Southern California CSU DNP Consortium

California State University, Fullerton
California State University, Long Beach
California State University, Los Angeles

UTILIZATION OF LANYARD BADGE FOR CARE COORDINATION OF SNF PATIENTS IN EMERGENCY DEPARTMENT

A DOCTORAL PROJECT
Submitted in Partial Fulfillment of the Requirements
For the degree of
DOCTOR OF NURSING PRACTICE

By
Joseph Marc A. de Veyra

Doctoral Project Committee Approval:

Ahlam Jadalla, PhD, RN, Project Chair
Margaret Brady, PhD, RN, CPNP, Committee Member

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Skilled Nursing Facility (SNF) residents account for more than 2.2 million hospital emergency department (ED) visits in the United States each year. Compared with other ED patients, SNF residents (i.e., patients) have higher medical acuity and complexity (Wang et al., 2011). The ED, therefore, serves a vital role in the treatment and care coordination of SNF patients, including delivering necessary and immediate care for a deteriorating medical condition or injury and offering a channel for hospital admission. Approximately 74% of SNF patients arrive at the ED without vital documentation such as vital signs, baseline cognitive function, code status, and pertinent disease information, which results in poor care coordination between the two settings (Gaddis, 2005; Terrell et al., 2005). From a healthcare delivery system perspective, the lack of transfer information accessible to ED clinicians results in unnecessary hospital utilization (e.g., duplication of tests/procedures, hospitalization, and readmissions) among SNF patients (Kessler et al., 2013). Given the potential patient risks and economic repercussions of a hospitalization, it is important to develop a communication tool that improves care coordination between an SNF and an ED.

The specific aims of the project were to develop a business plan to expand the implementation of a lanyard badge as a tool to improve care coordination and to propose an evaluation plan to analyze its potential impact on preventable admission, 30-day readmission rates, and bed days in a Central Valley SNF. To ensure feasibility, the
lanyard badge and the business plan were sent to an expert panel consisting of qualified
SNF and ED representatives for evaluation. Experts included an administrator, a medical
director, quality improvement nurse, and a director of nursing on the SNF side; and a
former ED medical director, ED director, charge nurse, and a registered nurse on the ED
side. The ED Lanyard Badge Project requires a SNF to make it their policy to place a
badge with a detachable lanyard containing essential patient’s clinical data as well as the
SNF capabilities list on patients before sending them to the ED. The tool supplies critical
clinical information and the SNF capabilities to help the ED clinicians make an informed
clinical decision as to whether it is appropriate to return the patient to the SNF after initial
treatment rather than admit the patient to the hospital.

Projected cost analyses suggest that the tool can produce a cost savings of
$12,366.58 after a three-month implementation of the care coordination tool. A plan for
evaluating the full effect of ED Lanyard Badge was delineated. It would appear that the
ED Lanyard Badge utilization improves the communication between the SNF and ED,
which could reduce hospitalizations and bed days. Future researchers can use the
delineated plan to examine the impact of the intervention on both hospital admissions and
readmissions.
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ACKNOWLEDGMENTS

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BACKGROUND

In 2006, more than a fifth of Medicare patients discharged from the hospital to a Skilled Nursing Facility (SNF) were readmitted to an acute care setting within 30 days. Readmissions cost Medicare an estimated $4.34 billion annually. In addition, the readmission rate from the SNF setting grew by 29% from the year 2000 to 2006 (Mor, Intrator, & Feng, 2010). According to the Medicare Benefit Policy Manual (Chapter 3, Section 10.4.1), to qualify for SNF services, a patient must require daily skilled nursing or rehabilitative nursing services, within 30 days of a hospital stay of at least three consecutive days and must have a nursing home admitting diagnosis related to the prior hospitalization (Centers for Medicare & Medicaid Services, 2016). Medicare Part A provides full coverage for the first 20 days and partial coverage after the stated time period (up to the 100th day) (Centers for Medicare & Medicaid Services, 2015).

Skilled nursing facility readmissions have both financial and clinical significance. Over the past several years, nursing homes changed from being residential settings for the geriatric, cognitively impaired, and functionally dependent populations, to being a post-acute care setting providing care to clinically complex patients. In 2005, the Minimum Data Set (a required nursing home resident assessment tool) revealed that out of 1.1 million nursing home patients, only 27% had a length of stay of 90 days or more (Mor et al., 2007). These findings further support the concept of the SNF as a post-acute care setting; therefore, the SNF population is at a greater risk of being sent to the ED and being admitted to the hospital. From a patient-centered care perspective, after hospitalization, SNF patients can experience a decline in cognitive and functional
abilities such as delirium and decreased independence in activities of daily living (Coleman, Min, Chomiak, & Kramer, 2004).

A systematic review found that the hospitalization rates—admission and readmission—among SNF patients ranged from 41% to 81% respectively (Dwyer et al., 2014). Ouslander et al. (2010) analyzed data from Medicare Part A 2006 claims in Georgia and found that 134 of 200 SNF patient hospitalized (67%) could have been treated in the SNF; therefore, they were potentially avoidable hospitalizations. Examples of potentially preventable readmissions are those associated with anemia, hypertension or hypotension, hyperglycemia or hypoglycemia, and electrolyte imbalance (Walsh et al., 2010). The Medicare Payment Advisory Commission identified four additional readmission conditions that are considered potentially preventable—congestive heart failure (CHF), respiratory infection, urinary tract infection (UTI), and sepsis (Walsh et al., 2010). These types of avoidable hospitalizations and readmissions are often the result of ineffective care coordination during transitions between care settings (Coleman & Fox, 2004), such as those between the SNF and the ED. The ED serves a vital role in care coordination, treatment, and subsequent placement for SNF patients who may or may not require hospitalization. Key elements of the ED’s role consist of delivering necessary, immediate care for a patient’s deteriorating medical condition or injury. In addition, this setting offers a channel for hospital admissions and provides a checkpoint to stop the revolving door of unnecessary hospital readmissions.

Approximately 74% of SNF patients arrive at the ED without vital documentation, such as vital signs, baseline cognitive function, code status, and pertinent disease information, which results in poor care coordination between the two settings
From a healthcare delivery system perspective, the lack of transfer information accessible to ED clinicians results in unnecessary hospital utilization (e.g., duplication of tests/procedures, hospitalization, and readmissions) among SNF patients (Kessler et al., 2013). SNF readmissions cost Medicare an estimated $4.34 billion in 2006 (Mor et al., 2010). At the facility level, hospitals have to face the financial repercussions of absorbing the cost of a 30-day readmission if it is for the same condition as the original admission (Jencks, Williams, & Coleman, 2009) and nursing homes lose money for each bed day a patient is in another care setting (Mor et al., 2010). In addition, uncoordinated transfers in care settings are associated with duplication of services that increase cost (Coleman & Fox, 2004).

Providing the key elements of a patient’s health status when transferred to an ED can prove challenging in the elderly population. Some of the challenges are frequently related to cognitive, sensory, and medical conditions. Cognitive and sensory conditions, such as dementia and hearing impairments, may interfere with communication necessary to obtain crucial diagnostic and treatment information regarding symptoms, past and current medical conditions, and medications (Wang et al., 2011). Communication barriers at the organizational level between the SNF and ED may interfere further with obtaining essential information necessary to manage care coordination, assure safe transitions, and reduce unnecessary transfers from one care setting to another (Wang et al., 2011). Thus, enhancing care coordination between these two settings will improve utilization and patient outcomes.

In 2014, the California 30-day readmission rate of patients discharged to settings (home, home health, SNF, hospice, etc.) was 18.3%, and was 20.5% of those patients
discharged to SNFs. Both are higher than the national rate of 17.9%. The current project proposes a business plan for a care coordination in the city of Fresno in Central Valley, California where the readmission rate of patients who were discharged to SNF (not all discharge settings) in 2014 was 32.5%. This rate is 12% higher than the same rate of California (20.5%). The Central Valley SNF readmission rate shows that there is a revolving door of hospitalizations among SNF patients in the region (Centers for Medicare & Medicaid Services, 2014).
AVAILABLE KNOWLEDGE: LITERATURE REVIEW

To identify key elements needed for the success of the care coordination tool, a literature search was conducted from December 2015-February 2017, utilizing the databases: PubMed, CINAHL, and EBSCO. Search terms included: “readmission,” “skilled nursing facility,” “hospital utilization,” and “care transition.” MeSH terms included “nursing home,” “care coordination,” and “patient transfer.” Further delineation of the search includes “rehospitalization” and “continuity of care.” Limits to the search were used included literature published between 2000 and 2017 in English language only. Publications that were excluded from the search were those that addressed care coordination in mental health facilities, which is a different setting from the SNF.

A focused literature search evaluated research on utilizing care coordination interventions to improve transitions across settings. This search utilized the databases: PubMed, CINAHL, and EBSCO. Inclusions were publications in English. Key search terms included: “care coordination intervention,” “medical error,” “post-acute care facility,” and “warm handoff.” Publications that were excluded were those studies that addressed needs of the pediatric population. In addition, there were few research articles found that studied the effect of care coordination interventions for reducing hospital utilization among SNF patients. The findings of the literature review are presented below.

Communication between the SNF and the ED

According to a systematic review conducted by Arendts and Howard (2010), there are at least 30 transfers to the ED from residential aged care facilities (such as SNFs) per 100 beds annually. Furthermore, 60% of ED transfers were admitted to the hospital. The majority of residents are transported by an ambulance and were not able to verbalize a
substantial medical history to the ED staff (Arendts & Howard, 2010). Handoff information provided by ambulance or paramedic staff was demonstrated to vary due to incomplete information from the residential aged care facility (Griffiths, Morphet, Innes, Crawford, & Williams, 2014). This variability tends to result in gaps in communication between the two settings.

ED staff members need pertinent information from residential aged care facilities to provide appropriate care, reduce errors, and improve patient safety (Salinas & Ramakrishnan, 2012). Without substantial care coordination between the two settings, there is a high risk for duplication of services and inappropriate hospitalization, both of which have shown to increase morbidity, mortality, and health care costs (Griffiths et al., 2014).

Mileski et al. (2017) conducted a systematic review to investigate key quality improvement initiatives in decreasing hospital utilization among SNF patients. The study found that one of the initiatives that reduced readmission rates was standardization of transfer protocols, which included formulating transfer documents and checklists. Furthermore, the systematic review found that communication tools streamlined the care coordination pipeline for residents, as the tools allowed staff members to access to pertinent clinical information efficiently (Mileski et al., 2017).

**Care Coordination**

Coleman et al. (2006) conducted a randomized-control study that involved 750 patients, over the age of 65, with one of 11 selected conditions. The study took place in a large integrated delivery system (which included one hospital, eight SNFs and one home health agency) in Colorado. Coleman et al. (2006) explored patient outcomes after the
implementation of the Care Transitions Intervention (CTI), which involved patients with cross-site communication tools and a nurse practitioner “transition coach.” In this intervention, the coach meets with patients before hospital/SNF discharge to establish rapport and educate them about utilizing their health record across settings. The patient arranges a home visit within 48 to 72 hours after discharge. For SNF patients, the transition coach called or visited once a week to prepare for discharge. After implementation, the intervention group had a lower rate of readmissions within 30 days, lower readmission rates for the same condition at 30 days, and 180 days. There was an average cost savings of $488 per intervention patient after 180 days from initial hospital admission. The researchers projected an annual cost savings of $295,594. The results are similar to that of Naylor et al. (2004), which demonstrated a decrease in readmission rates and hospital utilization costs after the implementation a three-month transitional care heart failure (HF) project.

Naylor et al (2004) conducted a randomized-control study involving a sample of 239 HF patients who were 65 years old or older. The intervention they used was similar to that of Coleman et al. (2006), which utilized an advanced practice nurse (APN) with a specialization in geriatrics. The researchers conducted the study at six academic and community hospitals in Philadelphia. The APN directed the transitional care project based on evidence-based HF guidelines, which included discharge planning and home visits. After a 52-week implementation, the project reduced readmission rates and reduced hospital utilization costs by $4,845 per patient. Furthermore, the HF project produced cost savings of $437,907 over the 12-month study period, which is higher than what was noted in the Coleman et al. (2006) study. Both studies did not explore the
length of stay of readmitted patients. However, Naylor et al. (2004) found that the intervention group reported a higher level of patient satisfaction.

In another randomized-control study, researchers piloted the Reengineered Hospital Discharge (RED) Project at an urban, academic hospital in Massachusetts (Jack, et al., 2009). The sample consisted of 749 hospitalized patients 18 years and older. The study intervention utilized a nurse discharged advocate who arranged follow-up appointments, confirmed medication reconciliation, and performed patient education with an individualized instruction booklet. In addition, a clinical pharmacist called participants two to four days after discharged to perform patient education regarding medications. The intervention group had a lower hospital utilization (readmission and emergency department visits) rate. After 11 months, the project produced a cost-savings of $149,995. In addition, this is an average of $412 per intervention group participant, which is comparable to the cost savings of the Coleman et al. (2006) study.

Jacobs (2011) conducted an evidence-based practice project and investigated the effectiveness of a heart failure initiative in reducing readmissions among SNF Medicare patients. The intervention utilized a RN/LVN case manager who implemented a follow-up phone calls within 48 hours of discharge to a SNF, in which they verified orders for daily weight intake, two-gram sodium restricted diet, diuretic medication reconciliation, and provider follow-up visit within three to five days of discharge. The study took place at an urban Midwestern medical center with a six-month baseline SNF readmission rate of 30%. The intervention reduced the readmission rate to 11.32% and showed projected savings of over $32,000 after a six-month implementation period. The researcher did not mention the sample size or describe any statistical analysis that was conducted. Although
this intervention study is less rigorous compared to that of Coleman et al. (2006) and Naylor et al. (2004), it highlights the role of care coordination in reducing hospital utilization among SNF patients.

Key Factors Associated with Hospital Utilization among SNF Patients

Key sociodemographic factors associated with hospital utilization (such as ED visits, acute care hospitalization, and readmissions) are analyzed in this section. Age is a factor associated with high utilization. With regard to gender, studies found that male nursing home residents have a higher rate of hospitalizations (Carter, 2003; Mor, Papandonatos, & Miller, 2005). Furthermore, race is another factor affecting hospital utilization. One study found that African American residents were more likely to be transferred to an acute care setting. (Mor et al., 2005). Carter (2003) also identified advanced age as a predictor of hospital admission for the nursing home patients. Another predictive factor of hospital utilization is healthcare payor. One study found that Medicare nursing home patients have the greatest likelihood of being admitted in an acute care setting compared to Medicaid and private-pay patients (Intrator, Castle, & Mor, 1999). On the other hand, Grabowski, Stewart, Broderick, and Coots (2008) stated that these findings may be attributed to the Medicare payment model, which provides coverage for post-acute and short-stay patients. Thus, the literature review identified gender, race, ethnicity, age, and healthcare payor as key factors in hospital utilization among nursing home residents.
RATIONALE FOR DNP PROJECT AND BUSINESS PLAN

Prior studies have suggested that the key to reducing SNF hospitalizations is to develop communication tools that facilitate care coordination between the facility and the hospital (Mor et al., 2007; Mor et al., 2010). Based on findings from the literature review, the assumptions for the efficient care coordination maintained that providing a communication tool, engaging the staff, and directly involving the patient in a transition of care intervention would avert hospital readmissions for SNF patients transferred to an acute care ED. These assumptions were adopted to explain why the business case for the care coordination tool was expected to work.

This business plan used a Logic Model framework to explain how the communication tool was expected to work. Permission was obtained to use and adapt the framework from the developers (see Appendix A). The logic model framework depicts how project inputs, outputs, assumptions, and external factors are thought to drive short, intermediate, and long-term outcomes. The logic model was used to structure the business plan (Figure 1). It also emphasizes the inputs of the SNF and partner hospital. The model acknowledges that care coordination activities are an important factor in health outcomes. Furthermore, it recognizes the complex linkages between the SNF and the hospital.

Overview of the Logic Model

Utilizing a conceptual model to guide the planning, implementation, and evaluation of the process, and outcome of a quality improvement project is paramount (Hayes, Parchman, & Howard, 2011). The Logic Model is a conceptual framework which focuses on the four key constructs, including: inputs, activities, outputs, and outcomes.
The Logic Model is based on the theory driven evaluation (TDE), which is an evaluation approach often used in government initiatives (Donaldson, 2003).

TDE has three stages that conceptualize the logical connection between project activities and outcomes. The first stage is identifying assumptions that affect a project. Once assumptions are outlined, activities are aligned to them to show a chain of events that the project aims to achieve. Finally, specific metrics are selected to determine if the stated conditions are addressed by the project activities. The Logic Model (see Figure 1) is a visual depiction of TDE’s three stages (Renger & Titcomb, 2002).

Furthermore, the Logic Model is a graphical and contextual representation of the implementation flow, sequence, and linkages between different elements in a project (McLaughlin & Jordan, 2004) which include inputs (resources), activities, outputs, outcomes, and external factors (Lando, Williams, Williams, & Sturgis, 2006). Inputs include human, material, and financial resources that support the project. Information, such as clinical components of a successful transition, is an important resource of the project. Technical assistance from individuals outside the primary organization, is another resource that can provide guidance and structure to the project (McLaughlin & Jordan, 2004). Outputs are the products, goods and services that are provided to the customers. For example, performing a retrospective chart review is an activity and the data analysis report is the output from this action. It has proven to be a useful tool for project management in different fields, such as health care (Kaplan & Garrett, 2005).
<table>
<thead>
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| Human resources:  
  - Staff members  
  - Executive leadership  
  - Volunteers  
  - Project partners | Action items that the project team must implement in order to produce the desired results:  
  - Conduct workshops, meetings, and training sessions  
  - Deliver services  
  - Develop project protocol and training curriculum | Effect of activities on:  
  - Organization  
  - Project Partners  
  - Executive leadership  
  - Customers or patients |
| Material resources:  
  - Technology  
  - Equipment |  |
| Financial resources:  
  - Investment |  |

**Assumptions**  
Expectations about how and why a project will solve a particular problem, generate new possibilities, and maximize resource utilization.

