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Development and Evolution of a Model Interprofessional Education Program in Parkinson's disease: A Ten-year Experience

Ruth A. Hagestuen RN MA

National Parkinson Foundation, Miami, FL, rh@parkinson.org

Elaine V. Cohen Ph.D. (Visiting Scholar)

Silver School of Social Work at New York University, New York, NY, elainevc14@gmail.com

Gladys González-Ramos PhD (posthumous)

Silver School of Social Work at New York University, New York, NY, ggr@nyu.edu

Celia Bassich PhD, CCC-SLP

Department of Audiology, Speech-Language Pathology and Deaf Studies (Ret.), Towson University, Towson, MD, celieb23@gmail.com

Denise Beran CAPM

National Parkinson Foundation, Miami, FL, dberan@parkinson.org

See next page for additional authors

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Authors

Ruth A. Hagestuen RN MA; Elaine V. Cohen Ph.D. (Visiting Scholar); Gladys González-Ramos PhD (posthumous); Celia Bassich PhD, CCC-SLP; Denise Beran CAPM; Elaine Book MSW, RSW; Kathy P. Bradley EdD, OTR/L, FAOTA; Janice L. Briggs BS, MHA; Julie H. Carter RN, MN, ANP; Hillel W. Cohen DrPH, MPH; Mariann Di Minno RN, MA, CNS; Joan Gardner RN, BSN; Monique Giroux MD; Sandra Holten MT-BC, NMT Fellow; Susan Imke RN, MS; Ricky Joseph PhD, OTR/L; Denise D. Kornegay MSW; John C. Morgan MD, PhD; Patricia A. Simpson RN, MHSM, BSN, CLNC; Concetta M. Tomaino DA, LCAT, MT-BC; Richard P. VandenDolder BA, OTR/L; Maria Walde-Douglas PT; and Rosemary Wichmann PT

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Ruth A. Hagestuen RN, MA *Parkinson's Foundation*

Elaine V. Cohen PhD *Visiting Scholar, Silver School of Social Work at New York University*

Gladys González-Ramos PhD *Posthumous, Silver School of Social Work at New York University*

Celia Bassich PhD, CCC-SLP *Department of Audiology, Speech-Language Pathology and Deaf Studies (Ret.), Towson University*

Denise Beran CAPM *Parkinson's Foundation*

Elaine Book MSW, RSW *Pacific Parkinson's Research Centre, University of British Columbia*

Kathy P. Bradley EdD, OTR/L, FAOTA *College of Health Sciences, Department of Occupational Therapy (emeritus), Augusta University*

Janice L. Briggs BS, MHA *CoxHealth Center for Health Improvement, Springfield, MO*

Julie H. Carter RN, MN, ANP *Parkinson Center of Oregon, Neurology-OP-32, Oregon Health & Science University*

Hillel W. Cohen DrPH, MPH *Department of Epidemiology and Population Health, Albert Einstein College of Medicine*

Mariann Di Minno RN, MA, CNS *Parkinson's Disease Clinic and Research Center, University of California San Francisco*

Joan Gardner RN, BSN *Struthers Parkinson's Center, Minneapolis, MN*

Monique Giroux MD *Movement and Neuroperformance Center of Colorado*

Sandra Holten MT-BC, NMT Fellow *Struthers Parkinson's Center, Minneapolis, MN*

Susan Imke RN, MS *Senior Health Solutions, Bedford, TX*

Ricky Joseph PhD, OTR/L *Department of Occupational Therapy, University of Texas Health Science Center*

Denise D. Kornegay MSW *Statewide Area Health Education Center, Medical College of Georgia at Augusta University*

John C. Morgan MD, PhD *Movement and Memory Disorder Programs, Department of Neurology, Medical College of Georgia*

Patricia A. Simpson RN, MHSM, BSN, CLNC *Simpson & Associates, Temple, TX*

Concetta M. Tomaino DA, LCAT, MT-BC *Institute for Music and Neurologic Function, Mt. Vernon, NY*

Richard P. VandenDolder BA, OTR/L *Struthers Parkinson's Center, Minneapolis, MN*

Maria Walde-Douglas PT *Struthers Parkinson's Center, Minneapolis, MN*

Rosemary Wichmann PT *Struthers Parkinson's Center, Minneapolis, MN*

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Abstract

OBJECTIVE This paper describes development, evolution and learner reactions in a model interprofessional education program for medical, nursing, physician assistant, occupational therapy, physical therapy, music therapy, social work and speech-language pathology practitioners. Sponsored by the National Parkinson Foundation (NPF) (currently Parkinson's Foundation), Allied Team Training for Parkinson (ATTP) is a U.S.-based multi-day interprofessional education program in best practices for integrated, interprofessional team-based Parkinson's disease (PD) care. NPF sponsored 26 ATTP trainings from 2003 to 2013.

METHODS This mixed methods evaluation uses case study document review and observation to outline ATTP curriculum development, evolution, and implementation challenges. Learner-perceived effectiveness ratings, knowledge change, pre-post ratings on the Team Skills Scale, confidence in working with people with PD and caregivers, and trainee-reported practice changes at 6-month follow-up were collected.

RESULTS Qualitative results identified multiple factors in building an effective interprofessional education program, including interprofessional team practice opportunities through case-based learning, engaging care networks and continuous feedback loops for program improvement. Quantitative results showed that trainees across professions, geographic regions and work settings rated the overall program and curriculum effectiveness, amount of new knowledge and knowledge change very highly. ATTP resulted in significant post-training improvement in team skills, confidence in working with PD, and post-training self-reported practice changes.

CONCLUSION Findings suggest that ATTP is an effective interprofessional education program that could be replicated or adapted to other settings and neurodegenerative or chronic illnesses. The model of combining interprofessional team training with disease-specific curriculum content appears to be an effective "next practice" in continuing professional development.

Implications for Interprofessional Practice

- Allied Team Training for Parkinson (ATTP) is a model interprofessional education program teaching practicing healthcare professionals about how to implement collaborative team-based care throughout the continuum.
- Healthcare practitioners are in need of education to provide evidence-based, quality care to people with Parkinson's disease (PD), a complex, chronic, neurodegenerative disease requiring interprofessional collaborative care. ATTP offers simultaneous training about collaborative interprofessional care and best practices in PD assessment and treatment.
- Using a combination of PD case-based, experiential and reflective approaches, ATTP trainees practice interprofessional team-based PD care planning designed to encourage transfer of learning to workplace practice settings.
- Description of the development and evolution of the ATTP model encourages and enables healthcare professionals and leaders in other neurodegenerative and chronic illness areas to replicate or adapt this successful IPE program.

Introduction

There is widespread consensus that healthcare professionals are not adequately prepared to meet challenges in today's healthcare system (Cuff et al., 2014; Institute of Medicine, 2001; National Academies of Science, 2016; World Health Organization, 2010; Interprofessional Education Collaborative (IPEC) Expert Panel, 2011 & 2016 Update). A recent global workshop on interprofessional education (IPE) (National Academies of Science, 2016) points to a continuing "chasm" between what health professions students are being taught and a healthcare system that has shifted focus from acute to chronic care, and from single-profession to an integrated, team-based approach (National Academies of Science, 2016; World Health Organization, 2010). The knowledge explosion in healthcare has only deepened this "chasm." Medical information, reported in 2010 to have doubled every 3.5 years, is now projected to double every 73 days by 2020 (National Academies of Science, 2016). Thus, busy *practicing* clinicians have a dual challenge: staying current with evidence-based best practices in their profession and learning skills to collaborate/coordinate with other professions to address complex chronic illnesses.

Although initially identified in 2001 (Institute of Medicine, 2001), the need for improved professional education in evidence-based, interprofessional (IP) collaborative practice remains important even now (IPEC Expert Panel, 2011 & 2016 Update). To keep current, healthcare practitioners are urged to (a) become lifelong learners who "upskill and retrain" (Clark, Draper, & Rogers, 2015) through continuing professional development and (b) attend IPE programs, widely viewed as the best path to becoming "collaborative-practice ready" (National Academies of Science, 2016; World Health Organization, 2010; Breitbach et al., 2013; Graybeal, Long, Scalise-Smith, & Zeibig, 2010; The Association of Schools of Allied Health Professions, 2015; IPEC Expert Panel, 2011 & 2016 Update).

