GeriNotes

Academy of Geriatric Physical Therapy

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Editorial Statement: *GeriNotes* is the official magazine of the Academy of Geriatric Physical Therapy. It is not, however, a peer-reviewed publication. Opinions expressed by the authors are their own and do not necessarily reflect the views of the Academy of Geriatric Physical Therapy, APTA. The Editor reserves the right to edit manuscripts as necessary for publication.

IN HONOR/MEMORIAM FUND

Each of us, as we pass through life, is supported, assisted and nurtured by others. There is no better way to make a lasting tribute to these individuals than by making a memorial or honorary contribution in the individual's name. The Academy of Geriatric Physical Therapy has established such a fund which supports geriatric research. Send contributions to:

The Academy of Geriatric Physical Therapy | 3510 East Washington Avenue | Madison, WI 53704

Also, when sending a contribution, please include the individual's name and any other person you would like notified about your contribution. If you are honoring someone, a letter will be sent to that person, and if you are memorializing someone, the surviving family will be notified of your contribution.

In the field of geriatric physical therapy, we receive many rewards from our patients, associates, and our mentors. A commemorative gift to the Academy of Geriatric Physical Therapy In Honor/Memoriam Fund is a wonderful expressive memorial.

President's Message

Greg Hartley, PT, DPT

Engagement with your profession is important. Not just for the obvious reasons of networking, access to high quality education, confer-ences, peer-reviewed journals, advocacy and more; but also because there is a fair amount of evidence suggesting that engagement is positively associated with numerous desirable factors such as passion, organizational commitment, professional growth and development, patient satisfaction, job performance, and reduction in burnout risk. Professional associations, like the American Physical Therapy Association (APTA) and the Academy of Geriatric Physical Therapy (AGPT) rely on volunteers to accomplish many of our goals. We are guided by a mission/vision and strategic plan, assisted by staff, but fueled by volunteer members. Without the fuel, we do not move forward.

The APTA recently launched "APTA Engage," a web-based portal housing all volunteer opportunities within the APTA and all of its components (Academies, Sections, and State Chapters). This is a wonderful (and powerful) tool that allows members to look in one place for all opportunities available to them. When members log in, they are able to filter volunteer opportunities based on a variety of options, including those within AGPT. In other words, you can choose to see opportunities available from APTA national, AGPT, or your state chapter(s).

Members should go to https://engage.apta.org/home and "opt in." You can also access the Engage Portal on AGPT's website under Volunteer for the Academy here: https://geriatricspt.org/volunteer.cfm. You must opt into the Volunteer Pool first, then you may customize your profile (if you like…this is optional) so that you can be better matched to opportunities that interest you most or those you qualify for when specific skills are needed. Then, just start looking! That is all that is required for you to begin browsing all the ways you can volunteer. The AGPT has posted a number of volunteer opportunities. Each opportunity includes a brief description of the job or task, and an estimated time commitment. Some tasks may only require a few hours to complete. (One and done!) Other jobs may be longer term and require more time. The choice is yours. You apply for positions right in the system. No lengthy application or separate email is necessary. When you apply, the AGPT will receive notice of your interest and you will be contacted directly.

At the time of this writing, volunteer opportunities within AGPT and listed on APTA Engage, include Communications Committee: Social Media Subcommittee, and Marketing/PR Subcommittee; Education Committee: Committee Chair, Online Education Subcommittee, and Academic Program Education Subcommittee; Membership Committee members; and State Advocate positions for South Dakota and Alaska.

The AGPT welcomes all interested members to apply for volunteer positions or tasks. We can always use your help, and we are always looking. Service to your professional association is a great way to build leadership skills while fueling the association and fulfilling a sense of personal satisfaction that may have more benefits than the obvious. Volunteer and be a part of leading AGPT's 5,500+ members in making a meaningful professional and societal impact. I hope to see you soon.

Editor's Note

Michele Stanley, PT, DPT

You are a member of IPTOP (all Academy of Geriatric Physical Therapy members are members also of IPTOP - the special interest group for older people) of the World Confederation of Physical Therapy (WCPT). The immediate Past President of IPTOP and a former Editor of *GeriNotes*, Dr. Jennifer Bottomley just completed **8 years** in which she greatly expanded the visibility and membership of IPTOP. Thank you, Jenny! And congratulations Dr. Lucy Jones on being elected Treasurer; the Academy of Geriatric Physical Therapy (AGPT) will again be represented on the executive board for another 4 years! Lisa Dehner, PT, PhD, is the AGPT representative to IPTOP and would love to clue ***you*** in on how to get more involved in the 450,000 strong international voice of physical therapy. She can be reached at lisa.dehner@msj.edu.

It is the end of May as this is written and by the time you get this, NEXT will have come and gone and the programming for CSM should be set. Remember to mark your calendars for CSM 2019: February 12-15 in Denver, Colorado. This means that we are also moving right along to the deadlines for jumping into PDPM and PDGM. Despite fears, this will not be the death of anything as we know it. As promised last month, we will be featuring some add-ons or alternate physical therapy practices that you can personally consider to diversify and solidify your career. Consider adding yoga to your practice: the Garners are back with article 2:3 detailing great ideas to add this evidence-based exercise format to your practice. Is Telehealth an option for you to consider? Read Karen Blood's article. Lise McCarthy explores becoming a fiduciary as an alternative way to use physical therapy training for a career not governed by insurers. Nola Peacock offers some fresh insight into making a home exercise program a community affair. Rick Black explores expanding into a global health. Lots of options to consider…and we have more and varied ideas coming next month as well. If you have a unique practice twist, please share!

The AGPT and the National Coalition on Aging (NCOA) are working on an exciting partnership! Readers of *GeriNotes* will be the first to benefit as they debut their collaboration in two articles in this issue including Vicki Mercer's details on how to start an innovative, research-based, community changing practice; we include a direct link to a printable how-to manual. In total, this collaboration will detail 3 different practice models (September 2019 and January 2020).

The AGPT does not endorse specific products, employers, or manufacturers although we do encourage purveyors to advertise within our pages. *GeriNotes* does encourage information sharing and case reports including those in which the therapist has used a specific product – particularly if that product is innovative and not likely familiar to most of our readers or a familiar technique or product used in an innovative way. Most practices do not have unlimited budgets for exposing clinicians to niche products… so if you have found a technique/strategy/product that has worked well – or one that does not measure up, you are encouraged to write up a detailed review and case report with objective measures. See Rebecca Tarket's case report

Speaking of sharing, please consider joining the Geriatricspt listserv. It is free, it is moderated –so no spam, no selling of email addresses, and you can choose how often you would like to get messages. You also do not have to be an American Physical Therapy Association member (although that is our goal) – what better way to give colleagues a taste of what is going on in the profession and all the great information to be exchanged than inviting them to try the listserv. Go to https://groups.yahoo.com/neo/groups/geriatricspt/info. Give your name and professional credentials (PT, PTA, etc). You will need to create a Yahoo e-mail (if you do not have one) for your username but can link it to your "real" e-mail for convenience. I predict a lot of story sharing as we change our payment basis. Also the listserv is a great way to encourage more members to join your SIG.

Older adults account for more than 25% of all emergency department (ED) and urgent care patient encounters although are less than 20% of the general population. ***IF you*** work in an acute care setting or clinic, ***you need to be represented as a first line of care*** in the ED or urgent care to make sure that older adults are treated in a comprehensive manner that includes assessment of safety, fall risk, and appropriate pain/injury management. The first ever Emergency Physical Therapist Inaugural Conference will be held in in Denver, October 25-26, 2019 and piggy-backs off of the annual ACEP conference (American College of Emergency Physicians). Conference fees are only $50. Contact cjogodka@hotmail.com for a registration form. Represent AGPT and the unique needs of our patient population. On a related note, check out the podcasts of GEMCAST: A series of free lectures on clinical topics that is offered by ACEP to help medical staff who take care of older adults, particularly in the acute care setting, https://gempodcast.com.

INTRODUCTION TO SERIES

Evidence-based Programs and Your Practice
A Foundation for Value-Based Care

Tiffany E. Shubert, PT, PhD; Jennifer Tripken, EdD, CHES; Jennifer Vincenzo PT, MPH, PhD; Lori Schrodt, PT, PhD; Jennifer Brach, PhD, PT; Patrice Hazan PT, DPT, MA; Colleen Hergott PT, MEd, DPT; Jennifer Sidelinker, PT, DPT

How many times do you feel frustrated because your patient…

- complex health conditions or social issues requiring more time than you can give?
- Is not ready or able to adhere to a home exercise program?
- Needs a structured exercise program to continue to improve upon the gains made in physical therapy?
- Needs a structured exercise program that takes into account their chronic health conditions and achieves the recommended guidelines of physical activity for older adults?

The Academy of Geriatric Physical Therapy (AGPT) has partnered with the National Council on Aging (NCOA) to author a 3-part series designed to empower physical therapists and physical therapist assistants to address these challenging and common situations. The NCOA is a nonprofit, charitable organization that provides a national voice for older Americans. The mission of the NCOA is to "improve the lives of millions of older adults, especially those who are struggling." The NCOA does this through 3 initiatives - Healthy Living, Economic Security, and Public Policy. The NCOA also partners with nonprofit organizations, government, and business to provide innovative, evidence-based community programs and services, online help, and advocacy for people 60 years of age and older. One such partnership is with the AGPT, a component of the American Physical Therapy Association. The AGPT mission includes "building a community that advances the profession of physical therapy to optimize the experience of aging." This partnership promotes the use of evidence-informed practice and the dissemination of information and best practices to physical therapists and physical therapist assistants to create successful and sustainable community partnerships for the benefit of older adults. The AGPT is also dedicated to partnering with the NCOA to expand the reach and influence of the role of the physical therapist in health promotion and wellness for older adults. Over the course of the next several months resources will be available on the NCOA and AGPT websites to help physical therapists and others invested in the health and well-being of older adults hone in on program identification and community partnership development.

The NCOA has been instrumental in increasing sustainability, use, and access to evidence-based programs (EBP). The NCOA also houses the National Chronic Disease Self-Management Education (CDSME) Resource Center and the National Falls Prevention Resource Center.

As mentioned previously, in the coming months, you will have access to a series of articles to increase your knowledge and confidence in creating and sustaining feasible and successful clinical-community partnerships. These partnerships bring value to you and the patients you serve. Each article will: (1) address an aspect of EBP; (2) use a case study to illustrate integration of evidence-based programs with clinical practice; and (3) highlight partnerships demonstrating successful clinical-community connections.

Article 1—What are evidence-based programs and why should I care?
Practice Highlight—"Innovative Academic-Comm-unity Partnerships for Evidence-based Fall Prevention in Rural and Underserved Areas" The Community Health and Mobility Partnership (CHAMP)

Article 2—How do I find and refer patients to programs?
Practice Highlight—"Clinical-Community Connections - Building a Continuum of Care with Senior Centers, YMCAs, and Other Community Partners"

Article 3—What is the value to my practice, my patients, and my community?
Practice Highlight—"Clinical-Community Partnerships - Building a continuum of care within your own practice"

The National Council on Aging was founded in 1950 as the first charitable organization in the United States that would provide a national voice and advocacy for older Americans. It remains the leading nonprofit organization to advocate services, resources, and initiatives to improve the lives of older adults.
https://www.ncoa.org/

What Are Evidence-based Programs and Why Should I Care?

Tiffany E. Shubert, PT, PhD; Jennifer Tripken, EdD, CHES; Jennifer Vincenzo PT, MPH, PhD; Lori Schrodt, PT, PhD; Jennifer Brach, PhD, PT; Patrice Hazan PT, DPT, MA; Colleen Hergott PT, MEd, DPT; Jennifer Sidelinker, PT, DPT

Editor's Note: This is Article 1 in a series of upcoming articles that will print in subsequent issues of *GeriNotes*.

"Physical therapists have the expertise and the opportunity to help individuals and populations improve overall health and prevent the need for avoidable health care services".

In 2016, The APTA House of Delegates published this description of the physical therapist's role in prevention, wellness, fitness, health promotion, and management of disease and disability. This statement suggests interactions with our patients may need to extend beyond an episode of care. However, for clinicians, practices, and agencies working with older adults, extending physical therapy services into health and wellness may not be feasible due to current billing and reimbursement models. This poses a significant challenge. Older adults with chronic health conditions require support and guidance to "prevent the need for avoidable healthcare services." Physical therapists are strategically positioned to facilitate a continuum of care for our older patients to achieve this goal, but significant challenges often limits achieving this in our own practice setting.

Enter community partners. Partners can be found at the national level like the National Council on Aging (NCOA) or the International Council on Active Aging (ICAA), and in your own community (eg, senior centers, YMCAs, Area Agencies on Aging). These community-based organizations (CBOs) are assuming new roles in the areas of public health and prevention. As such, they offer evidence-based programs (EBP) to give older adults the tools to better manage their own health and wellness. Programs equip participants to manage a variety of aspects of health, such as increasing levels of physical activity, reducing fall risk factors, and managing chronic health conditions. An added benefit is that patients participating in these programs are often better able to communicate with health care providers and engage with physical therapy. There are opportunities to identify CBOs in your own community and learn about the programming they offer. Partnerships can be developed with these organizations, providing your patients with an opportunity to attend an EBPs that aligns with their wellness goals. These partnerships can provide significant value to both entities - the clinician now has a community partner providing quality programming, and the CBO has a PT in the community they can refer clients to for health education, falls screening and for PT consultation.

