

Improving Education and Communication in an Assisted Living Facility to Reduce Avoidable Emergency Department Transfers

A Quality Improvement Project

ABSTRACT

The purpose of the current project was to determine the effectiveness of training and communication tools used as intervention strategies to reduce unnecessary emergency department transfers of assisted living facility (ALF) residents. Two communication protocols (SBAR and STOP and WATCH) were introduced to standardize clinical communication among licensed practical nurses (LPNs) and clinical providers. Twenty-nine LPNs working in an ALF with 172 units were recruited. LPNs participated in an intervention intended to improve knowledge on geriatric syndromes. Pre- and postintervention testing revealed improved LPN knowledge of geriatric syndromes. A satisfaction survey indicated positive LPN acceptance of the standardized communication tools. Through daily auditing of charts, adherence with use of the SBAR tool was 87%. This evidence-based, educational intervention project aimed to improve nursing staff geriatric knowledge, monitor nurse adherence to using the SBAR and STOP and WATCH tools, and assess overall satisfaction with use of SBAR. [*Journal of Gerontological Nursing*, 45(5), 23-29.]



Assisted living facilities (ALFs) provide care to more than 1 million residents in 36,000 facilities across the United States (Becker, Boaz, Ansel, & DeMuth, 2012). Data from a 2010 national survey of ALFs having at least four beds show that residents now enter care older, sicker, and more in need of health care (Caffrey, Sengupta, Park-Lee, Moss, Rosenoff, & Harris-Kojetin, 2012). According to the World Health Organization, recognizing the health care needs of an aging population within the health care system is a global health concern (Hogan et al., 2014). ALF residents are routinely referred to emergency departments (EDs) for medical conditions or events that could otherwise be addressed at a less acute level of care, such as in primary care offices or urgent care clinics. This dependence on EDs creates an unfavorable use of health care resources (Lee, Schuur, & Zink, 2013). The overuse of ED health care services

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brings with it unnecessary insurance and personal costs (Lee et al., 2013). As the U.S. population ages, unbalanced use of ED care and its associated costs become an even more urgent health policy issue.

The Joint Commission International Patient Safety Goal 2 asserts that effective communication between health care workers must improve. The Joint Commission has also consistently reported that problems with communication are main causes of sentinel events (Compton et al., 2012). ALFs and nursing homes (NHs) are two options on the spectrum of older adult

cerns for clients (Harrison, 2014). Evidence suggests that ineffective nurse–provider communication adversely affects ALF resident care; associated reports of unnecessary psychotropic use and avoidable hospitalizations are leading consequences of poor communication (Buchanan et al., 2006). Becker et al. (2012) identified a need for increased education and communication among ALF staff to manage avoidable resident hospitalizations. Inadequate communication also increases frustration and compromised workplace relationships for nurses and providers (Rosenstein & O’Daniel, 2008).

information and also helps the receiver focus on the important points of the message (Marshall, Harrison, & Flanagan, 2009).

The Centers for Medicare & Medicaid Services, under mandate by the Affordable Care Act, adopted new programs and tools to decrease health expenditures. Interventions to Reduce Acute Care Transfers (INTERACT) is a system designed to improve health care quality with early identification of preventable hospitalizations through assessment, documentation, and communication among staff in long-term care facilities (Mihaljevic & Howard, 2016). Over the past decade, long-term care facilities have used the INTERACT tools Situation, Background, Assessment, and Recommendation (SBAR) and STOP and WATCH (defined below) to communicate changes in resident condition (Ouslander, Bonner, Herndon, & Shutes, 2014). SBAR is a form of structured communication that has been adapted from aviation and military settings as a strategy for clear and focused communication intended to reduce adverse events, improve efficiency, and improve patient safety (Compton et al., 2012). According to Compton et al. (2012), SBAR specifically enhances the communication between nurses and physicians, leading to more focused messaging that not only improves patient outcomes but also enriches nurse and physician satisfaction and collaboration. The SBAR tool is also a conversation-framing technique that shapes communication to be concise, organized, and predictable (Compton et al., 2012).

