

GERI NOTES

Academy of Geriatric Physical Therapy

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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/Memorial Fund is a wonderful expressive memorial.

President's Message: Thank You

*William H. Staples, PT, DHSc, DPT
Board Certified Geriatric Clinical Specialist (GCS)
Certified Exercise Expert for Aging Adults (CEEAA)*



I am sitting at my desk contemplating my 35th and final President's Message. Six years is both a long and a short time. I am passing the President's torch

to Greg Hartley who will take office at CSM after I have gained a wealth of knowledge that I will always treasure. Working with highly insightful and talented people has been a fantastic learning experience and I am thankful for the skills I have acquired and practiced. This experience has made me a more complete and well-rounded person. I have learned how to better take direction, criticism, and compliments. These are things I was not so great at taking before, and now I feel as though I can apply them in many different situations moving forward to my next challenge. I have learned to be more open-minded, to better value other people's opinions, and to consider other ideas along with mine, to end up with a great final result. I have also had to endure a long but successful legal battle that unfortunately cost the Academy financially, and friends personally. But we stood strong and prevailed in that battle.

Being part of the leadership team of Board members and Committee/SIG Chairs has taught me skills that I can use in more than just the professional area of my life. My relationships on a personal level are in a great place, thanks to some of the things I have learned from many of you. I have come to realize that being a part of a team is a lot more than just sharing credit. A team effort takes compromise. When you are on a team you have to at times lead, at times fol-

low, and more often than not, meet in the middle.

I leave the Board in excellent shape with a mix of experienced and new members to continue to lead the Academy. The "Academy," a name change which was a struggle to obtain, was an important legacy for me. APTA will soon have more than half of the Sections becoming Academies thanks to our leading vision. We have had many other successes during my 6 years as President with an improved social media presence and revamped website, increased membership, and successful strategic planning for the future. I believe the hard work and commitment towards a highly successful future for the Academy will continue to put us in the forefront of physical therapy practice. The Board knows how to manage difficult tasks in a competitive environment and solve problems effectively in an efficient manner.

I have had the opportunity to meet hundreds of members that I would have not had the opportunity to meet without this office. But, I am not disappearing into the sunset and I will remain active with the Academy in some way. I have always loved working at the Academy's booth at both CSM and the NEXT conference. This enabled me to meet so many new colleagues, so continue to stop by to say hi!

My final push is to ask all of you who are not actively involved in the Academy to consider becoming more involved. My best wishes are with all of you, go ahead and volunteer, stretch yourself to accomplish goals you might not think are possible. Being a highly educated person, you certainly have all the necessary traits and important personal characteristics as well as professional skills.

Lastly, I would like to say a big thank you to all my Board members, past and present, and our Executive Director, Karen Curran, who gave me your friendship, kindness, and support for the last 6 years. We have had many good moments with a few difficult times too, but the good has far outweighed the bad. All these experiences have given us new opportunities to grow for the positive.

My sincere thanks to all of you; the future will be a success!

Bill

Editor's Message: Kicking Off the 40th Year

Michele Stanley, PT, DPT, GCS, CEEAA



This is a “what the heck have you gotten yourself into” moment for me. Although I have years of experience as a proof-reader and member of editorial boards and teams, being “The Editor” is a new experience. I have had awesome mentoring from Meri Goehring, the immediate past Editor of *GeriNotes*, and wonderful words of encouragement from colleagues and Editors of other APTA publications. Unfortunately, one of the pieces of advice: “Try to make your Editor’s Message insightful or quirky” has given me first class writer’s block. Nonetheless, I am a firm believer in the value of life-long learning and thank the AGPT for this opportunity to continue my personal and professional growth. Given my sense of humor and low-filtered honesty, quirky will likely come in one of these ensuing messages. Hopefully the memorable/insightful will be found in the response to some of the submissions and topics that we uncover together. To that end, please send copy! *GeriNotes* is not a peer-reviewed journal but it is a good FIRST STEP if you might want to try publishing. It is also a mechanism to share your own insights, ideas, discoveries and techniques, and case reports with a chance to get friendly feedback. If that process encourages you to take the Next Step toward IRBs, grants, or clinical research that would truly be memorable. The more I learn as a physical therapist, perhaps this is true for you as well, the more I realize that there is so much more to know...much of it not yet documented. So do not feel that you have to be “the expert” to submit to *GeriNotes*, the Editorial Board

and I welcome all submissions. Please share your clinical pearls and programs: let us learn from one another and, just maybe, your comments and experiences will trigger an idea for some of that much needed clinical research from one of our colleagues or students. Instructions for Authors (available on our webpage) is also printed in this issue (see page 30).

This is the year marking the 40th anniversary of the Academy of Geriatric Physical Therapy (which started as the Section on Geriatrics). A lot has happened in our world during that time. To celebrate and honor the 40-year journey, each issue of *GeriNotes* will feature a different highlight. Faith Beckerman Goldman has generously started the process by offering up her own clinical pearl as well as written a piece about *Prime Timers*—a group of age 50+ or retired physical therapists in this first issue of the year. The next issue (deadline for submission is March 10!) will feature insights and interviews from past presidents of the Academy. In future issues, we will look at Joan Mills winners then and now, recent activities and advances of the Academy, and profile our emerging leaders to spread the celebration over the whole year.

I work primarily in an acute care setting now; managing the frequency and usually horrible consequences of falling events often dominates a day of hospital practice. This issue reports on the work of the Balance and Falls SIG on raising fall awareness and prevention as well as 5 other articles dealing directly or indirectly with balance and falls. This is important stuff for everyone who works with elders. Please consider planning an awareness event in your work or home community—it is not necessary that it coincide with autumn—and share your ideas and successes for individual or group fall prevention strategies.

By the time this issue is in your hands, CSM will be just around the corner. The Academy has sponsored many educational sessions that promise to be outstanding. I hope that you will seek me out if you have ideas for articles or stories to share or just to meet up. A great place to find me will be at the AGPT Member Meeting on Thursday at 6:30 in the Hilton. We are celebrating our 40th Anniversary and we know how to throw a party - please come. Would you be interested in helping determine the next Focus issue (for Nov 2018)? Come to the *GeriNotes* Editorial Board Meeting on Thursday from 1:00-2:30 in the Hilton, pitch us your story ideas or interests for a focus issue. Have a PTA that you know or work with that has super-powers working with the elderly? We would like their names and contact information to highlight them in a future issue.

If you have not ever gone to CSM, give your spirit and career a boost. You will be invigorated by comrades and almost more energy and ideas than you can process. And, it is in New Orleans...

National Fall Prevention Awareness Day Highlights

Mariana Wingood, DPT, PT, GCS, CEEAA

The members of the Academy of Geriatrics played a vital role in this year's National Fall Prevention Awareness Day (FPAD). The FPAD is a national effort to promote fall prevention through various activities and events. This year was the 10th annual FPAD and with support from the Balance and Falls SIG it was a huge success. To continue improving these efforts, information about the events and activities are collected and shared.

A short summary of some of the efforts from around the country follows.

NEW YORK:

Eastern Long Island Hospital and Peconic Landing Continuing Care Retirement Community (CCRC) co-hosted a "Don't" Fall Festival. Activities included pumpkin painting with an eye chart and information regarding vision's effect on balance; corn hole with instruction on weight shifting/reaching and picking items up from floor; apple cider and donut station with the hospital pharmacist to discuss the poly-pharmacy effect on balance; apple picking with education on reaching into high cabinets; quiz table with education on home safety and candy treats; and a photo opportunity with Marilyn Monroe and Dean Martin (as a draw to attend festival). Participants enjoyed a creative and fun interdisciplinary approach to educate and raise awareness about fall prevention.

NEW MEXICO:

The New Mexico Adult Fall Prevention Coalition promoted two events. A community center "Fall Fiesta" included lunch, a dance, and many booths relating to fall prevention. An interdisciplinary team provided 58 older adults with education and fall screening using the CDC STEADI. Each person screened received a copy of the STEADI Fall Risk Checklist and Questionnaire to take

home and review with their health care practitioners and family members. In addition to the STEADI screenings, there were booths on home safety, foot/shoe screenings, medication, and blood pressure checks. Those who visited at each booth were eligible for donated door prizes.

Physical therapists collaborated with the New Mexico Department of Health during "Senior Celebration Day." Education was provided by therapists included local resources for evidence-based community fall prevention classes.

NORTH CAROLINA:

Physical therapy faculty, staff, and students from Winston Salem University conducted 3 sets of fall risk assessments at numerous Senior Service lunch sites in Winston Salem, NC. Educational handouts, STEADI screening, and fall prevention recommendations were provided to 45 older adults participants.

McDowell Technical Community College, Mountain Area Health Education Consortium, McDowell Senior Center, and the McDowell Balance and Falls Prevention Project hosted an interdisciplinary falls prevention workshop "It Takes a Village to Prevent Falls." Multiple speakers including Dr. Golnosh Sharafsaleh, MD, who spoke on the topic "What's the Big Deal About Falls Prevention?" Dr. Vicki Mercer, PT, PhD, who discussed fall risks, Michelle Cotton, NP, who spoke on "McDowell County Fall Prevention Efforts Past, Present, and Future," and Martha Zimmerman, PT, who spoke about the McDowell Balance and Falls Prevention Project. The workshop concluded by examining the sustainability of the McDowell Falls Prevention Program.

PENNSYLVANIA:

Chatham University first year DPT students, along with faculty member

Missy Criss, PT, DPT, assisted Kaitlyn McCormick, PT, GCS, with a staff education event at a local nursing home. This event included hands on learning for lead staff members on strategies of identifying environmental hazards in an unsafe room simulation, using glasses to alter vision so staff could experience the room as patients do, and in remembering how to place cushions and other adaptations on wheelchairs correctly.

Justin Mierzwicki, PT, DPT, GCS, and DPT students from Lebanon Valley College trained area physical therapists on the STEADI. In-service training included proper utilization as well as recommendations for use as a screening tool quarterly across all practice settings. Additional fall prevention education was presented to 40 members of a CCRC that included recommendations for exercises and referral.

Gannon University DPT Students, under the guidance of faculty member Julie Hartmann, PT, DSc, GCS, provided a two day balance program for the Sisters of St. Joseph in Erie, PA. The first session focused on balance assessments and education and the second session focused on games with a balance component.

VERMONT:

Stay Steady Vermont included educational sessions in the form of BINGO, STEADI screening, question and answer time, recommendations, a results sheet to bring to their MD, and a guidebook of local community exercise groups. This year the VTAPTA, the Vermont Falls Free Coalition, PT students, and local clinicians held 29 events, educated 330 older adults, and screened 256 community dwelling older adults all around state. Out of the 256 screened participants, 150 individuals signed up for follow-up phone calls.

The Balance and Falls SIG thanks all who planned and participated in their state's FPAD. We could not do it without the many volunteers who helped make this event possible. Now that your event is over, it is highly recommended that you perform some type of survey of participants and volunteers. This is the time to capitalize on all the energy around FPAD and begin planning for

next year. If you have any questions regarding events, want to be involved, or have suggestions for improvement feel free to e-mail me at mariana.wingood@outlook.com.



Mariana Wingood is a physical therapist at University of Vermont Inpatient

Rehab Department. She is also the Balance and Falls SIG Chair who is very enthusiastic about fall prevention as well as knowledge translation/imple-

mentation.

