Interprofessional Education:
An Exploration in Physical Therapist Education

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Background and Purpose. Interprofessional education (IPE) has been a topic of national and international discussion for several decades. The recent development of the Interprofessional Education Collaborative (IPEC) Core Competencies prompted the American Council on Academic Physical Therapy (ACAPT) to consider ways the physical therapy profession could become more involved. In 2013, the ACAPT Board of Directors appointed a 4-person task force to: (1) compile, collect, and analyze data on current and projected IPE initiatives in physical therapist education programs; (2) develop a means to disseminate information on IPE among these programs; and (3) recommend ways for physical therapists to collaborate with other health care practitioners.

Outcomes. Data was collected from representatives from each of the 209 ACAPT member institutions. Based upon the findings, at least 62 (58.5%) of the 106 (50.7%) respondents reported that IPE is a focus of their physical therapist education curriculum. Eighty respondents (75.5%) identified up to 3 reasons for the success of their initiatives. Faculty buy-in/champions was the most frequently cited reason followed by institutional support, student support, curriculum, and external factors, respectively. The majority of respondents (n = 56) did not identify a collaborative practice partnership in which their students obtain interprofessional experience.

Discussion and Conclusion. Based on the work of national and international organizations and forums, and the results of this survey, physical therapist education programs developing IPE within their institutions typically elect to first target IPE within classroom experiences before integrating IPE within clinical experiences. In order to advance IPE within clinical experiences, development of more formalized clinical partnerships will be needed to better enable the expansion of IPE within patient care experiences for learners. This study raised additional research questions for future investigation.

Key Words: Interprofessional education, Collaborative practice, Physical therapist education, Student physical therapist.

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BACKGROUND AND PURPOSE

Interprofessional education (IPE) has been a topic of national and international discussion for several decades.[1-8] As defined by the World Health Organization (WHO), IPE is education in which "students from two or more professions learn about, from, and with each other to enable improved health outcomes."[5] Widely accepted as being integral to the provision of safe, high-quality, and accessible patient-centered care, IPE has gained momentum and support during the past decade and has been adopted and promoted by many health profession organizations.[9-16] In 2009, 6 national organizations representing higher education in dentistry, medicine (allopathic and osteopathic), nursing, pharmacy, and public health formed the Interprofessional Education Collaborative (IPEC) to help advance IPE and promote team-based care. In 2011, the collaborative published Core Competencies for Interprofessional Collaborative Practice (Core Competencies) to help guide development of health professions curricula and prepare students to effectively practice teamwork and team-based health care.[12-13] These core competencies are grouped into 4 domains: (1) values/ethics, (2) roles/responsibilities, (3) interprofessional (IP) communication, and (4) teams/teamwork. For a complete listing of the core competencies, please refer to Appendix A.

Although many health care professions, including physical therapy, were not represented directly in the development of these core competencies, the competencies are widely applicable. Many health professions have adopted and promoted the competencies and, in some cases, have integrated them into educational accreditation standards along with the requirements for IPE.

The physical therapy profession historically has been involved in interdisciplinary initiatives in the educational setting, learning alongside students from other professions such as occupational therapy. Similarly, the profession is involved in collaborative practice initiatives in patient care in areas such as pediatrics, geriatrics, and rehabilitation. "Collaborative practice," (CP) as defined by WHO, is "health care that occurs when multiple health workers from different professional backgrounds provide comprehensive services by working together synergistically along with patients, their families, careers and communities to deliver the highest quality of care across settings."[5] The acronym often used when referring to both interprofessional education and collaborative practice in patient care settings is IPECP (interprofessional education and collaborative practice). Thus, IPECP initiatives have included professional development activities, participation at inter-

professional meetings and conferences, and integration of IPE activities in an increasing number of physical therapist education programs, as evidenced in the 2010 issue of *Journal of Physical Therapy Education* devoted to IPE.[17] However, with the recent development of the IPEC Core Competencies and considering the role rehabilitation and physical therapy play in improving health care, it became apparent to the American Council on Academic Physical Therapy (ACAPT) that the physical therapy profession needed to become more involved in promoting efforts related to IPECP. Although the 2014 version of the Evaluative Criteria for Physical Therapist Education Programs did not address the IPEC Core Competencies or specifically mention IPECP, the recently adopted Standards and Required Elements for Accreditation of Physical Therapist Education Programs (effective January 1, 2016) include a criterion for didactic and clinical curriculum interprofessional learning activities that are directed toward the development of interprofessional competencies. It should be noted that this criterion will not become effective until January 1, 2018.[18]

The mission of ACAPT, a component of the American Physical Therapy Association (APTA), is to "serve and lead academic physical therapy by promoting excellence in education, scholarship and research, practice, and service to improve the health and wellness of society."[19]

In 2012, consistent with its mission, ACAPT joined the Institute of Medicine (IOM) Global Forum on Innovation in Health Professional Education in an effort to increase the national and international role of physical therapy with IPECP initiatives. The IOM Global Forum brings together international stakeholders from a variety of professions and sectors to engage in dialogue and discussion related to contemporary issues in health professional education. In 2013, the ACAPT Board of Directors appointed a 4-person IPE task force to: (1) compile, collect and analyze data on current and projected IPE initiatives in physical therapist education programs; (2) develop a means to disseminate information on IPE among physical therapist education programs; and (3) make recommendations for further collaborative efforts. The purposes of this paper are to present the task force data obtained on current and projected IPE initiatives in ACAPT-member physical therapist programs and to provide task force recommendations for future collaborative efforts.

