

Perceptions of Interprofessional and Collaborative Practice in Collegiate Athletic Trainers

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Context: The ability to engage in interprofessional and collaborative practice (IPCP) has been identified as one of the Institute of Medicine's core competencies required of all health care professionals.

Objective: To determine the perceptions of athletic trainers (ATs) in the collegiate setting regarding IPCP and current practice patterns.

Design: Cross-sectional study.

Patients or Other Participants: Of 6313 ATs in the collegiate setting, 739 (340 men, 397 women, 2 preferred not to answer; clinical experience = 10.97 ± 9.62 years) responded (11.7%).

Main Outcome Measure(s): The Online Clinician Perspectives of Interprofessional Collaborative Practice survey section 1 assessed ATs' perceptions of working with other professionals (construct 1), ATs engaged in collaborative practice (construct 2), influences of collaborative practice (construct 3), and influences on roles, responsibilities, and autonomy in collaborative practice (construct 4). Section 2 assessed current practice patterns of ATs providing patient care and included the effect of communication on collaborative practice (construct 5) and patient involvement in collaborative practice (construct 6).

Between-groups differences were assessed using a Kruskal-Wallis H test and Mann-Whitney *U* tests ($P < .05$).

Results: Athletic trainers in the collegiate setting agreed with IPCP constructs 1 through 4 (construct 1 = 3.56 ± 0.30 , construct 2 = 3.36 ± 0.467 , construct 3 = 3.48 ± 0.39 , construct 4 = 3.20 ± 0.35) and indicated that the concepts of constructs 5 and 6 (1.99 ± 0.46 , 1.80 ± 0.50 , respectively) were sometimes true in their setting. Athletic trainers functioning in a medical model reported lower scores for construct 5 (1.88 ± 0.44) than did those in an athletic model (2.03 ± 0.45 , $U = 19522.0$, $P = .001$). A total of 42.09% of the ATs' patient care was performed in collaborative practice.

Conclusions: Athletic trainers in the collegiate setting agreed that IPCP concepts were beneficial to patient care but were not consistently practicing in this manner. Consideration of a medical model structure, wherein more regular interaction with other health care professionals occurs, may be beneficial to increase the frequency of IPCP.

Key Words: health care, interdisciplinary model, patient-centered care

Key Points

- Athletic trainers who practice within a medical model have more opportunities for interprofessional collaborative practice, including increased communication among health care providers.
- Patient involvement in decision making increased when athletic trainers were able to collaborate with other health care professionals.
- Athletic trainers should advocate for their skill sets so that other members of the health care team better understand their scope of practice.

Interprofessional and collaborative practice (IPCP) occurs when health care professionals from varied backgrounds work together with patients, families, and communities to deliver quality care.¹ In 2003, the Institute of Medicine (now the National Academy of Medicine) released a report indicating that “all health care professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics.”^{2(p3)} In 2011, the Interprofessional Collaborative Practice core competencies³ were developed to enhance the ability of health care teams to work together. These core competencies describe (1) values and ethics for interprofessional practice, (2) roles and responsibilities, (3) interprofessional communication, and (4) teams and teamwork.^{3,4} These competencies have been identified as

necessary skills and principles for practicing clinicians.⁵ In regard to practicing clinicians, the core competencies call for a foundation of lifelong learning across professions and dialogue among health care professionals.^{4,5}

Although *IPCP* is a fairly new term to athletic training, athletic trainers (ATs) traditionally have practiced alongside physicians to best serve their patients.⁶ An important aspect of health care, *IPCP* does not simply refer to working alongside other health care providers but is defined as a “process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided.”^{7(p3)} To this aim, collaborating with other health care professionals requires one to acknowledge and understand the scopes of practice of others, as each profession has a unique set of

skills and abilities. To garner more respect among other health care professionals, ATs need to integrate toward further participation on interprofessional health care teams.^{8,9} The white paper⁸ published by the Interprofessional Education and Practice in Athletic Training Working Group identified the possible effects of interprofessional practice on clinical outcomes as including a potential increase in patient-centered care because of the collaboration of highly integrated teams.

