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Move to Improve; a Pilot Project to Evaluate Restorative Mobility Interventions in Older Adult  
Veterans

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**Abstract:**

**Background:** Physical function deterioration can occur rapidly for older adults who are discharged from intensive therapy. This problem has serious implications due to the amount and the high cost of medical care and potential health risks associated with decreased mobility. Move to Improve was a pilot quality improvement project that evaluated how effective an integrated restorative nursing intervention was at attaining or maintaining the highest physical, mental, and psychosocial well-being of older adult Veterans who have transitioned from intense therapy to long term care.

**Methods:** A sample of ten geriatric Veterans were engaged in biweekly mobility group activities as well as issued activity trackers to increase engagement and collect mobility data. Pre-post test assessment using two subcomponents of the Barthel Index were used to measure mobility and transfer.

**Results:** Eight out of nine (89%) Veterans who completed the 6-week restorative intervention maintained or increased functional status.

**Conclusion:** The Move to Improve program effectively maintained functional status. The Veteran participants reported having no prior experience with wearable technology but use of the activity trackers engaged them in tracking their progress. The outcome of this quality improvement pilot project provides a foundation for future research.

**Keywords:** Restorative, Mobility, Older Adult, Depression.

There is a tendency for rapid decline in functional abilities among long term care residents. This has serious implications for the amount of care and the cost of care that is needed, and potential health risks associated with decreased mobility. A restorative care program focuses on optimizing function within the older population that reside in the long term care settings. Restorative care is a nursing driven program that takes an alternative approach to care by focusing on the restoration and/or maintenance of physical function so that the highest level of function is maintained (Resnick, 2012).

### **Background of the Problem**

According to the Healthy People 2010 guidelines, less than half of the population ages 65 and older are getting the recommended amounts of weekly physical activity (Healthy People, 2010); residents in long term care are clearly likely to receive less. The benefits of being physically active are extensive. Increased independence, strengthened muscles and bones, improved balance, reduced falls, reduced risk of depression, controlled weight and increased life expectancy are some of the many benefits to being physically active (Sylvia, Bernstein, Hubbard, Keating, & Anderson, 2014).

Reduced mobility can have a catastrophic effect on older adults. Fear of falling, lack of motivation, and isolation are some identified barriers of decreased functional ability (Liu, 2015). The literature shows implementing an effective restorative nursing program has many positive outcomes which improve quality of care, resident satisfaction, and improved staff engagement (Resnick, 2012). The literature suggests tending to the emotional needs of the resident in tandem with the restorative nursing program is effective. Using a group model for training and therapy has also been shown to be a best practice model of care (Hamar et.al, 2013).

Research studies support the use of devices with activity recording to enhance physical activity participation. Poirier, et al. (2016) evaluated the use of activity trackers as a mechanism to increase physical activity and found that their intervention group who received activity trackers showed a statistically significant increase in steps walked compared to their control group who did not receive trackers even though both groups were enrolled in an activity program.

The purpose of this quality improvement pilot project was to integrate wearable technology and psychosocial activities into a restorative care program to determine the effectiveness and acceptability to both the Veteran participants and the restorative team.

### **Methods**

Using a pre-test post-test design, Veteran participants function were measured using two subcomponents (Mobility and Transfer) of the Barthel Index at baseline, weekly, and at the completion of the project. These two components of the Barthel Index were identified as critical measures in this population. In addition, activity trackers collected steps and overall physical activity of each Veteran as a mechanism to evaluate the Move to Improve program.

### **Sample**

A convenience sample of ten Veterans transferred to long term care after discharge from intensive therapy, consisting of four or more weeks of rehabilitation and who were determined to have achieved their maximum level of functional status were included in this project. All Veterans were Caucasian, had a mean age of seventy-seven, and served a mean of 10 years of military time, with only four having served during a conflict. Seven Veterans had been Marines, and three had been in the Coast Guard. Eight Veterans had full decision-making capacity and agreed to participate in the project. The two remaining Veteran's health care proxies approved participation.