A BRIEF HISTORY

Where did these programs come from? First, demographics have driven the need to identify alternative methods to manage older adult health. In 2015, older adults accounted for approximately 15% percent of the United States (U.S.) population, and for the first time in history, older adults are projected to outnumber children by the year 2035. Many older adults have one or more chronic conditions, which can limit their physical function and challenge their ability to live independently. As of 2018, there were 6,910 board certified geriatricians (physicians), and 2,418 Geriatric Certified Specialists (physical therapists) in the U.S. The sheer numbers of older adults living with chronic health conditions combined with a limited number of providers and concerns about costs have created opportunities to assess whether community-based programs are a feasible and effective disease-management solution.

In the early 2000's, the NCOA strategically partnered with the Administration for Community Living (ACL, national level) and the aging services networks (state and regional levels) to identify, document, and implement disease prevention and health promotion programs based on scientific evidence. The results of this early work strongly supported the efficacy of standardized, community-based programs to achieve improved health and wellness outcomes and spawned the development and validation of several new programs. The results were so compelling that in 2012, the U.S. Congress required that all senior centers include evidence-based programs in their selection of member patient offerings to receive federal funding.

WHAT IS AN EVIDENCE-BASED PROGRAM?

Evidence-based programs, offer effective ways to improve health and well-being by reducing disease severity, disability, and/or injury among older adults. These programs are based on rigorous research, provide documented health benefits, and have mechanisms in place to ensure standardized program delivery. To be recognized as an EBP, a program must meet the requirements for ACL's Evidence-Based Definition (Figure 1).

There are four broad categories of evidence-based programs: (1) falls prevention, (2) general wellness and physical activity, (3) chronic disease self-management, and (4) behavioral health. A list of approved programs is available on the National Council on Aging's website (https://www.ncoa.org/wp-content/uploads/Title-IIID-Highest-Tier-EBPs-January-2019.pdf)

Each EBP has a standard set of elements that stakeholders such as physical therapists, older adults, caregivers, and

1. Demonstrated through evaluation to be effective for improving the health and well-being or reducing disease, disability and/or injury among older adults; *and*
2. Proven effective with older adult population, using experimental or quasi-experimental design; *and*
3. Research results published in a peer-review journal; *and*
4. Fully translated in one or more community site(s); *and*
5. Developed dissemination products that are available to the public

Figure 1. Administration for Community Living/Administration on Aging (ACL/AOA) criteria for evidence-based programs

other providers can refer to (Figure 2). To achieve the proven benefits, the program goals should align with the patient's goals, and the patient should fit the description of the target audience. For example, A Matter of Balance (AMOB) describes the target audience as adults 60+ who are ambulatory, able to problem solve, concerned about falling, interested in improving flexibility, balance and strength and have restricted their activities because of concerns about falling. Individuals who do not meet this description can still attend the program, but there is no guarantee they will achieve the same benefits.

Getting Started

The next article in this series will provide a step-by-step description of how to find programs and develop partnerships in the community. To get started in this process, go to the NCOA website at www.ncoa.org, which is considered the best source to learn more about the individual EBP programs. The NCOA's Center for Healthy Living page (https://www.ncoa.org/healthy-aging/) provides descriptions and additional information for all available EBPs programs.

Target Population Described
Measurable Goals
Program Rationale
Program Benefits
Program Structure and Time Frame
Staffing
Facility and Equipment Required
Program Evaluation
Fidelity Checklist

Figure 2. Key components of Evidence-based Health Promotion Programs

Another resource for clinicians to identify community partners is through participation in events such as Active Aging Week (AAW) (October 1-7, 2019). This annual event is sponsored by the International Council on Active Aging (ICAA) to promote active aging. It is a great opportunity to learn more about community organizations invested in promoting wellness activities in your local area. Traditionally senior centers, retirement communities, Area Agencies on Aging, health care and other aging and wellness partners celebrate AAW by offering a variety of free (and fun!) programs. Individuals have the opportunity to experience exercise and other healthy aging activities throughout their communities. Anyone can get involved and offer one or more programs which typically include group exercise classes, health fairs, educational events, group walks, dances, and arts and craft classes. Some of these same organizations may also offer EBPs. Consider partnering with other community agencies to expand your reach. Visit www.activeagingweek.com to learn more.

CASE STUDY

How EBP Can Be Integrated Into Your Practice

Anne is an 83-year-old retired journalist, living in a single family home with her spouse, Larry. They recently moved into the area to "downsize" and be closer to their extended family. Anne is overweight (BMI 33). She has hypertension that is controlled by medication and a history of arthritis in both knees with a right total knee replacement five years ago. She hasn't had any falls but does report fear of falling, and has a slow walking speed (0.7 m/s). Anne has not participated in regular exercise since moving to the community, and her activity level had been limited to household "puttering" prior to the move.

Larry is receiving physical therapy (PT) to address shoulder pain which is limiting his ability to participate in his usual activity of playing 18 holes of golf twice a week. One day, Anne picks up Larry from his PT appointment. While waiting in the reception area, she sees and fills out the Centers for Disease Control's "Stay Independent" brochure. This is a fall risk self-assessment handout on display in the waiting room. She inquires about the "free consultation" with a physical therapist that is offered with the brochure. The PT reviews Anne's answers to the Stay Independent self-assessment/questionnaire, and completes the STEADI screen. Anne scores at moderate risk per the STEADI and the PT determines that Anne's fear of falling is what is most functionally limiting. Larry has raved about his PT, and Anne quickly sees why Larry is so impressed.

The PT explains the objectives, format, goals, and benefits of the A Matter of Balance (AMOB) program. Per the NCOA website, "AMOB is an 8-week structured group intervention that emphasizes practical strategies to reduce fear of falling and increase activity levels. Participants learn to view falls and fear of falling as controllable, set realistic goals to increase activity, change their environment to reduce fall risk factors, and exercise to increase strength and balance". The physical therapist recommends that Anne attend the program when it is next offered, starting in 2 weeks at the local senior center. The PT offers to connect Anne with one of her patients who completed AMOB earlier this year to answer any questions she may have. Anne takes her up on this offer. Larry encourages Anne as well. The PT explains to Anne that she would also benefit from physical therapy to improve her level of mobility in the community, and timing of that would be best after completing AMOB. The PT recommends that Anne follow up with her after attending the AMOB program to discuss next steps.

Anne attends AMOB, which results in a significant improvement in her confidence to manage her own fall risk. Anne now sees the benefit of exercise, especially in relationship to managing her fall risk, and wants to start an exercise routine. Anne befriended a few ladies in the AMOB group. One of Anne's

new buddies convinces her to join the Tai Chi class that is offered at the local YMCA. Anne is motivated to participate in Tai Chi, but decides she needs a more thorough assessment from the PT first. She now feels ready to work on improving her strength and stamina to take on some of her recent physical challenges, such as walking in her garden and in her community, and getting on and off the floor to be able to play with her great grandchildren. She is highly motivated to create goals with her physical therapist. She's even wondering if her physical therapist can help her learn to get in/out of the family boat that they use to visit a lake house in Canada every summer... Anne hasn't gone in the last 3 years. She has become fond of an expression her physical therapist introduced her to…. YOLO! (You Only Live Once!)

Tiffany E. Shubert, PT, PhD, Founder and Clinical Architect, Shubert Consulting, Chapel Hill, North Carolina. Dr. Shubert has provided over 10 presentations at CSM since 2012. She has also presented platform, poster, and teaching sessions at several national and international conferences.

Jennifer Tripken, EdD, CHES, is the Associate Director of the Center for Healthy Aging at the National Council on Aging. Dr. Tripken has been involved in the provision of evidence-based services for older adults for over 8 years and has presented at various national and international conferences. Dr. Tripken also has over 7 publications in peer-reviewed journals in the field of public heatlh.

Jennifer Vincenzo PT, MPH, PhD, is an Assistant Professor with the department of Physical Therapy at the University of Arkansas for Medical Sciences. She is a board certified geriatric clinical specialist in physical therapy with over 20 years of clinical experience treating older adults. Dr. Vincenzo also has her Masters in Public Health and is a Certified Health Education Specialist. She has presented 4 platform presentations and 1 symposium at the Combined Sections Meeting, and chaired a symposium at the Gerontological Society of America yearly meeting. She has also presented numerous posters and educational sessions at other state, regional. and national conferences.

Lori Schrodt, PT, PhD, is a professor the Department of Physical Therapy at Western Carolina University (WCU;Cullowhee, NC) and is the lead physical therapist of the WCU Balance and Fall Prevention Clinic. Dr. Schrodt has presented 9 sessions at CSM as well as numerous posters and educational sessions at other several state and national conferences.

Jennifer Brach, PhD, PT, is a Professor in the Department of Physical Therapy at the University of Pittsburgh, Pittsburgh, PA. Dr. Brach has over 20 years of research experience in the areas of aging, mobility and exercise and has presented at various local, national and international conferences.

Patrice Hazan PT, DPT, MA, is founder and CEO of GroupHab,® an innovative PT clinic pioneering an alternative model of PT care including PT designed and supervised group exercise classes- an alternative model of PT care with long term solutions to keep patients well.

She has a Doctorate in Physical Therapy from Des Moines University and a Master's degree in Gerontology from Roosevelt University. In addition, she is a GCS, a member of the Academy of Geriatrics, a member of PPS, and a member of ACSM. She has presented this model at CSM, SCAPTA, and PPS annual conventions. Patrice has been published in numerous publications, including the American Physical Therapy Association *PT in Motion* for her ground-breaking work.

Colleen Hergott PT, MEd, DPT, GCS, ACSM-RCEP, is an assistant professor in the department of Physical Therapy at Augusta University. She is a board certified geriatric clinical specialist, NDT certified and an ACSM registered exercise physiologist who maintains a current practice in skilled nursing.

Jennifer Sidelinker, PT, DPT, is a Vice President of Clinical Services and the Director of Physical Therapy for Genesis Rehab Services. Jennifer achieved Board Certification as a Geriatric Clinical Specialist in 2005, and was recertified in 2015. She was honored in 2005 by the APTA Section on Geriatrics award for Clinical Excellence in Geriatric Practice. Jennifer has been a leader in development and dissemination of Balance In Action®, the Genesis organization's evidence-based care delivery model for fall risk management. Balance in Action was recognized as an innovative program at the 2013 APTA Innovation Summit. In addition to her role with Genesis, Jennifer is an active member of the Pennsylvania Falls Coalition, APTA PAC Work Group, and AGPT/NCOA partnership project.

A Matter of Balance is an 8-week structured group intervention that emphasizes practical strategies to reduce fear of falling and increase activity levels and is a program approved by the NCOA.
Participants learn to view falls and fear of falling as controllable, set realistic goals to increase activity, change their environment to reduce fall risk factors, and exercise to increase strength and balance. Group classes are conducted by trained lay leaders with supplemental training by either a physical or occupational therapist at one of the sessions. This program was developed at the Roybal Center at Boston University.
To become a master trainer and offer A Matter of Balance in your community, go here: *https://mainehealth.org/healthy-communities/healthy-aging/matter-of-balance/master-trainer-session-information.*

Haynes M, League P, Neault G. A matter of balance: older adults taking control of falls by building confidence. *Front Public Health.* 2015;2:274. Published 2015 Apr 27. doi:10.3389/fpubh.2014.00274

Innovative Models
Innovative Academic-Community Partnerships for Evidence-based Fall Prevention in Rural and Underserved Areas

Vicki Mercer, PT, PhD

Evidence-based programs can be integrated into practice in a variety of ways. This is the first of 3 innovative models that will be highlighted in *GeriNotes* over the coming months. The Community Health and Mobility Partnership (CHAMP) program is an example of how physical therapists can partner with Community-based Organizations to provide evidence-based interventions for older adults. Dr. Vicki Mercer developed the CHAMP program to leverage a variety of resources, including interprofessional education training initiatives for students, community-based organizations, and local health care providers, to disseminate the Otago Exercise Program (OEP) to older adults in rural and underserved settings. Dr. Mercer specifically selected the OEP to ensure that all appropriate clients receive a standardized, proven intervention for managing fall risk, regardless of implementation model. The CHAMP program is available for other health care professional training programs to disseminate.

1. **Program Overview and Original Research:**
   The CHAMP program is designed for older adults to improve their health and decrease their risk of falling. CHAMP events are held once a month at community sites accessible to older adults, such as senior centers and wellness centers. At CHAMP events, older adult participants with concerns about balance and/or mobility undergo comprehensive screening for falls risk factors by a team of health professional students, faculty, and clinicians, including nurses, physical therapists, and/or physical therapist assistants. At least one licensed physical therapist is present at every CHAMP event. The screening process includes assessment of medical history, blood pressure, cognition, mood, medications, muscle strength, balance, and mobility.

   Participants at increased risk for falls and appropriate for intervention through CHAMP are given an individualized home exercise program based on the OEP.[1] This is a set of evidence-based strengthening and balance exercises that older adults can perform safely at home. CHAMP participants are instructed in their exercises and scheduled for at least two follow-up CHAMP appointments. At each follow-up, the interprofessional team re-evaluates the participant's status and progresses the exercises as appropriate.