Colleges and universities are the second largest employment setting for ATs, accounting for approximately 22.9% of all ATs.¹⁰ Considering that more than 551 000 athletes participate in National Collegiate Athletic Association-sanctioned¹¹ and National Association of Intercollegiate Athletics-sanctioned¹² sports yearly, collegiate ATs also likely have some of the largest patient loads among all ATs. Although IPCP is second nature to many health care professionals because they already work in close proximity with different disciplines, ATs in the collegiate setting may not have the same opportunities to practice collaboratively on a daily basis. The traditional collegiate setting, in which a majority of ATs work, operates in an athletic model of athletic training: clinicians report directly to a coach or athletic director.¹³ This reporting structure may lead to conflicts of interest and, consequently, decreases in patient care.^{13–15} More recently, organizational shifts have resulted in some collegiate athletic training departments moving to a medical model and requiring clinicians to report directly to a physician or an affiliated health center.¹³ Athletic trainers have reported more continuity of patient care, improved opportunities for collaborative practice, and a better work-life balance when functioning in the medical model of health care.¹⁴ This medical model matches the recommendations of Breitbach and Richardson⁸ and Perrin¹⁶ that ATs integrate more regularly into interprofessional health care teams to improve our role and significance in comparison with those of other health care professionals.

Although ATs have practiced alongside other health care professionals for much of their existence, few authors have documented the official process of IPCP in athletic training.^{8,17,18} Athletic trainers' history of working with multiple health care professionals, combined with the call for all health care providers to practice in a collaborative manner, establishes the need to evaluate the current state of IPCP among ATs employed in the collegiate setting. Therefore, the purpose of our study was to understand the perceptions of collegiate ATs in regard to IPCP and to determine their perspectives on practice patterns of IPCP in the collegiate setting. Secondly, we aimed to determine if collegiate ATs who operated in various reporting model structures had different perceptions of IPCP. Finally, we investigated if the IPCP perceptions of individuals differed among those who had prior formal interprofessional education (IPE), worked directly with other health care providers in the physical location, or had a physician working at their clinical site.

METHODS

A self-report survey was used to obtain collegiate ATs' perceptions of and perspectives on IPCP. University

institutional review board approval was obtained within the exempt research category. Completion of the online survey served as the participants' consent.

Participants

A list of all 6313 Board of Certification (BOC)-certified members who indicated they worked in the collegiate setting was purchased from the National Athletic Trainers' Association (NATA). Exclusion criteria were not being currently employed as an AT in the collegiate setting or not currently being an NATA member who was credentialed by the BOC. Of the 6313 surveys sent, 1206 surveys were started and 739 were completed (340 men, 397 women, 2 preferred not to answer; clinical experience = 10.97 ± 9.62 years), for an overall 11.7% response rate. Information regarding additional demographics of the participants is found in Table 1.

Instrumentation

The Clinician Perspectives of Interprofessional Collaborative Practice (CPICP) survey consists of 6 constructs designed to align with the Interprofessional Education Collaborative core competencies^{3,4} and has been previously deemed valid and reliable for assessing the perceptions of IPCP among practicing ATs.¹⁸ The CPICP instrument comprises 2 sections aimed at creating inferences regarding ATs' perceptions of and perspectives on IPCP. The first section, Perceptions of IPCP, uses Likert-scale items to evaluate ATs' perceptions of 4 constructs: (1) working with other health care professionals, (2) ATs engaged in collaborative practice, (3) influences on collaborative practice, and (4) influences on roles, responsibilities, and autonomy in collaborative practice. Several statements were given for each construct and were rated on a 5-point Likert scale of 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, 4 = *strongly agree*, and 5 = *unfamiliar with this concept*.

The second section of the survey, Clinical Setting Perspectives, also uses Likert-scale items to gain insight from participants regarding their perspectives of the current practice patterns of IPCP in the collegiate setting. Two constructs were evaluated in this section: (1) effect of communication on collaborative practice and (2) patient involvement in collaborative practice. Participants rated statements related to their current clinical practice on a 4-point Likert scale: 1 = *this statement is always true in regard to my clinical setting*, 2 = *this statement is sometimes true in regard to my clinical setting*, 3 = *although I am familiar with this concept, this statement is not reflective of activity in my clinical setting*, and 4 = *I am not familiar with the concept in this statement*. The instrument also included 4 open-ended questions targeted at establishing benefits, challenges, and drawbacks of and resources for IPCP; however, the responses to those questions are beyond the scope of this manuscript. The final section of the instrument consists of several demographic questions regarding practice setting, reporting structure, previous IPE experience, and other items to describe the sample. Participants were asked to select a reporting structure: the athletic, medical, or educational model. Definitions of each model were provided with examples of whom the ATs would report to in each model.

