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Incorporating Technology to Decrease Heart Failure Readmission Rates

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
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Abstract

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Vernell D Thames

MS, Towson University, 2010

BS, University of Maryland, 2008

Doctoral Study Submitted in Partial

Fulfillment of the Requirements for the

Degree of Doctor of Nursing Practice

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Abstract

The rate of hospital readmissions within 30 days of discharge of heart failure (HF) patients affects patient outcomes, the financial stability of the health care facility, and the economy. Hospitals focus on strategies that will decrease the HF readmission rates by cultivating evidence-based interventions that improve patients' transition from the hospital to the community, including promoting self-management of their condition. The purpose of this quality improvement project was to develop, implement, and evaluate the use of health information technology along with written forms of plans of care to assist HF patients in managing their care, divert the HF patients to the physician's office rather than the emergency room, and decrease the hospitalization readmission rate within 30 days of discharge. A multidisciplinary team consisting of HF nurses, a cardiologist, and a pharmacist, utilized the Agency for Healthcare Research and Quality guidelines to develop a HF checklist to assist in data collection. Nurses communicated with HF patients post discharge using electronic devices to reinforce discharge instructions, assess medication compliance, and encourage self-management. The less than 30-day readmission rate for the 10 patients in the pilot group was 20%, an improvement over the hospital rate of 30%. The 20% that were readmitted did not used their written discharge instructions, but the 80% that were not readmitted used their written discharge instructions with their electronic devices. This DNP project will promote positive social change by improving HF patients' outcomes and quality of life, and present health care provider interventions to decrease HF hospital readmission rates.

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Dedication

This project is dedicated to Heart Failure (HF) patients and the dependable HF nurses. HF nurses are committed to providing high quality care in order to improve patient outcomes. HF patients are a unique population with a condition that affects their quality of life. The professional association between HF patients and their nurses is based on a mutually trusting relationship. Developing innovative interventions that will improve HF patients' outcomes is a current health issued that needs to be addressed.

Acknowledgments

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Section 1: Overview of the Evidence-Based Project

Introduction

The rate of hospital readmissions within 30 days of discharge of heart failure (HF) patients affects patient outcomes, the financial stability of the healthcare facility, and the economy. HF is a chronic disease that affects over 5 million people in the United States at a cost of $10–38 billion per year (Kemp & Conte, 2012). The American Heart Association (AHA, 2011) recommended that patients suffering from HF receive instructions at the time of discharge based on directives and guidelines. Health care providers who interact with patients hospitalized for HF may mistakenly assume that patients are knowledgeable about managing their disease. This assumption may lead to discharging of HF patients without the appropriate information for managing their condition.

There are many factors that have resulted in the increased rate of HF readmissions within 30 days of discharge. In a national survey of 537 hospitals enrolled with the Hospital to Home Quality improvement initiative, Sales et al. (2014) found that in almost 30% of the hospitals, educating patients or families about HF or medications was infrequent despite the national focus on reducing readmission rates. Although many scholars have investigated methods for reducing readmission rates to decrease the burden of hospitalizations and reduce the cost for health care systems, readmission rates remain high and appear unabated (White & Hill, 2014).

When health care workers only provide written discharge education, they do not take into consideration the patients' ability to comprehend and carry out the necessary interventions to manage their condition. Health literacy assessment and more appropriate health promotion interventions may be the solution to this problem. In this DNP project I examined alternative ways to provide education to HF patients and their families through education of staff involved

in their care, and the use of technology. Successful self-management can lead to fewer exacerbations and hospital admissions, thus impacting the quality of life of the patient and the financial burden of frequent readmissions on both the patient and the facility contributing to positive social change.

Problem Statement

The high cost of caring for HF patients is a result of the numerous prescribed medications, lab and diagnostic testing and procedures, and frequent hospitalizations. In 2010, Medicare reported that the heart failure 30-day readmission rate remained high at a rate of 32% (Sales et al., 2014). Beginning in fiscal year 2013, hospitals will incur a reduction of 1% or less in Medicare-based reimbursements for HF readmissions within 30 days of discharge leaving the financial burden on the patients and the healthcare institutions (Kocher & Adashi, 2011). HF hospital readmission rates can affect the healthcare institutions finances, patient's finances, and patient outcomes. Caring for HF patients costs more than 39 billion dollars annually in the United States due to high rates of hospitalizations, readmissions, and outpatient visits (Sahlen, Boman, & Brännström, 2016).