Responding to Need: The Start of ATTP

In 2002, the National Parkinson Foundation (NPF)¹ initiated development of a Parkinson's disease (PD)-based IPE for *practicing* healthcare professionals to learn about best practices in collaborative PD care. Key drivers were as follows: (a) Leaders across PD Centers of Excellence identified the need to educate healthcare professionals in the complexities and current best practices in PD care, (b) new NPF leadership embraced the Institute of Medicine (2001) dual national agenda to train the healthcare workforce in IP teamwork and evidence-based, patient-centered care, (c) NPF Centers of Excellence leaders also identified the need to develop IP-PD care teams, including educating community-based healthcare professionals about collaborative PD care, and (d) NPF leadership received a Health Resources and Services Administration (HRSA) grant to launch *Allied Team Training for Parkinson* (ATTP).

Literature Review

The focus on IPE is, by now, a global movement with a steady growth of IPE curricula, particularly in academic settings seeking to prepare health professions students to work collaboratively on IP teams (Cox, Cuff, Brandt, Reeves, & Zierler, 2016; Olaisen, Marisca-Hergert, Shaw, Macchiavelli & Marsheck, 2014; Shrader, Kern, Zoller, & Blue, 2013; Grymonpre et al., 2010). In the past few years, the focus has turned to also improving the IP teamwork and collaboration skills of post-licensure practitioners already in the workplace. Robben et al. (2012) demonstrated improved team skills, knowledge of other professions, and collaborative behaviors for primary care practitioners in the Netherlands who were exposed to three brief IPE workshops. Bain, Kennedy, Archibald, LePage, and Thorne (2014) showed that high levels of satisfaction and improved self-assessed IP collaboration competencies were sustained one year after IPE training workshops for arthritis specialty teams in Canada. Sargeant, MacLeod, and Murray (2011) used role play with trained actors to successfully teach practitioners in cancer care how to improve communication skills. Until development of ATTP, there were no known IPE programs in the PD field, de-

¹ Although currently named Parkinson's Foundation, this paper refers to National Parkinson Foundation that sponsored ATTP during the 2003-2013-time period.

spite recognition that IP collaboration is the preferred model for effective, integrated PD care.

Despite the wide diversity in IPE programs developed (e.g. in design, duration, mix of professions, clinical settings, etc.), the vast majority have been shown to be effective in improving learner teamwork skills and decision-making, understanding of the role and responsibilities of other professions, confidence, self-efficacy and skills in IP collaboration, job satisfaction, and ability to transfer knowledge and skills to the workplace (Breitbach et al., 2013; Zwarenstein, Goldman, & Reeves, 2009; Cox et al., 2016; Malcolm, Shellman, Elwell, & Rees, 2017; Ward et al., 2016). In some studies, IPE has been associated with improved patient outcomes (Cuff et al., 2014; World Health Organization, 2010; Ekmecki et al., 2015; Lawrence, Bryant, Nobel, Dolansky, & Singh, 2015). Even so, there are repeated calls for more rigorous evaluation methodology, supported by data beyond learner self-report (Institute of Medicine, 2015; Reeves et al., 2010b; Reeves, Perrier, Goldman, Freeth & Zwarenstein, 2013), to establish a robust link between IPE, IP collaboration and "... patient, population and health outcomes" (Cox et al, 2016, p.1).

Projected increases in the prevalence of chronic illness in an aging population (Dall, Gallo, Chakrabarti, West, Semilla, & Storm, 2013) have spurred the movement to build IP teamwork and collaboration skills in the healthcare workforce, largely through IPE. Parkinson's disease (PD) is an example of a complex, chronic, neurodegenerative disease significantly impacting the diagnosed person, caregiver, and family over many years. As the second most prevalent neurodegenerative disease, PD is estimated to affect 1 million in the U.S. and 4-6 million diagnosed worldwide (Hassan et al., 2012), with projections of a 68 percent increase between 2010 and 2030 (Dall et al., 2013). PD affects virtually every aspect of a diagnosed person's life over time. Motor symptoms typically include tremor, slow movements, rigidity, impairment in gait/balance, and impaired activities of daily living. Non-motor problems include anxiety, cognitive impairment/dementia, autonomic disturbance, sleep problems, fatigue, constipation, apathy, and a high prevalence of depression, often associated with decreased social participation (Pfeiffer, 2012; Pfeiffer, 2016; Hassan et al., 2012; Begat, Wu, Pei, Schmidt, & Simuni, 2014). As the disease burden increases, quality of life is significantly affected, both for the person diagnosed and for their caregivers and families (Carter et al., 1998; Van Uem et al., 2016;

Peters, Fitzpatrick, Doll, Playford, & Jenkinson, 2011). It is now widely accepted that comprehensive assessment and treatment of PD requires specialized knowledge and involvement of multiple professions working closely together to realize optimal integrated care.

Purpose

The IPE literature has largely focused on outcomes rather than the *processes* critical to success (Clark et al., 2015). This paper, a companion to the ATTP outcomes article (Cohen et al., 2016), describes key processes in developing, implementing and sustaining NPF's IPE program, ATTP, as well as learner reactions and outcomes not reported elsewhere. It focuses on three program evaluation questions: (a) How was ATTP developed and designed, including evolution and implementation challenges? (b) What were learner reactions to the program? (c) Is ATTP a potentially replicable or adaptable IPE model?

Methods

Our mixed methods evaluation includes *Part I*, a qualitative case study review of ATTP program development, implementation, and evolution over a ten-year period (2003-2013), and *Part II*, report of quantitative measures of learner reactions and pre-post outcome measures [adding to previously reported ATTP outcomes (Cohen et al, 2016)]. An independent research/program evaluation consultant observed all training events and faculty planning meetings/calls and collected all survey data.

Ethical Considerations

NPF established an independent IP Institutional Review Board (IRB) that reviewed and approved ATTP evaluation consents/protocols.

Part I: Qualitative Data Collection and Analysis

Qualitative research for this study consisted of document review and analysis to identify salient ATTP **Program Features**, critical themes in **Program Evolution**, and key **Implementation Challenges**. Program documents reviewed included: (1) *Training schedules* for each of the 26 ATTP training events; (2) *Recruitment materials/ brochures* to identify key program features; (3) *Curriculum Book Handouts* to identify program philosophy, guiding values and learning objectives; (4) *HRSA grants, grant reports and other funding proposal narratives* outlining program features and ratio-

nale, curriculum improvements, faculty changes and implementation challenges; (5) *Minutes of ATTP Faculty Meetings*, identifying program and curriculum enhancements, and implementation challenges; (6) *Field notes/ observations* for each of the 26 training events attended by the evaluator.

Curriculum modules for each of 26 training schedules were entered into an Excel database for comparative analysis of module changes. Qualitative text data were analyzed using content and thematic analysis guided by grounded theory (Charmez, 2006). Through review of initial program grants and relevant literature (Oandasan & Reeves, 2005a, 2005b; Willgerodt, Abu-Rish, Brock, Liner, Murphy, & Zierler, 2016), the program evaluator identified six broad IPE program areas for review (*Curriculum, Faculty, Learner, Philosophy/Teaching Methods, Funding, Program Evaluation*). The evaluator (EVC) iteratively read program documents, achieving consensus with another co-author to identify emergent themes in Program Processes, Evolution, and Implementation Issues. Program narratives were then coded into these emergent themes, where possible, triangulating data from multiple documents. A social worker not involved in ATTP independently verified the emergent themes and coded document narratives into these themes. Inter-rater agreement was 0.82 (Cohen's Kappa). Consensus agreement was achieved for coding discrepancies through discussion with the independent coder. Appendix A summarizes content/thematic analysis emergent themes, definitions, and text examples.

Part I: Qualitative Case Study

Program Overview

ATTP, an intensive 4½-day IPE course for *practicing* health professionals attending alone or with existing work teams, was designed to educate about (a) evidence-based assessment and treatment of PD; (b) teamwork to provide integrated, IP care; and (c) the roles various professions can play in PD care. NPF selected five initial professions from which to enroll participants²: music therapy (MT), occupational therapy (OT), physical therapy (PT), social work (SW), and speech-language pathology (SLP). Where possible,

² HRSA grant guidelines limited initial selection to five “allied” health professions (as defined by HRSA). Though crucial, adding nursing and physician professions would have required separate federal grant applications and was not feasible at program startup.

ATTP also enrolled up to two students in each targeted health profession. After the HRSA grant ended in 2006, NPF continued its commitment to IPE, adding the following core professions: nursing [registered nurse (RN) and nurse practitioner (NP)], physician (MD) and physician assistant (PA). Courses were typically hosted at U.S.-based NPF-PD Centers of Excellence and offered continuing education credits for eligible attendees and a certificate of completion for those completing the course.