Table 1. Participant Demographics

Characteristic	No. of Participants
Sex	
Female	397
Male	340
Prefer not to answer	2
Highest degree earned	
Bachelor's	77
Master's—Commission on Accreditation of Athletic Training Education—accredited program	199
Other master's degree	336
Doctor of philosophy (PhD) or education (EdD)	108
Doctor of athletic training (DAT)	3
Doctor of physical therapy (DPT)	4
Doctor of chiropractic (DC)	1
Other	11
Type of athletic training appointment ^a	
Full-time clinical appointment providing patient care	414
Full-time academic appointment	162
Split clinical patient care and academic appointment	96
Full-time administrative appointment	25
Split clinical patient care and administrative appointment	41
Current work setting ^a	
National Collegiate Athletic Association	
Division I	303
Division II	126
Division III	164
National Association of Intercollegiate Athletics	69
Junior, 2-y, or community college	62
Other	14
Reporting structure ^a	
Athletic model	481
Medical model	194
Educational model	34
Combination of models	21
Unknown	8

^a Data missing for 1 individual.

If they did not feel the reporting structure reflected their current structure, they could choose *other* and explain their structure.

Procedures

In the spring of 2016, a recruitment e-mail explaining the purpose of the study and containing informed consent information, a link to the online survey instrument, and contact information for the researchers was sent to potential participants. Participants who completed the survey were entered to win 1 of 23 cash prizes. Participants were sent an e-mail at 2 and 4 weeks after the initial recruitment e-mail reminding them to complete the survey and thanking those who had already completed the survey. Recruits who were administrators or educators and not currently practicing in the collegiate setting were asked to complete only section 1 and the demographic section because section 2 specifically asks about current IPCP in the clinical setting. Of the 739 participants, 223 (30.3%) indicated that they were full-time administrators or educators and did not provide patient care. These individuals were not asked to complete the Clinical Setting Perspectives section of the survey. Data

from each participant were collected in Qualtrics (Provo, UT) and stored on a university server.

Data Analysis

The scores for all statements in each construct were summed and then averaged to the Likert scale to provide a composite score for each construct. Higher scores in the Perceptions of IPCP section indicated better perceptions, and lower scores in the Clinical Setting Perspectives section indicated that the concept happened more frequently in the participant's practice setting. Descriptive statistics were used to establish the means, standard deviations, and frequencies of the data within each statement and section. A Kruskal-Wallis H test and Mann-Whitney *U* tests with Bonferroni adjustment were used to detect differences in the ordinal perceptions data among different demographic characteristics, such as previous experience in IPE, presence of a physician on staff, and whether participants had the ability to collaborate with other health care professionals in their same physical location. The *a priori* α level was set at $P \leq .05$. We used SPSS (version 24.0; IBM Corp, Armonk, NY) for all data analysis.

RESULTS

In the Perceptions of IPCP section of the survey, participants agreed with statements in each of the 4 constructs: (1) working with other health care professionals (3.56 ± 0.30), (2) ATs engaged in collaborative practice (3.36 ± 0.46), (3) influences on collaborative practice (3.48 ± 0.39), and (4) influences on roles, responsibilities, and autonomy in collaborative practice (3.20 ± 0.35). In the Clinical Setting Perspectives section of the CPICP, participants reported the statements were *sometimes true in their work setting* for each construct: (1) effect of communication on collaborative practice (1.99 ± 0.46) and (2) patient involvement in collaborative practice (1.80 ± 0.50). The highest- and lowest-rated statements for each construct are reported in Table 2.

Participants employed in the medical model had lower scores (1.88 ± 0.44) for construct 5, effect of communication on collaborative practice, than those employed in the athletic model (2.03 ± 0.45 ; $U = 19\,522.0$, $Z = -3.450$, $P = .001$, $d = .34$). Although participants' results were statistically significant, the differences were of little clinical significance. None of the other sections of the survey showed differences among types of reporting structures.

On average, participants stated that $42.09\% \pm 28.04\%$ of their patient care was performed in collaborative practice. The Figure shows how often participants approached patient care from the perspective of collaborative practice. Of the 739 participants, 411 (55.6%) indicated that they had had previous IPE classes or workshops, though there were no differences in any of the constructs between individuals with and those without this previous IPE experience. Finally, 355 participants (64.7%) indicated they had the opportunity to collaborate with other health care providers in the same physical location. Participants who had other health care providers in the same physical location displayed lower scores on construct 5 ($P \leq .001$), effect of communication on collaborative practice, and construct 6, patient involvement in collaborative practice ($P = .001$),