## **Setting**

The pilot project was conducted across the nursing home units of a Veteran Healthcare Administration (VHA) level three medical center, primarily serving Veterans needing long term care and/or mental health services. The medical center is comprised of eleven inpatient units, including nine long term care units and two short term rehabilitation units.

## **Procedure/Intervention**

Move to Improve was a 6-week mobility restorative multifactorial intervention. The components of the intervention included group sessions, one on one mobility and activity, an activity tracker, and assessment using the Barthel Index functional assessment subcomponents.

The project team consisted of the Restorative Nurse Coordinator (RNC), five restorative nursing assistants (RNAs), and the primary investigator. The roles and responsibilities varied for the members of the team. The RNC and primary investigator had oversight of intervention implementation and Veteran participant management.

The physical therapist referred appropriate recruits to the RNC for discussion of the project and enrollment. Verbal consent was obtained by the Veteran participant or the Health Care Proxy if activated. Upon enrollment, the RNC assigned an identification number to each Veteran participant, issued each Veteran a Fitbit with their assigned identification number, and administered the pre-intervention questionnaire to the Veteran participant or Health Care Proxy if activated. Once the Veteran participant was discharged from intensive therapy a warm hand off was performed from the discharging therapist to the RNC with inclusivity of the participant and/or surrogate. A warm hand off permits a bidirectional dialogue to encourage input and/or offer an opportunity for questions. Veterans were expected to attend two 1 hour long sessions a

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week. The group session were not permitted to be included as the Veterans overall individual daily expectation, yet as in addition to it.

A minimum, not limited, to 75-100 minutes of moderate to rigorous mobility or activity weekly was encouraged. A minimum of two hour long exercise group sessions were made available per week, more groups were made available as indicated by Veteran participant preference. An example of an exercise group was a lower leg muscle strengthening class. A baseline, weekly and post intervention functional assessment were completed by the RNC to track and trend the impact of the intervention using the Barthel Index subcomponents for mobility and transfer. A post-intervention questionnaire was administered by the RNC to the Veteran participants or the Health Care Proxy if activated. Finally a comprehensive debriefing with the project team, was facilitated by the primary investigator as well as a survey to collect information of their experiences working on the team.

## **Data Collection**

### ***Barthel Index***

The Barthel Index Assessment provides an evaluation of the effectiveness of the restorative intervention (Collin, 1988). As indicated in the literature, The Barthel Index is an effective and valid tool to measure functional status. Barthel Index Cronbach alpha for internal consistency of 0.87 (at admission) to 0.92 (at discharge) has been reported. An interrater correlation of 0.99 has also been reported. The correlation between ratings and patient self-report was 0.88 (McDowell & Newell, 1996). The Barthel Index was readily accessible and permission was granted at no cost. A template was created to offer documentation consistency among nursing staff in the medical record specifically focusing on the mobility and transfer components of the Barthel Index assessment.

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### ***Fitbit Activity Tracker- Step counts***

Minutes of direct restorative activity, a component of the intervention, as documented by the restorative team was collected via a working flow sheet. Fitbit Inspire activity trackers were used to collect data in real time, data pulls were routine at the end of every week manually conducted by the Restorative Nurse Coordinator (RNC). Data retrieved from the Fitbit included steps and overall physical activity.

### ***Psychosocial Activity-minutes of participation in group activity***

Minutes of restorative group activity was collected while the Veteran participated in group activities and were facilitated and tracked by the RNAs in minutes on a checklist.

## **Results**

### **Functional Status**

Table 1 provides the pre-intervention Barthel Subcomponent Functional assessment scores and the post-intervention Barthel Subcomponent Functional assessment scores of the Veteran participants who completed the 6-week intervention. The mean pre-intervention score is 24.4, the mean post-intervention score is 25. The Barthel scores displayed for Veteran participant #1 are reflective of a major medical event at week 4 of the restorative intervention placing the participant on bed rest, resulting in a significant functional decline. Eight of the nine Veterans (89%) who completed the six-week intervention either maintained or improved their functional status. Veteran participant #2 did not complete the 6-week intervention.