STOP and WATCH is an additional quality improvement tool that enables nurses and nursing assistants to communicate early signs of clinical change in patient condition in a clear, concise, and timely fashion (Mihaljevic & Howard, 2016). STOP and WATCH comprises 12 condition and behavior items for care providers to monitor and identify specifically in communications: S, *seems different than usual*; T, *talks*

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care. The difference between ALFs and NHs is that, in ALFs, facilities aim for residents to maintain a maximally self-sufficient lifestyle with the assurance of assistance when needed, whereas NHs are mainly for residents who have physical and mental health issues that require attention from nursing professionals every day around the clock. Communication tools have been widely used in NHs. The current project is intended to bring better practices in ALFs by implementing the use of these communication tools.

Communication problems among health care staff during critical medical situations are substantial contributing factors for medical errors and adverse outcomes (Compton et al., 2012). Up to 65% of serious adverse health events in older adults implicate communication problems, according to a study by Haig, Sutton, and Whittington (2006). Communication breakdown among health care providers results in decreased quality of care and increased safety con-

cerns for clients (Harrison, 2014). Evidence suggests that ineffective nurse–provider communication adversely affects ALF resident care; associated reports of unnecessary psychotropic use and avoidable hospitalizations are leading consequences of poor communication (Buchanan et al., 2006). Becker et al. (2012) identified a need for increased education and communication among ALF staff to manage avoidable resident hospitalizations. Inadequate communication also increases frustration and compromised workplace relationships for nurses and providers (Rosenstein & O’Daniel, 2008).

Most communication between long-term care nurses and medical providers occurs within the context of brief telephone conversations after hours and over weekends with on-call covering physicians (McNabney, Andersen, & Bennett, 2004). Consequently, important clinical decisions are made by providers who rely on information received over the telephone and may be unfamiliar with residents (Renz, Boltz, Wagner, Capezuti, & Lawrence, 2013). The quality of this communication exchange is influenced by nurse and provider behaviors (Tjia et al., 2009).

Communication challenges may be overcome with the development and implementation of structured communication protocols and training of nursing staff on specific communication methods (Beckett & Kipnis, 2009). Standardizing the structure of critical communication helps a communicator organize thoughts and prepare for a conversation on critical

or communicates less than usual; O, overall needs more help than usual; P, participates less than usual in activities; A, ate less than usual (not because of dislike of food); N, no bowel movement in 3 days or diarrhea; D, drank less than usual; W, weight change; A, agitated or more nervous than usual; T, tired, weak, confused, or drowsy; C, change in skin color or condition; H, help with walking, transferring, or toileting more than usual (Mihaljevic & Howard, 2016). As soon as a change is detected, the patient's status is assessed, recorded, and passed on to primary care providers and family members so all parties can participate in deciding whether to transfer to the hospital given specific level of urgency. SBAR and STOP and WATCH as early warning tools have been well used to communicate changes in resident condition, decreasing hospitalization by 50% (Markley, Bigbee, & Whitmire, 2011; Ouslander et al., 2014). Communication education for geriatric health care providers is an effective measure to decrease adverse health outcomes and avoidable hospital readmissions (Ouslander et al., 2014).

Reducing unnecessary ALF resident ED referrals arguably begins with improving ALF staff geriatric care knowledge and communication among staff members and providers. The purpose of the current project was two-fold—implement and assess the effectiveness of an ALF staff training seminar on geriatric care and implement and assess the effectiveness of two communication tools. The outcomes measured among nursing staff were changes in geriatric knowledge, adherence to communication protocols, and overall satisfaction with the use of the communication tools. Although not directly assessed in the current study, the authors anticipate that by improving geriatric knowledge and use of communication tools among nursing staff in ALFs, a first step may be taken toward reducing unnecessary ED referrals.

METHOD

Design, Setting, and Sample

This study was a quality improvement project conducted at an ALF located within a residential neighborhood in Washington, DC. The facility is home for up to 200 residents. This pre-/postintervention study spanned a period of 2.5 months, with preintervention assessments completed during the first 2 weeks, followed by implementation of the interventions. Follow up spanned a period of approximately 2 months in the latter part of the study. Geriatric knowledge was assessed before and after a geriatric health training seminar. Adherence to communication protocol was monitored after the communication tools were introduced and implemented. Satisfaction with the communication tools was assessed after implementation.

Participants comprised a convenience sample. Inclusion criteria were licensed practical nurse (LPN) status and employment at the study site. Site LPNs were selected because they have the most frequent and long-lasting resident contact by a large margin. The sample ($N = 31$) included all LPNs employed at the ALF except for one. The excluded participant began the study but was lost to follow up for reason of employment transfer. No data were included for this participant in the analysis. Participation was voluntary, and all eligible LPNs participated. Participants gave informed consent by participating.

