Decreasing Nursing Home Readmissions Using the Stop and Watch Early Warning Tool

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Doctor of Nursing Practice Scholarly Project

Abstract

Background: Nursing home (NH) residents are at high risk for hospitalization. One successful initiative to decrease avoidable hospitalizations includes the use of tools to identify changes in NH residents' condition. The geriatric nursing assistant (GNA) is the frontline care provider for the NH resident and the GNA can identify subtle signs or behavior changes in the residents. The Stop and Watch Early Warning Tool (SWT) provides a method for the GNA to identify and communicate changes in the resident's condition to the licensed provider to prompt early assessment and possible interventions to prevent hospital readmission.

Purpose: To implement and evaluate the impact of using the SWT in a skilled care unit within a nursing home.

Methods: All of the staff on a 37-bed skilled unit were educated on the use of the SWT and the SWT was implemented on the skilled unit.

Results: Three hundred thirty-six SWTs were completed for a total of 15 days. Six weeks prior to implementing the SWT, the unit's readmission rate was 25%. Post-implementation, the unit's readmission rate was 18%.

Conclusion: Although there was a decrease in the readmission rate post-implementation of the SWT, these data will need to be trended over several months to determine if there is a significant change in readmission rates to the hospital. The SWT tool was positively received by the staff; however, a barrier to use of the SWT included

a high documentation burden for the GNAs. Future use of the SWT should target high-

risk patients.

Decreasing Nursing Home Readmissions Using the Stop and Watch Early Warning Tool

The Department of Health and Human Services (DHHS, 2013) reports that approximately 20% of Medicare beneficiaries discharged from a hospital are admitted to a skilled nursing facility within a nursing home (NH). This includes patients having surgical procedures and patients recovering from medical problems. According to DHHS (2013), the most frequent hospital diagnoses for NH residents are septicemia, pneumonia, congestive heart failure, and urinary tract infection. The average length of stay in a skilled facility within a NH is 27 days (DHHS, 2010). The total cost for each hospitalization readmission per NH resident is approximately $11,255. The aforementioned diagnoses have high reimbursement rates with sepsis being the costliest and most frequent diagnosis (DHHS, 2013). In 2013, hospitals were not reimbursed for about $280 million for readmission diagnoses such as myocardial infarct, heart failure, and pneumonia (Lee, Gruss, Stuercke, & Ryan, 2016). Health care administrators are trying to reduce these readmissions.

During fiscal year (FY) 2011, 20% of all Medicare NH residents were hospitalized twice during their NH stay (DHHS, 2013). Approximately seven percent of all Medicare NH residents were hospitalized three times and 5% of NH residents were transferred to a hospital at least four times or more (DHHS, 2013). In addition to the personal financial cost to the resident (out of pocket unless the resident is a Medicaid recipient), hospitalization can lead to other problems such as hospital acquired infections (HAIs), hospital acquired pressure ulcers (HAPUs), and delirium, which all significantly impact the resident's quality of life (Kruse, Peteroski, Mehr, Banaszak-Hall, & Intrator, 2013). The hospital readmission rate for nursing home residents continues to rise (Lee et al., 2016).

The Centers for Disease Control and Prevention (2015) identified 230 NHs which equates to 28,487 NH beds in the state of Maryland in 2013. During this same time frame, there were 24,360 residents living in NHs reflecting an estimated 85.5% occupancy rate. When Medicare beneficiaries are discharged from the hospital, approximately 20% are admitted to a NH, and most of these go to the NH's skilled nursing facility section or rehabilitation services section (Mor, Intrator, Feng, & Grabowski, 2010). An acute care hospital in the Mid-Atlantic region is challenged with frequent readmissions from several NHs in its local vicinity. One of these NHs with documented increased monthly readmission rates in the last few years was the focus of this Doctor of Nursing Practice (DNP) project.

