A QUALITY IMPROVEMENT PLAN TO DECREASE

A Quality Improvement Plan to Decrease Acute Care Transfers through Better Staff Communication About Status Changes Among Assisted Living Residents

by

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Abstract

**Background:** Elderly residents of assisted living facilities (ALFs) are generally frail and may have multiple comorbidities (National Center for Assisted Living, 2010). Inadequate communication of changes in resident status precludes early intervention and may result in unnecessary acute care.

**Local Problem:** A small state-licensed ALF experienced unnecessary transfers to acute care because unlicensed assistive personnel (UAP) providing the majority of hands-on care did not promptly communicate changes in resident status.

**Methods:** Application of the INTERACT model was guided by the use of the plan, do, study, act (PDSA) cycle. The transfer logs were used to extract de-identified data for all-cause acute care transfers over three-month periods before and after the intervention to assess any change in the number of transfers, occurrence of communication errors, and negative outcomes related to acute care transfers. In addition, participating staff completed a readiness survey before and after participation in a training session to identify barriers to successful implementation of the intervention and to determine the impact of the training on staff receptiveness to change.

**Intervention:** The interventions to reduce acute care transfer (INTERACT) model was implemented at a small state licensed residential facility to improve patient outcomes by reducing unnecessary transfers to acute care through better communication among staff, with medical providers, and with other facilities.
**Results:** Of the 22 unlicensed assistive personnel who participated in the INTERACT quality improvement (QI), only 21 completed the readiness for change survey. A comparison of facility transfer data from the three-month pre- and post intervention periods revealed a statistically significant difference between the mean numbers of pre- and post intervention acute care transfers ($t[2] = 5.00, p < 0.05$ level); however there were no statistically significant differences in the pre- and post intervention occurrences of communication errors ($t[2] = .961; p > 0.05$ level) or negative outcomes (e.g., extended stay, hospital admission, or move to different facility) related to acute care transfer ($t[2] = 0.00; p > 0.05$). The pre- and post intervention surveys indicated an increase in staff readiness for change after participation in the INTERACT QI training.

**Conclusions:** Implementation of the INTERACT model resulted in a statistically significant reduction of resident transfers to acute care. Although the QI did not produce statistically significant decreases in communication errors or negative consequences, a trend toward improvement in these areas was observed despite the small sample size and relatively short study period.

**Key words:** INTERACT; assisted living facility; quality improvement; unlicensed assistive personnel; communication strategies; transitions; patient safety; handoffs
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The National Center for Assisted Living (NCAL, 2010) describes the typical resident of an assisted living facility (ALF) in the United States as a mobile 87-year-old who needs assistance with two or three daily living activities and receives ALF services for at least 22 months. More than 735,000 people living in residential care facilities nationwide suffer from at least two chronic conditions (Bensadon et al., 2014). Care needs for this group of elders can quickly require medical intervention due to a change in health status, however these changes may not be promptly detected or communicated by the unlicensed assistive personnel (UAP) who provide the bulk of direct patient care. Residents of ALFs are generally frail and have a number of comorbidities requiring medical management (NCAL, 2010). Several studies suggest that unnecessary transfers to acute care increase their risk for poor outcomes (Lin, Foust, & Van Cleave, 2012; Olsen, Østnor, Enmarker, & Hellzén, 2013; Purdy, 2010)

Project Goal

The focus of this project was to reduce the number of acute care transfers through improved communication of health status changes in elderly ALF residents by UAP. The Agency for Healthcare Resources published guidelines
suggested involvement of the informal caregiver in safety and quality improvement (QI) initiatives and nurse-led collaboration among all providers for improved health outcomes (Lin et al., 2012). The QI began with a survey of UAP to determine their readiness to improve reporting of resident health status changes. Involvement of the UAP was instrumental to the accomplishment of improved reporting and effective communication with transfer facilities.

Problem Description

At a small Texas ALF with 40 residents cared for primarily by 22 UAP, the emergency room (ER) was frequently used to manage acute changes in resident status. Ouslander and Berenson (2011) identified gaps in patient safety resulting from inconsistent reporting of changes in resident health status, often causing delays to timely interventions that could preempt avoidable hospitalization. In addition, nurses interviewed in a qualitative study by Olsen et al. (2013) reported that incomplete or incorrect information about medications, activities of daily living, advance directives, and next of kin or decision makers was often obtained during transfers. The importance of timely communication regarding changes in resident status by UAP to prevent unnecessary hospitalization cannot be overstated based on the assertion by Shah, Burack, and Boockvar (2010) that many elders experience an irreversible decline in physical mental function as a result of hospitalization. The failure to report pertinent changes in resident status adds to a gap in practice and increases the risk of
negative outcomes. Sentinel events are most often attributed to ineffective communication based on Joint Commission on Accreditation of Healthcare (JCAHO) sentinel event root causes data for 2004-2015 (JCAHO, 2016).

