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Development and Evaluation of a Heart Failure Tool for Homebound Patients

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This is to certify that the doctoral study by

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Abstract

Development and Evaluation of a Clinical Management Protocol for Homebound Congestive Heart Patients

by

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Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

With more than 700,000 new diagnoses annually, congestive heart failure (CHF) is a chronic condition that affects the chambers of the heart. When not managed correctly, the disease rapidly progresses to substantial fluid volume overload that impacts activities of daily living and the overall quality of life. The financial implications for poor CHF management cost a mean annual medical expenditure of $33,427 per patient per year. The need for a diagnostic and prognostic at-home protocol is needed in the medical community, as there is currently no such tool on the market. Donabedian's framework was used to guide the formulation and interpretation of this research. The purpose of this project was to design a CHF protocol using evidence-based research for clinicians making home visits to homebound patients with a primary diagnosis of CHF with an individualized protocol focusing on disease management, in home support system, knowledge base and financial factors for homebound patients. The protocol was released through a snowballing campaign to clinicians who work with CHF, transitional care, or homecare who then evaluated the protocol on its perceived efficacy if integrated into practice. Findings were analyzed using simple descriptive statistics by 32 nurses and other health care professionals who responded work in home care, cardiology, medical surgical nursing hospitalists, or skilled nursing facilities. Thirty-one of the 32 respondents deemed the protocol useful and stated a clinical need of protocol as evidenced by completed the AGREE II Questionnaire. The findings demonstrate that the CHF Practice Protocol provides clinicians with an evidence-based guidance to manage homebound patients with CHF on a small scale.

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Section 1: Nature of the Project Introduction

Congestive heart failure, or CHF, is a chronic medical condition that affects the chambers of the heart (Krucik, 2012). Left-sided CHF causes damage to the left ventricle, potentially resulting in fluid buildup in the lungs while right-sided CHF may occur in conjunction with left-sided CHF or separately, causing difficulty in sending blood to the lungs and resulting in fluid buildup in the lower extremities (Krucik, 2012). Over 5.7 million individuals in the United States alone are diagnosed with CHF, with approximately 700,000 new diagnoses of CHF per year (Mosalpuria et al., 2014). The disease is characterized by multiple hospital readmissions, averaging out to at least 1 per year for over 50% of those diagnosed and mortality rates at approximately 30% (Mosalpuria et al., 2014). The prevalence of the disease, lack of proper patient education, and mismanagement of the disease and its associated symptoms are some of the more common reasons associated with repeat hospitalizations (Mosalpuria et al., 2014). Currently, there is no tool for CHF a patient that focuses on patient education and managing CHF. The tool developed in this project was created to allow home healthcare providers, including physicians, nurse practitioners and physician assistants, the ability to monitor and track disease progression. The ability to manage the disease will increase several fold, potentially reducing the number of repeat hospitalizations and reducing the mortality rates associated with the disease itself. The tool was evaluated by clinicians in home care and cardiology on its potential of efficacy in practice.

Patients with CHF were the primary stakeholders in the completion of this project; another stakeholder in the program was the visiting nurse associations (VNAs)

who focus on the care of the CHF patient. VNAs, though certified by Medicare, provide different services and allocations of services including nursing, home health aides, and therapists.

VNAs who offer tele-health systems that monitor vital signs including weight, blood pressure, and pulse on a daily basis have a staked interest in managing patients with heart failure in the home. The VNAs are the main professionally trained caregivers outside of the home and serve as the eyes and ears for the visiting provider group. A third stakeholder group was the visiting provider practice including office staff, physicians, and nurse practitioners (NPs). These stakeholders are all board certified by their respective bodies and have several years of experience managing chronic disease states for homebound patients.

Relying on information about medications taken, baseline diagnostic criteria, baseline measurements, risk factors, and symptom notification parameters, the tool developed here is in questionnaire form. The CHF home care tool will allow the visiting provider to evaluate the needs of the patient in his or her home environment looking at the living conditions, access to resources, and caregiver support. In doing this, the tool can yield guidance to the patient and his or her provider concerning the management of CHF, which may reduce hospitalization rates. The provider is also able to identify the patient's current disease knowledge, willingness to participate in disease management, and any inhibiting factors preventing disease management in the home. The tool designed will be used to address the needs of the heart failure patient and to align resources and services while they are in the home. The provider entering the home to

provide care will complete the heart failure tool to identify barriers and potential complications and give standing orders and visiting recommendations to provide optimal care and reduce exacerbations.

Stakeholder involvement was important for me to complete and analyze information for the project. I coordinated activities and contracts with stakeholders required to research the efficacy of the tool. This included partnerships and the creation of standard protocols. Stakeholders included the patients with CHF and participating health care providers as well as homecare agencies and their clients.

The completion of the project culminated the development of a heart failure tool created by a nurse practitioner who works in home care, where clinicians and providers will be able to use to identify factors that may lead to exacerbation or hospitalization of home bound heart failure patients.

Problem Statement

Health care reform has focused on patient outcomes, cost reduction, and recurrent hospitalization rates. Twenty-six percent of patients who are discharged from a hospital to home end up back in the hospital within 30 days (Ouslander et al., 2010). Even with discharge planning, patients can become confused and unsure when trying to manage changes in medications, follow up care and appointments, and changes in conditions and functional capacity after being discharged from the hospital (Dedhia et al., 2009). Patients with complex disease states, such as that which is present in those diagnosed with CHF, become classified as unmanaged as a result of their inability to process and follow the changes being placed in front of them, causing issues in their plan of care and

their ability to manage their disease. This results in the patients ultimately going back to the hospital for treatment. Recurrent hospitalizations may be preventable with proper interventions including additional medications, patient education, switching to a low sodium diet, drug therapies, thyroid therapies, and counseling (*CHF Risk Factors and Recommended Interventions*, n.d.). This tool may be used to decrease the prevalence of these hospitalizations. Many of these additional interventions do not require the patient to visit the doctor's office or the hospital for them to start. Currently, there is no tool available for NPs and other home healthcare providers who aim at improving the management of CHF patients specifically. With such a tool, decreased rates of hospitalization can be achieved for CHF patients.

NPs are able to diagnose, treat, and manage acute and chronic disease states, including pain. They function in a variety of settings ranging from hospitals, nursing homes, clinics, and home care. NPs are regulated by the Nurse Practice Act in the state in which they practice; therefore, NPs practice guidelines vary slightly from state to state (Cooper, 2007). Home care is a growing industry and is considered an underserved population. Many home care clients have complex disease states such as CHF. The presence of these NPs within the home healthcare industry works to provide a viable alternative for an individual who would be able to administer the CHF Practice Protocol being developed herein.

Purpose Statement

The purpose of the project was to design a CHF tool that may be used by a provider who makes home visits with patients who are diagnosed with CHF in order to

improve the overall efficiency of home-based healthcare options. CHF has become epidemic in our nation, taxing our health care system (Mosalpuria et al., 2014). The subsequent burden of care is foisted off onto the community as a result of the cost of care associated with treatment and the overall negative effects on the quality of life of the patient and their families (Boyd et al., 2011). CHF is weakness of the heart to keep up the demands of the body and follows a spectrum of severity (Krucik, 2012). CHF is treatable and manageable with medications, lifestyle modifications, and surgical treatments (Jessup et al., 2009). NPs trained in home care and who have an understanding of heart failure are capable of managing heart failure patients in the home (Cooper, 2007). The use of a tool for heart failure patients will assist the NP or other providers in their coordination of care while allowing the provider to ensure that the patient is on a proper follow up and treatment protocol and the set modalities for the patient are following evidenced based practices. As such, the purpose of the project was to design the CHF Practice Protocol tool that may be used by a provider who makes home visits with patients who are diagnosed with CHF in order to work to improve the overall efficiency of home-based healthcare options.

Project Objectives

The following objective has been identified for the completion of this project:

- Develop the CHF Practice Protocol tool designed from evidenced-based practice and evaluate its effectiveness.
- Determine the perceived effectiveness and usefulness of the tool with CHF patients.

Significance and Relevance to Practice

Healthy People 2020 set a standard to reduce hospitalizations for people who have a principal diagnosis of heart failure. The initiative set forth in the Healthy People 2020 objectives hopes to obtain a 10% reduction across the board of three targeted areas (Healthy People 2020, 2014). The target age group is an older population aged 65 to 74 years old with a primary diagnosis of heart failure (Healthy People 2020, 2014). The target is 8.8 hospitalizations per 1,000 people (Healthy People 2020, 2014). In 2007, there were 9.8 hospitalizations per 1,000 people (Healthy People 2020, 2014). In the age group of 75 to 84, there were 22.4 hospitalizations per 1,000 people, and the Healthy People 2020 goal is 20.2 per 1,000 people. Those older individuals 85 years and older have 42.9 hospitalizations per 1,000 people and a goal of 38.6 hospitalizations (Healthy People 2020, 2011). It is anticipated that through the utilization of the CHF Practice Protocol being developed and evaluated that the obtainment of the objectives set forth by the Healthy People 2020 initiative will become more attainable than they are in the current state of healthcare.

In addition to financing for medications, health literacy, and inadequate support systems, disease management compliance has an impact in reducing hospitalization rates (Minott, 2008). In spite of this proven ability to reduce readmission rates with simple compliance, there are many barriers in which CHF patients may not remain compliant with their medications or treatments, especially when it comes to heart failure (Grady et al., 2000). Barriers can make patients believe that they are sick only when they are in the hospital and/or facility. Thus, patients believe that they do not need to do their treatments

or take medication because they are feeling better, reducing compliancy; further compliancy issues are brought about by the perceived inability to follow instructions due to a lack of understanding or an unwillingness on the part of the patient or their families to comply with all of the rules and regulations set forth upon discharge (Grady et al., 2000). These compliancy barriers may lead to decreased healthcare outcomes for patients.