**Outcomes -- Impact**  
**Short-term, Intermediate, and Long-term**  
Benefits of project:  
- Learning  
- Awareness  
- Knowledge  
- Attitudes  
- Cost savings  
- Change in conditions (such as social, economic, civic, environmental)

**External Factors**  
Community characteristics (such as economic status, health literacy, community resources, etc.), social and environmental determinants of health, and healthcare market assumptions

*Figure 1. Logic Model Sample. Adapted from The Logic Model Guidebook: Better Strategies for Great Results (p. 9), by L.W. Knowlton and C. Philips, 2013, Copyright 2013 by Thousand Oaks, CA: Sage Publications, Inc. Adapted with permission.*
The framework also depicts a series of “if then” relationships, that shows the expectations from activities. Thus, it also can be used as a guide for discussions during the implementation stage. Activities are action items that the project team must implement in order to produce the desired results. Lando et al. (2006) included surveillance and research as important components of this construct. Thus, activities are the primary connection in the model through which the desired results are accomplished. Outcomes are changes or metrics that assess the benefits from the activities.

According to Lando et al. (2006), an investigator should identify short-term (one to three years), intermediate (four to six years), and long-term (seven to ten years) outcomes. Firstly, shorter outcomes are changes that are achieved as a result of the inputs. In addition, long-term outcomes follow the results of the project. For example, reducing all-cause readmissions may be a short-term outcome, the improvement of care coordination at a state level is one of the desired long-term goals.

The last key construct of the Logic Model is the identification of contextual factors. These are elements that are beyond the control or influence of the project team that affect the success of the project. In care coordination, these can include social, cultural, economic, and geographical factors. These elements can also help the investigators justify the expectations of the project (McLaughlin & Jordan, 2004).

The Logic Model was utilized successfully to guide several healthcare and quality improvement projects. For example, Hayes et al. (2011) used the Logic Model for the implementation and evaluation of a Primary Care Practice-based Research Network (PBRN), which is group of small practices or solo practitioners that aim to conduct studies to improve patient outcomes. The project, which had multiple constructs, similar
to the current ED Lanyard Badge Project, included staff support (input), PBRN convocation (activities), publication of research findings (output), and network infrastructure development (output). Hayes et al. (2011) showed that the model can simplify complex relationships between stakeholders from different organizations; which is a key element in a care coordination needed in the ED Lanyard Badge Project. The Logic model can also document key activities within a complex project. Lando et al. (2006) used the Logic Model to address the conceptual relationship between mental health and chronic disease prevention. Through the model, Lando et al. (2006) were able to organize key activities, such as active surveillance of mental health and chronic diseases, which included monitoring trends of psychiatric and physical health risk factors. Because SNF patients often have several comorbidities and risk factors, the Logic Model maybe helpful in identifying specific clinical elements that increase the chances for hospitalization. Lastly, researchers have used the Logic Model to monitor quality improvement goals. For example, Goeschel, Weiss, & Pronovost (2012) utilized the model to monitor the progress of their Comprehensive Unit-based Safety Project (CUSP), which focuses on central line-associated bloodstream infection (CLABSI) reduction.

**Development Process: Logic Model**

The objective of this project is to develop a business plan to guide the implementation and evaluation of the ED Lanyard Badge Project. The use of the Logic Model is appropriate for the project because care coordination is a complex process where many factors increase the risk for admission and readmissions. The proposed model focuses on inputs, activities, outputs, and outcomes, with emphasis on the input of the SNF and partner hospital. The framework acknowledges that care coordination is an
important factor in health outcomes. Furthermore, it recognizes the complex link between SNF and hospital factors that have the potential to affect the project success, such as system performance and executive leadership support. When the model is utilized, a continuous cycle of assessment and evaluation is activated from initiation through implementation (McLaughlin & Jordan, 2004; Kaplan & Garrett, 2005).
<table>
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<th>Activities</th>
<th>Outputs</th>
<th>Suggested Outcomes Impact</th>
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<td><strong>Skilled Nursing Facility (SNF):</strong>&lt;br&gt;1. Executive leadership support&lt;br&gt;2. Staff members to be part of ED Lanyard Badge Project Team&lt;br&gt;3. Resources (allocated training time for nurses, monthly team meeting time)&lt;br&gt;4. Supportive environment&lt;br&gt;5. Infrastructure needs for project implementation&lt;br&gt;6. Budget allocation for printing badges, marketing, and educational materials&lt;br&gt;7. Provide in-service training to SNF and ED staff&lt;br&gt;8. Patient education regarding project before transfers Partner Hospital: &lt;br&gt;1. Executive leadership support</td>
<td>1. ED Lanyard Badge Project Team meets monthly&lt;br&gt;2. Team develops business plan, which includes SWOT Analysis, marketing plan, financial plan, and evaluation plan (establish baseline data)&lt;br&gt;3. ED Lanyard Badge Project Team meets with SNF and partner hospital executive leadership to discuss project&lt;br&gt;4. Implement marketing plan&lt;br&gt;5. Team provides in-service training of SNF and partner hospital ED staff&lt;br&gt;6. Case Manager collects data for 3 months</td>
<td>1. ED Lanyard Badge Project Team shares challenges, progress, and establishes rapport; produces meeting minutes and sign-in sheets.&lt;br&gt;2. Team identifies strengths and weaknesses; produces baseline data&lt;br&gt;3. Executive leadership representatives support project and sign charter&lt;br&gt;4. SNF and ED staff have project awareness&lt;br&gt;5. SNF and partner hospital ED staff complete competency checklist and earn certificate of completion</td>
<td>Development of sustainable ED Lanyard Badge Project infrastructure&lt;br&gt;Reduce partner hospital preventable admissions from Central Valley SNF by 10 episodes of care&lt;br&gt;Reduce partner hospital preventable 30-day readmissions from Central Valley SNF by 20 episodes of care&lt;br&gt;Reduce SNF bed-hold days per month by 20 days&lt;br&gt;Engage 2 Central Valley hospitals to participate in the ED Lanyard Badge Project with the Central Valley SNF</td>
</tr>
<tr>
<td><strong>Short-term (1 - 3 years)</strong></td>
<td><strong>Intermediate (4 – 6 years)</strong></td>
<td><strong>Long-term (7 to 10 years)</strong></td>
<td></td>
</tr>
</tbody>
</table>
2. Provides ED representative in ED Lanyard Badge Project Team  
3. Allows project training  
6. Case manager provides data analysis report for leaders  
7. ED Lanyard Badge Project Team creates awareness and interest from other SNFs and hospital partners to participate in project

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>External Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholders such as hospitals and SNFs, despite having different roles and goals, have an interest in improving care coordination.</td>
<td>Community characteristics (such as economic status, literacy, community resources, etc.), social and environmental determinants of health, utilization costs, and healthcare market assumptions.</td>
</tr>
</tbody>
</table>

**Figure 2.** The ED Lanyard Badge Project logic model. This figure illustrates the interdependent and dynamic relationship between the skilled nursing facility and other stakeholders and quality improvement organization) in the context of inputs, activities, outputs, assumptions, external factors, and outcomes. This model was developed as a part of the author’s doctoral project.
Logic Model Elements

The Logic Model provides a graphical representation of the different facets of care coordination. The framework outlines inputs, outputs, activities, outcomes, assumptions, and external factors of the DNP project. Furthermore, the Logic Model operationalizes the project by assigning roles to the different stakeholders (SNF and partner hospital ED) and providing milestones during the implementation period.

Inputs

Inputs identify stakeholders who support the project (McLaughlin & Jordan, 2004). As seen on Figure 2, the ED Badge Project has two main stakeholders: the SNF and the partner hospital. Both are located in Fresno, in the Central Valley, which is an agricultural region in California. The SNF is a 232-bed facility. Ninety% of the SNF’s patients who are sent to the ED go to the partner hospital. The facility is an atypical Level 3 SNF due to its high level of care and large number of bed capacity according to a combination of classification systems developed by the National Nursing Home Survey (NSNFS) and some health plans. One health plan classification (Blue Cross of Northeastern Pennsylvania, 2005) divides SNFs into three levels of care including:

- Level 1 facilities can manage patients with enteral tube feedings, high-risk medical conditions (such as CHF and COPD), intramuscular injections, intravenous fluids, ostomies, rehabilitation, respiratory therapy (nebulizer or chest PT), and basic wound care.
- Level 2 facilities can provide complex respiratory (Bilevel Positive Airway Pressure machine or continuous positive airway pressure), wound (mattress replacement pressure reduction or air-fluidized bed), and tracheostomy care.
- Level 3 can provide intravenous medications, mechanical ventilation, parenteral nutrition, and peritoneal dialysis.

The partner hospital is a private, not-for-profit hospital located in downtown Fresno and is the fifth largest hospital in California, with a capacity of 626 licensed beds. It has a full-service, 56,000-square-foot, 70-bed ED; it is the region’s only Level 1 (highest level) trauma and comprehensive burn center. The annual ED census is more than 110,000 patients, making it the third busiest in California. The partner hospital has an affiliation with the University of California, San Francisco Medical School and is a major teaching institution with approximately 80 full-time faculty physicians and a house staff of 180. In addition to emergency medicine, the partner hospital has approved residency training programs in internal medicine, surgery, obstetrics and gynecology, pediatrics, family medicine, psychiatry, oral maxillofacial surgery, orthopedic surgery, and dentistry (University of California, San Francisco, 2016).

As the only Level 1 trauma center in Fresno, ED overflow is a challenge for the partner hospital. ED overflow is the phenomenon wherein the unit does not have enough licensed beds to accommodate the patients that walk-in or brought by the ambulance (Wiler, Griffey, & Olsen, 2011). The ED uses hallway overflow beds daily in an effort to serve the population.

The SNF and partner hospital have been partners in the Bundled Payments Care Improvement (BPCI) Initiative program since 2013. CMS piloted this initiative in 2011 to reduce federal healthcare costs while enhancing the standards of care through coordination for Medicare beneficiaries upon discharge from the hospital (Ouslander et al., 2010). Participants of BPCI assume the financial responsibility for healthcare services
above the established risk threshold but receive bonus payments for savings incurred (Ouslander et al., 2010). According to SNF leadership, the BPCI program’s financial incentive system was the main motivation to formulate a project that aims to enhance care coordination between the two settings.

The organizations in the ED Lanyard Badge Project Logic Model will allocate resources (such as financial investment for printing badges and staff meeting time) according to needs presented during project meetings. It also depicts a collaborative relationship between executive leadership from SNF (Executive Administrator, Director of Nursing, and District Sales Manager) and partner hospital (Director of Patient Care Services, Director of ED, Director of Patient Care Services, and Director of Nursing). The conceptual model also shows the end-users who will implement the project, which includes SNF case manager, SNF Discharge RN, and partner hospital ED staff members (case managers, RNs, and physicians).

**Activities and Outputs**

The major activities included in the applied model are (1) (SWOT) analysis of the project before implementation; (2) ED Lanyard Badge Project Team/Executive Leadership meetings; (3) data collection; (4) staff and patient education; (5) regular communication between team and partner hospital ED staff regarding implementation; and (6) dissemination of project progress outside of SNF.

The SWOT analysis will help the involved healthcare organizations identify the internal and external factors to develop strategies to mitigate risk and overcome challenges, weaknesses, and barriers (Van Wijngaarden, Scholten, & Van Wijk, 2012). Despite the high level of effort, utilizing regular meetings between ED Lanyard Badge
Project Team members and executive leadership from the SNF and partner hospital can strengthen trust and communication. This can also provide a safe platform for end-users (SNF case manager and partner hospital ED staff members) to share challenges regarding project implementation and potential solutions. Furthermore, learning activities such as ED Lanyard Badge Project case studies and journal club presentations can facilitate strategy formulation to overcome barriers. Evidence of progress (meeting minutes and quarterly reports) is disseminated to executive leadership and front-line staff members to foster open communication.

**Outcomes**

As seen on Figure 2, the right side of the framework shows three levels of outcomes: short-term, intermediate, and long-term. Short-term outcomes focus on development of ED Lanyard Badge Project infrastructure, reducing partner hospital preventable admissions and readmissions from Central Valley SNF by 10 episodes of care for each metric, and engaging 2 Central Valley hospitals to participate in ED Lanyard Badge Project. Intermediate outcomes focus on continuing to decrease partner hospital preventable admissions and readmissions, and engaging California SNFs and hospitals to use the ED Lanyard Badge. The long-term outcomes focus on engaging hospitals and SNFs to implement the ED Lanyard Badge Project. The Evaluation of Outcomes will present an evaluation plan.

**External Factors**

The last key construct of the ED Lanyard Badge Project Logic Model is the identification of external factors. These are elements beyond the control or influence of the project team (McLaughlin & Jordan, 2004). They include community characteristics
of low economic status and literacy. Fresno, in the Central Valley, is an agricultural region in California. The U.S. Census Bureau (2012) reported that the Fresno region had a population of 920,623. The largest racial groups are Hispanics or Latinos (51.2%), followed by Non-Hispanic whites (31.6%). Fresno is one of the top five regions in California with the highest number of individuals living below the poverty level. At the time of the census the unemployment rate was 16%, higher than the state rate of 12% in 2011 (United States Census Bureau, 2012). Minorities with a low socioeconomic status have a higher risk of health disparities. Despite high rates of healthcare access and utilization among these groups, patient outcomes in diverse, low-income areas such as Fresno are unsatisfactory due to low health literacy (Gazmararian et al., 1999). These patients often have poor communication skills with their providers and lack understanding of their disease (Onwudiwe et al., 2011), which may result in failures to obtain the care they need.
SPECIFIC AIMS

Purpose Statement

The purpose of this project is to develop a business plan of implementation and evaluation of a lanyard badge program for care coordination and assess its impact on preventable admission, 30-day readmission rates, and bed days in a Central Valley SNF. This plan requires a SNF to make it their policy to place a badge with a detachable lanyard containing essential patient’s clinical data as well as the SNF capabilities list on patients before sending them to the ED. The SNF capabilities list documents the services that the facility provides (i.e., intravenous medication administration, wound care, laboratory tests, etc.) to assist ED staff in decision-making regarding safely transferring residents back to the facility. The project includes a suggested evaluation protocol to assess the demographic characteristics of readmitted patients in the ED Lanyard Badge Project.

Significance of the Project

Reducing the incidence of SNF avoidable hospitalizations and readmissions requires knowledge of care transitions, which is the movement of patients between settings as their care needs change during the course of illness (Coleman, Parry, Chalmers, & Min, 2006). Evidence shows that poorly executed care transitions lead to clinical deterioration due to increased risk of medication errors (Coleman & Fox, 2004). The settings involved in the project are the hospital and the SNF, both of which are located in Central Valley, California. According to a retrospective chart analysis of 48 Central Valley SNF patients who were sent to the partner hospital ED between February and April of 2014 that was conducted by the author, the preventable admission and
readmission rates were 75% and 12.5%, respectively (see Table 1). The Evaluation of Outcomes section defines preventable admissions and readmissions, which are based on a preventable diagnosis list developed by Walsh et al. (2010). This includes conditions such as anemia, hypertension or hypotension, and congestive heart failure (for full list, see Appendix B).

Table 1

Central Valley SNF Patients Sent to Partner Hospital ED from February to April of 2014

<table>
<thead>
<tr>
<th>Month</th>
<th>Patients sent to ED</th>
<th>Admissions</th>
<th>30-day Readmissions</th>
<th>Returned to SNF without hospitalization or 30-day readmission</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Rate</td>
<td>Count</td>
<td>Rate</td>
<td>Count</td>
</tr>
<tr>
<td>February</td>
<td>19</td>
<td>13</td>
<td>68.42%</td>
<td>2</td>
<td>10.53%</td>
</tr>
<tr>
<td>March</td>
<td>16</td>
<td>13</td>
<td>81.25%</td>
<td>3</td>
<td>18.75%</td>
</tr>
<tr>
<td>April</td>
<td>13</td>
<td>10</td>
<td>76.92%</td>
<td>1</td>
<td>7.69%</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>36</td>
<td>75%</td>
<td>6</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Central Valley SNF provided data of patients sent to Partner Hospital ED from February to April of 2014; Central Valley SNF executive director provided approval for use of data in DNP project (see Appendix C).

Financial Impact

Poor care transitions also have a financial impact. Coleman and Fox (2004) stated that uncoordinated transfers in care settings are associated with duplication of services that increase cost and unnecessary utilization of hospital and post-acute care resources. Evidence of this includes yearly Medicare spending that stands at $15 billion on readmissions, where almost one in five patients are readmitted within 30 days (Jencks, Williams, & Coleman, 2009). The Medicare Payment Advisory Commission also estimated that more than 70% of readmissions are preventable (Donelan-McCall,
Eilersen, Fish, & Kramer, 2006). A cost analysis of the fiscal impact on Central Valley SNF from Partner Hospital admissions and readmissions from February to April of 2014 showed that the facility loss from these episodes of care amounted to $192,000 (see Table 2).

Table 2

Fiscal Impact on Central Valley SNF from Partner Hospital Admissions and 30-day Readmissions, February to April of 2014

<table>
<thead>
<tr>
<th>Month</th>
<th>Admissions</th>
<th>30-day Readmissions</th>
<th>Hospital Cost (at $6,500)</th>
<th>SNF Cost in BPCI Model (25%)</th>
<th>Bedhold days</th>
<th>Cost (at $450 per day)</th>
<th>SNF Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>2</td>
<td>15</td>
<td>$97,500</td>
<td>$24,375</td>
<td>72</td>
<td>$32,400</td>
<td>$56,775</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>16</td>
<td>104,000</td>
<td>26,000</td>
<td>96</td>
<td>43,200</td>
<td>69,200</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>11</td>
<td>71,500</td>
<td>17,875</td>
<td>107</td>
<td>48,150</td>
<td>66,025</td>
</tr>
<tr>
<td>36</td>
<td>6</td>
<td>42</td>
<td>$273,000</td>
<td>$68,250</td>
<td>275</td>
<td>$123,750</td>
<td>$192,000</td>
</tr>
</tbody>
</table>

Ineffective care transitions often result from a gap in communication between care settings. The absence of mechanisms for coordination has resulted in care settings acting in “silos” (Coleman & Fox, 2004). Moreover, inconsistency of shared patient information leads to inefficiency and medical errors (Jencks, Williams, & Coleman, 2009).