**Clinical Question**

This QI was initiated to answer the following clinical question: Will a communication protocol and training module to improve reporting and documentation of resident status changes by Unlicensed Assistive Personnel decrease acute care hospitalizations over a three month period? Ineffective communication among facility staff and with external caregivers during transitions caused residents to be transferred for simple care treatments. Residents who required hospitalization were also at risk when transfer documentation was insufficient and when primary care physicians were not properly notified. The ALF seeks to align with the 2012 Centers for Medicare & Medicaid Services directive to minimize unnecessary hospitalizations by instituting procedures that ensure effective communication among facility caregivers and with outside caregivers during transitions.

**Available Knowledge**

In a review of quality improvement (QI) projects targeting community-dwelling older adults, Golden, Tewary, Dang, and Roos (2010) identified a need for improved communication among health care providers. They found that effective use of training and technology, along with transparent sharing of
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Shah et al. (2010) defined the failure to effectively share resident information as an “information gap” that exposes residents to a higher risk for poor outcomes and readmissions. Although they expressed optimism about the potential reduction in emergency acute care transfers through implementation of the INTERACT model, they did acknowledge that elimination of all emergency acute care transfers is unrealistic because elderly residents are at inherent risk for emergency illnesses (Shah et al., 2010).

According to Herrin et al. (2015), elderly ALF residents are hospitalized more frequently and facilities do not perform well on quality indicators (patient satisfaction and safe medication reconciliation) with respect to discharge and follow-up care. Health care providers including primary care physicians, hospitals, medical suppliers, and home health agencies have achieved minimal success in managing frail elderly patients with multiple comorbidities (Herrin et al., 2015).
Transitional Care

Residents returning to the ALF from acute care are at increased risk of adversity from inadequate communication between facilities during transition. Ouslander et al. (2011) and Purdy (2010) recommended that the period immediately before and after discharge be considered part of transitional care. Complications of medication regime and proper follow up after the discharge will result in a second admission. Transitional care has to be coordinated to and from the acute care hospitalization (Zimmerman, Sloane, & Reed, 2014). Therefore, the INTERACT model addresses transitional care both before admission and after discharge by applying evidence-based interventions such as standardized forms, checklists, communication tools, and leadership skills to minimize unnecessary hospitalizations among residents of long-term care facilities.

Implementation of the INTERACT model also aligns with the Institute for Health Improvement (IHI, 2012) Triple Aim framework (TAF), which serves as a foundation for a change in the healthcare focus of long-term care facilities to optimized health for their residents. The model is a simple triangular lexicon with the three points representing: (a) health of the population; (b) enhancing the experience of care; and (c) reducing per capita cost of care for the benefit of communities (IHI, 2012).
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106  **Standardized Patient Handoffs**

The ALF needed a user-friendly way for the UAP to communicate with other licensed and professional staff that would align with quality and safety guidelines. According to Ouslander et al. (2014), implementation of evidence-based communication tools improved information exchange during transfers to acute care improved patient outcomes in a similar vulnerable populations of elders.

Acute care staff received the documents and medical information necessary to provide appropriate and effective treatment and influence acute care outcomes. The standardized forms used by hospital staff when residents were discharged back to the facility were already familiar to ALF staff. Olsen et al. (2013) identified communication barriers that arise in after-hours phone reporting and when ALF residents are transferred for emergency care, resulting in a failure to provide complete information. The goal of handoff communication tools is to convey correct information within the proper timeframe (Olsen et al., 2013). The use of the early warning tool improved handoff reporting between UAP and the nursing supervisor. The user-friendly tool for UAP ensured the reporting of significant information that facilitated early identification of healthcare changes. The transfer tool ensured that important information is communicated when residents are transferred to the hospital emergency department. Callinan and Brandt (2015) reported that standardized INTERACT forms would positively
impact resident care and that the use of standardized patient handoffs in acute care transfers would benefit quality of care through timely transmission of vital information.