Issues of complacency are another concern for CHF compliance. Patients are lulled into a sense of familiarity and security, believing that all that they have done in the past has worked, and thus there is no need to make changes in the future in order to further manage the disease; the issue with this mentality arises from the fact that it fails to take into account the progression of the disease, thereby resulting in readmissions (Grady et al., 2000; Naylor et al., 2011). In addition, issues may arise because certain patients do not like the way they feel when they are taking certain medications, and as opposed to speaking with their doctor regarding the matter, they opt to self-diagnose and simply remove the medication from their regimen, causing complications in the treatment of the disease (Grady et al., 2000). Another issue in compliance has to do with the financial burden assumed by patients when it comes to paying for medication and provider and therapy visit copays (Grady et al., 2000; Ornstein et al., 2011). Individuals may attempt to determine for themselves whether or not a given visit or a particular medication is essential to treatment, declining to pick up a prescription or participate in a particular type of therapy as a means of reducing overall associated costs with the management of the disease (Grady et al., 2000; Naylor et al., 2011). Family and caregiver support are

also essential in compliance. Families and caregivers provide reinforcement of the plan of care, and a lack of caregivers may cause an issue with compliance (Afzal et al., 2013).

Access to health care is another Healthy People 2020 initiative. People who have heart failure may have access issues due to complex disease states and debility. Visiting provider groups specialize in complex care management in the home (Longworth, 2011). These providers focus on disease management and prevention by educating the patient and caregiver in regard to disease states. They are able to see how the patient environment affects the disease state of the patient and the support system of the patient. The visiting provider can curtail the services needed by the patient by evaluating the patient environment (Stall, Nowaczynski, & Sinha, 2013). The express significance of this tool is that it provides patients and healthcare providers with improved information to manage CHF.

Evidence-Based Significance of the Project

In a study by Brock et al. (2013), the researchers looked at hospitalization rates of complex disease states wherein patients returned to the hospital with the same diagnosis within 30 days of previous discharge. The study incorporated several disease states, including heart failure. The mean 30 day repeat hospitalization per 1,000 Medicare beneficiaries per quarter was 15.21% in 2006-2008 (Brock et al., 2013).

Repeat hospitalization rates are around 26% within 30 days of hospital discharge nationwide on complex disease states, with approximately 67% of those readmissions being classified as avoidable if the patients had simply followed their basic plans of care (Ouslander et al., 2010). Implementing close follow up with patients with heart failure

through the use of home health care organizations and home care providers who make house calls will serve as a means of reducing the readmission rates of patients diagnosed with heart failure. The 30 day repeat hospitalization rate was 26% (19,714) within 30 days of hospital discharge with a length of stay of 6.5 days (SD 6.14) and with an average time range to repeat hospitalization of 13.6 days (SD 8.2; Ouslander et al., 2010). Increasing the level of coordination of care present between the hospitals, the patient's regular doctors, and his or her home health providers in conjunction with creating a tool to be implemented in assisting to ensure the appropriate levels of care are received should work to reduce those overall readmission rates, thus increasing the overall health of individuals who fall into this population identifier (CHF patients).

The use of a visiting provider who focuses on patients with heart failure and who is able to see patients just after discharge to help develop a plan of care, reconcile medications, and coordinate services within the community will, logically, help reduce recurrent hospitalizations as it will serve to increase overall continuity of care (Minott, 2008). Having a visiting practitioner meet with CHF patients in their home within 1 week of being discharged from the hospital and providing the patient with both close follow up on their condition, offering additional education opportunities, and working to reconcile the new information received by the patient with their previous actions taken as a part of their daily routine for CHF maintenance. It will be possible to ensure that the patients have the information that they need, that continuity is maintained, and that patients are less likely to become noncompliant with the information they have received as a result of their discharge plan (Naylor et al., 2011; Ornstein et al., 2011).

Implications for Social Change in Practice

To make appreciable social changes in any society, research and technology must continue to progress and adapt to the patient environment. The CHF Practice Protocol developed as part of this project is specifically designed to provide nurses a highly useful tool for at-home patients. By targeting this specific group of patients, the social changes expected will involve this group specifically. Providing a reliable and timely tool for patients will likely improve patient outcomes, while the continued development and improvement of the CHF Practice Protocol will further enhance the efficacy of the tool.

Definitions of Terms

Congestive heart failure: A chronic medical condition that affects the chambers of the heart (Krucik, 2012).

Elevated jugular venous pulsation: Distention of the jugular veins when the patient is sitting at a 45 degree angle (Figuera & Peters, 2006).

Home care: Health care that occurs primarily or exclusively at one's own home performed by a certified Home Health Agency such as a VNA. It may be paid privately or through insurance such as Medicare. Visiting provider groups are physicians, nurse practitioners, and physician assistants who provide primary care in the home. In addition, home care may include care provided by nurses, certified home health aides and nursing assistance on a nonmedical basis.

Repeat hospitalization: A patient being hospitalized for one condition, in this case CHF, or set of symptoms after having been hospitalized before for the same condition or set of symptoms.

Tele-health or tele-care: Health care received through the telecommunication systems such as via telephone or audio-visual correspondence.

Assumptions and Limitations

It is an assumption of this project that there is real need within the home healthcare population, due to the increased number of readmissions indicated for CHF patients within the literature, for a home care CHF tool. A limitation of this study is that the sample of NPs and other professionals to evaluate the CHF tool is somewhat small and not highly representative of similar professionals across the country. While this project served to develop and improve an at-home CHF tool, future studies can rely on other samples.

Summary

With more than 5 million individuals in the United States diagnosed with CHF, and approximately 700,000 new diagnoses annually (Mosalpuria et al., 2014), there is a need for solutions to accurately and actively manage CHF. The prevalence of CHF, the lack of proper patient education, and the mismanagement of the disease are typical reasons for the repeat hospitalization of CHF patients (Mosalpuria et al., 2014). Currently, there is no tool that has been found in the literature that works on the transitional management of discharged CHF patients that focuses on patient education and managing CHF. The tool created as part of this project to allow homecare professionals the ability to monitor and track disease progression and the ability to manage the disease will increase substantially, potentially reducing the number of repeat hospitalizations and reducing the mortality rates associated with the disease itself.

Section 2: Review of Literature and Theoretical and Conceptual Framework

A review of the relevant literature revealed that heart failure can be effectively managed in homebound patients with the proper interventions. A literature search, focusing on the last 5 years was conducted between December 2013 to April 2014 using Pubmed®, CINAHL®, and Google Scholar® and using the search terms *congestive heart failure, CHF, visiting provider group, heart failure management, nurse practitioner,* and *Visiting Nurse Association*. Over 10,000 articles were initially identified. By combining search terms and applying relevancy criteria, the search was narrowed to 106 possible studies.

General Literature Review

Diagnosing CHF can be accomplished with considerable accuracy through a variety of means and "should be considered in the differential diagnosis of any adult patient who presents with dyspnea and/or respiratory failure" (Figuera & Peters, 2006, p. 403). According to Figuera and Peters (2006), successfully diagnosing CHF often hinges on a determination of the patient's history and a complete physical examination, along with an assessment of a patient's characteristic chest radiograph findings. In addition, a measurement of serum brain natriuretic peptide, as well as echocardiography, has substantially improved the accuracy of the diagnosis of CHF (Figuera & Peters, 2006). While the researchers hold that an investigation of one's medical history is insufficient by itself for a CHF diagnosis, such a history can provide clues as to the specific cause, such as uncontrolled hypertension or myocardial infarction (Figuera & Peters, 2006). Symptoms of CHF are generally related to the reduction of cardiac output, leaving the

patient feeling weak or fatigued, or to an excess of fluid retention, which is shown by cardiac wheezing, dyspnea, or orthopnea (Figuera & Peters, 2006). Symptoms can also present as hepatic congestion, which includes discomfort in the right upper-quadrant, or early satiety, discomfort while bending, and anorexia (Figuera & Peters, 2006). Fluid retention can result in the form of peripheral edema and even increasing abdominal girth, which is secondary to ascites (Figuera & Peters, 2006). When there is no dyspnea upon exertion, heart failure due to left-ventricular dysfunction can be ruled out (Figuera & Peters, 2006). Crackles may present too, though studies show that they only present in approximately 20% of patients with CHF (Figuera & Peters, 2006). Finally, edema in the lower extremity presents in roughly one-quarter of patients who are younger than 70 years of age (Figuera & Peters, 2006).

The presence of elevated jugular venous pulsation is considered the most reliable indicator of volume overload and is estimated by the distention of the jugular veins when the patient is sitting at a 45 degree angle (Figuera & Peters, 2006). Volume overload indicates elevated pulmonary-artery occlusion pressure around 80% of the time (Figuera & Peters, 2006). Also, ventricular enlargement is estimated through precordial palpation, an apical pulsation that is displaced lateral to the midclavicular line, which is typically indicative of left-ventricular enlargement (Figuera & Peters, 2006). For patients experiencing dyspnea, chest radiography results may be useful as a first test for differentiating patients with primary pulmonary disease from those with heart failure (Figuera & Peters, 2006).