In anticipation of the Medicare Quality Improvement Organization's 9th Scope of Work that would focus on care transitions, the Centers for Medicare and Medicaid Services supported the development of tools and strategies that could potentially reduce avoidable hospitalizations (Ouslander, Perloe, et al., 2009). A program titled Interventions to Reduce Acute Care Transfers (INTERACT) was developed by Ouslander and colleagues in an effort to reduce hospital readmissions. The tools within this program have been used successfully to decrease NH hospital readmission rates (Ouslander, Lamb et al., 2011). One of the tools, the Stop and Watch Early Warning Tool (Appendix B) is a communication tool to be used by certified nursing assistants (CNAs) to help them identify early changes in a resident's condition so they can report that information to the appropriate clinician for further evaluation and intervention (INTERACT, 2011).

The purpose of this Doctor of Nursing Practice scholarly project is to implement and evaluate the impact of using the Stop and Watch Early Warning Tool (SWT) in a skilled unit in a nursing home, to identify and communicate early changes in NH residents' clinical status. The

SWT will help geriatric nursing assistants (GNAs) identify and communicate subtle medical changes in residents to licensed practical nurses (LPNs) and registered nurses (RNs) prompting early intervention (e.g., after assessment or checking the resident, the physician may be contacted so that the resident can be treated on site if appropriate versus transferring to a hospital) to avert an unnecessary hospital readmission.

Theoretical Framework

The Knowledge to Action (KTA) cycle is a conceptual framework using actions theories and a process to create knowledge (Straus, Tetroe, & Graham, 2013). According to Graham et al. (2006), the KTA process should be viewed as two concepts, knowledge creation and an action cycle. The three phases aligned with knowledge creation includes knowledge inquiry, knowledge synthesis, and knowledge tools and/or products (Straus et al., 2013). Graham et al. describe knowledge inquiry phase as the time when primary studies are reviewed to generate knowledge. The knowledge synthesis phase incorporates systematic review of the literature to further integrate knowledge. And finally, knowledge tools such as practice guidelines or care pathways, are generated to facilitate the application of new knowledge into practice. All of the knowledge creation from the various phases are funneled and formatted to be used by the end-users (Graham et al., 2006).

The action cycle concept of the KTA framework, is derived from action theories that support change, includes seven phases (Straus, et al., 2013). Graham et al. (2006) describes these phases as problem identification, knowledge research review and selection, knowledge research adoption to local context, determining barriers to knowledge utilization, interventions reflecting knowledge, monitoring, outcomes and evaluation, and sustainability (Graham et al.,

2006). Knowledge creation will feed into the action cycle, with one phase influencing the other (Graham et al., 2006).

The knowledge creation concept of the KTA framework involves gathering and reviewing the literature about the GNA's role in communicating resident behaviors indicative of a change in a NH resident's condition. The action cycle of the KTA framework addressed the problem of high readmission rates among NH residents and using components of the INTERACT program to support decreasing the readmission rates of NH residents. Meetings with NH administrators and staff were held to discuss the INTERACT tools and plans for using them in daily practice to decrease NH admissions. Plans for implementation were made with specific goals, clear methods, and a detailed timeline. This facilitated an evaluation of the process to assess if the practice change was successful or not. There will be a meeting with the NH administrator to collaboratively determine the best way to implement, monitor, and quantify the use of the SWT.

Literature Review

Nursing home residents are at a higher risk for hospital readmission and a significant number of these hospitalizations may be avoidable (Ouslander, Lamb, et al., 2011). Readmission for the NH resident can lead to iatrogenic complications and increased health care costs. This literature review and synthesis highlights two initiatives that have been shown to reduce avoidable readmissions of NH residents. Researchers have determined that the person closest to the NH resident, the CNA, may be able to notice subtle signs and/or behavior changes indicating a resident is becoming ill (Lee, Grusset al.,, 2016; Tingstrom, Milberg, & Sund-Levander, 2010). Communicating the need for higher level clinical evaluation at that time may help to avoid

readmission for the resident. The Interventions to Reduce Acute Care Transfers (INTERACT) program is a quality improvement initiative developed to decrease avoidable hospitalizations of NH residents (Ouslander, Lamb, et al., 2011).