**Rationale**

The plan, do, study, act (PDSA) model (Cleary, 2015) served as a theoretical framework to address the clinical question of whether a QI program to improve communication skills and quality of care provided to ALF residents by UAP would reduce emergency acute care transfers over a three-month period. The intervention was adapted from the INTERACT model (Figure 1) identified by the CMS and consistent with established standards for a quality improvement project (Ouslander et al., 2014). The INTERACT model is a user-friendly clinical, educational tool that guides staff of all skill levels in reporting and documenting changes in resident status to reduce transfers from long-term to acute care facilities (Ouslander et al., 2014; Tappen, Engstrom, & Ouslander, 2014), reducing the risk of complications and unnecessary health care spending associated with unnecessary transfers (Burke, Rooks, Levy, Schwartz, & Ginde, 2015). The intervention seeks to improve communication through the use of standardized, evidence-based tools that would minimize negative consequences resulting from inadequate communication, failure to report changes in resident status, and avoidable emergency transfers.
Lin et al. (2012) identified a gap in current practice with respect to effective communication between health care personnel at long-term and acute care facilities. Karen and Andrew (2013) described communication between health care providers as very important because it reduces the probability of return to the ER or re-hospitalization after the patient has been treated and released. Use of the INTERACT model (Ouslander et al., 2014) to effectively guide staff reporting and documentation of changes in resident status to reduce transfers from long-term to acute care facilities has been reported (Ouslander et al., 2014; Tappen et al., 2014), resulting in reduced risk of complications and unnecessary health care spending associated with unnecessary transfers (Burke et al., 2015).

Therefore, this project implemented the INTERACT model as a QI intervention to prevent unnecessary resident transfers from the ALF to acute care facilities through improved communication of changes in resident status. This coordinated intervention focused on training staff to use communication tools, reporting logs, and standardized forms to achieve desired outcomes including: (a) decrease in emergency acute care transfers; (b) fewer communication errors; (c) fewer negative outcomes resulting from acute care transfers; and (d) increased staff readiness for change with respect to improved reporting of changes in resident status.
Specific Aims

This project aimed to use standardized, evidence-based tools to improve communication of changes in resident health status by UAP in an assisted living facility, reducing the occurrence of communication errors, avoiding unnecessary transfers to acute care, and preventing negative outcomes resulting from acute care transfers. The PICOT (population, intervention, comparison, outcomes, time) analysis method (Melnyk & Fineout-Oveholt, 2011) was used to examine the question of whether using the INTERACT model (Ouslander et al., 2014) to achieve early identification of patients at increased risk for hospitalization and to facilitate timely communication of status changes to health care providers would prevent avoidable transfers to acute care.

Methods

Context

The selected ALF was an appropriate setting for this QI project because of the number of UAP relative to patient census, their levels of training, and the ages and comorbidities of the residents for whom they were providing direct care. The risk of ER visits and hospitalizations among residents of long-term care, primarily older adults, increases with age (Purdy, 2010) and with physiological changes that accompany advancing age (Foster et al., 2012).
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**Intervention**

The intervention included training of all staff including direct care and some leadership in the facility, as well as root cause analysis (RCA) by an interdisciplinary team (IDT). Approval for implementation of the INTERACT quality improvement required presentation of the training by a Certified Interact Champion (CIC). Once the presenter obtained the necessary certification, the researcher met with the nursing supervisor and facility owner to develop a project schedule. The planning step in the PDSA cycle (Cleary, 2015) involved setting the aims and identifying the primary interventions that all participants in the QI project would understand. The owner assigned the nursing supervisor as the facility champion and appointed a co-champion to assist in task management and data collection as recommended in the INTERACT model (Ouslander et al., 2014) to increase project sustainability.

**Planning.** The researcher and facility champion met several times during the planning phase to prepare for implementation. Posters of the INTERACT model (Ouslander et al., 2014) were strategically placed in areas near phones and in hallways near resident bedrooms. Resident data were de-identified and secured by the facility champion to ensure resident confidentiality. The facility champion was trained on all the INTERACT forms (INTERACT II, 2014), which were used to record pre-intervention transfer data obtained from the facility tablet log. Scheduled dates for the information and training session were posted in the break
quality improvement plan to decrease

room and activities area. Staff readiness for change was assessed using a ten
question qualitative survey approved by the project preceptor to inform

staff about the project and enlist their support. Staff were provided with

an overview of the INTERACT model (Ouslander et al., 2014) and trained to

properly record patient information, communicate it effectively to care providers,

and provide post discharge follow-up or transitional care. Role-play scenarios

were conducted in which UAP were given an opportunity to report changes in

health status and notify the health care provider using appropriate INTERACT

forms.