Prime Timers

Faith Beckerman Goldman

A few weeks ago, I communicated with William Staples, President of the Academy of Geriatric Physical Therapy after reading his account of an accident that he had. He narrated his out of body experience that occurred while getting on and off an elevator. This generated conversation about other experiences of patients who are physical therapists and his suggestion that I consider writing an article for *GeriNotes*. My name is Faith Beckerman Goldman and I am a proud Life Member of the APTA starting in sssshhh! 1966. This past October 31st, I reached a milestone birthday - 3/4s of a century old. So I have been a physical therapist for a 1/2 century and have never taken my physical therapy hat off though I am now retired. In conversation with the new editor of *GeriNotes*, the subject of Prime Timers came up. It is an organization that very few physical therapists know about. Writing this article became an assignment and I hope it will open your eyes that life does exist as a physical therapist after 50 and/or retirement.

I had a stark reality moment while writing this story as I reflected on my premature birth. I think that I was on the path to becoming a physical therapist in the womb. In 1942 the standard practice for premature babies was to put them in an incubator with strong light and 100%

oxygen. The protocol was changed in 1972 after the medical community realized that 100% oxygen caused retinal damage—mine about 75% loss. Stevie Wonder lost all of his sight from the same treatment. I must have been handled by some physical therapist early as I was also born with Ehlers/Danlos Syndrome - the hypermobility factor. Someone fit me with knee braces to prevent genu recurvatum. Though World War II was still in progress and funds were tight, my parents had me seen at Yale University. I was a poster child followed by the same ophthalmologist for 15 years: Dr. Arthur Michael Yudkin, [Editor's Note: see Faith then and now in the photo]

I have been looking for the definition of *Prime Timers* for days. I am not too old to not be able to use Wikipedia or call Siri or Google to get a definition. I even dusted off a large print Webster's dictionary. Nowhere could I find our exact name which makes me, and I hope other members, feel even more special. The word *prime* means first in time, original, and primary. *Timers* are time-keepers and/or stopwatches. Make the definition of Prime Timers fit your experiences and educational background. We are a proud group that has room for many more members and at \$10 annual dues, who can say "no"? If not a PT or PTA that is over age 50, you may partici-

pate as a friend. The Section [now Academy] of Geriatric Physical Therapy was born 40 years ago out of the body of the APTA. *Prime Timers* originated 30 years ago and was adopted by the Foundation for Physical Therapy. Officially, *Prime Timers* is a nationwide group of APTA members, senior physical therapists and physical therapist assistants who are 50 plus and/or retired from practice. The group does not fit into any component category of the APTA; however, the Association supports the efforts of the group and lists it as a benefit on the



membership information. The Foundation for Physical Therapy provides support through posting the digital newsletter in their website.

Over the years, *Prime Timers* have supported both the Association and the Foundation by sponsoring or contributing to such projects as the history project, the WCPT Meeting in DC, fund raising for research, and the HOD extension. We, now a group 300 members strong, share our knowledge and experiences as volunteers for the APTA components and individual members. The idea behind *Prime Timers* of continuing contribution to ones profession before and following retirement from active practice was shared via a poster presentation at a WCPT Congress several years ago. The group founders did not want the wealth of information on Association matters they possessed to be lost. This informal group was a way to give back. At the 2017 Congress the topic was on the program again. We attend conferences locally and nationwide such as the APTA's Combined Sections Meeting where we network, have fun, and man booths. *Prime Timers* also publishes a quarterly e-newsletter.

The current officers and chairpersons are President, Neva Greenwald; Vice President, Dottie Nelson; Newsletter Editor and Historian, Venita Lovelace-Chandler; Treasurer, Fran Kern; and Secretary and Membership, Linda Eargle. There have been many officers in the past 30 years and many contributors to the newsletter that are archived: <https://foundation4pt.org/news-events/newsletters/prime-timers>. I am from the age of true letter writing with an actual pen but enjoy seeing the past editions. The scope of the newsletter has a wide variety of subjects: technical, travelogues, memorial tributes, non-PT prose of our members, as well as information regarding national meetings, physical therapy practice laws, and changes.

A story in the June 2017 edition triggered a reconnection with Dr. Anne Pascasio, my professor from 50 years ago at D. T. Watson School of Physiatics in Leetsdale, PA. In 1969, the school was merged with the University of Pittsburgh. Our Director was Mary Elizabeth Kolb who, at the same time, was President of the APTA. For a great story about D.T. Watson and the breakthroughs in

treating those in the polio epidemic, go to the University of Pittsburg SHRS website, www.shrs.pitt.edu. The article, "Teaching the Hands That Heal," is in the spring/summer edition, 2002, page 34. This is a well-written history of the early physical therapy profession. We are all connected and, for the most part, like being a part of something--family,

school, profession. *Prime Timers* has, for me, rounded out my life, kept me in the loop, and continues to open doors. I hope you will give *Prime Timers* a try. We are never too old to experience new things, people, places, and retirement is just a word.

Physical Therapist Assistants and Physical Therapists:

You are Invited to Join the Prime Timers
or Invite a PT/PTA Friend to Join!

Print and mail this form with a check to join
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Name _____

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Election Results!

Please congratulate the following Academy of Geriatric Physical Therapy members who will take office at the Member's Meeting at CSM 2018 in New Orleans, LA:

President

Greg Hartley

Vice President

Cathy Ciolek

Director

Jackie Osborne

Nominating Committee

Jill Heitzman

The Nominating Committee wishes to greatly thank those who voted, and all candidates for their willingness to run and their strong interest in taking part in the future success of the Academy of Geriatric Physical Therapy.

Policy Talk: Acting on Clinical Data to Improve Care

Ellen R. Strunk, PT, GCS, CEEAA, CHC
Tracy Fritts, PT, MSPT
Amy Hobbs, PT, GCS, CEEAA

The *GeriNotes* Policy Talk has traditionally been a forum for sharing regulatory information with members and exploring its impact on practice. At other times, it has urged members to advocate for their patients, for their profession, or for their own clinical professionalism. This issue will not stray from that theme, but it does provide a slightly different perspective.

The Improving Post-Acute Care Transformation Act (IMPACT) of 2014 was signed into law on October 6, 2014. The Act was a significant piece of legislation supported by both sides of Congress and widely embraced by provider stakeholders. Its goal is to achieve uniformity to facilitate effective communication for better care of individuals and communities. How will this uniformity be achieved? Through standardizing patient assessment data across the post-acute care (PAC) settings. The Centers for Medicare and Medicaid Services (CMS) have been testing various items since as early as 2006. The Post-Acute Care Payment Reform Demonstration (PAC-PRD) studied the utility of using a standardized assessment tool called the Continuity Assessment Record and Evaluation (CARE) for four years in all four PAC settings. That study has led to the realization that several items in that tool can be used to standardize patient assessment.¹ Two of the item sets of interest to therapists in these settings are the CARE Self-Care Items and the CARE Mobility Items (Table 1).

Since that time, PAC settings [long-term care hospitals (LTCH), skilled nursing facilities (SNF), inpatient rehabilitation facilities (IRF), and home health agencies (HHA)] have seen a lot of changes in the data they are collecting. It is not the only thing that is changing in this space, however. The

IMPACT Act requirements are in addition to the changes brought about by the Affordable Care Act (ACA) in 2010 and the Protecting Access to Medicare Act (PAMA) in 2014. The result is an environment where health care entities are increasingly scored, chosen and paid based on the “value” they provide to their patients, their beneficiaries, and to the payers (Figure 1).

Think about the last time you purchased a service or a product. Did you ask friends or family for references? Did you check websites for reviews on the product? Most people would answer yes, and that is because when you spend your money, you are not always looking for a bargain. You want a good product and/or a dependable service. That is the mindset of health care payers. The days of paying therapy for the volume of minutes, days, units or visits provided to a patient are numbered. How will it be paid for then? Payment will likely be a combination of cost plus the outcome that was achieved by the patient as a result of the therapy service.

This will likely be a paradigm shift for many therapists who work in PAC settings. Some therapists have never worked during a time when minutes, visits, units, and days were not a focus and point of discussion in the therapy workplace. A good example of just how tumultuous a change like this would be is the response by the provider community to the recent proposals to revise the Home Health and Skilled Nursing Facility Prospective Payment Systems with new systems. The goal of both proposals was to remove therapy utilization as the primary driver of the payment system. The overwhelming response from the therapy community was concern that therapy would be significantly reduced in these settings, and thus affect the

quality of care delivered to beneficiaries. ***While there are many flaws in the systems proposed, and the purpose of this article is not to point those out,*** it does provide an interesting context for this article. What if? What if the systems are put into place? How would therapists objectively convey the “value” of their services to the patients and the providers they work for? As a therapist, would you be able to answer the same questions you ask of vendors when you are seeking a service? “How much will it cost?” and “What can I expect to get for my money?” Two companies sought to begin that journey by objectively studying the value of using physical agent modalities as an adjunct to their PT and OT services in skilled nursing facilities.

In March 2014, Consonus Rehab Services began to explore various tools by which they could measure the functional improvement made by patients in their skilled nursing facility therapy programs. Having been aware of the PAC-PRD study and concluding that CMS was clearly vested in and promoting the use of the CARE item sets, Consonus chose to use these items and the rating scale in their programs. Consonus also committed to training every PT and OT staff person in the rating scale as well as the descriptions of the functional tasks. Therapists had to participate in a two-hour webinar training, and pass online exams on the scale, the self-care tasks, and the mobility tasks with 80% accuracy. New therapists complete this at hire and all staff re-credential via the same process every two years.

Consonus began collecting admission and discharge self-care and mobility scores on all patients receiving physical and or occupational therapy services in their 80 sites across the United States in April 2014. After collecting this data for

1 For more information about this study and the IMPACT Act, see “Policy Talk: Ten...Nine...Eight...Preparing for Impact” Part 1 and Part 2 in the September 2015 issue and the November 2015 issue.

Table 1. CARE Functional Item Sets: The table shows the fiscal year the item became mandatory for collection on every Medicare Part A beneficiary in Section GG of the PAC setting's assessment tool.

SELF CARE	LTCH	SNF	IRF	HH	RATING SCALE
Prior Level of Functioning: Cognition		2018	2016	2019?	6 = Independent
Eating	2016	2016	2016	2019?	5 = Set up / Clean up Assistance
Oral Hygiene	2016	2016	2016	2019?	
Toileting Hygiene	2016	2016	2016	2019?	4 = Supervision or touching assistance
Wash Upper Body	2016			2019?	
Shower / Bathe Self		2018	2016	2019?	3 = Partial/Moderate Assistance
Upper Body Dressing		2018	2016	2019?	
Lower Body Dressing		2018	2016	2019?	2 = Substantial / Maximal Assistance
Putting on/Taking off Footwear		2018	2016	2019?	
MOBILITY	LTCH	SNF	IRF	HH	1 = Dependent
Prior Level of Functioning: Ambulation		2018	2016	2019?	Possible Score Range for Self-Care: 8 to 48
Prior Level of Functioning: Stairs		2018	2016	2019?	
Roll Left and Right	2016	2018	2016	2019?	Possible Score Range for Mobility: 14 to 84
Sit to Lying	2016	2016	2016	2019?	
Lying to Sitting on Side of Bed	2016	2016	2016	2019?	Possible Score Range for Mobility: 14 to 84
Sit to Stand	2016	2016	2016	2019?	
Chair/Bed to Chair Transfer	2016	2016	2016	2019?	Possible Score Range for Mobility: 14 to 84
Toilet Transfer	2016	2016	2016	2019?	
Car Transfer		2018	2016	2019?	Possible Score Range for Mobility: 14 to 84
Walk 10 feet	2016	2018	2016	2019?	
Walk 50 feet with Two Turns (or Wheel)	2016	2016	2016	2019?	Possible Score Range for Mobility: 14 to 84
Walk 150 feet (or Wheel)	2016	2016	2016	2019?	
Walk 10 feet on Uneven Surfaces		2018	2016	2019?	Possible Score Range for Mobility: 14 to 84
1 step		2018	2016	2019?	
4 steps		2018	2016	2019?	Possible Score Range for Mobility: 14 to 84
12 steps		2018	2016	2019?	
Picking Up Object		2018	2016	2019?	Possible Score Range for Mobility: 14 to 84

about a year, a QAPI process was initiated by ranking facilities by functional improvement in each item set (self-care and mobility) from highest to lowest.