This study was approved by the Institutional Review Board as a quality improvement project. The study protocols posed no risk of injury or other adverse outcome for any participants. Identifying information was removed from collected data. Deidentified data were stored on an encrypted, password-protected work computer.

Intervention and Measures

An education intervention with two foci was implemented. The first intervention was to increase nurses' knowledge of geriatric syndromes. Geriatric syndromes addressed were

frailty and failure to thrive, dizziness, syncope, osteoporosis, falls, insomnia, depression, malnutrition, urinary incontinence, pressure ulcers, dementia, delirium, and polypharmacy. The educational intervention was delivered as a 1-hour-long seminar on three separate occasions because not all participants were available on the same day at the same time. All participants attended one of the three identical interventions. Six participants attended the first intervention, 13 attended the second, and 11 attended the third. All content was delivered by the study lead (B.A.). The focus of the training was on general geriatric health syndromes and the SBAR and STOP and WATCH with special attention on how to use these tools.

Nurses' knowledge was assessed using Palmore's Facts of Aging Quiz (PFAQ) and Nurses' Knowledge of Elderly Patients Quiz (NKEPQ). The PFAQ comprises 50 *true/false* questions. This tool has been previously described (Lee, Wong, & Loh, 2006). The NKEPQ is a tool that aims to further assess knowledge by adding a specific gerontic nursing focus to outcome measures. The tool comprises 20 factual statements requiring a *yes* (+1), *no* (-1), or *don't know* (0) response, with higher scores indicating higher knowledge. This instrument was developed to complement the PFAQ by adding a gerontic nursing focus (Mellor, Chew, & Greenhill, 2007). Both tools were administered at the same time as a pretest at the beginning of the study in a classroom setting with supervision before the interventions were implemented and immediately after the interventions were implemented under the same conditions. Tests were marked for proportion of correct responses and compared pre- and postintervention.

The second intervention introduced two communication tools: SBAR and STOP and WATCH. Education regarding the tools was given to all participants in two 1-hour in-service sessions. The first session focused on the STOP and WATCH

TABLE 1

PARTICIPANT DEMOGRAPHICS (N = 31)

Demographic	Mean (SD) (Range)
Gender (n, %)	
Female	29 (93.5)
Male	2 (6.5)
Age (years)	46.3 (10.6) (29 to 66)
Education (months)	40.5 (32.7) (9 to 132)
Nursing experience (years)	11 (5.8) (3 to 29)
Long-term care experience (years)	8.8 (5) (0 to 20)
Facility experience (years)	6.5 (3.9) (0 to 13)

communication tool to help identify geriatric syndromes. The second session focused on the SBAR tool for notifying health care providers of any concerning changes found on the STOP and WATCH tool. Once the educational in-service was completed, LPNs used the tools to communicate with facility providers regarding patient care. The SBAR questionnaire assessed nurse satisfaction with implemented nurse–provider communication pre- and post-SBAR implementation via an adapted version of the Schmidt Nursing Home Quality of Nurse–Physician Communication Scale. The tool has been modified and validated for use in U.S. NHs (Renz et al., 2013) with established validity and reliability. The questionnaire comprises 21 questions relating to communication with Likert scale responses of 1 to 5, with 1 = *never* and 5 = *always*. This questionnaire was administered before and immediately after the interventions were implemented.

Chart audits were completed bi-weekly to measure participant adherence to use of the communication tools. The chart of every resident at the time of the study was reviewed twice each week so that the researcher could determine whether LPNs updating the charts had completed the communication tools checklist and

added it to the chart at the time of update. If a chart was updated and had a communication tools checklist, it was recorded as adherence positive. If a chart was updated but had no communication tools checklist, it was recorded as adherence negative. Chart audits began within 7 days of the intervention and ran for 7 weeks.

