



Academy of Orthopaedic Physical Therapy, APTA, Inc.

Grant Program Annual Progress Report Form

Date: 11/14/2023

Name of Investigators: Christine M. McDonough

Name of Grant: Automated Physical Therapy Referral Process for Older People after Upper ExtreMity Fracture (ARM): A Feasibility Study

Award Period: April 2, 2021 to March 31, 2023 (extended to March 31, 2024)

Current Year of Award: 1st, 2nd no-cost extension year (3rd)

Progress reports are due no later than 1 year plus 10 days after the initial award date. Failure to submit a timely progress report may result in the termination of your award.

1. Summary of accomplishments in the past year we have:

a. PT:

- i. Engaged UPMC Rehab Institute (RI) physical therapy leadership in planning for R01 application to NIA in February 2023 for a single center (UPMC) large scale cluster randomized trial (RCT). They remain supportive and have articulated tensions and potential barriers to success. The project needs to have all PT training activities fit within the current RI workflow. We identified that the Otago training will not fit and are developing a 1-hour in-service type training that can be delivered live or asynchronously. With input from the RI, we established that all PTs should be trained and included as treating PTs for the RCT. These are important/big changes that will make the study more implementable. It means that patients will not need to be matched to a neurological specialist.
- ii. Identified a Pitt Health Information Management (HIM) colleague who has developed natural language processing algorithms to annotate PT treatment notes. We are working on an additional module to focus on treatments for balance and gait disorders that will be used in the R01 application.
- iii. Gotten support from the UPMC Clinical Analytics team to conduct trial data extractions of PT encounter notes.
- iv. We have used input from the RI PT leadership to identify key questions that need to be answered in preparation for the R01. We are conducting manual chart reviews of patients for whom the best practice alert fired correctly indicating a new upper extremity fracture to identify what balance/gait/fall risk measures are used in the examination, and what treatments are used. We have a standardized data extraction form and will be using the results to inform our method for measuring best practice/guideline adherence.
- v. We have developed a survey of RI rehab providers that will characterize current practice at RI. We plan to launch in the coming 2-4 weeks. We will use information provided in the survey to recruit and enroll PTs to participate in interviews to help us understand current practice, knowledge, and interest in improving care and outcomes for older adults with new upper extremity fracture.

b. Data:

- i. Our Pitt HIM colleague has developed and published an algorithm to identify falls in the medical record. We have added this to our design for the R01 application. Not having falls as an outcome was identified by the program officer as a weakness, and this will address the issue.
- ii. Established the data extraction, cleaning, honest broker/security process and environment for the R01
- iii. We are using the reports/exports of data from the Best Practice Alerts to identify and recruit patients to participate in focus groups or interviews.

c. Orthopaedic Practice and Provider Buy In:

- i. Gotten buy-in from clinical champions and Letters of Support from 7 orthopaedic practices in western Pennsylvania for participation in the R01 application to NIA. We have identified 3 more practices and with the help of the Chair of the Department of Orthopaedic Surgery, are working on inviting potential clinical champions for each. Our goal is 10 practices. Each practice has multiple location. Historically, these practices have seen a total of 4,435 older patients with upper extremity fracture in one year. We are currently revising our sample size and power calculations to address these developments.
- ii. Conducted surveys followed by interviews with 3 providers to understand to help us understand current practice, knowledge, and interest in improving care and outcomes for older adults with new upper extremity fracture. Additional interviews are being scheduled for Dec 2023 and Jan 2024.

d. Patient/Older Adult Interviews

- i. Sent recruitment letters and performed follow up calls to 51 patients for whom we have provider permission to contact (out of 399 potential participants). Completed interviews with three patients focused on importance of exercise for fracture prevention relative to competing health condition management, willingness to participate in PT after new upper extremity fracture, barriers and facilitators to exercise after fracture. Four patients are currently being enrolled/scheduled and we are currently sending out recruitment letters to approximately 120 additional patients.

- 2. Provide a one-paragraph summary of results or abstract suitable for posting on the Academy website.
 - a. The team identified and trained neurological physical therapists that will provide fall prevention management to older adults after upper extremity fracture in 21 outpatient clinics. They developed, and vetted training materials for surgeons and physician extenders in collaboration with surgeon clinical champions. The materials were provided to the surgeons at the two participating practices through the surgeon champions. The team conducted a cohort study of pre-intervention status within the health system. This analysis of fractures and PT referrals for the health system population over one year found that among 6,295 upper extremity fractures (1,533 proximal humerus, 2,515 distal forearm) 12% received a prescription for physical or occupational therapy for balance or gait disturbance. Within the 12% who received therapy, the most common type was physical therapy (52.3%). The proportion who had a second fracture within one year was 11%. In preparation for the intervention, the team developed and tested a best-practice alert that identifies patients age 65 and older attending a clinic visit for a new upper extremity fracture. The alert has been successfully incorporated into the electronic medical record system, and therefore will be available throughout the entire system for future scaling of the intervention. Next steps include providing enhanced training to surgeons and physician extenders and delivering fall management intervention in outpatient clinics to identified patients.

- 3. Attach a list of your publications published or accepted during the past year, or currently being written. Send reprints when available. List presentations made and abstracts accepted for presentation based on this work. Indicate with an asterisk (*) those publications supported by Academy of Orthopaedic Physical Therapy funding.
 - a. Presentations, Publications:
 - i. Presented our work as a poster at ACRM in Atlanta, GA Nov 1, 2023.
 - ii. Submitted for a platform on this work at CSM 2024 in Boston. It was accepted.
 - iii. Currently drafting a manuscript to be submitted to Journal of Hand Surgery Global Online (JHS GO).

None

- 4. Provide a budget, using the original approved budget. Indicate total funds spent to date per major categories. If there was $\geq 25\%$ deviation (greater or less spent) of use of funds for any of the budget category, please BRIEFLY indicate the rationale. (See example below)
 - a. This is a combined quality improvement and research project. The main activities to that occurred to date have been the foundational work that falls under the quality improvement initiative. The initiation of the research activities has been delayed due to the pandemic and lack of research staff as a result. I have hired and trained staff with relevant skills to assist with the remaining activities and am therefore now able to execute the remaining activities in the coming months. An important advantage of the pandemic-related pause in the project was that we were able to monitor the use of the best practice alert after essentially passive training of orthopaedic surgeons and extenders in the two practices. We identified that with few exceptions they bypassed the best practice alert. This allows us an important opportunity to take advantage of the plan to interview surgeons to understand the barriers and facilitators to use of the best practice alert and referring to physical therapy, and to identify their needs for training.

EXPENSE CATEGORY	Budgeted Amount for Year 1	Actual Amount Spent in Year 1	Amount Remaining in Year 1 budget	Budgeted for Year 2	Projected Expenditure in Year 2
*****Please see Appendix for Budget Report*****					
TOTAL					

- 5. Objectives for the next year:
 In the coming year, if allowed to continue, we will complete the research activities: identify and interview patients, providers and administrators to identify barriers and facilitators to referral and uptake of exercise for secondary fall prevention. The additional quality improvement and research activities include tailoring training and materials and identify additional interventions for surgeons to enhance use of the best practice alert to refer to outpatient physical

therapy for fall risk management. We will measure outcomes and analyze results for the two practices that receive the intervention. We will submit an abstract to Combined Sections meeting and will prepare the manuscript reporting on the project. We will also identify a funding mechanism for the next phase of the work, which will entail scaling the intervention across the entire health system and likely one additional health system with which we collaborate.

Christine M. McDonough

11/15/2023

Your Signature

Date

Return to:

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