PARTICIPANTS

For this study, the sample from which the data was collected consisted of representatives from each member institution of ACAPT. At the time of the study, the sampling frame included 209 ACAPT member institutions.[20]

METHODS

Instrument Development

Because this research is the first of its kind in physical therapy, no valid, reliable instrument was available for use in data collection. Therefore, the study comprises 2 surveys: the IPE task force developed a 10-question initial survey and a 6-question detailed follow-up survey (surveys available upon request).

The initial survey was derived from questions previously used in 2012 by a workshop committee made up of members of the IOM Global Forum on Innovation in Health Professional Education.[21] To gather information for workshop participants, the committee members reached out to 31 universities that were implementing IPE initiatives. Due to time constraints, the IOM survey was not meant to be a comprehensive scan of all IPE efforts. However, the initiatives that were included in the scan ranged widely in duration, geographic location, and breadth of programming. All 31 universities were surveyed with 7 questions that requested information about such areas as IPE initiatives, reasons for success, and factors associated with sustainability. Using the 2012 IOM survey as a starting point, the ACAPT IPE task force developed 3 additional questions for its initial 10-question survey. The survey was distributed to ACAPT program representatives to elicit responses regarding specific physical therapist curriculum initiatives, knowledge about the IPEC Core Competencies and their 4 competency domains, and state licensure.

ACAPT then developed a follow-up survey to supplement information obtained from the initial survey. The follow-up survey was sent to physical therapist education programs that identified IPE initiatives as a part of their curriculum. The follow-up survey consisted of 6 questions related to IP competencies during clinical experiences, challenges and strategies for implementing IP faculty development initiatives, standardized language regarding IPECP, and inclusion of CP in state practice acts.

Procedure

Task force members piloted both surveys prior to electronic dissemination in late spring/summer 2013. In all cases, returned survey questionnaires constituted informed consent.

The initial survey was electronically administered to the 209 ACAPT member institutions along with a cover letter explaining the purpose of the study, requesting their participation, and requesting identification of key contacts. Representatives who did not feel they were able to complete the survey were asked to forward it to the appropriate individual at their institution for completion. Participants were asked to complete the survey within 30 days and identify a key contact at their institution for participation in a follow-up survey. Three reminder emails were sent to nonresponders, one with a personal request from the ACAPT president. The survey was closed after the deadline was extended by 2 weeks. The follow-up survey was then disseminated to the identified key contacts. The second survey closed after 6 weeks, with 2 reminders sent to nonresponders.

Data Analysis

Upon receipt of the completed surveys, qualitative and quantitative data analyses were systematically performed to determine the frequency of aggregate responses for each question. Several strategies were used to minimize bias and optimize credibility and trustworthiness of the data.[22-23] Individually and collectively, the task force reviewed all responses to open-ended questions. Through collaborative discussion and reflection, the task force identified themes and subthemes and grouped the responses for congruity and accuracy. Saturation was achieved after 3 separate reviews.

RESULTS

Initial Survey

One-hundred-and-six (50.7%) member institutions responded to the initial survey.

University/Physical Therapist Education Curriculum Focus. Two questions requested information on whether IPE is a focus of the ACAPT institution or the physical therapist education curriculum, and asked respondents through open-ended questions to provide support for their responses. Eighty-three respondents (78.3%) reported that they are involved in various IPE initiatives, with 49 (46.2%) identifying it as a focus of their institution and supported by the institution's strategic plan, mission, or vision. Sixty-two respondents (58.5%) identified IPE as a physical therapist curriculum focus with 34 (53.1%) citing their strategic plan as evidence of this focus. When asked to identify the educational preparation phase that the IPE initiatives targeted, 67 individuals (63.2%) identified the preprofessional classroom and 53 individuals (50%) reported preprofessional clinical experiences. All other educational phases (postprofessional education, residencies, etc) received 10 or fewer responses.

IPE Initiatives. Eighty-five respondents

(80.2%) provided a total of 120 examples of IPE initiatives (Table 1). The most frequently reported example was IP courses ranging from a single course to a sequence of 3-4 courses (n = 31), followed, in descending frequency, by case collaboration (n = 17), university IP days (n = 14), IP lab classes including those with simulation (n = 13), volunteer/service learning (n = 8), and pro bono clinics (n = 7). Seventy-nine respondents (74.5%) cited a total of 74 examples of support for IPE initiatives (Table 2). Funding either through the university budget, extramural, or intramural grants was the most frequently cited example of support (n = 40) followed by inclusion of IPE in the annual review process (n = 25).

