Patient Education Improvement Initiative for Self-Management of Congestive Heart Failure Among Senior Residents of a Long-Term Care Facility

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Patient Education Improvement Initiative for Self-Management of Congestive Heart Failure Among Senior Residents of a Long-Term Care Facility

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Table of Contents

Section I: Abstract........................................................................................................................................... 3
Section II: Introduction...................................................................................................................................... 4
  Introduction.................................................................................................................................................. 4
  Problem Description..................................................................................................................................... 5
  Available Knowledge/Literature Review........................................................................................................ 7
  Rationale.......................................................................................................................................................... 10
Specific Project Aim........................................................................................................................................ 13
  Project Aim.................................................................................................................................................. 13
  Project Objectives....................................................................................................................................... 13
Section III: Methods......................................................................................................................................... 14
  Context.......................................................................................................................................................... 14
    Microsystem Assessment – 5Ps....................................................................................................................... 14
    SWOT Analysis........................................................................................................................................... 15
    Root Cause Analysis (RCA)........................................................................................................................... 16
    Budget Plan............................................................................................................................................... 18
    Stakeholders Analysis.................................................................................................................................. 19
    Communication Plan................................................................................................................................... 21
    Timeline – Gantt Chart................................................................................................................................. 22
Interventions, Evaluation, and Measures........................................................................................................ 23
  Project Objective One: The Educational Material......................................................................................... 25
  Project Objective Two: Cognitive Assessment............................................................................................... 26
  Project Objective Three: The Educational Program....................................................................................... 28
Section IV: Results............................................................................................................................................ 30
Section V: Discussion....................................................................................................................................... 33
Section VI: References..................................................................................................................................... 36
Section VII: Appendices.................................................................................................................................. 40
Section I: Abstract

The purpose of this quality improvement project was to use evidence-based practices to determine if personalized education on disease self-management would lead to improved treatment adherence in a residential facility. The target population consisted of four elderly female patients who had been diagnosed with congestive heart failure (CHF) and were struggling with the self-management of their disease. Contributing barriers to effective CHF self-management were determined using a root cause analysis, and included a lack of educational templates, declining cognitive ability of the residents, and no electronic health record (EHR). Using the Self-Determination theory, the interventions were implemented. Phase one was focused on the educational materials. During this phase the team developed individualized teaching handout templates and disease management tri-fold brochures, which were submitted to the director of nursing (DON) for approval. Phase two was the cognitive assessment where the team used the Medi-Cog assessment tool and reported all residents who scored below eight to the DON. The final phase was the educational program. In this phase, the team assessed the residents' learning needs, prepared the individualized teaching handouts, conducted a 1:1 educational session with each resident, and presented each with a post-education oral test. The outcome for phase one was the approval of the educational templates. The outcome for phase two was the completion of all patient assessments. Lastly, the outcome for phase three was the completion of individualized educational sessions for each of the residents. The educational materials were made into blank templates which can be modified to address any future educational need on any disease process, making it a sustainable intervention for the residential facility.
Section II: Introduction

Introduction

It is estimated that today, around 133 million Americans suffer from a chronic illness (AHA, 2023). That is nearly half the population of the United States. Additionally, around $25 million is spent in California on unplanned hospital readmissions, many of which are due to complications, poor self-management, and poor follow-up (Let’s Get Healthy CA, 2016). Many of these readmissions are preventable and can be reduced by implementing an adequate educational program (Prochota, et. al., 2019). There are many independent residents of this facility that suffer from chronic illness. Due to their status as independent, much of their lifestyle and care is determined by the residents themselves, with staff taking vitals and administering medications. It is imperative to empower these residents to remain independent for as long as possible and to improve their quality of life and decrease hospitalization rates. It is for that reason that a tailored educational program and materials were created, with the pilot test being centered around residents with congestive heart failure (CHF). The program was also created to be a template that can be changed to fit education for any number of chronic illnesses.

It has been shown that proper self-care and self-management reduces the rates of hospitalization and readmission in elderly patients (Prochota et. al., 2019). An increase in self-management abilities carries with it prolonged independence and adequate quality of life, allowing the patient to remain at the center of their own care (Prochota et. al, 2019). However, proper self-management requires an understanding of the disease process, medications, when to see a physician, and adherence to the prescribed treatment (Mir et. al., 2023). Patients who are active participants in their healthcare and health education have been shown to be more likely to adhere to the treatment plan, and thereby reduce hospitalization (Mir et. al., 2023). Therefore, this project sought to create tailored educational programs that empower the facility’s residents
to take an active role in their care, reduce the risk of hospitalization secondary to CHF, and prolong their independence.

The residential facility consists of two floors that house both independent and dependent residents. The goal of this facility is to maintain the independence of the residents who have it and allow them to take charge of their care and daily lives and activities. A large part of maintaining independence in the elderly is reducing the risk of a serious complication secondary to an already existing disease process. Therefore, adherence to and understanding of the treatment plan is paramount. The director of nursing (DON) at the facility had previously begun holding informational education sessions on some of the more common chronic diseases that residents may be experiencing. After speaking with the DON, it was determined that creating a template for these educational sessions that could be tailored to each individual would allow for an increase in understanding of the treatment plan, offering greater adherence and reducing the risk of serious complications.

**Problem Description**

Although this project's target population consisted of only four CHF patients, one of the key advantages was the ability to conduct comprehensive interviews and provide effective education while reviewing each patient’s records efficiently. Each patient presented with a unique set of risk factors related to their CHF, including their lifestyle, diet, and physical activity. The facility is a residence for retired Catholic women from diverse backgrounds. Notably, one of the four patients was formerly a surgical nurse and possessed a deep understanding of her current health condition related to congestive heart failure. It became evident, however, that the remaining three CHF patients lacked awareness about the concept of self-managing CHF and its
significance. Consequently, the primary issue was the limited adherence of these individuals to their CHF treatment regimens.

There were several key metrics related to the lack of CHF self-management in the residential assisted living facility. The patients were mostly taking their medications as prescribed, since it was usually provided for them by the nurses of the facility. For diet and nutrition, however, the patients were not aware of heart-healthy diets and ate without restriction since the kitchen served buffet-style meals. Additionally, only one patient expressed interest in minimal daily exercise, while others have mobility issues that make it more challenging. Monitoring of vital signs such as blood pressure, heart rate, and weight were not consistent with the daily requirement which is crucial for managing CHF. Lastly, based on pre-education interview questions and a Medi-Cog assessment (appendix A), only one participant showed sufficient understanding of their CHF treatment regimen. This therefore highlights the need for better patient education.

The baseline data for CHF management is limited in terms of the identified metrics. According to the initial knowledge assessment of the CHF patients, there was a clear need for improvement in several key areas. Out of the four individuals assessed, only one was knowledgeable about CHF. Additionally, just one participant demonstrated motivation to increase physical activity, while none of them possessed awareness about their medication, dietary requirements, or necessary lifestyle adjustments. This baseline data served as a starting point for measuring progress and evaluating the effectiveness of the project. It provided a clear picture of the current state of knowledge and engagement among the participants, highlighting the areas that require targeted interventions and education to improve CHF management.
Available Knowledge/Literature Review

A PICO (Problem, Intervention, Comparison, and Outcome) question was created to guide the search process. The emerged question was “in elderly patients diagnosed with congestive heart failure residing in an assisted living facility, does the implementation of personalized self-management interventions as compared to standardized care lead to improved treatment adherence?”

To address this question, we conducted research using peer-reviewed articles from PubMed, NCBI, the American Heart Journals, the European Journal of Cardiovascular Nursing, and the Journal of Pharmaceutical Negative Results from 1990 to 2023. Our search strategy combined synonyms and related terms for each PICO component: Elderly patients diagnosed with congestive heart failure residing in an assisted living facility AND Personalized self-management interventions AND Standard care AND Improved treatment adherence. This search strategy was designed to identify relevant research articles that directly address the research question by focusing on the target population, interventions, comparisons, and outcomes of interest.

