

# REDUCING FALLS IN THE FRAIL ELDERLY

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## INTRODUCTION

- Falls in frail elderly have been recognized by Centers for Medicare & Medicaid Services (CMS) as a focus for research to reduce morbidity, mortality, and health care costs in this population.
- Falls in frail elderly age 65 and older in LTCF can result in temporary or permanently decreased level of function. Injuries resulting in chronic pain, musculoskeletal instability, or even death have a profound effect on LTCF residents and quality of life or premature death (CDC, 2014).
- The CDC (2016), estimates the cost of falls and injuries sustained to be \$35 billion dollars annually, with approximately one-third of cost from falls sustained in LTCF.
- Serious injuries occur in 10% to 20% of falls in nursing homes with fractures accounting for two to six percent (CDC, 2014) and the mortality rate 1,800 per year.
- The number of LTCF residents is predicted to double over the next two decades with the disconcerting reality that falls resulting in serious injury may proportionately increase (CDC, 2014).

## PICOT/ STATEMENT OF PURPOSE

- The PICOT Question is as follows: P-In the Long Term Care Facility Staff I-how does the implementation of Stop and Watch C-compared to the facility's current standard of care O- decrease the incidence of preventable falls and serious injury requiring hospitalization or treatment outside of the facility T-over a three month period.
- This is a quality improvement project implementing a staff education tool INTERACT Stop and Watch. The survey done pre and post Stop and Watch intervention is to measure improvement in staff skills learned from Stop and Watch in identification of subtle health status changes in the frail elderly in LTCF to reduce falls with injury.

## PROJECT OBJECTIVES

The aims of this study were to:

- There will be a 10% increase in staff confidence in identification and reporting changes in patient's status potentially leading to improved patient outcomes through decreased falls resulting in injury.
- There will be 80% participation of staff through training in INTERACT "Stop and Watch".
- Falls with injury will be reduced three months after implementation of INTERACT "Stop and Watch" as evidenced by purposive convenience sampling of 80 LTCF charts with review showing 10% reduction of falls.

## MATERIALS AND METHODS

### Intervention.

This project included implementation of staff education tool Stop and Watch from the well-developed INTERACT Model and is a guide to trigger reporting of subtle changes in health status of LTCF residents. Stop and Watch was chosen as an intervention because the literature review revealed LTCF staff found the complete INTERACT to be time-consuming when short staffed. First, a survey pre and post Stop and Watch intervention was employed by collecting data at two points in time with a survey including probing questions inviting personal reflection. Second, a longitudinal study design was employed to gather data regarding falls and other selected study variables in the three months after the staff education tool implementation.

### Setting, Participants/Population Demographics, and Record sampling.

**LTCF Staff Sample.** The project was implemented in two Midwest LTCFs in a rural underserved region of Missouri. Participants included non-licensed and licensed staff in the LTCF ages 18-70. The staff were from rural areas surrounding both LTCFs, predominantly white females age 20-40. The sample was accessed during their work shift at the LTCF. The goal was to have 80% staff participation. Nurse Champions were chosen in advance from LTCF staff to be a resource to the staff regarding Stop and Watch. De-identifying of data was employed for confidentiality.

**LTCF Resident Sample.** The sample was a purposive convenience sample of 94 charts, more than the recommended sample size of 80 determined by Raosoft (2004) sample size calculator. Margin of error accepted 5%. Confidence level needed 95%. Inclusion criteria are those 65 and older in each rural Midwest LTCF. Their gender could be male, female, or transgender. Other inclusion criteria were married or single. Exclusion criteria were those less than 65 years old and those not living in either of the selected rural Midwest LTCFs.

### Data Collection

The Institutional Review Board (IRB) at the University of Missouri-Columbia December 2016 determined the study to be a Quality Improvement Project. Written consent was obtained from the LTCF Administrators and verbal consent was obtained from staff just prior to participation in the pre survey. Surveys were administered just prior to and immediately after Stop and Watch. Pre and Post-tests were counted to verify the number of LTCF staff completing training. The survey was to measure staff perceived baseline and improvement in confidence gained from Stop and Watch. After three months, data were collected from a convenience sampling of every fifth chart for LTCF residents based on pre-determined variables.