IPE Successful Outcomes. Seventy-seven respondents (72.6%) identified examples of evidence of the success of IPE at their institution. The most frequently reported examples were inclusion of IPE-related activities in faculty performance appraisals and promotion/tenure criteria (n = 34), positive outcomes on quantitative and/or qualitative measurement tools (n = 34), and increased student involvement (n = 26) (Table 3).

Eighty respondents (75.5%) each identified up to 3 reasons for the success of their initiatives. The reasons for success were categorized as either (1) faculty buy-in/champions, (2) institutional support, (3) student buy-in, (4) curriculum, (5) environmental drivers such as patient-centered care and community engagement, or (6) scholarly products. Faculty buy-in/champions was the most frequently cited reason for success, followed by institutional support. (Table 4).

Eighty-seven respondents (82.5%) each identified up to 3 factors that contributed to the sustainability of their initiative or will be needed to make it sustainable over time. The factors were categorized as either (1) institutional support, (2) faculty buy-in/champions, (3) curriculum, (4) student buy-in, (5) evidence/standardized assessment, (6) clinical/community partners, and (7) other. Institutional support was the most frequently cited theme, followed, in descending frequency, by faculty buy-in, curriculum, and student support. In addition, corresponding changes to the *Guide to Physical Therapist Practice*[24] and changes with billing/reimbursement were mentioned under "other" (Table 5).

Clinical Practice Partnerships. The majority of respondents (n = 56) did not identify a CP partnership within which their students obtain IP experience. Four of these respondents reported that they were uncertain as to the meaning of CP partnership. Fifty respondents (47.1%) provided at least 1 example of a successful partnership. The partnership responses were grouped according to whether they

Table 1. Current and Projected IPE Initiatives

Reported Initiatives[a] (n = 120)	Frequency
Courses: Inclusion of teamwork/roles/responsibilities; 3–4 course sequence; electives	31
Case collaboration	17
University IP day	14
Simulation lab experience	13
Volunteer service-learning	8
Collaborative practice: pro bono clinic	7
Research	6
Community health experience: assigned to family, elderly mentor, pediatric play group	5
Healthcare team/IPE case competition and clarion challenge	5
Collaborative Practice: clinical experience	4
Faculty teaching for other programs	4
IP faculty conference/workshop	3
IP grand rounds	2
IP fellowships for faculty and students	1

[a]85 member institutions

Table 2. Examples of Support for IPE Initiatives

Reported Support[a] (n = 74)	Frequency
Funded: budget, extramural, or intramural funding	40
Inclusion in annual review	25
IPE center/dedicated staff	5
Included in promotion and tenure guidelines	3
Faculty development	1

[a]79 member institutions

Table 3. Evidence of Successful IPE Initiatives

Reported Evidence[a]	Responses
Faculty evaluated on their annual reports and promotion/tenure guidelines	34
Quantitative outcomes and qualitative feedback from patient/families/students	34
Increased student engagement	26
Increased faculty involvement and scholarship	16
Clinical outcome: Decreased in cost of care	2
Other: Bridging of 2 state universities	1

[a]77 member institutions

Table 4. Reasons for Success

Reported Reasons[a]	Responses
Faculty buy-in/champions	52
Institutional support • Senior leadership support (n = 27) • Initiatives/mission/culture (n = 12) • Funding (n = 7) • Dedicated support staff (n = 4) • Space/IPE center/simulation (n = 3) • Faculty development/reward system (n = 2)	51
Student buy-in	29
Curriculum • Organization/scheduling (n = 12) • Mandatory (n = 3) • Accreditation standards (n = 2)	17
Current health care environment drivers (cost, patient-centered care, community engagement, improved outcomes, etc)	10
Scholarly products (standardized assessment, presentations, publications, grants)	8

[a]80 member institutions

Table 5. Factors Contributing to/Needed for Sustainability

Reported Factors[a]	Responses
Institutional support: funding, senior leadership support, reward system, culture, faculty development, dedicated space, support staff	118
Faculty buy-in/champions	22
Curriculum: organization, scheduling, accreditation standards, mandatory	18
Student buy-in	10
Evidence/standardized assessment	10
Clinical/community partners	9
Other: update *Guide to Physical Therapist Practice*, change billing/reimbursement	2

[a]87 member institutions

Table 6. Collaborative Practice Partnership Setting

Reported Partnership Setting[a]	Responses
Clinical experience	35
Community-based: section 8 housing, assisted living, apartments, independent living center, community health center, state funded preschool, gym, international service-learning, migrant health fair	13
Pro bono student-run clinics	6
Outpatient clinics	3

[a]50 member institutions

were associated with a clinical experience, community-based experience, pro bono/student-run clinic, or outpatient clinic. Clinical experience was the most frequently identified site for partnerships (Table 6).