Hospitals and SNFs have a vested interest in enhancing care transitions. A hospital has to face the financial repercussion of shouldering the cost of a 30-day readmission for the same condition (Jencks, Williams, & Coleman, 2009). Moreover, a SNF loses money for each bed day a patient is in another care setting (Mor et al., 2010). Poor care transitions can also lead to lower patient satisfaction scores and poor organizational reputation (Coleman & Fox, 2004).
METHODS

Contextual Elements

The Central Valley SNF, a facility located in Fresno, with their partner hospital, entered a Bundled Payments Care Improvement (BPCI) Initiative program in 2013. As BPCI participants, both organizations assume the financial responsibility for healthcare services above the established risk threshold but receive bonus payments for savings incurred (Ouslander et al., 2010). As a result of the financial incentive system, both organizations conducted a retrospective chart analysis in 2014 of 75 Central Valley SNF residents that were admitted to the partner hospital from July to September 2013. They discovered that 50 of the 75 patients could have been diverted back to the SNF because the Central Valley SNF had the capability to treat the patient’s acute condition (S. Seita, personal communication, October 17, 2016). Upon further investigation, executive leadership from Central Valley SNF and partner hospital identified the problem, the ED staff (composed of physicians, registered nurses, and case managers) had difficulty determining whether the residents could be safely transferred back to a lower level of care because of lack of information about Central Valley SNF’s capabilities. In an effort to reduce admissions and readmissions in 2015, Central Valley SNF executive leadership designed the initial version of the ED Lanyard Badge, a care coordination tool worn by the resident during ED transfer. The badge contained pertinent clinical information and the facility’s capabilities list. In January of 2015, Central Valley SNF attempted to utilize the tool. However, due to reorganization and high staff turnover, the organization had difficulty implementing the tool consistently.
The DNP author started working with Central Valley SNF in June of 2015 as a Clinical Project Manager for the California’s Medicare Quality Improvement Organization (QIO). A QIO is contracted by CMS to enhance care coordination and lower readmission rates in the state (Brock et al., 2013). The DNP author’s professional role includes helping hospitals and post-acute care providers to operationalize interventions by providing technical assistance through evidence-based practice research.

This DNP project focused on the development of a business plan for the implementation and evaluation of the ED Lanyard Badge Project. Guided by the Logic Model, the business plan contents were formulated based on a literature review and input from an expert panel and key stakeholders, including team members from the Central Valley SNF and partner hospital. Furthermore, an expert panel evaluated the business plan and made revisions to enhance the feasibility of the project.

**Expert Panel**

To ensure feasibility and obtain input from key personnel, the ED Lanyard Badge and the business plan were sent to an expert panel consisting of qualified SNF (administrator, medical director/geriatrician, nurse manager, and quality improvement nurse) and ED (former physician chief of department of emergency medicine, ED director/RN, charge nurse/RN, and RN representatives) reviewers (see Table 3). According to Husereau et al. (2013), an expert panel can facilitate the integration of implementation knowledge in project management. Because the ED Lanyard Badge Project is the intellectual property of the Central Valley SNF, the expert panel members evaluating the ED Lanyard Badge Project were selected from similar practice settings outside of Fresno County to prevent direct competition with the project stakeholder. The
ED Lanyard Badge Project Evaluation Sheet (see Appendix D) also stipulated that the ED Lanyard Badge is the intellectual property of the Central Valley SNF and cannot be used without the expressed written consent of the facility.

Polit and Beck (2006) stated that the panel should be comprised of a minimum of five but not more than 10 leaders. As shown on Table 3, the expert panel had a minimum of four or more years in clinical or leadership experience in the SNF or ED.

Table 3

*Expert Panel Qualifications*

<table>
<thead>
<tr>
<th>Expert</th>
<th>Credential</th>
<th>Experience</th>
<th>Understanding of key constructs and SNF patient population</th>
<th>Location of Work Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Medical Director/Geriatrician</td>
<td>4 years in SNF</td>
<td>High</td>
<td>Sacramento</td>
</tr>
<tr>
<td>B</td>
<td>Director of Nursing</td>
<td>11 years in SNF</td>
<td>High</td>
<td>Sacramento</td>
</tr>
<tr>
<td>C</td>
<td>Administrator</td>
<td>20 years in SNF</td>
<td>High</td>
<td>Sacramento</td>
</tr>
<tr>
<td></td>
<td>Medical Director/Former Physician Chief of Department of Emergency Medicine/ED physician</td>
<td>3 years in SNF/ 17 years in ED</td>
<td>High</td>
<td>Sacramento</td>
</tr>
<tr>
<td>D</td>
<td>ED Director/Registered Nurse</td>
<td>8 years in ED</td>
<td>High</td>
<td>Los Angeles</td>
</tr>
<tr>
<td>E</td>
<td>Registered Nurse</td>
<td>11 years in ED</td>
<td>High</td>
<td>Los Angeles</td>
</tr>
<tr>
<td>F</td>
<td>Charge Nurse</td>
<td>38 years in ED</td>
<td>High</td>
<td>Panorama City</td>
</tr>
<tr>
<td>G</td>
<td>Quality Improvement Nurse/LVN</td>
<td>4 years in SNF</td>
<td>High</td>
<td>Sacramento</td>
</tr>
</tbody>
</table>

Rating of understanding of key constructs and SNF patient population is based on expert panel members’ years of experience, licensure, certification, etc.
Furthermore, the panel members met the recommended qualifications that include understanding of key constructs and experience with the SNF patient population. All members of the expert panel had a high understanding of key constructs and SNF population because of years of experience (four to 38 years), licensure (i.e., MD, RN, and LVN), and professional certifications (i.e., Emergency Medicine and Critical Care Registered Nurse). Each member had a minimum of four years not only in the SNF or ED, but also exposure to care coordination, utilization management, and quality improvement. The expert panel also included a physician and registered nurse who had experience in both the ED and SNF. Each participant received a packet which included an ED Lanyard Badge Project Evaluation Form (see Appendix D), instructions of what is required of expert panel members, a cover letter, requirements for expert panel members, and a copy of the first version of the ED Lanyard Badge (see Figure 3).

The cover letter stated the objectives of the ED Lanyard Badge Project. The ED Lanyard Badge Project Evaluation Form (See Appendix D) contained a 5-point Likert scale for evaluating the feasibility of the project and had space for the participant to write comments, suggestions, and potential barriers to implementation. The scale was used to assess the feasibility of the business plan. The measure allowed the evaluator to rate the following components of the business plan: structure, background, marketing plan, educational plan, implementation plan, and evaluation of outcomes.
The evaluation form also asked their level of understanding of the business plan and interest in participating in the ED Lanyard Badge Project. Each member of the expert panel rated each item of the business plan on a scale of 1 to 5 with 5 = strongly agree, 4 = agree, 3 = no opinion, 2 = disagree, and 1 = strongly disagree. The expert panel’s feedback was integrated and used to improve the planning and enhance usability of the Lanyard badge.

The Emergency Department Lanyard Badge Tool

During 2014 BPCI meetings between the SNF and the partner hospital, it became apparent that a large number of SNF patients who were sent to the ED were subsequently admitted. As stated earlier, the SNF and the partner hospital performed a retrospective chart analysis on 75 admitted patients and discovered that 50 patients could have been...
returned back to the SNF because the SNF had capabilities that would have allowed
continuation of the treatment plan (S. Seita, personal communication, October 17, 2016).
For example, in one case, a SNF patient was admitted for a urinary tract infection (UTI)
even though the SNF has the capability to administer intravenous antibiotic therapy. The
executive leadership from the partner hospital identified that one main problem was ED
staff (composed of physicians, registered nurses, and case managers) had difficulty
identifying which SNF patients are appropriate to be diverted back to a lower level of
care.

Once the problem was identified, the SNF management proposed an intervention
to enable the ED staff to easily identify patients who potentially could be able to be
transferred back to their SNF after the ED assessment: the ED Lanyard Badge Tool. This
project requires that a SNF staff places a badge containing essential clinical data and the
SNF capabilities list on patients before sending them to the ED. This helps clinicians and
RN case managers determine if it is appropriate to divert the patient back to the SNF.

Determining the essential communication components during transfers between
SNFs and EDs and vice versa requires critical appraisal and incorporation of latest
evidence. With technical assistance from the California QIO and partner hospital, the
SNF designed the first version of the ED Lanyard Badge to help guide clinicians’
decision of whether it is appropriate to divert the patient back to the SNF and decrease
hospital utilization (which includes admissions and readmissions).

The current project delineates a proposal of how to implement and evaluate the
use of the Lanyard badge to coordinate the care between the SNF and ED. The ED
lanyard badge was built based on Coleman’s (2006) conceptual definition of the patient
health record (PHR). He describes the PHR as a patient-centered inter-facility 
communication tool, which includes the core data elements that are essential to 
facilitating continuity of care across different settings. The core data elements of the first 
version ED Lanyard Badge Coleman proposed were:

- Specific chief complaint
- Active problem list
- Allergies
- Physician Orders for Life-Sustaining Treatment (POLST)
- Past or current psychiatric history (such as anxiety, depression, suicidal ideation, 
etc.)
- Acute care hospitalizations within the previous 30 days

Additional data elements of the ED badge to those listed above were determined 
through discussions between the SNF executives and physicians from partner hospitals 
during BPCI meetings. During these meetings, hospital executives identified a knowledge 
gap showing that some ED physicians had incomplete or incorrect knowledge of the care 
provided in a SNF. SNF and partner hospital representatives attributed unnecessary acute 
care hospital admissions to physicians’ lack of correct knowledge regarding SNF 
capabilities. The team did not use a set methodology or a list of preventable diagnoses in 
determining that the episodes of care were preventable; the team relied on the expert 
knowledge of physician members (S. Seita, personal communication, October 17, 2016).

The members determined that the project does not require additional full-time 
employees (FTEs). ED Lanyard Badge Project activities (such as in-service training) can
be integrated into the workflow of existing employees. The discussions led to the first version of the ED Lanyard Badge, as shown earlier (see Figure 3).

The expert panel that were asked to evaluate this project also suggested revisions to the ED Lanyard Badge Tool. The evaluation form asked members the level of interest that their organization would have in implementing the project and the score was 3.75 out of 5. The rating was determined by averaging the mean of members’ responses. In the narrative section of the evaluation form used by this author, multiple panel members shared that this is due to the high risk of endangering patient health information and privacy in using a lanyard with patient healthcare information visible to others. When asked about possible solutions, a SNF administrator and former physician chief of emergency medicine suggested a foldable badge to cover the information. A SNF geriatrician from the expert panel also suggested using a bright color for the cover to increase visibility of the badge (see Figure 4). To add writing space for the additional clinical components, the panel suggested to transfer the capabilities list at the back of the cover (see Figure 4).
With regard to the clinical elements, a SNF geriatrician suggested to add “recent pertinent laboratory values” underneath chief complaint. She also suggested adding “reason for transfer” to the line that stated “specific chief complaint” to enhance clarity. A SNF nurse manager suggested changing the verbiage of the POLST, from “no CPR” to “DNR” (do not resuscitate), which matches the terminology in the POLST form. The SNF geriatrician emphasized that the project success depends on the dialogue between the ED physician and the SNF attending physician. As a result, she said to add contact information of the SNF physician in the badge. These revisions were applied to the final version of the inner part of the ED Lanyard Badge (see Figure 5).
**Figure 5.** Final version of Emergency Department Lanyard Badge Tool, inside (Left and Right).
BUSINESS PLAN

The DNP author started working with GLC in June of 2015 as a Clinical Project Manager for the California’s Medicare QIO, with the goal of enhancing care coordination and reducing hospital utilization. During discussions with GLC leadership, the organization shared current initiatives such as a first version of the ED Lanyard Badge. They also shared that prior attempts to implement the tool were unsuccessful due high staff turnover and lack of project structure. These challenges were the impetus for designing this DNP project; however, it later became clear that organizational barriers (QIO’s restrictions regarding the use of patient data for academic research) would preclude testing the Lanyard badge in a pre-post design intervention that was initially proposed. Therefore, a business plan to guide the implementation, evaluation and expansion of use of the Lanyard Badge as a tool to facilitate care coordination was proposed.

The goal of this project was to develop a business plan to guide the implementation and evaluation of the ED Lanyard Badge Project. The project consisted of synthesizing the requirements for a successful and safe care transition of the SNF patient to the ED. The plan outlines clear and specific directions for implementing the project, from conducting a SWOT analysis to assist in the successful planning of this project to the development of an evaluation plan. The final draft was presented to the Central Valley SNF for their review and consideration on February 2017.

Marketing Plan

The purpose of the marketing plan is to provide the SNF with a strategic plan to secure participation from its partner hospital in the ED Lanyard Badge Project. The
team will capture engagement by determining the target market, purpose, marketing activities, and evaluation protocol. Another key component of the marketing plan is to align the project with SNF and partner hospital organizational goals, which increases the likelihood of project adoption (Marrone, 2016). Marketing objectives include (1) securing support from executive leadership to provide resources (staff, meeting time, finances, etc.) for ED Lanyard Badge Project, (2) increasing SNF and partner hospital staff awareness and use of ED Lanyard Badge Project, (3) communicating ED Lanyard Badge Project findings to stakeholders’ executive leadership, and (4) promoting successes of ED Lanyard Badge Project to other SNFs and hospital partners. The expert panel rating of the marketing plan was 4.375 out of 5 and the members did not state any further needed revisions.

**Target Market**

The target market of the project includes leaders and frontline staff from the SNF and its partner hospital. Furthermore, the target market includes SNF residents. There is a growing awareness that patient engagement is related to positive health-related outcomes (Greene & Hibbard, 2012).

**SNF and partner hospital executive leadership.** The key task is to obtain buy-in and support from the SNF and partner hospital executive leadership. The team must secure support from “executive sponsors” from the partner hospital (e.g., Chief Nursing Officer, Chief Executive Officer, Chief Medical Officer, Director of Case Management, Chief of Emergency Medicine) and SNF (e.g., Administrator, Director of Nursing, Medical Director) (Mueller et al., 2013). Obtaining buy-in is a critical task for the ED
Lanyard Badge Project Team because these individuals can put the project in the context of organizational goals (Ellis, Embree, & Ellis, 2015).

**SNF and partner hospital ED staff.** It is also important to recruit ED Lanyard Badge Project Champions from the SNF and hospital ED. Frontline SNF and ED staff can also provide feedback and support marketing initiatives. These are organizational opinion leaders, who are the type that personnel staff members turn to during difficult patient matters (Mueller et al., 2013).

**SNF residents and families.** Project acceptance among residents and their families is another important prerequisite for success. This group represents a largely underutilized resource that if tapped, can contribute to improving care coordination (Greene & Hibbard, 2012). It is recommended for the ED Lanyard Badge Project Team to include a patient representative to support the project.

**Marketing Activities**

The marketing activities outline ED Lanyard Badge Project Team tasks that aim to secure organizational and patient support. The outline of the marketing plan used in this project identifies the necessary marketing activities and evaluation methods needed to achieve the goals of this project (Table 3).

**SNF and Partner Hospital ED Staff Meeting**

ED Lanyard Badge Project Team members should leverage interdisciplinary staff meetings to share information about the project. These sessions also provide an opportunity for the ED Lanyard Badge Project Team to identify and recruit ED Lanyard Badge Project champions from both settings. Upon recruitment, project champions should sign the ED Lanyard Badge Project Charter (Appendix E).
Executive Leadership (One-on-One or Group) Meeting

Due to the high level of effort required, this meeting is reserved for obtaining partner hospital and SNF executive sponsor support. This platform allows the team member to immediately address questions and capture feedback from leaders. As stated earlier, it is imperative to secure high-level organizational commitment to implement the ED Lanyard Badge Project. At the end of the meeting, the executive leader should sign the ED Lanyard Badge Project Charter (Appendix E).

SNF resident meeting. An ED Lanyard Badge Project Team member should also present the initiative to residents to secure patient engagement. This is also an educational session, which will be further discussed in the Educational Plan. After the presentation, there will be an opportunity for residents to ask questions regarding the project. Although not required, it is recommended to recruit a patient representative as a member of the ED Lanyard Badge Project Team.

Care coordination collaborative meetings/conferences. The ED Lanyard Badge Project Team should also aspire to present the findings and lessons in conferences. They can also share the project as a part of the agenda in care coordination collaborative meetings. Executive leadership from hospitals and post-acute care providers within a certain geographical area attend these quarterly meetings to engage in conversation to reduce readmissions (Brock et al., 2013). Thus, this is an opportunity for ED Lanyard Badge Project Team to inspire other SNFs and their partner hospitals to adopt the intervention.
Table 3.