Health literacy, comorbid conditions, and the emotional health of HF patients are factors that should to be taken into consideration when developing innovative interventions to address this health-related issue. Because discharge education is an integral part of hospital nursing care, there is a need to focus on strategies that will meet the needs of this population of patients (Barnason, Zimmerman, & Young, 2012).

This local hospital had HF readmission rates that mirror the national average. In order to address how the nursing staff could participate in improving the discharge education process, this quality improvement initiative was conducted. I approached a cardiology practice with many HF

patients regarding the implementation of a technology-assisted discharge protocol for their patients. The application of technology and interprofessional collaboration within the health care delivery system is important for improving patient outcomes. The physicians agreed to collaborate with the nursing staff as a part of their internal quality improvement endeavor to formulate a plan of care that may have a positive effect on patients' self-management and transition of care.

The goal of this DNP project was to provide knowledge, skills and tools to the nursing staff to reduce the HF readmission rate. This project was significant for the organization, which was losing revenue as a result of high readmission rates. It is significant for patients, who would prefer to have their care managed at home. The project is significant for the nurses who work on the inpatient unit and to those working in the cardiology practice as they contributed to testing the usefulness of these developing these tools. Finally, it is significant to nursing practice in general, as the use of technology and the tools developed in the project has the potential for use in other organizations.

Purpose of the Project

Nurses are responsible for providing discharge instructions to patients to assist in the management of their condition. However, written discharge instructions alone have not been successful in decreasing the readmission rate for HF patients. At the project site, the nurses have been completing the discharge instructions form, but there is no bridge to the home setting. Many times, patients voice that they will visit the provider after discharge, but no appointment is set up. Patients may not have transportation arranged and may not have easy access to medications. Patients are encouraged to weigh themselves daily, but may not realize the impact of a heavy salt dinner at a restaurant on their weight, and what to do when they gain a certain agreed upon

amount of weight in a day, or in 48 hours. Patients may not have easy access to a provider for routine visits, need transportation, or could benefit from remote monitoring. Inpatient staff nurses may complete the checklist and the discharge instructions, but for certain HF patients at high risk, they may not be addressing the issues that are to reduce the readmission rate.

Jha, Orav, and Epstein (2009) posited that the combination of discharge planning, remote monitoring, and detailed monitoring of follow-up care can reduce emergency room visits and readmissions. The application of multiple interventions to facilitate an effective transition to the home setting may improve patient management of their HF condition. AHRQ determined home-visiting programs, structured telephone support, and multidisciplinary-HF clinic-based interventions was effective in decreasing the readmission rate (AHRQ, 2016). This is the model that was used for this quality improvement project.

Another gap in nursing practice is the poor integration of technology into nursing discharge processes within the healthcare system. Patients suffer in the end because the communication between primary care physicians and specialist are inadequate. Making a phone call to the doctor's office can be frustrating to patients (e.g., only call between 10am and 12noon, then between 1pm and 4pm). Communication processes with a busy practice can be problematic. Getting an appointment for a post-hospital monitoring visit can be complex, and reporting a high blood pressure or a significant change in daily weight can be challenging. Monitoring blood pressure and daily weight at home can be a challenge for fragile CHF patients, particularly those who live alone and have complex disease. Organizations did not explore the use of technology effectively until 2011 when the Meaningful Use Initiative began. With the legislation that provided funding, organizations are now compelled to use health information technology (HIT) to improve the quality of care, the patient experience, and patient outcomes, freeing up monies

for remote monitoring, communications between specialists, and ease of appointment scheduling. Incorporating electronic devices in the management of discharged HF patients offers healthcare providers an additional approach for interacting with their patients and assisting in managing their care.

The guiding practiced-focused question for this doctoral study was the following: Will the adoption of the AHRQ best practices model that adds electronic monitoring to written discharge instructions decrease the <30 day readmission rates for this HF population? The purpose of this project was to use HIT along with written plans of care to assist HF patients in managing their care, divert the patient to the physicians' office rather than the emergency room for exacerbations, and decrease the hospitalization readmission rate within 30 days of discharge. The implementation of this project required the collaboration of health care providers involved in the plan of care of HF patients during the transition of care to enhance improvement of patient outcomes (Gunadi et al., 2015). The collaboration of health care providers is necessary to address the HF patient's health needs and enhance the quality of care provided.