IPEC Core Competencies. Eighty-two individuals (77.4%) reported familiarity with the IPEC Core Competencies[12] and the general competency domains, with 75 of the 82 (91.5%) supporting endorsement of these general competencies by the profession in both education and clinical practice.

Follow-Up Survey

The initial survey identified 46 key contacts for follow-up. Of these, 30 (65.2%) responded to the follow-up survey.

IP Competencies During Clinical Experiences. Fifteen key contacts (50%) responded that IP competencies are not addressed during clinical experiences. Three key contacts (10%) mentioned that they were in the planning or beginning stages of addressing competencies, and 1 respondent indicated the institution was seeking guidance from APTA. Twelve key contacts (40%) reported that IP competencies are being addressed during the clinical experiences at their institutions, and 9 of those gave examples of competencies that students are expected to achieve. Cumulatively, 2–5 examples of reported competencies for each of the 4 IPEC domains were cited by the 9 key contacts and are presented in Table 7.

Challenges and Strategies With IPE Implementation. Thirty key contacts each identified their 3 greatest challenges to implementing IPE initiatives. The identified challenges were categorized as administration, faculty, curriculum, or other. The most frequently reported challenges were faculty resources/credit for faculty time (n = 20) and organization/coordination of schedules (n = 20), both in the administration category. Faculty buy-in (n = 16) was the next most frequently reported challenge. The results are presented in Table 8.

The key contacts were also asked to identify strategies used to overcome the implementation challenges (Table 9). The responses were categorized under administrative support, curricular design, or faculty support. The 11 responses (50%) associated with administrative support included flexibility with scheduling IP initiatives with dedicated times for all students, faculty development, internal grant funding, and awarding faculty credit for participation in IP initiatives. The 6 responses attributed to curricular design included embedding the activities within existing courses or accreditation requirements that helped to implement initiatives. The 5 responses attributed to faculty support included the presence of faculty champions and the inclusion of

Table 7. Clinical Experience IP Competencies Categorized by IPEC Domain

IPEC Domains	Direct Quotes Regarding IP Competency[a]
Values and Ethics for IP Practice N[b] = 2	• Values/ethics of IP practice. • Reinforcement of multiple expectations relative to appropriate referral and multiple factors from guidelines specific to ethics and jurisprudence that support appropriate IP competencies. These address communication, collaboration, appropriateness of referral, appropriateness of treating (or not), and knowledge of other professional skill sets for making referral.
Roles and Responsibilities for Collaborative Practice N = 5	• Expect students to be able to appreciate the role of other professions in care. • Share accountability with other professions, patients, and communities for outcomes relevant to prevention and health care. • Use available evidence to inform effective IP collaboration in the delivery of patient care. • One of the institutional outcome goals for all students is to collaborate with colleagues across disciplines. • Understanding their specific role on the health care team.
Interprofessional Communication N = 3	• Interact with other professionals in a professional and respectful manner. • Explanation of the relationship of results to the clients program of care proposed by the health care team. • Expect them to not only shadow, but to interview a select number of other health professionals during their internships.
Teams and Teamwork N = 4	• Expect students to be able to work in teams and discuss collaboratively in care teams or case conferences. • Identify cognitive needs and resources of other person(s), including health professionals, and facilitate a team environment (communication, flexibility, responsibility, initiative, request, and/or assistance provided to coworkers). • Require advanced intermediate level on CPI on relationships with others and working with others. • Apply leadership practices that support collaborative practice and team effectiveness.

[a]9 key contacts

[b]N = Theme total responses

clinical faculty in the design and implementation of IP initiatives.

Faculty Development Initiatives. Twenty-five key contacts (83%) described some degree of university support for IPE faculty development initiatives (Table 10). Responses were grouped in 3 levels of university support that ranged from minimal level, with little or no faculty development initiatives established, to a strong level, with well-established initiatives that receive university funding. Five responses were identified as having minimal university support, 10 responses as having moderate support, and 10 responses as having strong support. All but 1 respondent expressed interest in attending an IPEC Faculty Workshop if APTA could fund a limited number of faculty to attend.

Other: Standardized Language and State Practice Act Inclusion. Although 6 key contacts did not feel there was a need for development of standardized terminology for IPECP, and 5 key contacts did not have an opinion or were uncertain, 19 (63%) believed there was a need for standardized terminology. Twenty-nine key contacts (97%) reported that their state practice acts did not address CP, and the remaining respondent was uncertain. No responses were obtained for the question regarding decisional authority for physical therapy students involved in CP.