Figure 1 outlines the major ATTP curriculum domains and program learning objectives. **Table 1** illustrates a generic ATTP course schedule showing daily *plenary* IP training modules (attended by all professions) and, on days 2-4, time for *profession-specific* modules. Profession-specific modules covered the impact of motor/non-motor symptoms; the latest validated assessment tools, including, where possible, those specific for PD; best practices in evidence-based treatment interventions; caregiver/family education; and profession-specific topics (e.g. differential diagnosis for medical professions; swallowing difficulties for speech pathologists, etc.). Specific content for Team Training modules also appears on Table 1. A sample-training schedule and/or a table outlining topics covered by profession is available on request. The training format was purposely varied, combining plenary lecture, interactive small and large group discussion, experiential team-based learning, and time for critical reflection in teams. This overall course structure largely remained stable during 2003-2013.³

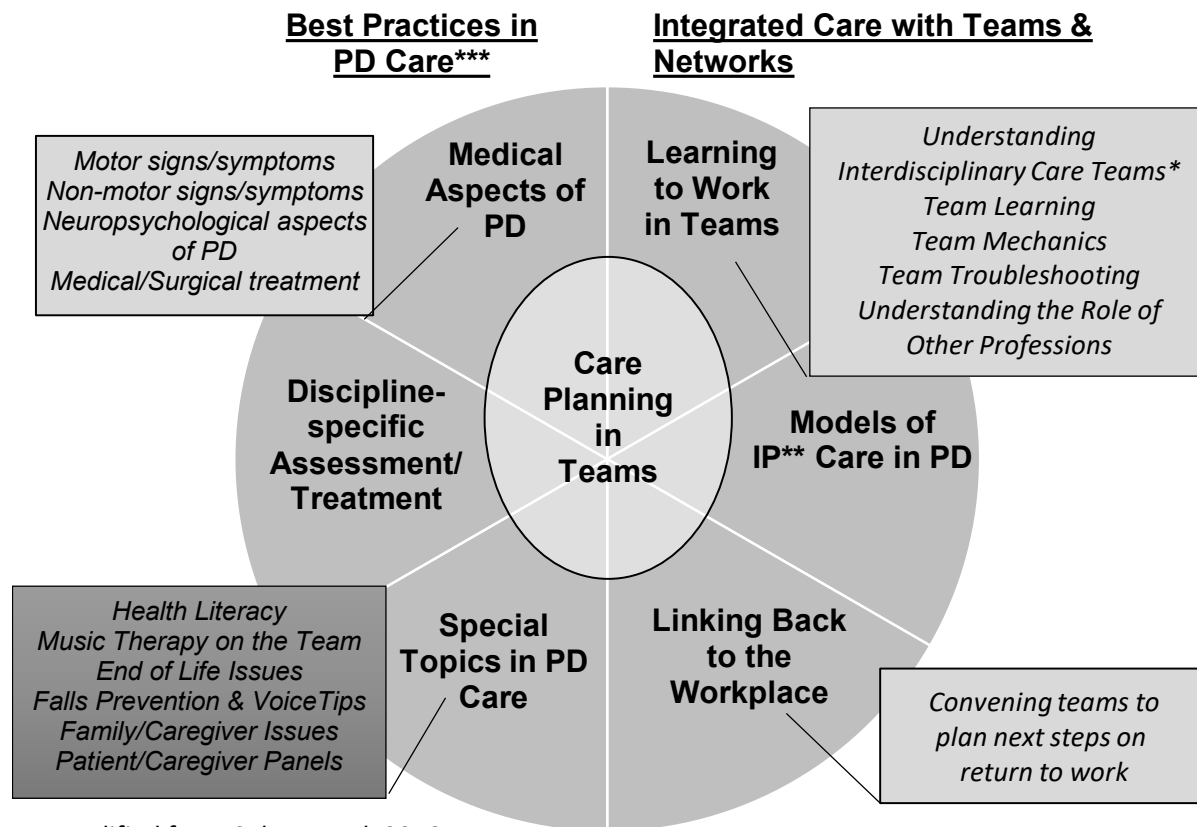
Qualitative Results

Key Program Processes and Features

1. Building the Faculty Team: ATTP faculty were selected for profession-specific expertise in PD and commitment to and experience in IP teamwork. Initial faculty (2003-2005) included one in each profession (MT, OT, PT, SW, and SLP). In 2006, two movement disorders neurologists, a nurse and an additional specialist in IP teamwork training (who was also a social worker) joined the faculty. Each was committed to presenting the latest applied evidence about best practices in PD and demonstrating an IP collaborative practice model.

³ The program continues to this day, although in modified form, by the Parkinson's Foundation (formerly the National Parkinson Foundation). ATTP is trademarked and has increased recruitment of medical and other international healthcare professionals.

Figure 1. ATTP Curriculum Domains and Learning Objectives



Modified from Cohen, et al, 2016

*Original program terminology; **IP=Interprofessional; ***PD=Parkinson's disease

ATTP Overall Learning Objectives

- Recognize the presenting motor and non-motor symptoms of PD
- Explain the diagnostic criteria of PD
- Describe the key characteristics of early, middle and late stage PD
- Examine medication-related side effects
- Implement a family-centered care plan for PD using an IP team approach
- Review discipline-specific assessment and treatment strategies
- Delineate the role of each profession in the care team, and
- Utilize strategies for building community partnerships and regional networks of PD care

Table 1. *Generic Training Schedule for ATTP and Specific ATTP Team Training. All modules are plenary IP sessions except discipline-specific; *Original program terminology reflecting IP collaboration; **IP=Interprofessional; ***PD=Parkinson's disease*

| Day 1 | Day 2 | Day 3 | Day 4 | Day 5 |
|---|---|---|---|--|
| Welcome and ATTP Goals | <u>Early stage PD***</u> IP** Faculty team- case videos, role play, vignettes & discussion | <u>Middle stage PD***</u> IP** Faculty team- case videos, vignettes & discussion | <u>Late stage PD***</u> IP** Faculty team- case vignettes & discussion | Building IP**PD Care Partnerships/Community Networks |
| Motor & Non-motor symptoms-early stage to advanced PD | Discipline*-specific breakouts | Discipline*-specific breakouts | Discipline*-specific breakouts | Linking Knowledge Back to Workplace |
| Medical /Surgical Therapy in PD | | | | Program Evaluation |
| <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | <i>Lunch</i> | |
| Neuropsychiatric Aspects of PD | Music Therapy on Interdisciplinary* Team | Falls Prevention/ Tips on Treating Voice, Speech & Swallowing | Late Stage Family Care-giving & Palliative Care | |
| Understanding Interdisciplinary* Care Teams | Team Learning, Leadership & Values | Team Mechanics & Tools | Team Trouble-shooting & Implementing New Skills | |
| Introduction to Health Literacy | Young Onset PD Panel | Persons with PD Panel | PD Caregivers Panel | |
| Models of IP** Care in PD | | | | |
| Program Evaluation | Program Evaluation | Program Evaluation | Program Evaluation | |

Specific ATTP Team Training Modules

- **Day 1-Understanding Interdisciplinary Care Teams**--introduces trainees to the benefits and characteristics of successful IP teams, stages of team building and key concepts for building a successful IP team.
- **Day 1-Models of IP Care in PD**--outlines rationale for IP team care in PD, team member qualities and successful PD team care models
- **Day 2-Team Learning, Leadership & Values**--didactic & interactive approaches convey how teams learn; how to start an IP team, develop effective ground rules, develop consensus and collaborative climates in IP teams; forms of team leadership, unique contributions of other professions.
- **Day 3-Team Mechanics & Tools**--review tools to assist team function, communication styles/ skills (active listening; nonverbal communication), understanding differences in culture and its impact on communication in teams.
- **Day 4-Team Trouble-shooting & Implementing New Skills**--reviews ways to develop effective implementation plans, team benchmarks for success, troubleshoot team problems, proactively recognize conflict and utilize effective team conflict resolution strategies
- **Days 2,3,4-Modeling of IP Team in PD care**—faculty models IP collaboration in integrated care planning at early, middle and late stage PD, illustrating role of each profession
- **Days 2,3,4-Understanding the Role of each Discipline**—through faculty and trainee IP teams, role of each profession is highlighted; Discipline* Mixer module allows each faculty member to engage in Q & A session with trainees about his/her role on IP-PD team
- **Day 5-Building IP**PD Care Partnerships/Community Networks**--presentations by PD Centers that successfully built community partnerships/ networks; emphasizes view of community-based providers as IP team collaborators in offering seamless and integrated PD care across the continuum.
- **Day 5-Linking Knowledge Back to Workplace**--convenes existing work or assigned IP teams (for individual attendees) to collaboratively plan next steps for transferring knowledge to improve IP teamwork on return to work.