Current forms of written text-based discharge instructions are not suitable for presenting lengthy and complex discharge instructions (Choi, 2011). HF is a chronic condition that has the potential to affect the kidneys, liver, vision, and mobility status, and it may contribute to exacerbation of preexisting conditions such as diabetes and obesity. The prevalence of HF patients will continue to increase due to the increase in the elderly population. Considering the possible sensory deficits occurring in the aging population and clinical manifestations associated with HF, it is essential for the development of additional strategies to assist in decreasing the HF readmission rate. Best practice guidelines include the combination of written discharge instructions, home care, and telehealth as evidenced-based interventions (Kurpela & Kessler,

2013). Collaborating with health care providers involved in the patient's plan of care and incorporating technology with written discharge instructions could contribute to improved patient outcomes and close the gaps in practice that contribute to the high 30-day readmission rates for HF patients.

This doctoral project aligns with an evaluation of current healthcare practice and implementation of evidenced-based practice guidelines. The current discharge interventions have been unsuccessful. The use of evidence-based practice guidelines would provide a standard for nursing practice for use in the broader population of HF patients in the community.

Nature of the Doctoral Project

In this quality improvement project, I adopted the AHRQ best practice guidelines. Practice guidelines are the source of evidence guiding this project. Best practice guidelines for HF patients have been recommended by The Institute for Health Improvement (IHI), the American Heart Association (AHA), and the Centers for Medicare and Medicaid (CMS); (Freeman, 2015). Patient monitoring should occur on a daily basis the first week post discharge, then three to four times a week for the second week, and then weekly as the patient becomes stable. HR patients who implement the recommended guidelines by health care providers have improved outcomes and quality of care (Yancy et al., 2017). (Yancy et al., 2017). Initial baseline vitals, weight, and lab values are obtained and reassessed as needed. Referrals should be made for dietary consult and support services to address their mental health if necessary.

All information should be shared with the health care providers directly involved in the patient's plan of care, particularly if the nurse practitioner sees a need for consultation with other health providers.

A cadre of HF patients who agreed to participate in the project belonged to the cardiology practice and attended the HF clinic for treatment. As the DNP project manager, I assembled a project team consisting of representative nursing staff from the HF clinic, as well as staff nurses from the cardiology practice to provide education to the staff involved, and to guide the use of the technology in the discharge protocol. Routine discharge instructions were supplemented by the use of a checklist by the nurse providing discharge instructions. HF clinics nurses followed-up with patients via video interviews using the FaceTime or Skype app on mobile phones and the HF checklist. I received weekly updates and I shared the findings with the collaborative team. The HF nurses retained data on the number of patients sent to the cardiologist or emergency room. The summative data for this 3-month intervention on readmissions less than 30 days from discharge were compared to the same time period in 2018 for this practice's HF patients.

By providing written instructions provided on discharge from the hospital, as well as using technology for communications and remote monitoring, the gaps in practice noted above ends. This will result in better HF patient care management, fewer emergency department visits for HF, admissions to the inpatient site for HF, and 30- day readmissions for HF. The development of a comprehensive HF program using technology may result in better HF patient care management, fewer emergency department visits, and decrease admissions for the HF population.

Significance

The goal of this project was to pilot an intervention for the HF population to improve patient outcomes. The stakeholders involved in this project were HF patients, physicians, nurses, family members, physicians' office staff, healthcare administrators, healthcare institutions, and the multidisciplinary healthcare team members.

Presenting applicable HF discharge instructions, patient and caregiver education on the importance of strict follow-up, and post-discharge HF monitoring have all been shown to decrease readmissions; yet these measures are underused (Basoor et al., 2013). The project will impact the healthcare delivery system by influencing how we educate our HF population, factors to consider during the development of interventions, and the essential healthcare personnel required to be of assistance in managing the care of HF patients.