It was crucial to gain a comprehensive grasp of the existing body of knowledge to enhance understanding of the management and experiences associated with CHF in senior patients. Current research has found that patients with any level of dementia, reduced ejection fraction, those taking digoxin or other cardiac medications, or individuals living alone experience higher readmission and hospitalization rates. Conversely, patients with higher levels of education demonstrated lower readmission and hospitalization rates. Moreover, gender differences were observed, with female patients displaying lower self-confidence in their self-care abilities but a higher adherence to education and treatment plans. Additionally, a higher degree of healthcare
literacy was associated with enhanced self-care, emerging as a significant factor influencing self-care capabilities. Therefore, it is recommended that healthcare professionals maximize the effectiveness of self-care and self-management of heart failure by implementing a tailored healthcare education program that aligns with an individual's educational background and health literacy (Prochota et al, 2019). Furthermore, some of the causative factors were also investigated. Several components, including patient engagement in their treatment, educational attainment, and the ability to identify their medications, proved pivotal in influencing compliance. Notably, patients who actively engaged in their treatment, possessed a strong educational background, and could readily recognize their medications were more inclined to adhere to their prescribed regimens (Javeria et al, 2023). Additional factors were examined to better comprehend the association between increased readmission rates in elderly patients with congestive heart failure conditions. According to the American Heart Journal, alarming statistics indicate that, within six months post-hospital discharge, almost 50% of these patients face readmission, with around 25% succumbing to their condition. Fortunately, four clinical factors can predict readmission risk accurately: prior admission within one year, previous heart failure history, diabetes, and a creatinine level exceeding 2.5 mg/dL at discharge. Identifying these predictors early enables the identification of a high-risk patient subgroup, facilitating intensive interventions to improve their outcomes (Khrumholz et al, 2005).

Furthermore, research has highlighted the importance of self-management interventions in improving outcomes for patients with CHF (Feng et al., 2023). Self-management interventions encompass various components such as education, follow-ups, dietary guidance, disease and exercise knowledge, and discharge planning (Feng et al., 2023). These interventions have been shown to be more effective than conventional care in preventing and reducing patient
readmissions in CHF patients. Patients with CHF often face preventable factors contributing to hospital readmissions, including issues related to drug therapy, weight monitoring, dietary control, exercise therapy, and emotional regulation (Feng et al., 2023). The study findings emphasize the significance of comprehensive self-management programs in improving patient outcomes and reducing the burden on healthcare systems.

Health literacy also plays a critical role in the management of heart failure, as demonstrated by a cross-sectional study conducted in a U.S. emergency room (Oscalices et al., 2019). This study examined the relationship between the level of functional health literacy and treatment adherence in patients with heart failure (Oscalices et al., 2019). The study used tools like the Newest Vital Sign to assess literacy and the Morisky-Green test to evaluate patient adherence (Oscalices et al., 2019). The results revealed a direct correlation between low literacy levels and lower medication adherence, underscoring the need to address health literacy as a barrier to effective self-care in heart failure patients.

Incorporating these findings into a holistic approach to manage congestive heart failure in senior patients is essential (Javeria et al., 2023; Feng et al., 2023). Healthcare professionals should recognize the value of tailoring educational programs to meet the diverse needs of patients, considering factors such as educational background, health literacy, and gender differences (Garcimartín et al., 2021). Additionally, self-management interventions should be implemented as a central component of care plans to reduce preventable readmissions (Feng et al., 2023). Finally, early identification of high-risk patients through predictive factors, as suggested by Chen et al. (2005), can help healthcare providers target interventions effectively to improve outcomes for senior patients with congestive heart failure.
A multifaceted approach that incorporates insights from recent research is necessary to enhance the management of congestive heart failure in senior patients. By addressing factors such as education, health literacy, self-management, and predictive risk factors, healthcare professionals can strive to improve patient outcomes, reduce readmissions, and enhance the overall quality of life for this vulnerable population.

**Rationale**

The Johns Hopkins Evidence-Based Practice (JHEBP) model (Figure 1) was adopted representing the conceptual framework of the initiative. It has been recognized as a powerful problem-solving approach to clinical decision-making and is accompanied by valid tools to facilitate the change process (Johns Hopkins Medicine, 2023). Evidence-based practice (EBP) allows nurses to determine the best practices and adapt to provide safe, high-quality care. The JHNEBP model consists of three phases: Practice question, evidence, and translation (PET).

**Figure 1**

*Johns Hopkins Evidence-Based Practice Model*
In the first phase, practice question, there are seven steps beginning with recruiting an interprofessional team, determining responsibility for project leadership, scheduling team meetings, clarifying and describing the problem, developing and refining the EBP question, determining the need for an EBP project, and finally, identifying the stakeholders (Johns Hopkins Medicine, 2023). In order to develop an answerable EBP question, Johns Hopkins has developed a Question Development Tool to guide the development of the EBP question in the PICO format. It is essential that the question is as detailed as possible to guide the next phase of evidence.

The second phase, evidence, consists of five steps. In this phase the team must conduct internal and external search for evidence, appraise the level and quality of each piece of evidence, summarize the individual evidence, synthesize findings, and develop best evidence recommendations (Johns Hopkins Medicine, 2023). The EBP literature search is of the utmost importance as the search will need to be unbiased and use a variety of sources. Using the answerable EBP question the search will begin by determining the searchable keywords within the EBP question. This includes synonyms and related terms. To facilitate the search, it is recommended that the team identifies the type of information needed and develops a search strategy, and all strategy specifics, such as terms used, limits placed, and years searched. Once results have been found, they need to be reevaluated for relevance to the EBP question.

In the final phase, translation, there are 8 steps that guide the change in practice. These steps include identifying practice setting-specific recommendations, creating an action plan, securing support and resources to implement the action plan, implementing the action plan, evaluating outcomes to determine if improvements have been made, reporting results to stakeholders, identifying next steps, and disseminating the findings (Johns Hopkins Medicine,
2023). In order to ensure there is a systematic and intentional approach to the change, a translation model such as The Model for Improvement: PDSA should be used (Johns Hopkins Medicine, 2023). In this phase, the translation team sets measurable goals using the SMART framework. A SMART goal is defined as specific, measurable, achievable, relevant, and time bound.

The Plan-Do-Study-Act (PDSA) cycle (illustrated in Figure 2) has been selected as a quality improvement tool to guide the change process. The PDSA cycle was founded by Walter Shewhart and Edward Deming in 1986 (AHRQ, 2020). The PDSA cycle is a four-stage model used in the implementation of quality improvement and is the most used and successful translational approach in healthcare (Johns Hopkins Medicine, 2023). The first stage of this model is to plan. In this phase the team will need to develop a plan to test the change in which the following information will need to be identified: who, what, when, where, and what data needs to be collected. In the second phase (do), the team will conduct the plan and record unexpected problems and observations. The third phase (study) consists of analyzing, studying, summarizing and reflecting on the findings. Finally, in the last phase (act), the team will define the change based on the findings of the test and determine if any adjustments need to be made (Johns Hopkins Medicine, 2023).

**Figure 2**

*PDSA Cycle*
Specific Project Aim

Project Aim

The project aim is to improve adherence to CHF self-management through behavior change interventions (BCIs). To achieve the project’s aim, three major objectives were identified.

Project Objectives

The first objective was to create personalized educational tools and templates that can be utilized in the upcoming similar disease management. This objective represents a sustainability initiative as it is the first disease management project at the facility. The second objective was assessing the cognitive competency of the CHF patients as self-management relies on the cognitive ability of the resident. The Medi-Cog assessment tool (appendix A) will be used to achieve that knowing that this tool has been previously introduced to the facility in a previous project. Lastly, the third objective was to provide an individualized educational program that addresses the pharmacotherapy, diet, and activity regimen of each CHF patient. The three objectives are summarized below:

1. Develop personalized educational tools and templates that can be utilized in the upcoming similar disease management projects by mid-September.

2. All CHF residents should be assessed for their cognitive competency using the Medi-Cog assessment tool by October.

3. All CHF residents will receive individualized education about their pharmacotherapy, diet, and activity regimen by October.
Section III: Methods

Context

To achieve a better understanding of the big picture and the specific operational issues of the residential facility, a series of assessment tools were utilized including the 5Ps, SWOT analysis, Root Cause Analysis (RCA), stakeholders’ analysis, and Return of Investment (ROI). Additionally, a budget plan, communication plan, and time-lined action plan were set.