## RESULTS

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Number of Falls pre Stop and Watch - Number of Falls post Stop and Watch	.67021	1.40955	.14538	.38151	.95892	4.610	93	.000
Pair 2	Number of ER Visits pre Stop and Watch - Number of ER Visits post Stop and Watch	.10638	.40075	.04133	.02430	.18847	2.574	93	.012

Table 1. Paired Samples Test to Measure Number of Falls and ER visits pre and post INTERACT Stop and Watch

Test Statistics <sup>a</sup>						
	Hospital Stays post Stop and Watch - Hospital Stays pre Stop and Watch	Types of Injuries post Stop and Watch - Types of Injuries pre Stop and Watch	Skills and Tools post Stop and Watch - Skills and Tools pre Stop and Watch	Teamwork safety post Stop and Watch - Teamwork safety pre Stop and Watch	Reporting pt change post Stop and Watch - Reporting pt change pre Stop and Watch	Awareness of reporting post Stop and Watch - Awareness of reporting pre Stop and Watch
Z	-1.667 <sup>b</sup>	-2.840 <sup>c</sup>	-3.771 <sup>c</sup>	-2.236 <sup>c</sup>	-3.000 <sup>c</sup>	-1.414 <sup>c</sup>
Asymp. Sig. (2-tailed)	.096	.005	.000	.025	.003	.157

a. Wilcoxon Signed Ranks Test  
b. Based on positive ranks.  
c. Based on negative ranks.

Table 2. Wilcoxon Signed Ranks to Compare Hospital Stays, Types of Injuries and Staff Survey Results Pre and Post INTERACT Stop and Watch

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## RESULTS

### LTCF Staff Sample

- Participation of staff was 60% in one LTCF and 18% in the other.
- Predominantly white females ages 20-40 from surrounding rural areas.
- Three of the four staff survey questions analyzed with Wilcoxon signed-ranks test pre and post Stop and Watch were statistically significant showing the staff had an increased comfort level to voice their concerns about the status change in patients ( $Z = -3.000, p = .003$ ), staff perception of teamwork increased ( $Z = -2.236, p = .025$ ) and staff perceived improved skills ( $Z = -3.771, p = .000$ ).

### LTCF Resident Sample

- Ninety-four residents participated ( $n = 94$ ).
- Predominantly white widowed and female (70.2%,  $n = 66$ ) with most in their early 90's mean = 85.6 ( $sd = 8.51$ ).
- The most common payer source for both males and females was a combination of insurance sources (51.1%,  $n = 48$ ).
- The t-test Paired Samples Statistics results revealed the number of falls decreased from pre-Stop and Watch with the mean .7753 ( $sd 1.42$ ) to post Stop and Watch mean .0851 ( $sd .28$ ). The difference between means statistically significant as well as clinically significant ( $t(93) = 4.610, p = .000$ ).
- The number of ER visits pre and post Stop and Watch paired samples was found to have a positive correlation with statistical significance showing ER visits decreased ( $n = 94$ , correlation .308,  $p = .003$ ).
- Types of injuries pre and post Stop and Watch showed decreased emergency department visits and hospitalizations, therefore fewer falls with injury ( $Z = -2.840, p = .005$ ).

## CONCLUSIONS

- Limitations of the study include the mostly homogeneous sample of white widowed females in their early 90's.
- Strengths include the decrease in number of falls with injury, sample size ( $n = 94$ ), 14 more than Raosoft (2004) Sample Size Calculator as well as improvement in LTCF staff perception of skills.

Aim One of this quality improvement project was met. LTCF staff increased confidence in skills for identification and reporting of changes in patient status.

Aim Two was not met when comparing the number of surveys to staff roster the 80% goal was not achieved with 60% staff participation in one LTCF and 18% in the other LTCF due to influenza outbreak and quarantine of LTCF.

Aim Three was met as falls with injury were reduced.

## REFERENCES

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