Health care workers who implement evidenced-based health promotion strategies improve patient outcomes and quality of life. Improving the quality of life includes understanding the health promotion theory to broden the methods nurses can use and the personal, medical, local, political and cultural resources at their disposal to benefit the patient (Morton, 2013). Scholars have supported evidence-based practice interventions that will improve the quality of patient care and enhance clinical judgement (Rosswurm & Larrabee, 1999).

This quality improvement project has potential for transferability in other healthcare disciplines. Modifications to the checklist may be necessary to address the clinical needs of diabetic patients, orthopedic patients, and patients suffering from respiratory illnesses. The project team's focus is on areas to assess patients' HF status and the effectiveness of incorporating electronic devises to assist in obtaining assessment data. The collaborative approach will be effective applying this quality improvement project with modifications.

Implications for Positive Social Change

The implications for social change in practice will be an improvement in patient outcomes. High 30-day readmission rates are costly to the health care system, and decreased reimbursement to hospitals may have a negative impact on services, staffing, and programs due to reduced income (Sterne, Grossman, Migliardi, & Swallow, 2014). It is challenging for HF

patients to manage their condition due to the complex nature of the condition. The development of interventions to address effective patient education and monitoring will have a positive impact by decreasing the readmission rate and serve as a cost-effective strategy.

The primary goal of the Affordable Care Act (ACA) was to improve patient access to healthcare, improve the health care delivery system, and decrease cost (Panning, 2014). The number of HF patients will continue to grow because individuals are living longer, which requires additional resources and finances to address their health care needs. By 2030, 20% of the US population will be over 65 and 80% will have at least one chronic health problem. The most prevalent chronic conditions in the elderly is HF, which has attracted the attention of the national health care reform debate (Gibbs, 2011).

The projected number of future HF patients identifies the importance on the development of transition of care strategies to focus on assisting and educating HF patients on managing their condition. Discharge planning begins on admission and continues during the HF patients' hospitalization. Health care providers must be well educated on the management of care of HF patients to provide the appropriate discharge instructions and to be knowledgeable of the possible barriers HF patients may experience.

Summary

The number of older persons with HF continues to increase, as do the number of hospitalizations. It is the role of the advanced practice nurse to implement new, evidenced- based interventions that can improve the transition from hospital to home and assist in improved management of HF. In this quality improvement project, I used electronic devices as a tool for collaborative management of HF patients care on an outpatient basis. The majority of the patient

population possess some form of smart phone or electronic device. Section 2 will cover the background and context of this project.

Section 2: Background and Context

Introduction

There is a high cost of caring for HF patients as a result of the numerous prescribed medications, lab and diagnostic testing and procedures, and frequent hospitalizations. The purpose of this project was to use HIT along with written plans of care, to assist HF patients in managing their care, divert the patient to the physicians' office rather than the emergency room, and decrease the hospitalization readmission rate within 30 days of discharge. The focused question was whether adopting the AHRQ best practices model that adds electronic monitoring written discharge instructions will decrease the <30 day readmissions rates for this HF population. This section will provide a review of the scholarly evidence, concepts and theories, and the relevance to nursing practice.

Conceptual Models and Theoretical Framework

Nurses have recognized that quality of care requires the use of theory and theory-based evidence to structure their practice (Alligood, 2014). The conceptual model chosen to integrate new approaches to this project was the health promotion model. Health promotion has become a national priority, and it influences health policy, economics, and distribution of resources (Giddens, 2013). The incorporation of evidenced-based interventions with health promotion as the framework would led to health promoting behaviors in nursing practice.

The theory applicable to the health promotion model was the social learning theory, referred to also as social cognitive theory (SCT). The concepts that are associated with health promotion also correlates to the concepts of SCT. The health promotion model has a holistic perspective that expects people to work towards what they feel is of value to them including internal and external factors that are meaningful to the individual (Maville & Huerta, 2008). Self-

efficiency is a factor in the health promotion model. SCT includes the key construct of self-efficiency in which a person feels more confident that he or she can engage in a behavior, interventions, and activities that will increase behavior compliance (Rogers et al., 2005). Healthy behaviors and interventions can manage and reduce the risk of HF.