McMurray et al. (2012) argued that the diagnosis of CHF can be quite difficult in the early stages of the diseases, generally due to the nature of the symptoms presenting for CHF patients. Such symptoms tend to be nonspecific, leaving practitioners unable to differentiate between diagnoses of CHF and other diseases (McMurray et al., 2012). However, in later stages of CHF, symptoms become considerably more specific, allowing for more accurate diagnoses (McMurray et al., 2012). Sodium and water retention related symptoms are some of the slightly more specific symptoms of the later stages of CHF, while orthopnea and paroxysmal nocturnal dyspnea are much more specific, though much less common (McMurray et al., 2012). Other specific signs include elevated jugular venous pressure and, on occasion, displacement of the apical impulse; these two signs are much more difficult to detect in patients and are, thus, less reproducible (McMurray et al., 2012). Symptoms vary with other conditions and characteristics in patients, such as age, weight, and the presence of chronic lung disease (McMurray et al., 2012). Typical symptoms for CHF are breathlessness, orthopnea, paroxysmal nocturnal dyspnea, reduced exercise tolerance, fatigue, tiredness, increased recover time after exercise, and ankle swelling (McMurray et al., 2012). Less typical symptoms include nocturnal coughing, wheezing, weight gain, feelings of being bloated, loss of appetite, confusion, depression, palpitations, and syncope (McMurray et al., 2012). Specific signs include elevated jugular venous pressure, hepatojugular reflux, third heart sound (gallop rhythm), laterally displaced apical impulse, and cardiac murmur (McMurray et al., 2012). Less specific signs include peripheral edema, pulmonary crepitation, reduced air entry, dullness to percussion at lung bases, tachycardia, irregular pulse, tachypnea,

hepatomegaly, ascites, and tissue wasting (McMurray et al., 2012). Upon an accurate diagnosis, the most important next step to proper treatment is identifying the cause of the CHF (McMurray et al., 2012).

Swedberg et al. (2005) and Liu and Eisen (2014) discussed the available diagnosis means for CHF. Electrocardiogram results often change upon CHF (Liu & Eisen, 2014; Swedberg et al., 2005). Chest x-rays are useful for detecting cardiomegaly and pulmonary congestion (Swedberg et al., 2005). Hematology and biochemistry methods, such as blood count and measuring levels of S-creatinine and S-glucose, are common in diagnosing CHF (Liu & Eisen, 2014; Swedberg et al., 2005). Detecting the plasma concentrations of certain natriuretic peptides is also helpful in diagnosing CHF (Liu & Eisen, 2014; Swedberg et al., 2005). Echocardiography is a preferred method for documenting cardiac dysfunction at rest (Liu & Eisen, 2014; Swedberg et al., 2005). Cardiac magnetic resonance imaging is a highly accurate and versatile technique for assessing the volumes of the right and left ventricles as well as other important conditions (Liu & Eisen, 2014; Swedberg et al., 2005). Assessing pulmonary function and exercise tests are also common (Liu & Eisen, 2014; Swedberg et al., 2005).

A study by Jerant, Azari, and Nesbitt (2001) revealed that a home tele-care intervention service could significantly reduce the number of hospital admissions in patients with histories of CHF. The 1-year randomized trial included patients who were 40 years of age or older and who had been diagnosed with CHF. The patients were divided into three groups: home tele-care, telephone care, and usual care. Through the use of two-way doctor-to-patient video conferences, the tele-care group had fewer hospital

readmissions due to CHF and its related symptoms and also left much less of a financial burden on patients.

Specific Literature Review

In working to determine the most effective means of creating the CHF Practice Protocol, it became necessary to review previous attempts at additional monitoring and compliance techniques that had been applied to the CHF population. One of the more common methodologies that had been attempted and continued to come up in searches of relevant literature was the attempted implementation of tele-health alternatives. These tele-health practices required a patient to call in to a specific number, reporting their vital statistics and other pertinent information in order to determine whether or not the patient was staying on track, following their plan of care, and keeping their illness under control (Chaduhry et al., 2010).

Chaduhry et al. (2010) completed a small study that was to identify if tele-health monitoring improved health failure outcomes. The study incorporated 1,653 patients who had recently been hospitalized for CHF. The study participants were split into two groups, with individuals who had tele-health options setup for care management in one group and individuals who participated in traditional care options only in the second. The tele-health group called into a toll-free number and answered the questions regarding weight, medication compliance, and symptoms. The data were collected for 180 days and identified any reason for hospitalization or death. The results concluded there was no statistical difference between the repeat hospitalization rates between the two groups,

indicating that the additional utilization of tele-health options did not benefit the continuity of care of the patient, as was hoped.

In another study, Takahasi (2012) reviewed the tele-health management options implemented in the population of older adults with multiple health issues. The randomized control trial looked at 205 adults aged 60 and over who were identified as high risk for hospitalizations. Over a 1-year period of time the study showed no significant difference between patients who had tele-health interventions as compared to the control. This study did not solely identify CHF, but rather included it as well as other health issues such as debility, diabetes, and chronic obstructive pulmonary disease.

The next possibility addressed in order to identify the best means of CHF tool creation was the effectiveness of transitional care in the CHF patient. Transitional care options work to provide the patient with a transitory period between leaving the hospital and returning straight to their homes, a process that may result in confusion with discharge planning, understanding on the part of the patient, and an increased frustration, making compliance with orders given less likely. In order to identify the validity of this particular option, studies were reviewed which focused on the effectiveness of these treatment options.

Stauffer et al. (2011) completed a prospective study with concurrent controls on a heart failure transitional care program led by advanced practice nurses over a 1-year period at Baylor Medical Center at Garland. The advanced practice nurses were able to significantly reduce 30-day hospitalization rates by 48% during the post intervention period. The reduction was better when compared to secular reductions made by other

facilities in the same medical system (Stauffer et al., 2011). The goal of the study was determine if Medicare dollars could be saved by having transitional care provided by advanced practice nurses. The study yielded positive results with more than $200 saved by patients per hospitalization (Stauffer et al., 2011).

In a study completed by Brock et al. (2013), which focused on 14 communities evaluated, a positive correlation between transitional care management with interventions made by providers and decreased hospitalizations was shown. Between 2009 to 2010, transitional care interventions were instilled in 14 communities across the United States, some with transitional care interventions and some without. In Camden, New Jersey, the closest geographic location to my location, there was only a 1.58% 30 day repeat hospitalization rate. This rate was significantly lower than that of before (1.89), when compared to the previous years without interventions. This study included CHF, but also included other chronic disease states such as pneumonia, chronic obstructive pulmonary disease, and falls. In spite of the inclusion of additional illnesses and other reasons for medical intervention, the correlation between transitory periods and decreased readmission was wholly positive.

In a review of the literature completed on this topic, Stall et al. (2013) identified eight studies completed in the past 15 years in regards to visiting providers and hospital admissions. Studies reviewed were of a mixed design and included observational, retrospective review, and one multisite randomized control trial. All eight studies showed a decrease in hospital admissions from 8% to 84% with a mean 34.8% reduction in hospital admissions.

The effectiveness of the transitory care in working to reduce hospital readmission rates indicated that the most effective means of implementing the CHF Practice Protocol will be through the utilization of a form of transitory care, one that allows the patient the ability to go more smoothly between the hospital and a return to their everyday lives.

The next area of investigation required a determination regarding the effectiveness of NP interventions in a targeted patient population. This research was necessary in order to determine whether the inclusion of an NP intervention could be used in the CHF Practice Protocol's application. Research into this area returned multiple studies regarding the effectiveness of the nurse practitioner within the clinical setting and within the home setting.

In a study conducted by Lowery (2012), a NP-led CHF program within the Veteran's Affairs Medical Center was evaluated for effectiveness over the course of a 2-year period. Nine hundred sixty-nine patients participated in the scheduled study. These individuals were divided into two groups, with one group receiving interventions by NPs whose responsibility it was to counsel patients on disease management and directly manage the patients' CHF medications. The other group received traditional and "usual care." The results of the study yielded a significant decrease in hospitalizations, including days spent in the hospital and mortality over a 1-year period of time as a result of the interventions by the NPs within the clinical setting.

Naylor et al. (2011) looked into transitional care and the cost effectiveness of the implementation of a transitional care program in the Philadelphia region. The study used patients who were admitted to the University of Pennsylvania Health System and were

insured through Aetna's managed Medicare program; a total of 310 patients were used. Costs for the study were $217,000 for provider visits made to the home over a 1-year period of time and $164,500 for visiting nurse associations over a 1-year period of time. Hospitalization expenses in the transitional care program totaled $3,896,100, as compared to the control group, whose hospitalization expenses totaled $4,387,500. The study showed a 3-month health care cost savings of $439 per member and over $2170 over a 1-year period of time. The NPs would routinely make house calls to assist in disease and medication management as well as coordinate care in the patients' homes. Among the patients there was a significant reduction of 25%in recurrent hospitalizations from 60 to 45 ($p < 0.041$) over the period for those who were receiving NP interventions (Naylor et al., 2011).

The results of these studies indicate that the utilization of NP interventions in the treatment of CHF patients is an ideal form of transitory care that may be employed, one that will not only work to decrease overall costs associated with the care for CHF patients but that will effectively benefit from the creation of a tool designed to assist in CHF management.

While the literature has made clear that transitory care serves as a definite benefit to the CHF patient in terms of decreasing their overall readmission rates, and the utilization of NPs as a means of providing that transitory care is highly effective, this does not close down all further avenues of research, simply because the first option that shows positive benefits have been found. It is necessary to be thorough in the completion

of one's research, and as such, the next avenue of research into transitory care options touched on the beneficence of the visiting provider.

Stewart (2012) looked at hospital-based interventions of heart failure and home-based interventions in order to determine which of the two different options provided was more effective. The multicenter randomized control trial involved 280 CHF patients with a goal in identifying efficacy of disease management. Outcomes of the study did not yield a significant difference between intervention groups; however, it did show a positive correlation in health care costs and a decreased number of days in the hospital for those patients who were receiving home based interventions (Stewart et al., 2012). The data obtained, while not indicating a significant difference between the two groups, indicated that a difference was present.