Research studies conducted by Tingstrom, et al. (2010) concluded that NAs may be able to detect subtle and nonspecific signs and symptoms of infection in NH residents since they are intricately involved in the resident's daily care. According to Tingstrom et al. (2010) urinary tract, respiratory, and soft-tissue infections are the most frequent infections in the NH setting. Elderly residents frequently present with nonspecific signs and symptoms which makes it very challenging to determine if there is an infection. There is also the potential for delay in the diagnosis and treatment of the infection (Tingstrom et al., 2010). Tingstrom et al. explored nonspecific signs and symptoms of NH residents in Sweden as described by 21 NAs in focus groups. The NAs were asked questions such as "What are your experiences in evaluating the presence of infection in an elderly person?", "What makes you perceive that the resident is feeling unwell?", and "Can you explain more?" (Tingstrom et al., 2010, p. 26). Nursing assistants responses "Is not as usual" and "Seems to be ill" were determined to be possible descriptors for nonspecific signs and symptoms of infection (Tingstrom et al., 2010, p. 29).

Tingstrom et al. (2010) incorporated a linguistic expert for translation purposes and this strengthened their study. Also, NAs reviewed the researcher's comments to ensure it reflected the true intent of the NAs (Tingstrom et al., 2010). Possible limitations of this study were recall bias and since all of the NAs were women, there may be difficulty generalizing the findings to male NAs (Tingstrom, et al., 2010). The literature did not clarify the level of education or competency training of the NAs. In the United States NHs generally requires NAs to be certified and this may enhance their ability to detect sign/symptoms of infection.

The quality improvement programs, INTERACT, INTERACT II (Ouslander, Lamb et al,.

2011), and INTERACT NY (Tena-Nelson et al., 2012) along with their evidence-based tools

have proven to be effective in decreasing avoidable hospitalization of NH residents (Ouslander,

Perloe et al., 2009).   The Ouslander et al. study was the first quality improvement initiative to

pilot INTERACT and its evidence-based tools. Three Georgia NHs with high hospitalization

rates participated in this six month initiative. Collectively, the NHs had a 50% reduction in

hospitalization (Ouslander, Perloe et al., 2009). Additionally, it is hard to know with certainty

which hospitalizations are "potentially avoidable" due to the limited documentation known to

exist in NH records as well as how other clinical, financial, and social issues of the residents may

factor in to a hospitalization. There may have been bias since the objective of the study was

decreasing hospitalization rates and those involved in the project were fully aware of that and

had more experience than the typical NH clinician (Ouslander, Perloe et al., 2009).

Ouslander, Lamb et al. (2011) utilized the INTERACT II quality improvement project in

Florida, Massachusetts, and New York NHs. The INTERACT II tool was modified from the

original INTERACT tool using focus groups and interviews. There were thirty NHs that

participated in INTERACT II and eleven comparative facilities. Twenty-five NHs completed the

project and had a 17% reduction in hospitalization rates versus a 3% reduction for the eleven

comparative facilities. Ouslander, Lamb et al. stated additional research would be required to

determine if the components of INTERACT II impacted hospitalization rates. Limitations

included the accuracy of hospitalization reports that were completed by the individual facility.

There was difficulty in determining the diagnosis associated with the hospitalization. A

randomized control trial was suggested to evaluate this intervention (Ouslander, Lamb et al.,

2011).

Tena-Nelson et al. (2012) initiated INTERACT NY and reviewed pre and post hospitalization rates after initiation of the program in twenty nursing homes to identify what caused the change. The SWT was the tool implemented the highest frequency during the INTERACT NY study, and there was an 11% reduction in hospital transfers after this program was implemented. The decrease in hospitalizations was not statistically significant, due to the small sample size. Only 18 NHs of the provided complete data. Since there was no comparison group in the study, it was difficult to determine if there was truly an impact on hospitalization rates, but the results were very similar to the first INTERACT study as well as the INTERACT II study.