Data Analysis

Demographic data obtained from LPNs were analyzed to assess generalizability. Calculated summary measures included mean age, months of nursing-specific education, years of nursing experience, years of ALF experience, and years of experience at the study site. Knowledge test results, satisfaction surveys, and adherence assessments were transcribed into Microsoft® Excel® for content analysis. A two-tailed paired *t* test with alpha of 0.05 and adjustment for unequal sample variance estimates is appropriate for comparing two repeated measurement means for difference, as was appropriate for pre/post comparisons in the current study. The mean knowledge test scores were calculated pre- and postintervention and compared using paired *t* test using SPSS version 23. Mean satisfaction with SBAR scores pre- and postintervention was also calculated and compared using paired *t* test. A mean score for each

satisfaction questionnaire item was also calculated pre- and postintervention and compared using paired *t* test to determine whether any particular question outcome changed. Finally, the proportion of chart changes that involved the proper use of SBAR and STOP and WATCH were compared to the literature value of 0.78 using a one-sample *z* test of proportion with alpha of 0.05. The *z* test of a single sample proportion for difference from a reference or population value is appropriate in this analysis.

RESULTS

Participant demographic information is summarized in **Table 1**. The sample comprised 31 nurses, of which 93.5% were female and 6.5% were male with a mean age of 46.3 years (*SD* = 10.6 years). The mean length of all post-secondary education per participant was 40.5 months (*SD* = 32.7 months). Participants had, on average, 11 years of total nursing experience and 8.8 years of experience in long-term care, with an average of 6.5 years at the current ALF. All participants for which demographic information is listed remained enrolled for the duration of the study.

The first aim of the project was to improve nursing staff geriatric knowledge. The study measured nurses’ knowledge using the PFAQ and NKEPQ. Mean scores for the PFAQ and NKEPQ pre- and postintervention are shown in **Table 2** along with the results of a paired *t* test for difference between the means. Participants scored significantly better (*p* < 0.001) on both tests after the intervention. Mean preintervention PFAQ score was 30.3 compared with a statistically significantly higher postintervention mean score of 43.3 (*p* < 0.001). Mean preintervention NKEPQ score was 13.8 compared with a statistically significantly higher postintervention mean score of 17 (*p* < 0.001).

The second aim of the study was to promote and measure adherence to SBAR and STOP and WATCH communication tools. Adherence to

TABLE 2

PRE- VERSUS POSTINTERVENTION ASSESSMENTS OF KNOWLEDGE, SATISFACTION, AND ADHERENCE

Assessment Tool	Mean (SD) (Range)		p Value
	Pre	Post	
Palmore's Facts on Aging Quiz	30.3 (5.62) (21 to 46)	43.3 (5.92) (27 to 50)	<0.001 ^a
Nurses' Knowledge of Elderly Patients Quiz ^b	13.8 (1.98) (10 to 17)	17 (2.12) (10 to 19)	<0.001 ^a
Satisfaction with SBAR ^c	44 (10.2) (29 to 66)	45.5 (11.7) (41 to 77)	0.298 ^a
	% (n)		
Adherence (chart audits)	87.2 (47)		0.216 ^d

Note. SBAR = situation, background, assessment, recommendation.

^a Paired *t* test.

^b Scores range from -20 to +20, with higher scores indicating higher knowledge.

^c Higher scores indicate higher satisfaction.

^d Compared to 78% reference.

using these tools was measured by auditing charts and recording whether the tools were used biweekly for 2 months after implementation of the intervention. Adherence to the tools as percent total chart updates calculated using one sample *z* test ($n = 47$) was 87.2%, which was above the benchmark of 78%, but was not statistically significant ($p = 0.216$). Because of the short duration of follow up, not enough chart updates took place for all study participants to have had an opportunity to demonstrate adherence to communication tools use. In all, 23 of 30 LPNs updated at least one chart during follow up. The remaining seven LPNs did not have an event among residents under their care that necessitated a chart update during follow up.

The third aim of the project was to demonstrate overall satisfaction with the use of SBAR. To assess satisfaction, a validated SBAR questionnaire was administered to LPNs. Nurse satisfaction with SBAR was measured using a 5-point Likert scale with scores ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), where higher scores represent greater nurses' satisfaction. This questionnaire was administered at the beginning of the study before the interventions were implemented and immediately after the interven-

tions. Overall, the satisfaction outcome was not statistically significant postintervention compared with preintervention by paired *t* test. To determine whether any question-specific scores within the questionnaire changed after the intervention, average per-question scores were examined. One question, "Did communication with providers improve?" yielded a statistically significant better mean score of 0.526 ($p < 0.04$) postintervention.