Microsystem Assessment – 5Ps

The first step in redesigning the clinical microsystem is to evaluate the five Ps: the purpose and vision and mission of the microsystem, the patients, the people who work together in the microsystem, the processes the microsystem uses to provide services, and the patterns that characterize the microsystem’s functioning (Barach & Johnson, 2006).

The purpose of the microsystem is to provide a residential facility for its retired occupants and provide basic medical services for the residents, such as vital sign monitoring and medication administration. The facility is split into two different floors, one of which is for independent residents while the other is for dependent residents who require a higher level of care. As previously stated, this evaluation focuses on the independent floor. The vision of the microsystem is centered around providing adequate and comfortable care for its elderly residents and assisting them with their medical conditions. The patients in the microsystem are the elderly residents, who are retired and often suffer from chronic illness. The patients on the independent floor are able to self-manage their conditions and are provided with their daily medications. They are also able to carry out activities of daily living on their own, with modifications for their conditions. The professionals of the microsystem consist of two registered nurses per shift, a
director of nursing, a clinical coordinator, nursing students, and certified nursing assistants. There are no physicians present on staff.

Many of the processes of the facility consist of allowing the independent residents to self-manage their conditions and remain independent. Staff provide daily medications, record vital signs, and schedule physician appointments. The clinical director additionally provides teaching to the residents on topics concerning disease management and treatment plans. Otherwise, all other activities of daily living are carried out by the residents. Patterns of the facility include paper documentation at the time of assessment, daily medication administration, and minimal intervention by staff for the independent residents.

**SWOT Analysis**

After understanding the big picture of the microsystem through the 5Ps, the SWOT analysis has been utilized to assess the facility in terms of its readiness for the change. SWOT stands for strengths, weaknesses, opportunities, and threats. The strengths and weaknesses represent the internal analysis whereas the opportunities and threats focus on the external factors and environment (Puyt et al., 2023).

The SWOT analysis, in table 1, revealed several strengths within the facility related to willingness to change. The leadership staff at the facility is supportive of the project and demonstrated excitement. Other strengths are related to the organizational structure which include the existing activity areas that are available for the residents to use, and the ability of the nutrition department to modify diets based on individual needs. In addition, this project has a good ROI. The SWOT analysis in table 1 highlights several opportunities for success of the project. For example, the facility is currently in the process of implementing a new electronic medical record (EMR) which will allow the educational resources that were created in this
project to be uploaded to the patient's record. Furthermore, the residents at the facility are highly educated and understand the importance of the project.

The SWOT analysis demonstrated that there are a few weaknesses and threats to the project success. The weaknesses include the current lack of resources such as educational templates, nurse educators and dietitians on site. While at the facility we also discovered that there is a low RN to CNA ratio. This affects the project as RNs are required for education. We also learned that the facility has an issue with staff retention due to the competitive healthcare job market in Orange County. Finally, a threat to the success of the project is that the residents currently demonstrated that they lack direct contact with their physician. Currently, there is staff.

Table 1

*SWOT Analysis*

<table>
<thead>
<tr>
<th></th>
<th>Favorable</th>
<th>Unfavorable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal</strong></td>
<td><strong>Strengths</strong></td>
<td><strong>Weaknesses</strong></td>
</tr>
<tr>
<td></td>
<td>● Supportive leadership</td>
<td>● Lack of educational templates</td>
</tr>
<tr>
<td></td>
<td>● Physical activity area</td>
<td>● Lack of nurse educator</td>
</tr>
<tr>
<td></td>
<td>● Dietary services</td>
<td>● Low RN to CNA ratio</td>
</tr>
<tr>
<td></td>
<td>● Good ROI</td>
<td>● Staff retention concerns</td>
</tr>
<tr>
<td></td>
<td>● No dietitian on-site</td>
<td></td>
</tr>
<tr>
<td><strong>External</strong></td>
<td><strong>Opportunities</strong></td>
<td><strong>Threats</strong></td>
</tr>
<tr>
<td></td>
<td>● Highly educated residents</td>
<td>● Lack of direct physician and resident communication</td>
</tr>
<tr>
<td></td>
<td>● New EMR</td>
<td></td>
</tr>
</tbody>
</table>

*Root Cause Analysis (RCA)*

Building on the understanding concluded from the 5Ps and SWOT analysis, The root causes of the problem were investigated utilizing the Root Cause Analysis (RCA). RCA is a process for identifying the causal factors underlying variations in performance. In the case of
CHF self-management at the residential facility, this variation in performance may result in poor health outcomes that would result in serious impact on the Quality of Life (QoL) of the residents. The RCA process is mandated by the Joint Commission to identify the cause of the clinical problems and thus allow the development of resolution strategies. As illustrated in Figure 3, a fishbone diagram, also called an Ishikawa diagram, was designed to present a visual illustration of the root cause analysis. The diagram organizes cause-and-effect relationships into categories. The Ishikawa diagram was one of the most popular basic quality control tools used by Kaoru Ishikawa at the University of Tokyo in the 1960s (Singh et al., 2023).

**Figure 3**

*Fishbone Diagram*

The RCA results can be grouped into four main categories: residents, process, technology, and manpower. First, the residents’ domain revealed significant issues with the
cognitive ability of some residents due to the aging process and co-morbidities. In addition to that, some residents seemed to be unmotivated towards seeking more information related to their health status that would affect their self-management ability. Additionally, the residents did not have the appropriate technology literacy to be able to navigate the internet to access reliable sources of information about the CHF management. Second, the process's significant gap where there was no educational program in place to address this population’s specific needs whereas polypharmacy was an additional burden to their issue. Another process issue was the residents’ inability to connect directly with their physicians to seek medical advice and instructions. Third, the technology factor was limited to the lack of an electronic health record (HER) system that would help in preventing several issues related to medication reconciliation, drug-drug interaction, and other prescription concerns. Lastly, the manpower domain concluded that there was no clear educator position in the facility and the RN/LVN ratio to residents was high where most of the care was provided by CNAs. The concluded findings from the RCA will be utilized in the projects’ action plan to achieve the desired objectives.

**Budget Plan**

In total, the CHF Management Project incurs a mere $200 in costs. Considering that CHF complications and hospitalizations can average approximately $83,980 per person in the country, the potential for cost savings is extraordinary (Dunlay et al., 2011). This translates into a remarkably high ROI, estimated at 41,990%, illustrating the substantial financial benefits achievable through this initiative. By effectively cutting the costs associated with CHF complications, our project not only offers substantial economic relief but also holds the promise of significantly reducing the overall financial burden of CHF in the nation.
**Stakeholders Analysis**

The stakeholders of the project were analyzed according to the power-interest $2 \times 2$ matrix that was developed by Mendelow in 19991. This tool categorizes the stakeholders in four domains and identifies the best management strategy of each category. The first category is the high power/high interest who are identified as the “promoters” where they should be “managed closely”. The second category is the high power/low interest who are identified as the “latents” and should be “kept satisfied”. The third category is the low power/high interest who are identified as the “defenders”, and they should be “kept informed”. Lastly, the fourth category is the low power/low interest who are identified as the “apathetics” and they should be “monitored” only (Bernstein et al., 2020).

Stakeholder analysis is a crucial step in the planning and execution of a project, especially one focused on improving adherence to CHF self-management. Identifying and understanding the needs, interests, and influence of various stakeholders can help ensure the project's success.

As illustrated in Figure 4, the latent group encompasses the facility administration. They possess high power and low interest in the project due to their overarching responsibility for the management and operations of the nursing home facility. However, they may not be directly involved in initiatives aimed at enhancing patient outcomes.

The promoter group consists of two vital stakeholders: patients with Congestive Heart Failure and clinical directors and coordinators. Patients with Congestive Heart Failure are not only highly interested in the project, as they stand to benefit significantly from improved self-management, but they also wield substantial influence with direct decision-making power, making them indispensable to the project's success. Likewise, clinical directors and coordinators...
exhibit a high level of interest, driven by the potential for better patient outcomes, cost savings, and improved resource allocation. Their influence is notably high, as they oversee critical resources, shape policies, and manage support systems, reinforcing their integral role in the project's effective implementation and enduring success.

