A Structured Exercise Program for Decreasing Fall Risk on an Inpatient Geropsychiatry Unit

JOYCE PARKS, CLINICAL NURSE SPECIALIST & PAVITHRA JAISANKAR, BSN CANDIDATE

JOHNS HOPKINS HOSPITAL, MEYER 6; JOHNS HOPKINS UNIVERSITY SCHOOL OF NURSING, BALTIMORE, MD

1 Background

Older adults admitted to geriatric psychiatry units are at an increased fall risk due to a confluence of factors including: psychiatric medications that cause orthostatic hypotension and abnormalities of motor function, treatments such as electroconvulsive therapy, impairments in vigilance associated with delirium and cognitive disorders, and impulsive behaviors that undermine compensatory strategies (Blair & Gruman, 2005).

Several efforts have already been in place on Meyer 6, a geriatric psychiatric unit, to decrease the rate of falls and fall-related injuries, including: interventions aimed at changing staff behavior, hourly rounds, toileting schedules, and establishment of a therapeutic milieu to provide activities and monitor high fall risk patients. It has been shown that multifactorial interventions such as these effectively reduce falls in hospitals (Cameron et al., 2013). Still, the fall rate on Meyer 6 prior to implementation of this study ranged between 0 to 7.4 falls per 1000 patient days, which exceeds the desired benchmark of 4.2 falls per 1000 patient days. This benchmark is based on the National Database of Nursing Quality Indicators (NDNQI).

Efforts to decrease falls among community-dwelling older adults through strength and balance training exercise have been successful in decreasing the frequency of falls as well as fall-related adverse outcomes (Cabral et al., 2013). Drawing from this success, a multidisciplinary team including nurses, physical therapists, physicians, and volunteers, has implemented a progressive, structured exercise program for patients with high fall risk admitted to the Johns Hopkins geriatric psychiatry service.

2 Objectives

•Improve strength, ambulation, and perceived health status of enrolled study participants during their inpatient stays on Meyer 6, as evidenced by pre-test and post-test assessment scores of the following standardized measures:

- Centers for Disease Control and Prevention's Stopping Elderly Accidents, Deaths & Injuries (STEADI) tool, which includes: Timed Up and Go (TUG) test; 30 second Chair-stand test; 4-stage Balance Test (Centers for Disease Control and Prevention, 2014)
- SF-36 – provides a measure of perceived health status (RAND, 2009)

•Reduce frequency of falls on Meyer 6 geriatric psychiatry service to less than 4.2 falls/1000 patient days for 6 months or more

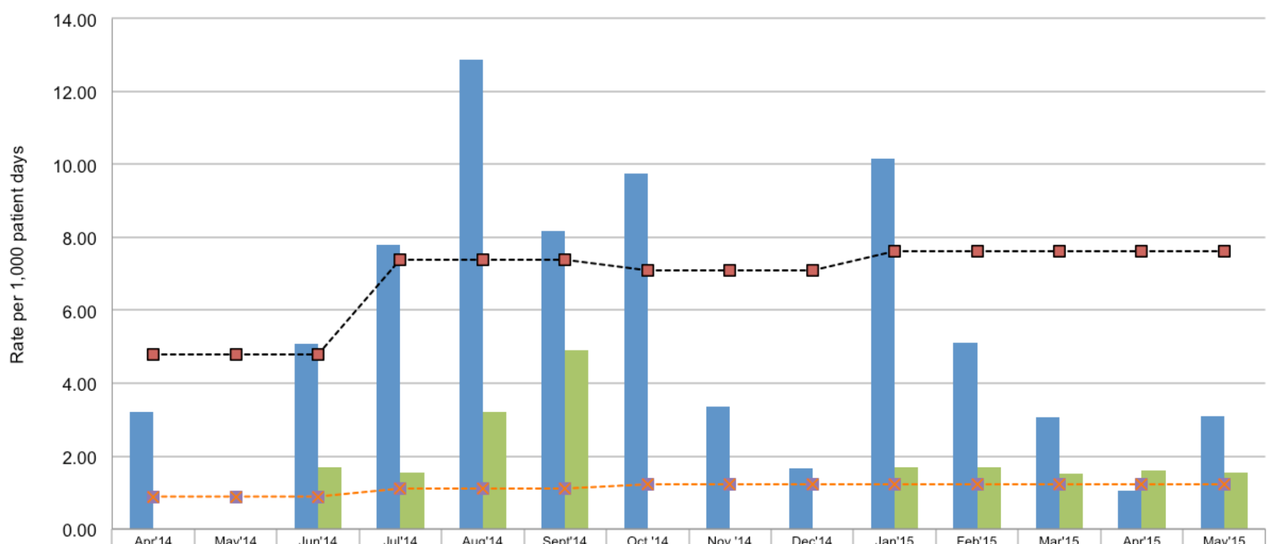
3 Methods

1.Systematic review of evidence on efficacy of strength and balance training for preventing falls and fall-related injuries in older adults
2.Development of exercise program for geriatric psychiatry on Meyer 6
3.IRB application
4.Introduction of program to unit:

- Staff training: engaging nurses and physical therapists in continuous enrollment of potential participants in program; engage nurses, clinical technicians, and volunteers in actual implementation of exercise intervention.
- Pilot the exercise intervention.