2. Building the Curriculum:

a. Ensuring faculty “buy-in”

Joint planning, ensuring faculty “buy-in” and “ownership” of the curriculum, was key. At several in-person meetings, the entire faculty developed the Mission Statement, Program Objectives, and, in **Table 2**, Team Values and Guiding Principles, given to trainees at the start of training. The latter highlighted an atmosphere of respect toward other professions and broadening of the team to include patient/family care priorities. NPF assumed responsibility for administrative functions (e.g. fund-raising, developing marketing materials, host site recruitment, site logistics, etc.).

Faculty also jointly designed all ATTP plenary curriculum modules (attended by all professions) during the initial six-month grant period (July–December 2002). Curriculum planning sought to maximize cross-profession interaction. PD case videos and vignettes were created to illustrate greater complexity of management and caregiver challenges in culturally diverse scenarios at progressive PD stages (early, middle and advanced stage PD). Each faculty member individually developed his/her profession-specific module, which was then peer-reviewed by two independent same-profession experts.

b. Team Training:

The ATTP team training combined didactic and interactive approaches. Each training day included one or more modules emphasizing one or more of the four core competencies (*Values & Ethics, Roles & Responsibilities, IP Communication, Teams & Teamwork*) under the *Interprofessional Collaboration* Domain outlined by the Interprofessional Education Collaborative Expert Panel (2011 & 2016 Update). Trainees worked in existing or assigned teams to identify and prioritize PD symptoms and treatment strategies, in the process learning about the roles of other professions and how to negotiate profession priorities within an IP team. Initial trainings focused more on *IP teamwork*, with regularly scheduled team meetings, as the preferred model for integrated PD care. Over time, it became apparent that this model was not feasible in all geographic and work settings. This, and advancing concepts in the IPE literature, led to greater focus on an expanded IP collaborative PD care delivery model. While IP teamwork continued to be the preferred model in PD care, *there was greater emphasis on the intentional building of IP communication and collaborative relationships through-*

out the continuum of care, with the goal of establishing integrated care for the person with PD and family at every stage, in the community, across settings and over time.

As can be seen in **Table 3** (Evolution of ATTP) the IP Team Training component underwent significant change, beginning in 2006. Trainee and faculty feedback suggested the need to hire a dedicated team specialist. A specialist in team training, who was also a social worker, was brought onto the faculty and developed several new modules focused on teaching about the elements of successful teamwork and team-building (see **Table 1**), thus augmenting the team-based experiential component of ATTP.

c. PD Interprofessional Education

With the exception of the *Medical Aspects of PD* lectures on Day 1, the ATTP program sought to combine PD and IPE by embedding cross-profession team exercises in care planning using PD case studies, videos and vignettes. PD content focused on the latest evidence-based understanding of symptoms and treatment/management of PD in early, middle and advanced PD stages, from profession-specific and IP team perspectives. With the exception of adding new evidence/studies as they became available, the basic PD curriculum content largely remained stable over the course of ATTP.

3. *Applying active learning methods:* In keeping with adult learning principles (World Health Organization, 2010; Grapczynski, Schuurman, Booth, & Beel-Bates, 2015;), ATTP faculty continually sought active and “engaged” learning methods, ranging from patient-provider role-play to live patient demonstrations, case videos and vignettes, and varied “team lab” assignments to encourage IP communication. Various strategies were implemented to augment understanding of other professions, from faculty members modeling an IP team in response to case material to the *Discipline⁴ Mixer* curriculum module allowing each faculty member to engage in a 20-minute “Q & A” session about that faculty member’s profession. Similarly, to promote reflective learning and commitment to change, the *Linking Back* module (Day 5) convened assigned and existing work teams to jointly plan next steps to transfer knowledge

⁴ Use of the term *discipline* instead of *profession* reflects original ATTP program terminology predating changes in terminology in the IPE field.

Table 2. *Team Values and Guiding Principles: ATTP*

At its very first meeting, the Allied Team Training for Parkinson core faculty developed a list of values and guiding principles that would serve as the underpinning for the training program being developed. What follows represents what we believe to be some of the most critical elements in relationship-centered teamwork and patient care.

I. Value an attitude to learning, patient care and community approaches which:

- Encourages openness, creativity and adaptability
- Builds in continuous feedback and “big picture” reviews to renew and refresh approaches to care delivery
- Embraces new learning and development through continuing education and collaboration with others

II. Partner with clients in providing care by emphasizing:

- Safety in choosing care options on client’s own terms and timing
- Being a professional care partner who provides the “right information at the right time in the right amount”
- The patient as an active partner in their own treatment team

Individualize care, such that:

- Care will center around client – considering their ethnicity, spirituality, family dynamics and patient choice
- Care options will reflect client needs within the continuum of disease process
- Care will be holistic addressing physical, emotional, cognitive and spiritual life of patient, care partner and support system

III. Recognize that a team of allied health professionals is needed to provide quality care to persons with Parkinson’s. In order for the team to be successful, there must be cross-disciplinary* awareness of the scope of services within each discipline*. This will allow collaboration and identification of the interventions, at a given point of time, that best addresses the patient/ family’s priorities, their physical, cognitive and emotional energy and available health care resources.

IV. Promote hope and dignity in relationship-centered care by:

- Fostering an atmosphere of hope and possibility
- Acknowledging the reality of individual situations and helping to create life-giving solution
- Modeling respect, dignity, humor and creativity within the team in a way that extends naturally into our teaching and relationships with persons whose lives are affected by Parkinson’s.

*Original program terminology

Table 3. Key Features of Program Evolution: ATTP

| | 2003-2005 | 2006-2013 |
|--|--|--|
| I. Interdisciplinary to Interprofessional Teamwork and Coordination | <ul style="list-style-type: none"> Preferred model for integrated PD* care: IP* team with regularly scheduled team meetings | <ul style="list-style-type: none"> The IP team remains core to an expanded PD care delivery model across settings and over time, with emphasis on intentional building of IP collaborative relationships throughout the continuum of care, on-site and in the community. |
| II. Curriculum Enhancements | <ul style="list-style-type: none"> Some joint care planning & team exercises (e.g. puzzle-solving) Live patient demonstrations or case videos for discussion by IP groups <i>Trainees request increased interaction & more information about starting, managing & maintaining teams</i> Continued faculty discussion about how best to give attendees an integrated team-based training experience | <p>a) Expanded Team Training</p> <ul style="list-style-type: none"> More intentional & interactive approach to team training; increased practice in work or assigned IP teams on each training day PD content <i>embedded</i> into case-based team training for integrated, IP learning experience. Trainees placed into existing or assigned IP teams for facilitated “team labs” on Days 2, 3 and 4 Teams discuss patient-provider faculty role play & case vignettes of increasing PD complexity (for Early, Middle, Late stage PD) Teams report to larger group on assigned topics: PD symptoms, prioritizing discipline interventions or caregiver/family needs and priorities <p>b) Re-framed PD Content</p> <ul style="list-style-type: none"> Curriculum re-framed around Early, Middle & Late stage PD for Days 2,3 & 4 respectively; problem-based issues presented in new framework |
| III. Faculty Enhancements | <ul style="list-style-type: none"> Team overview module taught by discipline faculty Medical Overview modules: Taught by host site Movement Disorders neurologist Increased awareness over time that regularly scheduled IP teamwork model not feasible in all work or geographic settings | <ul style="list-style-type: none"> Team specialist hired to design and teach 4 new team modules (Understanding IP Teamwork, Team Learning, Team Mechanics, Team Troubleshooting) to complement collaborative IP activities throughout the course Hire of 2 Movement Disorders neurologists & RN on faculty to provide more consistency to medical overview modules Course stresses importance of intentional and planned IP communication for integrated PD care across settings. |
| IV. Community Outreach to Community Partnerships & Network Building | <ul style="list-style-type: none"> Initial Introduction to Cultural Competence module addressing federal grant (HRSA)** focus on health disparities was replaced over time | <ul style="list-style-type: none"> Trainees requested training on community outreach strategies to reach diverse populations Over time, module focused on teaching about building and collaborating with IP-PD care networks in the community |

* PD=Parkinson’s Disease; IP=interprofessional

**HRSA=Health Resources and Services Administration, U.S. Department of Health & Human Services

to practice on return to the workplace. In this regard, faculty also encouraged “at least one” practice change on return to the workplace.