The Aesthetics Group, which consists of CNAs (Certified Nursing Assistants) and physicians, holds relatively low power and interest in the project aimed at increasing adherence to congestive heart failure self-management. These stakeholders have limited power because they are not directly involved in the core activities of the project. They might provide support or resources for patient education. CNAs are typically focused on providing direct patient care, while physicians primarily address the medical aspects of patient treatment. As a result, their involvement in the project's decision-making and execution is minimal. While they may not have a significant influence on project development, their role in monitoring is still crucial, as it provides valuable insights and feedback on the project's impact from a clinical perspective, helping to ensure that the project aligns with the medical needs and daily care routines of patients with congestive heart failure.

The Defenders Group, which comprises hospital leadership, Licensed Vocational Nurses (LVNs), and Registered Nurses (RNs), is characterized by a high level of interest and relatively low power in the project, where their primary role is to stay informed and provide support. Their high interest emanates from a shared recognition among nurses and hospital leadership that successful self-management can lead to significant benefits. Nurses acknowledge the potential for reduced hospitalizations and improved patient outcomes, which align with their commitment to patient care. Hospital leadership recognizes the potential for cost savings and more efficient resource allocation. However, their power is limited as they do not directly participate in the
project's core activities, and their decision-making authority may not be directly applied to the project's execution. Despite this, their role in staying informed and offering support is valuable, as it contributes to a collaborative and informed approach that can enhance the project's chances of success while aligning with the hospital's broader objectives.

**Figure 4**

*Stakeholders Analysis*

<table>
<thead>
<tr>
<th>High</th>
<th>Latents: Keep Satisfied</th>
<th>Promoters: Manage Closely</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Power</td>
<td>Facility Administrators</td>
<td>Residents</td>
</tr>
<tr>
<td>Low Interest</td>
<td>Apathetics: Monitor</td>
<td>Clinical Directors and Coordinators</td>
</tr>
<tr>
<td>Low</td>
<td>CNAs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physicians</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Defenders: Keep Informed</th>
</tr>
</thead>
<tbody>
<tr>
<td>The hospital leadership</td>
</tr>
<tr>
<td>LVN and RN</td>
</tr>
</tbody>
</table>

*Communication Plan*

Effective, regular project communication requires planning and tailoring to the appropriate stakeholder of the information. This ensures that all relevant parties can contribute to the project to their fullest extent to meet and exceed expectations (Abudi, 2013). Table 2 presents each event or activity that was conducted for the purpose of maintaining effective communication with the relevant stakeholders. The events consisted of a kickoff meeting with the nursing director, a project proposal email to gain approval for the project, weekly check-in meetings to monitor progress, face-to-face interviews with the CHF patients, weekly check-in emails with the nursing director, and finally, the poster presentation of the entire project. With
this well-structured communication plan, the stakeholders were able to understand the project’s goals and objectives, which prevented misunderstanding and misalignment. It ensured that the project's benefits and impacts were understood and will be sustainable over the long term.

Table 2

*Communication Matrix*

<table>
<thead>
<tr>
<th>Event/Activity</th>
<th>Purpose</th>
<th>Medium</th>
<th>Frequency</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kickoff meeting</td>
<td>Introduction to facility and patient population</td>
<td>In-person</td>
<td>Once</td>
<td>Interns and nursing director</td>
</tr>
<tr>
<td>Project proposal</td>
<td>To get approval for project</td>
<td>Email</td>
<td>Once</td>
<td>Nursing director</td>
</tr>
<tr>
<td>email</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly check-ins</td>
<td>To brainstorm and assess progress</td>
<td>In-person or video conference</td>
<td>Once per week</td>
<td>Interns and professor</td>
</tr>
<tr>
<td>Face-to-face</td>
<td>To assess patient readiness, cognitive ability,</td>
<td>In-person</td>
<td>Once</td>
<td>CHF patients</td>
</tr>
<tr>
<td>interviews</td>
<td>and learning style</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly check-in</td>
<td>To report progress and ongoing plans</td>
<td>Email</td>
<td>Once per week</td>
<td>Nursing director</td>
</tr>
<tr>
<td>emails</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poster presentation</td>
<td>Information dissemination</td>
<td>In-person</td>
<td>Once</td>
<td>Nursing faculty</td>
</tr>
</tbody>
</table>

*Timeline – Gantt Chart*

The project was planned carefully in a very structured way to properly allocate resources and monitor the progress keeping an eye on the milestones. As illustrated in the Gantt chart in table 3, the timelines were influenced by the PDSA cycle where all the assessment actions were implemented first, then followed by the implementation and evaluation where the project did not
require any corrective actions or modification on the action plan. The project’s span was 6 weeks where it was started on September 1\(^\text{st}\) and closed-up on October 12.

Table 3

*Gantt Chart*

<table>
<thead>
<tr>
<th>#</th>
<th>Interventions, Evaluation, and Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Assessment</td>
</tr>
<tr>
<td>1.1</td>
<td>Timelined Plan</td>
</tr>
<tr>
<td>1.2</td>
<td>SPs</td>
</tr>
<tr>
<td>1.3</td>
<td>TDG</td>
</tr>
<tr>
<td>1.4</td>
<td>RCA</td>
</tr>
<tr>
<td>1.5</td>
<td>Budget Plan</td>
</tr>
<tr>
<td>1.6</td>
<td>Stakeholders Analysis</td>
</tr>
<tr>
<td>1.7</td>
<td>Communication Plan</td>
</tr>
<tr>
<td>2</td>
<td>The Educational Material</td>
</tr>
<tr>
<td>2.1</td>
<td>Develop Individualized Teaching Handouts template.</td>
</tr>
<tr>
<td>2.2</td>
<td>Develop Disease Management Tri-Fold Brochure template.</td>
</tr>
<tr>
<td>2.3</td>
<td>Submit the prepared templates for the DON’s approval.</td>
</tr>
<tr>
<td>3</td>
<td>Cognitive Assessment</td>
</tr>
<tr>
<td>3.1</td>
<td>Cognitive assessment using the Medi-Cog assessment tool.</td>
</tr>
<tr>
<td>3.2</td>
<td>Report all residents who score less than 8 to the DON.</td>
</tr>
<tr>
<td>4</td>
<td>The Educational Program</td>
</tr>
<tr>
<td>4.1</td>
<td>Assessment of residents’ learning needs, learning styles, and readiness to learn.</td>
</tr>
<tr>
<td>4.2</td>
<td>Prepare individualized teaching handouts.</td>
</tr>
<tr>
<td>4.3</td>
<td>Prepare CHF Tri-fold Brochure</td>
</tr>
<tr>
<td>4.4</td>
<td>Get approval on the prepared material.</td>
</tr>
<tr>
<td>4.5</td>
<td>Conduct 1:1 educational session</td>
</tr>
<tr>
<td>5.6</td>
<td>Conduct post-session test oral test.</td>
</tr>
</tbody>
</table>

Interventions, Evaluation, and Measures

The Self-Determination Theory (SDT) that was developed by Deci and Ryan (1985) represents a broad framework for the study of human motivation and personality. As illustrated in Figure 5, conditions supporting the individual’s experience of autonomy, competence, and relatedness are argued to foster the most volitional and high-quality forms of motivation and engagement for activities.
Using the Self-Determination Theory, the action plan interventions were implemented, as summarized in table 4, with the focus being on meeting the project’s three objectives (see specific project aim).

Table 4

Action Plan

<table>
<thead>
<tr>
<th>Phase/Objective</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Objective One</strong>&lt;br&gt;The Educational Material</td>
<td>- Develop Individualized Teaching Handouts template.&lt;br&gt;- Develop Disease Management Tri-Fold Brochure template.&lt;br&gt;- Submit the prepared templates for the DON’s approval.</td>
</tr>
<tr>
<td><strong>Project Objective Two</strong>&lt;br&gt;Cognitive Assessment</td>
<td>- Cognitive assessment using the Medi-Cog assessment tool.&lt;br&gt;- Report all residents who score less than 8 to the DON.</td>
</tr>
<tr>
<td><strong>Project Objective Three</strong>&lt;br&gt;The Educational Program</td>
<td>- Assessment of residents’ learning needs, learning styles, and readiness to learn.&lt;br&gt;- Prepare individualized teaching handouts.&lt;br&gt;- Prepare CHF Tri-fold Brochure.&lt;br&gt;- Get approval on the prepared material.&lt;br&gt;- Conduct 1:1 educational session for the residents.&lt;br&gt;- Conduct a post-session oral test.</td>
</tr>
</tbody>
</table>
**Project Objective One: The Educational Material**

*Develop personalized educational tools and templates that can be utilized in the upcoming similar disease management projects by mid-September.*

The kickoff of the project required having the right tools and templates in place to guarantee consistency that maximizes efficiency and quality outcomes (Mehta et al., 2016). Upon analyzing the current practices at the residential facility, it has been concluded that Individualized Teaching Handouts template (Appendix C) and Disease Management Tri-Fold Brochure Template (Appendix D) were required to be created and institutionalized.