Table 2. Highest- and Lowest-Rated Statements for Sections 1 and 2^a

Construct and Statements	Average Score
Construct 1: Athletic trainers' perceptions of working with other health care professionals ^b	
Highest—Teamwork between athletic trainers and other health care professionals is an essential component of effective patient-centered practice.	3.91
Lowest—Individuals in other health care professions respect the work done by athletic trainers.	2.72
Construct 2: Athletic trainers' perceptions of athletic trainers engaged in collaborative practice ^b	
Highest—Athletic trainers are willing to share information and resources with other health care professionals on interprofessional health care teams.	3.46
Lowest—Athletic trainers strive to understand the abilities and skills that other professionals can contribute to interprofessional health care teams.	3.20
Construct 3: Athletic trainers' perceptions of influences on collaborative practice ^b	
Highest—I value opportunities to work with other health care professionals when engaged in patient care.	3.69
Lowest—Interprofessional communication skills are best learned during entry-level education alongside other health care professionals.	3.18
Construct 4: Athletic trainers' perceptions of influences on roles, responsibilities, and autonomy in collaborative practice ^b	
Highest—Athletic trainers are advocates for their patients.	3.76
Lowest—During collaborative practice, it is clearly defined as to which health care professional is responsible for specific aspects of the patient care plan.	2.74
Construct 5: Effect of communication on collaborative practice ^c	
Highest—When engaging in collaborative practice, there is an established process for conflict management.	2.60
Lowest—When engaging in collaborative practice, the final decision rests with the patient and physician.	1.55
Construct 6: Patient involvement in collaborative practice ^c	
Highest—When engaging in collaborative practice, health care professionals meet as a group in face-to-face meetings with patients.	2.24
Lowest—During collaborative practice, information relevant to health care planning is shared with the patient/client.	1.57

^a Section 1 = Perceptions of Interprofessional Clinical Practice; section 2 = Clinical Setting Perspectives.

^b Scores range from 1 to 5, with higher scores indicating higher agreement.

^c Scores range from 1 to 4, with lower scores indicating more frequent prevalence in the clinical setting.

than those who did not have the ability to collaborate on site.

DISCUSSION

Interprofessional and collaborative practice is particularly beneficial to patient care, as no single discipline can possess all of the knowledge and skills necessary to deliver independent yet comprehensive care in the complex health care system.^{19–21} The purpose of our study was to determine collegiate ATs' perceptions of and perspectives on patterns of IPCP in the collegiate setting. The idea of working alongside other health care professionals is not new to ATs in the collegiate setting. This type of structure has been described as a multidisciplinary model in which each health care professional works separately and then communicates findings to members of the health care team.²¹ This process describes the approach often practiced among ATs, physicians, and other health care practitioners. In a more interprofessional model, patients are assessed separately or by multiple health care professionals and then an integrated care plan is developed.²¹ In the IPCP model, all members of the health care team interact before and after each individual provider's interaction with the patient.^{8,21} Overall, participants in our study agreed with the concepts and constructs of IPCP but indicated that they did not practice in a collaborative manner on a regular basis. As the athletic training profession has focused on increasing the need for IPCP and IPE, the findings of this study are

encouraging because they support the current shift in this direction.^{8,17}

The BOC "Standards of Professional Practices"²² indicated that ATs should render treatment under the direction of or in collaboration with a physician, while also having the professional responsibility to practice collaboratively with other health care providers involved in patient care. Although participants in this study signaled that they valued constructs included in the CPICP, they reported that only 42% of their patient care was delivered in an interdisciplinary manner. These findings could indicate that either participants did not report their actual practice accurately or they were not collaborating with their supervising physician on a consistent basis. As this information regarding how ATs were operating with or without collaboration of their partnered physicians is unclear, we were unable to speculate about the true relevance of these findings. Future researchers may seek to better summarize this information. Regardless of the discrepancy between our results and the athletic training practice guidelines, these findings are of concern, as ATs in the collegiate setting were apparently not interacting with their supervising physicians in a collaborative manner, which could potentially affect patient outcomes negatively.

A secondary purpose of this study was to determine if differences existed among participants in various reporting-model structures. Those ATs in a medical model reported more frequent occurrences of statements related to

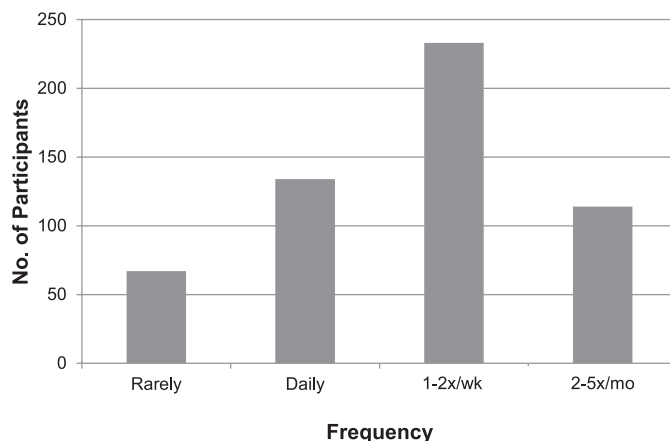


Figure. Frequency of collaborative patient care.