4. *Focusing on applied and collaborative practice:* Emphasis on IP collaboration in practice was embedded throughout the course. ATTP faculty consisted of experienced clinicians versed in “the priorities of practice” (Clark et al., 2015) and need for ongoing IP communication in PD care. Toward that end, faculty presented material that was based on the latest evidence-based research applicable to collaborative practice.

5. *Engaging and promoting networks:* ATTP considered building/strengthening community care partnerships an essential part of IP collaboration. Host PD Centers of Excellence worked with local leaders to enroll area providers in ATTP and to build sustainable PD-informed, IP collaborative networks in that region. Enrollment at each training event extended far beyond the local host site region, an unexpected outcome. Many NPF Centers also sent new hires to future trainings to “jump start” their knowledge of integrated and collaborative PD care.

6. *Implementing continuous feedback loops:* NPF leadership adopted a commitment to continuous program improvement through ongoing program evaluation and processes designed to maximize the use of faculty observation and feedback. Program/curriculum effectiveness ratings and learner reactions were shared at each post-training call and faculty meetings for discussion of program improvements.

Evolution of ATTP

Faculty continually updated curriculum content as new evidence-based research emerged. Other program improvements made in response to faculty observation and program evaluation feedback appear in **Table 3**. Terminology used in the IPE field has also evolved and been refined over the 10-year ATTP period, largely to clarify the inconsistency of terms noted by several authors (Cox et al., 2016; IPEC Expert Panel, 2011). In this paper, the current preferred terminology is used (see glossary in Reeves, Lewin, Espin, & Zwarenstein, 2010a) (e.g. *profession* vs. *discipline*, or *interprofessional* vs. the more narrowly defined *interdisciplinary*). However, we did not wish to alter the original ATTP documents developed in 2003 and predating recent terminology updates. These documents continue use of earlier terminology [e.g. ATTP Training Schedule in Table 1 uses *discipline*-specific rather than *profession*-

specific modules or *interdisciplinary* rather than *inter-professional* care).

ATTP Implementation Challenges

Implementation challenges for ATTP included: (a) tensions when profession-specific module time was reduced to increase team training, (b) resource-intensive recruitment to enroll work teams and certain professions (e.g. primary care physicians, physician assistants, nurse-practitioners) being asked to attend a 4½ day program, and site logistics planning, necessitating commitment of local leadership and an assigned “administrative point-person” at the host site, (c) difficulties associated with teaching trainees at widely varying experience levels, (d) variable funding environments from year to year necessitated continued monitoring, and (e) evaluation of a complex and multifaceted IPE program that was evolving over time as program learning occurred, necessitating a “real-world” evaluation approach that relied on the stability of program structure, program objectives and faculty mix over time (Clark et al., 2015; Mackenzie, O’Donnel, Halliday, Sridharan, & Platt, 2010; Bamberger, Rugh, & Mabry, 2012).

Sustainability of ATTP

Funding and commitment are essential to sustainability of an IPE program (Graybeal et al., 2010; Oandasan & Reeves, 2005a, 2005b; Willgerodt et al., 2016). Through HRSA funding, the initial eight trainings were offered without fee. After 2006, NPF sustained the program initially (adding a modest fee) while continually seeking other support. Clearly there is both a need and desire for the training among healthcare providers. Beyond need, the commitment of NPF, the pharmaceutical industry, other sources of support, and of the faculty were essential to continuation of ATTP.

Part II: Quantitative Data Collection and Analysis

Enrollment logs and demographic questions documented the number of participants in each profession, hours of training completed, the number of work teams attending each training event and other trainee characteristics.

Trainees rated the effectiveness of the overall program at the end of each day. Overall effectiveness was rated on a 5-point Likert scale (1=*very ineffective*; 2=*ineffective*; 3=*neither ineffective nor effective*; 4=*effective*;

5=*very effective*) for 14 trainings. For ease of interpretation, trainings 15-25 changed to a 6-point rating scale (1=strongly disagree to 6=strongly agree). Curriculum effectiveness was rated at the end of each day on the 5-point 1=very ineffective to 5=very effective rating scale for 14 trainings and changed to the 5-point (1=*poor*; 2=*fair*; 3=*good*, 4=*very good*; 5=*excellent*) rating scale for the remaining 12 trainings. Data from each of these scales are analyzed and presented separately. Trainees rated the following in a subset of regions: (a) Self-perceived knowledge change in key curriculum domains, at the end of training and at 6-month follow-up (1=*not at all*, 2=*a little*, 3=*a good amount*, 4=*very much*, 5=*a great deal*) (b) Amount of New Information rated daily and for the week on a 5-point scale (1=*almost none* to 5=*almost all*) (c) Willingness to recommend ATTP to other healthcare professionals (1=*strongly disagree* to 5=*strongly agree*), at the end of training (d) Self-reported on-the-job practice changes at 6 month follow-up (e) Self-perceived confidence in working with people with PD, and with caregivers, on a 10-point scale (1=*no confidence* to 10=*complete confidence*) before and after the training, and (e) Self-perceived team skills, before and after the training, on a 5-point scale (1=*poor* to 5=*excellent*), using the validated 17-item Team Skills Scale (TSS). The latter measures a team member's self-rating of his/her team functioning, communication, collegiality and cooperation as a team member. Items on knowledge of other professions' contributions to patient care, patient-centeredness in care planning and ability to resolve conflicts are included. Higher scores denote a more positive view of teamwork skills. Prior study yielded a single factor with good reliability (Cronbach alpha at 0.95) and validity (Heinemann & Zeiss, 2002).

Quantitative data were entered into SPSS, version 22, and analyzed using descriptive and nonparametric (Wilcoxon Signed Rank Test) and parametric statistics (paired *t*-tests). To account for multiple testing, the alpha level was set at $p < .01$ and only consistent and robust results (rather than isolated, non-meaningful or spurious findings, even if statistically significant) are reported. Conceptually similar curriculum modules were aggregated, with an average score computed for each trainee. An average score was also computed for each trainee for the TSS. For all scores created as an average of items, missing items were excluded from numerator and denominator to assure scaling consistency for all participants.

Quantitative Results

1. Training and Participant Characteristics

There were 26 ATTP programs offered from 2003-2013, enrolling 1519 trainees. Those who were in the eligible targeted professions and who completed the program evaluation ($n=1395$) provided the quantitative data for this paper⁵. Trainees were predominantly female (86%) and had six or more years of practice in their profession (69%) (**Table 4**). Most (93%) reported having team experience and "some" experience working with people with PD (79%). Rehabilitation professions (OT, PT and SLP) constituted the largest trainee group (65%), with the top work settings being outpatient (42%), acute care (29%), and home care (10%). Ninety percent of eligible trainees completed the multi-day program.

Approximately 2/3 of trainees attended with a work team. A total of 246 healthcare work teams (defined as two or more professions from the same institution) enrolled in ATTP; 65% of these included three or more professions. Of the 457 sending institutions, 7% were located in federal-designated rural regions. Fifty sending institutions were NPF-affiliated Centers or Chapters (11%), 34 of which were repeat senders.

2. Overall Program and Curriculum Module Effectiveness

Overall program effectiveness ratings were very high. From 95-97% reported effective or very effective ratings on the 5-point scale, and from 98-100% expressed agreement about training effectiveness on the 6-point rating scale, for all training days.

Effectiveness ratings for the curriculum modules (which map to the Curriculum Domains in Figure 1) were very high, with slight improvement for later trainings (using Scale 2: 1=*poor* to 5=*excellent*). While 81-89% reported effective ratings for the *Learning to Work in Teams* modules in earlier trainings (using Scale 1), they were considerably improved in later trainings, ranging from 96-98% (using Scale 2), after hire of the team specialist faculty member. *Patient and Caregiver panels, Medical Overview of PD* and *MT (Music Therapy) on the Team* modules were consistently highest rated in effectiveness across trainings, regardless of rating scale used. Nearly all trainees (99.3%) indicated that they would recommend ATTP to other healthcare professionals.

⁵ "Other" trainees (those in non-eligible professions- $n=73$) were only enrolled on a case-by-case basis (e.g. if they were the leader or member of an enrolled work team). These "other" enrollees are excluded from all quantitative analyses.