A brainstorming meeting was held to discuss the templates’ development process and requirements. The best practices, options, frameworks, layout, and modality were discussed among the team members. The templates were benchmarked with the leading healthcare and academic institutions such as Johns Hopkins, UCI, and CDC. The red color theme was adopted in both templates. The final versions of both templates were submitted to the director of nursing (DON) for feedback and/or approval. The DON granted the approval before using them.

The Individualized Teaching Handouts included resident-specific information about each resident’s medications, diet, and activity. A handout template was first created for that purpose to facilitate the process and to be institutionalized as a process template that can be utilized in any upcoming educational program. This approach reflects the sustainability practice adopted by the project team. In the Individualized Teaching Handouts, the first part was about the medications highlighting the medication’s purpose, adverse effects, and interactions with other medications. Second, the diet part addressed the best daily meals of each resident that was supported with practical examples. Lastly, the activity part detailed the activity type, frequency, and level for each resident according to their physical ability and target.
The Disease Management Tri-fold Brochure was designed carefully to be convenient to the elderly CHF population and their needs. The Tri-fold Brochure included information about the disease definition, causes, signs and symptoms, complications, treatment options, and important contact information. A scannable barcode was embedded in the Tri-fold to access the digital version of the Tri-fold and another barcode that allows access to the helper App of the American Heart Association (AHA) concerning the CHF self-management.

**Project Objective Two: Cognitive Assessment**

All CHF residents should be assessed for their cognitive competency using the Medi-Cog assessment tool by October.

Before providing the CHF patients with any educational tools or teaching sessions, their cognitive competencies were assessed using the Medi-Cog assessment tool (Appendix A). The CHF patient population at the facility consisted of four women, between the ages of 80 and 95. Research shows that there is a linear decline of processing ability in older adults, and there are several factors that contribute to their cognitive decline. These factors include age-related changes in the brain, the presence of underlying health conditions, and lifestyle factors. (Salthouse, 2010). Being that all the CHF patients were over the age of 65 and have a number of chronic health conditions, cognitive ability was assessed to determine risk for poor CHF self-management and health literacy levels.

The Medi-Cog Assessment tool consisted of four steps. Step one was a three-word registration exercise, in which the patient was told three unrelated words (e.g. “Banana, Sunrise, Chair”) and asked to repeat them immediately. They had three attempts to correctly repeat the words, and the patient was asked to remember those three words as they continued on to step two of the assessment. In step two, the patient was asked to draw a picture of a clock. A blank circle
was already drawn for them, and they were expected to place the appropriate numbers in the
correct location within the circle. They were asked to complete the activity by setting the clock’s
hands to 10 past 11. The patient had three minutes to complete the exercise. A correctly drawn
clock was worth 2 points, while a partially drawn clock was worth 1 point. Refusal or inability to
draw the clock was 0 points. Step three was the three-word recall, in which the patient was asked
to remember and restate the exact three words from step one. The patient earned 1 point for each
correctly recalled word. In step four, the patient was asked to complete the Medication Transfer
Screen (MTS). In this exercise, the patient was given a table that resembles a medication pillbox,
with the different days of the week and times of day (morning, noon, evening, bedtime) listed.
The resident was verbally given four different instructions of when to take different medications
(e.g. “Take two tablets Monday, Wednesday, and Friday in the evening”). The patient was
expected to indicate the correct number of pills to take in the appropriate box of the chart. Lastly,
the patient was asked to total the number of pills for the entire day of Saturday. For this activity,
each correctly followed instruction was worth 1 point, with a total possible score of 5 points.
Altogether, the Medi-Cog assessment is out of 10 total points.

A score of 8 or above on the Medi-Cog assessment indicated that the patient
demonstrated adequate skills for medication self-management, depending on the risk level of
their medication regimen. More generally, however, higher scores suggested better cognitive
function while lower scores revealed possible cognitive impairment (Marks, Giles, Al-Heizan, &
Edwards, 2020). For the purposes of the project, the assessment score illustrated the patient’s
ability to effectively manage their CHF. Poor performance with a score lower than 8 was
interpreted as “a marker of post-hospitalization risk and readmission” due to the patient’s
cognitive inability to effectively manage their condition on their own (Marks et al., 2020).
Among the 4 CHF patients at the facility, 3 scored below 8 points. These patients were marked as “high risk,” reported to the DON, and provided with appropriate educational tools in accordance with their cognitive ability and interpreted health literacy levels.

**Project Objective Three: The Educational Program**

*All CHF residents will receive individualized education about their pharmacotherapy, diet, and activity regimen by October.*

Before this intervention was implemented, the patients’ needs were assessed. First, an initial interview was conducted to determine the patients’ current health literacy and level of knowledge about their chronic illness. Additionally, the patients’ learning needs, learning styles, and readiness to learn were assessed. It was found that all patients interviewed required education on CHF including medications, diet, and activity to self-manage the condition. After the initial interview, patients were given a mini-metacognition exam, and all patients who passed were deemed able to self-manage and included in the educational program. It was then determined that all the patients preferred a one-to-one educational session and learned best with written materials and verbal instruction. The patients were also presented with emotional, mental, and physical readiness to learn.

After the patients’ needs were assessed, educational materials were then prepared in order to conduct one-to-one teaching sessions. The educational materials were split into two parts: general information on CHF and CHF self-management, and customized education based on medications, diet, and activity for each of the patients. Both parts of the educational materials were also made into templates that could be customized and used for education on any chronic disease. The patients’ charts were audited and information regarding medications and lifestyle were recorded. This information was then used to individualize teaching plans for each patient.
After the two parts of the educational materials were prepared, they were presented to the clinical director for approval. Once approved, the pamphlets were printed, laminated, and distributed to the patients and the clinical director during the teaching sessions.

Educational sessions were provided one-to-one with each CHF patient in a private, comfortable setting. Patients were pleased with the sessions and expressed excitement to participate in them. Patients asked clarifying questions, and answers were provided both verbally and within the pamphlets. Patients were also able to write down additional information in their pamphlets if they desired. After the sessions were completed, post-education questions were presented to the patients, and it was determined that the patients had retained the vital information provided during the teaching sessions. Patients were also reminded that the pamphlets would be there for future referral, and that the clinical coordinator and director were always available to answer questions.
Section IV: Results

Implementation of these action plan interventions consisted of developing personalized educational tools, a Medi-Cog assessment to determine cognitive competency, and the educational program. During the assessment phase we found a need for improvement in disease self-management. This project group consists of four patients who would benefit from interventions that will allow them to manage their disease. The educational materials that have been created to be templates that can be modified and personalized for all residents in the facility for any disease.

Each of the three action plan phases described in Table 4 had outcome measures that were used to assess the completion or effectiveness of each expected outcome. The expected outcome for phase one (the educational material) was the approval of the prepared educational templates. This outcome was verified with a verbal endorsement from a panel of experts represented by the director of nursing. As a result, the educational tools that were developed were ready for patient use and available to staff for reference.

The expected outcome for phase two (cognitive assessment) was the completion of all patient assessments. These assessments were specifically for the four CHF patients in the facility, and consisted of a brief cognitive assessment using the Medi-Cog tool. This outcome was verified with a completed residence check-off list, which included each patient assessment score. As a result, it was determined that three of the four CHF patients were at risk for poor disease self-management due to low assessment scores. The four scores were 1, 2, 4, and 8, out of 10 points possible.