The second step of the PDSA cycle (Cleary, 2015) involved

implementation of the INTERACT communication model (Ouslander et al.,

2014). At the selected ALF, two to three UAP per ten residents work a single 12-

hour shift to assist residents with daily activities. Participants were released from
duty to attend an interactive and informational in-service training on daily use of

the INTERACT II (2014) communication tools to record the baseline condition of
each resident including medical status, number of activities assisted in a day, and
duration of sleep, as well as to document changes in resident status.

Training. A combination of educational training included a PowerPoint

presentation, face-to-face discussions, case presentation scenarios, and

INTERACT questions and answers during shift change and huddle periods. The

training was open to all levels of staff, but the primary focus was UAP. Meetings
were repeated on each shift to ensure availability for all staff. Small groups of UAP also participated in role-playing and practice using a situation, background, assessment, and recommendation (SBAR) format.

The phase I training module provided an overview of the problem and the specific aims of the study. The facility champion and co-champion were introduced and the presenter explained the connection between INTERACT and increased quality of resident care. Participants were taught how to recognize and report changes in resident health status and were provided with personal copies of the stop-and-watch forms and the SBAR form. A review chart, a flip chart with SBAR instructions and example for reporting of resident status changes by UAP, and a table about recognizing symptoms were posted in the break room. INTERACT II (2014) posters were also strategically placed throughout the facility.

The phase II training module began with a review of Phase I. The presenter discussed the importance of consistent participation to project sustainability and shared the results of the IDT root cause analysis. Baseline data and targets for improvement were reviewed and shared with staff. Negative consequences were not discussed in an accusatory manner, but as a learning process. The presenter explained the value of data tracking to care planning and identification of service gaps and training needs. Some care planning forms were replaced with INTERACT forms to eliminate redundancy. The phase III training
module began with a review of phases I and II. UAP were asked to provide input on benchmarking, suggestions on role-playing scenarios, and feedback on the INTERACT model (Ouslander et al., 2014).

**Implementation.** The certified INTERACT trainer and facility champion were available to assist staff with initiating use of the stop and watch early warning tool (INTERACT II, 2014). Root cause analysis was performed on all resident transfers to acute care by an interdisciplinary team (IDT) formed during the second phase of development. Staff received feedback on data obtained from transfer logs, feedback from health care providers, and results of the IDT root cause analysis. The results of RCA were conducted using a non-punitive approach (Ouslander et al., 2014), with identified avoidable hospitalizations presented in a spirit of learning instead of blaming or accusing.

The PDSA cycle (Cleary, 2015) allowed for incorporation of small cycles of trial and error in which cycles that were helpful were repeated and those that were ineffective were documented and discontinued. This process permitted challenges to be easily addressed and prevented project disruptions. The model also includes tracking, trending, and recording benchmarks of well-defined measures; the opportunity to learn from RCA of resident transfers to acute care; and incorporates use of INTERACT forms into daily activities (Ouslander et al., 2014).
**Study of the Intervention**

The effectiveness of the intervention was evaluated using a one group, pre/post test study design. The INTERACT Acute Care Transfer Log (INTERACT II, 2014) was used to record data regarding transfers to acute care, communication errors, and resident outcomes and staff completed a change readiness survey before and after the intervention in order to determine whether there were significant differences in the mean numbers of pre- and post-intervention communication errors, acute care visits, negative consequences resulting from acute care visits, and staff readiness scores of UAP personnel. In addition, transfers were evaluated by the IDT to assess the root cause and determine whether timely communication of changes in resident status contributed to the transfer and whether the transfer might have been preventable.

**Sample**

The sample selected for this study consisted of a convenience sample of 40 residents at a small Texas ALF. It was assumed that the residents of this facility were representative of the general population of older adults in long-term care facilities. It was also assumed that the 22 participating UAP were representative of assistive personnel in other small residential long-term care facilities in terms of training and function. In addition, it was assumed that transfers to acute care over the three-month pre-intervention period and post-intervention period were representative of the incidence of resident transfers.
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before and after the intervention. It was anticipated that early reporting of changes
in resident status by UAP would facilitate early intervention by the nurse
practitioner (NP) and primary care medical team, decreasing the need for
hospitalization.