   The original OEP, developed in New Zealand, has demonstrated effectiveness in preventing falls in community-dwelling older adults.[2] The program was delivered in people's homes by physical therapists. In a series of 4 controlled trials involving 1016 people between 65 and 97 years of age (mean age = 82.3 ± 4.6 years), the Otago program reduced by 35% both the number of falls and the number of injuries resulting from falls.[3-7] The greatest benefits were obtained for participants 80 years of age or older.[2] An assessment of the overall effects of the trials showed that exercise group participants had significant improvements in strength and balance measures compared to a control group that received usual care and social visits.[2]
2. **Partners - Any of the required partners can build the network to establish a CHAMP program. In other words, the CHAMP program leader can be an academic, community, or health care partner.**
   a. Partners –The following partners are essential to implementation of CHAMP with fidelity:
      i. University of North Carolina at Chapel Hill (UNC-CH), Division of Physical Therapy (lead dissemination organization)
      ii. a health professional degree program (physical therapist assistant, physical therapist, and/or nursing program)
      iii. an organization that provides health care services in the community (eg, hospital, private physical therapy clinic, wellness center, public health department)
      iv. an organization, such as a senior center or continuing care retirement community, that serves older adults.
   b. Roles & Responsibilities –
      i. The University of North Carolina at Chapel Hill is the lead organization for the CHAMP program. UNC-CH is responsible for supporting the dissemination of the CHAMP program. Groups interested in implementing CHAMP should first contact UNC-CH (email: champ@unc.edu) to access CHAMP implementation and training materials.
      ii. *Academic partners (health professional degree programs)* are responsible for providing faculty and students to staff CHAMP events.
      iii. Health care organizations provide staff coverage at events and furnish some small equipment (eg, massage table) and supplies (eg, stethoscopes, sphygmomanometers).

iv. Senior centers or similar organizations provide space for CHAMP events, although events may take place at health care facilities as well. Personnel at either health care organizations or senior centers are responsible for signing up older adult participants and making reminder phone calls to the participants prior to each event.

c. Value –

i. Academic programs - CHAMP events provide rich opportunities for interprofessional education in falls risk assessment and intervention. Students practice assessment and intervention skills with real older adult clients, and have opportunities to work alongside peers from other schools and/or disciplines.

ii. Health care organizations - CHAMP provides positive public relations associated with community service, continuing education for employees that occurs as part of CHAMP training and implementation, referrals for older adult participants who need more intensive or specialized health care services, and exposure to students who may be interested in becoming future employees.

iii. Senior centers and similar organizations - CHAMP is an evidence-based program that may be viewed as a benefit for current clients and may attract new clients.

3. Research – Results of surveys of CHAMP providers, students, and participants in the first 2.5 years of the program were reported by Mercer et al.[8] More than 94% of participants rated the program as "very good" or "excellent," and 100% reported they had experienced physical benefits from participating. All participants had a favorable view of student participation. Analyses of CHAMP data for 2009 through 2017 revealed small but significant improvements from the initial visit to the second follow-up visit in all 3 physical performance measures. Mean scores improved from 29.5 seconds to 31.5 seconds (p=.001) for the Four Stage Balance test, from 12.7 seconds to 11.9 seconds (p=.021) for the Timed Up and Go, and from 0.258 stands per second to 0.290 stands per second for the Chair Rise Test (timed chair stands).

4. Target Audience – Community-dwelling older adults or those living in assisted living communities who have concerns about their balance and/or mobility.

5. Supplies Required – Massage table or portable plinth for orthostatic blood pressure assessment, sphygmomanometers, stethoscopes, pulse oximeter(s), hand grip dynamometer, adjustable ankle weights (Velcro) to give to participants; consult with CHAMP Program Director at UNC-CH for complete list. A fax machine and a copier should be available at the health care facility or senior center where CHAMP events are held.

6. Cost – Start-up costs vary, depending on the equipment already available at the selected CHAMP location, but generally are less than $3000 total. Depending on the lead partner, there may be administrative overhead to manage the program (advertising, recruiting, scheduling). The lead organization should budget 4% to 5% full-time employees to coordinate CHAMP events and oversee program implementation at the local level. Annual costs include maintaining office and participant supplies (such as adjustable ankle weights given to participants). These costs typically average <$500 per year. Some CHAMP locations furnish lunches to health care providers at CHAMP events, adding ~$500 to the annual cost.

7. Lessons Learned – (1) CHAMP must function as a true academic-community partnership, with all partners involved in decision-making, (2) location of CHAMP events is critical for reaching older adults, and should be at a place frequented by the target population (senior centers and wellness centers are good locations), (3) each location must have a Team Leader who is a "champion for the program" and will be a stable presence in the local community.

8. Training & Support Materials

a. CHAMP providers complete online Otago training ("Otago Exercise Program: Falls Prevention

Partner(s)	Responsibilities
Local Team	1. Contact CHAMP program director at UNC champ@unc.edu 2. Form CHAMP team and identify a Team Leader
CHAMP Program Director (at UNC-CH)	1. Offer consultation to local team regarding CHAMP start-up 2. Ensure training is available to team
Local Team	1. Team to complete training 2. Identify a location for CHAMP events 3. Create CHAMP schedule 4. Plan workflow 5. Obtain equipment & supplies
Team Leader	1. Implement data capture system 2. Publicize CHAMP event
Academic Partners	1. Complete training for students 2. Coordinate student scheduling in accordance with CHAMP policies
Local Team	1. Hold CHAMP events 2. Communicate with each participant's PCP after initial evaluation 3. Facilitate follow-up phone calls 4. Refer to other providers as indicated
Team Leader & CHAMP Program Director	1. Ensure implementation fidelity 2. Collect data to evaluate program effectiveness

Training") available at: http://www.aheconnect.com/newahec/cdetail.asp?courseid=cgec3

b. Additional resources and support materials are available on the CHAMP website: https://nc-champ.org

9. Program Implementation

How -To Guide – The table below shows the steps for starting a CHAMP program at a new location. These are the "big picture" steps for identifying a need for CHAMP, creating a team, determining a specific location and schedule, and actually beginning to implement the program. The CHAMP manual provides all of the details concerning procedures for each event (questionnaires, tests and measures, exercise intervention, need for referral, etc).

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Vicki Stemmons Mercer, PT, PhD, is an Associate Professor in the Division of Physical Therapy and Director of the PhD Program in Human Movement Science at the University of North Carolina at Chapel Hill (UNC-CH). Dr. Mercer's teaching, research, and clinical interests focus on improving postural control and preventing falls in older adults and individuals with neurological disorders. She started the Community Health and Mobility Partnership (CHAMP) program in western North Carolina in 2009.

Policy Talk: Federal Affairs Forum

Guest Writer, J. Kele Murdin, PT, MPT

Attending the 2019 Federal Affairs Forum in Washington, D.C., March 31-April 2, for the third time, reinforced again the importance of advocacy for our profession, Physical Therapy.

After 20 years, the Medicare cap was finally resolved. Therefore, this year, for the first time in 20 years, APTA advocates had the opportunity to talk about something other than the Medicare cap. It opened the door to focus our efforts on educating legislators on APTA's Public Policy Agenda. The 2019-2020 APTA Public Policy Agenda is comprised of 4 overarching themes of federal advocacy for the next 2 years. Those 4 themes were: Population Health, Patient Choice and Access, Value-Based Care and Practice, and Research and Innovation. For more information on the APTA public policies go to: http://www.apta.org/FederalIssues/PublicPolicyPriorities/.

In all 6 of the meetings I attended with Senators and House members of Washington State, the discussions around our public policies quickly segued into how Physical Therapy is the profession of choice to help address the opioid epidemic, a very current and sensitive topic for the legislators. We discussed the benefits of direct access to physical therapy for same day treatment of pain verses the current process of seeing a physician, receiving a prescription, and a delay of physical therapy treatment for often 1 to 2 weeks. Legislators were surprised to learn all states have some version of direct access, yet public

awareness and use is quite low. In addition to the lack of public awareness of direct access, payment from Medicare and Medicaid is dependent on physician certification of the physical therapy plan of care which can also be a major barrier to direct access.

The issue of limited access was also highlighted when we asked for support to add Physical Therapists as providers available in Community Health Centers (CHCs). Community Health Centers offer a range of primary health services in rural and urban underserved areas, often funded through Medicaid. Currently, there are no rehabilitative care providers offered in CHCs. Opening access to physical therapy could provide another avenue to address chronic and acute pain.

More discussion around access evolved when we asked for their support to add Physical Therapists to the National Health Service Corp (a federal loan repayment program for rural and underserved areas). This program offers loan repayment with an agreement to work for a certain amount of time to health care providers in rural and underserved populations. These populations are often the most vulnerable, in addition, are often the ones who would benefit most from timely care. In 2013 the HRSA reported 5,864 designated primary care shortage areas in the United States. The fact that both (community health centers and the National Service Corp) organizations do not include physical therapy was also a surprise to most legislators. They were very receptive to discussing these as opportunities for physical therapists to be on the front line in offering a nonpharmacologic intervention for pain.

Our conversations with the Legislators were smooth, frank, and genuine on both sides. The sentiment of openness was prevalent in all discussions which was very refreshing. The staff had a variety of health care backgrounds: one staff was from the National Institute of Health, another had extensive physical therapy herself, and another was a dietician. All were very receptive to our issues. This raising of awareness is why we do this. These people were simply not aware of these problems that face our profession, nor were they aware of the scope and breadth of the care we offer. What an amazing opportunity to participate in a conversation with people in a position to help move toward closing that gap. I am very grateful to be able to represent our profession in this way.

As I fly home, I am moved by the feeling of connection generated within our group of diverse therapists who attended from my state. I believe we all experienced the feeling of 'we are all in this together.' I know we all shared a strong and common interest in educating legislators about what our broad field offers to the entire life span, across all settings, and vast array of specialties. Our Washington group was comprised of therapists with a variety of experiences: outpatient, skilled nursing, individual private contractor, and students. In all our diversity, it seemed we had a common mission and goal of educating. I am surrounded by a diverse team bound by a deep, common interest. With that, we all return to our settings invigorated, and even more excited to do what we do for our patients, knowing we are a part of something much bigger than our clinic/building/office. Thank you for the opportunity to serve and share my story!

Kele Murdin, PT, MPT, GCS, GTS, CEEAA, FOSAE, received her Masters in Physical Therapy from Wichita State University in 2000. She worked in Skilled Nursing setting from 2004 until 2014, and now serves as a Clinical Knowledge Broker for Infinity Rehab. Her passion for Geriatrics and excellent patient care fueled her to pursue Board Certification as a Geriatric Specialist in 2009 from the APTA, a Certification as an Exercise Expert for Aging Adults in 2013 from the Academy of Geriatric Physical Therapy, and a Geriatric Certified Specialist certification from Great Seminars in 2016.

Kele also has been an adjunct professor at the University of Puget Sound's DPT program in Physical Agents, Basic Skills, and Adult Systemic Diseases. She has been involved teaching the PTA program at PIMA in Seattle.

She is the State Advocate for the Academy of Geriatric Physical Therapy in the State of Washington. She is the founder and chair of the Geriatric Special Interest Group (SIG), and serves as the Federal Affairs Liaison, and member of the State Legislative Committee for the Washington Chapter of the APTA. She also serves as Washington State Ambassador for the Prevention and Wellness Council for APTA, and is member of the Washington State Department of Health Fall Coalition Advisory Committee.

She has co-authored articles on functional assessment with Dr. Carole Lewis and made contributions to the chapter on Ageism in the book, *Physical Therapy for the Older Adult*.

She also teaches nationally for Great Seminars and Books, the Functional Standards for Optimal Aging continuing education and certification course.

Kele's passion for her profession is mirrored by her personal passion for cycling, laughter, and family.

Never doubt that a small group of thoughtful, committed, citizens can change the world. Indeed, it is the only thing that ever has."

—Margaret Mead

It Takes Two to Tango: Knowledge Translation Depends on Both Authors and Readers

Leslie Allison, PT, PhD
Editor-in-Chief, *Journal of Geriatric Physical Therapy*

The team of Editors of the *Journal of Geriatric Physical Therapy* (JGPT) strive to publish articles with "strong scientific merit and substantial clinical relevance." Toward this end, we now ask authors of clinical intervention studies to report their results not only with statistical significance using p-values, but also with other analytic measures that have higher value for use in clinical decision-making. These include reporting measures of clinical significance (such as the minimal detectable change or minimally clinically important difference), as well as the effect size, statistical power to detect differences, and confidence intervals. But knowledge translation is a dynamic process: if authors include these more clinically-relevant measures, but readers do not understand what they are and how to interpret them confidently, application of evidence to clinical practice is hampered.

This is the first of three 'short and sweet' articles in a series designed to help clinicians better comprehend clinical intervention research results and their implications for clinical decision-making. This series was inspired by a 2014 article by Phil Page, PT, PhD, FACSM, in the *International Journal of Sports Physical Therapy* titled "Beyond Statistical Significance: Clinical Interpretation of Rehabilitation Research Literature."[1] These brief articles will NOT be a statistics course and will not require any calculations! They will employ a more conceptual approach with examples and illustrations. Topics covered will include statistical significance, clinical significance, effect size, statistical power to detect differences, relative risk and odds ratio, and confidence intervals. The aim of the series is to help you feel competent and confident as you read, interpret, and apply research findings to your clinical practice. Let's get started!

WHAT MAKES A JOURNAL ARTICLE CLINICALLY RELEVANT*?*

At first glance, a clinician might find a study *design* relevant if the study was conducted in the setting in which she works (eg, acute care, outpatient, long-term care) with participants who are similar to the patients she treats every day, using an intervention that is feasible for rapid clinical adoption. When it comes to the study *results*, however, an article is clinically relevant if it presents "scientific information so compelling that it might change clinical practice."[2] This implies the study has to have 'strong scientific merit,' meaning it has been well-designed (eg, to avoid bias, control for confounding factors, etc), properly conducted, with an appropriate statistical analysis for the research question and data being analyzed. To be clinically relevant for the reader, it is crucial that the results are presented in a way that helps clinicians know not just whether there *was* or *was not* a statistically significant difference in outcome scores between the intervention group versus the control group, but also to understand much more about that difference. After all, we are in clinical practice to produce positive change for our patients, and need a sense of what sort of a difference the intervention may make. We ought to know how large that difference was (*effect size*), in what direction the difference lay (benefit versus harm via *relative risk* or *odds ratio*), and how accurate the estimated difference between groups was (*confidence interval*). We want to know if the pre- to post-test difference in outcome scores was large enough to represent actual change not just measurement error, and/or be meaningful to the patient (measures of clinical significance). If no statistically significant difference was found, is that because there truly was no difference, or due to the inability of the study to find a difference if it did exist (*statistical power*)?