A deeper analysis of operational and clinical levers helped us identify what was happening in the highest performing buildings compared to the lowest

performing. Through this analysis 4 areas that appeared to impact functional improvement were targeted in an internal performance improvement effort. The data showed the facilities with the highest functional improvement scores also performed well in (1) implementing evidence-based clinical programs; (2) completing documentation timely and thoroughly; (3) maintaining staff consistency; (4) and supplementing procedure based therapy treatments with physical agent modalities (PAM) (Table 2). Consonus found the teams with higher scores in each of these 4 areas also had higher functional improvement scores (see Table 3). The focus has shifted to improving these levers in the lower performing facilities through additional staff training, repeated auditing, and maintaining staff consistency. Naturally,

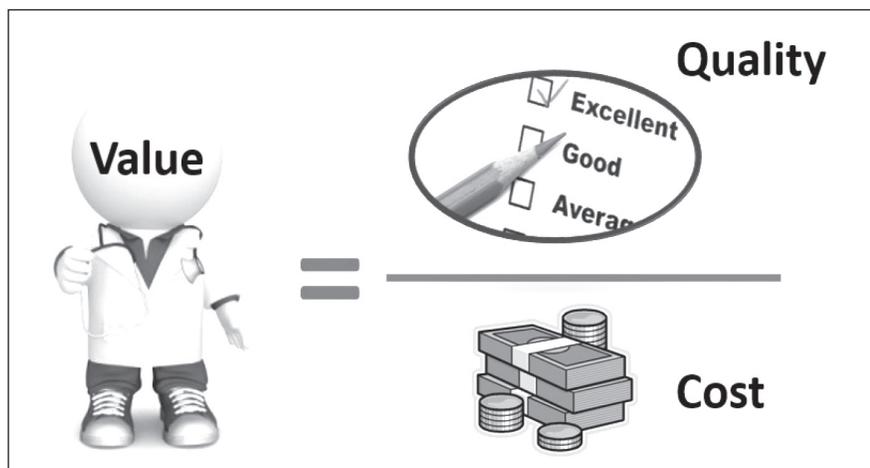


Figure 1. The value equation.

Table 2. Consonus Rehab's Four Performance Levers

Lever	Description	Rating
Clinical Programs	Evidence-based strategies are implemented for patients with balance impairments, chronic conditions, and cognitive disabilities (using the Cognitive Disabilities Model).	Quarterly each team is rated on a 1-5 scale on their implementation of the programs
Documentation	Documentation audits are objectively scored.	Monthly audits range from 0% to 100% score
Staffing	Number of treatment minutes completed by full-time/part-time staff versus on-call or PRN staff.	Reports are run from their rehab software
Use of Biophysical Agents	Staff have access to use a variety of biophysical agents to adjunct their hands-on delivery of treatment for those conditions where they are warranted.	Reports are run from their rehab software

Table 3. Total Self-Care and Total Mobility Score Performance for Medicare A Patients, Comparing Functional Outcomes for those who Received Selected Modalities Versus those who did not

	Patients receiving one of the selected study modalities				Patients who received no study modalities			
	Average Starting Score	Average Ending Score	Change in Score	% Change	Average Starting Score	Average Ending Score	Change in Score	%
Total Self-Care Score	52.8	72.9	20.1	38%	55.5	70.6	15.1	27%
Total Mobility Score	40.7	67.7	27	66%	45.9	65.7	19.7	43%

the analysis always finds some facilities as top performers and others as bottom performers. But the overall improvement scores in both Self Care (Figure 2) and Mobility (Figure 3) items have improved over the years.

Accelerated Care Plus sought to quantify the value of their comprehensive clinical programming augmented by biophysical agents. To do this, they privately contracted with The Moran Company to conduct an independent analysis of the functional outcomes resulting from the delivery of physical and occupational therapy in skilled nursing facilities both with and without the use of specific biophysical agents—diathermy, electrical stimulation, and ultrasound. Consonus was ideally suited to participate in this study, since they had been an early adopter of the CARE functional item sets. This allowed a uniform data set with a large sample size that would have not been possible if outcomes were assessed using a disparate set of outcome measures.

The Moran Company collected private health information (PHI)-redacted medical record data donated by Consonus Rehabilitation. The data set included admission and discharge functional assessments collected over a 17-month

period (April 2014 through September 2015), which included over 25,000 Medicare A episodes across 81 Skilled Nursing Facilities. Approximately 58% of the Medicare Part A patient stays in the sample population were FFS beneficiaries. The remaining 42% were enrolled in Medicare Advantage. Approximately 43% of patients used one or more of the study modalities. Electrical stimulation and diathermy were the most frequently used (29% and 25% of all Medicare Part A patient stays, respectively), followed by ultrasound, with

utilization in about 5% of the SNF stays. Of the patient's that used one or more of the study modalities over the course of their stay, modality services were delivered on approximately 8.2 days, or only 37% of the days during their stay. The Moran Company used this data to assess the difference in functional outcomes between those patients that received treatment augmented by ACP program modalities and those that did not.

Table 3 summarizes the results of the outcomes comparison and shows the total self-care and total mobility score

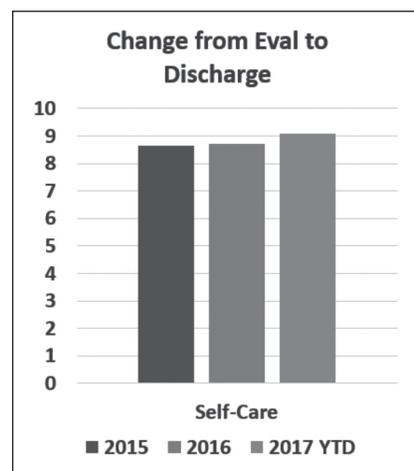


Figure 2. Change in self-care scores between 2015 and 2017.

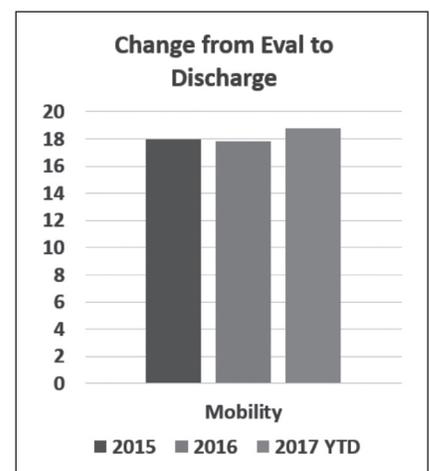


Figure 3. Change in mobility scores between 2015 and 2017.

performance for Medicare A patients. In the self-care domain, the use of one or more of the study modalities yielded a higher change in functional outcome of 38%, an 11-percentage point difference between treatments with PAMs vs. treatment without. In the mobility domain, the use of one or more of the study modalities yielded an improved outcome of 66%, a 23-percentage point difference between treatments with PAMs vs. treatment without. Individuals treated with modalities began at an overall lower level of function in self-care and mobility when compared to those that did not receive modality intervention. The end scores for those individuals who received treatment with modalities exceeded those that did not. Considering the lower starting status of independence for patients who received modalities, the Moran Company explored whether the greater rate of change was influenced by the fact that these patients had more room to improve. To analyze this, patient data was grouped into 4 level of assistance categories based on how dependent the patients were on the CARE Item Set functional measures upon admission. The results of this comparison revealed that the average improvement in overall self-care and mobility functional assessment scores were greater for those treated with modalities than for those that were not, across all levels of assistance. The overall conclusion of the study is that the use of biophysical agents, when clinically indicated, can yield efficient, effective treatment outcomes across levels of independence that are superior to therapy services rendered without biophysical agents.

What these activities demonstrate is that we can turn data into knowledge. As physical therapy professionals, we must embark on collecting data that will inform our decisions about the care delivered to our patients. That means thinking about what information to collect: What variables are 'essential'? What data points will inform your understanding of therapy delivery? The data collection doesn't have to be overwhelming, but it must be meaningful. Establishing a minimum set of elements that must be completed on every patient is essential to being able to answer questions about your patient cohort. Consider the relationship between the variables. Will you have enough

information to make some preliminary conclusions? How you will present the data in a way that is meaningful and actionable?

As each of us contributing to this article knows well, gathering data takes time. Collecting data into a format that allows for analysis is complex. And analyzing data leads to more questions! We hope to continue to analyze the data and have already come up with additional questions for the "next phase" of this project. CMS has also announced their plans to analyze the CARE self-care and CARE mobility item sets collected through Section GG in the PAC settings. Currently, the data in IRFs is used in four different measures for IRF Quality Reporting Program:

1. Change in Self-Care Score for Medical Rehabilitation Patients (NQF #2633)
2. Change in Mobility Score for Medical Rehabilitation Patients (NQF #2634)
3. Discharge Self-Care Score for Medical Rehabilitation Patients (NQF #2635)
4. Mobility Score for Medical Rehabilitation Patients (NQF #2636)

These same 4 measures have been adopted for the Skilled Nursing Facility's Quality Reporting Program beginning October 1, 2018.

One year ago, in this Policy Talk column, an excerpt of Peter Kovacek's address at NEXT 2016 was presented. It is fitting to remind readers again of something he said: "If you think productivity is threatening, as in, 'How much do you do?' then think about accountability, as in, 'Are you any good?'"



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Toileting: Crucial to Independence—The Evaluation Piece

Beth Bright, OTD, OTR/L, BCPR
Carole Lewis, PT, DPT, GCS, GTC, MPA, MSG, PhD, FSOAE, FAPTA

INTRODUCTION

If you had to pick an activity of daily living (ADL) that would be most predictive of independent living, what would it be? Dr. Linda Bloodworth is about to publish her recent study that looked at ADLs that were most predictive of living independently. She found that toileting was the most important in both getting to the toilet and the activities involved once the person was on the toilet. The activities involved while the person was toileting were even more important than getting to the toilet. In addition, she found when occupational therapists (OTs) trained people in this area, they were much more effective than family members working with their loved ones on bringing the person to a higher level of independence. On a general reasoning level this makes sense and it begs the question, “what do we as therapists do to help our patients and how can we do it better?” In addition, the physical and cognitive demands involved while a person is toileting are often overlooked by health care providers.¹

EXAMINATION

Let us begin with examination. What are the classic tools that look at toileting? Currently, there are several standardized assessments that assess ADLs, however, there are no assessments that only evaluate toileting within the adult population. Below are scales and assessments that evaluate toileting as one of the aspects of independent functioning:

1. Barthel Index: control of bowel and bladder
2. Bristol Activities of Daily Living Scale: toilet and commode transfers
3. Katz Index of ADL: Using the toilet
4. Klein-Bell Activities of Daily Living Scale: elimination and transfers
5. Melville-Nelson Self Care Assessment: toileting and personal hygiene

Of these 5 scales, the authors of this article like the Melville–Nelson the best. The Melville-Nelson Self-Care Assessments (SCA) focuses on the evaluation of 7 major areas of self-care. These areas include bed mobility, transfers, dressing, eating, toileting, personal hygiene, and bathing. The SCA has a predictive validity of caregiver time and support after discharge² (https://www.utoledo.edu/hhs/ot/pdfs/sca_overview.pdf). On the SCA toileting scale, it ranks clothes management (pants up, knees up, hips up, fasten), cleanse (grasp, clean, dispose, flush), transfer (position, lift, ½ way, position) and this test also rates pad and brief management and colostomy, catheter management. All are rated independent, set up assist, supervision, and physical assist. We like this scale because it quantifies the activity. It is not perfect but it is the best of the 5.