Researchers found that the implementation of the INTERACT quality improvement project lead to a reduction in hospitalization rates for NH residents (Ouslander, Perloe, et al., 2009; Ouslander, Lamb, et al., 2011; Tena-Nelson et al., 2012). How engaged the facility was in the implementation of the project effected the hospitalization rates, and greater engagement was linked to greater reduction in hospitalization. The facilities had difficulty implementing the entire INTERACT program. All NHs noted a decrease in hospitalizations even when implementing some of the tools, including the SWT. A study by Lee et al. (2016) saw a decrease of 34% in transfers to hospitals after implementation and consistent use of the SWT. The SWT was identified as favorable in one study, but it was described as requiring too much paperwork by staff in another facility (Ouslander, Perloe al., 2009; Tena-Nelson et al., 2012). A frequent limitation noted in the studies reviewed herein relates to NHs self-reporting their hospitalization rates so the data is biased accordingly, and may not be accurate.

Methods

Design and Setting

This was a Quality Improvement (QI) DNP project to determine whether using the SWT in a NH will result in a reduction in hospital readmissions, emergency room (ER) visits, and observation (OBS) stays for NH residents post implementation. The setting for this QI project was a unit of 37 skilled beds in a NH located in the Mid-Atlantic region in the United States. The unit reported an increased number of residents who have been readmitted to a hospital, or transferred to an emergency room, or to an observation unit within 30 days of discharge from a hospital. The outcome definition of readmission is to capture all-cause readmission of SNF patients occurring within 30-days of discharge from the resident's prior proximal acute hospitalization (CMS, 2015).

Sample and Procedure

The implementation tool for this quality improvement project was the SWT. The first phase of the quality improvement project was to identify a site in which to implement the project. The DNP student project leader is a member of a readmission committee at an acute care hospital which identified NHs in its local vicinity with high readmission rates. A NH administrator in the area expressed an interest in reducing their residents' readmission rates to the DNP student project leader, so this NH was the target site for the project.

The DNP student project leader contacted the NH administrator and Director of Nursing (DON) to identify the target unit and potential members of the implementation team. The team included an onsite champion, the DON, and the target unit's manager. The DNP student leader organized a team meeting to provide a detailed overview of the scholarly project. A logistics

planning guide (determine training dates, implementation date, end date, location and security of

the SWT, etc.), a PowerPoint training module for the GNAs, LPNs, and RNs, a demographic

questionnaire, and the SWT was presented at the meeting. In addition, the team was asked for

feedback on how to adapt the materials to the specific culture of the unit and staff. Additional

modifications were made to the training module after receiving feedback from the NH staff.

The DNP student leader provided two days of training sessions for the staff in 30 minute

blocks. Training was provided for the day, evening, and night shifts. All GNAs, LPNs, and RNs

were trained. The SWT location was communicated and the process for completion of the SWT

by the GNA. Expectations of the LPN and RN to evaluate or assess the resident was emphasized

during the training and communicated to the staff by the unit manager and the DON. The

completed tools were secured in the manager's office until the DNP student leader could review

them.

Use of the SWT on the implementation unit was scheduled for six weeks. The tool was

to be filled out each shift on every resident (INTERACT, 2014). The DNP student leader spoke

with the project champion frequently by telephone and email and visited the NH several times

during the implementation period. During the telephone call, inquiries were made regarding

implementation activities, barriers, and facilitators. During visits to the NH during the

implementation period, the DNP student leader spoke with the project champion and staff about

the project and addressed knowledge or compliance issues. The DNP student collected and

analyzed data from the SWTs as well as gathered information by talking with staff.

After an analysis of the data from the SWTs, the DNP student leader will meet with the

NH administrator, medical director, and project team to present the findings, discuss how the

SWT can be sustained by incorporating it into their annual competency requirements, new employee orientations, and organizational policies and procedures. When completed, a meeting will be held with the unit staff and the findings from the project will be presented (see Appendix D).

Data Collection

The SWT (Appendix B), is an INTERACT communication tool used by the GNA to identify, document, and report changes in a resident to the RN or LPN (INTERACT, 2014). The validity and reliability of the tool has not been tested (see Appendix C). The GNA completed a tool on each resident every shift. When the GNA noticed a change in the resident, the GNA documented the resident's change (s) on the SWT and signed it. The GNA then gave the SWT to either the LPN or RN for an evaluation and/or assessment of the resident. The SWT was signed by the LPN or RN to document an evaluation and/or assessment was completed. The completed SWT was left in the unit manager's secured office. Demographic information about the GNAs on the implementation unit was collected by asking them to complete a confidential questionnaire (Table 1).