Hernandez et al. (2010) published a study in regards to early physician follow up and the 30-day readmission rates of CHF patients. In the observational analysis, the researchers looked at 30,136 patients from 225 hospitals. The study showed a positive relationship between physicians seeing patients within 7 days of being discharged from the hospital and the CHF outcomes. There was a significance of seeing a patient within the first 14 days of coming home from the hospital, but not as significant as the first 7 days. Early intervention and follow up significantly lowers the risk of 30-day readmission (Hernandez et al., 2010).

Both studies indicated that the inclusion of a visiting provider worked to decrease readmission rates for CHF patients, to varying degrees of effectiveness. This indicated a higher likelihood for the utilization of some form of visiting provider in the process of

CHF Practice Protocol implementation, as the ultimate goal of the tool itself is to be able to work to reduce the overall readmission rate of CHF patients to the hospital, improving their overall quality of care, and working to ensure that the appropriate practices and procedures are being followed by CHF patients in order to ensure increased health and wellness.`

Summary of Literature Review

CHF may be managed by NPs effectively in the home. Tele-health, though a useful tool in help of management of CHF, failed to independently improve hospitalization rates (Takahasi, et al., 2012). Transitional care optimizes close follow up and disease management and has shown to be effective in managing CHF and decreasing hospitalizations (Block et al., 2013). With close provider follow up, including transitional care and seeing the patient within seven days of coming home from the hospital helps decrease hospitalizations and improve overall disease management (Hernandez, et al., 2010). These overall results point to the development of a tool that may be employed following the patient being discharged from the hospital or nursing facility and being utilized within the home by a visiting provider, which would offer additional means of monitoring and assistance in continuity of care for the patient between hospital stays and their typical and traditional doctor's appointments. The creation of such a tool should work to reduce the overall readmission rates to hospitals based on evidence as indicated within the literature review itself.

Theoretical Framework

CHF treatment and management in homebound patients in the home would greatly benefit from the application of Donabedian's framework. The main components of this model are structure, process and outcomes. Donabedian's framework model was used to guide the formulation of the research question and interpret findings (Gardner, Gardner & O'Connell, 2014; Johns Hopkins Bloomberg School of Public Health, 2014; McDonald, et al., 2007). The specific framework was chosen on the need to identify NP autonomy and disease management (Appendix E). This framework pioneered efforts associated with outcomes in research, and emphasized three factors: structure, process and outcomes (Gardner, Gardner & O'Connell, 2014; Johns Hopkins Bloomberg School of Public Health, 2014; McDonald, et al., 2007). Structure identifies nursing autonomy in decision making of the NP using two structural variables related to the outcome of the patient. In this specific incidence the variables represent weight gain, edema, medication compliance and diet. Process involves the aspect of decision making and interventions made by the clinician. Outcomes refer to the specific patient outcome; this refers to the effects and efficacy of the disease management of the homebound patient (Burns, & Grove, 2009).

The model originally created to describe the effects on the medical professional on the overall patient outcome. Donabedian (1966) stated,

> This is justified by the assumption that one is interested...in whether what is now known to be "good" medical care has been applied. Judgments are based on considerations such as the appropriateness, completeness and redundancy of

> information obtained through clinical history, physical examination and diagnostic tests; justification of diagnosis and therapy; technical competence in the performance of diagnostic and therapeutic procedures, including surgery; evidence of preventive management in health and illness; coordination and continuity of care; acceptability of care to the recipient and so on. (p. 671)

In structuring the questions from the perspective of the model, Donabedian's framework was utilized in the initial design of the CHF Practice Protocol (Appendix A). In working to ensure that each of the different areas, structure, process, and outcome, were addressed in the design of the tool, it became possible to ensure that all areas of concern were appropriately addressed and that the tool itself would be beneficial within the context it was created for, thus suggesting that structural factors will affect outcomes through the impact of the tool utilization. Nurses using the tool will better be able to assess the condition of CHF Practice Protocol at home. The model originally created to describe the effects on the medical professional on the overall patient outcome. The Donabedian framework is particularly suitable for designing the CHF Practice Protocol because this framework is both simple and can offer relatively straightforward means to assess the tool.

Summary

A review of the relevant literature reveals that heart failure can be effectively managed in homebound patients with the proper interventions and that, in fact, CHF may be effectively managed by NPs in the home. The literature review also reveals that tele-health, though a useful tool in help of management of CHF, failed to independently

improve hospitalization rates of CHF patients (Takahasi, et al., 2012). Meanwhile, transitional care optimizes close follow up and disease management and has shown to be effective in managing CHF and decreasing hospitalizations (Block et al., 2013). Given the results of the literature review, the creation of a home care CHF tool is expected reduce the overall readmission rates to hospitals. The Donabedian framework is particularly suitable for designing the CHF Practice Protocol because this framework is both simple and can offer relatively straightforward means to assess the tool. In fact, the model was originally created to describe the effects on the medical professional on the overall patient outcome. It was used in this project to build and help review the tool.

Section 3: Methodology Approach

The CHF Practice Protocol was designed for nurses and providers for use on home health care patients. The project itself was designed and created based on a need perceived within the home healthcare population as a result of the increased number of readmissions indicated for CHF patients within the literature, in combination with the readmission rate identified for patients as seen through my position as a NP within the field of home healthcare services. While it was clear that the utilization of the transitory services offered by the home healthcare services assist patients in reducing their readmission rates, it became clear that additional intervention was necessary in order to further reduce the readmission rates of these individuals and increase their overall quality of life. In order to do so, I applied the framework decided on in order to work to create the initial design of the CHF intervention tool shown in Appendix A. The initial design of the tool will allowed for providers to recognize problems present, increasing the likelihood of an issue being caught and addressed prior to the patient's condition becoming so severe that it warrants admission to the hospital.

Project Design and Methods

I disseminated the tool to providers of home health care. I coordinated with the office staff to identify the target population within the practice with a diagnosis code of 428.0, CHF and health care providers who provide direct care to those patients. The tool was reviewed by providers who are directly related to CHF. It was reviewed by physicians, nurse practitioners, and nurses who directly work with CHF. These providers work in home care, cardiology, hospitalists, and visiting provider groups. A minimum of

25 clinicians in multiple specialties and professions were used to evaluate their perception of the effectiveness of the CHF Practice Protocol. Clinicians and providers reviewed the tool for completeness and ability to integrate into practice. Each provider evaluated their perception of the tool using a standardized rating scale. Evaluation of the effectiveness of the tool occurred 1 month after releasing the tool via Email, mail, and fax. The participant consent form was required to be signed by clinician for the purpose of this study's completion is located in Appendix B.

Tool Design

The design of the CHF Practice Protocol was in the form of a basic questionnaire, fit on two standard sheets of paper. The first part of the tool's design (Appendix B) is used as a means of establishing baseline data for the provider to have a better understanding on the type of heart failure the patient has as well as other information to include baseline reporting information including electrocardiograms and echocardiograms as well as the patient ejection factor without the need of the provider to pull up the patient's full medical records to obtain all of the aforementioned data.

The second part of the CHF features a version of a tele-health tool, a tool used by VNAs as well as other providers to manage disease processes such as heart failure and hypertension in the home. Tele-health equipment is usually setup in the home and connects to a monitoring station inside the VNA or other facility and is evaluated by a nurse or other medical professional. The equipment in the home measures blood pressure, pulse, weight, and oxygen saturation. The tool also asked the patient questions to include information about medication compliance, chest pain or discomfort, shortness

of breath, and the use of additional pillows at night (Chaudhry et al., 2010). The provider or VNA could select the appropriate questions to be asked to the patient that are relevant for the patient.

The third section of the CHF Practice Protocol asked patients about medications that are appropriate for treating heart failure. Based on the latest standards of care published by Current (2014), patients who have heart failure should be on angiotension converting enzyme medication such as lisinopril, a beta-blocker such as metoprolol, a diuretic such as furosemide, and an antiplatelet such as aspirin (Klein, 2014).

The baseline lab information is useful for the provider in evaluating other healthcare factors that may exacerbate heart failure such as hypothyroidism, anemia, cholesterol, and diabetes (Klein, 2014). The baseline information regarding the patient's habits and ability level are documented by the provider to accurately identify changes from the baseline during phone calls and the tele-health system (Chaudhry et al., 2010).

The risk factor and prevention section of the tool is used as a means of identifying current comorbid concerns with patients who have heart failure and includes aspects like a low sodium diet, smoking, the patient's weight or body mass index, their fluid restrictions as well as the prevalence or absence of their flu and pneumonia vaccine. This information is useful for the provider when working with disease management education (Klien, 2014).

The second page of the tool begins with a triage scale that I designed and is used by the provider to establish visit frequencies. Patients without support systems or medications are at higher risk for hospitalizations (Lowery et al., 2012). Patients who

have a better understanding of heart failure, current prescribed medications, and an adequate support system have a better chance of managing heart failure in the home (Evangelista et al., 2010). Patients who do not have an adequate support system, are missing medications, and are ambivalent to their heart failure and other comorbid diseases are more apt to be readmitted to the hospital (Lowery et al., 2012). This scale is useful for both the provider seeing the patient in the home as well as to the office staff when determining when to schedule patients and how much potential follow up will be needed between the provider, nursing, and office staff.

The provider would then identify areas that are needed by the specific patient. Treating the patient as an individual is ideal for managing heart failure in the home (Boyde et al., 2011). This section gives the provider an opportunity to identify key areas of need for managing their disease in the home. This section also directs the provider on what to focus on for the next patient visit as well as goals for the visit.