The interaction of home safety and decreasing fall risk has been established and using functional assessment tools to better predict ADL performance in the home can help identify if a patient is ready for discharge. The SCA can help rehabilitation professionals better address treatment planning and therapeutic interventions related to managing toilet transfers, clothing management, and perineal care with the ultimate goal of patient safety and decreasing fall risk.

There are many opportunities for rehabilitation professionals to dive deeper into the evaluation and intervention of toileting related to fall prevention in the older adult population. Based on a review of current evidence-based interventions, there are several common notable themes identified by research. First, the environment in which individuals are toileting impacts performance. Environmental barriers pose a threat to body mechanics and require older adults to navigate through the space by turning, leading to a higher fall risk.³ Barriers to

toileting include not only physical but environmental barriers. These barriers can impact performance by “offending postures to include bathroom configuration, intravenous pole, door, toilet seat height, flush, grab bars, over-bed table, and patient chair.”⁴ It was suggested that designing and adding adaptive equipment to the space can help individuals avoid motions that impede performance as well as limit turning. Further research is investigating the Toileting Questionnaire to identify the impact of physical disability and toileting. The Toileting Questionnaire (TQ) had a moderate correlation between the Barthel Index and performance on the TQ ($p = .001$).⁴ Researchers support that there is little research on toileting within the older adult population.⁴ The researchers focused on preferences, experiences, and practices of toileting with women in the older adult population.

When a patient starts to plateau in his or her physical rehabilitation, achieving the highest level of function may still leave a patient requiring some level of physical support. A team of researchers completed caregiver interviews using the I-HOPE assessment to identify barriers in home safety and function.⁵ Based on the results, the researchers concluded that the physical ability to complete tasks such as toileting was also impacted by how comfortable individuals and caregivers were when completing the tasks or providing support to complete the task. This concept generalizes to functional interventions in rehabilitation facilities. Toileting and perineal care can be a sensitive intervention that the patient has to be willing and comfortable to participate in. This barrier should be addressed by rehabilitation professionals when formally assessing toileting and fall risk with the older adult population.

As a team, occupational therapists and physical therapists should evalu-

ate the patient's comfort level when addressing the skills related to toileting and perineal care. Additionally, establishing environmental barriers that will impede performance in the discharge location will allow therapists to better anticipate patient needs after discharge.

RECOMMENDATIONS

Recommendations of occupational and physical therapists include using a holistic assessment approach with targeted interventions based on each discipline's scope of practice. As a team, occupational therapists and physical therapists should evaluate the patient's comfort level when addressing the skills related to toileting and perineal care. Additionally, establishing environmental barriers that will impede performance in the discharge location will allow therapists to better anticipate patient needs after discharge. Due to the limited number of standardized assessments related specifically to toileting, an occupational therapist should assess the patient's ability to complete lower body dressing, functional transfers, sit to stand, perineal care, and safety. The Melville-Nelson SCA is recommended. Physical therapy can assist with management of toileting when looking at mobility, core strength, and turning. The use of the Timed Up and Go Test in addition to the 5 times sit to stand test would complement therapeutic intervention related to toileting and fall prevention.

So to be the best at helping our patients with toileting, physical therapists must accurately assess their level of independence from beginning to discharge to determine when they can safely go home. Our next article will cover EBM treatment of toileting.

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further identify contributing factors to fall risk and the development of a community screening form.



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Fall for It: DPT Student Engagement in Community-based Fall Risk Screening

Lee Karlsson, MScPH, SPT; Kelsey Doe, SPT, Meghan Gerry, SPT;
Brooke Moore, SPT; Nancy Gell, PT, PhD, MPH

Physical therapists have a primary role in health promotion for older adults through fall prevention. The opportunity for physical therapists and doctor of physical therapy (DPT) students to contribute to fall prevention is more imperative with the expected doubling of the older adult population by 2040.^{1,2} Considering the impact of falls on function, mobility, and mortality,³ community-based fall prevention programs allow for student engagement and learning through direct experience interacting with older adults in a professional capacity.

Coinciding with Fall Prevention Awareness Day 2017, volunteer physical therapists and community partners conducted the 5th annual Stay Steady Vermont, a series of community-based fall risk screening and education events. Stay Steady is a collaboration with the Vermont Physical Therapy Association (VTAPTA) and the Falls Free Vermont Coalition. An estimated 250 older adults participated at 28 sites throughout the state, including senior centers and assisted living facilities. These multi-component events included (1) balance and strength screening tests as recommended by the CDC Stopping Elderly Accidents, Deaths and Injuries (STEADI) along with the STEADI self-assessment checklist;⁴ (2) general education on risk reduction strategies through an interactive fall risk education bingo game; and (3) tailored information about fall risk reduction based on screening outcomes.

PRE-EVENT PREPARATION

Collaboration between the Stay Steady organizers and the University of Vermont (UVM) faculty provided 38 second-year UVM DPT students the opportunity to partner with volunteer clinicians, learn about fall prevention strategies, and contribute to the Stay Steady Screenings. Four key components

were vital to successful student integration: (1) didactic instruction and lab-based practice of the STEADI outcome measures (Timed Up and Go, 30-Second Chair Stand, and 4-Stage Balance Test) were a curricular component in the previous semester; (2) availability of students was feasible through DPT faculty collaboration to optimize use of hybrid online modules during the Stay Steady time period; (3) review and practice of the assessments and event flow for students reinforced competence and confidence to administer the screenings; and (4) frequent communication between all stakeholders.

We considered what made this a successful event and opportunities for improvement.

What Worked:

Stay Steady Bingo. The organizers of Stay Steady created an educational fall prevention bingo game. The DPT students learned about fall prevention strategies while assisting participants with the bingo board and, at some events, leading the bingo game for the group. Clinicians added to the information provided and fielded questions in a guided discussion format. Some participants expressed that this activity was their favorite part of the event, and participants and students appreciated learning new information together.

Balance and Strength Screening. Having students conduct the screening tests alongside clinicians allowed participants to have more 1-on-1 time to learn about the screening results (fall risk) and complete the activities in a timely manner. The results and tailored recommendations were conveyed to participants by clinicians, provid-

ing joint learning opportunities for community members and students.

Acquaintance and Exposure. For many students, the Stay Steady was a first-time exposure to assisted living facilities and senior centers. Participants appreciated that students were invested in the health and well-being of older adults in the community. Interaction between site coordinators, clinicians, and students allowed for a collegial atmosphere to promote fall prevention. It also provided an opportunity for students to experience first-hand how clinicians can be involved in preventive care and health promotion.

Recruitment for Research and Data Collection. The inclusion of DPT students allowed for sufficient coverage for the event as well as recruitment and data collection to assess outcomes of the Stay Steady. Further, multiple stakeholders expressed enthusiasm for the student-led data collection to inform evidence-based practice.

Room for Improvement: We identified opportunities for improvement in the following areas:

Preparatory Material Dissemination. As newcomers to the training materials, students have a fresh perspective on how to streamline and present the content. Continued DPT student involvement could include editing the training materials for clarity and efficiency after students gain first-hand experience completing the screenings.

Standardization of Fall Risk Classification and Recommendations. With yearly updates to classification

criteria (low, moderate, high fall risk) and subsequent recommendations, there are discrepancies between clinicians in implementation at Stay Steady events (ie, some use algorithms and handouts from previous years). In future events, DPT students can be more proactive in ensuring clinicians are using the current version of event materials and supporting consistent screening procedures and recommendations across events.

Check Vitals. Orthostatic hypotension (OH) is a leading risk factor for falls in older adults. The personnel, time, and equipment needed for assessing vital signs (eg, plinth/bed) often prohibits including them during screening events. In future events, both 1st and 2nd year DPT students can conduct vital signs and OH screening resulting in a more comprehensive fall risk screen while providing students exposure to variation in Korotkoff sounds in older adults.

The overwhelming positive response from clinicians, site coordinators, students, and older adult participants demonstrates high value for all stakeholders in the collaboration. From our experience, engaging DPT students in community-based fall risk screening appears to offset the work and preparation needed for such collaborations while enhancing students' education and interactions with clinicians, community partners, and participating older adults.

ACKNOWLEDGEMENTS

We are indebted to the work and support of the Stay Steady Vermont organizers (Maggie Holt PT, CEEAA, and Mariana Wingood PT, DPT, GCS) and the University of Vermont Clinical Education Director (Paula Smith PT, MAS, DPT).

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Documenting Fall Risk, Balance Impairment, Interventions, and Progress

Mariana Wingood, DPT, PT, GCS, CEEAA

Documentation is often the most unpleasant and unsatisfying part of a clinician's day. However, it is one of the most important parts of our job. Through high quality documentation we demonstrate the appropriateness of skilled therapy, document our clinical reasoning, record improvements in patients function and quality of life, and provide further recommendations.

High quality documentation in fall prevention begins with identifying the patient's fall risk. This is done through subjective history as well as observing transfers and ambulation. According to a recent systematic review some key history questions include¹:

- Have you fallen in the past 12 months?
- Do you ever lose your balance or stumble?
- Do you have trouble walking?
- Do you use a cane or walker? Has anyone ever told you that you need one/should use one?
- Are you worried about falling or have you stopped doing something because you don't want to fall?
- Do you take any of the following types of medications:
 - Anti-anxiety pills or tranquilizers?
 - Antidepressants or mood elevators?
 - Sleeping pills?
- Do you take more than 4 medications?
- Are you able to get dressed, shower/bath, make meals, and clean your house/apartment without help?
- During the past month, have you often been bothered by feeling down, depressed, or hopeless?

If they say yes to any of these questions and/or you notice any signs of imbalance during transfer and/or ambulation you need to ask follow up questions and complete a full assessment.

When completing the assessment, it is important to ensure that your evaluation is multi-factorial. The challenge is choosing the appropriate test or assessment from the over 50 possibilities. The

following questions are suggestion for selection of best assessment:

- Can they stand up without using their arms?
- Can they ambulate? Does he/she need an assistive device to ambulate?
- Is your patient able to follow directions?
- What are the psychometric properties for the specific test for your specific population?
- Are there identified age norms, cut-off values, and MCIDs/MDCs?

Post screening/assessment it is important to further assess their fall risk results by examining specific impairments, such as lower extremity strength, range of motion restrictions, posture assessment, cognition/mental function, and sensory testing. With these results the assessment is comprehensive and this leads to appropriate goals and a successful treatment plan.

The goals and treatment plans are based on specific impairments and functional limitations identified during the evaluation. This should be a collaborative process with the patient. The specific treatment plan will depend on your practice setting. However, it should be based on the same core principle: a progressive multi-factorial program that focuses on moderate to high-intensity exercises totaling a minimum of 50 hours of balance training.² If you are unable to provide 50 hours of skilled physical therapy, then adequate follow-up services are needed, including a high quality home exercise program and/or an evidence-based community exercise program. Additionally, good communication with an inter-professional health care team (speech language pathologist, occupational therapist, ophthalmologist, primary care provider, etc) and a plan of continuum of care (nursing/caregiver education in long term care/community exercise programs) is the key to a successful fall risk program.