<center>**Data Analysis**</center>

The data were analyzed to determine if there was a decrease in 30-day readmissions after educating the NH staff on the SWT and implementation of that tool on a specific unit within the NH with a high readmission rate. Analysis of the data resulted in two outcome measures: (1) total number of SWTs used by the GNAs during the day, evening, and night shifts during the six week implementation period and (2) the frequency in the use of the SWT and its relationship with 30-day readmissions. The cost of using the SWT, should the NH decide to formally

implement its use, will be determined by how many tools were used during the implementation period. Descriptive statistics will be used to describe the data in this quality improvement project.

Measures to Protect Human Rights

The completed SWT used by the GNA, LPN, and/or RN, was left in the unit manager's office. A proposal was submitted to the University of Maryland Baltimore (UMB) Institutional Review Board (IRB) for a Non-Human Subjects Research (NHSR) determination. An IRB Analyst determined that the project met the definition of NHSR so IRB oversight was not required.

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Results

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All of the full-time NH staff assigned to the implementation unit were trained on the SWT. The GNA staff made up 54.2% of the clinical staff. Fifty-eight percent of the staff had worked on the unit in their position for 1-5 years. Approximately 88% had worked at the NH for 1-5 years. Most of the staff (41%) had some college education (Table 1).

The SWT was completed for 15 days of the 6 week implementation period. During this timeframe, the majority of the tools (268) were completed on the night shift (Table 2). Six weeks prior to implementing the SWT on the selected unit, the average daily census (ADC) was 24 and 6 residents were readmitted to the hospital, a 25% readmission rate. During the six week implementation timeframe, the ADC was 35 and 5 residents were readmitted to the hospital, a 14% readmission rate. Six weeks post implementation of the SWT, the unit's ADC was 28 and 5 residents were readmitted to the hospital, an 18% readmission rate. There was a decrease in the readmission rate post implementation of the SWT (Table 3).

Five residents were readmitted to the hospital during the implementation period. Zero of

the five residents readmitted had a SWT completed. The minimum number of tools completed

for the residents that had tools completed were 3. The maximum number of tools completed for

those residents that had tools completed were 12.

The GNA, LPN, and RN staff were interviewed after the implementation of the SWT to

collect their feedback about the utilization of the tool. Their evaluation of the SWT was consisted

of facilitators and barriers. The GNAs and LPNs stated the SWT was a good tool to use in that it

helped communicate resident changes and enabled them to track the resident's clinical status.

Barriers to the utilization of the SWT was conveyed by the repeated comments about completing

the tool for every resident was too much and very time consuming, emphasizing that the SWT

should only be completed if there is a change in the resident's clinical status.

Conclusion

Quality improvement projects have shown that some nursing home readmissions are

avoidable. This DNP project demonstrated the use of the SWT may have decreased the

readmission rate on the implementation unit. The staff stated there were benefits in using

the SWT. For example, the tool helped the staff remember triggers indicating a resident may

be getting ill. They viewed the SWT as a good communication tool regarding the resident to

the licensed staff. However, the SWT was also described as a documentation burden.

Future use of the tool should target high risk patients such as those admitted from an acute

care hospital with diagnoses such as congestive heart failure, pneumonia, or other high

readmission diagnoses. Also, the SWT should be used for a limited period of time on new

residents (maximum of 5 days). A policy focused on adapting use of the tool to the needs of

the resident population will guide future use of the SWT on the skilled unit.