The last section of the provider tool is the standing orders that the provider establishes with VNAs to decrease the amount of time between disease exacerbation and intervention. Diuretics are the cornerstone of heart failure management (Klein, 2014). Having standing orders for the VNA will allow the nurses to interpret tele-health data and symptomology and use standing orders to provide patient care without direct provider involvement. This allows quicker decision making by nurses as well as improved patient contact, which will allow timelier heart failure interventions (Chaudhry et al., 2010). The standing orders may be used in its entirety or in partial depending on the patient needs.

The tool and study was approved by the IRB at Walden University and its approval number for this study is 06-03-15-0338510.

Population and Sampling

The sampling method employed in this study is convenience sampling and involved obtaining information about qualifying patients from patients with heart failure. Selected providers who work with either heart failure patients or home care were chosen to participate in the evaluation process so that a sample size of at least 25 providers to evaluate the tool was achieved. Providers included physicians, nurses, and NPs who are licensed and certified in their respected professions within the state of New Jersey. Physicians, nurses, and NPs include cardiology, home care, and hospitalist specialists.

Patients who are considered to be homebound under the Medicare guidelines and standards are visited in their homes and are offered the appropriate interventions and assistance as needed and as demanded by their conditions and associated diagnoses. The territory served by Mobile Physician Group is the Southern New Jersey Region covering the majority of the three counties just outside of Philadelphia in New Jersey. The majority of patients served by the practice are over the age of 65, have Medicare as their primary insurance, and have four or more comorbid conditions. I am a full-time NP employed by the practice.

The target population is focused on homebound patients who are determined by Medicare to be unable to leave their home for greater than short durations due to a taxing effort. This population is set in Southern New Jersey, covering three counties:

Burlington, Camden, and Gloucester. The population incorporates multiple races, males and females from ages above 16, with median age of 74.8.

Access to health care is another problem for this target population. People who have heart failure may have access issues due to complex disease states and debility. Visiting provider groups specialize in complex care management in the home. These providers focus on disease management and prevention by educating the patient and care giver in regards to disease states. They are able to see how the patient environment affects the disease state of the patient and the support system of the patient. The visiting provider can curtail the services needed by the patient by evaluating the patient environment (Stall et al., 2013).

Instrument/Data Collection

The CHF Practice Protocol Tool (Appendix B) was given to various providers employing a convenience sampling technique. Providers included physicians, nurses, and nurse practitioners in various institutions and fields including home care clinicians, providers, hospitalists, and cardiologists. A minimal sampling size goal was at least 25 recipients. A coversheet provided instructions and collected demographic information on the provider completing the information as well as return instructions. The coversheet (Appendix E) was combined with the Tool (Appendix B) and the AGREE II Questionnaire (Appendix C).

In order to evaluate the effectiveness of the developed tool, each provider, both physicians and NPs, completed the Appraisal of Guidelines for Research and Evaluation (AGREE) questionnaire (See Appendix C). The purpose of the tool was to allow nurses

to be able to accurately identify the condition of CHF patients. The questionnaire asks 23 questions and ranks each question on a 1 to 4 scale from *strongly disagree* to *strongly agree* on the usage of the CHF Practice Protocol (White & Dudley-Brown, 2012). The provider test results were used to determine if the tool is valid and appropriate to be used with patients with heart failure in the home. This small, micro sample will lead me to determine if the tool may fit a more broad scale to incorporate more nurse practitioners and providers who provide home care provider services. Additionally, the results of this study will help to determine what changes need to be made to the tool.

Activities related to the evaluation of the heart failure transitional care program included the identification of ways to reduce hospitalization. By doing so, it required advanced practice nurses to make interventions over a 30-day period in terms of medication management, early interventions, and disease management to avoid hospitalizations. Early interventions included having the advanced practice nurse visit within the first 72 hours, and 24-hour phone support was available for patients to call with questions or concerns. The advanced practice nurse worked with patients over a 3-month period of time (Stauffer et al., 2011). The data analysis used for this project was a comparison of means, in which the mean patient outcomes were compared.

Data Analysis

The data gathered for the evaluation of this heart tool effectiveness came primarily from the opinions of medical professionals who received the tool for evaluation. Simple descriptive statistics including both percentages and frequencies were

tallied based from the feedback received from the medical professionals evaluating the tool.

Project Evaluation Plan

After the conclusion of the project and evaluation of the outcomes of the project have been analyzed, I determined a positive outcome has occurred by feedback provided by the providers. It was determined that additional research is needed on a larger scale to better evaluate the use the heart failure tool in homebound patients (Ketner et al., 2012).

The primary evaluation of the CHF Practice Protocol was found to be appropriate for use by health care providers who serve patients with heart failure. Secondary evaluation results yielded that proper communication and patient care can seamlessly take place between the VNAs, the visiting provider group, and the patient if the evidenced based practice is applicable for the homebound patient.

Summary

The CHF Practice Protocol was designed for nurses and providers for use on home health care patients. The tool was designed and created based on a need perceived within the home healthcare population as a result of the increased number of readmissions indicated for CHF patients within the literature. The design of the CHF Practice Protocol was in the form of a basic questionnaire, fit on two standard sheets of paper. The first part of the tool's design was used to establish baseline data for the provider to have a better understanding of the type of heart failure the patient has in addition to other basic information. The second part of the CHF features a version of a tele-health tool, a tool used by VNAs as well as other providers to manage disease

processes such as heart failure and hypertension in the home. The third section of the CHF Practice Protocol asked patients about medications that are appropriate for treating heart failure. The last section of the tool is the standing orders that the provider establishes with VNAs to decrease the amount of time between disease exacerbation and intervention. During the course of the study, I will disseminate the tool to providers of home health care. Such providers will evaluate the effectiveness of the CHF Practice Protocol.

Section 4: Findings, Discussion, and Implications Data Analysis

The data gathered for the evaluation of CHF Practice Protocol came from the opinions of medical professionals who received the tool for evaluation. Simple descriptive statistics were used based on the feedback received from the medical professionals evaluating the tool using the AGREE II Questionnaire. The results of the survey indicated strong professional support for the use of the tool (Appendix F). There were 32 participants in this study. Twenty-three were registered nurses (RNs), three were physicians, five were nurse practitioners, and one participant was a Licensed Practical Nurse (LPN). Seven participants operated in a home care setting, 10 were employed in a medical/surgical or primary care setting, four were employed in cardiology, and six were employed in rehab or nursing home settings.

As depicted below in Figure 1, 28 respondents answered a 7 out of 7 response for the question “Rate the Overall Quality of the Guideline.” Meanwhile, the remaining five respondents answered a 6 out of 7 response, indicating very strong support for the guideline.

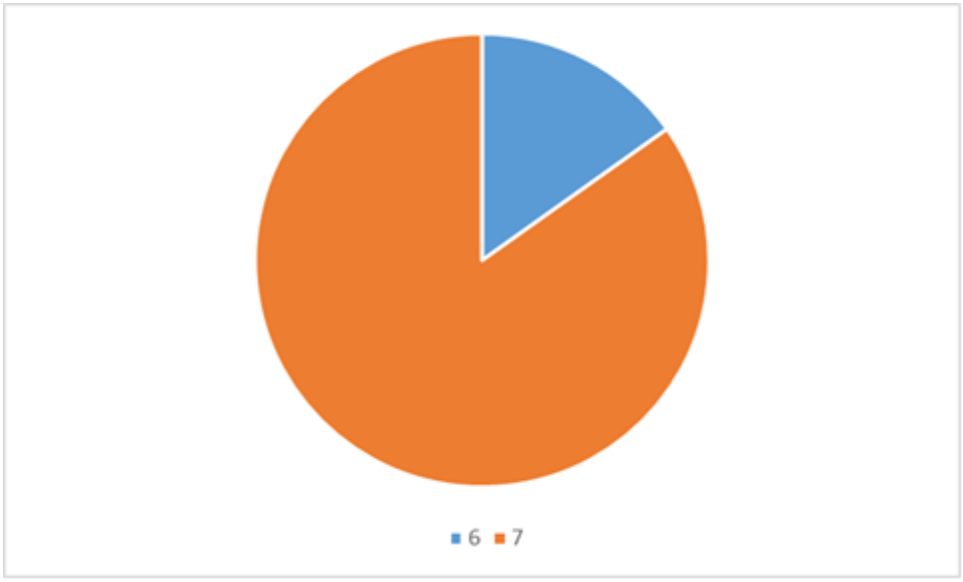

Figure 1. Rate of the overall quality of the guideline.

Moreover, 31 of the 32 respondents answered that they would recommend the use of the guideline with no modifications. Again, the responses to this question provided strong professional support for the guideline.

In fact, none of the responses had even half of the responses being anything other than a 6 or 7 out of 7. There were only two total responses that fell below the neutral value of 4 out of 7 for Likert Scale questions. Question 1 of the survey asked whether the overall objectives of the guideline are specifically described. As depicted in Figure 2, two respondents answered 5 out of 7, five answered 6 out of 7, and 25 answered 7 out of 7, again providing strong support for the guideline.