**Measures**

This QI focused on transfers to acute care before and after implementation
of the INTERACT model in the designated ALF. A review of resident records
from a three-month period before the start of the project was conducted to
determine the incidence of communication errors, the number of resident transfers
to acute care before the intervention, and the incidence of negative resident
outcomes related to acute care transfers. After introduction of the INTERACT
model (Ouslander et al., 2014), the incidence of communication errors, resident
transfers to acute care before the intervention, and the incidence of negative
resident outcomes related to acute care transfers were improved.

**Analysis**

Data interpretation and analysis assigns significance and implications to
research findings (Melnyk & Fineout-Oveholt, 2011); however, this can only be
achieved if the investigator employs effective data collection methods. A
quantitative method was applied to critically analyze whether the intervention
improved staff communication, decreased acute care transfers, or reduced
negative patient outcomes resulting from transfers to acute care facilities. The
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acute transfer form was used to track the number of ER visits per resident, the day and time of the transfer, and the length of stay if the resident was admitted to the hospital. The IDT identified root causes for the transfer, communication errors, and negative consequences resulting from resident transfers. The mean, effect, and p-value were calculated from the acute transfer data on the number of emergency acute care transfer events per resident and the all cause total of emergency acute care transfer events for all residents. A p-value was calculated from aggregate resident data before and after implementation of the intervention to determine the statistical significance of any observed difference.

Ethical Considerations

Risk of harm to human subjects participating in this study was minimized through de-identification of data by the facility supervisor to ensure resident anonymity and confidentiality. All participating staff were provided with verbal and written information about the study and were informed of their right to decline participation or end their participation at any time without any negative consequences. Participants were offered the opportunity to ask questions about the study and completed a signed consent before completing the anonymous survey questionnaires.
Results

Pre- and post intervention data for communication errors, acute care transfers, and negative outcomes associated with resident transfers to acute care are included in Table 1.

Communication Errors

No statistically significant difference was found in pretest and posttest communication errors (t [2] = .961; p > 0.05) at the 0.05 level, although a trend of decreased communication errors was observed. Analyses of results pertaining to the number of pre- and post intervention communication errors are shown in Table 2.

Acute Care Transfers

A statistically significant difference was found between the mean pre- and post intervention emergency acute care visits (t [2] = 5.00, p < 0.05) at the 0.05 level. Further data analysis employing the means indicated the number of emergency visits decreased after the interventions. Tracking results with respect to day and time of transfer indicated that most of the transfers were happening during the evening shift between 10pm and 2am. Analyses of results with respect to the number of pre- and post intervention acute care transfers are shown in Table 3.
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Negative Consequences of Acute Care Transfers

Negative consequences of failure to report changes in health status to provider, missing and incorrect transfer documentation along with notification of return back to facility. No significant difference was found between negative consequences before and after the intervention (t [2] = 0.00, p > 0.05) at the 0.05 level. Further data analysis revealed identical mean number of hospital negative consequences. Table 4 presents findings for matched t-test for pre- and post interventions for the number of negative consequences related to resident transfers to acute care. As indicated in Table 5, no statistically significant difference was found in the mean pre- and post intervention correlation between number of moves and incidence of negative consequences (t [2] = 1.00; p > 0.05) at the 0.05 level. Further data analysis utilizing the mean results revealed that the number of moves negative consequences decreased after the interventions.

Staff Readiness Scores

A paired t-test revealed a statistically significant difference (t [2] = -9.123; p < 0.001) in mean pre- and post intervention overall staff readiness scores of UAP personnel with regard to the QI program among the UAP staff (Table 6). Further data analysis using the mean results revealed a significantly higher mean readiness score among UAP staff after participation in the intervention. Additionally, a paired t-test on the individual items of the staff readiness survey showed significant differences on four of the ten statements (Table 7). Significant
differences were found between the pre- and post intervention scores with regard to item 1 (this facility likes to do new and different things to help patients), item 2 (the facility leadership actively supports change to achieve quality improvement goals), item 3 (when this facility goes through a change, I feel I know what will change for me in my job, and item 6 (this facility has an effective mechanism in place for communicating changes in resident’s status). On all four items, the UAP staff had significantly higher readiness scores after participation in the intervention.