The interrelated professional nursing concepts of health promotion are patient education, evidence, health policy, and healthcare economics. When educating patients, nurses must consider the mental development of the patient, health literacy issues, the motivation of the patient, and the stage of their HF. Nurses use evidence to guide their nursing practice. Health promotion guidelines are implemented through health policy (Giddens, 2017). Healthcare economics involves the financial aspect of the availably of resources that affects patient care and outcomes.

Effective nursing care is a component to evidence-based and theory-based practice (Morton, 2013). Health promotion may also incorporate change theories in the development of the plan of care of HF patients. The goal is to have the patient change his or her behavior in order to manage his or her care. Establishing a study of current health promotion practices would benefit HF patients by bringing evidence and ethics together and by specifying the concepts, values, and procedures inherent in each (Carter et al., 2011).

In the project's planning and evaluation segment, I used the logic model. The logic model includes the project interventions, the relationship among the interventions, the theoretical foundations of the project, and its goals and objectives (Hodges & Videto, 2011). This model is helpful with communicating and keeping the members of the collaborative team apprised of the project's progress.

Transition of Care

In the review of the literature, I found support for the improved transition in care processes from the acute care setting to home including the development and implementation of a well-planned, structured discharge process for patients with HF (Terry, 2015). HR patients' lack of knowledge about their medication regimen, importance of daily weight monitoring, maintaining their HF diet, and maintaining follow-up appointments are some factors related to the readmission rate increase.

Davidson, Cockburn, and Newton (2008) examined the unmet needs of discharged HF patients and determined the importance of individualized care planning to address their unique needs and circumstances. This focus of this study was to determine the perceived needs of HF patients under the physical, psychological, social, and spiritual domains. In a 30-item questionnaire administered to 132 HF patients, Davidson et al. measured the perceived individual needs after discharge from the hospital. Davidson et al. concluded that the recognition of psychosocial needs was more important to identify and the impact of individualized assessments on each HF patient's viewpoints of his or her condition. There were multiple limitations to this study that included non-English speaking patients and failure to note the stage of HF of the patients.

Basoor et al. (2013) performed a study relating to the effectiveness of a HF checklist to enhance the quality of care, improve clinical outcomes, and decrease the burden on the health care system. The 48 patients diagnosed with decompensated HF received the HF checklist. The discharge HF checklist was given to 48 patients diagnosed with decompensated HF. The areas addressed on the checklist were medications, interventions/counseling, and if there was a need for follow-up services. Basoor et al. found a decrease in the HF readmission rate due to the

inclusion of a checklist. Including all health care providers involved in the care of HF patients will benefit the patients by contributions from all involved in their plan of care.

In a 6-month study of the effectiveness of tele-monitoring, Seto et al. (2012) used a mobile phone-based tele-monitoring system to conduct semi structured interviews with 22 HF patients attending a heart function clinic. In the interview questions, Seto et al. focused on daily weights, vital signs, and questions regarding their HF condition. Seto et al. revealed a decrease in HF hospital readmissions and then favorable endorsement by the patients due to the immediate self-care and clinical feedback.

Maeng, et al. (2014) performed a 1-year study to evaluate the impact of tele-monitoring to reduce hospital admissions, readmissions, and cost of care. Data from the Geisinger Health Plan were used to determine the rates of all-cause hospital admission for patients participating in the study. During the tele-monitoring sessions, the patients' weight and vital signs were obtained, as well as HF patient education and questions regarding their HF status. Maeng et al. determined tele-monitoring as an effective tool for managing patients with HF and reducing 30-day and 90-day readmissions. Telemedicine has proven to increase the quality of long-term monitoring and decrease or prevent complications of the management of chronic diseases, such as congestive HF (Levin & Goldschlag, 2015).

Heart Failure and Readmissions

Patients suffering from HF require a collaborative approach in working towards interventions that decrease their hospital readmission rate. Scholars have provided evidentiary support for the improved transition in care processes from the acute care setting to home, including the development and implementation of a well-planned, structured discharge process for patients with HF (Freeman, 2015). Collaborative communication between HF health care

team members that involve a coordinated, detailed, and individualized transitional care plan improves the patients' quality of life and reduces rehospitalizations. HR patients' lack of knowledge about their medication regimen, importance of daily weight monitoring, significance of maintaining their HF diet, and the importance to maintain follow-up appointments are some factors related to the readmission rate increase.