Table 4. Trainee Characteristics: ATTP (2003-2013)

| | n | % |
|--|------------|--------------------|
| No. Eligible Trainees completing evaluations* | 1395 | |
| Females | 1191 | 85.5 |
| Professions | | |
| Physician/ Nurse Practitioner/ Physician Assistant | 68/ 30 /12 | 4.9/ 2.2/ 0.9 |
| Nurse | 150 | 10.8 |
| Occupational Therapy/Occupational Therapy Assistant | 253 / 15 | 18.1/ 1.1 |
| Physical Therapy/ Physical Therapy Assistant | 395 / 28 | 28.3/ 2.0 |
| Speech-language Pathology | 219 | 15.7 |
| Social Work | 146 | 10.5 |
| Music Therapy | 79 | 5.7 |
| Practice Status | | |
| Practitioner | 1308 | 93.8 |
| Student | 87 | 6.2 |
| Highest Educational Degree | | |
| Bachelor's or less | 539 | 38.7 |
| Masters and above | 852 | 61.3 |
| Experience in Profession | | |
| Mean (SD), years | 1394 | 12.9 (\pm 10.1) |
| ≤ 5 years | 435 | 31.5 |
| ≥ 6 years | 948 | 68.5 |
| Attending with team | | |
| Yes | 872 | 63.4 |
| No | 504 | 36.6 |
| Prior IP team experience (yes) | 1176 | 92.7 |
| Prior experience working w/persons w/ Parkinson's (PD) and/or PD caregivers | | |
| None | 57 | 10.3 |
| Some | 438 | 79.2 |
| Much | 58 | 10.5 |
| Primary Employment Setting | | |
| Acute care | 376 | 29.2 |
| Sub-acute care | 63 | 4.9 |
| Long term care/skilled nursing facility | 94 | 7.3 |
| Outpatient/ Priv. Practice | 544 | 42.2 |
| Home Care | 123 | 9.5 |
| University/ Other | 89 | 6.9 |

Modified from Cohen, et al, 2016.

*Other trainees (trainees not in ATTP-eligible professions-n=73) were only enrolled on a case-by-case basis (e.g. if they were the leader or a member of an enrolled work team). These Other enrollees are excluded from all quantitative analyses.

3. Amount of New Information

(1=almost none, 2=25%, 3=50%, 4=75%, 5=almost all)

All days and week ratings showed a median of 3.0 (IQR: 3.0, 4.0). **Figure 2** (week ratings) shows that, except for MD and NP professions, 73% or more of trainees across

professions reported at least half of the week's content as new to them, even for rehabilitation professionals (OT, PT, SLP). While MD and NP professions included more experienced PD practitioners, a substantial number (68% and 58% respectively) reported at least half of ATTP content as new.

Figure 2. Proportion of professions rating half or more of ATTP information for the week as new (n=808)



4. Self-perceived Knowledge Change

(1=not at all, 2=a little, 3=a good amount, 4=very much, 5=a great deal)

Table 5 shows ratings of perceived knowledge increase to be high at the end of training [Med_{posttest} =5.0 (IQR: 4.0, 5.0 and Med_{posttest} =4.0 (IQR: 4.0, 5.0 for IP teamwork and profession-specific PD treatment)]. Although the 6-month follow-up was significantly lower ($p \leq 0.001$), it was nonetheless still high (Med_{follow-up}: 4.0; IQR:4.0, 5.0 and 3.0, 5.0 for all, with Health Literacy IQR_{follow-up}: 3.0,4.0).

5. Team Skills Scale and Confidence Levels

Trainees showed highly significant posttest improvement over baseline (**Table 6**) in both the total TSS score (M_{diff}=0.6, 95% CI: 0.5, 0.7, $p < 0.001$) and for each of the 17 scale items ($p < 0.001$ for all). Significant improvement was also evident in ratings of perceived confidence in working with people with PD (M_{diff}=2.7, 95% CI: 2.5, 2.8, $p < 0.001$) and with PD-impacted Caregivers/Families (M_{diff}=2.0, 95% CI: 1.9, 2.1, $p < 0.001$).

6. Self-reported Practice Changes

At 6-month follow-up, trainees reported the follow-

ing practice changes as a result of ATTP (**Table 7**): increased PD caseloads (31%) and caregiver caseloads (23%), development of new PD programs or services (41%), increased in-services to colleagues (56%) and education to PD families (41%), improved teamwork (47%) and IP collaboration (56%), and other on-the-job practice changes (65%). These confirm trainee narratives of important ATTP-driven practice changes at follow-up, summarized in Cohen et al., 2016.

Discussion

To our knowledge, ATTP is currently the only IPE program within the PD education field. It developed in response to identified need in the PD community to address the education-practice gap and a changing healthcare practice environment. A decade later, growing enrollment confirms continued need for this training. ATTP is an effective IPE curriculum, offering a substantial amount of new information and resulting in increased PD knowledge and significantly improved team skills, confidence in working with PD, and trainee-reported post-training practice changes across varied geographic regions, work settings, and trainee experience levels. The four core IP Collaboration Domain competencies (*Values and Ethics, Roles and Responsi-*

Table 5. *Self-perceived Post-training Knowledge Change: ATTP*

| <i>Self-perceived Knowledge Change as result of ATTP in:</i> | <i>n</i> | <i>Posttest</i> | | <i>6-month follow-up</i> | | <i>p value***</i> |
|--|----------|-----------------|------------|--------------------------|------------|-------------------|
| | | <i>Median</i> | <i>IQR</i> | <i>Median</i> | <i>IQR</i> | |
| Parkinson's disease* | 244 | 5.0 | (4.0,5.0) | 4.0 | (4.0,5.0) | 0.001 |
| Interdisciplinary** teamwork | 241 | 4.0 | (4.0,5.0) | 4.0 | (3.0,5.0) | <0.001 |
| Discipline-specific** PD care | 242 | 4.0 | (4.0,5.0) | 4.0 | (3.0,5.0) | <0.001 |
| Challenges of people with PD | 244 | 5.0 | (4.0,5.0) | 4.0 | (4.0,5.0) | <0.001 |
| Challenges of PD-affected caregivers | 244 | 5.0 | (4.0,5.0) | 4.0 | (4.0,5.0) | <0.001 |
| PD Resources | 244 | 5.0 | (4.0,5.0) | 4.0 | (3.0,5.0) | <0.001 |
| Health Literacy | 90 | 5.0 | (4.0,5.0) | 4.0 | (3.0,4.0) | <0.001 |

Scale: 1=not at all, 2=little, 3=a good amount, 4=very much, 5=a great deal

*Abbreviations: PD=Parkinson's disease

**Original terminology in questionnaire reflecting interprofessional collaboration

***Wilcoxon Signed Ranks Test

Table 6. Pre-Post Trainee Self-Ratings on the Team Skills Scale (TSS): ATTP

| Team Skills Scale Item | n | Pre Mean* | Post Mean* | 95% CI (lower/ upper) | t (df)*** | p value |
|---|-----|-----------|------------|--------------------------|------------|---------|
| Function effectively in an interdisciplinary** team | 254 | 3.79 | 4.23 | .35/.54 | 9.07(253) | <.001 |
| Treat health care team members as colleagues | 255 | 4.38 | 4.64 | .17/.35 | 5.75 (254) | <.001 |
| Identify contributions to patient care that different disciplines** can offer | 255 | 4.00 | 4.51 | .40/.61 | 9.42(254) | <.001 |
| Apply your knowledge of geriatric principles for the care of older persons in a team care setting | 255 | 3.73 | 4.40 | .56/.77 | 12.42(254) | <.001 |
| Ensure that patient/family preferences/goals are considered when developing the team's care plan | 255 | 4.02 | 4.58 | .46/.66 | 11.12(254) | <.001 |
| Handle disagreements effectively | 254 | 3.50 | 3.96 | .36/.57 | 8.52(253) | <.001 |
| Strengthen cooperation among disciplines** | 254 | 3.63 | 4.18 | .44/.65 | 10.43(253) | <.001 |
| Carry out responsibilities specific to your discipline's** role on a team | 255 | 4.12 | 4.59 | .38/.56 | 10.13(254) | <.001 |
| Address clinical issues succinctly in interdisciplinary** meetings | 249 | 3.56 | 4.29 | .62/.85 | 12.63(248) | <.001 |
| Participate actively at team meetings | 249 | 3.84 | 4.43 | .49/.70 | 11.12(248) | <.001 |
| Develop an interdisciplinary** care plan | 245 | 3.27 | 4.09 | .70/.94 | 13.46(244) | <.001 |
| Adjust your care to support the team's goals | 247 | 3.66 | 4.34 | .58/.78 | 12.95(246) | <.001 |
| Develop intervention strategies that help patients attain goals | 247 | 3.81 | 4.38 | .47/.68 | 10.92(246) | <.001 |
| Raise appropriate issues at team meetings | 212 | 3.72 | 4.34 | .51/.74 | 10.85(244) | <.001 |
| Recognize when the team is not functioning well | 245 | 3.46 | 4.15 | .58/.79 | 12.61(244) | <.001 |
| Intervene effectively to improve functioning | 245 | 3.20 | 3.90 | .59/.82 | 12.16(244) | <.001 |
| Help draw out team members who are not participating actively in meetings | 243 | 2.93 | 3.83 | .78/1.03 | 14.15(242) | <.001 |
| Total TSS Score | 255 | 3.68 | 4.28 | .52/.67 | 16.31(254) | <.001 |