The expected outcome for phase three (the educational program) was the completion of individualized educational sessions for each CHF patient. The effectiveness of this outcome was
assessed using pre-education questions and post-education questions. During the initial interviews with patients, specific questions were asked to detect a knowledge gap regarding their self-management of CHF. After the educational sessions, post-education questions were asked to verify patients’ understanding of what was taught, and to determine if the knowledge gap was successfully bridged. Table 5 lists the questions that were asked both before and after the educational sessions. As a result, all four patients were able to provide adequate answers to the post-education questions, or display an understanding of the available resources that can be used to find answers.

**Table 5**

*Pre- and Post-Education Questions*

<table>
<thead>
<tr>
<th>Pre-education</th>
<th>Post-education</th>
</tr>
</thead>
<tbody>
<tr>
<td>What challenges do you face? (access to care, financial, abilities, mental)</td>
<td>What is one learning point that you have taken away from the individualized CHF educational session?</td>
</tr>
<tr>
<td>What do you know about CHF, the expected signs and symptoms, and when and where to report exacerbations?</td>
<td>What are some signs and symptoms that may indicate that your condition is worsening?</td>
</tr>
<tr>
<td>Who prepares your diet? Are you on a special diet for your condition?</td>
<td>How can you adjust your diet and activity level to better manage your CHF?</td>
</tr>
<tr>
<td>How regularly are your vital signs and weight monitored, and who measures it?</td>
<td>How regularly should your vitals and weight be monitored?</td>
</tr>
<tr>
<td>How do you get to your medical appointments? How often are your follow-up appointments with your primary care provider?</td>
<td>Who at the facility can assist you in setting up appointments with your doctor? How can you reach them?</td>
</tr>
<tr>
<td>Do you currently have any educational materials or resources about CHF and how to manage it?</td>
<td>What resources can you look to for information on your CHF condition?</td>
</tr>
<tr>
<td>What is your preferred method of learning? (Visual? Audio? What material is preferred?)</td>
<td>How beneficial was this educational session for you?</td>
</tr>
</tbody>
</table>
As part of the inclusion criteria, all four residents participated in a medi-cog assessment to determine their health literacy levels. Three out of four of these residents failed the med-cog assessment with scores of one, two, and four. Any patient who scored below eight was flagged as high-risk and was reported to the DON. Follow up included providing appropriate educational tools in accordance with their cognitive ability and health literacy levels. Additionally, we anticipated that the unavailability of residents could make it difficult to interview and assess them all on the same day which would delay the timeline of the project. Fortunately, this was not a significant barrier for the progression of the project.

Prior to the implementation of this project, nursing management expressed that there was a need in disease education to encourage self-management. The implementation of this project on a small group of participants allowed us to fully assess the outcomes. The residents had positive improvements in their quality of life, improved self-confidence and physical health as well as prevention of complications. The educational materials that were created for this group were provided to the organization as templates that can be easily modified to any individual for any disease making this a sustainable outcome. By placing emphasis on education, the implementation of this project boosted the culture of disease management in the facility. Finally, improved disease management will result in a reduction of complications and ultimately reduced costs of healthcare.
Section V: Discussion

As the project concludes, we've successfully achieved our goal of improving adherence to Congestive Heart Failure (CHF) self-management through behavior change interventions (BCIs). We've also made progress in creating a personalized booklet and pamphlet, meeting our first objective to develop educational tools for future projects. The approved educational tools have been delivered to all patients and are available for staff reference. Our next objective involves assessing the cognitive competency of all CHF residents using the Medi-Cog assessment tool. From this assessment, we've found that one out of four patients has the cognitive competency for adherence to CHF self-management. Lastly, by creating material personalized educational tools like in-person teaching, booklets, and pamphlets, all patients now have better knowledge and access to resources about their self-management, including pharmacotherapy, diet, and activity regimen. Following these educational sessions, patient evaluations have significantly improved.

As we continue making progress, our understanding expands through various analysis methods, with a special focus on using the Gantt chart. This tool proves highly beneficial for organizing resources efficiently and tracking progress while staying mindful of milestones. Additionally, it aligns with the PDSA cycle. Another valuable lesson is gained through cognitive assessments. This tool not only evaluates a patient's cognitive abilities and capacity but also aids in monitoring knowledge retention and changes in self-management behavior over time. An important insight gained from the projects is the significance of educating and empowering patients after assessing them. It is crucial to offer thorough and clear education that considers the patient's literacy level, language, and cultural background.

The project succeeded because the team worked well together, used their skills effectively, had support from leaders, and managed with a low budget. Team members with
different strengths, like planning or creative design, collaborated to achieve the project goals. Leadership support from our clinical professor and facility directors was crucial. Their guidance, provision of data resources, project approval, and more have played a crucial role in shaping the project. Last, in terms of budgeting, this project is cost efficient because it focuses on teaching behavioral intervention to improve adherence to self management, so team members contribute their effort to make the project happen.

In conclusion, as addressed in our project's criteria, all four residents at the facility underwent the medi-cog health literacy assessment, revealing that three residents scored below the desired levels (one, two, and four). Those at high risk (scoring below eight) were reported to the Director of Nursing (DON), triggering a comprehensive follow-up with personalized educational tools tailored to each resident's cognitive abilities and health literacy levels. Despite initial concerns about logistical challenges in coordinating interviews and assessments for all residents on the same day, the project's timeline remained largely unaffected. Addressing a pre-identified need for enhanced disease education, the project, initially implemented with a small group, demonstrated positive outcomes—improved quality of life, increased self-confidence, enhanced physical health, and successful complication prevention. The educational materials developed for this group were transformed into adaptable templates, ensuring sustainability and scalability. By prioritizing education, the project played a pivotal role in fostering a culture of effective disease management within the facility, with potential implications for reducing healthcare complications and overall costs in the long run. The project's sustainability extends beyond its current scope, offering an educational model for patients with various chronic conditions within the facility. By leveraging the individualized educational plans crafted using our templates, other patients can benefit. This streamlined
process requires minimal effort from the facility, primarily involving template completion and ensuring that the information aligns specifically with each resident's medical conditions.

In light of the project's outcomes and its potential for broader impact, several recommendations can be proposed. To reiterate, it is advisable to further integrate the individualized educational approach into the standard care protocol for patients with chronic diseases at the facility. This entails incorporating the use of templates as a routine part of educational planning, ensuring that each resident receives tailored information relevant to their specific medical conditions. Additionally, ongoing training and support for staff involved in the implementation of these educational plans would enhance their effectiveness. Furthermore, considering the success of the pilot project, exploring opportunities to expand this initiative to a larger cohort of residents could provide valuable insights into its scalability and further contribute to the facility's culture of disease management. Lastly, maintaining a continuous feedback loop with residents and staff involved in the program would facilitate ongoing improvements and adjustments to meet evolving healthcare needs.
Section VI: References


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Section VII: Appendices

Appendix A

Medi-Cog Assessment Tool

**MEDI-COG**

**Mini-Cog® Scoring – 5 Point System – Methods may be updated. Copyright noted.**

1. Three Item Recall

2. Clock Draw Task

**Medication Transfer Screen (MTS) – 5 Point System**

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morn</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Noon</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Eve</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bed</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Total number of pills on Saturday: 5.5/5

Note: Awarded only if entire row is correct. Saturday pill count reflects single addition; one point if column added correctly.

**Medication Transfer Screen Score — 5 Score**

**Medi-Cog Score (Medi-Cog + MTS Transfer) — 10 Score**

**Medi-Cog Administration:** On the MTS form, the Medi-Cog is performed on the top half or on the back of the sheet of paper. The Medication Transfer Screen (MTS) has four prescriptions and a counting skill. The grid represents a pillbox. Explain to the patient that the instructions may be new to them and that reassurance that questions will be answered at the end. Explain the exercise is not about his/her medications. Point to each instruction (don’t read it), so they know there are 5 tasks, but do not prompt them to do it if they forget task 5 – this is also an evaluation for memory. Read the Example and show how “1” is drawn to represent each pill being placed into the bedtime compartments and have them finish marking in the bedtime tablets for the entire week. Encourage completion of each prescription instruction before proceeding to the next. During screening, stop every so the patient can complete the MTS independently within 5 minutes. Stop if the patient becomes frustrated and offer reassurance. The screen is not diagnostic, but provides objective data to strengthen clinical judgment regarding the patient’s memory and abilities to interpret prescriptions and accurately load a pillbox.