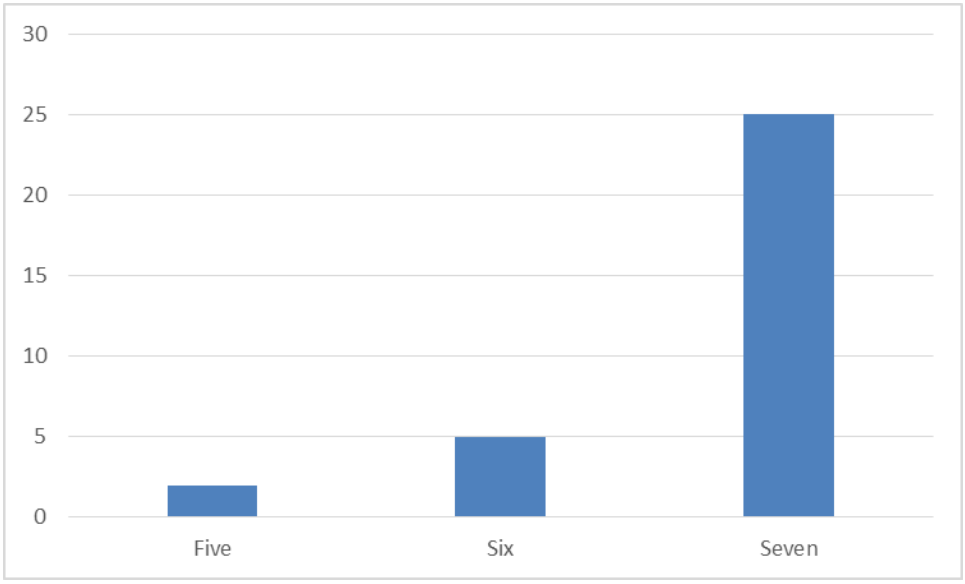

Figure 2. The overall objectives of the guideline are specifically described (Q1)

For Question 4, as depicted below in Figure 3, six respondents answered 6 out of 7, while the remaining 26 answered 7 out of 7.

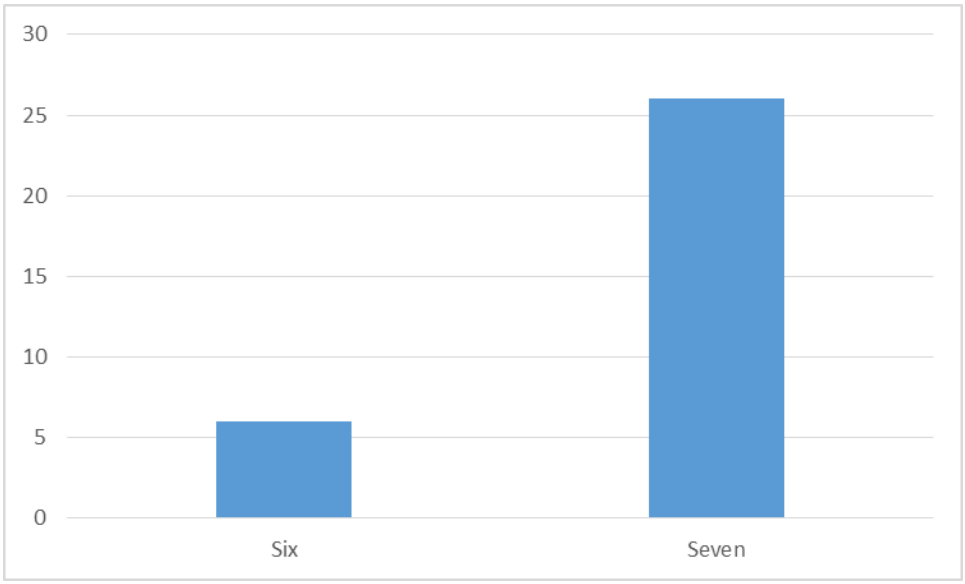

Figure 3. Guideline development group includes all relevant professional groups (Q4).

As shown in Figure 4, only one respondent answered with a 5 out of 7, while four responded 6 out of 7 and the remaining 27 responded 7 out of 7.

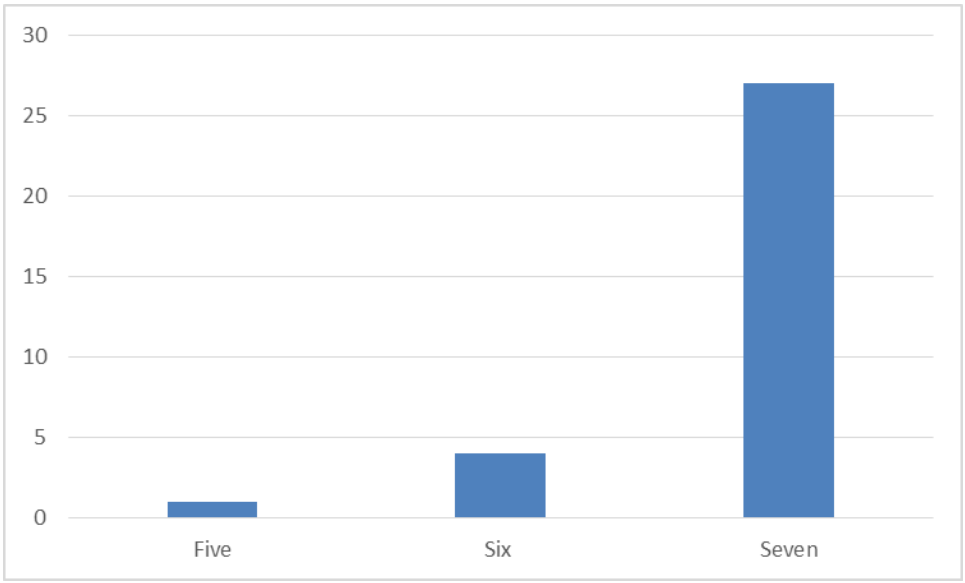

Figure 4. The views and preferences of the target population have been sought (Q5).

For the question of whether systematic methods were used to search for evidence, six respondents answered 6 out of 7, while the remaining 26 responded 7 out of 7, as shown in Figure 5 below.

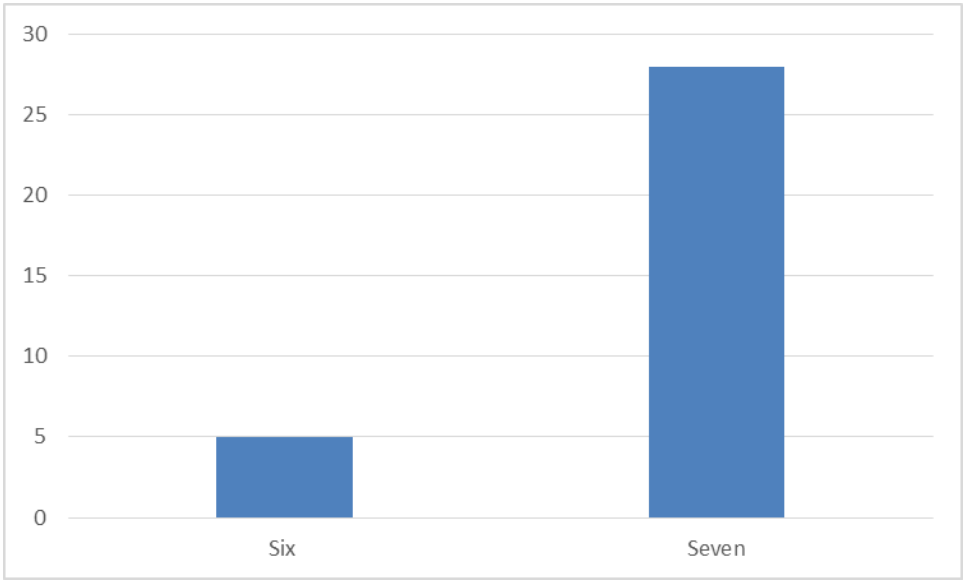

Figure 5. Systematic methods were used to search for evidence (Q7).

For Question 11 on whether the health benefits, side effects, and risks have been considered, five respondents answered 6 out of 7 and the remaining 28 responded 7 out of 7 illustrated in Figure 6 below.

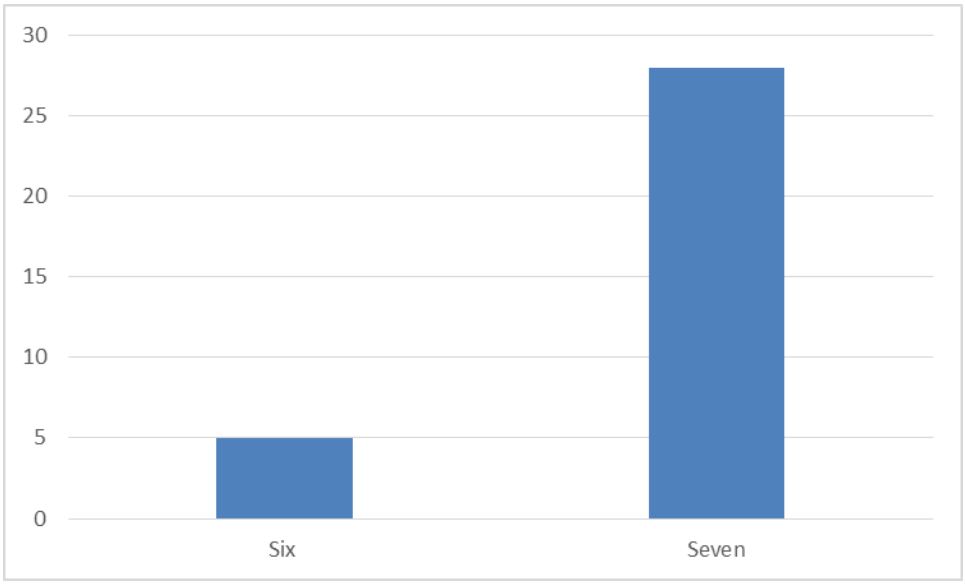

Figure 6. The health benefits, side effects, and risks have been considered (Q11).

In Question 12, the respondents were asked whether there is an explicit link between the recommendations and the supporting evidence. As shown in Figure 7 below, four respondents answered 6 out of 7, while 28 answered 7 out of 7.