Summary

Implementation of this QI indicated staff ability to improve on communication errors related to transfer of ALF residents to acute care. It also promoted greater confidence among UAP in their ability to recognize and report changes in resident health status. Staff received complements from hospital staff on their use of standardized forms to effectively communicate resident status during transfers to acute care. Root cause analyses revealed two avoidable transfers to acute care during the three-week absence of the nurse practitioner. The on-call doctors were not comfortable leaving residents in the ALF with a status change. The INTERACT QI helped to guide the facility into a culture of improved safety and promoted a spirit of inquiry and exploration, which are particularly important for QI sustainability.
Interpretation

The results from this QI project indicated that the INTERACT intervention was effective in achieving the desired reduction in acute care transfers. Marshall et al. (2015) introduced a model called Care by Design (CBD), a quality initiative developed after a qualitative study on primary care of the elderly with the original intent of reducing emergency trips to the hospital. The number of hospital admissions was significantly reduced in Nova Scotia through use of the CBD program. It is similar in structure to the INTERACT model (Ouslander et al., 2014), with communication interventions including transfer forms that accompany long-term care residents to the emergency department (Marshall et al., 2015).

The QI also prompted a culture change within the facility toward increased UAP awareness of the need for timely communication of changes in resident status. This project received the active support of organizational leadership and benefitted from an effective facility champion, which both contributed to the successful QI. The UAP were receptive to the added responsibility of reported changes in resident status using the stop-and-watch pocket cards. Their excitement to participate also led to a more patient-centered care approach.
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Limitations

This study was conducted using a population that was assumed representative of small residential ALFs and UAP providing care in those facilities. The sample included only one facility and a relatively small population (n=40), therefore additional research is needed to verify whether the observed findings are generalizable to other facilities with larger populations. Another limitation was the lack of a tracking system to identify which staff members were not using the stop and watch pocket card. Staff reverted back to writing in a paper tablet for a week because the transfer record book was misplaced, which may have impacted findings. In addition, residents returning to the facility after acute care were not always logged in upon return to the facility. The study may also have been impacted by the absence of the NP managing the calls from the facility for three weeks at the start of the intervention. Another challenge was that the on call physicians were not always available or comfortable treating in the facility and referred patients to the ER on several occasions during the post intervention period for which acute care might have otherwise been avoided. Training was presented to new hires by a different nursing supervisor during a period when the facility champion was on leave, which may also have affected findings. Another limitation was that the IDT did not meet consistently and some team members were contracted home health professionals committed to specific residents and were not available to participate in ongoing reviews.
Conclusion

Implementation of the INTERACT quality improvement will promote timely communication of changes in resident status by UAP, leading to early treatment and reducing transfers to acute care. Although this project focused on improving communication of changes in resident status by UAP, other opportunities may exist for improved training and function of unlicensed assistive staff. The low cost of implementation and the financial benefit from reduced acute care transfers add value to this QI. The knowledge transfer from the INTERACT QI adds an additional measure of patient safety by reducing the likelihood of communication errors. The success of this quality improvement has prompted consideration of a future initiative to integrate INTERACT with the electronic health record for tracking of changes in health conditions that are treated within the facility.

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Table 1. Pre- and Post Intervention Data Totals

<table>
<thead>
<tr>
<th>Month</th>
<th>Communication Errors</th>
<th>Acute Care Transfers</th>
<th>Negative Outcomes</th>
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<tbody>
<tr>
<td><strong>Pre-Intervention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Month 1</td>
<td>9</td>
<td>9</td>
<td>4 hospitalizations/3 moves</td>
</tr>
<tr>
<td>Month 2</td>
<td>3</td>
<td>6</td>
<td>2 hospitalizations/0 moves</td>
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<tr>
<td>Month 3</td>
<td>4</td>
<td>7</td>
<td>1 hospitalizations/0 moves</td>
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<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>22</td>
<td>7 hospitalizations/3 moves</td>
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<td><strong>Post Intervention</strong></td>
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<td>Month 1</td>
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<td><strong>Total</strong></td>
<td>10</td>
<td>12</td>
<td>7 hospitalizations/1 move</td>
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Table 2. Differences in Pre- and Post Intervention Communication Errors

<table>
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<th>Statistics</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
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<td>Mean</td>
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<td>SD</td>
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Table 3. Differences in Pre- and Post Intervention Emergency Acute Care Visits

<table>
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<th>Statistics</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
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<td>Mean</td>
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<tr>
<td>p-value</td>
<td>.03*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the 0.05 level
Note: SD=standard deviation; SE=standard error; df=degrees of freedom.