DISCUSSION

The purposes of this study were to compile, collect, and analyze data on current and projected IPE initiatives in ACAPT-member physical therapist education programs; and to provide task force recommendations for future collaborative efforts. The response rate to this survey was acceptable, with 50% of the programs providing a contemporary "snapshot" of IPE in physical therapist professional education. Portney and Watkins[25] suggest that a survey questionnaire return rate of 30%-60% in a clinical setting is realistic, and this response rate compares favorably with or exceeds other surveys using similar contact sources and methods.[26-28] Overall, based upon the survey responses, there was a positive response to the integration of IPE within the physical therapist curriculum for programs currently involved in collaborative endeavors.

To advance and sustain IPE within higher education, survey respondents indicated that strong institutional support is required, faculty champions are needed, and measurable positive outcomes need to be assessed and demonstrated. These survey results were consistent with the 2012 IOM Global Forum responses of 31 academic institutions to a 7-question survey about issues associated with implementing, advancing, and sustaining IPE. Two of the 3 most frequent ACAPT survey responses—institutional resources

(funding, leadership buy-in, dedicated space, etc) and faculty champions—mirrored the IOM Global Forum responses.[21]

In addition, 1 of the critical factors identified by the 2012 IOM survey as integral to the success of IPE was partnerships with clinical practice sites and with other higher education institutions.[21] The responses to question 9 in the initial ACAPT survey, concerning partnerships with practice settings for student physical therapists to obtain IP experience, indicate that either the question was confusing to some or that partnerships are not well-developed for the majority of respondents. For physical therapist education programs to succeed in incorporating IPECP, they will need to invest in partnerships with clinical practice sites and other higher educational organizations to advance IPECP. This is especially critical for physical therapist education programs without easy access to health care facilities or an association with an academic health center. More creative partnership opportunities may need to be explored and developed to sustain institutional IPE in these environments. Examples of these partnerships might include online patient simulation and cases,[29] opportunities for shared online classroom discussions involving multiple professions,[30-33] and partnerships with other academic institutions and clinical practices.[34-36]

Based on the work of national and interna-

Table 8. Reported Challenges to IPE Initiative Implementation

Theme	Examples of Reported Challenges (Sample Direct Quotes)[a]
Administration N[b] = 53	Faculty resources and credit for faculty time (n[c] = 20) • Finding a way to award academic credit • Time required for faculty champions without designated time being set aside • Faculty time • Overwork load • Getting faculty release time • Faculty resources • Faculty development • Tied to promotion/career advancement Organization and coordination of schedule/(n = 20) • Coordination of academic and clinical schedules • Coordinating logistics • Diverse program schedules • Scheduling educational opportunities • Scheduling joint student sessions • Schedules across disciplines • Scheduling and geography Administrative support and communication (n = 7) • Need for more administrative support • Awareness of IPE and importance at the administrative level • Centralized communication • Carve out a full-time position for coordination of logistics • Space Funding (n = 6) • Currently, there is no funding • Money
Faculty N = 19	Buy-in (n = 16) • Some faculty do not see the value • Faculty interest • Faculty involvement • Clinical facilities buying in and inviting clinical faculty to participate Need for assessment (n = 3) • Study the outcomes
Curriculum N = 4	• Curricular alignment with concerted effort to find places of intersection where student levels and needed objectives are in synergy • Integration into professional curriculum; not add-on • Making content credible, authentic, meaningful, skill-based • Accreditation requirements
Other N = 2	• Professional priorities and legal/reimbursement structures do not support • Different ethical codes

[a]30 key contacts
[b]N = Theme total responses
[c]n = Subtheme total responses

tional organizations and forums,[1-8,21] IPEC's Core Competencies,[12-13] and the results of this survey, physical therapist education programs developing IPE within their institutions typically elect to first target IPE within classroom experiences before integrating IPE into clinical experiences. In order to advance IPE within clinical experiences, development of more formalized clinical partnerships will be needed to better enable the expansion of IPE within patient care experiences for learn-

ers. Perhaps further direction and support is needed to assist physical therapist education programs in how to develop and sustain clinical education partnerships to advance collaborative practice and clinical education models.

Task force members noted the diversity in IPE terminology used by the key contacts. For example, several key contacts referred to working with physical therapist assistants as an example of IPE when it would more ap-

propriately be described as "intraprofessional" education. Several key contacts referred to guest lecturing as an example of IPE, which does not meet the WHO definition of IPE.[5] Given survey results expressing a need for further clarification of terminology associated with IPECP and some possible confusion about what constitutes IPE, the investigators have provided suggested terminology definitions in Appendix B.