THE P-VALUE IS OFTEN MISINTERPRETED

Statistical significance indicates the probability that the study results occurred purely due to chance, not to the intervention. Since chance can never be totally eliminated, researchers limit the impact of chance by setting a "significance level," typically $p \leq 0.05$ (a 5/100 or lower chance that the result they found occurred just by chance). In rehabilitation research, use of the p-value all by itself is problematic because statistical significance is negatively influenced by at least 3 conditions frequently seen in clinical intervention studies. These are:

- small groups (low sample size that diminishes statistical power to find a difference if it actually exists),
- high variability in measurement outcome scores (reported as the standard deviation [SD], or the standard error of the mean [SEM]), and
- only slight change in the intervention group (small effect size).

Further, misinterpretation of results presented only with p-values is extremely common, leading expert statisticians and researchers to call for major changes in results reporting.[3] All of the following statements are FALSE:

- If the p-value is greater than 0.05, we can always be confident there is 'no difference' between groups.
- By looking at whether or not the p-value is greater than or less than 0.05, we can confidently decide whether a result refutes or supports a scientific hypothesis.
- If two studies investigated the same thing, and one found a statistically

significant result while the other did not, we can be certain these findings 'conflict.'

Let's look at an example to illustrate how these misinterpretations occur: Two studies, using the same design and methods, investigate whether or not a new intervention is superior to 'usual care' in community-dwelling older adults – a very large population. For both studies, the hypothesis is that the new intervention will lead to better outcomes (higher scores), and the identical statistical analysis is designed to answer the question: "Is there a statistically significant difference in outcome scores between groups?" Study A has 30 participants with an age range of 60 to 90 who are randomly divided into two groups of 15 each. Study B has 90 participants with an age range of 65 to 79 who are randomly divided into two groups of 45 each. Results are presented in Figure 1; Study A reports a p-value of p=0.08, while Study B reports p=0.02. Compare the means and variability (spread). Can you spot the problem?

Although the p-values are *not* the same in Study A versus Study B, the actual mean outcome scores for each group in both studies *are* the same. Both studies found the same mean difference between groups. Because Study A had a more heterogeneous group (ages 60-90 vs 65-79), smaller sample size, and much higher variability, it had low [inadequate] statistical power to find the difference. Study B had a more homogenous group, larger sample size, much lower variability, and higher statistical power to find the difference.

THE P-VALUE BY ITSELF DOES NOT TELL US IF THE CLINICAL INTERVENTION MADE A REAL AND IMPORTANT DIFFERENCE

But here's the rub: even if the p-value indicates there was a *statistically* significant difference and the result was probably due to the intervention not chance, we do not know if that difference was *clinically* significant. That is, was the difference *real*: large enough that the clinician can be sure the change was not just measurement error? Was the difference *important*: meaningful in a practical sense to the patient and/or to the clincian? To know this, we need to consider measures of clinical significance. Two of these include the Minimal Detectable Change [MDC] and the Minimally Clinically Important Difference [MCID].

The MDC represents "the minimum amount of change in a patient's score that ensures the change is not the result of measurement error."[4] In other words, if a pre- to post-test change is equal to or larger than the MDC, it is probably a real change. The MDC is "A statistical estimate of the smallest amount of change that can be detected by a measure that corresponds to a noticeable change in ability." This estimate is calculated using the 'standard error of measurement' [SEM]. The SEM is itself a calculated value used when a measure is taken multiple times (eg, 3 trials of the Timed Up and Go test) to indicate how variable those measurements are. Authors should report the MDC for each clinical outcome measure they use. If the MDC for a measure in a given population has been previously described in the literature, the author may report that in the Methods section. Otherwise, the author should use their own study data to calculate and report the MDC from their sample in the Results section. Readers should compare the actual amount of post-intervention change with the MDC to ensure that the change is real and not just measurement error.

The MCID "represents the smallest amount of change in an outcome that might be considered important by the patient or the clinician."[4] This requires patient/clinician surveys to assess their perception of the degree to which the post-intervention change made an important difference. For example, in a study of individuals post-stroke receiving rehabilitation, the Berg Balance Scale [BBS] was administered pre- and post-intervention.[5] At post-test, the researchers *also* administered a survey asking participants how much change in their balance they perceived. The participants who rated their balance as at least 'somewhat better' had achieved a minimum gain of 12.5 points on the BBS. Thus, the MCID for the BBS in persons post-stroke was reported as 12.5 points. If the MCID for a measure in a given population has been previously described in the literature, the author should report it in the Methods section. Unfortunately, because determination of the MCID requires an additional survey measure and analysis, many researchers do not include it in their study design. When reported, readers should compare the actual amount of post-intervention change with the MCID to assess whether that degree of change is considered important by patients or clinicians.

INTERPRETATION REQUIRES CLINICAL JUDGEMENT

Interpretation of intervention study results should take into consideration both statistical and clinical significance. In some studies, the results are both statistically and clinically significant, and the case for incorporating a new intervention into your clinical practice is more strongly supported. It is possible however, that a result may be statistically significant but not clinically significant, or vice versa. Let's look at two opposite scenarios. In an actual study comparing the effectiveness of two different medications on survival times in a very large sample of cancer patients, researchers found a statistically

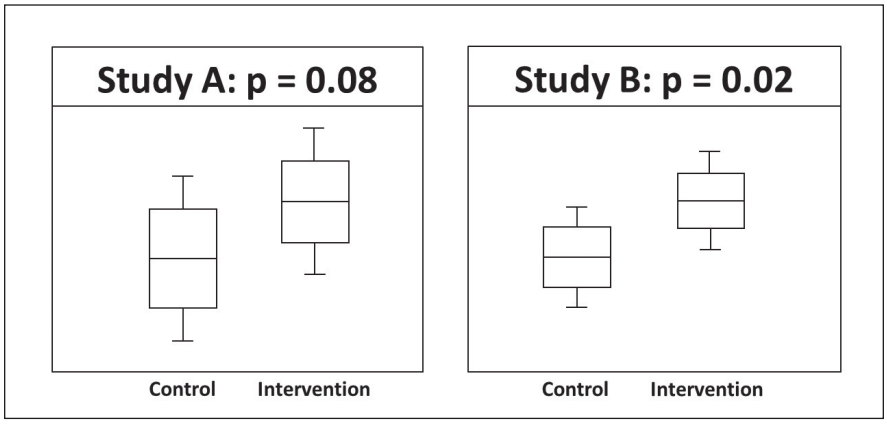

Figure 1

significant difference (p=0.038) in survival time.[6] However, the actual mean difference between groups was only 10 days, a difference that most patients and clinicians would see as disappointingly small.

On the other hand, you may also read studies in which no statistically significant difference between *groups* is found, but a portion of the intervention group achieved real (> MCD), large, and highly meaningful gains. That means there is some chance that your *individual* patient might also have a very positive outcome. In these cases, it is very helpful to the clinical reader if the author conducts a secondary analysis of 'responders versus non-responders' to distinguish the characteristics of those more or less likely to benefit from the intervention. For example, let's imagine an exercise intervention study in which the primary outcome measure is an increase in physical activity levels including community ambulation. The secondary analysis might show that participants with a high fear-of-falling had no change or very little change, but those with a low fear-of-falling became much more active and independent in community ambulation. You would then be able to measure fear-of-falling in your individual patient to improve your sense of whether or not they would benefit from the new intervention. Even without such a secondary analysis, if the potential benefit of the intervention outweighs the risk of adverse effects and cost of intervention, a clinician might decide to try the intervention despite the lack of statistically significant difference between groups.

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Yoga and Osteoporosis: Making Safe, Effective Recommendations for Patients

Ginger Garner, PT, DPT; Laverne Garner, PT, DPT

In the United States and Europe, it is estimated that 30% of all postmenopausal women have osteoporosis.[1] Osteoporosis rates are expected to surge worldwide due to the increased number of aging populations.[2] This disease is more common than other disease processes that garner more attention, even though the prevalence of osteoporosis and risk of fracture should be considered a serious public health threat.

Yoga is a popular form of exercise that has been posited to help combat or manage osteoporosis, however, there is a wide perception of what is considered safe within the literature. Lu et al reported that a 12-minute yoga program that included significant spinal twisting (seated spinal twist) and trunk flexion (revolved triangle), and extreme extension (cervical weight-bearing bridging) was not only safe but also improved bone mass density.[3] Interestingly, this study did not offer insight into what statistical tests (ANOVA, t-tests, etc) were performed and did not appear to control for the use of disease modifying agents such as fosamax.[3] On the contrary, Sinaki expressed concern over the use of spinal twists, loaded cervical flexion (extreme bridge and plough), and trunk flexion poses.[4] While there are both obvious risks and benefits to using yoga in the osteoporotic population, the polarity in literature recommendations makes it difficult for health care providers (and hopefully yoga teachers) to know how best to proceed.

Essentially, there are at least two guidelines that offer advice on how a therapist could proceed with recommending yoga postures to individuals with osteoporosis. One is a 2015 modified Delphi consensus statement by Giangregorio et al that offers guidance on exercise recommendations in general for people with osteoporosis with and without fracture. When looking for recommendations specifically related to yoga, health care providers and yoga teachers may also benefit from understanding the 10 Precepts for Safe Yoga Prescription.[5] The first 4 Precepts for Safe Yoga Prescription and Practice,

which were discussed in the previous article on Fall Risk, are congruent with the guidelines from the Giangregorio et al[5] article as well. Let's continue by discussing 3 more biopsychosocially-driven precepts[6] that are pertinent when recommending yoga to individuals with osteoporosis.[7]

Precept 5. Yoga should inform dynamic execution of breath and postures via: (1) internally supported postures *(asana)* or (2) passive rehabilitation methods via externally supported postures *(asana)* based on the value of their functional carryover to ADLs (activities of daily living), like walking or lifting items, for example. Dynamic execution of breath and postures to foster psychobiological safety can be facilitated by two methods, internally supported postures *(asana)* or passive rehabilitation methods via externally supported postures *(asana)*. This means that if a posture cannot be supported internally, through musculoskeletal engagement of trunk or lower quarter stabilizers, for example, then the pose must be supported externally, through methods such as the use of a wall, chairs, yoga props, blankets, or bolsters. An example of this might be using extra blankets to support the head and arms of someone with severe osteoporotic kyphosis when lying supine. Methods are ideally delivered via focus on functional carryover and should follow prioritization as mentioned in the previous precept: stability first, with the spine receiving priority, and mobility second.

Precept 8. Teach non-weight bearing (non-axial loading) headstands (sirsasana) and non-cervical-weight bearing shoulder stands (salamba sarvangasana), emphasizing protection of vulnerable joints that include the small joints of the hands, feet, and the spine and pelvis, especially for osteoporosis populations. The chief impetus for this precept is giving the spine priority in practice. Careful consideration of the epidemic and pandemic of comorbidities that typically plague patients in rehabilitation, therapists and yoga teachers should be advised that axial loading and forced full cervical flexion with (likely) anterior vertebral body shear under loaded conditions is contraindicated. Overall, in individuals at risk for osteopenia or osteoporosis, cervical weight-bearing postures such as plough and headstand should be avoided.

Precept 9. Be non-dogmatic and welcoming to all disciplines of yoga, respecting all spiritual belief systems.

It is valuable to remember that people come to yoga for many different reasons and from many different backgrounds. While some individuals may be interested in learning about the ancient spiritual texts of yoga, such as the Bhagavad Gita or the Upanishads, others may perceive these texts as a threat to their religious and/or spiritual belief systems which can become a barrier to healing. For this reason, medical therapeutic yoga recommends that health care providers nurture non-dogmatic yoga practice within rehabilitation.

For example, if an individual seeks out yoga to heal a physical hurt, it is imperative that the therapist seeks to understand that persons relationship to spirituality through understanding the individual's goals as they pertain to overall well-being. When helping patients navigate their injury from a place of lovingkindness and self-awareness, a therapist can simultaneously empower a patient to engage in meaningful relationships and activities, which in essence is spiritual. This approach is supported by the World Health Organization's International Classification of Disease & Functioning and also by the George Washington Institute for Spirituality and Health that defines spirituality as:

"Spirituality is that part of all human beings that searches for meaning, purpose and connection to others. Spirituality is the way people find coherence and ultimate sense of who they are in relation to the world, to others, and to the significant or sacred."[8]

Working with patients in this manner, requires tremendous self-awareness on the part of the health care provider in order to emphasize inclusion. No matter the entry-point, the care provided through yoga should be person-centered, compassionate, and culturally and gender sensitive. It is our duty (dharma) to guide a patient toward best-evidence mindful practices that are nurturing and sustainable for the self and the universe at large. Unfortunately, the culture of yoga in the United States has knowingly and unknowingly fostered rigidity, abuse, and dogmatic clinging to nonscientific extreme posture performance (extreme and end range of motion movements). This is, ironically, the antithesis of yoga and spirituality.