**Scoring:** The Medi-Cog score consists of the Mini-Cog® score (up to 5 points) and the MTS (up to 5 points). Each of the five instructions is worth 1 point. Not completing an instruction or performing it incorrectly scores a zero. There are a total of 10 possible points in the Medi-Cog. An 8/10 score may indicate adequate skills depending on the patient’s regimen. Inadequate skills may indicate high risk regimen.

**TRANSFERING MEDICATION TO A PILLBOX**

On the table below write the number of pills as instructed into the correct compartments:

**Example:** TAKE ONE TABLET EVERY DAY AT BEDTIME

1. TAKE ONE TABLET EVERY DAY IN THE MORNING
2. TAKE ONE TABLET 3 TIMES DAILY WITH MEALS
3. TAKE TWO TABLETS M-W-F IN THE EVENING
4. TAKE ONE-HALF TABLET ON SATURDAY AT BEDTIME

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morn</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Noon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

5. How many pills total are in the pill box for the entire day of Saturday? ______
## Appendix B

### Budget/Cost-Benefit Analysis

<table>
<thead>
<tr>
<th>Cost Component</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing &amp; Booklet Production</td>
<td>$60</td>
</tr>
<tr>
<td>Brochures</td>
<td>$20</td>
</tr>
<tr>
<td>Transportation</td>
<td>$20</td>
</tr>
<tr>
<td>Nurse Education Incentive</td>
<td>$60</td>
</tr>
<tr>
<td>Contingency Fund</td>
<td>$40</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td><strong>$200</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Benefit Component</th>
<th>Estimated Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Savings from CHF Complications (per person)</td>
<td>$83,980</td>
</tr>
<tr>
<td>Number of CHF Patients Helped in the Project</td>
<td>4 Patients</td>
</tr>
</tbody>
</table>

| Total Benefit                        | $335,920         |
| Net Benefit                          | $335,720         |
| ROI                                  | 41,990%          |
Appendix C

Individualized Teaching Handout Template (p.1 of 3)
How Can I Live With Heart Failure?

1. Beta-blockers and/or channel blockers (or blockers) — Lower the heart rate and reduce the heart’s workload.
2. Digoxin — Helps heart pump better.
3. Vasodilators — Lower blood pressure by relaxating vessels and allowing them to open widely.
4. Sodium-glucose cotransporter 2 (SGLT2) inhibitors — Reduce blood glucose levels and decrease kidney weight and blood pressure.

What else can I do?

Consider rehabilitation and other important steps in the journey to meeting your wellness goals for people with heart failure. Cardiac rehab is a medically supervised program that includes exercise training, education on heart healthy living and often counseling to reduce stress. For many people with heart failure, cardiac rehab plays a critical role in improving the quality and length of life.

What should I watch out for?

Call your healthcare professional right away if you:
- Gain 2 or more pounds in a day.
- See swelling in your feet, in the areas of your hand, or in your abdomen.

How CAN I LEARN more?

1. Call the help line (844-420-2093)
2. See your healthcare provider
3. Call your pharmacy
4. Visit heart.org/patients

Questions? Ask your healthcare professional

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Appendix D

Disease Management Tri-Fold Brochure Template
Appendix E

Statement of Determination and Non-Research Determination Form

Project: Statement of Determination and Non-Research Determination Form

Student Name: Abigail A. Abrella, Brooke Shook, Daniela Roman, Ivy H. Nguyen, Mary Tran, and Ranina Nayarajen

Title of Project: Congestive Heart Failure Self-Management Among Senior Residents at Regis House

Brief Description of Project:
This project aims to improve self-management approaches among senior residents living with Congestive Heart Failure (CHF) at Regis House. Specifically, it seeks to enhance evidence-based practice and research by creating educational modules to enhance patient knowledge of their own conditions and prevent readmissions and exacerbations of their conditions.

Data that Shows Need for the Project:
This project is needed due to the fact that senior residents have substantially reduced readmission rates and exacerbations of their heart failure conditions due to poor or improper self-management. Specifically, our study has identified several key factors contributing to preventable readmissions, such as medication adherence, routine follow-up, adequate social support, and delayed medical attention when symptoms manifest. The research findings suggest that nearly 50% of early rehospitalizations can be avoided (Vessey et al., 1993). Additionally, our study has found that non-pharmacological interventions, combined with educational programs, demonstrate significant improvements in self-care and self-management of patients with CHF, leading to improved overall quality of life (Mancini et al., 2014).

Goal Statement:
Our Quality Improvement Project strives to enhance self-management among senior residents residing in Regis House who are living with Congestive Heart Failure (CHF) and to augment patients’ understanding of their conditions, ultimately preventing recent readmissions and exacerbations.

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST

Instructions: Answer YES or NO to each of the following statements:

- The aim of the project is to improve the process or delivery of care to establish quality standards, or to implement evidence-based change. There is no intention of using the data for research purposes.
- The specific aim is to improve a specific service or program and is not a part of usual care. All participants will receive usual care.
- The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparisons, standardization, control groups, prospective comparison groups, cross-sectional, case control. The project does NOT follow a protocol that involves clinical decision making.
- The project involves implementation of established and usual quality standards as per institutional or professional guidelines, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop guidelines or tools/methods or new standards.
- The project involves implementation of care practices and interventions that are evidence-based or evidence-supported. The project does NOT seek to test an intervention that is beyond current science and experience.
- The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USP T1015P.
- The project has NRO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.
- The agency or clinical practice unit agrees that this project will be implemented to improve the process or delivery of care, i.e. not a research project that is independent upon the voluntary participation of colleagues, students, or other staff.
- If there is an intent to, or possibility of publishing your work, you and your supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: “This project was undertaken as part of Evidence-Based Change of Practice Project and was not formally supervised by the Institutional Review Board.”

ANSWER KEY: (If the answer to ALL of these forms is YES, the project can be considered an Evidence-based Change of Practice Project that does NOT meet the definitions of research. IRB review is not required. Keep a copy of this checklist in your files. If the answer to ANY of these questions is NO, you must submit for IRB approval.)

UNIVERSITY OF SAN FRANCISCO School of Nursing and Health Professions

* Adapted with permission of Elizabeth L. Holman, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): Abigail A. Abrella, Brooke Shook, Daniela Roman, Ivy H. Nguyen, Mary Tran, and Ranina Nayarajen

Abigail A. Abrella
Brooke Shook
Daniela Roman
Ivy H. Nguyen
Mary Tran
Ranina Nayarajen