*Scale: 1=poor; 2=fair; 3=good; 4=very good; 5=excellent

**Reflects original terminology when Team Skills Scale items were developed

***Paired t tests

Table 7. *Trainee-Reported Practice Changes at 6-month follow-up ATTP**

| | <i>n</i> | <i>%</i> |
|--|----------|----------|
| Increased Parkinson's caseload | 386 | 31 |
| Increased caregiver caseload | 376 | 23 |
| Development of Parkinson's programs or services | 400 | 41 |
| Development of or improvement in working in interdisciplinary** team | 400 | 47 |
| Parkinson's-related In-service to colleagues | 399 | 56 |
| Education to people with Parkinson's & families | 394 | 41 |
| Improved collaboration with colleagues from different disciplines** | 400 | 56 |
| Other on-the-job improvements | 399 | 65 |

*Additional trainee-reported practice changes at a more granular level are identified in Cohen, et al, 2016.

** Reflects original terminology used in questionnaire

ilities, IP Communication and Teams and Teamwork; IPEC Expert Panel, 2011 & 2016 Update) are embedded and reinforced throughout the course and particularly in the *Learning in Teams* modules. Inclusion of patient and caregiver panels conveys that patients and caregivers are important members of the overall team and appears to be a particularly effective teaching and experiential approach in healthcare education.

Our case study also confirms the following four critical factors for IPE success outlined by Clark et al. (2015) and others (Ekmecki et al., 2015; Oandasan & Reeves, 2005a; 2005b):

Organizational support and leadership were evident at multiple levels. The NPF vision established the foundation for IP collaboration in PD care and long-term commitment to IPE for its Centers of Excellence. Varied funding sources also demonstrated commitment and interest through multi-year funding. Many NPF Centers viewed hosting ATTP as their opportunity to develop a regional PD-informed, IP referral network for ongoing collaboration. Healthcare facilities enrolling workplace teams in ATTP, despite significant travel for some, showed commitments to building or strengthening a culture of integrated, IP-PD care.

Partnerships are considered the “golden thread” (Clark et al., 2015) in continuing professional development. Joint faculty curriculum planning and respecting faculty and evaluation feedback for program improvements, ensured that the program was “embraced rather than imposed” (Graybeal et al., 2010) and created strong faculty “buy-in” and camaraderie. The close collaboration

between NPF and host sites working out logistics was equally important. Many host site leaders became IPE champions, promoting robust team and individual enrollment, and demonstrating a commitment to IP collaboration and coordination in PD care.

Supportive learning environment: ATTP Team Values and Guiding Principles, developed early in the program (2002), set the stage for respectful IP communication, and listening at each training event. They reflect one of the IP Collaboration Core Competencies (Values and Ethics) identified in 2011 by an IPEC Expert Panel. Institutions sending employees who volunteered supported a worksite expectation for trainees to disseminate their new knowledge to colleagues and/or improve care delivery. The “continuous feedback loop” in the post-training debriefs fostered an “emergent responsiveness” centered on learner needs (Bain et al., 2014; MacDonalad, Archibald, Puddester, & Bajnok, 2011)

Positive practice changes are outlined here and in a previous publication (Cohen et al, 2016). ATTP encouraged trainees to define their own needs and areas for practice change, including program or service development, IP collaboration and teamwork or workplace in-service levels. Further research is needed to untangle which of the many ATTP processes were key in promoting practice changes.

The IPE literature encourages accelerated replication of successful IPE programs (Graybeal et al., 2010; Bain et al., 2014; Josiah Macy Jr. Foundation, 2013). It is hoped that, through this detailed description of the development, implementation, and evolution of a disease-spe-

cific IPE, healthcare providers /leaders will be encouraged to replicate or adapt the ATTP model in other neurodegenerative and chronic illness fields.

Limitations: There may be a self-selection bias since the majority of trainees were volunteers and likely more interested in either PD and/or integrated team-based IP care. Whether or not these findings can be generalized to targeted professions in the larger healthcare community is unknown. Self-report is subject to social desirability bias and learner reactions in IPE programs across the continuum tend to be very positive (Bain et al., 2014; Curran, Sharpe, Flynn, & Button, 2010; Hadjistavropoulos et al., 2010). Like all questionnaire data, these data were self-report and we believe accurately reflect the participants' perceptions. While it is reasonable to expect participants' perceived gains in knowledge would translate into improved practice and clinical outcomes, this study was not able to assess that through direct observational methods. However, confirmatory evidence from multiple ATTP trainee cohorts and data sources and objective measures (Cohen et al., 2016), provide added confidence for these self-report findings. While multiple testing could contribute to Type I errors, our more stringent alpha level of $p < .01$ was used to address this. Consistency of findings across trainings further reduces the likelihood of Type I errors based on multiple testing.

Strengths: There was a high (96%) participation rate in the program evaluation, including a cross-section of trainee professions, experience levels and work settings. ATTP data were collected in sequential waves, from 26 ATTP trainings, in different geographic regions over a 10-year period, thus lending greater confidence in the findings. There continues to be disagreement about how to effectively evaluate IPE programs. Clark et al. (2015) point out the "considerable conceptual and methodological challenges" (p.389) in IPE evaluation. They conclude that more rigorous methodologies (e.g. randomized controlled trials) are not suitable for studying IPE programs where there are often difficult-to-control or undefined variables preventing conclusions about a firm causal link between IPE and collaborative practice change or improved patient outcomes. In this regard, we believe our mixed methods approach contributed to the contextual and process understanding of the program and its evolution, while inclusion of a practice change measure enabled understanding of the differential impact of the program on attendees.

Concluding comments

ATTP is currently the only known IPE program in the PD field. Our evaluation has shown ATTP to be an effective IPE curriculum in PD for trainees from a range of professions, geographic regions, work settings, and experience levels, yielding improved PD knowledge, team skills, confidence in working with PD, and positive practice changes. Its processes are supported by the literature associated with successful IPE programs. These findings, and the successful iterations over ten years, suggest that the ATTP model could be replicated and adapted to other settings and other neurodegenerative and chronic illness areas, although the results of any replications or adaptations should be independently evaluated and assessed. With its positive outcomes, the ATTP model may well represent a *next practice* (Chandarana, 2017), teaching IP collaborative practice by embedding IP experiences and concepts within a disease-specific topic.

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Corresponding Author

Elaine V. Cohen, PhD
Research/Program Evaluation Consultant

142 West End Avenue #3T
New York, New York

elainevc14@gmail.com

Appendix A: Qualitative Data Content/Thematic Analysis Findings

| Section | Emergent Theme | Theme Definition/Coding Guide Including References to: | Program Document Examples* |
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| Key Program Processes | Building the Faculty Team | <ul style="list-style-type: none"> -Building faculty team & buy-in; joint planning by faculty -Faculty prerequisites -Expanding/ changing faculty | <ul style="list-style-type: none"> -ATTP had a designated core faculty of allied health professionals in the disciplines of Social Work, Occupational Therapy, Physical Therapy, Speech Pathology and Music Therapy. -Core faculty also decided on a uniform curriculum template (e.g. for Curriculum Books given to trainees) -The ATTP core faculty continued to have at least monthly conference calls to review and make decisions regarding curriculum and other areas essential to training |
| | Building the Curriculum | <ul style="list-style-type: none"> -Learning environment & culture of IP respect -Changes in curriculum modules & learning objectives -Developing curriculum modules, case materials & role play; patient/caregiver panels; -Building or restructuring team & PD modules | <ul style="list-style-type: none"> -The ATTP faculty member in each respective discipline designed the core content of their respective curriculum area (e.g. profession-specific) ... and presented to the entire core faculty for review and discussion of its integration into the entire curriculum. -Each morning (Days 2-4), the entire allied health faculty taught as a team. Motor, non-motor and caregiver aspects of PD will be taught from a collaborative perspective across professions. -Trainees moved into profession-specific modules to learn assessment and treatment techniques for their profession. -The faculty developed 5 videos of persons with PD and their caregivers, including diverse client populations (Hispanic, Asian and African-American) and diversity in stage of disease and challenges posed. |
| | Active Learning Methods | <ul style="list-style-type: none"> -Joint faculty teaching; engaged learning strategies; practice in teams; transfer of knowledge through reflective learning | <ul style="list-style-type: none"> -Imparted a knowledge base about teams, teamwork and outreach strategies to the underserved and rural communities. -The core faculty taught as an interdisciplinary team, thus modeling the very concepts being taught. -Faculty continued to refine their joint teaching modules, developing specialized interdisciplinary training in psychosocial and mobility issues, and cognitive assessment and treatment. -...Engaged learning through team-based, problem solving with "live" patient demonstrations/ case vignettes. -Faculty continued to move the curriculum toward more interactive, interdisciplinary and problem-centered teaching. Toward that end, plenary cross-profession sessions were developed on End of Life, Dealing with Depression and Understanding the Role of Each Profession. -...Teaching methods were designed to encourage trainee critical reasoning and participation. |