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Table 1

Characteristics of Employees on the Implementation Unit (N=24)

Demographic Variables	Frequency	Percentage (%)	Misc.
Position			
Geriatric Nursing Assistant (GNA)	13	54.2	
Licensed Practical Nurse (LPN)	9	37.5	
Registered Nurse (RN)	2	8.3	
Experience in Position (Years)			
‹1	3	12.5	
1-5	14	58.3	
6-10	4	16.7	
›10	3	12.5	
Gender			
Female	16	66.7	
Male	8	33.3	
Time at Nursing Home (Years)			

‹1	2	8.3	One person did not answer this question.
1-5	21	87.5	
6-10			
›10			
Education (Highest Obtained)			
No high school diploma/GED	1	4.1	
High school grad	7	29.2	
Some college	10	41.7	
College degree	6	25	
Primary Shift			
Days	8	33.3	
Evenings	10	41.7	
Nights	6	25	

Table 2

Stop and Watch Interventions on the Day, Evening, and Night Shifts

	Day 1-5	Day 6-10	Day 11-15	No Date Documented	Total
Day	17				17
Evening	20	14		17	51
Nights	125	71	72		268
Total	162	85	72	17	336

Table 3

Admissions and Readmissions

	Average Daily Census of Implementation Unit	Readmissions on Implementation Unit	Readmission Rate (%) for Implementation Unit
Sept. 5-Oct. 16, 2016 (pre Stop and Watch Tool implementation)	24	6	25
Oct. 17-Nov. 26, 2016 (Stop and Watch Tool implementation)	35	5	14
Nov. 27-Jan. 7, 2017 (post Stop and Watch Tool implementation)	28	5	18

Appendix A

JOHNS HOPKINS EVIDENCE-BASED INDIVIDUAL EVIDENCE SUMMARY

DECREASING NH READMISSIONS USING HOSPITALIZATION RATE TRACKING AND COMMUNICATION TOOLS

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength / Quality
1	Tingstrom, P., Milberg, A., Rodhe, N., Ernerud, J., Grodzinsky, E., & Sund-Levander, M.	2010	Qualitative study using focus group interviews with nursing assistants (NAs) as they performed their daily care duties which put them close to the residents.	Convenience sample. All NAs in a NH were invited to participate. N=21 female NAs	• The majority, 13 out of 21 NAs found it difficult to evaluate the presence of infection • 14 found it rather easy • 1 found it no problem. • The content analysis of the NAs description of nonspecific signs and symptoms of infection resulted in 2 categories: 1) "Is not as usual" (described general signs/symptoms of discomfort related an infection-discomfort, unrestrained, aggressiveness, confusion, tired/feeble, etc.) • "Seems to be ill"	• Cross-sectional design and the NAs were referring to the resident's past and current sign/symptoms- risk of recall bias. • Some meanings of the NA may have been lost when the translation to English was done. • Respondents were women which may not be transferable (if there are	III/B

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength Quality
					(described more specific signs and symptoms related to established infection-pain, general signs/symptoms of illness, specific signs/symptoms of infection)	male NAs).	
ti	Lee, C., Gruss, M., Stuercke, C., & Ryan, C.	2016	Quality Improvement Project	SNF nursing staff N=32 The skilled nursing unit with the most admissions, readmissions, and discharge patients. Relationship between CNA use of the Stop and Watch Tool and	Readmission rates decreased by 34% from over 50% at baseline. Readmission rates were associated with consistent Stop and Watch Tool use/30-day readmission rates were are reduced by CNAs' consistent Stop and Watch Tool use.	• Small sample size limits generalizability • Difficulty using aggregated data retrospectively to distinguish between admission diagnosis and transfer diagnosis for planned and	IV/B

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength Quality
				readmissions.		unplanned hospital readmissions. • No real-time survey of staff who participated.	

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength / Quality
3	Ouslander, J., Lamb, G., Tappen, R., Herndon, C., Diaz, S., Roos, B., Grabowski, D., & Bonner, A.	2011	Quality Improvement Project	INTERACT II evaluated in NHs N=30 Comparison NH not using INTERACT II N=11	• Complete data provided from 25 NHs (the other 5 dropped out for various reasons). • The participating NHs were divided into 2 groups; moderately or highly engaged and minimally or not engaged: 17=mod/highly engaged 8=minimally/not engaged	• There was variation in the number of quality improvement tools submitted by the NHs-selection bias. • A larger sample size would have increased the power of the study to detect a	IV/B