5.Data collection: pre-test and post-test data on a convenience sample of 100 older adults admitted to Meyer 6's geriatric psychiatry service.
6.Data analysis: evaluation of structured exercise program against objectives detailed above.
7.Identify and address barriers to integration of exercise program into Meyer 6 geriatric psychiatry service.

Figure 1. Meyer 6 Fall and Fall with Injury Rates vs. National Database of Nursing Quality Indicators' Median



	Apr'14	May'14	Jun'14	Jul'14	Aug'14	Sept'14	Oct '14	Nov '14	Dec'14	Jan'15	Feb'15	Mar'15	Apr'15	May'15
Meyer 6 Fall rate	3.21	0.00	5.07	7.80	12.86	8.17	9.74	3.37	1.66	10.15	5.11	3.06	1.06	3.10
Meyer 6 Fall with Injury rate	0.00	0.00	1.69	1.56	3.22	4.90	0.00	0.00	0.00	1.69	1.70	1.53	1.60	1.55
NDNQI fall rate median	4.78	4.78	4.78	7.38	7.38	7.38	7.10	7.10	7.10	7.62	7.62	7.62	7.62	7.62
NDNQI fall with injury rate median	0.89	0.89	0.89	1.10	1.10	1.10	1.24	1.24	1.24	1.22	1.22	1.22	1.22	1.22

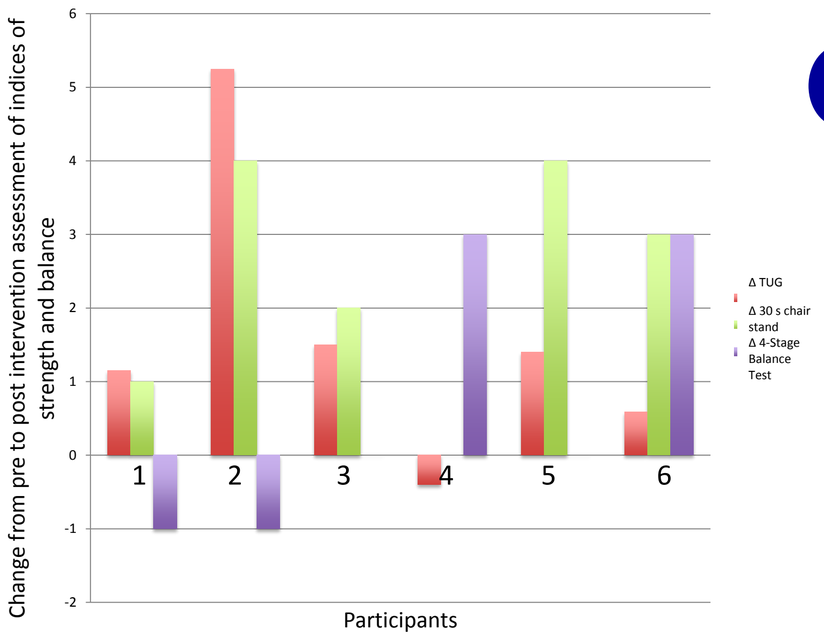
NDNQI Bed-type Fall and Fall with Injury Median is the benchmark median for the quarter before (the most recent benchmark available for the posted quarter)

4 Results

There has been a downward trend in the rate of falls on Meyer 6. Since March of 2015, the frequency of falls has stayed below 4.2, the NDNQI benchmark median for this study.

The data reflected in Figure 2 below is based on a pilot test of the structured exercise program. Six patients who enrolled and participated in the pilot study are represented in Figure 2. Of the six patients profiled in the Figure 2, all show improvement on at least one indicator of strength and ambulation, based on changes seen between the pre-intervention and post-intervention assessment of indices of strength and balance. More data collection is necessary for a thorough analysis of the efficacy of the intervention.

Figure 2. Change from Pre to Post-Intervention Assessment of Indices of Strength and Balance for Participants in Pilot Study



5 Conclusions

Based on preliminary data collection, the structured exercise program does seem to benefit the older adults admitted to Meyer 6 in terms of improvement on indices of strength and ambulation. Though we celebrate the decrease in the frequency of falls on Meyer 6 since March of 2015, we cannot determine what role, if any, the structured exercise program played in this improvement. Ongoing data collection and analysis is needed to determine statistically significant relationships between the intervention, improved indices of strength and ambulation, and frequency of falls on Meyer 6.

6 Future Directions

1. Expand current study to a multi-site study at other inpatient geriatric psychiatry units.
2. Identify and address barriers to further integrating the exercise intervention into the workflow of nurses. (For instance, ensuring that patients enrolled in the exercise program are evenly distributed across nurses, involving clinical technicians in implementing structured exercise program).

7 References

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