One of the premises of yoga and any spiritual practice (remember yoga is not a religion) is to cultivate interoception, and for movement-based mind-body medicine, proprioception and neuroception. These 3 ceptions are not exhaustive, but represent perhaps the most critical components with impetus to improve patient outcomes. Defined they are:

- Neuroception is the ability to accurately detect internal risk and external threat.
- Proprioception is the ability to accurately detect where the body is in space.
- Interoception is the ability to understand and know how you are feeling, or success in intrapersonal communication.

For those with or at risk of osteoporosis, yoga cultivates interoception and proprioception, which can affect self-worth, and both interpersonal and intrapersonal well-being, as well as decreased risk of injury due to self-acceptance.[9] Cultivation of healthy neuroception can improve the stress response, which is well supported to improve vagal tone, pain management, and perceived stress while diminishing effects of trauma and chronic disease risk.[10] All of these are variables are posited to affect patient outcomes through addressing common factors in evidence-based biopsychosocial-informed intervention.[11]

PUTTING IT ALL TOGETHER

We can meet the patient where they are while incorporating a safe and effective biopsychosocial framework if these 3 precepts are taken into consideration. However, one question remains. Since there is a paucity of adequately powered, methodologically sound research supporting the use of yoga in people with osteoporosis, how do we as physical therapists make safe recommendations to our patients with osteopenia/osteoporosis who wish to engage in yoga? A 2015 Delphi consensus statement by Giangregorio et al,[5] offers expert guidance on how exercise is best addressed in people with osteoporosis, especially in the presence of fracture history. They recommend that exercise in people with osteoporosis should be focused on 3 specific areas. These areas include addressing fall risk, emphasizing safe patterns

of movement including "spinal sparing," and helping to delay further bone loss.[5] Overall, their recommendations support the use of the above Precepts.

Recommendations on weight-bearing exercise include movements that involve non-twisting, non-forward flexing, and avoidance of extreme extension.[11] Some postures that could be done are[5,6]:

- Shoulder lock in supine - arm spirals: For endurance, we have people use internal support within the pose in order to develop spinal extensors, which is emphasized over strengthening alone. This means shoulder lock and TATD are vital parts of this posture performance. When shoulder lock is unable to be maintained, the patient should rest. **Watch and practice the arm spiral here.**
- Chair: emphasis on shoulder lock/ arm spiral
- Warrior I: emphasis on shoulder lock/ arm spiral
- Tree: emphasis on shoulder lock

Recommendations on poses to avoid include the following[5]:

Forward folds, seated twists, and seated standing twists with flexion (supported by Delphi consensus).[5]

Finally, there is the importance of continued use of motivational interviewing in order to promote salience, and identification of barriers that affect self-efficacy, adherence, and patient safety. Some of those barriers could include lack of social support, lack of access to physical therapy services, lack of transportation, or poor health literacy. It is additionally important when working with person's with osteoporosis that therapists seek to understand the individual's beliefs about exercise. For example, does the patient believe exercise will help or does she think she will get hurt? On the opposite end of the spectrum, some individuals may believe that if they are not engaging in intense high impact activities that they are not exercising. In order to promote adherence, self-efficacy, and patient safety within this high fracture risk population, promoting self-awareness of beliefs about exercise and physical activity as well as neuroception, proprioception, and interoception is paramount.

Regardless of the type of movement or postures you ultimately prescribe for your patient, there are some universal recommendations that fit almost all populations. These include properly

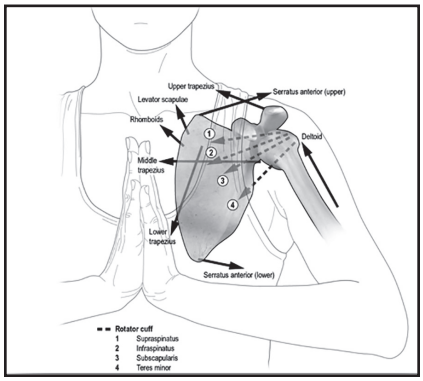

Figure 1. Shoulder locking.

Figure 2. Arm spiral.

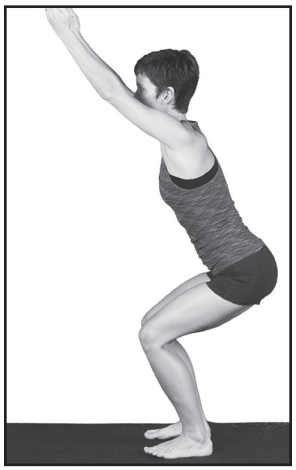

Figure 3. Chair.

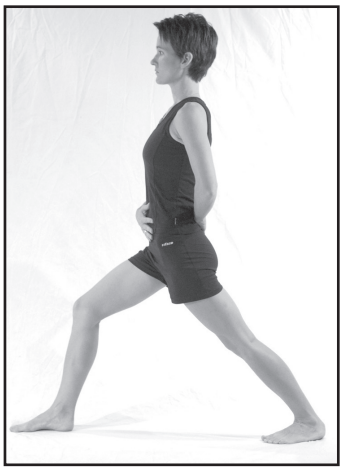

Figure 4. Warrior 1 Mod 2.

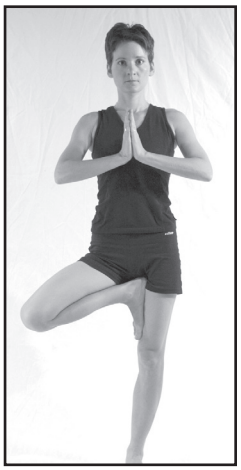

Figure 5. Tree.

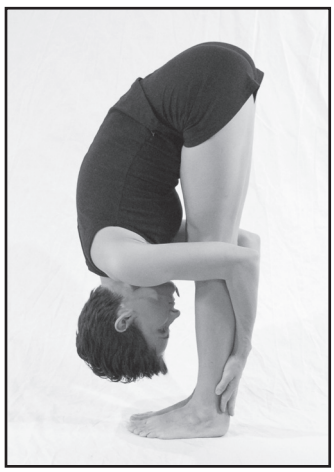

Figure 6. Forward standing bend full.

Figure 7. Seated twisted.

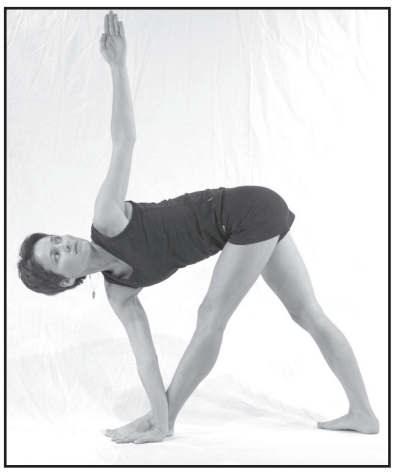

Figure 8. Revolved triangle.

pressurizing the system by teaching the patient to recognize the 3 critical diaphragms that support the trunk and assist in spine sparing. These diaphragms must act synergistically to support the spine, and include the cervico-thoracic or laryngeal diaphragm, the respiratory diaphragm, and the pelvic diaphragm. Together with transversus-assisted thoraco-diaphragmatic breath, known as TATD breath, functional positions during weight-training can be well supported and coordinated with the breathing.[6] Learn about and practice **TATD breath here.**

Join us for the next article in this series on yoga for pelvic health.

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Enhancing Rehabilitation Services in Developing Countries

Richard A. Black, PT, DPT

Many years ago, in the middle of a presentation that I was giving to physical therapists in San Salvador, El Salvador, one of the participants made an odd face at me while I discussed how to use a blood pressure cuff to assess orthostatic hypotension during a balance evaluation. I stopped speaking and asked what was wrong. She said that they did not have equipment like a blood pressure cuff in her center. How was she supposed to do this test? Other therapists in the class agreed. It was a sobering moment. They said that in large hospitals there would often only be one pulse oximeter and a physician had it. If the therapist needed to check oxygen saturation, he had to page the physician to come perform the assessment. It was an eye opening experience for me. When planning the course, I had purposely tried to only include interventions that did not require expensive, difficult to obtain equipment. However, my perception of an inexpensive relatively common piece of equipment was very different from their reality.

Health care professionals in general, and rehabilitation professionals in particular, face many challenges in developing countries. The World Health Organization (WHO) met to discuss rehabilitation in the developing world in 2017. The report "Rehabilitation 2030: A Call to Action" ensued.[1] This report discusses unmet rehabilitation needs around the world, the growing demand for rehabilitation services, and the need for better access to rehabilitation services. The report also outlines current barriers to strengthening and extending rehabilitation services. These barriers include:

- Under prioritization by government among competing priorities

- Absence of rehabilitation policies and planning at national and subnational levels
- Limited coordination between ministries of health and social affairs where both are involved in rehabilitation governance
- Non-existent or inadequate funding
- A dearth of evidence of met and unmet rehabilitation needs
- Insufficient numbers and skills of rehabilitation professionals
- Absence of rehabilitation facilities and equipment
- Lack of integration into health systems

Most of us probably lack the resources to address all of these barriers to strengthening and extending rehabilitation services as highlighted in the WHO report, however, I believe that joint and individual initiatives based on our expertise, resources, and interests, can begin to tackle some of these barriers. If done thoughtfully and with a goal towards sustainability, we can incrementally improve the availability and access to rehabilitation in developing countries.

I would like to begin by sharing my personal experience in this regard. My first medical mission was to El Salvador in 1999, seven years after a long and bloody civil war had ended. Signs of the war were still present, from the bullet holes on the walls of the University of El Salvador, to heavily armed men guarding many stores and buildings. I went to El Salvador as a member of Health Volunteers Overseas (HVO; www.HVOUSA.com). Health Volunteers Overseas is an organization of volunteer health care professionals that strives to improve health care in developing countries by training local health care providers. Their goal is to develop the host country's internal capacity to provide care. I was in El Salvador for two weeks. Each morning I would visit a nursing home for indigent people and co-treat with the physical therapy staff. In the afternoons, I gave a course on geriatric rehabilitation to the physical therapy faculty of the University of El Salvador in San Salvador and local physical therapists. The dedication, professionalism, and generosity of the therapists was impressive. They worked in a wide variety of settings, often with extremely limited resources and many came a long distance by way of buses to attend the course each day.

The model that HVO uses directly addresses the issue of "skills of rehabilitation professionals" outlined by the WHO report on rehabilitation. That model helps to develop the host country's ability to provide high quality services. The focus is on teaching local health care professionals new skills and providing the local clinicians with knowledge. This can lead to sustainable improvement long after the volunteer leaves the country. As a long-time member of HVO, I have always admired their strategy for promoting sustainable improvement in health care in developing countries.

Several years ago, the chair of the physical therapy department at the University of Toledo in Toledo, OH where I live, sent out an email request to local physical therapists to supervise several physical therapy students on a week-long medical mission trip to León, Nicaragua. The university had been sending a team of physicians, medical students, physician assistant students, and pharmacy students to the city of León for several years to provide care for underserved individuals. There had been some involvement of physical therapists and physical therapy students but it was not consistent. I was initially hesitant to volunteer because I was concerned whether I could make a sustainable difference in the lives of the local people with a one week trip that would focus solely on patient care and not on enhancing the countries capacity to provide care. With the encouragement of my wife, I decided to submit my application. Fortunately, I was accepted for the trip and since then have had several opportunities to work with the teams going to Nicaragua.

In planning for each trip, I continually considered how to make the impact of the visits sustainable so that instead of just providing basic care to the people of Nicaragua for a week, I could make a positive impact on their health care system, even after the trip was over. I have traveled with this team to Nicaragua three times. Here are some of the initiatives we have implemented to help develop the physical therapy portion of the program and to create sustainable changes in the therapy provided in the area. Clinicians diving into these types of endeavors need a good mix of patience and impatience. Patience to realize that changes will not happen overnight and impatience or dissatisfaction with the current situation to continually strive to improve access to physical therapy for people in the host country.

On our first visit, we did not know exactly what kinds of problems to expect or what resources would be available to us. With that in mind, we tried to anticipate as well as we could, the kind of conditions and problems we might see and to bring any supplies we could obtain in order to address those issues. On that first trip to León we saw a large number of female patients with vague complaints of neck, upper back, and arm symptoms. At first, it was puzzling why so many women had such similar problems. Later in the week, I was speaking to a woman during her evaluation and she made a passing mention of having to wash clothes. Suddenly, it occurred to me, many women in developing countries wash clothes by hand. First, the clothes are dunked in a mixture of soap, water, and fabric softener, then they are scrubbed and kneaded against a ribbed washing board by hand, until finally the clothes are rinsed with water. The water is wrung dry by hand and the clothes are hung to dry. Once we identified this issue, we set about trying to come up with solutions to address it. One obvious solution, a washing machine, is not really an option for many people in developing countries. We thought about how the task or workspace could be modified to make it easier. However, many individuals who wash clothes by hand have some type of wash area that consists of a sink and a washboard and most probably lack the resources to change the system they use. We decided to try to reduce the physical stress hand washing clothes can cause. The following year we created a one page handout that was specific to clothes washing. It included some basic body mechanics instructions and several exercises to help reverse the habitual postures used while washing clothes by hand and some exercises to help decrease the stress of that activity. The handouts were translated into Spanish and were designed to be helpful even if someone was illiterate. They were also created in such a way that they could be handed out by lay people and would not require a physical therapist.

Another initiative implemented after our first visit was observing and making note of the most common con-

ditions we would typically see and the kind of equipment that might be helpful. Upon return from that medical mission, we set out to contact different manufacturers of products that we needed, to ask if they would provide us with donations of their products. Many of the companies we contacted were extremely generous and sent us enough supplies to cover the needs of our patients on our next trip with some left over. Since we had so many extra supplies, we decided to look for physical therapists that we could donate our unused supplies to. In this way we could extend the impact of our trip beyond the week we were there.