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength / Quality
					• Overall-25 NHs that completed INTERACT II-17% reduction in hospitalization. • Engaged NHs-24% reduction in hospitalization. • Not engaged NHs-6% reduction in hospitalization. • Comparison facilities-3% reduction in hospitalizations. • Costs of implementation- approximately $7700/facility. • Approximate facility savings of $125,000/year	relationship between avoidability ratings and changes in hospitalization rates. • Care processes associated with transfers (ex. Advance Directives) was not measured throughout the study.	
4	Tena-Nelson, Santos, K., Weingast, E., Amrhein, S., Ouslander, J., & Boockvar, K.	2012	Collaborative which included an educational program among member facility leadership and staff, print and internet INTERACT tool materials, hands-on implementation	NHs that agreed to participate N=30	• Total of 333 attended education session (denominator not identified). • NHs that implemented at least one of the INTERACT tools • N=16 • The most frequently used tools by the NHs were the Early warning tool	• There was no comparison group so one can over-estimate or underestimate the impact of INTERACT. • There could be cointer-vention (other	IV/B

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength Quality
			support and data collection support for self-evaluation.		"Stop and Watch" (n=13); Situation, Background, Assessment, or Appearance Request (n=12); Hospital tracker review tool (n=9); Acute care transfer log (n=7); Care paths (n=4); and Advance Directives planning tools (n=3). • NHs with engagement had greater average attendance at INTERACT NY sessions than NHs who did not provide evaluation data. • Reduction in hospital admissions=10.6% (not significant) • High engagement NHs=14.3% (not significant) • NHs with the highest tertile-27.2% reduction in hospital admissions (non-significant).	interventions occurring during the same time as INTERACT. • Because facilities self-report hospitalization data, all the data reported may not be complete. • 12 of 13 facilities did not provide complete evaluation data. • There were changes among NHs with high and low baseline hospitalization rates (result of regression to the mean). • Small sample size.	

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength Quality
						• The results from a multi-facility collaborative may not apply to a facility implementing the program independently.	
5	Ouslander, J., Perloe, M., Givens, J., Kluge, L., Rutland, T., & Lamb, G.	2009	Quality Improvement Project	3 NHs with the highest hospitalization rates.	• Most of the staff found the INTERACT tools useful but some say the Stop and Watch and SBAR communication tools too much paperwork (Barrier) • The three facilities had a 58%, 44%, and 36% reduction in hospitalizations per 1000 resident days. • Overall reduction in hospitalization for all three facilities was 50%. • The most common diagnoses that cause potentially avoidable hospitalizations are pneumonia and urinary	• Project was carried out in only three facilities in one state; generalizability may be difficult. • Determining "potentially avoidable" hospitalization is not perfect. • Because the panel was aware of the purpose of the project. There may have been bias in terms of	IV/B

#	Author	Date	Evidence Type	Sample & Sample Size	Results/ Recommendations	Limitations	RATING Strength Quality
					tract infection which are addressed by the INTERACT tool.	the need to improve NH care and reduce unnecessary hospitalizations.	