The encounter note needs to include interventions that have been identified in the treatment plan that are specific to limitations found during initial evaluation or reassessment. The notes need to be specific. If someone needed to cover for you, they should be able to replicate your intervention and follow the plan of care. When writing the assessment portion of the note, demonstrate clinical reasoning, need for skilled interventions, and any changes in patient's status or progress. Reports from the patient or their caregiver (regarding patients home exercise program, patient's mobility at home, or any other related topics) as well as relevant communication with other providers (primary care provider, occupational therapist, speech language pathologist, etc) should be documented. The end of your note should have plan for future encounters. These should be specific not just "therex" or "neuromuscular re-ed."

Re-evaluations/progress notes address all impairments and functional limitations listed in the treatment plan. Psychometrics, such as MCID or MDCs, will demonstrate true change as well as suggest suitable outcome measures for modifying/progressing goals and treatment plan as appropriate. This should also be a collaborative effort with your patient.

Discharge decisions may be difficult but are mandated when goals are achieved, age normative cut-off values are reached, or progress has plateaued. Your discharge documentation should include your patient's progress/lack of progress toward his or her goals as well as discharge plan. It should include a section on continuum of care, further rehabilitation, home exercise program, or an evidence-based community fall prevention program.

Electronic documentation systems often allow drop in or smart phrase summary statements that include normative or cut off values. This eases paperwork

burden and is recommended if the evidence cited is valid, reliable, and correctly used for your population/practice setting. Last but not least, it is highly recommended that at your facility you have regular chart audits that look at these components of documentations. Chart audits not only ensure that your documentation meets high quality standards, but can also provide you and your colleagues with a learning opportunity.

For additional information and resources please visit the APTA's website: <http://www.apta.org/Documentation/>³

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Pages from Our History: The Other Side

Faith Beckerman Goldman

[Editor's Note: In celebration of 40 years of geriatric physical therapy, this is the first of what is hoped will be many offered tales of fun and successful practice tips.]

I once worked as a physical therapist in a small (121) bed nursing home that only had 5 beds designated under the subacute heading. The facility was purchased by a local hospital in 1985 with the goal to become a subacute rehabilitation facility with 62 SNF beds. The administration staff consisted of an administrator, director of nursing, many department heads; most of the team had no experience in subacute rehab. I did and ran a tight ship. It was frustrating to know that things could be so much better for the patients. As the Rehab Director, I supervised physical therapy, occupational therapy and speech therapy.

One day I scheduled a 2-hour hands on and personal in-service for all of the department heads and administrative staff. Only a very few rehab staffers knew my plan as we had to make sure the patients' needs were met while I had the "powers that be" unavailable. Each person was fitted with something that would inhibit their normal activities - from eating, to activities of daily living, to toileting, to ambulation. Inexpensive

glasses were applied with one lens coated with Vaseline, ear plugs were placed in one ear, slings were applied to the dominant arm, knee immobilizers were put on one leg. Lunch was served and consisted of jello, peas, thin soup, and lots of water. Everyone sat in regular chairs that were not really meant for eating in, and, as restraint limitations were not yet in place, we did have several folks tied to their chairs. Perhaps you have the picture. There were bells on the table but not quite in reach. Those who were not drinking were very much encouraged to do so. There was only one bathroom in this office and it was not handicapped equipped.

The first hour was challenging. The second hour, all were miserable: uncomfortable, frustrated, definitely water logged, and with a much clearer picture of what it feels like to be on the other side of patient care! The lessons were well-gained and, after evaluation the next day, changes were made:

- The nurses aides were not the only ones responsible to answer a call light.
- We did not have to wait for house-keeping if there was trash on the floor.
- Unless someone was on fluid restrictions, anyone could fill a pitcher of water.

- All staff were responsible to make sure the patients had call lights within their reach. The ratio of nurses to patients changed for the better, which was the biggest accomplishment. I was not too popular for days, but after the shock of their experiences, I was thanked for the reality program.



Faith Beckerman Goldman medically retired in 2000 from active practice but continued consulting and teaching classes in body mechanics. Her hobbies include writing and presenting on THE JEWS OF SHANGHAI. She also enjoys volunteering, baking, and selling Mandel Bread (Jewish Biscotti); she remains very active at Temple Menorah. "I love writing and am proud to say I have been published." She was married for 27 years to the late Robert Goldman and then partnered with the late Harry Fishman for 20 years, both child survivors of the Holocaust. She has "two fabulous children: Sam and Naomi." Contact Faith at faithnamdlog@aol.com.

Identifying How Low Intensity Exercise with Blood Flow Restriction is Clinically Relevant to the Older Adult

*Kaitlyn Carr, PT, DPT
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BACKGROUND

Increasing strength and muscle mass is a main area of research and concern for people of all ages. Trying to find the optimal way to strength train has been under investigation for many years. Many studies and reviews have supported the use of high intensity resistance training (about 75-85% of one Repetition Max -1RM) as one of the most beneficial ways to make strength improvements compared to moderate-low intensities.¹⁻³ In the recent past, blood flow restriction training with low intensity exercises has become a topic of research to increase muscle hypertrophy in athletes, leading researchers to question the outcomes associated with blood flow restriction and low intensity exercises in a population that may not be considered athletic, such as the elderly.

In the adult and older adult population, blood flow restriction has been explored as an option for those who may have contraindications to strength training at the high intensity level. Sarcopenia, a medical syndrome with multiple causes and contributors that is characterized by diminished strength, endurance, and reduced physiologic function that increases an individual's vulnerability for developing increased dependency and/or death, is commonly associated with the elderly.⁴ This is especially true after a recent hospitalization where a patient may have found him or herself confined to a bed or with minimal time out of bed for multiple days. A model published by Fried et al reported that unintentional weight loss, self-reported exhaustion, weakness, slow walking speed, and low physical activity were contributing factors and when a patient has 3/5 they demonstrate sarcopenia.⁴ Addressing the weakness and low physical activity components that a patient may face are less complex when a patient presents to physical therapy, as those impairments typically assist with the other limitations

such as walking speed. The American College of Sports Medicine (ACSM) recommendations for strength training for the elderly recommend at least 2 days a week performing 8 to 12 repetitions of 8 to 10 exercises involving major muscle groups. The recommended intensity is moderate to vigorous for hypertrophy.⁵

Blood flow restriction allows a person to train at a lower intensity with the goal of making similar strength and muscle mass improvements as high intensity exercise therefore maximizing a person's function.^{7,8} This is especially important in the elderly/older adult population where there are more comorbidities and more limiting factors preventing heavy loads. According to work published by Song-Young et al,⁷ blood flow resistance training (BFR) with low intensities shows similar strength improvements without the addition of high intensity exercise⁶⁻⁸ and has similar effects on hemodynamics, endocrine function, and transcription as high intensity exercise.⁷ Blood flow restriction exercise has also been shown to have safe effects on hemodynamics,⁹ venous compliance, and hormone levels.⁷ This systematic review was performed to assess the effects of blood flow restriction exercise on the elderly and whether blood flow restriction is a safe option for this population.

METHODS

Databases used for this literature search include EBSCOHOST, Cinahl, Ageline, PubMed, and Web of Science. Search terms including blood flow restriction, elderly, and BFR. Inclusion criteria used included age > 65 years old, human subjects, published during 2010 or later, and full text articles available online. Eleven articles were screened by title and further screened by the abstract to result in 8 articles used for systematic review. Methods can be seen in the diagram.

PEDro Scoring

PEDro scoring was used to evaluate articles. Two of the 8 articles reviewed had official PEDro scores provided while 6 were scored and analyzed by this researcher. These scores are provided in the Table.

RESULTS

Muscle CSA and 1RM

Of the 8 articles reviewed, 4 evaluated muscle cross sectional area (CSA) and 4 of the articles measured 1 rep max using low resistance training-blood flow (LRT-BFR) versus another control or high intensity group. Articles published by Libardi et al¹⁰ and Vechin et al¹¹ compared high intensity resistance training (HI-RT) at 70-80% of 1RM to low intensity blood flow restriction training at 20% to 30% of 1RM. Both trials showed improvements in 1RM and quadriceps CSA. Vechin et al¹¹ demonstrated a 54% increase in 1RM in the HI-RT group and 17% in LRT-BFR group although quad CSA increased by 7.9% and 6.6%, respectively. Libardi et al¹⁰ demonstrated 38.1% increase in 1RM in the HI-RT group and 35.4% increase in the LRT-BFR group with 7.3% and 7.6% increases in quadriceps CSA respectively. Yasuda T et al¹² compared BFR training with a control group while investigating the effects on elbow flexors and extensors in the older adult population. This control group performed exercises using elastic bands without BFR versus a BFR group using the same elastic bands. Muscle CSA of the elbow flexors and extensors increased (17.6%, 17.4%) as well as maximum voluntary isometric contraction of elbow flexors and extensors (7.8%, 16.1%) in the BFR group compared to no significant improvements in the control group.¹² A randomized controlled trial performed by Shimizu et al¹³ showed significant improvements in es-

Table. PEDro Scores

** indicate scores independently scored by author

Authors	Title	PEDro score
Shimizu R, Hotta K, Yamamoto S, et al ¹³	Low-intensity resistance training with blood flow restriction improves vascular endothelial function and peripheral blood circulation in healthy elderly people	8**
Vechin FC, Libardi CA, Conceicao MS, et al ¹¹	Comparisons between low-intensity resistance training with blood flow restriction and high-intensity resistance training on quadriceps muscle mass and strength in elderly	4
Iida H, Nakajima T, Kurano M, et al ¹⁵	Effects of walking with blood flow restriction on limb venous compliance in elderly subjects	4
Staunton CA, May AK, Brandner CR, Warmington SA ¹⁶	Haemodynamics of aerobic and resistance blood flow restriction exercise in young and older adults	5**
Patterson SD, Leggate M, Nimmo MA, Ferguson RA ¹⁴	Circulating hormone and cytokine response to low-load resistance training with blood flow restriction in older men	5**
Fry CS, Glynn EL, Drummond MJ, et al ¹⁷	Blood flow restriction exercise stimulates mTORC1 signaling and muscle protein synthesis in older men	5**
Yasuda T, Fukumura K, Uchida Y, et al ¹²	Effects of low-load, elastic band resistance training combined with blood flow restriction on muscle size and arterial stiffness in older adults	5**
Libardi CA, Chacon-Mikahil MP, Cavaglieri CR, et al ¹⁰	Effect of concurrent training with blood flow restriction in the elderly	6**

timated 1RM in leg extension, leg press, and rowing strength after 4 weeks of low load resistance training with BFR when compared to a control group.