Besides just finding a good home for our extra supplies, we recognized the need to find local physical therapists so that we could collaborate with them. This would give us the opportunity to learn more about physical therapy practice in their country, to better understand their health care system, and to learn about the issues they felt were the most pressing. I initially did not come into contact with any physical therapists. However, on the last day of our first trip, one of the last patients I saw was a little boy. As it turns out, his mother was a physical therapist who worked in the rehabilitation department of the local hospital. I was only able to speak with her for several minutes but she told me they had a staff of 7 physical therapists. That was encouraging. Now I knew that there were physical therapists in the area, but I needed a way to meet them and figure out how we could collaborate. While it might seem relatively straight forward to contact the hospital physical therapy department, depending on the country, there may be certain obstacles to overcome. Often there are official channels that must be used when trying to facilitate relations with local health care professionals. It is important to identify and respect the rules for the host country.

On our second trip to León, we tried to distribute our hand washing brochure to as many women as possible and left a large number of extras for local health care advocates to hand out after we had gone. Our solicitations for donations of equipment had been so successful that we had a relatively large amount of supplies and equipment to address a wide variety of issues that we saw that week, with plenty of supplies left over. We left some of the supplies like cane tips and ace bandages with local health care advocates, but we again realized that it was imperative that we try to make contact with local rehabilitation professionals so that we could leave the supplies that required the skills and knowledge of a therapist to use correctly.

On a later visit to Nicaragua, one of our team members was a pediatric resident at the University of Toledo, Dr. Karla Ferretti- Xavier. Dr. Ferretti is a native of Nicaragua, who trained in Brazil, and was completing a pediatric residency here in the United States. She had a friend who was a physician at the local hospital in León. This was the same hospital where the physical therapist I had met several years earlier worked. Through Dr. Ferretti's connections, we were given a detailed tour of the hospital. I took this opportunity to ask our tour guide to show me the Rehabilitation Department. They had a small, but busy rehabilitation gym. When I returned home from that trip, I worked with our liaison in Nicaragua to contact a representative of the Nicaraguan Ministry of Health who was also a representative of the local hospital in Nicaragua. The representative from the Ministry of Health provided me with a list of supplies and equipment the physical therapy department needed. This list helped guide me as I tried to obtain supplies and equipment for the department. Dr Ferretti and I also applied for a grant from a local church to purchase additional equipment for the hospital. She wants to obtain pulse oximeters for the neonatal intensive care unit so that they could perform cardiac screenings and I am trying to obtain equipment for the rehabilitation department.

This project is an ongoing effort. As I said, international work requires a mixture of patience and impatience. This years' trip was cancelled because of political unrest. However, this will not deter us. Progress is slow and incremental. I will try again next year. As you plan your next medical mission, consider how you can maximally leverage your time and resources so that your efforts benefit not just the people you encounter directly but a broader range of people even after you have returned home. Consider the list of barriers to rehabilitation services outlined by the WHO and think about how you can affect one of those barriers. With patience, persistence, and focus we can improve the quality and access to rehabilitation services in developing countries.

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Rick Black, PT, DPT, MS, GCS, is a Corporate Rehabilitation Consultant for HCR ManorCare. He was board certified in Geriatrics from 1999 to 2019. He received his Doctorate in Physical Therapy from the University of Montana in 2010, an Advanced Master's Degree in Human Movement Science from the University of North Carolina at Chapel Hill in 1996, and a Bachelor's of Science Degree in Physical Therapy from Northeastern University in 1990. He is active in both the American Healthcare Association (AHCA) and the National Association for the Support of Long Term Care (NASL). From 2005-2008, he was the Chair of the NW District of the Ohio Physical Therapy Association. He was formerly a Senior Physical Therapist –at the Wake Forest University Baptist Medical Center transitional care unit for medically complex frail older adults and a Research Associate at the Biomechanics lab of the Duke University Center for Aging and Human Development. He has experience in long term care, home health, outpatient, and acute care. He is a member of the Academies of Geriatric and Acute Care Physical Therapy, the Healthcare Policy and Administration Section, the Ohio Physical Therapy Association, and Health Volunteers Overseas. He can be reached at rblack@hcr-manorcare.com.

The Academy of Geriatric Physical Therapy *Meets* The Gerontological Society of America

Tim Kauffman, PT, PhD

At the Combined Sections Meeting this past January in Washington D.C., Greg Hartley, Academy of Geriatric Physical Therapy (AGPT) President along with Karen Curran, Academy Executive, met with James Appleby, the Chief Executive Officer (CEO) of the Gerontological Society of America (GSA) and Patricia D'Antonio, GSA Vice President of Professional Affairs. The purpose of the meeting was to share information about the two organizations and to establish a working connection.

Although not identical in number of members, AGPT and GSA are comparable organizations. One major difference is that members of AGPT are all physical therapists while GSA is multidisciplinary. Over 20% of GSA members live outside the United States. The international component enhances the exchange of ideas, research results and techniques. Comprised of 4 sections, GSA is home for all persons engaged in gerontology in the areas of Behavioral and Social Sciences, Biological Sciences, Health Sciences and Social Research, Policy and Practice. This milieu provides fertile ground for learning and exchanging ideas.

The purposes of GSA are to advance the scientific and scholarly study of aging and to promote human welfare by the encouragement of gerontology in all its areas. Its mission is: (1) to promote the conduct of multi- and interdisciplinary research in aging by expanding the quantity of gerontological research and by increasing its funding resources; (2) to disseminate gerontological research knowledge to researchers, practitioners, and health policy decision and opinion makers; and (3) to promote, support, and advocate for aging education and training in higher education.

Formally started in 1945, GSA was involved in the establishment of the National Institute on Aging and has a variety of par excellence scientific publications including the *Journals of Gerontology, Series A: Biological Sciences and Medical Sciences* and *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*. It also publishes *The Gerontologist; Public Policy and Aging Report; and Innovation in Aging.* I peruse *The Journals of Gerontology, Series A and B* monthly.

As a graduate student, I joined the Section on Geriatrics and GSA in 1978 and both have greatly enriched my physical therapy skills and my career. I feel fortunate to have two professional homes and since joining the AGPT and GSA, I have attended most of both organization's annual conferences.

The yearly GSA scientific meeting is in November; in 2018 this was held in Boston, Massachusetts with nearly 4000 conferees. The 2019 Annual Scientific Meeting will be in Austin, Texas with a theme of "Strength in Age: Harnessing the Power of Networks." Not every presentation is theme-oriented but there will be plenty of networking. By the time you read this the deadline for abstract submissions will have passed, but GSA has a Late Breaker Poster Session that will open for new abstracts in Mid-July this year. To learn more about the meeting in Austin this November or Late Breaker abstract procedures go to: geron.org

Several dozen physical and occupational therapists and often some international physios attend the annual GSA conference. The Health Sciences Section has an annual award entitled, "Excellence in Rehabilitation of Aging Persons Award". To date AGPT members Alan Jette, Carole Lewis, and Steve Wolf have been honored by this award.

James Appleby, GSA CEO, is excited by the new opportunity of collaboration with the AGPT.

Fiduciary: Another Role for Physical Therapists

Lise McCarthy, PT, DPT

Even though I consider myself an experienced and successful business person, I have been struggling (like I think most of you are and have been in recent years) to mentally grapple with and to strategically stay ahead of the breathtaking bureaucracy and payment changes going on in our health care system. Like you, I have had to embrace my fears of the unknown, make countless changes in how and where I practice, and ultimately come up with a new plan to increase my financial security and improve my work-life balance. This new plan had to be feasible by being easily attainable in terms of my limited resources in time and money.

An idea started to develop when Mary and I crossed paths in 2015. Mary is a licensed RN and a licensed professional fiduciary now nearing retirement. She is generous, practical, fair and keen on what it takes to run a business. At the time we met, Mary was the conservator of person for Ray, one of my patients. She shared with me insights into her life

and her decision in mid-life to improve her financial security by taking on a second license as a professional fiduciary. She started to mentor me by hiring me as her geriatric care manager for those times when she was busy with other clients, on vacation, or sick. In particular, I started by working with Jim, a person who was also a physical therapy patient in my private practice.

What is a fiduciary? "Many fiduciaries have had previous careers as attorneys, certified public accountants, bankers, social workers, or health care providers. A fiduciary's role is not merely that of business manager, decision-maker, or guardian. It is also a nurturing bond of trust, concern, and attentive care-giving. A fiduciary seeks to support mental and emotional well-being; reduce the stress of changing circumstances or unexpected events; and, most importantly, help each client, and their families, enjoy a fulfilling life." (Taken from The Role of a Professional Fiduciary defined by the Professional Fiduciary Association of California and found here: https://pfac-pro.org/find-a-fiduciary/role -of-a-fiduciary/.)

As I became more comfortable in this role and demonstrated to both of us that I already possessed the skills and abilities to do this work, Mary encouraged me to seriously work on getting my professional fiduciary license. She helped me expand my vision of who I could be as a professional, and I began to take steps to create a life with more financial reward and fulfillment than what I could currently accomplish as a physical therapist in a specialized private physical therapy practice.

After successfully completing two on-line classes at California State Fullerton (all that is needed if you have a bachelor's degree), passing my background checks, then passing the national and California state fiduciary exams, and paying various fees along the way, I applied for and obtained a national certified guardian (NCG) certificate and a California state professional fiduciary license in November of last year.

Mary introduced me to her attorney, who is now my attorney. The attorney, my client Jim, and I went to the Probate Court in January. The probate judge approved the successor conservatorship and allowed me to receive "fees on account" equal to 6 hours of work a month on Jim's behalf. Fees on account translates to reliable monthly income, a necessity for all of us who have needs (eg, paying bills, fair pay for good private-practice work, work-life balance) and wants (eg, savings for emergencies and for retirement, a vacation now and then, and funds to help solve larger problems than our own).

Since becoming Jim's conservator of person in January, I can no longer act as his physical therapist (conflict of interest). However, I use my professional knowledge as a physical therapist to help me (as his conservator) to assess his needs, manage his care, make changes in his housing, and communicate with his doctors about his medical care and needs. I have shopped for him, arranged transportation for him to attend various community events and appointments, and I have taken him to the dentist. The documentation required of me is far less than what is required of me as a physical therapist. I also get the benefit of being paid at a rate in the ballpark of what I earn for private physical therapy work. As a fiduciary I also get paid for all my "necessary" work: home visits, meetings, phone calls, emails, shopping, and documentation.

Right now, Jim requires more of my time than the court preset monthly LPF fees. I keep records of all my work done on his behalf for my attorney to submit to the court on my behalf at the end of this first year. The court will consider my additional payment request next year and hopefully approve my services for payment, which will be paid out of funds held in Jim's name. Because of the advice and encouragement of both the attorney and Mary, I am confident that I will be reimbursed for the additional fiduciary services I provide this year.

Three additional clients have now hired me to be their care/case manager because of my LPF status and professional credentials. I am present at their doctors' appointments to help them ask questions, and to follow-up on recommendations and paperwork. I helped two of them find and hire caregivers. I help them with problem-solving their housing needs. In other words, I help them stay organized and thereby relieve some of their stress. My work as a physical therapist has trained me well to identify and document necessary and needed services, and to be a strong advocate for all of these clients.

My husband, whose natural strengths lean more toward accounting and insurance billing, is now working on becoming a professional fiduciary as well. He is waiting for his license and should have it well before you read this article; then he will join me in our new business adventure together. We figure that by working as part-time fiduciaries, at least for now, we will stabilize our income and significantly enhance our financial security.

In the meantime, if you are looking for an idea to increase your financial security amidst all the turbulence going on in health care, then I encourage you to consider getting a second license. In less than a year and for less than $4,000, you can help fill the demand for licensed professional fiduciaries in your state. One professional license should be enough to allow a person to securely live out the American Dream, but in these times, for many of us, we cannot count on one license being enough.

Wishing you every success wherever you practice!

Lise McCarthy, PT, DPT, GCS, NCG, LPF, is the owner of McCarthy's Interactive Physical Therapy, Inc. and McCarthy Fiduciary Services. She is an Assistant Clinical Professor, Volunteer, in the Department of Physical Therapy and Rehabilitation Science at the University of California, San Francisco.

Fiduciary services vary and are regulated depending on the state. In California, licensed fiduciary services are regulated, and may include but are not limited to: acting as a Trustee, Executor or Power of Attorney; paying bills and managing money; being a health care agent or surrogate; performing care/case management duties; being a guardian or conservator of person and/or estate for people who are mentally or physically incapacitated. For more information, please go here: https://pfac-pro.org/. For national guidelines and information about guardianships and conservatorship associations in your state, please go here: https://www.guardianship.org/advocacy/guardianship-in-the-states/

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Bed Mobility: More Than Min, Mod, or Max Assist

Linda McAllister, PT, DPT; Carole Lewis, PT, DPT

Addressing functional deficits is a major focal point of our work in the older adult population. Functional performance essential for the older adult covers a wide range, from simply turning in bed to complex gait activities. For each task, it is essential to have the right measurement tools to establish a baseline and identify the level of impairment. It is also paramount to initiate evidence-based interventions that best address our patients' functional performance. For the next few columns, we would like to work our way up the mobility spectrum, discussing measurement tools and interventions at each level. In this article, we will explore the measurement of bed mobility.

Getting out of bed is an essential daily life task. Difficulty with bed mobility has been reported to be 27.6% in a survey of adults over 65 years of age[1] and as high as 63% in older adults residing in nursing homes.[2] All of us should be familiar with rating a level of assistance for this task. However, simply describing how much assistance is required may not detect subtle, but clinically relevant, changes in performance.[3] Consider using a more detailed examination that tests performance over a range of conditions.