Outline of the Project Marketing Plan

<table>
<thead>
<tr>
<th>Marketing Objectives</th>
<th>Marketing Activities</th>
<th>Evaluation Method</th>
<th>Resources Involved</th>
<th>Budget Start-up costs</th>
<th>Budget Ongoing costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>To secure support from executive leadership to provide resources (staff, meeting time, financial, etc.) for ED Lanyard Badge Project</td>
<td>Executive Leadership (one-on-one or group) meeting</td>
<td>Signed ED Lanyard Badge Project Charter (signifies program support)</td>
<td>ED Lanyard Badge Project Team Member</td>
<td>$0 Collateral duty Printed charter, educational materials cost will be $5 to $10</td>
<td>$0</td>
</tr>
<tr>
<td>Increase SNF and partner hospital staff awareness and use of ED Lanyard Badge Project</td>
<td>SNF and partner hospital ED staff meeting</td>
<td>Sign-in sheets, meeting minutes</td>
<td>ED Lanyard Badge Project Team Member/s</td>
<td>$0 Collateral duty. Printed educational materials will $50 to $100 depending on quantity.</td>
<td>$0</td>
</tr>
<tr>
<td>Communicate ED Lanyard Badge Project findings to stakeholders’ executive leadership</td>
<td>Executive Leadership (one-on-one or group) meeting</td>
<td>Sign-in sheets, meeting minutes</td>
<td>ED Lanyard Badge Project Team Member/s</td>
<td>$0 Collateral duty.</td>
<td>$0</td>
</tr>
<tr>
<td>Promote successes of ED Lanyard Badge Project to other SNFs and hospital partners</td>
<td>Care Coordination Collaborative Meetings/Conferences</td>
<td>Sign-in sheets, meeting minutes</td>
<td>ED Lanyard Badge Project Team Member/s</td>
<td>$0 Collateral duty.</td>
<td>$0</td>
</tr>
</tbody>
</table>
Financial Plan

Because care coordination is part of the job description of staff members in the SNF and ED, ED Lanyard Badge Project activities are a collateral duty. The cost of project implementation is relatively straightforward. No full-time employee is required to implement the ED Lanyard Badge Project as the placing an ED Lanyard Badge and completing the designated communication task will become part of the regularly assigned duties of the SNF nursing staff. In addition, the in-service training sessions are integrated into the work flow of existing employees; therefore, there are no additional training costs projected.

As seen on Table 4, the labor costs amount to $3,995.42. The personnel wages were based on the 2015 report from the Bureau of Labor Statistics, which outlined the national employment and wage estimates for SNFs (“May 2016,” 2016). The number of hours spent for each task were estimated based on the feedback of expert panel members.

As seen in Table 5, the SNF will provide an initial investment of $5,108.42 to cover the costs of printing and staff time. One study estimated that the cost of a hospitalization or readmission was $6,500 (Ouslander et al., 2010). This shows that one prevented incident is enough to offset the cost of implementation.
### Labor Costs

<table>
<thead>
<tr>
<th>Task</th>
<th>Time (hours)</th>
<th>Profession</th>
<th>Cost/hour</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-implementation in-service training of staff (3 months)</td>
<td>6</td>
<td>Case Manager (RN)</td>
<td>30.53</td>
<td>$183.18</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Senior RN (dayshift)</td>
<td>30.53</td>
<td>183.18</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Senior RN (dayshift)</td>
<td>30.53</td>
<td>183.18</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Senior RN (Nightshift)</td>
<td>30.53</td>
<td>183.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>915.18</td>
</tr>
<tr>
<td>Patient Education (Resident meetings/one-on-one)</td>
<td>2</td>
<td>Case Manager (RN)</td>
<td>30.53</td>
<td>61.06</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Senior RN (dayshift)</td>
<td>30.53</td>
<td>61.06</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Senior RN (dayshift)</td>
<td>30.53</td>
<td>61.06</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Senior RN (Nightshift)</td>
<td>30.53</td>
<td>61.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>305.30</td>
</tr>
<tr>
<td>In-service Training upon implementation (3 months)</td>
<td>4</td>
<td>Case Manager (RN)</td>
<td>30.53</td>
<td>122.12</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Senior RN</td>
<td>30.53</td>
<td>122.12</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Senior RN</td>
<td>30.53</td>
<td>122.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>610.60</td>
</tr>
<tr>
<td>Data extraction and analysis:</td>
<td>4</td>
<td>Case Manager (RN)</td>
<td>30.53</td>
<td>122.12</td>
</tr>
<tr>
<td>Baseline data 3-month implementation</td>
<td>6</td>
<td>Case Manager (RN)</td>
<td>30.53</td>
<td>183.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>305.30</td>
</tr>
<tr>
<td>Monthly meetings: pre-implementation (3 months), test period (2 months), and implementation period (3 months), total of 8 30-minute meetings</td>
<td>8</td>
<td>Case Manager (RN)</td>
<td>30.53</td>
<td>244.24</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Senior RN (dayshift)</td>
<td>30.53</td>
<td>244.24</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Senior RN (nightshift)</td>
<td>30.53</td>
<td>244.24</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Administrator</td>
<td>54.24</td>
<td>433.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical Director</td>
<td>86.55</td>
<td>692.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,859.04</td>
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<tr>
<td>Total labor costs</td>
<td></td>
<td></td>
<td></td>
<td>$3,995.42</td>
</tr>
</tbody>
</table>
Table 5.

*Example of a Start-up Financial Plan*

<table>
<thead>
<tr>
<th>EXPENSES</th>
<th>Start-up costs</th>
<th>Recurring Costs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor costs</td>
<td>$0</td>
<td>$3,995.42</td>
<td>ED Lanyard Badge Project Activities (meetings, in-service training, stakeholder engagement, implementation, and data analysis) are integrated into current workload</td>
</tr>
<tr>
<td><strong>ED Lanyard Badges</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badge (100 badges)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(unit cost = $0.19)</td>
<td>$19</td>
<td>To be determined</td>
<td></td>
</tr>
<tr>
<td>Detachable Lanyard (100 pieces) (unit cost = $2.50)</td>
<td>$250</td>
<td>To be determined</td>
<td></td>
</tr>
<tr>
<td>Badge holder (100 pieces)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(unit cost = $0.44)</td>
<td>$44</td>
<td>To be determined</td>
<td></td>
</tr>
<tr>
<td><strong>Training Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ED Lanyard Badge Project Team Members</td>
<td>$0</td>
<td>$0</td>
<td>ED Lanyard Badge Project Team Members provide in-service training during staff meetings, one-on one sessions, and preceptorship; educational activities are additional workload</td>
</tr>
<tr>
<td>Educational Materials (40 copies) (unit cost of printed Guideline = $4)</td>
<td>$200</td>
<td>To be determined</td>
<td>To save costs, staff members are encouraged to share guideline copies</td>
</tr>
<tr>
<td>Marketing Expenses</td>
<td>$600</td>
<td>To be determined</td>
<td>Marketing materials will cost $40 to $600, depending on quantity; this includes production of ED Lanyard Badge Project Pen, which has the name of the project and contact information of the project manager</td>
</tr>
<tr>
<td>Subtotal costs</td>
<td>$913</td>
<td>$3,995.42</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$5,108.42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REVENUE**

<table>
<thead>
<tr>
<th></th>
<th>ACTUAL</th>
<th>POTENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventable SNF admission/readmission</td>
<td>$0</td>
<td>$6,500 per episode of care</td>
</tr>
</tbody>
</table>
Implementation Plan

Before implementation, the SNF must determine the ED Lanyard Badge Project Team members and prepare the project materials. SNF and ED staff education must be completed before implementation. This section includes ED Lanyard Badge Project Team formation, pre-implementation tasks, ED Lanyard Badge Project Protocol, Timeline, and Evaluation Plan.

ED Lanyard Badge Project Team Formation

The composition of the ED Lanyard Badge Project Team was based on guidelines for establishing an effective quality improvement team (Jacelon, Macdonald, & Fitzgerald, 2015). The SNF case manager, four senior registered nurses, and administrator will serve as the day-to-day leaders, who perform staff education regarding the ED Lanyard Badge Project and ensure protocol compliance. The business plan designates specific leaders and team members to be accountable for ED Lanyard Badge Project tasks to decrease risk of disruption during staff transitions.

Project manager (SNF case manager). The Case Manager plays a pivotal role in the ED Lanyard Badge Project. This individual has a general understanding and involvement in care coordination, utilization management, and quality improvement. This leader will be in charge of project management, resource utilization, and data management and analysis.

Executive champion (SNF administrator). A member of the SNF executive leadership team or administrative leader (director of nursing, etc.) can help put the project in the context of the facility’s mission and vision. This individual will also be in-charge of obtaining support from the partner hospital. If possible, the ED Lanyard Badge Project
Team should recruit an executive champion from the partner hospital (Chief Nursing Officer, ED Director, etc.). The executive champion is not obligated to attend all ED Lanyard Badge Project Team meetings, however, this individual must receive regular progress reports. The executive champion will also provide resources (financial support, dedicated staff time, etc.) and remove implementation barriers.

**Project champion (senior registered nurse).** The project champion is a clinical leader who is well-respected among peers. It is imperative to utilize this leader not only as a resource but as an opinion leader who can influence others to adopt the ED Lanyard Badge Project. It is recommended to have at least four senior registered nurses (two dayshift SNF RNs, two nightshift SNF RNs, and two partner hospital ED RN). These individuals will be in-charge of providing in-service training to their peers.

**Physician champions.** Based on the feedback of the expert panel, it is imperative to have at least one physician champion from each of the SNF and the ED. The geriatrician from the expert panel also emphasized that SNF medical director must be involved in the project and as bridge between the SNF and ED physicians. The geriatrician added that success will depend on changing the culture of ED physicians, since they are the final decision maker on patient’s destination from the ED.

**Process owners (Front-line staff members).** It is also important to involve staff members who are directly involved in care coordination, such as unit managers, nurses, clerks, and social workers. The purpose of their presence in the ED Lanyard Badge Project Team is to bring a “front-line” point of view to the implementation of the care coordination tool. They can also provide support and facilitate change among their colleagues. Furthermore, they are also responsible for taking a lead role if the data reveal that they are not making progress on a specific metric. For example, if the team reviews the
monthly data and find that there is no reduction in readmission rates due to low compliance, the process owners can help in redesigning the process to address the measure.

**Pre-Implementation Tasks**

The pre-implementation tasks provide a road map for operational, clinical, and educational activities in preparation for the implementation of the tool. This outlines specific activities that identify strategic needs and barriers of the care coordination tool implementation. Upon identification of potential roadblocks, the ED Lanyard Badge Project Team is expected to formulate interventions to address these barriers.

**SWOT Analysis.** Before ED Lanyard Badge Project implementation, the team must conduct a thorough SWOT analysis of the SNF organization. As seen on Table 5, there are positive and negative internal factors (strengths and weaknesses, respectively), and external factors (opportunities and threats, respectively). Strengths are the robust characteristics of the organization, such as, finance, resources, people, infrastructure, and staff experiences. Weaknesses are the organization’s vulnerable areas. In a care coordination initiative, such as the ED Lanyard Badge Project, a common weakness is that the post-acute care provider work in “silos,” instead of functioning as integrated entities (Durme et al., 2014). Opportunities and threats are external factors that are outside of the team’s control but can be used for an advantage or disadvantage (Antony, 2012). The SWOT analysis will help the involved healthcare organizations identify the internal and external factors needed to develop strategies to mitigate risk and overcome challenges, weaknesses, and barriers (Van Wijngaarden, Scholten, & Van Wijk, 2012).
Table 6.

*Example of Strengths, Weaknesses, Opportunities, and Threats Analysis*

<table>
<thead>
<tr>
<th>POSITIVE STRENGTHS</th>
<th>NEGATIVE WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERNAL</strong></td>
<td></td>
</tr>
<tr>
<td>• Staff commitment to improving patient outcomes</td>
<td>• Recent high staff turnover</td>
</tr>
<tr>
<td>• Availability of clinical and financial resources to</td>
<td>• Inadequate staff education regarding repercussions of</td>
</tr>
<tr>
<td>implement care coordination project</td>
<td>preventable hospitalizations and readmissions</td>
</tr>
<tr>
<td>• Decrease hold beds in SNF</td>
<td></td>
</tr>
<tr>
<td><strong>EXTERNAL</strong></td>
<td></td>
</tr>
<tr>
<td>• To embark in a multi-organizational care</td>
<td>• High patient acuity</td>
</tr>
<tr>
<td>coordination project</td>
<td>• Low patient health literacy</td>
</tr>
<tr>
<td>• To incorporate best practices based on current</td>
<td>• Several competing Quality Improvement projects</td>
</tr>
<tr>
<td>evidence</td>
<td>• ED Lanyard Badge Project may be perceived as</td>
</tr>
<tr>
<td>• To promote patient-centered care</td>
<td>additional work by participating organizations’ staff</td>
</tr>
<tr>
<td>• To foster teamwork among SNF and partner hospital</td>
<td></td>
</tr>
<tr>
<td>staff</td>
<td></td>
</tr>
</tbody>
</table>

**Securing SNF and partner hospital executive leadership approval.** The team must obtain approval from SNF and Partner Hospital executive leadership to enhance project implementation. By recruiting at least one motivated champion at the executive level from each setting, the team will gain organizational buy-in and access to administrative resources. A systematic review found that executive leadership support is a key element in healthcare quality improvement success (Kaplan et al., 2010). Before
meeting with executive leadership, the ED Lanyard Badge Project Team representative
must be prepared with the following “talking points.”

*Absence of vital communication during SNF patient transfers and repercussions.* Approximately 74% of SNF patients arrive at the ED without vital
documentation, such as vital signs, baseline cognitive function, code status, and pertinent
disease information, which results in poor care coordination between the two settings
(Gaddis, 2005; Terrell et al., 2005).

Readmissions cost Medicare an estimated $4.34 billion annually. In addition, the
readmission rate from the skilled nursing facility setting grew by 29% from the year 2000
to 2006 (Mor et al., 2010). These facts demonstrate that there is a “revolving door” of
hospitalization from this setting. Lastly, entry and reentry into SNFs and hospitals are
associated with negative patient outcomes such as delirium, decreased independence in
activities of daily living, and patient and caregiver anxiety (Dwyer, 2014).

*Financial impact on organizations.* Hospital shoulders 30-day readmission cost
(Brock et al., 2013) and the SNF loses money for each bed day that a patient is
hospitalized (Mor et al., 2010). The estimated cost of a hospitalization or readmission is
$6,500 (Ouslander et al., 2010). This is a conservative estimate, which can increase based
on value-based purchasing model participation and diagnosis (Chernew, McGuire, &
McWilliams, 2014).

*ED Lanyard Badge Project benefits.* The care coordination tool enhances care
coordination, which can translate to significant savings for SNFs and hospitals involved
in value-based purchasing models, such as BPCI programs and accountable care
organization (ACO) agreements (Froimson et al., 2013; Chernew, McGuire, &
McWilliams, 2014). On the hospital side, the ED Lanyard Badge Project may improve Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Star Rating scores by enhancing patient’s experience during the hospital stay through efficient care coordination. The project may also directly or indirectly impact the Star Ratings for HCAHPS measures that pertain to communication between settings (Elliott et al., 2015). For the SNF, the project outcomes enable the facility to demonstrate to the hospital partners the number of hospitalizations and readmissions that were prevented after the implementation of the ED Lanyard Badge Project.

The ED Lanyard Badge Project Team can also utilize local case studies which involved the partner hospital and illustrate the negative outcomes of inefficient care coordination. SNF and partner hospital executive sponsors must sign the project charter at least two months before implementation. Once support is obtained, the team must communicate these to both settings (by e-mail or during staff meetings) to facilitate securing front-line staff buy-in.

**In-Service Training and Competency**

ED Lanyard Badge Project Team members, particularly the project manager and project champions, will provide in-service training and mentoring. In their current practice, these individuals are already in charge of educating new staff members. All staff members (managers, nurses, clerks, case manager) involved in care coordination in the SNF and its partner hospital ED must receive in-service training. As shown in the Educational Plan for Healthcare Professions (see Table 6), in-service training can be provided individually or to a group. For the one-on-one teaching, ED Lanyard Badge Project Team utilizes the ED Lanyard Badge Project Tri-fold Brochure as a teaching tool
(Appendix F). Furthermore, champions will distribute ED Lanyard Badge Project Pen, which contains the name of the project and contact information of the project manager, to each individual who completed the training.

After the training, project champions utilize the ED Lanyard Badge Program Competency Form (Appendix H) to test staff members, with scores ranging 1 to 4. The form was formulated with the guidance of the Central Valley SNF administrator and RNs. The expert panel reviewed the form and the rating for the education plan was 4.5. Staff members who receive a score of 4 (which demonstrates the highest level of competency) will be able to teach and assess others. The ED Lanyard Badge Project Team will provide a certificate of completion to staff members who have finished the training. Copies of the Competency Form and certificate of completion will be put in employees’ files. Staff cannot participate in the ED Lanyard Badge Project without receiving the in-service training. In-service training should be completed in the SNF and partner hospital ED one month before implementation of the project.
Table 7.

*Example of Educational Plan for Healthcare Professionals*

<table>
<thead>
<tr>
<th>Educational Objectives</th>
<th>Educational Activities</th>
<th>Personnel</th>
<th>Time needed for activity</th>
<th>Time frame</th>
<th>Teaching Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF, partner hospital ED staff, will gain understanding of ED Lanyard Badge Project objectives and protocol</td>
<td>Monthly staff meeting presentation</td>
<td>ED Lanyard Badge Project Team members</td>
<td>1 hour</td>
<td>1 to 3 months before implementation</td>
<td>PowerPoint Presentation, ED Lanyard Badge Project Tri-fold, ED Lanyard Badge Project Pen</td>
</tr>
<tr>
<td>Emergency medical technicians will gain understanding of ED Lanyard Badge Project objectives and protocol</td>
<td>One-on-one teaching</td>
<td>ED Lanyard Badge Project Team members, staff member who scored 4 in competency checklist</td>
<td>15 minutes</td>
<td>1 to 3 months before implementation, ongoing</td>
<td>ED Lanyard Badge Project Tri-fold, ED Lanyard Badge Project Pen</td>
</tr>
</tbody>
</table>

There is a separate education plan for SNF residents/patients (see Table 8). ED Lanyard Badge Project Team members will utilize the ED Lanyard Badge Patient Education Sheet (see Appendix G). This document outlines the objectives and benefits in supporting the project. It also invites residents to be ED Lanyard Badge Project Champions.
Table 8.