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| | Focus on Applied Collaborative Practice | <ul style="list-style-type: none"> -Practice in teams; transfer of knowledge through reflective learning; commitment to change practice. -Evidence-based tools/ protocols for immediate application in profession-specific practice. | <ul style="list-style-type: none"> -<i>Bridged gap between education and practice by placing all trainees in teams where they could immediately practice new skills.</i> -<i>Trainees were assembled into teams for integrated care planning in “team labs”...illustrating the stage of disease being discussed that day (e.g. Early, Middle or Late PD)</i> -<i>Trainees worked in their teams to discuss how to apply the training at their workplace by “doing things differently”. Teams shared their ideas with the larger group, encouraging suggestions about how to deal with challenges to teamwork and outreach at their work site.</i> |
| | Engaging/Promoting Networks | <ul style="list-style-type: none"> -Creating partnerships with community healthcare facilities or providers to build capacity for PD-informed community-based network. -Host site building of regional network of PD-informed providers in community & across care continuum. | <ul style="list-style-type: none"> - At some training sites, local funders sponsored a reception for trainees to network with each other and with local health providers. -Over time, local host site teams presented their structure, mix of professions, how they functioned and unique challenges. Some presented how they built their PD-informed regional community network. Local community groups interested in PD (e.g. Dance for PD) were allowed to present. |
| | Continuous Feedback Loop | <ul style="list-style-type: none"> -Evaluation of program and curriculum effectiveness and trainee qualitative feedback to faculty/program leadership. -Faculty pre-post debrief calls for program review and improvement | <ul style="list-style-type: none"> -<i>The faculty continued to review and enhance the curriculum after reviewing evaluation data from each training event.</i> -<i>In a continuous quality improvement environment, the core faculty incorporated trainee suggestions for improvement, although the curriculum overall has rather consistently received high marks from trainees.</i> |
| Program Evolution | Interdisciplinary** to IP Teamwork and Coordination | <ul style="list-style-type: none"> -Shift from the initial focus on interdisciplinary teams on-site to a broader network of coordinated PD providers across the continuum. | <ul style="list-style-type: none"> -Initial ATTP trainings focused on interdisciplinary** teamwork as the preferred model of integrated PD care. Although building collaborative relationships in the community was valued, the on-site interdisciplinary team was emphasized. Later trainings taught about network building and IP coordination across the continuum. |
| | Curriculum Enhancements | <ul style="list-style-type: none"> -Reframing PD curriculum to Early, Middle and Advanced stages -Increasing team interactive activities and varied case material. -Adding curriculum modules on role and responsibilities of different professions | <ul style="list-style-type: none"> -ATTP faculty teams re-designed the curriculum to fit into the Early, Middle and Late stage Parkinson’s disease format recommended by the curriculum consultant. -The faculty Team expert finalized curriculum modules on Team Self-Learning, Team Mechanics and Team Troubleshooting. -With the team expert, faculty jointly developed the Team Lab segment where trainees practiced interdisciplinary care planning in teams, learning about PD, team dynamics and successful team meeting strategies. |
| | Faculty Enhancements | <ul style="list-style-type: none"> -Hire of new faculty (movement disorder neurologists, RN’s; Team specialist) | <ul style="list-style-type: none"> -ATTP trained nurses and added a new nurse faculty with PD expertise. ATTP also included two Movement Disorders neurologists. |

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| Community Outreach to Community Partnerships/ Network Building | <ul style="list-style-type: none"> -Curriculum module change from cultural competence & health disparities to community outreach focus; -Teaching about building community partnerships and PD networks across the continuum. | <ul style="list-style-type: none"> -<i>The Social work core faculty member presented an outline for the cross-cultural component to ATTP faculty... that included “voices from the community” of different cultures regarding healthcare experiences...effects of culture on health beliefs and help-seeking behavior.</i> -<i>Every core faculty reviewed the accepted standards on cultural competence within their discipline, ...teaching those as well...</i> -<i>Trainees requested more information & examples of how to do community outreach and reach diverse populations not served.</i> |
| Implementation Challenges | <ul style="list-style-type: none"> Varied Experience of Trainees -Faculty concerns re: enrolling students still in training or those in “other” professions (e.g. PTA’s; OTA’s) who could not implement scope of practice being taught; -Pitching course content for wide range in enrollee professional experience. | <ul style="list-style-type: none"> -<i>Core ATTP faculty expressed concern that the core curriculum developed assumed a certain foundational knowledge of science (e.g. which some enrollees did not yet have.)</i> |
| Trainee/Host Site Recruitment | <ul style="list-style-type: none"> -Extensive time devoted to recruitment for 8 professions & work teams; -Extensive logistics e.g. faculty travel, honoraria, accommodations & meals; training space, (large rooms & smaller breakouts for profession-specific sessions, AV & tech support needs; materials management (Curriculum Book, handouts; table displays, etc.); CEU/ CME process for each training. -Ongoing contact with host site re: training arrangements; recruitment of trainees, panels; guest speakers. | <ul style="list-style-type: none"> -<i>The response from Universities has been overwhelmingly positive...with some university departments...interested in making the ATTP course credit bearing and a required course.</i> -<i>Recruitment has proven to be a time-consuming effort, given that it requires personal visits to faculty of five initial ATTP different professions in different Universities in each training region. Additionally, the recruitment of social work students and practitioners proved difficult. The broader vision of social work, which is incorporated in the ATTP curriculum, is not yet widely enough disseminated nor is it yet a reality in many health care facilities.</i> -<i>Some host sites successfully accessed organizations in their local network (e.g. local PD chapters) to fund networking receptions for trainees or scholarships to attend ATTP.</i> |
| Curriculum Module Time | <ul style="list-style-type: none"> -Faculty concerns re: profession-specific or team curriculum module teaching time. | <ul style="list-style-type: none"> -<i>During initial trainings, faculty expressed concern, in debrief calls, about reduced time with own profession trainees, requesting increased profession-specific teaching time. Similarly, in later trainings, reduction in team teaching time, based on trainee feedback and change to a 3½ day program, resulted in concerns about insufficient curriculum time.</i> |
| Multi-Day Time Commitment | <ul style="list-style-type: none"> -Extensive training time commitment of both faculty, enrollees, and especially work teams. | <ul style="list-style-type: none"> -<i>Teams of 2 or 3 were expected, since enrollment of a team of 5 professions from one facility was burdensome ...on patient care...since the training is a 4½ days. Recruitment of teams has proven to be a more difficult challenge. (This refers to initial trainings. In later trainings team recruitment is easier due to ATTP’s reputation & shorter 3½ day program.)</i> |

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| Funding Constraints | -Funding pressures and strategies; issues around reduced funding, shifts in funding or sustainability. | <p>-Loss of HRSA funding for all U.S. training programs was a turning point, solidifying NPF leadership commitment to continued funding of ATTP trainings until other funding sources could be located.</p> <p>-Reduction of pharmaceutical support in later years resulted in re-shaping ATTP into a blended shorter 3½ day program</p> <p>-Plans for several related initiatives (Annual 1-day Update Conference for ATTP graduates; Post-training Team Coaching sessions; Maintenance of database of ATTP graduates for referral) were not completed due to shortage of resources (staff time and funding).</p> |
| Evaluation of Complex IPE Program | -Evaluation plan strategy; decisions re: intervention level to assess; logic model; suitable measures; faculty consults re: program & profession evaluation. | -The evaluation plan was ambitious but could not be fully implemented due to limited resources e.g. resulting in very small unmatched control group; need to reduce paperwork; |

*Italics represent actual text. Non-italics represents interpretive comments; Abbreviations: PD=Parkinson's disease; IP=Interprofessional

**ATTP documents use original terminology (e.g. interdisciplinary vs. interprofessional)