Alexander et al[3] formulated a succession of tasks for the supine-to-sit maneuver that varied in level of difficulty. The 116 participants residing in facilities performed this task series. Each task was performed with the head of the bed in 3 positions: 0°, 30°, and 45° of elevation.

The movement series consisted of the following:

1. Supine-to-sitting on the edge of the bed.
2. Sit-up using hands, keeping the legs on the bed, starting with the hips and knees flexed.
3. Sit-up without hands, keeping the legs on the bed, starting with hips and knees flexed.
4. Roll to sidelying then rising to sit on the edge of the bed.
5. Supine to standing.

As anticipated, lowering the head of the bed and restricting the use of upper extremities increased the difficulty of the task. This battery can serve as a useful examination measure and guide for interventions.

Another aspect of bed mobility to consider is the movement strategy the older adult is using. Mount et al[4] studied 42 older adult participants moving in and out of bed using their preferred method for 5 trials. The researchers broke down the motor tasks used in bed mobility. The components widely varied, but these were the 4 most common:

1. Head and trunk motion: roll off, in which the head and trunk flex and rotate toward the side of the bed with weight shifted on one buttock. The pelvis then drops to a level position while the trunk flexes and comes to an upright position.
2. Far arm motion: double push, in which the upper extremity farthest from the edge of the bed pushes into the bed as the trunk rises; push occurs until the hand or elbow only remains on the bed.
3. Near arm motion: Multi-push, in which the arm near the edge of the bed pushes multiple times at various points near the body while the trunk rises.
4. Leg movement pattern: Synchronous lift of the legs. Legs stay together as a unit to lift or slide out of the bed and both feet reach the floor at the same time.

Identifying the components a patient is using for bed mobility may be used as a starting point in identifying more effective and age-appropriate strategies.

Timed performance of bed mobility has been shown to be valid and reliable in young and old women[5] and is a salient option for measurement. Bohannon et al[6] recently published a cross-sectional study of 189 community-dwelling older adults (average age 80.5 years) without significant mobility deficits (Short Physical Performance Battery scores ≥9) who were timed performing multiple mobility tasks, including supine-to-sit. Participants were allowed to move supine-to-sit on their preferred side and to use any technique that they liked; timing started at the command "go" and ended when they were in an upright, seated position. The mean time for supine-to-sit was 2.7 seconds, comparable to the reported average of 2.6 seconds for 22 healthy young controls, but longer than reported for 29 older adults residing in congregate housing (4.4 seconds).[3] It should be noted that all timed testing was completed on a firm padded surface and may potentially require more time from a softer surface. This acknowledged, the study provides valuable age-matched data that may be used to compare another dimension of our patients' bed mobility performance. It also provides a standardized method of testing the maneuver.

We hope this expands your thinking next time you measure supine-to-sitting. Consider analyzing the components, testing with varied heights of the head of the bed, or simply timing the movement! In our next article, we will look at different interventions to address deficits in bed mobility.

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Linda McAllister, PT, DPT, GCS, GTC, CEEAA, CEAGN, is a board-certified Geriatric Specialist and lecturer with Great Seminars. She serves as coordinator for the Geriatric Training Certification with the Geriatric Rehabilitation Education Institute. She has experience in many settings of geriatric practice, and currently works in home health with Evergreen Health in Kirkland, WA.

Carole Lewis, PT, DPT, GCS, GTC, MPA, MSG, PhD, FSOAE, FAPTA, is the President of GREAT Seminars and Books and Great Seminars Online (www.greatseminarsandbooks.com and www.greatseminarsonline.com). She is a consultant with Pivot Physical Therapy and has her own private practice. She is Editor-in-Chief of Topics in Geriatric Rehabilitation and an adjunct professor in George Washington University's College of Medicine.

One Community's Resources for Adherence to Home Exercise

Nola Peacock, PT, MPT

Seventy-eight year old Ernie* recently completed 6 weeks of outpatient physical therapy at his community hospital following a total knee arthroplasty. His knee range of motion and strength were sufficient to allow for a normal gait pattern without an assistive device and for him to resume his regular daily activities. Ernie was pleased with his progress. He was looking forward to returning to gardening and golfing. He also had travel plans that included an upcoming river cruise to celebrate with his family. During his course of rehabilitation, Ernie had performed an independent home exercise program that complemented his physical therapy sessions. He understood that his exercise routine should be continued after physical therapy to help maintain his function and prevent readmission to the hospital. Ernie expressed concern to his physical therapist about his ability to consistently complete his home program without the structure of regular appointments and supervision.

HOME PROGRAM ADHERENCE

Ernie's concerns are valid. Studies indicate that many patients struggle to adhere to independent exercise programs. Even under ideal circumstances fewer than 60% of patients continue with prescribed home programs following discharge from physical therapy.[1,2] A low level of adherence exists despite research suggesting continued activity may improve range of motion, strength, mobility, endurance, pain, function, and reduce the risk of hospital readmission.[3-6] Rehabilitation professionals often provide home programs with written instructions, pictures of exercises, or audiovisual recordings. The intent is to improve compliance but the level of success varies.[7,8]

Another option to support continued exercise following rehabilitation is physical activity resources in the community.[9] Like many rehabilitation professionals, physical therapists at a small, rural hospital were concerned about home exercise program compliance following completion of therapy. They created a plan to build physical activity resources in the community through partnerships with local stakeholders. Physical therapists, senior center leaders, local government staff, hospital wellness team, non-profit organizations, and committed community members worked together to develop physical activity programs for older adults. The intent of these community resources is to enhance senior health by making it easier to continue with physical activity following rehabilitation.

As a result of this collaboration, 4 physical activity opportunities were created for older adults. The programs were designed for seniors of all abilities including long-term care residents, transitional care patients, and community dwellers.

LIFE EXERCISE GROUP

Residents in the local long-term care facility have an opportunity each week to participate in the LIFE, LIfe enhanced through Fitness and Exercise, activity class. Activities in the LIFE class support physical therapy discharge plans with exercises for range of motion, strength, balance, transfers, and gait for transitional care patients and long-term care residents. The group is directed by a nurse from the hospital wellness department. Support for each participant is provided by the long-term care center restorative staff and community members. The class offers inter-generational

*Ernie's name has been changed to protect privacy.

participation and has included teenage volunteers from a nearby high school. Depending on the season, the class takes place outside with a view of the area's mountain range. Music and props make the time fun. The class is free to participants and the cost of this program is paid for in part by a donation given to the wellness department.

GROUP FITNESS CLASS

Community-dwelling older adults can participate in group exercise at the local senior center following physical therapy. This setting combines social interaction with other seniors and professional exercise instruction which may improve adherence to an activity program.[10,11] Leslie's Fitness class is offered 3 times a week and is run by a nationally certified group exercise instructor. Local physical therapists collaborate with the instructor to develop exercise routines for recently discharged patients. Group activities are modified to meet the individual's needs based on the therapist's recommendations. Exercises may be performed seated or standing, with or without an assistive device. Vision and hearing support are provided as needed. The class is offered at an affordable rate to participants and is subsidized by the senior center. The hospital's foundation offers scholarships for older adults needing financial assistance.

SENIOR CENTER GYM

The senior center provides a gym for community dwellers who prefer independent exercise. Aerobic exercise machines and resistance equipment were donated by the hospital wellness department and other donors in the community to the senior center. The gym area is staffed with a certified personal trainer by appointment. The trainer often participates in educational opportunities made available by the rehabilitation department at the hospital. Prior to initiating a gym program, the rehabilitation staff meets with trainer and patient to discuss exercise precautions, functional needs, and activity goals. The equipment is free to use for senior center patrons but donations are encouraged.

WELLNESS GARDEN

Age-Friendly Jackson Hole (AFJH) town parks and recreation department and the hospital joined together to create a wellness garden. The AFJH, a local non-profit organization that promotes accessibility to community resources for all ages, is an American Association of Retired Persons (AARP) Livable Community affiliate of the World Health Organization. Local parks and recreation administrators and AFJH worked to secure a portion of a new municipal park near public senior housing for wellness pursuits. The hospital rehabilitation staff consulted on park design and outdoor equipment to promote independent physical activity. The intent is to offer an outdoor, senior-friendly exercise venue with pathways and exercise stations that are assistive device and wheel chair accessible. The project is still in the planning stage. Access to the wellness garden will be free. The project will be potentially paid for by a local special purpose excise tax and by private donations.

COMMUNITY RESOURCES IMPROVE HOME PROGRAM COMPLIANCE AND OUTCOMES

After listening to Ernie's concerns about his ability to maintain an activity program after discharge, his physical therapist described some of the community resources available to him for continued exercise. Ernie considered the options. He decided to participate in Leslie's Fitness class 3 times each week in addition to gardening and golfing. Ernie liked the structure that the class provided to him. He stayed dedicated to his home program for months. During a follow-up phone call with Ernie, he reported on his progress. He stated that his activity routine kept him strong and mobile enough to thoroughly enjoy the river cruise with his wife to celebrate their 50th wedding anniversary. It was evident that physical activity resources created by community partnerships helped Ernie stay active.

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Nola Peacock, PT, MPT, DSc, is a board-certified Geriatric Clinical Specialist at St. John's Medical Center in Jackson, WY. She primarily treats outpatients with cardiopulmonary and orthopedic conditions. She also provides wellness services including health coaching, fitness consultation, and education outreach.

The Use of Telehealth by Physical Therapists: A Review of the Literature

Karen Blood, PT, DPT

INTRODUCTION

Many populations of people in need of physical therapy services including veterans, those over the age of 60, those living in remote areas, and those with chronic diseases experience barriers to receiving optimal medical and rehabilitation care. These barriers include time and distance from health care facilities, impaired mobility, and limited transportation to therapy appointments.[1] Persons living with chronic illnesses such as multiple sclerosis and stroke often require lifelong rehabilitation efforts to manage their conditions and to maintain an optimal level of quality of life.[1,2] Patients may find it difficult and expensive to travel to outpatient appointments that may take place several times a week for months at a time. Therapists working in home care may have difficulty traveling to meet the needs of all patients, especially in areas lacking sufficient providers.[2] In addition, according to Lee and Billings,[3] there is currently a shortage of physical therapists available to work in skilled nursing facilities (SNFs). Federal regulatory agencies review functional status changes in residents.[3] This results in possible punitive consequences for SNFs if activities of daily living skills decline and increases demand for potential physical therapy treatment. Appropriate evaluation and treatment interventions that decrease service barriers to these vulnerable populations are needed.

One way to decrease barriers to rehabilitation services is to use telerehabilitation methods. Telerehabilitation includes the use of audio or visual technology to allow for remote patient monitoring, the use of sensors that can transmit information on patient status, virtual reality systems, and the use of e-mail or texting for interaction with patients.[4,5] Telerehabilitation can be used to complete physical assessments, provide physical therapy interventions, and to provide education that can include information on current ailments as well as prevention of further decline.[2] There is growing evidence to support its use to promote better use of physical therapy services for those that experience barriers to receiving care, whether those barriers are related to geography, finance, or mobility.[2] Telerehabilitation is a way to foster more coordinated patient care in alignment with value-based practice while at the same time assisting with containing the ever rising costs associated with health care.[3]

The purpose of this literature review is to explore the ways in which telerehabilitation is currently being used in physical therapy practice.

METHODS

Search Strategy

Peer-reviewed literature published on telehealth and physical therapy over the last 5 years was reviewed in May 2018 using EBSCOhost, and Citations and Abstracts for Literature of Nursing and Allied Health (CINAHL) databases. The Academy of Geriatric Physical Therapy's news brief emails were also used to locate additional relevant information.

Selection criteria

Literature was included if it met the following criteria: (1) related to key word search of telehealth or telemedicine and physical therapy; (2) literature published since 2013, except for historical sources; (3) published in English; and (4) peer-reviewed.