*Example of Educational Plan for Patients*

<table>
<thead>
<tr>
<th>Educational Objectives</th>
<th>Educational Activities</th>
<th>Personnel</th>
<th>Time needed for activity</th>
<th>Time frame</th>
<th>Teaching Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF patients will gain understanding of ED Lanyard Badge Project objectives and protocol</td>
<td>Weekly resident community meeting</td>
<td>ED Lanyard Badge Project Team members</td>
<td>30 minutes</td>
<td>1 to 3 months before implementation, ongoing</td>
<td>PowerPoint Presentation, ED Lanyard Badge Project Tri-fold</td>
</tr>
<tr>
<td>ED Lanyard Badge Project One-on-one teaching</td>
<td>ED Lanyard Badge Project Team members, staff member who scored 4 in competency checklist</td>
<td>15 minutes</td>
<td>Ongoing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**ED Lanyard Badge Protocol**

With technical assistance from partner hospital ED staff, the SNF designed a badge to help guide clinicians’ decision of whether it is appropriate to divert the patient back to the SNF. As stated earlier, it documents each step from the SNF physician order to documentation of transfer to ED. The following steps are proposed to implement the project:

- A SNF physician or nurse practitioner orders the transfer of the patient to ED.

- The SNF discharge RN completes ED lanyard badge information upon receiving the transfer order. SNF discharge RNs are not allowed to pre-fill the information. This is to help ensure the information populated is up to date and accurate.

- The SNF discharge RN informs patient about placement of the lanyard as part of the ED Lanyard Badge Project.
• SNF RN places ED lanyard badge on patient in front of ambulance emergency medical technician (EMT) before transfer.

• SNF RN educates EMT about badge utilization.

• Upon leaving the facility, SNF RN calls partner hospital ED Admissions Coordinator to notify hospital of patient transfer; SNF RN states that patient has the lanyard badge and includes its purpose and utilization in the transfer report. The tool, which includes the SNF capabilities list, documents pertinent clinical information and the facility’s services to guide ED staff decision-making about transfer back to the SNF. During the report, the SNF RN should also emphasize SNF capability related to resident’s transfer diagnosis. For example, if a patient is transferred with a suspected UTI, the SNF RN will state the facility has the ability to administer IV antibiotics in the report.

• Once the patient leaves the facility, SNF RN includes the following information in the transfer note in PointClickCare (or designated facility electronic health record platform):
  
  o Did patient leave with ED Lanyard Badge? Yes or No?

  o Included ED Lanyard Badge utilization and related SNF capability to ED Admissions Coordinator? Yes or No?

  o Included ED Lanyard Badge utilization and related SNF capability to EMT? Yes or No?

• EMT includes ED badge in report to admitting ED RN. Similar to the SNF RN report, the EMT states the SNF capability that is related to the transfer diagnosis.
• Admitting ED RN notifies admissions coordinator, case manager, and MD when patient arrives in the ED.

• Instead of reading a large packet of patient transfer documentation, ED interdisciplinary team utilizes the badge to determine whether it is appropriate to divert patient back to the SNF after they evaluate the patient.
Table 9.

*Example of a Timeline for ED Lanyard Badge Project Implementation*

<table>
<thead>
<tr>
<th>Month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
<th>8</th>
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<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF decides to implement project</td>
<td></td>
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<tr>
<td>SNF assembles ED Lanyard Badge Project Team</td>
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<tr>
<td>ED Lanyard Badge Project Team develops business plan, which includes SWOT Analysis, marketing plan, financial plan, and evaluation plan</td>
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<td></td>
</tr>
<tr>
<td>Secure SNF and partner hospital executive leadership support from SNF and hospital; project charters signed</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement marketing plan</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Complete In-service training of SNF and partner hospital staff</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>
Table 9, cont.

<table>
<thead>
<tr>
<th>Month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot for 2 months before data collection</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Collect data for 3 months</td>
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<tr>
<td>Evaluate project and present findings to SNF executive leadership</td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Gain executive leadership approval to continue project</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expand project to second partner hospital</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Present findings at a Care Coordination Collaborative Meeting or conference</td>
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<td></td>
</tr>
</tbody>
</table>

**Timeline**

Once in-service training is completed for SNF and partner hospital ED, the team will pilot the project for two months. As seen on Table 9, during the pilot period, the team will meet every first week of the month to address concerns, obtain staff feedback, and implement changes. The team should develop a timeline to ensure deadlines are met.
EVALUATION PLAN

The ED Lanyard Badge Project’s suggested metrics include preventable admission and 30-day readmission rates, and bed-hold days per month. To identify whether hospital utilization (admission and readmission) was preventable, the project will utilize admitting diagnoses identified in a preventable diagnosis list developed by Walsh et al. (2010). This includes conditions such as anemia, hypertension or hypotension, hyper or hypoglycemia and electrolyte imbalance (for full list, see Appendix E). If the primary diagnosis for the admission is included in the list, this will be coded as a preventable hospitalization or readmission. The operational definitions are as follows:

**Preventable Admission Rates**

**Numerator:** The number of patients who were transferred to the ED and were admitted to the hospital with a preventable diagnosis.

**Denominator:** The total number of SNF patients who were transferred to partner hospital's ED.

**Rationale:** To assess whether sending SNF patients to the hospital ED wearing a lanyard badge containing pertinent clinical information and a list of the transferring SNF’s capabilities could reduce preventable hospitalizations.

**Preventable 30-Day Readmission Rate**

**Numerator:** The number of patients who were transferred to the ED and were readmitted to the hospital with a preventable diagnosis within 30 days of a past hospitalization.

**Denominator:** The total number of SNF patients who were transferred to partner hospital's ED.
**Rationale:** To assess whether sending SNF patients to the hospital ED wearing a lanyard badge containing pertinent clinical information and a list of the transferring SNF’s capabilities could reduce preventable 30-day readmissions.

**Bed-hold Days from Preventable Admissions and Readmissions per Month**

Number of days SNF reserves the bed of SNF patients admitted or readmitted to an acute care hospital per month.

**Rationale:** To assess whether the ED Lanyard Badge Project could reduce bed-hold days;

In the absence of a bed-hold policy, SNFs do not receive payment when patients are not in the facility (Grabowski et al., 2010).

**Plan for Data Collection**

The SNF case manager (who is an existing full-time employee) will record the information from the ED Lanyard Badge Project Data Collection Sheets (Appendix I) onto the ED Lanyard Badge Project Excel Spreadsheet (Appendix J) each month post implementation. The SNF case manager will conduct a retrospective chart analysis of patients who were sent to the partner hospital ED from the SNF to gather baseline data. However, the post-implementation three-month data collection period will start two months after the pilot to ensure adequate training of staff. The SNF case manager will not include patients who were admitted with a non-preventable diagnosis or died in the ED or during transit. It is also recommended that the SNF will also have monthly ED Lanyard Badge Project Team meetings.
The SNF will follow the ED Lanyard Badge Project Timeline (Table 2) to meet deadlines. The timeline also depicts monthly ED Lanyard Badge Project Team meetings and data presentation to executive leadership. The timeline will also provide urgency to the ED Lanyard Badge Project Team and stakeholders.

A readmission is defined as at least two admissions within a 30-day period, even if the diagnoses for both episodes of care are different. For example, if a subject has been admitted in January 1, 2016 and again on January 30, 2016, the subject would be labeled as one having a readmission. The SNF case manager will identify healthcare payor as Medicare, Medi-Cal, Managed Care, or other on the log. Type of healthcare payor will be used as a proxy for the economic status. Medi-Cal (Medicaid) is a government funded project which provides healthcare coverage for low income patients and will be utilized as proxy measure for low income status. This information will be obtained from the ED Lanyard Badge Project Data Collection Sheets (Appendix I). The document will also capture demographic data such as race/ethnicity, in the event that the SNF has the capability to utilize a logistic regression model.

In an effort to be data-driven, the Central Valley SNF provided bed-hold days per month, hospital admission and readmission data from February 2014 to April 2014. It is also recommended to provide diagnosis, healthcare payor, and, days to readmission. The tables and figures below represent variable data that would be collected as a part of the evaluation. The ED Lanyard Badge Project Team is expected to collect the same variables after the implementation of the care coordination tool. An analysis of outcomes of patients sent to ED showed that out of 48 patients, 36 were admitted (75%), six were
readmitted (12.5%), and six were sent back to SNF (see Figure 6). The analysis showed that majority of admissions were congestive heart failure (see Figure 7).

![Figure 6. Number of SNF patients sent to ED from February to April of 2014.](image)

![Figure 7. Diagnosis breakdown of admitted SNF patients from February to April of 2014.](image)

Similar to admissions, the highest number of readmissions had a diagnosis of congestive heart failure (83%) (see Figure 8). Out of these readmissions, the breakdown
of days to readmission, showed that 80% are returning within the second week (see Table 10).

![Pie chart showing diagnosis breakdown of readmitted SNF patients from February to April of 2014.]

*Figure 8. Diagnosis breakdown of readmitted SNF patients from February to April of 2014.*

**Table 10**

*Central Valley SNF Days to Readmission by Diagnosis, February to April of 2014.*

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>0–3 days</th>
<th>4–7 days</th>
<th>8–14 days</th>
<th>15–30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Rate</td>
<td>Count</td>
<td>Rate</td>
</tr>
<tr>
<td>Altered Mental Status</td>
<td>1</td>
<td>100%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Congestive Heart Failure</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 11

Central Valley SNF Bed-hold Days per Month, February to April of 2014.

<table>
<thead>
<tr>
<th>Month</th>
<th>Medi-cal Count</th>
<th>Rate</th>
<th>Medicare Count</th>
<th>Rate</th>
<th>Bed-hold Days per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>56</td>
<td>78%</td>
<td>16</td>
<td>22%</td>
<td>72</td>
</tr>
<tr>
<td>March</td>
<td>71</td>
<td>74%</td>
<td>25</td>
<td>26%</td>
<td>96</td>
</tr>
<tr>
<td>April</td>
<td>80</td>
<td>75%</td>
<td>27</td>
<td>25%</td>
<td>107</td>
</tr>
<tr>
<td>Total</td>
<td>207</td>
<td>75%</td>
<td>68</td>
<td>24%</td>
<td>275</td>
</tr>
</tbody>
</table>

Average Bed-hold Days per month 92

Projected Outcomes. Measures of central tendency (e.g., means, %) will describe patient characteristics. For each outcome, a run chart (p-chart) will be created to provide a visual display of the changes in the metrics over time. The guideline will include samples of run charts for data presentation. A key component of the evaluation of outcomes is the cost-profit analysis (See Table 12).

One study estimated that the cost of a preventable admission and readmission was $6,500 (Ouslander et al., 2010). This value will be used in this project to as an estimate to represent the cost of each episode of care in the cost profit analysis. The GLC district sales managers shared that when patients are admitted or readmitted, the SNF shoulders 25% of the cost (S. Seita, personal communication, October 17, 2016). The cost profit analysis (Table 9) shows the BPCI cost adjustment. Furthermore, the Central Valley SNF district sales manager, historical data showed that the price of each bed-hold day for Medi-cal patients ranged from $150 to $175 (S. Seita, personal communication, October 17, 2016). On the other hand, Medicare beneficiaries’ bed hold day averaged $500 to $750 (S. Seita, personal communication, October 17, 2016). The cost-profit analysis
utilized the average price between the Medicare and Medi-cal of $450 ($150 + $750/2). The Central Valley SNF executive leadership set a target of a 10% decrease in admissions, readmissions, and bed-hold days, which is reflected in the pre and projected post-implementation cost-profit analysis presented in Figure 9. The executive leadership set a projected target of reducing admissions, readmissions, and bed-hold days by 10% after implementation of the care coordination tool.

**Figure 9.** Pre- and post-implementation projected bar graph of SNF costs.

As shown in Table 12, the SNF incurred a total loss of $192,000 from admissions, readmissions, and bed-hold days. If the project achieved the desired 10% reduction in admissions, readmissions, and bed-hold days, the project will be able to produce a projected cost savings of $12,366.58 after a three-month implementation of the care coordination tool (see Table 12).
Table 12

*ED Lanyard Badge Projected Cost Profit Analysis Based on Available Estimates*

<table>
<thead>
<tr>
<th>Month</th>
<th>Admissions</th>
<th>Readmissions</th>
<th>Total Episodes of Care</th>
<th>Hospital Cost at $6,500</th>
<th>SNF Cost in Bundled Payments Model (25%)</th>
<th>Bedhold days</th>
<th>Cost (at $450 per day)</th>
<th>Estimated SNF Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>13</td>
<td>2</td>
<td>15</td>
<td>97,500</td>
<td>24,375</td>
<td>72</td>
<td>32,400</td>
<td>$56,775</td>
</tr>
<tr>
<td>March</td>
<td>13</td>
<td>3</td>
<td>16</td>
<td>104,000</td>
<td>26,000</td>
<td>96</td>
<td>43,200</td>
<td>69,200</td>
</tr>
<tr>
<td>April</td>
<td>10</td>
<td>1</td>
<td>11</td>
<td>71,500</td>
<td>17,875</td>
<td>107</td>
<td>48,150</td>
<td>66,025</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>6</td>
<td>42</td>
<td>273,000</td>
<td>68,250</td>
<td>275</td>
<td>123,750</td>
<td>192,000</td>
</tr>
</tbody>
</table>

2017 (with 10% projected decrease)

<table>
<thead>
<tr>
<th>Month</th>
<th>Admissions</th>
<th>Readmissions</th>
<th>Total Episodes of Care</th>
<th>Hospital Cost at $6,500</th>
<th>SNF Cost in Bundled Payments Model (25%)</th>
<th>Bedhold days</th>
<th>Cost (at $450 per day)</th>
<th>Estimated SNF Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td>91,000</td>
<td>22,750</td>
<td>65</td>
<td>29,250</td>
<td>$52,000</td>
</tr>
<tr>
<td>March</td>
<td>12</td>
<td>3</td>
<td>15</td>
<td>97,500</td>
<td>24,375</td>
<td>86</td>
<td>38,700</td>
<td>63,075</td>
</tr>
<tr>
<td>April</td>
<td>9</td>
<td>1</td>
<td>10</td>
<td>65,000</td>
<td>16,250</td>
<td>96</td>
<td>43,200</td>
<td>59,450</td>
</tr>
<tr>
<td>Subtotal</td>
<td>33</td>
<td>6</td>
<td>39</td>
<td>253,500</td>
<td>63,375</td>
<td>247</td>
<td>111,150</td>
<td>174,525</td>
</tr>
</tbody>
</table>

Financial Investment for ED Lanyard Badge Project (see Table 5) 5,108.42

Total Costs for 2017 179,633.42

Total Savings from ED Lanyard Badge Project $12,366.58
DISCUSSION

Ethical Considerations

The SNF executive director granted permission to utilize facility data to develop a business plan for the organization. The SNF case manager will conduct the retrospective chart review and record data in the ED Badge Data Collection Sheet (Appendix I). To ensure patient anonymity, the SNF case manager will remove all identifiable clinical information and transpose the data onto the ED Badge Data Collection Excel Spreadsheet (see Appendix K), where the medical record numbers will be recoded to a different assigned number.

One ethical consideration is the BPCI program relationship between Central Valley SNF and partner hospital. This relationship has the potential to create bias in the implementation because it incentivizes both organizations to reduce readmissions and admissions through bonuses if hospital utilization was below agreed-upon threshold. Thus, the team must conduct active surveillance of any behavior during implementation that may jeopardize patient safety.

Results

As discussed earlier, Central Valley SNF provided bed-hold days per month, hospital admission and readmission data from February 2014 to April 2014. It is also recommended to provide diagnosis, healthcare payor, and, days to readmission. Based on data, majority of admissions (33%) and readmissions (83.33%) were CHF patients. This presents an opportunity for program improvement for the SNF because the facility has Geriatric Nurse Practitioner who sees patients daily. Furthermore, all staff members have completed specialized training on cardiac diseases. Other capabilities of the SNF that
address this condition are IV fluid administration and electrocardiogram. The facility can also perform the x-ray, and laboratory tests immediately.

**Strengths**

The project requires little financial investment. The financial plan showed that the care coordination tool only required an initial investment of $5,108.42 from the SNF, which includes a sufficient batch of badges and staff time for three months. As stated earlier, the estimated cost of a SNF Medicare beneficiary hospitalization was $6,500 (Ouslander et al., 2010). This shows that one prevented hospitalization is enough to offset the cost of the ED Lanyard Badge Project.

Upon testing the care coordination tool, partner hospital ED staff members stated that they normally would take 15 to 30 minutes to gather the data from the lanyard badge. The SNF discharging RN required only 5 to 10 minutes to gather the information from the medical records and complete the badge. This shows that the badge has the potential to increase efficiency and cost savings because the SNF discharging RN, being familiar with the patient and location of the information from the medical record, required less time to gather the information.

When the expert panel was asked about the likelihood that the project will improve care coordination between the two settings, the rating was 4.75. This shows that these members are confident that the project has the potential to enhance the process of patient transfers from the SNF to the ED.

**Limitations**

A limitation of the study is that it used a large SNF with the capability to provide a high level of care. The care coordination tool may not be generalizable to smaller
facilities with lower levels of care. Further research is suggested to understand the
generalizability of the care coordination tool in smaller facilities with lower capabilities
and hospitals in saturated areas. Two members of the expert panel, an ED Director and
RN who work for a community hospital, both stated that hospital executive leadership
may not support the concept of diverting patients because they are competing with big
hospitals for patients.

Additional limiting factors include short baseline period and lack of alternate pre-
intervention information metrics. Only three months of data were available. The limited
period reduced the ability to perform time series analysis to see if the tool would be
effective over time. Furthermore, the project used 2014 data, which is two years old.
With regard to demographic data, the Central Valley SNF was not able to provide
information about possible variables that can affect utilization, such as comorbidities and
severity of illness. Collecting these data in future business plans or studies will be critical
in determining relationships between the two settings.

