/Fellowship Accreditation Standards.[10,20,21,27–30] These simulations create opportunities for participants to learn from and with various health care professions in clinical practice, especially when limitations in IPCP-rich clinical sites exist.[27–29]

One final area in which additional support was noted relates to identifying and developing clinical education sites with an intentional focus on IPCP application. Since the profession of athletic training is inherently positioned to practice collaboratively with other health care providers, athletic training professional program and residency program administrators should leverage resources such as current clinical education

sites, preceptors, and an IPCP committee (if available) to identify and foster IPCP clinical placements. Both the National Athletic Trainers' Association and the Association for Athletic Training Education offer opportunities for members to advertise clinical education experiences and preceptors open to educating students. These organizations should look to add designations to these directories that highlight quality IPCP opportunities. A deeper discussion of the intentionality of clinical placements for IPCP can be found in the subsequent section.

Expansion on Emphasis for IPCP

Respondents noted that intentional clinical placements and opportunities to collaborate with learners from other health care disciplines were desired to provide optimal experiences for their learners. This collaboration goal aligns with previous research and the need for administrative support as some athletic training programs have reported working with their deans to provide interprofessional clinical experiences for their students.[15] Students have reported that only 25% of their clinical practice involves incorporation of the IPE Interprofessional Education Collaborative core competencies,[31] while other students have indicated that they had limited learning opportunities in which they could engage in IPCP during their clinical educational experiences.[14] This also aligns with the findings of Armstrong et al, in which 30% of program directors indicated that learners did not engage with other health care professionals during clinical experiences.[16] Additionally, athletic training clinicians agreed that IPCP was important but indicated that they incorporated it in 67 $\pm$ 27.7% of patient encounters.[32] While 67% incorporation is an improvement, the large standard deviation suggests that substantial variability in practitioner incorporation of IPCP behaviors exists.[32] These findings emphasize the need for a more concerted effort to provide learners with opportunities to practice collaboratively. Program administrators should seek out clinical experiences in which learners can see IPCP modeled by their preceptor and have opportunities to engage in authentic, collaborative patient care with other learners.

Identifying preceptors who are prepared and willing to provide learners with valuable practice with IPCP is important. The findings of this study demonstrate that very few programs incorporate specific preceptor development to help them understand how to best teach and mentor students in providing collaborative patient care. Interprofessional precepting has been defined by Shrader and Zaudeke as

> *intentionally educating learners from multiple professions in authentic practice-based settings, combining clinical teaching and patient care with explicit conversations about how interprofessional collaboration contributes to high-quality, patient-centered, team-based care.*[33]

If professional athletic training programs and residencies are going to focus on IPCP in clinical education experiences, then a larger emphasis on developing and socializing preceptors for that role is needed.[33,34] Recently, researchers have shown that a 10-minute online professional development module positively affected athletic training preceptors' perceptions and beliefs toward IPE and IPCP.[35] This positive effect is reported similarly in pharmacy and advanced nursing practice.[36,37] Preceptor preparedness is crucial to providing quality IPCP so learners can effectively practice and integrate into the broader health care team. Respondents in this study indicated that competition among health care programs for quality IPCP experiences is high, so developing preceptors who can precept for a variety of disciplines will be important. Preceptor development offered collectively from multiple disciplines could help improve collaboration among health care disciplines while improving the learner experience. Content could focus on the roles and responsibilities of various health care disciplines and how to foster communication among health care learners. Preceptor development should focus on the value of IPCP and how to facilitate learners from multiple disciplines to collaborate as a patient-centered health care team.

In addition to ensuring that preceptors are prepared to provide IPCP learning experiences, a greater need to provide learning opportunities that align with current practice patterns also exists. Athletic trainers have identified that they believe learners should be prepared to collaborate with physicians, physical therapists, paramedics or emergency medicine technicians, physician assistants, nutritionists, and sport and exercise psychologists.[38] Often, programs focus their IPE and IPCP efforts around disciplines that are convenient and readily accessible, but to prepare learners for their future transition to practice, the emphasis should be based on current practice patterns. Although the CAATE standards (professional)[20] limit who can serve as preceptors for clinical experiences, program administrators should focus on finding athletic trainers and physician preceptors who are practicing collaboratively regularly within their setting. Moreover, supplemental clinical experiences are also regarded in the standards and could complement their traditional clinical experiences.[20] Researchers have highlighted that those athletic trainers who practice under a medical model and in the same physical location with other health care providers are more likely to engage in IPCP.[10] In 1 residency program, athletic training residents regularly worked alongside sports medicine-trained family practice physicians, neurologists, and sports medicine fellows, creating a culture of collaboration, teaching, and learning.[12] This structure, likely common among residency programs, may explain why all residency faculty respondents in this survey indicated that they regularly have opportunities to collaborate with other health care providers. The current CAATE professional standards have the potential to limit the opportunities for authentic IPCP experiences for learners, especially in rural areas. Conversely, the residency and fellowship standards allow for more flexibility and collaborative opportunities to capitalize on the inherent nature of IPCP in these settings. Professional programs may need to explore supplemental clinical experiences or simulations that allow learners to gain experiences with desired disciplines if they do not have preceptors regularly interacting with these providers during clinical experiences. Program faculty must remember that engaging in IPCP is not just practicing alongside other health professionals but collaborating on patient care and understanding each profession's scope of practice. Researchers have supported that IPCP improves health care delivery.[39] Thus, health care learners and trainees must be prepared for this practice while still in educational settings.[40]