Vascular endothelial growth factor and growth hormone

Two articles reviewed measured vascular endothelial growth factor and growth hormone among other hormones to discern whether BFR affects circulating hormones as they are important for muscle adaptation following exercise. A study conducted by Patterson and colleagues demonstrated significant increases in plasma GH following low-load resistance training (LLRT-BFR) when compared to a non-BFR group performing LLRT. Sixty minutes following exercise, growth hormone returned to baseline measurements.¹⁴ The vascular endothelial growth factor (VEGF) was also significantly increased at 30, 60, and 120 minutes following exercise with LLRT-BFR.¹⁴ In another study conducted by Shimizu et al, there were similar improvements.¹³ It was reported that growth hormone (GH) increased significantly from 0.9 ± 0.7 ng/mL to 3.1 ± 1.3 ng/mL in the BFR group while VEGF increased significantly from 43.3 ± 15.9 pg/mL to 61.6 ± 19.5 pg/mL. Both studies support the use of LLRT-BFR for improvements in vascular endothelial function.¹³

Venous compliance and maximal venous outflow

One article examined the use of BFR during a slow walking program on 16 women to examine the influence on venous compliance in the upper and lower extremities. Venous compliance declines with age and can put patients at risk of developing deep vein thrombosis and other venous issues.¹⁵ A 6-week walking program with BFR showed that lower extremity compliance and girth had increased significantly whereas there were no significant differences in arm compliance or in the control group. Lower extremity venous compliance increased from 0.0518 ± 0.0084 ml 100ml^{-1} mmHg⁻¹ to 0.0619 ± 0.0150 ml 100ml^{-1} mmHg⁻¹ ($p < 0.05$) while there were no significant differences noted in the control group. Maximal venous outflow also demonstrated significant improvements in the BFR group at 80 mmHg after 6 weeks of slow walking increasing from 55.3 ± 15.6 ml 100ml^{-1} mmHg⁻¹ to 67.1 ± 18.9 ml 100ml^{-1} mmHg⁻¹ ($p < 0.01$).¹⁵

Reactive hyperemia index, foot-transcutaneous oxygen pressure, von Williebrand factor

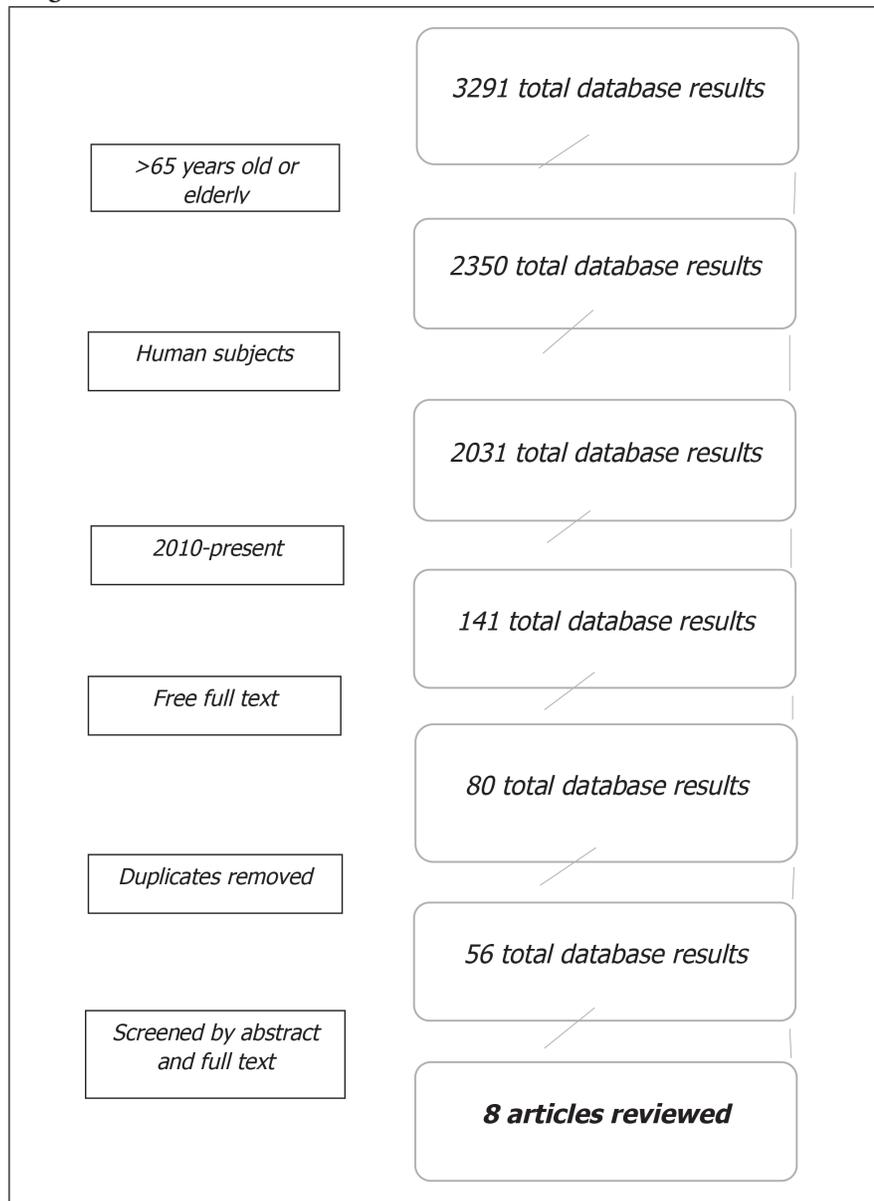
Shimizu et al examined multiple variables including reactive hyperemia index (RHI), foot-transcutaneous oxy-

gen pressure (tcPo₂), and von Williebrand factor (vWF) in a low intensity BFR program versus a standard resistance training program.¹³ Measures were assessed at baseline and after 4 weeks of resistance training. After 4 weeks of training, RHI was significantly higher in the BFR group compared to levels at baseline and the levels of the control group after 4 weeks ($F=10.8$, $p < 0.01$).¹³ The tcPo₂ creased in the BFR group after 4 weeks compared to baseline while there were no such changes noted in the non-BFR group ($F=16.8$, $p < 0.01$). The vWF was significantly decreased with BFR resistance training after 4 weeks while it was about the same or slightly increased in the control group ($p < 0.05$).¹³

Hemodynamics

An article published by Staunton and colleagues examined hemodynamics in young adults compared to older adults.¹⁶ They examined hemodynamics during leg press and treadmill walking trials in a control group and a blood flow restriction group. At baseline, older adults demonstrated higher blood pressure compared to young adults.¹⁶ Acute hemodynamic responses were elevated in the blood flow restriction group compared to the control group but were similar between age groups. Leg press also elicited greater hemodynamic responses than treadmill walking.¹⁶

Diagram. Methods



Lactate concentrations

Three articles examined lactate concentrations.^{13,16,17} When comparing young adults to older adults there was a greater increase in the blood flow restriction group compared to the controls and a larger increase in the young adult group.¹⁶ Seven older men were also studied on two occasions with and without blood flow restriction showed an increase in lactate in both groups during exercise.¹⁷ Lactate remained elevated for up to 45 minutes in the blood flow restriction group and up to 30 minutes in the control group. Lastly, acute concentrations of lactate increased from 8.2 ± 3.6 mg/dL to 49.2 ± 16.1 mg/dL in the BFR group vs 10.3 ± 5.3 to 34.3 ± 13.1 in the control group.¹³

DISCUSSION

Limitations

There are a couple limitations noted following performance of this systematic review. These included the small sample size that was provided by these studies. From 8 studies, there were 148 participants with a mean age of 67.7 years old. This is relatively small, most likely due to exclusion of many co-morbid conditions that are common in the elderly. The second limitation was that all of the subjects that participated in the studies were healthy older adults. In physical therapy practice, especially in the geriatric population, it will be uncommon that a patient would be in perfect health. Although this is a limitation, it is common in many studies, no matter if the population is elderly or not.

Another limitation was the low amount of studies that featured the elderly. When narrowing down the literature review, >65 years old as a search criteria greatly impacted the amount of articles that were available. Blood flow restriction training is a lot more common in the athletic healthy population so this is to be expected.

Clinical implications

Following this systematic review of the literature, it has been shown that blood flow restriction training is beneficial for the elderly and safe. There are many populations that have the possibility of benefitting from these findings, including patients who may be non-weight bearing following a fracture or a patient who is having trouble getting out of bed after a prolonged hospitalization. Performing blood flow restriction with these populations who may begin feeling the effects of atrophy after being bed bound or unable to tolerate a higher intensity exercise program, could help to prevent future muscle atrophy.

Another instance where blood flow restriction training could be beneficial in the elderly, is to supplement a high intensity training program. When a patient is in a skilled nursing facility or program where they are exercising daily, there is a lot of wear and tear on the muscles. To decrease the likelihood of injury it may be an option for low intensity blood flow restriction training to supplement their high intensity exercise on separate days of the week to allow time for the muscles to repair between sessions.

Shifting toward bundled payment options, through Medicare, creates a culture where health care professionals want optimal outcomes for patients in the least amount of time to increase efficiency and quality of treatments provided. This primarily affects the elderly as coverage by Medicare is typical for this age group. People who are hospitalized for many different reasons resulting in hospital acquired debility and then sent to skilled nursing, rehabilitation facilities, or home health care through Medicare are likely to benefit from a strength training approach that can be done in multiple locations and even provided in bed.

Blood flow restriction training is relatively easy, not time consuming, and is something that could assist with im-

proving outcomes and decreasing time of hospitalization. Blood flow restriction training is another tool that therapists' can add to their toolbox of treatment methods as an option for the elderly population. Blood flow restriction training has been shown throughout the duration of this systematic review to be beneficial across multiple systems for the elderly population. More research is indicated to discern whether this is an option for patients with cardiovascular comorbidities and what the implications would be in a more unhealthy/unstable population.

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Balance-related Outcome Measures of Patients with Acquired Brain Injury: A Retrospective Records Review

Parke Humphrey, SPT; Corey Kaleshnik, SPT; Lauren Wilson, SPT; Ann Wilson, PT, MEd, GCS

BACKGROUND

Individuals with acquired brain injury (ABI) frequently seek physical therapy services to regain functional abilities in balance and coordination. An ABI includes conditions that develop after birth such as traumatic brain injury (TBI), stroke, hypoxic brain injury, and brain tumors.¹ This umbrella diagnosis can lead to countless devastating consequences relating to postural impairments and motor control or coordination.²⁻⁵ Impairments in balance and mobility occur among people with brain injury, reducing participation and, if left untreated, may affect quality of life.^{4,6} Fall risk has been found to increase among individuals with a brain injury when compared to the general population.⁷ For example, a 2011 study found that 40.2% of older adults discharged from a hospital rehabilitation unit experienced a fall in the first 6 months after discharge.⁸ Furthermore, individuals with a history of falls tend to demonstrate activity avoidance which can inadvertently lead to subsequent falls.⁹ Considering the potential functional impact and fall risk associated with ABI, it is important to address balance issues in this population.

Physical therapy is essential to the rehabilitation of individuals with ABI because therapists are able to intervene in a way that may help patients improve their balance.¹⁰⁻¹³ A systematic review of interventions for patients diagnosed with moderately severe stroke suggested that certain balance-focused exercises promote rapid increases in balance.¹⁰ Similarly, another study focusing on patients with TBI explored the effects of a conventional exercise program designed for correcting coordination and found that 4 weeks of balance interventions in an outpatient clinic was sufficient to

significantly improve static and dynamic stability.¹³

Clinicians use numerous balance-related outcome measures to assess the effectiveness of balance-targeted interventions. With shrinking reimbursements and the emphasis on outcome-based health care, it is crucial that physical therapists use consistent and effective outcome measures so that results can be compared to draw useful conclusions about treatment effects. Classic outcome measures such as the Berg Balance Scale (BBS) are particularly useful because they allow researchers to compare the results across many studies. However, some balance outcome measures have limitations. For example, the BBS was found to have excellent internal consistency and interrater reliability, intrarater reliability, and test-retest reliability; however, it does demonstrate floor and ceiling effects for very low or very high functioning individuals.¹⁴ In addition, it does not measure anticipatory or reactive balance. Patients cannot use their assistive device during the test and although the test does measure dynamic balance, there is no gait component, which is one of the functional activities in which falls often occur.¹⁴

Other outcome measures may be equally or more appropriate for the assessment of balance in individuals with ABI. A recent review compared 9 components of balance (motor systems, anticipatory postural control, dynamic stability, static stability, sensory integration, functional stability limits, reactive postural control, cognitive influences, and verticality) across 66 balance outcome measures.¹⁵ Of these, 4 outcome measures evaluated 3 or fewer components of balance, and only one measure—the Balance Evaluation Systems Test (BEST)—evaluated all 9 compo-

nents of balance.¹⁵ The Clinical Gait and Balance Scale, Fullerton Advanced Balance Scale, Mini-BESTest, and Unified Balance Scale are perhaps the most comprehensive balance measures to date, as they include 8 of the 9 components of balance. However, they are relatively new and have yet to be widely assimilated into clinical practice. Similarly, another study found the BESTest showed excellent intrarater reliability, interrater reliability, convergent validity, no floor or ceiling effects, and was sensitive and specific in assessing balance in people with subacute stroke across all levels of functional disability, when compared to the BBS, Postural Assessment Scale for Stroke (PASS), Community Balance and Mobility Scale (CB&M), and Mini-BESTest.¹⁶ In contrast, the Mini-BESTest and the CB&M had a floor effect, and the BBS and PASS demonstrated ceiling effects. These are important considerations when deciding which outcome measure is most appropriate in an outpatient setting.