Another limiting factor is the dependency of success on changing the culture of
the ED. According to a geriatrician from the expert panel, the pathway of least resistance
is admission or readmission for work-up. Thus, ED physicians’ buy-in is a critical factor
in the project.

**Central Valley SNF Feedback**

The DNP author presented a PowerPoint Presentation of the business plan (see
Appendix J) to executive leadership of the Central Valley SNF (composed of the
administrator, assistant administrator, district sales manager, and director of business
development). The team agreed that majority of the suggestions of the expert panel were appropriate and commended several parts of the business plan.

As stated earlier, they found the educational materials effective. They commented that the one-page teaching tool for patients and family members communicates the objectives and the benefits of the project concisely. The administrator also stated that the tri-fold teaching tool for staff members made it convenient for staff members to review the information after the education because it can be placed in their pocket. They executive leadership team also approved the estimated time spent on the project by the staff members.

The team also approved expert panel revisions of the ED Lanyard Badge Tool. They agreed that turning the badge into a foldable document mitigated risk for exposing patient health information. The administrator added that the bright yellow color of the cover enhanced the visibility of the badge for ED staff members.

On the other hand, the team disagreed with components of the financial plan. Firstly, they did not agree that the cost should include the time spent by staff, especially the case manager. The administrator stated that the case manager is at the nucleus of care coordination and the badge makes executing safe transitions easier. Thus, activities related to the project should be considered as a collateral duty. The team also disagreed with the inclusion the cost of bed-hold days in the financial plan and evaluation due to the high level of effort of tracking the metric. The administrator stated that the only way to track this is by looking at each chart separately. She added that a straightforward evaluation plan of concentrating on hospital utilization is more appropriate.
Overall, the executive leadership team agreed that the business plan was "excellent." The administrator stated that the detailed step-by-step approach makes the task of operationalizing the project, from engagement of partner hospital to execution, a realistic goal. Unfortunately, since the Central Valley SNF belongs to a chain of facilities, the administrator stated that the facility cannot implement the project without the approval from the Regional Office. The administrator stated that the team plans to present it to their Regional Office in two months and will be asking for assistance from the DNP author.
CONCLUSION

The ED Lanyard Badge Program has the potential to enhance care coordination between the SNF and the ED. One member of the expert panel also suggested conducting future studies that investigate if the business plan can be implemented in similar settings that are involved in care transitions, such as hospitals and post-acute care providers (e.g., home health agency, physician’s office, and hospice). Since the care coordination tool does not require an additional full-time position or high financial investment, it is easier for healthcare organizations to adopt it. However, a collaborative infrastructure composed of SNFs, EDs, and other stakeholders (such as ambulance companies) is required to implement the intervention.

A decrease in SNF hospitalization is an important area of emphasis for CMS. This business plan can serve as a guide for researchers to design an intervention study with a rigorous design. In the future, researchers can utilize a larger sample size from multiple nursing homes and hospitals to enable randomization and comparison of outcomes in a statistically meaningful manner.

The reduction of hospital utilization among SNF patients benefits everyone. It benefits the hospital because it can reduce readmission and avoid Medicare penalties. For the SNF, low readmission rates demonstrate the ability to provide effective patient care to acute care partners. Furthermore, the patient benefits by receiving the appropriate level of care without the constant movement from one facility to another. Given the potential patient risks and economic repercussions of a hospitalization, designing a guideline that helps ED staff members to determine whether it is appropriate to divert a patient back to the facility may be beneficial.
REFERENCES


https://www.bcenpa.com/Providers/freedomblue/SNFspecificissues.doc


doi:10.1001/jama.2012.216607


Mor, V., Intrator, O., & Feng, Z. G. (2010). The revolving door of rehospitalization from skilled nursing facilities. *Health Affairs, 29*(1), 57-64.


Onwudiwe, N. C., Stuart, B., Zuckerman, I. H., & Sorkin, J. D. (2011). Obesity and Medicare Expenditure: Accounting for Age-Related Height Loss. *Obesity, 19*(1), 204-211.


APPENDIX A

FRAMEWORK APPROVAL EMAIL

Inquiry regarding Adaptation of Logic Model
Lisa Wyatt Knowlton <lwyattknowlton@gmail.com>
To: Joseph Marc De Vajra <jpdov181@csu.fullerton.edu>

Hi Joseph,

Thank you for your courtesy. Yes, you may cite us.
However, there are some challenges with the application of the "outputs" column. And, there could be, should be, specification of the outcomes against time. If you want to arrange a call, I'm glad to chat with you briefly on these matters.

Regards, thank you, and best wishes!

Lisa

Lisa Wyatt Knowlton, Ed.D.
APPENDIX B

LIST OF PREVENTABLE ADMISSIONS/READMISSIONS

1. anemia
2. congestive heart failure (CHF)
3. hypertension
4. hypotension
5. hyper and hypoglycemia diabetes with ketoacidosis or hypersmolar coma
6. dehydration
7. acute renal failure
8. hypokalemia
9. hyponatremia
10. constipation
11. fecal impaction
12. obstipation
13. clostridium difficile
14. gastroenteritis with nausea and vomiting
15. cellulitis
16. pneumonia
17. bronchitis
18. urinary tract infection (UTI)
19. falls and trauma
20. altered mental status/acute confusion/delirium
21. psychosis
22. severe agitation
23. organic brain syndrome
24. chronic obstructive pulmonary disease (COPD)
25. asthma
26. chronic bronchitis
27. weight loss
28. nutritional deficiencies
29. adult failure to thrive
30. seizures

APPENDIX C

CENTRAL VALLEY SNF STUDY APPROVAL

January 26, 2017

RE: Permission to Conduct Research Study, Use Copy of Emergency Lanyard Badge, and Show Emergency Lanyard Badge in Doctor of Nursing Practice Project

To Whom It May Concern:

This is to certify that the Joseph Marc A. de Veyra, a student of California State University, Doctor of Nursing Practice Consortium Program (Fullerton), has been granted the permission to conduct a research study at Golden Living Center Fresno. The study is regarding the effectiveness of the Emergency Department Lanyard Badge Program.

With this approval, Mr. de Veyra will be able to conduct the research study, utilize data, use a copy of the Emergency Lanyard Badge, and show the Emergency Lanyard Badge in his Doctor of Nursing Practice Project. Should this study be published, only pooled results will be documented.

Thank you for your time and consideration.

Sincerely,

Lucille E. Epperson
Executive Director
Golden Living Center Fresno
**APPENDIX D**

**ED LANYARD BADGE PROJECT EVALUATION FORM**

---

### Emergency Department Lanyard Badge Project Evaluation Form

<table>
<thead>
<tr>
<th>Name:</th>
<th>Title:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Organization:</td>
</tr>
<tr>
<td>Years of Experience in Skilled Nursing Facility (SNF):</td>
<td>Emergency Department (ED):</td>
</tr>
<tr>
<td>Years of Experience in Care Coordination:</td>
<td>Quality Improvement:</td>
</tr>
<tr>
<td>Licensure Certification:</td>
<td>Email:</td>
</tr>
</tbody>
</table>

### Project Evaluation

<table>
<thead>
<tr>
<th>Please indicate your agreement with the following statements</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The ED Badge Project Business Plan structure was presented in a way that helped me understand the implementation process.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2. I have a clear understanding of the ED Badge Project objectives.</td>
<td></td>
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</tr>
<tr>
<td>3. It is realistic for my organization to adopt the ED Lanyard Badge Project.</td>
<td></td>
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</tr>
<tr>
<td>4. It is realistic for my partner organization (SNF or hospital) to adopt the ED Badge Project.</td>
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</tr>
<tr>
<td>5. Adopting the ED Badge Project can reduce unnecessary admissions and readmissions.</td>
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<tr>
<td>6. Adopting the ED Badge Project can reduce SNF bed-held days.</td>
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<tr>
<td>7. The ED Lanyard Badge Project can enhance care coordination between the SNF and the ED.</td>
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<tr>
<td>8. The Background presents the project thoroughly and effectively, including the company’s mission, objectives, and overall strategic direction.</td>
<td></td>
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</tr>
<tr>
<td>9. The Marketing plan clearly outlines a realistic marketing strategy to engage key executive leadership, staff, and other key stakeholders.</td>
<td></td>
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</tr>
<tr>
<td>10. The Educational plan and materials (brochure, competency forms, etc.) clearly presents a functional strategy to educate ED Badge Project participants about the project and assess learning outcomes.</td>
<td></td>
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<tr>
<td>11. The Business plan presents an accurate, realistic, and achievable Financial Plan for the project and clearly identifies and effectively justifies possible financial investment.</td>
<td></td>
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<tr>
<td>12. The Implementation Plan developed an operational plan that clearly identifies needs relating to logistics, human resources, facilities, and clinical infrastructure.</td>
<td></td>
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</tr>
<tr>
<td>13. The Evaluation of Outcomes section fully describes the metrics, analysis, and the data gathering process.</td>
<td></td>
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</tr>
<tr>
<td>14. My organization is interested in participating in the ED Lanyard Badge Project.</td>
<td></td>
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</tr>
</tbody>
</table>
### Emergency Department Lanyard Badge Project Evaluation Form

15. What part of the business plan did you find most useful (what worked and why)?

16. What part of the business plan did you find least useful (and why)?

17. What topics/sections related to carecoordination would you like to add to the business plan?

18. How could the business plan be improved?

19. Please list potential barriers to implementing the project:
   - Operational barriers (and potential solutions):
   - Legal barriers (and potential solutions):
   - Clinical barriers (and potential solutions):
   - Other barriers (and potential solutions):

20. Additional comments.
ED LANYARD BADGE PROJECT CHARTER

Emergency Department Lanyard Badge Project Charter

Mission
To organize skilled nursing facilities and partner hospitals and reduce the burden of illness for people living in the community, with a specific focus on improving key systems such as care coordination and information exchange during care transitions to prevent unnecessary utilization.

Vision
The vision is to deliver the safest and highest quality healthcare for the community through a collaborative approach.

Collaborative Goals
1. To develop a sustainable ED Lanyard Badge Project infrastructure
2. To reduce partner hospital preventable admissions and 30-day readmission from SNF
3. To widely disseminate, implement, and evaluate sustainable ED Lanyard Badge Project infrastructure to enhance patient safety and utilization management during care transitions.

ED Lanyard Badge Project Team Responsibilities

Meeting Attendance: Members must try attend in-person ED Lanyard Badge Project Team meetings. Leader may send a designee to meetings in their absence.

Organization Advocate: Executive Leaders are responsible for promoting the goals of ED Lanyard Badge Project and shall foster an all-teach all-learn philosophy throughout the work of the Collaborative.

Commitment: Members shall join in a commitment to:

- Mentor and/or partner with ED Lanyard Badge Project Team members as opportunities present themselves, in efforts related to the Collaborative goals.
- Share data and support analyses.
- Promote implementation of ED Lanyard Badge Project.

Figure 1. Final Version of Emergency Department Lanyard Badge Tool Cover (left) and Inside (right).
**Decision Making:** In the spirit of the mission, all project decision-making shall be conducted based on the philosophy of mutual respect. The ED Lanyard Badge Project Team will use consensus decision making.

**Confidentiality:** Members shall safeguard the confidentiality of personal health information data—whether written, photographed, or electronically recorded and whether generated or acquired by the team—which can be used to identify an individual patient, practitioner, hospital, facility, health plan, or patient population.

**ED Lanyard Badge Project Team Member Signature**

Name:_________________________________Signature:__________________________

Date:__________________ Organization:_______________________________________

Email:_________________________________________________________________

Telephone:________________________________________________________________

Circle Type of Organization:

Hospital  Skilled  Other  Other:____________________

Nursing Facility

Please complete this form, sign it manually, and fax or email to:

Project Manager Name:_______________________________________________

E-mail: ____________________________________________________________

Fax: _______________________________________________________________
APPENDIX F
ED LANYARD BADGE PROJECT TRI-FOLD BROCHURE

Implementation Protocol (continued):
- During the report, the SHF RN should also emphasize SHF's capability related to the resident's transfer diagnosis. For example, if a patient is transferred for supported UTI, the SHF RN will state the facility has the ability to administer IV antibiotics in the report.
- Once patient leaves the facility, SHF RN includes the following information in the transfer note in PointClickCare (or designated facility electronic health record platform):
  - Patient left with ED Lanyard Badge? Yes or No?
  - ED Lanyard Badge utilization and related SHF capability reported to
    - ED Admissions Coordinator? Yes or No?
    - EMT? Yes or No?
- HT includes ED badge in report to admitting ED RN. Similar to the SHF RN report, the EMT states the SHF capability related to the transfer diagnosis.
- Admitting ED RN notifies admissions coordinator, case manager, and NO when patient arrives to the ED.
- Instead of making a large patient of patient transfer documentation, ED interdisciplinary team utilizes the badge to determine whether it is appropriate to direct patient back to the SHF.

Preventable Hospitalizations/Readmissions
(Walsh et al., 2010)
1. Asthma
2. Congestive heart failure (CHF)
3. Hypertension
4. Hypoglycemia in diabetes with ketoads or hyperglycemic coma
5. Dehydration
6. Acute renal failure
7. Hypokalemia
8. Hypoglycemia
9. Constipation
10. Fecal impaction
11. Overtreatment
12. Clostridium difficile
13. Gastroesophageal reflux disease and vomiting
14. Wound care
15. Pneumonia
16. Bronchitis
17. Urinary tract infection (UTI)
18. Falls and trauma
19. Acute renal status/acute renal failure/renal disease/acute renal failure
20. Psychosis
21. Severe agitation
22. Organic brain syndrome
23. Chronic obstructive pulmonary disease (COPD)
24. Asthma
25. Chronic bronchitis
26. Weight loss
27. Nutritional deficiencies
28. Alzheimer’s disease
29. Seizures

References

For more information, please contact:
Project manager name: __________________
Phone: ________________

Emergency Department
Lanyard Badge: a Care Coordination Tool for SNF Patients sent to ED

Golden Living Center (GLC) Fresno
Address: 2715 Fresno St, Fresno, CA 93721
Phone: (559) 486-4433

Background
Skilled nursing facility (SNF) residents account for more than 2.2 million hospital emergency department (ED) visits in the United States each year. Compared with other ED patients, nursing home residents (i.e., patients have higher medical acuity and complexity (Wang et al., 2011). The ED, therefore, serves a vital role in the treatment and coordination, including delivering necessary and immediate care for a deteriorating medical condition or injury and offering a channel for hospital admission.
Approximately 74 percent of SNF patients arrive at the ED without vital documentation, such as vital signs, baseline cognitive function, code status, and pertinent disease information, which results in poor care coordination between the two settings (Pazos, 2005; Towner et al., 2006).

From a healthcare delivery system perspective, the lack of transfer information accessible to ED clinicians results in unnecessary hospitalization (e.g., duplication of tests/procedures, hospitalization, and readmissions) among SNF patients (Keeler et al., 2013).

**Objective:** To reduce preventable patient hospital admissions and readmissions.

**Implementation Protocol:**
- A SNF primary provider orders the transfer of the patient to the ED.
- The SNF discharge RN completes ED lanyard badge information upon receiving the transfer order. SNF discharge RNs are not allowed to pre-fill the information. This is to help ensure the information populated is up to date and accurate.
- The SNF discharge RN informs patients about placement of the lanyard as part of the ED Lanyard Badge Project.
- SNF RN places ED lanyard badge on patient in front of ambulance emergency medical technician (EMT) before transfer.
- SNF RN educates EMT about badge utilization.
- Upon leaving the facility, SNF RN calls partner hospital ED Admissions Coordinator to notify hospital of patient transfer. SNF RN stores that patient has the lanyard badge and includes the purpose and utilization in the transfer report. The tool, which includes the SNF capabilities list, documents pertinent clinical information and the EMT's services to guide ED staff decision-making about transfer back to the SNF. During the report, the SNF RN should also emphasize related SNF capability related to resident's transfer diagnosis. For example, if a patient is transferred with a suspected UTI, the SNF RN will state the facility has the ability to administer IV antibiotics in the report.

**ED Lanyard Badge Tool, Cover (Top) and Inside (Bottom).** The project requires that staff at a SNF place a badge, containing essential patient data and capabilities, on patients before sending them to the ED. The ED lanyard badge documents services that the facility provides (i.e., information medication administration, wound care, laboratory tests, etc.) to assist ED staff in deciding whether transferring residents back to the facility.
## APPENDIX G

### ED LANYARD BADGE PROJECT COMPETENCY FORM

<table>
<thead>
<tr>
<th>NAME:</th>
<th>POSITION:</th>
<th>ORGANIZATION/UNIT:</th>
<th>DATE:</th>
</tr>
</thead>
</table>

### EMERGENCY DEPARTMENT (ED) LANYARD BADGE PROJECT COMPETENCY FORM

#### COMPETENCY LEVEL CODES:

1. Little or no experience
2. Needs practice or assistance
3. Competent, performs independently
4. Competent, completes independently and is able to assess others

#### ASSESSMENT METHODS:

A. Verbalizes policy, procedure or standard
B. Direct Observation/Medical Record
C. Demonstration/Return Demonstration
D. Certification/Skills Lab/Post Test
E. Evaluation of a Mock drill, event or survey
F. Other

#### COMPETENCY STATEMENT:

<table>
<thead>
<tr>
<th>Date</th>
<th>Competency Level</th>
<th>Assessment Methods</th>
<th>Initial(s)</th>
<th>Date and Re-evaluation of Competency Level for previous scores or level 1 or 2</th>
</tr>
</thead>
</table>

1. Able to identify preventable admission readmission diagnoses such as:
   a) Congestive Heart Failure
   b) Urinary Tract Infection
   c) Electrolyte Imbalance
   d) Pneumonia

2. Verbalizes the ED Lanyard Badge Project Objectives

3. Demonstrates how to complete the ED Lanyard Badge

4. Verbalizes the procedure utilizing the ED Lanyard Badge during care transitions

5. Verbalizes how to obtain the ED Lanyard Badge

6. Verbalizes the procedure of the ED Lanyard Badge Project

7. Verbalizes names and contact information of ED Lanyard Badge Project members

8. Demonstrates ability to perform patient education on ED Lanyard Badge Project

9. Understands that patient health information must be protected during care transitions

10. Demonstrates the ability to identify actual or expected ED Lanyard Badge Project benefits to organization and patient population

Employee: ___________________________ Date: ________________

Evaluator: ___________________________ Date: ________________
APPENDIX H
ED LANYARD BADGE PATIENT EDUCATION SHEET

Emergency Department Lanyard Badge Patient Education Sheet

A Project of Skilled Nursing Facility with (insert partner hospital)

What is This?