Summary of articles

A total of 14 relevant references were identified through this search strategy. Two articles were excluded by screening titles and abstracts. The remaining 12 articles included a nonrandomized control trial,[6] 2 cross sectional studies,[7,8] a retrospective study,[2] a feasibility study,[1] 2 pre-post pilot studies,[9,10] a case report,[3] and 4 narrative reviews.[4,5,11,12]

RESULTS: PRACTICE SETTINGS

Inpatient rehabilitation

The use of videoconferencing has been explored for use in inpatient rehabilitation settings to allow for specialists outside of the area of the hospital to provide consultation to patients as well as allow remote clinicians to consult with hospital staff to optimize patient care and allow for improved interdisciplinary communication.[10]

Skilled nursing facility (SNF)

Lee and Billings[3] published a case report on the use of telehealth in the skilled nursing setting that evaluated the efficacy of re-evaluations performed via telehealth versus one performed in person. The use of a high-quality digital camera equipped with technology for movement analysis was housed in the facility; the evaluating therapist was able to supervise the session remotely. Real-time monitoring allowed the therapist to determine before or during the session if a telehealth session was no longer appropriate and an in-person visit was necessary. The authors looked at clinical outcomes, user satisfaction, and cost savings to evaluate their program. The authors reported that residents had similar outcomes on standardized assessments irrespective of telehealth or in person evaluation. Both residents and clinicians were satisfied with this method of service delivery in this report. It was noted that the telehealth evaluations had an overall cost savings as compared to the in person sessions.[3]

Outpatient and home care

Physical therapists are able to examine patients, provide therapeutic interventions, provide patient and family education, and monitor the results of their treatments by using phone calls, videoconferencing, messaging systems, and sensor-based technology to obtain valuable information regarding patient performance.[10] Veterans using telere-

habilitation services have reported high satisfaction with their physical therapy experience and would be willing to use such services again.[2]

Cardiac rehabilitation

The use of a home based cardiac rehabilitation program has been shown to be an effective method of delivering exercise and patient education to patients that are considered low to medium risk following cardiac surgery.[6] Patients are able to have cardiac monitoring at home and can be supervised by nursing and physical therapy staff to allow for safe participation in exercise at home.[6]

Populations Served

Finkelstein et al[1] piloted a home-based telerehabilitation program for persons with multiple sclerosis. The authors concluded that home-based exercise programs that are individualized to meet the needs of a patient can be effective at maintaining quality of life and functional ability in this population; adherence to such programs can be difficult. Functional outcomes as measured by the 25-foot walk test, Berg balance scale, and 6-minute walk test all showed statistically significant improvement in a small group of patients with multiple sclerosis who took part in an individualized home exercise program that was delivered, monitored, and updated by remote technology. Despite the many neurological impairments that can present in patients with multiple sclerosis, this cohort of individuals did not report difficulty using technology to deliver physical therapy interventions.[1]

Following a spinal cord injury, persons are susceptible to impaired mobility and also at risk for many secondary conditions that may require significant medical follow-up including hospitalization.[7] If using a wheelchair, they also face architectural barriers when seeking health care. Access to equipment such as examination tables or transfer devices in the examination room is also problematic and can impede a practitioner from conducting a thorough examination.[7] In a study by Van Staaten et al,[9] telerehabilitation methods have been shown to be effective in this population by decreasing pain, improving strength, and improving function following a 12-week exercise program.[9]

Persons living with impairments and functional limitations following an acute stroke may be limited in their ability to easily access outpatient rehabilitation services,[10] which may impair their recovery. Other complications to the rehabilitation process are issues with poor compliance with exercise programs and low dosage of rehabilitation services that limit the potential of outcomes that may be achieved.[10] A pilot study was performed with 12 individuals 3 to 24 months post-stroke using video gaming, exercises, stroke education, and videoconferencing with rehabilitation team members. Videoconferencing allowed the therapists to modify the treatment plan as necessary. In this study, a 28-day course of therapy was shown to be effective and feasible in persons living at home after suffering a stroke.[10]

Challenges and Barriers

Regulatory issues

As rehabilitation practices continue to adapt to the meet the changing needs of patients, clinicians must be aware of the most current licensure regulations and payment policies at both the federal and state level.[11] Variability exists across states as to the patients that can be served through remote means and the telerehabilitation services that will be covered.[10] In addition, there is currently no uniformity between states with regards to practice acts and the ability to provide physical therapy remotely.[13] Reimbursement for services may also be a barrier; Medicare is not currently reimbursing for physical therapy services delivered remotely.[13]

Funding

The provision of services via telehealth delivery requires both start-up costs for devices and software, as well as fees for maintenance and security.[3] The use of health and rehabilitation related applications on smartphones may have widespread benefits to certain populations, but may not be available to all in need due to the high cost of the devices even when patients are granted rebates to purchase them.[12] Patients who are willing to participate in videoconferencing therapy sessions must also have a reliable and high speed internet connection, which may limit the areas where this technology can be used.[8]

Patient attitudes

The willingness of the patient to participate in rehabilitation delivered via telehealth modes also plays a role in whether these types of services will be more widely accepted and used. Many people associate physical therapy with a hands on experience and may be hesitant to participate in services where the therapist is only able to provide verbal and visual feedback.[8] Patients that have more complex medical diagnoses or multiple co-morbidities may choose not to participate in telerehabilitation from fear of ineffective management of complications that could arise during a treatment session.[6] In addition, in order to have a visual connection with the therapist, the patient must feel confident with a computer and software that allows for videoconferencing; this may be perceived as difficult to use.[8]

DISCUSSION

Physical therapists in all practice settings are challenged with meeting the needs of vulnerable consumers due to barriers that include limited staffing and inconsistent and unreliable means of transportation for patients.[1,3] Telerehabilitation services are a means to increase access to care to those patients that are most at risk of further decline in functional mobility and quality of life.[1,2] As the population continues to age, and a larger percentage of people are more in need of physical therapy services, clinicians must strive to find alternative methods of quality service delivery to meet this growing demand. Those that are involved in physical therapy education must incorporate teaching telerehabilitation methods, as well as on the state and federal guidelines for such services, to ensure that the next generation of physical therapists are knowledgeable and able to provide for them appropriately. Physical therapists working in all settings must stay current with regulations and pursue continuing education opportunities to allow them to better serve all patients, especially those that experience the barriers discussed that make them the most vulnerable to inadequate access to care.

Telehealth or telerehabilitation is one tool that physical therapists can use in meeting the growing demand for their services. These methods have been used

in a range of practice settings and with a variety of patient populations. Research has demonstrated that this method of service delivery is considered acceptable by both clinicians and patients[2,3] and can have a positive impact on the ability to keep cost of care down.[3] Although research has shown that there are benefits to the practice of telerehabilitation, barriers to implementation also exist that warrant discussion.

There is opportunity for randomized-controlled trials to be performed to demonstrate the efficacy of telerehabilitation services as compared to standard physical therapy care. Studies that can demonstrate that telerehabilitation is as effective as standard care delivery may lead to changes in how these services are reimbursed. In addition, state and federal guidelines need to be updated to be consistent with respect to what constitutes allowable telehealth services, who can perform them, how they can be billed for, and ensure that licensure laws are clear.

As research continues in the field of telerehabilitation, education of future generations of physical therapist will also need consideration. As technology advances, guidelines must be developed to assist entry-level physical therapy programs in determining standards of education in this area. Decisions will also need to be made to determine if evaluating and treating patients remotely are skills that would be considered appropriate for new graduates.

CONCLUSION

Additional randomized-control trials are recommended to establish if telehealth practices result in equivalent outcomes to standard physical services Continuing education opportunities should be designed for clinicians to become more knowledgeable on appropriately used telerehabilitation, current state and federal guidelines, and billing procedures. Physical therapy student education programs need to incorporate these methods as well to allow new graduates to have solid knowledge base on these methods. As technology continues to advance, physical therapists in all settings need to say up-to-date with the latest trends and continue to find new ways to serve all patients.

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Karen Blood, PT, DPT, is a Clinical Assistant Professor in the Department of Physical Therapy at Quinnipiac University. In addition to her teaching responsibilities, she coordinates integrated clinical experiences for her students at Masonicare in Wallingford, CT. She is a member of the Specialization Academy of Content Experts as an item writer. She is currently pursuing her Doctor of Health Science degree. She can be reached at karen.blood@qu.edu.

Use of a Smartbelt Hip Protection Technology in Long-term Care: A Case Study

Rebecca J Tarbert, PT, DPT

Falls in the older adult population are an epidemic that leads to approximately 3 million emergency room visits with 300,000 hospital admissions due to hip fracture in the United States.[1] The risk of experiencing a fall, for the adult who resides in a long-term care setting, can raise to twice the rate of an individual in the community.[2,3] Older adults suffering a hip fracture are 5 to 8 times more likely to die at 3 months than those who did not fall.[4] Fear of falling perpetuates a cycle of self-limiting mobility, engagement in activity, and increasing fall risk with these well-known statistics and personal experience by the older adult individual.[5,6] Many long-term care organizations have implemented fall risk assessment and mitigation strategies based upon the American Geriatrics Society Guidelines for the Prevention of Falls in Older Persons to provide multidisciplinary efforts for patient safety and care.[7] This case report results from the 3-month implementation of cloud-based wearable technology in the form of the Active Protective Hip Protection smart belt that provides inflatable hip protection and caregiver alerts in the event of a fall as part of a long-term care facility's fall management program[8,9] (Figure 1). The smart belt was provided to the facility at no cost as part of a 3-month trial for assessment of the impact of protection technology on resident mobility and safety.

CASE PRESENTATION

A 94-year-old female resident of a long-term care facility was recommended to wear the smart belt during her awake and ambulatory times daily. Her mobility status in the long-term care facility at time of smart belt initiation was independent ambulation with a 4-wheeled rollator walker; she had no report of pain or discomfort. Her past medical history included hypertension, depression, pacemaker insertion, and surgery to her right foot. This resident had recently received physical therapy services in the facility focused upon balance with current metrics of ambulation up to 500 feet, self-selected walking speed of 1.1 m/sec (.94 m/sec normative), Physical Performance and Mobility Exam (PPME) of 11/12, 30 second chair rise of 6 repetitions (4 normative), and tandem stance of 10 seconds.[10,11] Prior to the initiation of the smart belt, she had a self-reported fear of falling via the Short Version of the Falls Efficacy Scale International of 11 (Short FES-I), indicating a moderate concern of suffering a fall within performance of functional mobility.[12]

The smart belt contains an inertial measurement unit that can sense when a hip impacting fall is occurring and deploy a cold-gas engineered airbag covering bilateral proximal pelvis and femur to attenuate the impact forces of the impending fall. When a fall is detected and the belt is connected to WiFi, the belt will immediately alert caregivers to the resident for attention. The sensors in the belt also allow caregivers to track how much and how often the resident is wearing the belt and monitor mobility in static and dynamic scenarios.

This case study shares the outcomes of the implementation of the smart belt technology in the performance of mobility by a single user in the long-term care setting. The resident wore the smart belt for 11 weeks at an average of 2 hours per day, 7 days a week while she ambulated to dine and throughout the facility.

During her time of wear in the 11 weeks, no falls were reported by the resident and no alerts from the belt indicating a fall were communicated. Refer to Figure 1 for measures taken in the 11-week timeline. Alerts regarding a critical low battery were communicated via the cloud by the belt on occasion that would impact her ability to wear the smart belt when she was ready to walk.

DESCRIPTION OF THE RESOLUTION OF CARE

Based on the data gathered while the resident was wearing the belt within her normal daily activity in the facility, we can see an initial drop of self-selected walking speed. This was perhaps due to decreased participation in mobility and physical activity following discharge from physical therapy services and resulted in decreased engagement in scheduled performance of physical activity. Following initiation of the smart belt, the resident returned to her previous walking speed as well as doubled the ambulation distance she was performing on an average daily basis. Her comments included, "I feel comfortable when I wear (the belt) when walking around. It's the first thing I do before I get up to walk because I don't want to break a hip." This confidence is reflected in the 1-point change of the fear of falling

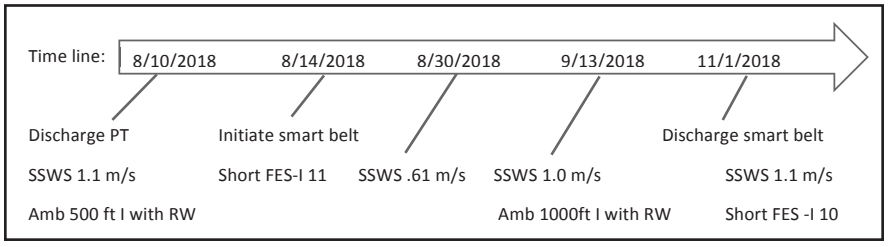

Figure 1.

scale Short FES I.[12] Increased mobility is reflected in the increased distance ambulated per day and the return to the self-selected walking speed.[13]

DISCUSSION

Several factors may have impacted the physical performance outcomes seen in this case study. The resident shared that she enjoyed speaking with others in the facility about the belt and she would engage in these discussions regularly within the facility while out walking in the hallways. The intrinsic factor of value in engaging with others with a topic to share may have contributed to her engagement in mobility in the inpatient community. Changes in the Short FES-I scores were demonstrative of decreased overall concern of falling. The resident in this case study was an independent ambulator who is independent in her performance of activities of daily living including dressing, as well as donning and doffing the smart belt. These factors likely impacted the consistency of use of the smart belt.

LESSONS LEARNED

This case demonstrates an example of the integration of technology in a skilled nursing environment and integration with a fall management program. The patient enjoyed using the smart belt, wore it often, had qualitative increases in confidence, and most importantly, had significant increases in mobility and self-selected walking speed. Further assessment of the relationship between implemented technology into the daily habits of long-term care residents at risk of decreased mobility and at risk of falling is warranted to best support the quality of life for this older adult population.[14]

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Rebecca Tarbert, PT, DPT, GCS, CLT, has been working in the health care market for 19+ years as a licensed physical therapist with 10+ years of focus on caring for the older adult. Rebecca has provided care, served as a clinical leader and clinical specialist for a large post-acute care organization in her recent work history. She is now serving as Director of Clinical Programs for Active Protective Technologies, Inc. based out of Fort Washington, PA, and continues to provide care as a physical therapist under outpatient services in the home setting.

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Sharon Klinski
2920 East Avenue South, Ste 200
La Crosse, WI 54601-7202
W 800/444-3982 x 2020
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sklinski@orthopt.org

Academy of Orthopaedic Physical Therapy, APTA
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2920 East Avenue South, Suite 200
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Do you work in Skilled Nursing Facilities? Home Health Agencies? Inpatient Rehabilitation Facilities? Long-term Care Hospitals?

If you answered yes to any of those, have you checked out the AGPT's new webpage?
Members can access it here: https://geriatricspt.org/practice/payment-policy-and-advocacy.cfm?

No matter what post-acute care setting you work in, you can find resources here to assist you in preparing for the Patient Driven Payment Model in SNFs or the Patient Driven Grouper Model in HHAs. You can also find tools/resources related to regulatory and quality reporting changes in each of these settings, as well as links to APTA's Post-Acute Care Webpage.
It is updated frequently, so bookmark it!