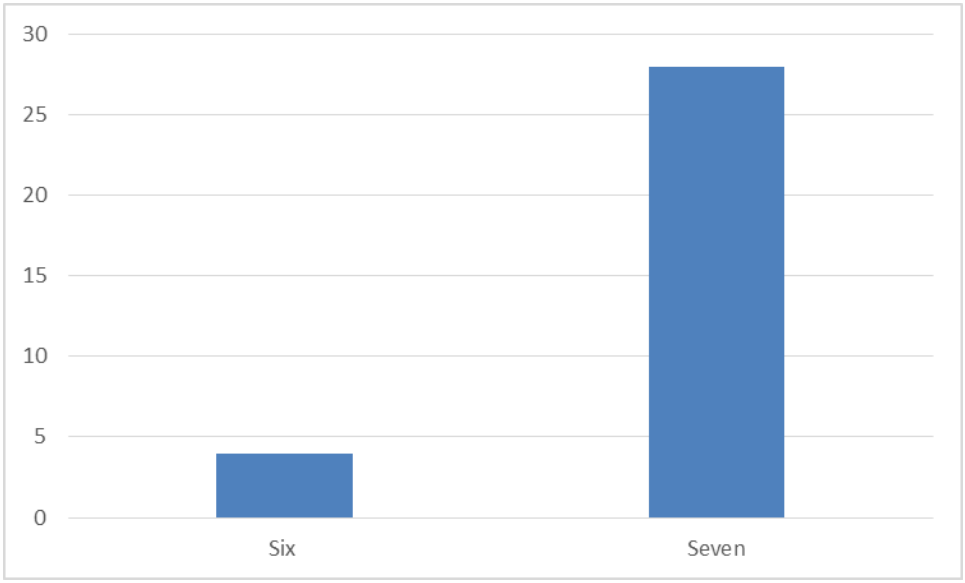

Figure 7. There is an explicit link between the recommendations and supporting evidence (Q12).

The remainder of the questions had similar responses. Aggregately, the responses to this questionnaire provide strong support for the use of the guideline among medical professionals.

Discussion

The primary evaluation of the CHF Practice Protocol was found to be appropriate for use by health care providers who serve patients with heart failure. The majority of

clinicians who evaluated the CHF Practice Protocol found it useful and necessary when working with patients who have heart failure. Implementation in a practice may yield similar results as reported by Stuaffer et al. (2011) where advanced practice nurses were able to reduce hospitalization rates by 48% through a transition of care program. The project also falls in line with Stall et al. (2013) who identified eight studies in the past 15 years showing a 84% reduction in hospitalizations using visiting providers to the home for patients with complex medical problems. Counseling patients and identifying factors that may cause disease exacerbation for patients who have CHF yielded a "significant decrease" in hospitalizations (Lowerey, 2012). The project also shows a correlation to a study by Naylor et al. (2011) when transitional care is provided in the Philadelphia region for managed care patients led by advanced practice nurses in saving health care costs and reducing hospitalizations (Naylor et al., 2011).

The research has shown that transitional care, visiting provider groups, and VNAs help reduce hospitalizations, help control costs, and decrease disease exacerbations (Stewart et al., 2012). The CHF Practice Protocol incorporates many elements stated in the research to help improve outcomes for patients with CHF.

After the conclusion of the project and evaluation of the data provided by the clinicians who evaluated the perceived effectiveness of the CHF Practice Protocol determined the CHF Practice Protocol has merit in the homebound patients with CHF. It is recommended that research be completed on a larger scale to better evaluate the use the heart failure tool in homebound patients (Ketner et al., 2012).

Summary

Thirty-two medical professionals participated in the evaluation of a heart failure tool on their perception of usefulness in practice. Thirty-one of the 32 stated that the tool would be useful in practice working with heart failure patients. Based on the feedback received from the participants, the heart failure tool has been perceived as helpful when working with patients who are homebound and have heart failure. With a limited participant pool, it would be beneficial to expand research and development and test on it a larger scale to determine if a heart failure protocol tool is warranted to integrate into practice.

Section 5: Scholarly Product

The CHF Practice Protocol was distributed through a snowball distribution. Invitations to participate were sent to over 50 health care professionals in cardiology, home care, and hospitalists and included physicians, physician assistants, nurse practitioners, and nurses. Thirty-two health care professionals provided feedback on the CHF Practice Protocol over a 1-month period of time. Of the 32 respondents, only one respondent found the tool to be ineffective in current practice.

Data collected from this small initial study showed that the CHF Practice Protocol has a place in the homebound patient with heart failure. Further testing and evaluation of the tool in a larger study would be beneficial to determine if it should be integrated into a practice.

Findings from this initial project may be disseminated through a peer-reviewed journal. The Journal of American Association of Nurse Practitioners is a peer-reviewed nursing journal focused on evidenced-based practice, research, case studies, legislation, health care policy, practice improvement, and other issues related to advanced practice nursing. The journal has been published monthly for over 27 years. It is a subscription distribution that focuses on over 205,000 NPs within the United States (American Association of Nurse Practitioners, 2015). The journal has requirements for publication, which would allow me to publish the findings as part of my doctoral degree.

Strengths

The CHF Practice Protocol was found to be appropriate for use by health care providers who serve patients with heart failure. Study results displayed positive feedback on the CHF Practice Protocol design and a desire to implement them in both a skilled nursing facility and in a home care environment.

Limitations

Research was only gathered on a small sample size of 32 after a snowballing campaign over a month in small geographic area. A larger sample size that covers a larger geographical area would strengthen the validity of the study. Secondly, I did not account for feedback from healthcare providers who do not operate in home care, nursing facilities cardiology specialists, and hospitalists. Additional research on a larger scale to is needed to better evaluate the use the CHF Practice Protocol in homebound patients (Ketner et al., 2012).

Self Analysis

At the conclusion of the project, I have grown significantly as an NP who works with patients with CHF. I have researched CHF and have developed peer-reviewed tool to determine its perceived efficacy in practice. I had challenges obtaining feedback results from peers, as the project involvement was voluntary. However, this has strengthened my commitment to my profession and my role as a NP who provides home based care. The project reinforced the evidenced-based research that NPs are able to manage patients with CHF and manage these disease states in their home to reduce hospitalizations.

Over the doctoral education, I have become a stronger leader in the community as well as NP. I continue to bring evidenced-based practice into the profession, teach NP students, precept NP clinical students, and serve as a mentor for fellow NPs who work in home care. I will continue to serve as a mentor, teacher, and provider in the community. I will also continue to work for legislative changes for NPs at the state and national level.

Summary

The development and evaluation of a heart failure tool for homebound patients was a project completed for a Doctorate Degree of Nursing Practice at Walden University. The project has been ongoing for the past 3 years and incorporated classroom education on epidemiology, clinical research, and writing as the precursor for the development of the project. The topic was identified as an area of concern as I am a clinical NP who works in a home care based practice in New Jersey and I manage a lot of heart failure patients. I identified that many patients who have CHF undergo many hospitalizations. My goal of completing the project was to design a tool that identifies the risk factors, disease management, and supportive services that affect homebound heat failure patients. I then distributed the tool to healthcare professionals who work in hospitals, home care, nursing facilities, and cardiology practices to determine if a tool of this nature has merit. Feedback received yielded a positive response regarding the tool, thus suggesting that a tool may be used to help reduce hospitalization rates for people who have CHF.

The project was completed on a small scale using a snowball-sampling technique. Additional studies need to be completed on a larger scale on its perceived efficacy into

practice as well as a small study to incorporate into actual practice to determine if the tool is able to reduce hospitalizations.

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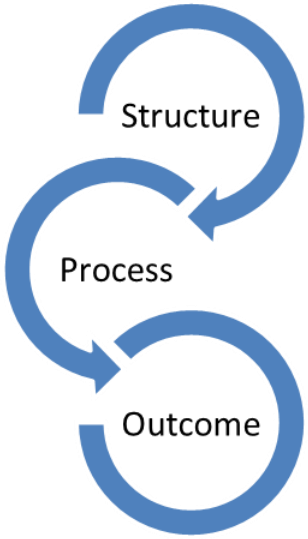
Appendix A: Donabedian Framework in Heart Failure



- Structure identifies nursing autonomy in decision making of the nurse practitioner using two structural variables related to the outcome of the patient
- Process involves the aspect of decision making and interventions made by the clinician
- Outcomes refer to the specific patient outcome; this refers to the effects and efficacy of the disease management of the homebound patient (Burns, & Grove, 2009).

Appendix B: CHF Practice Protocol

Patient Name _____ DOB _____ Date _____

Diastolic _____ Systolic _____ Comorbid Conditions? _____

Date of last Echo? _____ EF? _____ Date of last EKG? _____

VNA Ordered _____ Bayada _____ Moorestown VNA _____ Virtua VNA _____

Tele-health _____ PT/OT _____ MSW _____ HHA _____ Other _____

Medications (name, dose and frequency)

ACE/ARB _____ Diuretic _____

Beta-Blocker _____ Anti-platelet _____

Statin _____ Digoxin _____

Baseline Diagnostics with interpretation

EKG _____ CBC _____ HbA1c _____

CMP _____ TSH _____ Lipids _____

Baseline Measurements

Height _____ Weight _____ BMI _____ Blood Pressure _____ Pulse _____ SpO2 _____

Edema (characteristics) _____

Shortness of Breath (activity) _____

Number of pillows used at night _____

Ambulatory distance (number of blocks, feet, or miles) _____

Risk Factors/Prevention

Healthy Weight? Yes_____ No _____ Plan _____

Smoking Cessation? Yes _____ No _____ Plan _____

Low Sodium Diet? Yes _____ No _____ Plan _____

Water Restriction? Yes _____ No _____ Plan _____

Assistive Device/ADL Support? Yes _____ No _____ Plan _____

Barriers? Yes _____ No _____ Plan _____

Flu Vaccine (annual) _____ Pneumococcal (Every 5 years) _____

Physician/Nurse Practitioner Visit Pattern Based on Severity

- Stable – labs, EKG and echo up to date. Medications reviewed, reconciled. No caregiver or compliance concerns. Follow up in four weeks. VNA established.
- Less Urgent – requires at least one lab, EKG or echo. One or more medications are missing or unable to reconcile all medications. Questionable caregiver support or potential for compliance concerns. VNA involvement likely to be refused or unable to start promptly. Follow up in two weeks.
- Urgent – missing multiple labs, EKG and echo. Mildly symptomatic of no more than one or two symptoms, but symptoms are not emergent. Able to stabilize with stock medications or minimal interventions. Missing multiple prescribed medications. Caregiver missing and has patient with unmet needs. VNA not present in patient care. Follow up in a few days or one week.
- Emergent – patient actively symptomatic where immediate intervention is required. Patient is not safe in current home environment. Attempt to stabilize and send out and call 911.