- The Emergency Department (ED) Lanyard Badge is a tool to facilitate the communication between the healthcare providers of the SNF and ED.
- The goal is to prevent unnecessary admission or readmission (return) to the hospital.
- It is important to avoid being admitted to the hospital because:
  - Entry and reentry into SNFs and hospitals are associated with negative patient outcomes:
    - Delirium
    - Decreased independence in activities of daily living
    - Patient and caregiver anxiety (Advance Directive - The Living Will)
  - Increased risk for infection and falls.

What are the benefits of avoiding hospitalization?

- Spare you from having to be transferred from one setting to another.
- Save your family from possible travel costs.
- “There is no place like home”

What do I need to do next?

- If you have questions regarding the project, feel free to discuss them with your nurse or your physician.
- Inform your family of the ED Lanyard Badge.

If you want to be a ED Lanyard Badge Patient Champion, contact:
APPENDIX I

ED LANYARD BADGE DATA COLLECTION SHEET

<table>
<thead>
<tr>
<th>Emergency Department (ED) Lanyard Badge Data Collection Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient De-identified Record Number:</strong> ____________________</td>
</tr>
<tr>
<td><strong>Comorbidities:</strong> __________________________________________</td>
</tr>
<tr>
<td><strong>Hospital ED Patient Transferred to:</strong> ______________________</td>
</tr>
<tr>
<td><strong>Reason for ED Transfer:</strong> _________________________________</td>
</tr>
<tr>
<td><strong>Age:</strong> ____ <strong>ED Transfer Date (MM/DD/YYYY):</strong> <em><strong>/</strong></em>/___</td>
</tr>
</tbody>
</table>

Place an "X" in each circle below.

1. **Gender:** ☐ Male ☐ Female
2. **Race/Ethnicity**
   - American Indian or Alaska Native
   - Asian
   - Black or African American
   - Hispanic or Latino
   - Native Hawaiian or Other Pacific Islander
   - White
   - Other
3. **Patient wearing ED Lanyard Badge upon Transfer:** ☐ Yes ☐ No
4. **Education:**
   - □ Grade School
   - □ High School
   - □ College
   - □ Other
5. **Healthcare Payor**
   - □ Medicare Fee for Service
   - □ Medical
   - □ Managed Care
   - □ Managed Medical
   - □ Other
6. **Was the patient admitted to a hospital in the last 30 days?** ☐ Yes ☐ No
   a. If the answer is yes, when was the last admission: (MM/DD/YYYY): ___/___/___
   b. What was the admitting diagnosis for the last admission: ______________________
7. **Outcome of ED Visit**
   - □ Patient sent back to SNF without hospital admission
   - □ Observation
   - □ Acute Care Hospitalization; Admitting Dx: __________
   - □ Dx Code (if available): __________
8. **Was the patient on acute care hospitalization, was it a preventable hospitalization?** ☐ Yes ☐ No
9. If patient had an acute care hospitalization, was it a 30-day readmission? ☐ Yes ☐ No
10. **If patient was admitted, was it a 30-day readmission?** ☐ Yes ☐ No
11. **If this was a 30-day readmission, was the patient admitted for the same diagnosis?** ☐ Yes ☐ No

*Diagnosis (Do) **Skilled Nursing Facility (SNF)*

Completed by (Please print): ______________________

Date: ______/_____/______

*Note: The table contains a series of checkboxes and fields for data collection related to patient demographics, hospitalization details, and outcomes. The document is designed to be used as a tool for tracking and reporting on patients' hospitalizations.*
APPENDIX J

POWERPOINT PRESENTATION OF BUSINESS PLAN

Emergency Department Lanyard Badge Project: Care Coordination Guideline for Skilled Nursing Facilities

Joseph de Veyra, MSN, RN, PHN, PCCN, CNL
Project Chair: AJ Jadalla, PhD, RN
Committee Member: Margaret Brady, PhD, RN, CPNP
California State University, Fullerton
February 22, 2017
Background

• In New York, Skilled Nursing Facility (SNF) hospitalizations amounted to $972 million (Grabowski et al., 2007).
• 75% of SNF pts experience an Emergency Department (ED) visits annually (Dwyer et al., 2014)
• SNF hospitalization rates can be as 59% (Dwyer et al., 2014)
• More than half were preventable (Dwyer et al., 2014)
Local Setting

- Central Valley is an agricultural region in California (U.S. Census Bureau, 2012)
- One of the top five regions in California with the highest number of individuals living below the poverty level (U.S. Census Bureau, 2012)
- Central Valley has a higher readmission rate (18.8%) compared to the state (18.5%) and the nation (18.6%) (Centers for Medicare & Medicaid Services, 2015)
Significance: Effects on Patient Outcomes

- Entry and reentry into SNFs and hospitals are associated with negative patient outcomes:
  - Delirium
  - Decreased independence in activities of daily living
  - Patient and caregiver anxiety (Dwyer, 2014).
Effects on Healthcare Organizations

- Hospital: financial repercussion of shouldering the 30-day readmission cost (Brock et al., 2013)
- SNF: loses money for each bed day that a patient is hospitalized (Mor et al., 2010).
- Poor care transitions can also lead to lower patient satisfaction scores and poor reputation (Walsh et al., 2010)
Poor Communication Equates to Preventable Hospitalization

- SNF patients transferred to the ED have high a chance for hospitalization, even if the condition can be treated at the facility (Arendts & Howard, 2010)
- Tsai, Tsai, and Huang (2016) found that the main reason for the high prevalence of hospitalization is missing information during transfers
Literature Review

- There is a gap in communication b/w SNF & ED (Arendts & Howard, 2010; Griffiths et al., 2014)
- Care Coordination
  - Quality Improvement Organization program reduced the average readmission rate per 1,000 Medicare beneficiaries by 5.7% in the United States
  - Care Transitions Coach produced a significant decrease in readmissions but requires an annual investment of $67,600 (Coleman et al., 2006)
Key Factors in SNF Hospitalization

- Male residents have a higher rate of hospitalizations (Carter, 2003; Mor, Papandonatos, & Miller, 2005)
- African American residents were more likely to be transferred to an acute care setting. (Mor et al., 2005)
- Literature review identified gender, race, ethnicity, age, and healthcare payor as key factors in hospital utilization (Carter, 2003; Mor, Papandonatos, & Miller, 2005; Intrator, Castle, & Mor, 1999; Grabowski et al., 2008)
Call to Action

- Given the potential patient risks and economic repercussions of hospitalization, developing a plan to improve care coordination between the SNF and hospital to determine whether it is appropriate to divert a patient back to the facility may be beneficial.
Purpose

- To develop a business plan to of implementation and evaluation of a lanyard badge program for care coordination and assess its impact on preventable admission, 30-day readmission rates, and bed days in a Central Valley SNF.
- This plan requires a SNF to make it their policy to place a badge with a detachable lanyard containing essential patient’s clinical data as well as the SNF capabilities list on patients before sending them to the ED.
- The project will include a suggested evaluation protocol to assess the demographic characteristics of readmitted patients in the ED Lanyard Badge Project.
Expert Panel Revisions

- To ensure feasibility, the lanyard badge and the business plan were sent to an expert panel consisting of qualified SNF and ED representatives for evaluation.
- Members shared that there is high risk of endangering patient health information in using a lanyard with patient healthcare information visible to others.
- Solution: Use a foldable badge to cover the information. A SNF geriatrician from the expert panel also suggested using a bright color for the cover to increase visibility of the badge. To add writing space, the panel suggested to transfer the capabilities list at the back of the cover.
## Recommendation: ED Lanyard Badge Project

### CAPABILITIES
- Full Time Nurse Practitioner
- Full Time Registered Dietitian (RD)
- M.D.
- Transfer (Initiation and maintenance)
- Infusion
- PICC Line
- NICU Management
- Total Parenteral Nutrition
- Isolation (Neg, HIV, Hep etc)
- Surgical Site Management
- Telemedicine Management
- DSO
- D/C Lab Tests
- Stat X-rays
- Venous Access
- Occupational, Physical, and Speech Therapies
- Asthma/Bronchodilator
- IM
- Oxygen Saturation Monitoring
- Inhaler Treatments
- Insulin
- Advanced Cardiovascular Life Support (ACLS)
- Automatic Defibrillator

### Name: __________________ Date of Transfer: ___________

### Specific Chief Complaint/Reason for Transfer:

<table>
<thead>
<tr>
<th>Transfer</th>
<th>Reason</th>
</tr>
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### Recent Pertinent Labs:

<table>
<thead>
<tr>
<th>Lab Test</th>
<th>Value</th>
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### Baseline VS:

<table>
<thead>
<tr>
<th>VS Item</th>
<th>Value</th>
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### Medications related to Chief Complaint (include last dose):

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
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### POLST:

- [ ] Full Code
- [x] DNR

### Baseline VS:

<table>
<thead>
<tr>
<th>VS Item</th>
<th>Value</th>
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<tr>
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### Past/current psychiatric history:

<table>
<thead>
<tr>
<th>History</th>
<th>Description</th>
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### Bowel/Bladder:

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<tr>
<th>Function</th>
<th>Status</th>
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### Allergies:

<table>
<thead>
<tr>
<th>Allergen</th>
<th>Reactions</th>
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</table>

### Immunization:

- [ ] Pneumococcal
- [ ] Flu

### Hospital Admission within 30 days:

- [ ] Yes
- [ ] No

### PCP:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
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### D/C RN:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
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### Next Shirt RN:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
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</table>

### Family Contact:

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
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</table>

### INSERT MAR IN FOLD

*This form is designed to be inserted into a lanyard badge for quick reference during patient transfers.*
ED Lanyard Badge Project

- Requires SNF to place a lanyard badge, containing essential data and the capabilities list, on patients before transferring to ED.
- Central Valley SNF collaborated with ED staff members from partner hospitals to determine clinical components in the badge.
- Face validity: elements based on the conceptual framework of a mobile patient health record (Coleman et al., 2006)
Conceptual Model - Logic Model

- Logic Model is based on the Theory Driven Evaluation, which is evaluation approach often used in government initiatives (Donaldson, 2003)
- Graphical representation of the implementation flow and linkages between different elements in a project (McLaughlin & Jordan, 2004)
- Proven to be a useful tool for project management in health care (Kaplan & Garrett, 2005; Lando, Williams, Williams, & Sturgis, 2006)
### Logic Model (See Page 6)

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Outputs</th>
<th>Outcomes – Impact</th>
</tr>
</thead>
</table>
| **Human resources:**  
  - Staff members  
  - Executive leadership  
  - Volunteers  
  - Program partners | **Action items that the program team must implement in order to produce the desired results:**  
  - Conduct workshops, meetings, and training sessions  
  - Deliver services  
  - Develop program protocol and training curriculum | **Effect of activities on:**  
  - Participant  
  - Clients  
  - Program Partners  
  - Executive leadership  
  - Customers or patients | **Short-term, Intermediate, and Long-term Benefits of program:**  
  - Learning  
  - Awareness  
  - Knowledge  
  - Attitudes  
  - Cost savings  
  - Change in conditions (such as social, economic, civic, environmental) |
| **Material resources:**  
  - Technology  
  - Equipment | | | |
| **Financial resources:**  
  - Investment | | | |

**Assumptions**  
Expectations about how and why a program will solve a particular problem, generate new possibilities, and maximize resource utilization.

**External Factors**  
Community characteristics (such as economic status, health literacy, community resources, etc.), social and environmental determinants of health, and healthcare market assumptions.
Marketing Plan

• Marketing objectives include
  — (1) to secure support from executive leadership to provide resources (staff, meeting time, finances, etc.) for ED Badge Project
  — (2) increase SNF and partner hospital staff awareness and use of ED Badge Project
  — (3) communicate ED Badge Project findings to stakeholders’ executive
Marketing Activities (Outlined in page 14)

- **SNF and partner hospital ED staff meeting.** ED Badge project team members should leverage interdisciplinary staff meetings to share information about the project and give brochure (attached). Upon recruitment, project champions should sign the ED Badge Project Charter (Appendix B).

- **Executive leadership (one-on-one or group) meeting.**

- **SNF resident meeting.**

- **Care coordination collaborative meetings/conferences.** The ED Badge Project Team should also aspire to present the findings and lessons in conferences.
Financial Plan

- Projections based on GLC and expert panel feedback

<table>
<thead>
<tr>
<th>EXPENSE</th>
<th>Setup Cost</th>
<th>Reimbursement Cost</th>
<th>Full Time Employee Equivalent</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF Case Manager</td>
<td>$0</td>
<td>$0</td>
<td>0.1</td>
<td>ED Banner Project: Attendance dinners, in-service training, role/unit engagement Implementation, and data analysis are integrated into current workflow.</td>
</tr>
<tr>
<td>ED Lanyard Badge Project EN Champion's</td>
<td>$0</td>
<td>$0</td>
<td>0.1</td>
<td>ED Badge Project: Attendance dinners, in-service training, role/unit engagement, implementation, and data analysis are integrated into current workflow.</td>
</tr>
<tr>
<td>ED Lanyard Badge</td>
<td>$19</td>
<td>To be determined</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badge (100 badges) (unit cost = $2.19)</td>
<td>$250</td>
<td>To be determined</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detachable Lanyard (100 pieces) (unit cost = $2.50)</td>
<td>$44</td>
<td>To be determined</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Badge holder (100 pieces) (unit cost = $0.44)</td>
<td>$913</td>
<td>$0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training Expenses</td>
<td>$0</td>
<td>$0</td>
<td></td>
<td>Training of new registered nurses due to staff turnover.</td>
</tr>
<tr>
<td>ED Badge Project Team Members</td>
<td>$500</td>
<td>To be determined</td>
<td></td>
<td>ED Badge Project Team Members: Attendance dinners, in-service training, role/unit engagement, implementation, and data analysis are integrated into current workflow.</td>
</tr>
<tr>
<td>Educational Materials</td>
<td>$500</td>
<td>To be determined</td>
<td></td>
<td>To cover costs, staff meeting are encouraged to share printed copies.</td>
</tr>
<tr>
<td>(40 copies) (unit cost of printed Guideline = $4)</td>
<td>$400</td>
<td>To be determined</td>
<td></td>
<td>Marketing material will cost $40 to $400 depending on quantity.</td>
</tr>
<tr>
<td>Marketing Expenses</td>
<td>$400</td>
<td>To be determined</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REVENUE</th>
<th>ACTUAL</th>
<th>POTENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventable SNF admission/ readmission</td>
<td>$0</td>
<td>$6.50 per episode of care</td>
</tr>
</tbody>
</table>
Implementation Plan

• This section will include:
  – ED Badge Project Team formation
  – pre-implementation tasks
  – ED Lanyard Badge Project Protocol
  – Timeline
  – Evaluation Plan.
Project Team Formation

- **Project manager (SNF case manager).** This individual has a general understanding and involvement in care coordination, utilization management, and quality improvement. In charge of management, resource utilization, and data analysis.

- **Executive champion (SNF administrator).** Can help put the project in the context of the facility’s mission and vision. This individual will also be in-charge of obtaining support from the partner hospital. If possible, the ED Badge Project Team should recruit an executive champion from the partner hospital.

- **Project champion (senior registered nurse).** The project champion is a clinical leader who is well-respected among peers. It is recommended to have at least three senior registered nurses (2 dayshift SNF RNs, 2 nightshift SNF RNs, and 2 partner hospital ED RNs).

- **Process owners (Front-line staff members).** Bring a “front-line” point of view
# Pre-implementation Tasks: SWOT Analysis

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS</strong></td>
<td><strong>WEAKNESSES</strong></td>
</tr>
<tr>
<td>INTERNAL</td>
<td></td>
</tr>
<tr>
<td>• Staff commitment to improving patient outcomes</td>
<td>• Recent high staff turnover</td>
</tr>
<tr>
<td>• Availability of clinical and financial resources to implement care coordination project</td>
<td>• Inadequate staff education regarding repercussions of preventable hospitalizations and readmissions</td>
</tr>
<tr>
<td>• Decrease hold beds in SNF</td>
<td></td>
</tr>
<tr>
<td><strong>OPPORTUNITIES</strong></td>
<td><strong>THREATS</strong></td>
</tr>
<tr>
<td>EXTERNAL</td>
<td></td>
</tr>
<tr>
<td>• To embark in a multi-organizational care coordination project</td>
<td>• High patient acuity</td>
</tr>
<tr>
<td>• To incorporate best practices based on current evidence</td>
<td>• Low patient health literacy</td>
</tr>
<tr>
<td>• To promote patient-centered care</td>
<td>• Several competing Quality Improvement projects</td>
</tr>
<tr>
<td>• To foster teamwork among SNF and partner hospital staff</td>
<td>• ED Badge Project may be perceived as additional work by participating organizations’ staff</td>
</tr>
</tbody>
</table>
Obtain Executive Leadership support

Before meeting with executive leadership, the ED Badge Project Team representative must be prepared with the following “talking points.”