The majority of survey respondents noted

Table 9. Strategies for Overcoming Challenges to IPE Initiative Implementation

Theme	Examples of Reported Strategies (Sample Direct Quotes)[a]
Administration N = 11	• Flexible scheduling with dedicated time (n^c = 6) • Faculty development (n = 2) • Funding (n = 2) • Faculty-awarded credit (n =1)
Curriculum N = 6	• Embedded in current curriculum, student credit given (n = 5) • Accreditation requirement for some professions (n = 1)
Faculty N = 5	• Champions (n = 3) • Clinicians included in design, implementation (n = 2)

[a]22 key contacts
[b]N = Theme total responses
[c]n = Sub-theme total response

Table 10. Examples of Faculty Development Programs by Level of University Support

Examples of Faculty Development Initiatives[a] Sample Direct Quotes	Responses
Minimal level of support[b] • Recently dedicated center and personnel, little/no faculty development • Charged with implementing • IPE conference attendance support	5
Moderate level of support[c] • Optional IP team training day • Annual IPE summit • IPE simulation teaching • 2–3 faculty development sessions on IPE • Hosting of guest speakers on IPE	10
Well-developed level of support[d] • Annual IPE summit linking multiple institutions • Master Educators Guild with dedicated funding and expertise • Biannual faculty development workshops • Strong faculty development program specifically related to IPE • 1:1 assistance by IPE staff with faculty for IPE program development	10

[a]25 Key Contacts
[b]initiatives currently being developed or requested
[c]initiatives in place with moderate support
[d]initiatives well-established and funded

that their state practice acts do not address CP. It is unknown whether the reported absence of an explicit statement about CP within state practice acts would support or hinder advancement of CP models for physical therapist clinical education. Given the time and financial investment required, the question must be posed whether the profession is prepared to take up the challenge to incorporate explicit language in practice acts to make innovative collaborative models of care for clinical education available in all states.

In the follow-up survey, question 6 provided information about the level of interest in physical therapist program faculty attending an IPEC Faculty Development Institute later that year to advance IPE within their respective institutions. Because APTA's 2013 Strategic Plan[37] supported IP collaborative initiatives under Goal 3, 12 physical therapist faculty teams were able to participate in the IPEC institute with funding to offset some of their costs.

Physical therapist education should be designed to prepare a collaborative practice-ready workforce in response to ongoing changes in practice such as patient- and family-centered team-based care. New practice models must be developed to accomplish 3 critical objectives, known as the triple aim of health care,[38] to optimize health system performance by: (1) improving the health of the population; (2) enhancing the patient experience of care (including quality, access, and reliability); and (3) reducing, or at least controlling, the per capita cost of care.[39] So how does an IPE curricular model in physical therapist education support and foster integration in clinical education in an effort to improve health outcomes?

Based upon the findings from the survey, at least 62 (58.5%) of the respondents reported that IPE is a focus of their physical therapist education curriculum. In contrast, student physical therapist opportunities for CP through clinical experiences occur much less frequently. The responses to question 9 in the initial survey concerning partnerships with practice settings for students to obtain IP experience indicate that either the question was confusing to some or that partnerships are not well-developed for the majority of respondents.

Although the profession has made some strides within physical therapist education programs in advancing IPE, additional effort needs to be targeted to develop strong partnerships with clinical practice sites and other higher education institutions to advance CP in patient care. The basic premise of IPE is to advance best practice by learning about, from, and with each other and then integrating IPE concepts into clinical practice with patients to achieve the triple aim. Additional partnerships with other health profession associations and IPE organizations highlighted in Appendix C would help the profession advance IPECP. Other opportunities to interact in shared partnerships with external funding agencies that support IPECP research initiatives are noted in Appendix D. Finally, a growing body of literature on the topic of IPECP is identified in Appendix E.

Limitations

The study sample included only ACAPT member institutions. At the time of the survey administration, there were 219 accredited and developing programs in physical therapist education,[40] and the 50% response rate

for the initial survey of 209 ACAPT member institutions makes the results difficult to generalize to all physical therapist academic institutions. The results of this study represent only physical therapist academic programs that responded to the survey with the presence of IPE within their academic institutions. As such, the results reflect a response bias from those respondents reporting IPE within their academic institutions, where the investigators do not know the status of IPE for those institutions not responding. Additionally, the initial survey posed selected questions about IPE as an initial exploratory survey about the status of IPE within physical therapist education. Based upon the results, many questions remain.

Early Implications From the ACAPT Study

Based upon the recommendations from the IPE Task Force, the following steps have been taken to further IPECP within the profession:

- ACAPT has disseminated its survey results to key stakeholders via publications and presentations.
- ACAPT and APTA endorsed the IPEC Core Competencies.
- APTA helped fund 12 physical therapist program faculty to attend the October 2013 IPEC Faculty Institute.
- ACAPT Board of Directors approved the formation of the National IPE Consortium (NIPEC) to provide a forum for those interested in discussing, researching, and furthering IPE in physical therapy and other health professions and organizations, with the first meeting convened at CSM 2014 in Las Vegas.
- The 2014 APTA House of Delegates adopted the position Endorsement of Interprofessional Education Collaborative Core Competencies (HOD P06-14-14-09) to "encourage team-based interprofessional education and collaborative practice by endorsing the 4 IPEC Core Competency domains and their respective general competency statement." APTA and its members will endeavor to integrate these IPEC core competencies into practice and education initiatives, where feasible.[41]
- APTA established a staff work group to develop an IPE Policy Paper for the profession.