### ***Fitbit Activity Tracker- Step counts***

Technology challenges included the Fitbit. A shuffled or abnormal gait had a lack of accuracy in the step counts. Despite modifications to the stride setting on the Fitbit, this lack of step accuracy continued to be evident. All Veterans indicated they had no previous experience

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using a wearable activity tracker. In the post-intervention questionnaire, all Veterans indicated increased knowledge for the use of the wearable. Many indicating they felt more motivated to move due to the Fitbit component of the intervention. Most of the Veterans were engaged by friendly competition with their comrades regarding steps on the Fitbit.

### **Psychosocial Group Activity**

Group activity was facilitated and tracked by the RNAs in minutes on the checklist; there was an expectation of two 1 hour long sessions a week. Despite encouragement, the Veterans struggled to complete the recommended group sessions. Many Veterans verbalized the hour long sessions were too long. The total 6-week intervention average length of time for group session participation for Veterans who completed the six-week intervention was 50 minutes per week.

### **Challenges**

Communication with the floor staff and the restorative intervention team was challenging to ensure accurate and efficient coordination of care. The literature suggested these as potential challenges to implementing an integrated delivery of restorative care (Resnick B, *et al.*, 2006). Yet, the teams were able to overcome these challenges and focus on the common goal. An unanticipated outcome included the impact of sleep on mobility. Often participants would report exhaustion, due to a lack of adequate sleep, and as a result were occasionally unwilling to ambulate or participate in groups. This report was consistent and more than an anomaly suggesting further research in the area of sleep related to mobility would be value added.

### **Discussion**

The objective of this quality improvement project was to evaluate the effectiveness of the Move to Improve restorative mobility program in older adult Veterans. The desired outcome was maintained or improved mobility of the Veterans at the conclusion of the project. Eight of the

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nine Veterans (89%) who completed the 6-week intervention maintained or increased functional status. Quality of care improvements were demonstrated in the participant verbal responses as well. Strength of this project was adherence to prescriptive procedural guidelines with minimal unintended outcomes. The direct quotes received by the Veterans, smiles during group sessions, and increased engagement were all suggestive of a positive intervention.

This project is largely transferable to comparable long-term care settings. The implementation of this restorative intervention as a standard of care in practice is a cost, and a needs assessment including the number of eligible patients; which will determine the resource requirements necessary to implement this in other settings. As a result of this pilot project, the restorative intervention was implemented successfully and continues to yield positive outcomes. Full implementation and sustainment in any long term care facility will be costly, and the development of a business proposal for leadership will likely be needed for fiscal support.

The desired outcome to maintain or improve functional status was achieved from this restorative intervention. In this project a consistent restorative nursing assistant assignment was directly related to increased participation and improved mood around mobility. Building rapport through consistency and routine was noted to be a best practice during this project. For instance, we found that if there was an assignment change and a different person was assisting with mobility, the Veteran was stand-offish and less willing to participate. These outcomes are in alignment with the literature which emphasized the need for consistent psychosocial support (McAuley E, et.al., 2007). To this end, the restorative protocol included a group intervention.

Move to Improve was successful with many positive outcomes for the Veterans, the families, the interdisciplinary team members, and the restorative team members. Our project

demonstrated that mobility and functional status could be maintained or improved with dedicated activity.

Physical immobility is detrimental to one's health status and can lead to premature death (Lancet, 2012). The cost associated with immobility is large; increasing the cost of healthcare on the system and consumers. Increased strength and mobility associated with programs like Move to Improve may also result in reduced fall with major injury and acute care hospitalization. "In 2015, the total medical costs for falls totaled more than \$50 billion. Medicare and Medicaid shouldered 75% of these costs" (Florence, Bergen, Atherly, Burns, Stevens, & Drake, 2018). Future research should include a cost benefit analysis of the physical, psychological and psychosocial gains of projects such as Move to Improve. Others areas for future study is the impact of sleep on Veteran functional ability.

Table 1.  
*Pre-Post Intervention Barthel Subcomponent Functional Assessment scores*

Participant ID	Pre-Intervention Score	Post-Intervention Score
Participant #1	30	25
Participant #3	20	20
Participant #4	20	20
Participant #5	20	20
Participant #6	25	30
Participant #7	30	30
Participant #8	25	25
Participant #9	25	30
Participant #10	25	25

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