There is currently a dearth of research regarding the use of balance outcome measures in outpatient settings. Additional studies regarding outcomes, especially as they relate to rehabilitation efficacy, need to be conducted. Therefore, the purpose of this retrospective records review was to identify outcome measures used to assess balance impairments in patients with ABI in a student-led onsite physical therapy clinic. We hypothesized that student physical therapists would select clinically relevant outcome measures that capture meaningful changes in balance during a specified episode of care.

METHODS

Medical records were randomly selected from the population of individuals

receiving care in the University of Puget Sound Onsite Physical Therapy Clinic from fall 2012 to spring 2015. Documentation from the patient's most recent episode of care (EOC) was reviewed to ensure that they met the inclusion and exclusion criteria. Inclusion criteria for the review included an age of at least 18 years, a diagnosis of an ABI with at least one identifiable balance impairment, an initial and discharge score for at least one balance outcome measure, and the ability to ambulate household distances (approximately 50 feet) with or without an assistive device. Patients with congenital or progressive brain disorders, confounding illnesses, or musculoskeletal disorders were excluded.

This records review analyzed the balance-related outcome measures selected by student physical therapists in consultation with their clinical instructors. Each record was assigned to two independent raters. Each rater independently extracted demographic information, evidence of balance impairments, and presence of balance outcome measures at both initial examination and at discharge. The balance measures identified during the data extraction included both validated outcome measures as well as individualized balance assessments (ie, static and dynamic standing, stair climbing, single limb stance). The raters compared their results with those of a second rater who reviewed the same record. Discrepancies were discussed and for those conflicts for which no consensus could be reached, the research mentor acted as the final arbiter.

RESULTS

This study included the records of 13 patients who received care in the onsite clinic between fall 2012 and spring 2015. Of the 23 initial cases selected, 10 did not meet the inclusion criteria. Three cases were excluded because of diagnosis, 3 were excluded because they lacked both admission and discharge outcome measures, and 4 were excluded because balance was not assessed with any particular outcome measure (Figure 1).

Demographic characteristics of the study sample can be seen in Table 1. The mean age of the subjects was 59.8 years. Twelve patients had a referral diagnosis of a cerebrovascular accident (CVA) and 1 had a diagnosis of TBI.

The mean time from ABI onset to the episode of care was 5.2 years. The mean number of visits per episode of care was 12.4 (Table 1).

The most frequently used outcome measures were the Berg Balance Scale (N=8), Dynamic Gait Index (N=3), Timed Up and Go (N=2) and the Mini-BESTest (N=2). In addition, 8 records identified that static or dynamic balance or both were assessed using other methods. The average number of balance measures per patient was 2.25 with all subjects having at least one measure reported on initial examination and at discharge. Eight patients were also evaluated via a general assessment of static and dynamic balance (Table 2).

Of the 13 records reviewed, 9 patients demonstrated improved balance by scoring greater than or equal to the minimal detectable change (MDC) on the outcome measure at discharge. Table 3 shows the percent of patients that demonstrated improvement with the most commonly used outcome measures seen in the sample.

DISCUSSION

Student physical therapists used a wide variety of outcome measures to assess balance, a finding consistent with the number of acceptable outcome measures recommended by various APTA EDGE Task Forces. The most commonly used measure was the Berg Balance Scale, followed by the DGI, the TUG, and the Mini-BESTest. Other outcome measures used less frequently included the Tinetti Gait and Balance Examination, Visual Analog Scale of Balance, Five Time Sit to Stand, and the Four Square Step Test. Balance was also assessed via a general balance assessment that examined one or more component(s) of static or dynamic

standing balance. Four patients were assessed with a general balance measure without any additional balance outcome measure and were therefore not included in the final analysis.

General Standing Balance

Eight patients were evaluated at both initial examination and discharge using some form of static or dynamic balance assessment; however, there was significant variation in these assessments among patients in the sample. For example, static balance included qualitative observation of standing balance in quiet standing and some of these assessments allowed patients to use an assistive device while others did not. In addition,

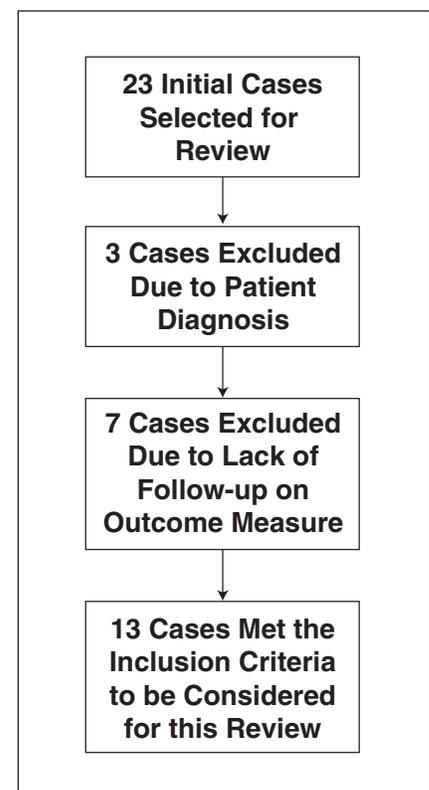


Figure 1. Participant flow diagram.

Table 1. Demographics

Episode of care	Fall 2012-Spring 2015
Number of Subjects	13
Age Range	35-85
Mean Age	59.8
History of Falls	9/13
Mean Time of Onset to Episode of Care (SD)	5.2 years (4.8)
Number of Medications (SD)	2-16 (3.8)
Mean Number of Medications	8.5

Table 2. Diagnosis and Outcome Measures

Patient Number	Diagnosis	Onset to Rx (yrs)	Assistive Device	Outcome Measure(s)	Number of Visits	Number of Tests (excluding GSB)
3	R CVA	2	Yes	GSB, BBS	12	1
4	R CVA	3	Yes	GSB, MAS, TUG	14	2
5	L CVA	10	Yes	Tinetti, BBS, DGI	17	3
6	L CVA	8	Yes	GSB, BBS	19	1
9	Cerebellar CVA	3	Yes	BBS	17	1
10	B Frontal CVA	21	No	GSB, DGI, TUG	19	2
13	Hemorrhagic stroke (AVMs)	5	Yes	GSB, DGI	8	1
14	L CVA	2	No	GSB, BBS, FTSS	4	2
15	R CVA	2	Yes	BBS	10	1
17	Intracranial hemorrhage	1	Yes	BBS	16	1
18	R TBI	2	No	MBT	8	1
19	R CVA	7	Yes	GSB, FSST, MBT	8	2
20	R CVA	3	Yes	GSB, BBS (short)	9	1

Abbreviations: CVA, cerebrovascular accident; GSB, General Standing Balance; FTSS, Five Time Sit-to-Stand; FSST, Four Square Step Test; MBT, Mini-BESTest; DGI, Dynamic Gait Index; TUG, Timed Up and Go; BBS, Berg Balance Scale; MAS, Motor Assessment Scale; TBI, traumatic brain injury

Table 3. Achievement of Minimal Detectable Change

Outcome Measure	Number of Participants	Ratio of Achievement \geq MDC
BBS	8	0.63
DGI	3	0.67
Mini-BESTest	2	0.50
TUG	2	0.50

Abbreviations: MDC, minimal detectable change; BBS, Berg Balance Scale; DGI, Dynamic Gait Index; TUG, Timed Up and Go

static balance assessments sometimes, but not always, included perturbations in both the sagittal and frontal planes. In some cases there was not a clear distinction between the static and dynamic components of the assessment because it appeared that perturbations were being used to assess dynamic stability as well. Some student therapists timed the patients' ability to maintain balance in a certain position while others did not. In some instances, balance was assessed with both eyes open and eyes closed.

When the balance observations were not well described by the student therapist, it was difficult to determine whether static or dynamic balance was being assessed. There is an apparent lack of consensus between those tasks that would be considered dynamic and those that would be considered static leading to a lack of a clear distinction between static and dynamic balance. Without a standard protocol for assessing static and dynamic balance, it is difficult to make meaningful comparisons between individuals. While over half of the student physical therapists used general standing and dynamic balance as a screening tool, it is not a reproducible measure. This in turn, leads to the need for outcome mea-

asures that follow a specific and repeatable protocol in order to evaluate progress. Fortunately, many of the student therapists also used a validated outcome measure to assess balance as well and those measures are discussed next.

Dynamic Gait Index

Three patients were assessed with the Dynamic Gait Index (DGI). The DGI assesses balance of the client through tasks including walking, walking with head turns, walking with changing speeds, walking around and over obstacles, pivoting while walking, and stair climbs.¹⁷ These tasks are performed over a 20-meter course and are scored from 0-3, with 0 indicating severe impairment and 3 indicating no gait deviation observed. The MDC for chronic stroke is listed at 2.6 points according to the Rehabilitation Institute of Chicago's Rehabmeasures.org database.^{18,19} Two of the 3 patients who were assessed with the DGI met the MDC. The American Physical Therapy Association's StrokEDGE Task Force highly recom-

mends the DGI to be used in all practice settings.²⁰ Similarly, the TBI EDGE Task Force considers the DGI to be reasonable to use in all settings.²¹

Timed Up and Go

Two patients were assessed with the TUG. The TUG assesses balance by recording the time needed for a person to rise to standing from sitting, walk 3 meters, turn, and then walk back to the chair and sit down.²² The patient is asked to walk at a comfortable and safe pace during the evaluation and may use an assistive device if needed. The MDC for chronic stroke is 2.9 seconds and the smallest real difference is 23%.²² One of the two patients assessed with the TUG met the MDC. The StrokEDGE Task Force highly recommends the TUG to be used in all practice settings.²⁰

Mini-BESTest

Two participants were assessed with the Mini-BESTest, a dynamic balance test designed to assess impairments across 4 contexts of postural control: anticipatory postural adjustments, reactive postural control, sensory orientation, and dynamic gait.²³ It is used clinically to assess a wide variety of neurologic populations, including TBI and stroke. One study established a MDC of 3.5 points and a MCID of 4 points (out of a possible 28) for persons with “general” balance disorders, which includes stroke but not TBI populations.²⁴

The Mini-BESTest has not been evaluated by either StrokEDGE or TBI EDGE.^{20,21} Currently, there is a lack of evidence supporting its use with stroke and TBI populations across all settings. This may be primarily due to the fact that the assessment is relatively new and thus does not have much research behind its use. However, the psychometric data supporting this outcome measure is promising and its use for these populations may become recommended as further studies are completed.²⁵

Berg Balance Scale

Seven participants were assessed with the BBS and one subject was evaluated using the Short Form Berg Balance Scale (SFBBS). The BBS is a 14-item objective outcome measure used to assess static and dynamic balance to predict fall risk in a wide variety of neu-

rologic populations, including stroke. There is no gait component and the use of an assistive device is not allowed.^{26,27} A score < 45 indicates increased fall risk in elderly populations and elderly populations.^{28,29} For acute and chronic stroke, the BBS has been shown to have excellent test-retest reliability, interrater reliability, and intrarater reliability.³⁰⁻³³ It also has been shown to have excellent criterion validity in acute stroke populations.³³ A MDC of 2.5 points has been established for chronic stroke populations.³⁰

One participant was evaluated with the Short Form BBS, which contains 7 of the original 14 BBS items. It is reliable and has excellent agreement with the original 14-item BBS.³⁵ A MDC of 2.83 points has been established for chronic stroke populations.³⁵

StrokEDGE recommends the BBS be used in acute settings and highly recommends its use in all other practice settings.²⁰ The TBI EDGE recommends the BBS to be used for TBI in all outpatient settings and inpatient rehab and indicates that it is ‘reasonable to use’ for TBI in all other settings.²¹

One surprising finding of this review was that the patients made measurable progress while being seen fairly infrequently (once or twice a week) for relatively short episodes of care. This suggests that significant improvements are possible even in a chronic neurological population with a limited number of visits. This is significant because of the restrictions third party payers place on the number of visits for skilled therapy.