Future Research Questions

This exploratory survey raised a number of future research questions that could be posed as a follow up to this initial IPE survey of physical therapist academic programs. Some of these future questions might include but not be limited to:

1. How have academic institutions integrated IPE within the culture for faculty including tenure, workload, salary, position expectations, and faculty development?

2. What successful models are being used to support faculty in their ability to teach in an IPE-model curriculum?

3. What successful models have been developed to support partnerships in higher education and clinical practice?

4. What do physical therapist programs need to effectively develop, advance, and sustain IPE within their institutions?

5. What valid and reliable assessment tools are available to measure IPE student classroom outcomes, collaborative practice student outcomes during clinical education, IPE outcomes in relation to patient care and the triple aim, and innovative models of IP collaborative practice for new graduates?

CONCLUSION

This exploratory survey of ACAPT member physical therapist education programs identified areas of strength and opportunities for growth of IPE within professional physical therapist education along with the development of external partnerships within practice, other academic institutions, and other health profession organizations. Although 78.3% of physical therapist program respondents indicated that, to varying degrees, they are involved with IPE in their programs and curriculum, the issues raised by this survey warrant further exploration and investigation and provide an excellent baseline upon which to build for the future.

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Appendix A. IPEC Core Competencies

Work with individuals of other professions to maintain a climate of mutual respect and shared values. Values/ethics/behavioral expectations:
- Place the interests of patients and populations at the center of interprofessional health care delivery.
- Respect the dignity and privacy of patients while maintaining confidentiality in the delivery of team-based care.
- Embrace the cultural diversity and individual differences that characterize patients, populations, and the health care team.
- Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions.
- Work in cooperation with those who receive care, those who provide care, and others who contribute to or support the delivery of prevention and health services.
- Develop a trusting relationship with patients, families, and other team members (CIHC, 2010).
- Demonstrate high standards of ethical conduct and quality of care in one's contributions to team-based care.
- Manage ethical dilemmas specific to interprofessional patient- and population-centered care situations.
- Act with honesty and integrity in relationships with patients, families, and other team members.
- Maintain competence in one's own profession appropriate to scope of practice.

Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of the patients and populations served. Roles/responsibilities/behavioral expectations:
- Communicate one's roles and responsibilities clearly to patients, families, and other professionals.
- Recognize one's limitations in skills, knowledge, and abilities.
- Engage diverse health care professionals who complement one's own professional expertise, as well as associated resources, to develop strategies to meet specific patient care needs.
- Explain the roles and responsibilities of other care providers and how the team works together to provide care.
- Use the full scope of knowledge, skills, and abilities of available health professionals and health care workers to provide care that is safe, timely, efficient, effective, and equitable.
- Communicate with team members to clarify each member's responsibility in executing components of a treatment plan or public health intervention.
- Forge interdependent relationships with other professions to improve care and advance learning.
- Engage in continuous professional and interprofessional development to enhance team performance.
- Use unique and complementary abilities of all members of the team to optimize patient care.

Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease. Interprofessional communication behavioral expectations:
- Choose effective communication tools and techniques, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function.
- Organize and communicate information with patients, families, and health care team members in a form that is understandable, avoiding discipline-specific terminology when possible.
- Express one's knowledge and opinions to team members involved in patient care with confidence, clarity, and respect, working to ensure common understanding of information, treatment, and care decisions.
- Listen actively and encourage ideas and opinions of other team members.
- Give timely, sensitive, instructive feedback to others about their performance on the team, responding respectfully as a team member to feedback from others.
- Use respectful language appropriate for a given difficult situation, crucial conversation, or interprofessional conflict.
- Recognize how one's own uniqueness, including experience level, expertise, culture, power, and hierarchy within the health care team, contributes to effective communication, conflict resolution, and positive interprofessional working relationships (University of Toronto, 2008).

Communicate consistently the importance of teamwork in patient-centered and community-focused care. Team and teamwork behavioral expectations:
- Describe the process of team development and the roles and practices of effective teams.
- Develop consensus on the ethical principles to guide all aspects of patient care and team work.
- Engage other health professionals (appropriate to the specific care situation) in shared patient-centered problem solving.
- Integrate the knowledge and experience of other professions (appropriate to the specific care situation) to inform care decisions while respecting patient and community values and priorities/preferences for care.
- Apply leadership practices that support collaborative practice and team effectiveness.
- Engage self and others to constructively manage disagreements about values, roles, goals, and actions that arise among health care professionals and with patients and families.
- Share accountability with other professions, patients, and communities for outcomes relevant to prevention and health care.
- Reflect on individual and team performance for individual for improvement in both.
- Use process improvement strategies to increase the effectiveness of interprofessional teamwork and team-based care.
- Use available evidence to inform effective teamwork and team-based practices.
- Perform effectively on teams and in different team roles in a variety of settings.