- **Absence of vital communication during SNF patient transfers and repercussions**
- **Readmissions cost Medicare an estimated $4.34 billion annually.** In addition, the readmission rate from the skilled nursing facility setting grew by 29% from the year 2000 to 2006 (Mor, Intrator, & Feng, 2010). These facts
- Financial impact on organizations. Hospital shoulders 30-day readmission cost (Brock et al., 2013) and SNF loses money for each bed day that a patient is hospitalized (Mor et al., 2010).
- **The estimated cost of a hospitalization or readmission is $6,500** (Ouslander, et al., 2010). This is a conservative estimate, which can increase based on value-based purchasing model participation and diagnosis (Chernew, McGuire, & McWilliams, 2014).
- **ED Lanyard Badge Project benefits.** The care coordination tool enhances care coordination, which can translate to significant savings for SNFs and hospitals involved in value-based purchasing models, such as BPCI programs and accountable care organization (ACO) agreements (Froimson et al., 2013; Chernew, McGuire, & McWilliams, 2014).
In-service Training and Competency

- Provided by Project champions
- All staff members (involved in care coordination in the SNF and partner hospital ED must receive in-service training.
- After the training, project champions utilize the ED Badge Program Competency Form (Appendix D) to test staff members, with scores ranging 1 to 4.
- See Brochure, Competency Form (page 49)
<table>
<thead>
<tr>
<th>Educational Objectives</th>
<th>Educational Activities</th>
<th>Personnel</th>
<th>Time needed for activity</th>
<th>Time frame</th>
<th>Teaching Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF, partner hospital ED staff, will gain understanding of ED Badge Project objectives and protocol</td>
<td>Monthly staff meeting presentation</td>
<td>ED Badge Project Team members</td>
<td>45 minutes</td>
<td>1 to 3 months before implementation</td>
<td>PowerPoint Presentation, ED Badge Project Tri-fold</td>
</tr>
<tr>
<td></td>
<td>One-on-one teaching</td>
<td>ED Badge Project Team members, staff member who scored 4 in competency checklist</td>
<td>15 minutes</td>
<td>1 to 3 months before implementation, ongoing</td>
<td>ED Badge Project Tri-fold</td>
</tr>
<tr>
<td>Emergency medical technicians will gain understanding of ED Badge Project objectives and protocol</td>
<td>One-on-one teaching</td>
<td>ED Badge Project Team members, staff member who scored 4 in competency checklist</td>
<td>15 minutes</td>
<td>Ongoing</td>
<td>ED Badge Project Tri-fold</td>
</tr>
<tr>
<td>SNF patients will gain understanding of ED Badge Project objectives and protocol</td>
<td>Weekly resident community meeting</td>
<td>ED Badge Project Team members</td>
<td>30 minutes</td>
<td>1 to 3 months before implementation, ongoing</td>
<td>PowerPoint Presentation, ED Badge Project Tri-fold</td>
</tr>
<tr>
<td></td>
<td>One-on-one teaching</td>
<td>Staff member who scored 4 in competency checklist</td>
<td>15 minutes</td>
<td>Ongoing</td>
<td>ED Badge Project Tri-fold</td>
</tr>
</tbody>
</table>
Plan

- Strengths, weaknesses, opportunities, and threats (SWOT) Analysis
- Marketing Plan – identifies target market, objectives, and outcomes
- Financial Plan – outlines cost of supplies, training, education, and projected savings
- Implementation Plan – determines timeline, staff education and training.
Evaluation Plan

Preventable Admission Rates
- **Numerator**: The number of patients who were transferred to the ED and were admitted to the hospital with a preventable diagnosis.
- **Denominator**: The total number of SNF patients who were transferred to partner hospital’s ED.

Preventable 30-Day Readmission Rate
- **Numerator**: The number of patients who were transferred to the ED and were readmitted to the hospital with a preventable diagnosis within 30 days of a past hospitalization.
- **Denominator**: The total number of SNF patients who were transferred to partner hospital’s ED.

Bed-hold Days from Preventable Admissions and Readmissions per month
- Number of days SNF reserves the bed of SNF patients admitted or readmitted to an acute care hospital per month.
Procedure

- SNF physician or Nurse Practitioner orders transfer to partner hospital
- SNF RN fills out badge; performs pt. education regarding ED Lanyard Badge Tool
- SNF RN puts on ED Lanyard Badge on patient in front of ambulance emergency medical technician before transfer. Upon leaving the facility, SNF RN calls ED Admissions Coordinator to notify him/her of transfer and includes the information about the badge in the transfer SBAR report
Procedure

• Emergency medical technician includes ED Badge in report to admitting RN
• Admitting RN notifies Admissions Coordinator, Case Manager, and physician
• ED interdisciplinary team utilizes badge in determining whether to divert patient back to SNF.
Sample of Timeline

ED Badge Project Timeline

Legend

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDBPT</td>
<td>Emergency Department Badge Project Team Meeting</td>
</tr>
<tr>
<td>EL</td>
<td>Executive Leadership of SNF and Partner Hospital</td>
</tr>
</tbody>
</table>
Next Steps

- Develop guideline content: SWOT Analysis, Marketing Plan, Financial Plan, Implementation Plan and Evaluation Plan
- Submit abstract to present at a conference
Conclusion

- Enhanced care coordination has been shown to improve the care received by SNF patients (Grabowski et al., 2009) and to decrease the stress of moving from one care setting to another (Walsh et al., 2010).

- Given the potential patient risks and economic repercussions of a hospitalization, designing a guideline that helps ED staff members to determine whether it is appropriate to divert a patient back to the facility, may be beneficial.
While Great Strides Have Been Accomplished...

Further Progress on Behalf of Our Patients Is Essential.
References


# APPENDIX K

## TABLE OF EVIDENCE

### Summary of Care Coordination Studies

<table>
<thead>
<tr>
<th>Purpose, (Author(s), year)</th>
<th>Design and Key Variables</th>
<th>Sample and Setting</th>
<th>Measurements, Operational Definitions</th>
<th>Results or Findings</th>
<th>Conclusions, Limitations &amp; Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>To summarize the current evidence regarding patient presentation, outcomes, and hospital utilization regarding nursing home pts sent to ED (Dwyer, Gabbe, Stoelwinder, &amp; Lowthian, 2014)</td>
<td>Systematic review involving a comprehensive search of peer-reviewed literature using Medline, Ebase, CINAHL, and Informit.</td>
<td>IC: Sample lived in RACF, aged at least 65 years, studies reported outcomes of ED transfer. USA, Australia, UK, &amp; Canada</td>
<td>Patient outcomes: admission rate, inhospital complications, and mortality</td>
<td>NH residents sent to ED had high admission (41-81%) and mortality rates (5-34%)</td>
<td>Results suggest that acute hospitalization is a burden for NH residents. Data reveals that in-hospital care may not outweigh potential adverse events from admission. Limitations: Inability to perform meta-analysis due to high variability of study methodologies &amp; settings. Notes: Study highlights the need to explore alternative interventions to improve NH transfer process to ED, such as the ED Lanyard Badge Program.</td>
</tr>
<tr>
<td>To determine national readm frequency and cost among Medicare SNF pts. (Mor et al., 2010)</td>
<td>Prevalence study Descriptive Exploratory</td>
<td>N = +1.7 mil 01/00-01/06</td>
<td>Outcome data obtained through retrospective database review</td>
<td>Readm rate grew by 29% during 2000-06. CA has 12th highest readm rate among states (23.8%) in 2006. Total cost to Medicare</td>
<td>Results suggest that there is a “revolving door” of rehosp from SNFs. Limitations: Did not include demographic and clinical data (DRG, elective vs. non-elective readm, etc.). No comparison of readm rates from different d/c settings (home, home health, etc.).</td>
</tr>
<tr>
<td>Medicare IP claims data</td>
<td>All Medicare SNF episodes within 30 days of hospital d/c</td>
<td>Measure: 30-day readm rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDV: SNF episodes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV: Readm within 30 days</td>
<td>IC = Medicare SNF episodes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To evaluate effectiveness of an intervention toolkit in preventing 30-day readms. EDV and improving pt. satisfaction. (Dedhia et al., 2009)</td>
<td>Quasi-experimental PPS design involving a toolkit (adm. form, PCP comm., IDT barriers worksheet, CP-MD MR, and pre-d/c appt. list) and CG (p. 1541)</td>
<td>N = 1,393</td>
<td>Demographic and utilization data abstracted from hospital data.</td>
<td>IG was more likely to be obese, live alone, and med. hx of falls, fractures, and CA (P &lt; .05) (p.1825).</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>IV: Discharged pts.</td>
<td>CG (admitted 10/06-4/07, n = 1,235): received UC</td>
<td>CG</td>
<td>Power set at 0.80. Measure: 30 readm. rates</td>
<td>IG reported feeling better post d/c (87% vs 78%) and had fewer readms (84% vs 71%).</td>
<td></td>
</tr>
<tr>
<td>DV: 30-day readm.</td>
<td>IG (admitted 01/06-05/06, n = 158): received toolkit</td>
<td>IC = age ≥ 65 yrs, English fluency, adm. to med. Wards. Baltimore, Maryland; Danville, Pennsylvania; &amp; Concord, North Carolina</td>
<td>Coleman’s CTM was used to measure pt. sat., score of 72 assoc. w/ better outcomes. (p.1541)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To determine frequency of planned and unplanned readm. in Medicare population (Jencks, Williams, &amp; Coleman, 2009)</th>
<th>Prevalence study Descriptive</th>
<th>N = +11.8 mil., 01/03-01/04</th>
<th>Outcome data obtained through retrospective database review</th>
<th>Almost one-fifth had a 30-day readm; 34% had 90-day readm. (P &lt; .001) (p. 1424).</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDV: Medicare patients</td>
<td>Medicare IP claims data</td>
<td>IC = Medicare pts d/c From hospital</td>
<td>Measures: 30- and 90-day readm. rate</td>
<td>HF is most frequent 30-day</td>
</tr>
<tr>
<td>United States</td>
<td></td>
<td></td>
<td></td>
<td>Results show that readms. are frequent and costly.</td>
</tr>
</tbody>
</table>

**Notes:** Established need to provide resources to SNF to avoid readms especially with the advent of the VPM.

**Limitations:** Did not establish SS in readm. prevention (p.1545), IG demographic profile appears to have greater risk for readm,

**Notes:** Did not document additional CM time/cost required for d/c toolkit. Perhaps future studies need to document time required for intervention to improve transferability.

**Notes:** Did not document additional CM time/cost required for d/c toolkit. Perhaps future studies need to document time required for intervention to improve transferability.

**Limitations:** Did not include demographic data.

**Notes:** Results showed that there are gaps in care coordination. Intervention studies are
| DV: Readm. rate (planned and unplanned) within 30 and 90 days | (planned and unplanned) readm. dx. (26.9%) (p.1422) needed to ensure safe transitions from the hospital. |
| Authors chose 19 DRGs that were likely planned such as chemotx and stent insertion. | Authors estimated that only 10% were planned. |
| Total cost of unplanned readms to Medicare Program: $17.4 bil. |

| To evaluate a redesigned d/c process. (Balaban et al., 2008) | RCT involving redesigned discharge process: 1. d/c form w/ pertinent data 2. elec. Transfer of d/c form to PCP 3. f/u call by PC RN to PCP 4. PCP review of d/c plan | N = 96 |
| Randomization method unclear. | IC: Pts. enrolled upon admission to MS floor (1/06-1/07) | Demographic and outcome data obtained through retrospective chart review (p. 1230). |
| IDV: Discharged patients DV: effect on f/u appt. within 21 days, readm within 31 days, EDV within 31 days, incomplete OP work-up | CG (n = 49): received UC | Measures: Absence of OP appt. within 31 days, 31-day readm. rate, 31-day EDV rate, and OP workup incompletion rate |
| | IG (n = 47): received d/c process intervention | Baseline differences age, gender, LOS, insurance status between groups >0.05. |
| | Somerville, Massachusetts | CG (40.8%) almost thrice as likely to have no OP f/u compared to IG (14.9%) (P = .005) |
| | | CG (55%) more than twice as likely to have at least 1 undesirable outcome compared to IG (25.5%) (P = .003) |

| Intervention did not reduce readmission and ED visit rate but increased OP f/u and workup after d/c. |

**Limitations:** Researchers conducted study within one hospital system, small sample size, lack of power analysis led to failure to examine other outcomes such as decreased resource utilization (p. 1232).

**Notes:** Interestingly, the formalized care coordination structure reduced communication gap without additional staff across settings.
Both groups had similar readmission and EDV rates.

| To determine effectiveness of a CTI to empower pts. and PCGs to have an active role during care transitions in reducing rehospitalization (Coleman et al., 2006) | RCT involving CTI with 4 elements: 1) assistance with MSM 2) PHR to facilitate transfers, (3) timely f/u with PCP (4) a list of “red flags” for worsening condition | N = 750 | Abstracted demographic data during recruitment. | No significant difference in age, gender, LOS, insurance status between groups (p 1825). | Results suggest that encouraging pts and PCGs to take a proactive role reduced readmissions (p 1829) This is consistent with results from previous studies. |
| --- | --- | CG (n = 371) | IG (n = 379) CTI | Utilized Medicare Part A Claims data to determine outcomes and costs. | IG had lower readmission rates at 30 days (8.3% vs 11.9%, p = .048) and at 90 days (16.7% vs 22.5%, p = .04) than CG. |
| | | IC: ≥ 65 yrs old, admitted w/1 of 11 selected conditions (9/02 - 08/03). | Colorado. | Measure: readmission rates at 30, 90, and 180 days after d/c. |
| | Utilized random number generator (p. 1823) | | | Both groups had similar rates at 180 days. |
| | IV: Discharged patients | | | Mean hospital costs were lower for IG ($2,058) than CG ($2,546) (p. 1827) |
| | DV: nonelective readmission at 30, 90, and 180 days (p. 1828) | | | |

| To test whether encouraging elderly pts. and PCGs to take a proactive role can lower readmission rates | Quasi-experimental design involving a CTI (subjects received tools to promote cross-site communication and guided by a NP) | N=1,393 | Demographic and utilization data abstracted from health system’s data. | Mean age of CG (75.1) was significantly higher by 3 years than IG (P< .001). | CTI bundle with transition coach showed potential in reducing hospital utilization. |
| --- | --- | CG = 1,235 | IG = 158 CTI | | CTI bundle with transition coach showed potential in reducing hospital utilization. |
| | | | | | **Limitations:** CG was 88% larger than IG, which reduces the validity of the results. Authors did not mention insurance of patients, which would have revealed financial status. |
(Coleman et al., 2004) transition coach) in preventing readmission.

Utilized random number generator.

IV: Enrolled patients in healthcare system
DV: non-elective readm, EDV/obsv. unit use at 30, 90, 180 days
EC: Anticipation of death, d/c to LTAC, non-ambulatory, and adm < 24 hrs.

Colorado Measure: rates of readm, EDV/obsv. unit use at 30, 90, and 180 days after d/c

Majority of IG (56.3%) and CG (70.6) were CAD pts (P< .001).

IG had lower readm rates at 30 days (8.9% vs 13.9%, P = .04), 90 days (13.5% vs 22.9%, P = .002), and 180 days (22.9% vs 32%, P =.002) than CG.

The CG was 40% more likely have an EDV/obsv. unit use 180 days post d/c (p = .03)

RCT involving A 3-month APN-directed discharge planning and home follow-up protocol: 1) APN visit within 24 hrs of hospital admission for comprehensive assessment 2) daily APN visits during hospitalization to design d/c plan with pt and IDT

N = 239
CG (n = 121)
IG (n = 118))

Naylor et al., 2004

Abstracted demographic data during recruitment.
Utilized hospital data to determine outcomes and costs.

No significant difference in age, gender, LOS, insurance status between groups (p.678).

IG had lower 30-day readm rates, death rate.

Results suggest that an APN-directed TCI care program can improve HF–related outcomes in older adults (p.684) This is consistent with results from previous studies.

Limitations: Did not analyze other hospitalization such as EDV and obsv. rates. Focused only on HF pts, perhaps future studies should include other dxs in evaluating effectiveness of TCI.

The manuscript showed the potential of nurse-directed interventions in improving care coordination.
(MDs, nurses, SWs, etc.) at least 8 APN home visits (w/ 1 within 24 hrs of d/c) for med rec, tx response eval, and PE

Utilized computer-generated, institution-specific block 1:1 randomization algorithm (p. 675)

IV: Hospitalized HF pts

DV: nonelective 30-day readm, death, index hospitalization LOS (p. 675)

| **LOS (588 days vs 970 days, p = .071).** |
| Mean hospital costs were lower for IG ($7,636 vs $12,481, p = .002) (p. 1827) |

**Note.** Studies in alphabetical order; Adm = Admission; Bil = Billion; CAD = Coronary Artery Disease; CC = Care Coordinator; CG = Control Group; Chemotx = Chemotherapy; CP = Clinical Pharmacist; CTI = Care Transition Intervention; CTM = Care Transition Measure; DA = Discharge Advocate; D/C = discharge; DV = Dependent Variable; DRG = Diagnosis-related Group; DX = Diagnosis; EC = Exclusion Criteria; EDV = Emergency Department Visit; F/u = Follow-up; HF = Heart Failure; IC = Inclusion Criteria; IDV = Independent Variable; IRB = Internal Review Board; LOS = Length of Stay; LTAC = Long-term Acute Center; MD = Medical Doctor; Mil = Million; MR = Medication Reconciliation; MSM = Medication Self-management; NP = Nurse Practitioner; OP = Outpatient; PC = Primary Care; PCP = Primary Care Physician; Pt = Patient; Readm = Readmission; Rehosp = Rehospitalization; RN = Registered Nurse; SNF = Skilled Nursing Facility; SS = Statistically Significant; TCI = Transitional Care Intervention; UC = Usual Care; VPM = Value-based Purchasing Model; WU = Work-up; Yrs = Year