Because general balance measures such as qualitative or quantitative assessment of static or dynamic balance have no specific protocols, it is difficult to make meaningful comparisons between patients. Experienced clinicians may be more likely to use a general balance measure as a screen to determine which outcome measure they will ultimately use. Validated outcome measures allow clinicians to determine if meaningful changes are being made by comparing results across a wide spectrum of normed outcomes.

Limitations

There are a number of limitations to this records review that make it difficult to generalize the findings. First,

the sample size is very small and limited to one pro bono onsite teaching clinic whose patient population is comprised primarily of individuals with chronic neurologic conditions. In addition to the small sample size, the only two types of ABI included in this sample of convenience were CVA and TBI. It is unknown whether the results would be similar for other neurological diagnoses. Finally, this records review took place in a teaching clinic in an academic setting. For many students, this clinic experience represented the first time they had ever evaluated a person with an ABI. This may have informed the choices they made regarding balance assessments and may not reflect the same decision-making process an experienced therapist would use in choosing assessments.

CONCLUSION

This review suggests that student physical therapists are primarily using validated outcome measures to assess balance. Half of the sample had a “general balance measure” documented to assess balance. While this might be appropriate for initial screening, the variability in testing makes outcomes difficult to interpret. While general balance measures might be appropriate to help inform a therapist’s decision-making process, this review highlights the importance of also using validated outcome measures for the purpose of detecting significant changes. These results also suggest that meaningful improvement is possible in a relatively short period of time even in individuals with chronic and stable neurological diagnoses, which is an important consideration in the face of shrinking reimbursements for care.

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[Editor's Note: at the time of submission, these authors were students. We are happy to report that all graduated, passed the NPTE, and are employed as physical therapists.]



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Call for *Journal of Geriatric Physical Therapy* Editor

Richard Bohannon, PT, EdD, NCS, current editor of the *Journal of Geriatric Physical Therapy*, will end his term of service effective July 2018. Richard has been an outstanding editor for 5 years, and has graciously agreed to make himself available as a resource during the transition period.

The *Journal of Geriatric Physical Therapy's* Editorial Board determines the content and format of the Academy's peer reviewed research journal. The Editor acts as a conduit for submissions; the Editorial Board will review submitted articles for consideration of publications. Among the duties of Editor are the solicitation of articles, identifying and appointing peer reviewers, determining member needs, and meeting with the Editorial Board twice annually. Some remuneration is available: the Editor shall receive the sum of \$2500 per issue, as well as some reimbursement for travel and per diem to cover expenses to attend the annual business meeting of the Academy at CSM.

Interested parties should submit a cover letter, CV or resume, as well as any other documents you feel pertinent (eg, published research articles). Please limit your submission to 12 pages. Qualified candidates should be knowledgeable of current trends in PT research, as well as have the ability to analyze and critique submissions for accuracy of content and pertinence to Academy members (and other populations treating older clients) and be knowledgeable and comfortable with statistical analysis of quantitative and qualitative data. Prior journal editorial experience is not required, but demonstrated research and review skills are vital.

All submissions will receive a response. Please send the above items to Karen Curran, AGPT, 3510 East Washington Avenue, Madison, WI, 53704 or karen.curran@geriatricspt.org. We are looking for someone who can work with Richard on the last issue of 2018, and then take over with the first issue of 2019, beginning June 1, 2018. Please submit your materials by March 31, 2018.

Examining the Physical and Mental Health of Transgender Older Adults

Carlo Mabilog, PT, DPT, MBA, MSHS, MS, CEEAA, CSCS

INTRODUCTION

According to the Centers for Disease Control and Prevention (CDC), “transgender” is defined as an umbrella term for individuals whose gender identity or expression is different from their sex at birth.¹ Furthermore, gender identity is defined as an individual’s psychological sense of self as male or female; while gender expression, is defined as how a person expresses gender and how others perceive gender.

The population size of transgender individuals in the United States is not fully known due to the lack of data regarding gender identity in official records, such as the United States Census. Based on a study by Meerwijk and Sevelius, the most current suggested United States population of transgender individuals is 390 adults per 100,000 or almost 1 million adults nationally.² Further estimation of transgender older adult population aged 65 and older has been reported by Witten and Eyler to number at least 700,000.³ It is expected that the number of transgender older adults will steadily increase over the years.

Transgender individuals have often been misunderstood and are seldom included in aging studies and health research. They face significant health risks due to direct and indirect factors. The transgender population is considered underserved and at risk. As physical therapists, it is our responsibility to provide the best possible care for transgender patients. The Code of Ethics for the Physical Therapist states: “Principle #1: Physical therapists shall respect the inherent dignity and rights of all individuals. 1A. Physical therapists shall act in a respectful manner toward each person regardless of age, gender, race, nationality, religion, ethnicity, social or economic status, sexual orientation, health condition, or disability. 1B. Physical therapists shall recognize their personal biases and shall not discriminate against others in

physical therapist practice, consultation, education, research, and administration.”⁴

Upholding this principle will require further information with the intention to gain knowledge on the health risks of this specific population. The author came across the article: “Physical and Mental Health of Transgender Older Adults: An At-Risk and Underserved Population” by Fredriksen-Goldsen et al.⁵ The purpose of their study is to examine the physical and mental health of transgender older adults and to identify modifiable factors that account for health risks by using data from a cross-sectional survey of Lesbian, Gay, Bisexual, and Transgender (LGBT) older adults aged 50 and older.⁵ Their research explored how transgender older adults differ from non-transgender LGB older adults on key health indicators, risk and protective factors, and health outcomes.

STUDY

Data from a cross-sectional survey of LGBT older adults aged 50 and older were assessed by Fredriksen-Goldsen et al.⁵ for both direct and indirect effects of gender identity on 4 health outcomes: physical health, disability, depressive symptomatology, and perceived stress. There were 2,560 respondents which represents the largest sample of LGBT older adults. The study used standardized measures including key health indicators: financial barriers to health care, fear of accessing health services, smoking, lack of physical activities, and obesity. Risk factors included lifetime internalized stigma, victimization, and sexual minority concealment. Protective factors included social support, social network size, positive feelings of LGBT community belonging, and religious/spiritual activities.

Compared to non-transgender older adults, transgender older adults were less likely to be non-Hispanic white, more

likely to be younger, have lower household incomes, more likely to have children, less likely to live alone, and more likely to have served in the military. The study continued to reveal differences such as: 22% of transgender older adults experienced financial barriers to health services, 40% feared accessing health services outside the LGBT community, 40% rate of obesity, 23% lack of physical activity, higher rates of victimization and internalized stigma, and more likely to conceal their gender identity. The average lifetime incidents of discrimination and victimization is at 11 versus 6 for non-transgender LGB older adults. The most common types of discrimination and victimization reported are: 76% verbal insults, 54% threatened with physical violence, 46% not hired for a job, 40% denial or provided inferior health care, 39% being denied for a promotion, and 37% hassled by police. Differences in protective factors reported were lower levels of social support and community belonging.

After controlling for key demographic characteristics, gender identity was significantly associated with health outcomes. Transgender older adults reported significantly poorer physical health and higher likelihood of having a disability. Clinical depressive symptomatology and perceived stress were significantly higher compared to non-transgender LGB older adults. Further analysis of key health indicators and health outcomes revealed: financial barriers to health services, fear of accessing health services, obesity, lack of physical activity, higher degrees of internalized stigma and victimization were significantly associated with poorer physical health, higher likelihood of disability, and higher degrees of depressive symptomatology and perceived stress. Concealing gender identity was found to have a significant association to depressive symptomatology.

ogy and perceived stress. Better physical health, lower likelihood of disability, and lower levels of depressive symptomatology and perceived stress were significantly associated with social support and positive feelings of LGBT community belonging.

LIMITATIONS AND RECOMMENDATIONS

The findings in this study revealed significant mediators that heighten the risks for physical and mental health of transgender older adults. Internalized stigma and victimization are the most notably strong mediators between gender identity and all health outcomes. Disclosing gender identity has led to an increased likelihood of discrimination in medical settings. Many health care providers are inadequately prepared to address the health of transgender older adults. It is recommended that health care providers be trained in stigma reduction and education in aging and gender identity to reduce stigma and discrimination. Creating environments that are inclusive and welcoming may reduce reluctance to access health care. This will allow transgender older adults to seek care that minimizes travel costs and delayed access to care.

Despite the diversity of the sample size for this study, the findings do not generalize transgender older adults. The survey was primarily given in large urban areas and rural areas were likely to be underrepresented. It has also been noted that in the past, transgender patients were told to remain silent about disclosing gender transition. The study did not allow for the examination of health trends over time. It is recommended that longitudinal studies are needed to better understand health trajectories of transgender older adults over time.

CONCLUSION

Physical therapists are likely to encounter transgender older adults in their clinical practice. In order to provide appropriate interventions to address their health problems, it is important to be mindful of the common health risks they face such as the lack of physical activity, social support, fear of accessing health services, stigma, and victimization. The physical therapist should also identify

resources and make appropriate referrals to transgender-inclusive providers including physicians, psychologists, social workers, case managers, and other health care providers with the hope of promoting a social support network and a sense of inclusion. In general, it is expected that the transgender population in the United States will continue to rise and it is our responsibility to provide the best possible interventions to reduce and address health care disparities of transgender older adults.

RESOURCES

SAGE: Advocacy & Services for LGBT Elders

<https://www.sageusa.org/issues/transgender.cfm>

National Center for Transgender Equality

<https://www.transequality.org/>

From PT in Motion: Physical Therapy With Patients Who Are Transgender

<http://www.apta.org/PTinMotion/2016/7/Feature/Transgender/>

Written by: Chris Hayhurst

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(Updated September 15, 2017)

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Michele Stanley, PT, DPT email = michele.m.stanley@gmail.com

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Friday, February 23 at 6:30 am

Dr. Joseph Signorile presents on High-Speed Training and Prescription Yoga

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