Signature of Student:
DATE: 10/04/2023

SUPERVISING FACULTY MEMBER NAME (Please print): Mohammad E. Najar

Mohammad E. Najar

Signature of Supervising Faculty Member DATE: 10/04/2023
## Appendix F

### Literature Review

<table>
<thead>
<tr>
<th>Source</th>
<th>1</th>
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<td>Type of Literature</td>
<td>Research</td>
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<tr>
<td>Methodology</td>
<td>Prospective and Observational Study</td>
<td>Pretest-posttest study</td>
<td>Cross-sectional study</td>
<td>Meta-Analysis</td>
<td>(need help on this)</td>
<td>Cross-sectional, analytical study</td>
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<tr>
<td>Description of Study</td>
<td>The study aimed to assess the self-care abilities of elderly patients with HF, investigate how socio-clinical factors affect their self-care levels, and pinpoint the specific socio-clinical variables that serve as indicators of self-care.</td>
<td>The goal of this study was to assess the effectiveness of two educational interventions in enhancing self-care and health-related quality of life (HRQoL): one based on motivational interviewing (MI) and the other a conventional educational approach.</td>
<td>Assessing the Relationship and Prevalence of Social and Personal Factors Contributing to Medication Non-Adherence in Heart Failure Patients.</td>
<td>The aim of this study is to investigate how a self-management intervention impacts four key prognostic indicators: readmission rate, mortality rate, self-management skills, and quality of life in individuals with congestive heart failure.</td>
<td>Recognizing predictive factors for readmission in these patients can enable healthcare providers to target resource-intensive disease management strategies toward those at the highest risk.</td>
<td>The objective is to establish the connection between the degree of functional health literacy and adherence, as well as barriers to non-adherence, rehospitalization, readmission, and mortality in individuals with heart failure.</td>
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<td>Population / Sampling</td>
<td>100 HF patients (48 female, 52 male) aged 60–88 years</td>
<td>93 patients in the intervention group and 93 matched patients in the control group</td>
<td>The participants in this study had previously been admitted to the medical ward for the management of cardiac failure.</td>
<td>This study encompassed 20 randomized controlled trials, comprising a total of 3,459 patients diagnosed with congestive heart failure.</td>
<td>The study sample consisted of individuals aged 65 or older, with a primary diagnosis of heart failure, who were admitted to 18 Connecticut hospitals during the years 1994 and 1995.</td>
<td>100 patients admitted to the emergency room with a diagnosis of heart failure</td>
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<td>Data Collection</td>
<td>Patient records were obtained for the study, and quantitative parameters, such as left ventricular ejection fraction (LVEF) expressed as a percentage and the blood levels of B-type natriuretic peptide (proBNP) measured in picograms per milliliter (pg/ml), were analyzed.</td>
<td>Information regarding mortality and hospital readmissions was gathered to monitor adverse events.</td>
<td>Basic demographic information of the patients was documented on a proforma, which included details such as their educational level, compliance status, and self-involvement in the treatment process. Patients were classified as non-compliant if they did not adhere</td>
<td>This study was chosen from relevant research articles published between January 1999 and January 2022. The selection process involved searching five databases: PubMed, Science of Website, China National Knowledge Infrastructure (CNKI), Wan</td>
<td>Patient and clinical information was collected through a review of medical records. Outcomes, such as all-cause readmission, heart failure-related readmission, and mortality within 6 months after discharge, were determined using data from the Medicare administrative</td>
<td>The study's participants were chosen upon hospital discharge and had been admitted to the emergency room due to decompensated heart failure, determined by a clinical-hemodynamic profile. The selection encompassed patients aged 18 or</td>
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<td>Data Analysis</td>
<td>Correlations between two quantitative variables were examined using Pearson's coefficient when both variables exhibited normal distributions, or Spearman's coefficient when one or both variables had distributions that deviated from normal.</td>
<td>Following their discharge from the hospital due to heart failure, participants had an initial visit, as well as 6 to 7 subsequent follow-up visits over the course of 6 months. Self-care was evaluated using the European Heart Failure Self-care Behavior scale, while health-related quality of life (HRQoL) was assessed using the Minnesota Living with Heart Failure Questionnaire.</td>
<td>The data was meticulously gathered and subjected to thorough statistical analysis.</td>
<td>In the analysis, self-management ability and quality of life were treated as continuous variables, while hospital readmission and mortality rates were categorized as dichotomous outcomes. The standardized mean difference (SMD) was employed for continuous data, and relative risk (OR) was utilized for dichotomous data.</td>
<td>Risk predictors were derived based on all-cause readmission within 6 months after discharge, which was the primary outcome event in the study. A combination of demographic and clinical variables that are potentially significant and generally available predictors of all-cause readmission was identified.</td>
<td>Literacy levels were evaluated using the Newest Vital Sign assessment. Patient adherence to medication treatment and identification of barriers to non-compliance were determined 90 days after discharge using the Morisky-Green test and the Brief Medical Questionnaire, respectively.</td>
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<td>Ethics</td>
<td>The research protocol received approval from the Bioethics Committee of Wroclaw Medical University, Poland (approval no. KB–215/2016). All patients provided written informed consent following a comprehensive explanation of the procedures. This investigation adheres to the principles set forth in the Declaration of Helsinki.</td>
<td>There were no ethical concerns mentioned in this article</td>
<td>There were no ethical concerns mentioned in this article</td>
<td>This article does not include any research involving human participants or animals conducted by any of the authors.</td>
<td>There were no ethical concerns mentioned in this article</td>
<td>Data collection commenced following approval from the Research Ethics Committee of the sponsoring institutions, based on opinion protocol number 922.744 in 2014, and adhering to the guidelines outlined in Resolution number 466/2012 of the National Health Council. Additionally, all participants in the study provided their informed consent.</td>
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<td>Themes</td>
<td>Socio-clinical factors influencing self-care levels in elderly individuals diagnosed with heart failure.</td>
<td>The Influence of Motivational Interviewing on Self-care and Health-Related Quality of Life in Individuals With Congestive Heart Failure</td>
<td>Factors Predicting Non-Adherence to Prescribed Pharmaceutical Therapy in Heart Failure Patients</td>
<td>Influence of self-management intervention on the outlook of individuals with Congestive heart failure.</td>
<td>Factors Influencing Readmission in Elderly Survivors of Heart Failure Hospitalization</td>
<td>Health Literacy and Treatment Adherence in Heart Failure Patients</td>
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<td>Key Findings &amp; Recommendations</td>
<td>Factors such as not being in a relationship, undergoing diuretic treatment, having a higher NYHA class, and experiencing cognitive impairment are strongly correlated with notable variations in self-care among elderly patients with heart failure.</td>
<td>Self-care demonstrated a significantly greater improvement in the MI-based intervention group compared to the control group (p = 0.005). While both groups exhibited improvements in both self-care and health-related quality of life (HRQoL) over time (p &lt; 0.05), there was no statistically significant difference between the groups in terms of the improvement in HRQoL over time (p = 0.13).</td>
<td>This study involved a total of 133 patients. Out of these, 36 (27.07%) adhered to their treatment regimen, while 97 (72.93%) did not. Notably, patients who actively participated in their treatment, had an educational background, and were familiar with the names of their medications demonstrated higher levels of compliance compared to the remaining patients.</td>
<td>The findings from this study indicate that self-management interventions have the potential to lower patient readmission rates in comparison to standard care. Research has revealed that patients diagnosed with chronic heart failure often exhibit inadequate self-management behaviors, particularly in areas such as medication adherence, weight monitoring, dietary control, exercise therapy, and emotional regulation. These shortcomings are associated with elevated rates of hospital readmissions and mortality among individuals with Congestive heart failure.</td>
<td>Only a limited number of patient and clinical factors can forecast readmission within six months following discharge in elderly heart failure patients. While it may be challenging to pinpoint a group of patients at very low risk for readmission, the study did identify a subgroup of high-risk patients. For this high-risk group, resource-intensive interventions aimed at enhancing outcomes may be deemed justifiable.</td>
<td>Lower literacy levels were directly linked to reduced treatment adherence, the presence of obstacles to medication adherence, and higher rates of rehospitalization and mortality.</td>
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<tr>
<td>Limitations / Strengths Validity / Reliability</td>
<td>The study had certain limitations, notably a relatively small sample size and the exclusive recruitment of</td>
<td>There were no limitations mentioned in this article.</td>
<td>There were no limitations mentioned in this article.</td>
<td>Strengths: Firstly, in comparison to the original research, our study benefited from a larger sample size.</td>
<td>Strengths: Firstly, these predictors were based on real-world patients with non-valvular heart disease.</td>
<td>There were no limitations mentioned in this article.</td>
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and enhanced statistical power, rendering our results more dependable. Secondly, we assess a range of outcome indicators related to the prognosis of individuals with chronic heart failure.

Limitations: The study had limitations, including potential bias due to secondary data collection, a lack of blinding in the included studies, regional and cultural diversity in the study population, and the influence of factors like age, education, compliance, intervention methods, and duration on the intervention's effectiveness. Large-scale randomized controlled trials are necessary to examine these confounding factors' impact on the intervention.

admitted to different Connecticut hospitals, rather than those in clinical trials or specialized heart failure clinics. This approach helped reduce biases associated with single-institution studies. Secondly, the predictor variables are well-defined and can be readily assessed at the time of discharge. Lastly, the generalizability of these predictors is reinforced by their performance in the validation set closely resembling what was observed in the derivation set.

Limitations: This retrospective study's reliance on medical records introduced potential misclassification, and its findings were specific to Medicare beneficiaries aged 65 and older. It couldn't consider nonclinical factors or outpatient management, and several potential predictors were unavailable. Further research is needed to validate these risk predictors across diverse patient groups and to explore outcomes like functional status and quality of life.