Provider Identified Areas of Need:

_____

Goals for Next Visit:

_____

Symptom Management for VNA/Tele-Health*

Notification Parameters

Change in Weight (2 pounds/24 hours or 5 pounds/7 days) _____

SBP _____ DBP _____ Pulse _____ SpO2 _____

Standing Nursing Orders:

_____ For weight changes outside of above parameters:

_____ Add new PRN diuretic order (specify if ongoing order or for a specific number of days)

Medication _____ Dose _____ Frequency _____

_____ Increase current daily oral diuretic _____ to dose of _____

_____ Initiate new medication _____ at a dose of _____ frequency _____

_____ Home care nurse to draw BMP within 3-5 days of change in diuretic or specified medication.

_____ If BP or Heart Rate is above/below above specified parameters over _____ consecutive days make the following change to patient's medication regimen:

Medication _____ Dose _____ Frequency _____

_____ Other orders _____

* Utilize nursing judgment when possible. Send severe/uncontrollable cases to emergency room as well as patients with extreme dyspnea on exertion, and/or chest pain.

_____	_____	_____	_____
Provider Name	Date	Provider Signature	Date

Appendix C: AGREE II

AGREE II INSTRUMENT

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

2. The health question(s) covered by the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 2. STAKEHOLDER INVOLVEMENT

4. The guideline development group includes individuals from all relevant professional groups.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

5. The views and preferences of the target population (patients, public, etc.) have been sought.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

6. The target users of the guideline are clearly defined.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT

7. Systematic methods were used to search for evidence.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

8. The criteria for selecting the evidence are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

9. The strengths and limitations of the body of evidence are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT continued

10. The methods for formulating the recommendations are clearly described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

11. The health benefits, side effects, and risks have been considered in formulating the recommendations.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

12. There is an explicit link between the recommendations and the supporting evidence.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT continued

13. The guideline has been externally reviewed by experts prior to its publication.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

14. A procedure for updating the guideline is provided.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 4. CLARITY OF PRESENTATION

15. The recommendations are specific and unambiguous.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

16. The different options for management of the condition or health issue are clearly presented.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

17. Key recommendations are easily identifiable.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 5. APPLICABILITY

18. The guideline describes facilitators and barriers to its application.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

19. The guideline provides advice and/or tools on how the recommendations can be put into practice.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

20. The potential resource implications of applying the recommendations have been considered.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 5. APPLICABILITY continued

21. The guideline presents monitoring and/or auditing criteria.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

DOMAIN 6. EDITORIAL INDEPENDENCE

22. The views of the funding body have not influenced the content of the guideline.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

23. Competing interests of guideline development group members have been recorded and addressed.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree

Comments

OVERALL GUIDELINE ASSESSMENT

For each question, please choose the response which best characterizes the guideline assessed:

1. Rate the overall quality of this guideline.

1 Lowest possible quality	2	3	4	5	6	7 Highest possible quality

2. I would recommend this guideline for use.

Yes	
Yes, with modifications	
No	

NOTES

Appendix D: Evaluation Tool Approval

Gmail by Google

Matthew Kaspar [redacted]

AGREE II Instrument

2 messages

Matthew Kaspar [redacted] Sat, Nov 15, 2014 at 6:54 PM
To: [redacted]

I am currently completing my doctorate of nursing practice at Walden University. I completing research on the usefulness of a tool that I designed for the treatment of patients with heart failure. I would like to incorporate the AGREE II Instrument to assist in the usefulness and validity of the heart failure tool that I designed as part of my degree requirement. I would like permission to use the Instrument in my project.

Thank you for considering my request and I look forward to hearing from you.

Matt Kaspar MEd MSN
[redacted]

AGREE [redacted] Thu, Dec 11, 2014 at 2:15 PM
To: Matthew Kaspar [redacted]

Dear Matt Kaspar,

Thank you for contacting the AGREE Enterprise project office. I apologize for the late response but your email was sorted into the junk folder of our email account.

The AGREE II evaluates the process of practice guideline development and the quality of reporting. If the AGREE II may be of assistance to you in your research project, we grant you permission to use the tool.

Thank you again for your request and please contact us if you have any further questions.

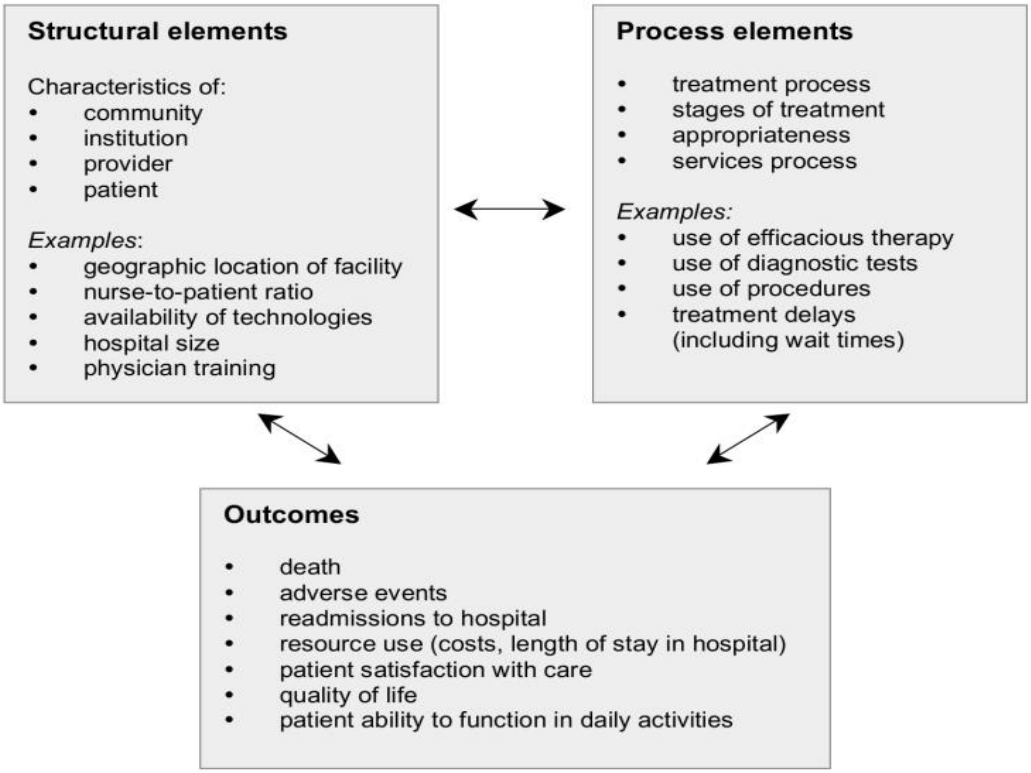
Warm regards,

Kate [redacted]

Research Assistant
AGREE Enterprise Project Office
Department of Oncology
McMaster University, Juravinski Hospital

From: Matthew Kaspar [redacted]
Date: Saturday, November 15, 2014 6:54 PM
To: Kate [redacted]
Subject: AGREE II Instrument
[Quoted text hidden]

Appendix E: Donabedian Model



Appendix F: Data Statistics - Heart Failure Tool Evaluation Using Agree II Questionnaire

Title		Practice Setting	
MD/DO	3	Home Care	12
NP/PA	5	Med/Surg/Primary	10
RN	23	Cardiology	4
LPN	1	SNF/Rehab	6
Total	32		

Question 1

1	2	3	4	5	6	7
				2	5	25

Question 2

1	2	3	4	5	6	7
				2	6	24

Question 3

1	2	3	4	5	6	7
				1	4	27

Question 4

1	2	3	4	5	6	7
					6	26

Question 5

1	2	3	4	5	6	7
				1	4	27

Question 6

1	2	3	4	5	6	7
					4	28

Question 7

1	2	3	4	5	6	7
					6	26

Question 8

1	2	3	4	5	6	7
					4	28

Question 9

1	2	3	4	5	6	7
				1	5	26

Question 10

1	2	3	4	5	6	7
					4	28

Question 11

1	2	3	4	5	6	7
					5	28

Question 12

1	2	3	4	5	6	7
					4	28

Question 13

1	2	3	4	5	6	7
			1	1	5	25

Question 14

1	2	3	4	5	6	7
	1			2	7	22

Question 15

1	2	3	4	5	6	7
				1	6	25

Question 16

1	2	3	4	5	6	7
					6	26

Question 17

1	2	3	4	5	6	7
					6	26

Question 18

1	2	3	4	5	6	7
			1	1	4	26

Question 19

1	2	3	4	5	6	7
					4	28

Question 20

1	2	3	4	5	6	7
					4	28

Question 21

1	2	3	4	5	6	7
					2	30

Question 22

1	2	3	4	5	6	7
					3	29

Question 23

1	2	3	4	5	6	7
	1			1	2	28

1: Quality

1	2	3	4	5	6	7
					5	28

2: Recommend for use

Yes	Yes with Modifications	No
31	0	1