Table 4. Differences in Pre- and Post Intervention Negative Consequences of Acute Care Transfers

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.33</td>
<td>2.33</td>
</tr>
<tr>
<td>SD</td>
<td>1.53</td>
<td>1.53</td>
</tr>
<tr>
<td>SE</td>
<td>.88</td>
<td>.88</td>
</tr>
<tr>
<td>Mean Diff</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Note: SD=standard deviation; SE=standard error; df=degrees of freedom.
Table 5. Differences in Pre-Intervention and Post Intervention Number of Moves

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.00</td>
<td>.33</td>
</tr>
<tr>
<td>SD</td>
<td>1.73</td>
<td>.58</td>
</tr>
<tr>
<td>SE</td>
<td>1.00</td>
<td>.33</td>
</tr>
<tr>
<td>Mean Diff</td>
<td>.666</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>.423</td>
<td></td>
</tr>
</tbody>
</table>

Note: SD=standard deviation; SE=standard error; df=degrees of freedom.

Table 6. Differences in Pre- and Post Intervention Staff Readiness Scores

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>39.57</td>
<td>47.28</td>
</tr>
<tr>
<td>SD</td>
<td>4.03</td>
<td>1.55</td>
</tr>
<tr>
<td>SE</td>
<td>.88</td>
<td>.34</td>
</tr>
<tr>
<td>Mean Diff</td>
<td>-7.71</td>
<td></td>
</tr>
<tr>
<td>df</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>-9.123</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td>.000*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at the .001 level.

Note: SD=standard deviation; SE=standard error; df=degrees of freedom.
Table 7. Differences in the Pre- and Post- Intervention Survey Item Responses of UAP Staff Members

<table>
<thead>
<tr>
<th>Item</th>
<th>Pre-Test Mean</th>
<th>Post Test Mean</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>• This facility likes to do new and different things to help patients.</td>
<td>4.14</td>
<td>4.86</td>
<td>20</td>
<td>-2.85</td>
<td>.010**</td>
</tr>
<tr>
<td>• Facility leadership actively supports changes toward achievement of quality improvement goals.</td>
<td>4.43</td>
<td>4.76</td>
<td>20</td>
<td>-2.32</td>
<td>.031*</td>
</tr>
<tr>
<td>• When things change at this facility, I know how it will affect my job.</td>
<td>4.14</td>
<td>4.71</td>
<td>20</td>
<td>-2.34</td>
<td>.030*</td>
</tr>
<tr>
<td>• The facility’s quality improvement goals are known throughout the organization.</td>
<td>4.52</td>
<td>4.67</td>
<td>20</td>
<td>-1.14</td>
<td>.267</td>
</tr>
<tr>
<td>• I know how to assess whether a resident’s status has changed.</td>
<td>4.47</td>
<td>4.76</td>
<td>20</td>
<td>-1.67</td>
<td>.110</td>
</tr>
<tr>
<td>• This facility has an effective mechanism in place for communicating changes in resident’s status.</td>
<td>4.19</td>
<td>4.80</td>
<td>20</td>
<td>-2.44</td>
<td>.024*</td>
</tr>
<tr>
<td>• The mechanism for communicating changes in resident’s status needs improvement.</td>
<td>4.47</td>
<td>4.71</td>
<td>20</td>
<td>-1.42</td>
<td>.171</td>
</tr>
<tr>
<td>• I know what represents a change in resident status with respect to health or daily activities.</td>
<td>4.29</td>
<td>4.62</td>
<td>20</td>
<td>-1.58</td>
<td>.130</td>
</tr>
</tbody>
</table>
A QUALITY IMPROVEMENT PLAN TO DECREASE

<table>
<thead>
<tr>
<th></th>
<th>4.29</th>
<th>4.62</th>
<th>20</th>
<th>-1.58</th>
<th>.130</th>
</tr>
</thead>
<tbody>
<tr>
<td>I know what represents a change in resident status with respect to health or daily activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I support quality improvement interventions that improve patient outcomes.</td>
<td>4.62</td>
<td>4.71</td>
<td>20</td>
<td>-.46</td>
<td>.649</td>
</tr>
</tbody>
</table>

*Significant at the .05 level; **Significant at the .01 level.
Note: SD=standard deviation; SE=standard error; df=degrees of freedom.

Statement of Original Work and Signature

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