Assessment of IPCP

While nearly 70% of respondents in this study indicated that they assessed learners' ability to practice collaboratively, most respondents indicated that they used their own self-created tool or a tool that was specific to evaluate IPE and didactic

learning rather than IPCP. However, several validated assessment tools are available to assess the collaborative nature of IPCP despite respondents in this survey either being mostly unaware of their existence or electing not to incorporate them within their programmatic assessment plan. Many of these tools are openly available through the National Center for Interprofessional Practice and Education (https://nexusipe.org/).[41] Tools such as those listed on the NEXUS Website and in Table 4 can be used as a starting point for program administrators while also considering their individual programmatic objectives and needs. These instruments capture pertinent information within clinical practice about the individual learner, group or team interactions, and the organization or practice environment. Furthermore, these instruments can be used to evaluate the effect of IPCP on patient outcomes and overall organizational culture. Additionally, the NEXUS Website has several recordings that address assessment and evaluation fundamentals as well as strategies to incorporate IPCP assessment. While self-created tools may be warranted, using a validated tool to assess IPCP would allow programs to understand learner progression over time better. It may be helpful to explore using or creating a standardized assessment measure for IPCP in athletic training so outcomes could be more easily measured across programs.

IPE Versus IPCP

A significant point of note in this study was the continued confusion between IPE and IPCP. In specific consideration of the CAATE standards and faculty members who are accountable to implement all these standards including those relevant to the core competencies for interprofessional practice, it is concerning that confusion between the terms exists. Overall, this study demonstrates that, even among athletic training educators who implement IPCP and IPE as components of the CAATE standards, difficulty recognizing the differences between IPCP and IPE still exists. Like findings of Hankemeier et al,[15] clarification of the definitions and enhanced implementation strategies in the areas of IPE and IPCP are still needed.

In addition to confusion about the difference between IPE and IPCP, respondents identified that they had more training in IPE than in IPCP. Given the nature of higher education and scholarship, it is not surprising that more information is available on IPE than IPCP, including training or learning opportunities. To increase learning opportunities for IPCP, efforts could be placed on developing training to improve knowledge of and best practices for IPCP. Training suggestions include incorporating the triple aim framework to highlight a team approach to quality of care, providing communication strategies for teaching students, and engaging in IPCP.[42] Furthermore, the TeamSTEPPS curriculum[43] is geared toward optimizing communication between the health care team and enhancing patient safety. While this training is often conducted within hospitals, many faculty engage as a starting point for learning more about interprofessional collaboration and teamwork. Specifically, IPCP training could include athletic training educators and preceptors educating athletic training students alongside and with other health care professionals. In support of this training, researchers have identified that collegiate athletic trainers agreed IPCP was beneficial to clinical practice but were not regularly implementing or practicing IPCP during patient care.[10,11] These findings are essential considerations as clinical education requirements for professional athletic training students and practicing residency students require engagement with clinically practicing athletic trainers.

Limitations and Future Research

As with all survey research, this study is not without limitations. First, bias may have been introduced when agreeing to participate in this study due to participants' interest in interprofessional topics. This could account for the lower 14.6% response rate, but of those who started the survey, 95.2% completed it. This indicates that those who were interested in the topic of IPCP completed the questionnaire at a high rate and accounts for those who chose not to participate. Additionally, the self-report nature of responses assumes that respondents answered each question honestly. It was apparent through the responses that confusion between the terms of IPE and IPCP existed, as has been discussed. The research team anticipated this; concentrated efforts were made throughout the survey development and administration process to provide the definitions of IPCP and IPE to respondents to combat this implicit bias toward IPE among faculty. These definitions were provided as instructional notes throughout the survey to assist in focusing respondents on IPCP so as not to confuse the terms when answering questions. Although these strategic efforts were made throughout the survey, confusion between IPE and IPCP remained for respondents. This may have also led to the lower response rate from professional programs (12%) due to the lack of understanding between IPE and IPCP.

While these data capture information from nearly 30% of current residency programs, several operational differences between professional and residency programs provide differing insights. First, students in a typical professional program are assigned by the program administrators to specific clinical rotations to gain a variety of educational experiences throughout their academic progression. In contrast, residents are employees of the sponsoring organization of the residency. While athletic training residents may participate in additional clinical experiences at satellite sites, most of their clinical experience and mentorship occurs at their place of employment. Additionally, the organization in which the residency resides affects the structure and function of the program. Of the 20 residencies that were accredited and/or seeking initial accreditation at the time of this publication, 19 are housed in a hospital or health care organization setting. As such, many organizations that house athletic training residency programs can be ideal clinical placements for professional level learners because of the IPCP opportunities within the site. Future research on IPCP in residencies may reveal ways that professional programs can be more effective in ensuring IPCP is occurring in clinical placements.

Future educational programming and research are needed to better prepare program faculty to evaluate and assess IPE and IPCP. Additionally, as reflected in the works of Sauers et al and Meskimen et al, IPCP within athletic training typically occurs in isolated systems of care (ie, high school or collegiate facility) as compared with other health professions.[11,44] Additional research is needed to understand how IPCP can be intentionally incorporated and fostered within these systems.

CONCLUSIONS

In conclusion, IPCP is essential as it leads to improved patient outcomes and increased health care delivery efficiency.

Including IPCP in health care education enhances future professionals' ability to participate in collaborative care teams. Athletic training professional and residency programs should prioritize implementing and promoting IPCP to achieve health care outcomes and provide high-quality, patient-centered care. Emphasis needs to be placed on educating faculty, preceptors, and learners on the differences between IPE and IPCP so that collaboration can be measured. Furthermore, it is important to appropriately assess and ensure the quality of IPCP to collaboration with other professionals and provide quality patient care.

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