communication in collaborative practice. No differences were found for any of the other reporting structures. Given that ATs reported more frequent collaboration when another health care provider or physician was in the same physical location, the administrative structure of collegiate athletic training services should be further evaluated. The medical model has been described as allowing more expedited care because of close working relationships and communication with other health care providers.¹⁴ In addition to improving communication, the medical model is also said to minimize potential conflicts of interest, as patient care decisions are made in the best interest of the patient and not influenced by the coaches or athletic administration.^{13–15,23} Another aspect of the medical model involves shared responsibility of patient care among ATs, instead of the more individualized structure composed of 1 AT providing care to 1 team that is often observed in the athletic model.^{13,14,23} The shared responsibility within the medical model allows for better care as patients are referred to athletic training staff members or other members of the interprofessional health care team who have more expertise in the condition of interest.²³ This coordinated care approach has led to more effective physician referrals and ultimately to better patient outcomes.²³ When implemented properly, the IPCP approach allows the patient to benefit by seeing the most qualified provider, and the AT may see a decrease in role strain and burnout.^{14,23,24}

An interesting finding was that more than half of the participants indicated that they had previous IPE experience. Previous researchers¹⁸ have reported that ATs with IPE experience included more patient involvement in collaborative practice. Even with the large number of our participants reporting previous IPE experience, no differences were evident in the perceptions or practices of IPCP between those individuals who had and those who had not had IPE. This result could potentially be linked to an overly favorable view of IPCP, thus creating a ceiling effect. Additionally, the increased focus on IPCP by the NATA in recent years in publications and at continuing professional education events could have led to an increase in this perception among our sample.^{8,17} We did not specifically ask what their previous IPE experience was in formal coursework, workshops, or other formats, nor did we ask about the time frame in which this occurred, so we cannot speculate further as to the lack of differences between

individuals who had and those who had not had IPE experience.

Another finding of note for this study was the fact that ATs in the collegiate setting described patients' direct involvement in the collaborative decision-making process. This communication and patient involvement support one of the primary goals of IPCP: improved patient care.² In an IPCP model, patients' values and preferences are considered consistently, allowing them to share in decision making.^{2,25} Those ATs who had opportunities to collaborate with other health care professionals on site demonstrated more frequent patient involvement in health care decisions. Athletic trainers in the collegiate setting should continue to investigate methods of increasing opportunities for multiple health care providers to practice together.

Collegiate ATs in this sample identified less agreement regarding clear delineation as to which health care professional was responsible for specific aspects of the patient care plan. As the Interprofessional Education Collaborative core competencies are used to guide IPE and collaborative practice, the specific competency emphasizing the roles and responsibilities of each member of the health care team is notable.^{3,4} The skill sets of ATs and other health care professionals continue to grow, which makes it difficult to completely understand all other professions.²⁶ Athletic trainers in this study reported that they were not respected by other health care professionals. Because teamwork is a central tenet of collaborative practice shown to be beneficial in decreasing health care costs and improving patient outcomes, ATs must work to promote their own skill set while also understanding the abilities and skills that others can contribute to the IPCP team.^{27,28} Based on our findings, we postulate that ATs may not be engaging the full scope of skills and abilities of all members of the health care team. Considering earlier findings related to communication, it is also possible that clarifying responsibilities and the subsequent execution of treatment plans may be limited during patient care.

Our study had a few limitations. Considering the self-report nature of the survey questions, we assumed participants were truthful in their responses. However, if participants were not consistently practicing in an interprofessional manner or felt uncomfortable with the topic, a nonresponse bias for those individuals may have been present. Additionally, we did not ask participants to expand on their previous IPE experience, so we are unable to truly understand the types of IPE each individual may have had. Future researchers should investigate the relationships between ATs and overseeing physicians to learn how IPCP is occurring in the collegiate setting. By better understanding the patient outcomes associated with IPCP, we will be better able to move athletic training forward in the collaborative practice team.

CONCLUSIONS

As our profession aims to provide patient-centered care and ultimately better patient outcomes, ATs will need to advance their role on interprofessional health care teams. Athletic trainers in the collegiate setting agreed that IPCP was valuable to patient care but were not

consistently practicing in this manner. In an effort to expand interprofessional practice opportunities, ATs should investigate the benefits of a medical model for patient care and clinician job satisfaction. Finally, ATs also need to advocate for themselves so that other members of the health care team fully understand the AT's skill set. Through communication and advocacy for the profession, ATs can foster better relationships and teamwork and progress toward the goal of improved patient care.

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