DISCUSSION

Results of the knowledge tests demonstrated a significant increase in mean knowledge score in geriatric syndromes postintervention on two separate assessments. Adherence to the use of communication tools in the current study was found to be >78%, a benchmark set by others (Renz et al., 2013). However, findings suggest that LPNs did not have statistically significant increased satisfaction with using SBAR, although the point estimate was slightly higher postintervention. This finding may relate largely to the assessment being completed too soon after SBAR and STOP and WATCH training was administered. Had LPNs been given more time to use SBAR and STOP and WATCH, their satisfaction indicator may have

increased. Previous findings suggest that nurses increased their comfort levels in communicating with physicians after SBAR was implemented in their care settings (Chapman, 2009). A study by Harrison (2014) suggested that establishing protocols and standardizing communication increased the probability of successful communication among nursing staff and providers and decreased medical errors. The current authors hypothesize that, although not directly demonstrated in this study, better adherence to the SBAR and STOP and WATCH protocols results from increased knowledge of geriatric syndromes and better familiarity of the communication tools themselves, a topic for future study.

Improvements in knowledge of geriatric syndromes were measured by LPN performance on assessments pre- and postintervention. In a lengthier study, postintervention knowledge assessments may be given two or three times, separated by 2 to 4 weeks, to determine whether improvements in knowledge persist. The use of the implemented communication tools had to be assessed in a more indirect way: by auditing resident charts. Each chart had checklists for verifying that SBAR and STOP and WATCH protocols were followed. Charts were

audited by the lead investigator twice per week for 7 weeks. A lengthier study could continue chart auditing for a total of 16 weeks to provide more robust evidence that following the protocols has been adopted into the facility care culture. In the current study, significant improvement in LPN satisfaction with using the communication tools was not measured. Satisfaction postintervention was assessed too soon (1 week) and did not allow LPNs to use the communication tools long enough to become better satisfied with their usefulness. A lengthier study could detect an improvement by reassessing satisfaction at multiple timepoints postintervention.

The project adds another incremental piece to understanding decision making regarding inappropriate transfer of ALF residents to the ED. ALF nursing staff may benefit from periodic, straightforward training seminars on geriatric health. The current report provides evidence that improvements in geriatric health knowledge may be attainable at modest effort. There are few published studies that assess LPNs' knowledge in the transfer decision-making process. Future studies should evaluate the relationship between LPNs' geriatric knowledge and overall adherence and satisfaction with communication tools related to reducing unnecessary ED transfers from ALFs. The current study should also be expanded by conducting similar trials in multiple ALFs, building a larger overall sample, and establishing a longer follow-up period to yield a greater number of follow-up assessments.

LIMITATIONS

The project was conducted among a small sample ($N = 31$) of LPNs in a single facility, which reduces generalizability. Moreover, the sample was not randomly selected, as all eligible participants were selected. In addition, this was a relatively short study, with follow up measured in weeks.

Knowledge of geriatric health was assessed using two different tools that were only administered once after the educational intervention. The satisfaction assessment for the communication tools was administered too soon after training, which may have biased satisfaction findings toward the null hypothesis that states that those using the communication tools find no particular satisfaction with using them. In addition, adherence via chart audit was not completed for all participants because only some participants had opportunities to make chart updates. It is possible that a longer chart audit period would result in an opportunity for each participant to accumulate several chart update events and hence, several opportunities to adhere to communication tools use.

CONCLUSION

Geriatrics is an area of health care that requires specific standards and protocols. The current episodic, disease-oriented models of emergency care do not adequately address and encompass the complex care demands of frail older patients (Aminzadeh & Dalziel, 2002). A key aspect to ensuring adequate and timely care of ALF residents is increasing geriatric knowledge among LPNs and standardizing communication tools. The use of SBAR and STOP and WATCH has been effective in facilitating improved communications in other health care settings. Clear and effective communication between nurses and providers can significantly improve clinical outcomes and patient safety, thereby reducing unnecessary ED transfers from ALFs. The current study, within the ALF setting, offers evidence that with a relatively modest time and effort investment, an increase in geriatric syndromes knowledge among nursing personnel can be combined with implementation of the communication tools SBAR and STOP and WATCH to produce a better understanding of patients' needs and willingness to adopt more

effective communication, which may ultimately reduce unnecessary ED transfers.

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