Appendix B

Stop and Watch Early Warning Tool

Appendix C

Email: Validity and Reliability of the Stop and Watch Tool
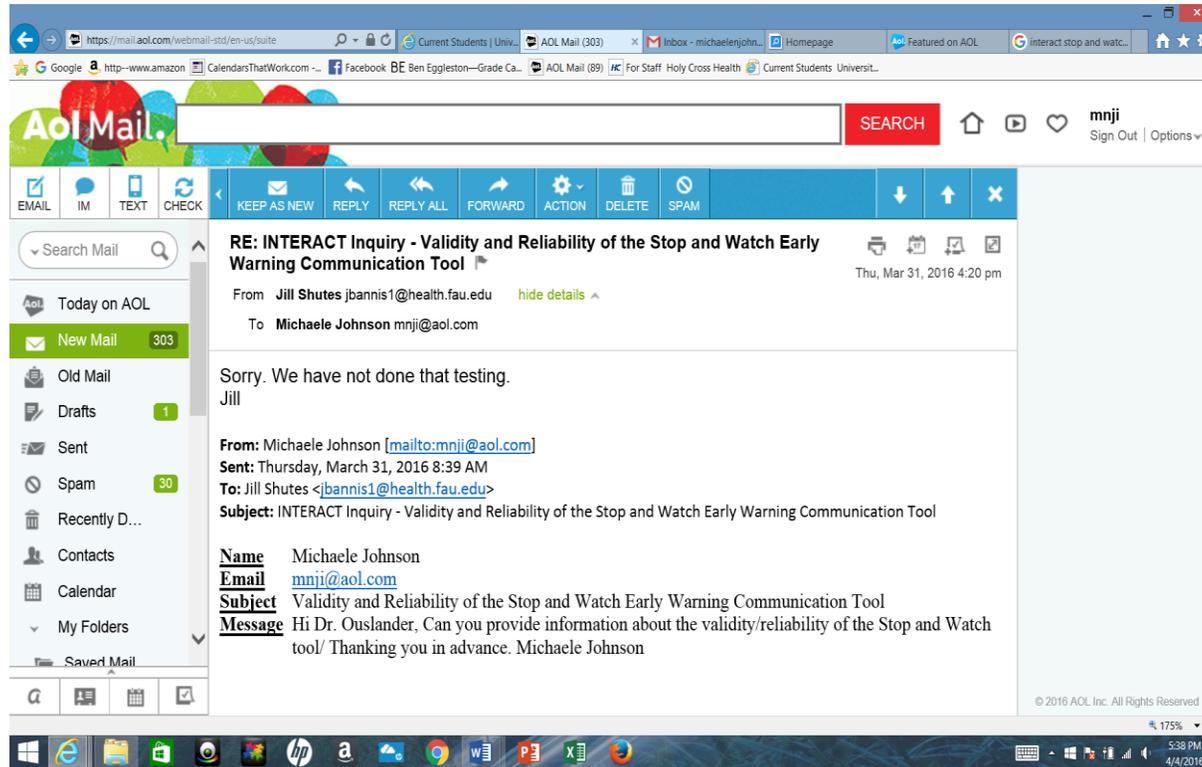
Appendix D

Scholarly Project Timeline

Goal	Date
Determine nursing home to target for project and contact to schedule an informal meeting.	March 2016
Informal meeting with nursing home administrator, director of nursing, and medical director to discuss scholarly project	March 30, 2016
Meet with nursing home administrator to obtain approval to use the site for the scholarly project (after IRB approval). Formal documents signed such as HIPAA, consents to access and review resident PHI, etc.	September 12, 2016
- A small project committee (DON, unit manager, project champion) will be formed and a project champion identified. - The implementation unit will be identified - A generic power point training module will be reviewed and discussed. - The Stop and Watch Early Warning Tool will be presented and discussed as well as the process for completing it - The location of the Stop and Watch Tool for staff access will be discussed - The location of completed Stop and Watch Tools will be discussed (security) - The expectation of the completion of the tools by the CNA and evaluation by the LPN/RN will be discussed - DNP student will take a tour of the implementation unit	September 12, 2016
Meet with project champion, DON, and unit manager with	September 19, 2016

final power point training slides	
• DNP student will tour the implementation unit • Meet and greet staff on implementation unit (CNAs, LPNs, RNs, unit clerk, and others) • Staff training (CNAs, LPNs, RNs, unit clerk if necessary)	September 21-23, 2016
• Use of the Stop and Watch Early Warning Tool will begin	September 26, 2016
• Weekly telephone calls to the project champion • Biweekly visits by the DNP student for face-to-face meeting with the project champion and staff. Qualitative data to be gathered. • Review completed Stop and Watch Early Warning Tools • Discuss problems with project champion and/or manager (if the champion is not the manager) • Call or email administrator to provide updates biweekly	September 26-November 25, 2016
• DNP student will complete review of Stop and Watch Early Warning Tools	December 5, 2016
• A power point presentation of the findings for the administrator, DON, medical director and committee • A presentation of the findings to the implementation unit staff	December 9, 2016