Adapted from Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel.* Washington, D.C.: Interprofessional Education

Appendix B. Definitions of IPE Terminology

Collaborative practice in health care occurs when multiple health workers from different professional backgrounds provide comprehensive services by working together synergistically along with patients, their families, careers, and communities to deliver the highest quality of care across settings.[1]

Interdisciplinary health care occurs when health care professionals representing expertise from various health care disciplines participate in the support of clients and their families in health care delivery.

Interprofessional collaboration is a patient-centered approach to health care delivery that synergistically maximizes the strengths and skills of each contributing health worker to optimize the quality of patient care (adapted from Hoffman et al; in press).[1]

Interprofessional education (IPE) occurs when learners from 2 or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes. [1]

Interprofessionalism refers to the delivery of care by members of different health professions.[2]

Interprofessionality refers to the bridge between interprofessional education and interprofessional practice where learners and practitioners from 2 or more professions translate and use what has been learned about, from, and with each other in the educational experience to enable more effective collaboration as a team directed toward a common purpose, commitment, and mutual respect with a focus on patient-centered care.[3]

Interprofessional learning (IPL) is learning arising from interaction between members (or students) of 2 or more professions. This may be a product of interprofessional education or happen spontaneously in the workplace or in education settings (Freeth et al; 2005).[1]

Interprofessional practice (IPP) occurs when practitioners from 2 or more professions work together with a common purpose, commitment, and mutual respect.[1]

Interprofessional professionalism is the consistent demonstration of core values evidenced by professionals working together, aspiring to,[2(19)] and wisely applying principles of altruism, excellence, caring, ethics, respect, communication, and accountability to achieve optimal health and wellness in individuals and communities.[4]

Interprofessional team is a group of people from different professional backgrounds who deliver services and coordinate care programs to achieve different service needs. Goals are set through consensual decision-making and result in an individualized care plan which may be delivered by 1 or 2 team members, thus maximizing shared expertise and minimizing barriers of professional autonomy.[1]

Multidisciplinary is an adjective used to describe types of teams or education and indicates that people from different disciplines are involved in the given activity. In other words, individuals from 2 or more disciplines coming together only for specific issues and problems.[1]

Transdisciplinary or *transdisciplinarity* are terms first used by Piaget to denote something that is at once between the disciplines, across the different disciplines, and beyond each individual discipline. Its goal is the understanding of the present world, of which an imperative is the overarching unity of knowledge.[1]

Triple Aim[5] is a framework developed by the Institute for Healthcare Improvement that describes an approach to optimizing health system performance. It is IHI's belief that new designs must be developed to simultaneously pursue 3 dimensions, referred to as the "Triple Aim":

- Improving the patient experience of care (including quality and satisfaction);
- Improving the health of populations; and
- Reducing the per capita cost of health care.

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Appendix C. IPE Organizational Resources

Organization Name	Website
American Interprofessional Health Collaborative (AIHC)	http://www.aihc-us.org/
Australasian Inter Professional Practice and Education Network (AIPPEN)	http://cihc.wikispaces.com/Australasian+Interprofessional+Practice+%26+Education+Network
Canadian Interprofessional Health Collaborative (CIHC)	http://www.cihc.ca/
European Interprofessional Education Network (EIPEN)	http://www.eipen.eu/
Institute of Medicine Global Forum on Innovation in Health Profession Education (IOM Education Forum)	http://www.iom.edu/Activities/Global/InnovationHealthProfEducation.aspx
Interprofessional Education Collaborative (IPEC)	https://ipecollaborative.org/
Interprofessional Professionalism Collaborative (IPC)	http://interprofessionalprofessionalism.weebly.com/
National Academies of Practice (NAP)	https://www.napractice.org/eweb/startpage.aspx
National Center for Interprofessional Practice and Education (Nexus)	http://nexusipe.org/
National Health Sciences Students' Association in Canada (NaHSSA)	http://www.who.int/workforcealliance/members_partners/member_list/nhssa/en/
Nordic Interprofessional Network (NIPNET)	http://cihc.wikispaces.com/Nordic+Interprofessional+Network
The Network: Towards Unity for Health	http://www.the-networktufh.org/
UK Centre for the Advancement of Interprofessional Education (CAIPE)	http://caipe.org.uk/
World Health Organization (WHO)	http://www.who.int/en/

Appendix D. Agencies Supporting Interprofessional Funding

Organization Name	Website
Agency for Health Care Research and Quality (AHCRQ)	http://www.ahrq.gov/funding/index.html
Department of Health and Human Services (HHS)	http://www.hhs.gov/grants/
Josiah Macy Foundation (Macy)	http://www.macyfoundation.org/
Office of Research Integrity (ORI)	http://ori.hhs.gov/
Robert Wood Johnson (RWJ)	http://www.rwjf.org/
Gordon and Betty Moore Foundation	http://www.moore.org/programs/patient-care?