Rabelo, Aliti, Domingues, Ruschel, and Brun (2007) concluded that if the education provided to HF patients is understood, it could lead to improved adherence, avoidance of decompensation crises, and the ability to maintain clinical stability. The ability to provide accurate instruction determines the effectiveness of the interventions. Patients who are unable to comprehend the prescribed treatment regimen may lead to incorrect medication management, the inability to manage their condition, and noncompliance.

Davidson et al. (2008) examined the unmet needs of discharged HF patients and determined the importance of individualized care planning to address their unique needs and circumstances. Davidson et al. concentrated on the perceived needs that were relevant to the individuals living with HF. Davidson et al. supported the need for individualized plans of care that are patient specific. Cultural, psychosocial, and economic factors are relevant factors in the development of a patient's plan of care.

Frederick et al. (2013) concluded that the application of a HF checklist is associated with decreasing HF readmission rate. During this 18-month study, the HF nurse and case manager monitored the use of the checklist and maintained the lines of communication among the interprofessional collaborative team. Frederick et al. found a 3.5% point reduction in readmissions, which establishes the implications for improved patient outcomes and quality of

care. Including all health care providers involved in the care of HF patients will benefit the patients by contributions from all involved in their plan of care.

AHRQ's HIT initiative is for technology to play a role in the improvement of patient outcomes and the health care delivery systems. The integration of HIT into the acute care setting can improve the quality of care and makes health care more cost effective (AHRQ, 2015). HIT will provide a means to communicate information with HF health care providers and patients that is necessary to provide the most effective and appropriate care.

Relevance to Nursing Practice

Nurses are the primary healthcare providers who are responsible for supplying discharge instructions to patients. Due to the complexity of managing HF, disseminating patient education needs in an effective manner will enable HF patients to manage their condition. In the HF program, I focused on monitoring and communicating educational interventions that will promote and encourage self-care and management of their condition. HF patients may not be prepared to perform the prescribed self-care behaviors if self-efficacy does not increase during the educational process (Yehle & Plake, 2010). For the transition of care to be efficient, the HF nurses documented the educational and self-management abilities of the patients. This project proposal was important to clinical practice because provided- insight into the importance of educating HF patient before discharge and during transition of care to improve patient outcomes.

Local Background and Context

The cost to care for individuals with HF is approaching $37 billion annually with a major portion of the cost associated with readmissions within 30 days of discharge (Freeman, 2015). This health care issue not only affects the patients, but affects the health care institutions financially, justifying the need for improved health promotion and self-care management

interventions. Hospital admissions for HF patients could be avoided through high quality and proper outpatient care and treatments (Centers for Medicare and Medicaid Services, 2016). For the initial implementation of this project, only 10 patients participated at the request of the HF clinic manager. The HF clinic manager determined if the results of the project were beneficial to the HF patients to warrant an increase in patent participation.

The cardiology group consisted of approximately 100 patients diagnosed with HF. Some of these patients attended the HF clinic on a weekly to monthly basis for monitoring between physician visits to prevent hospital readmission. Within the HF clinic, only one cardiologist participated, along with a couple of nurses in the clinic. The nurses in the HF clinic were educated on how to use the HF checklist and areas to address to obtain a thorough assessment.

Some primary reasons for the increased rate of HF hospital readmissions are lack of compliance with medication regimen, failure to follow dietary regimen, and delays in seeking medical attention (Paul, 2008). Health policies, health economics, and health promotion needed to be incorporated into this project to facilitate a general understanding of the project goals.

Payment for telehealth services differ from state to state, and current reimbursement for services varies according to payer source, provider eligibility, geographic location of both the patient and provider, and state licensure regulations (Dudding, 2013). Some insurance companies and health care providers do not acknowledge assessments obtained via telehealth as reliable, trustworthy, face-to-face billable service. The application of technology within the health care system will continue to grow and influence health care practices and policies. As the push towards promoting HIT in the clinical environment continues, legislation will have to develop policies to adhere to the changing clinical locations.

Role of the DNP Student

My professional goals are to improve the outpatient care given to the HF patients to decrease recurring hospitalization and to decrease length of stay by developing programs and interventions that follow clinical, hospital, and insurance guidelines that will benefit patient outcomes. The approach to HF patient education should be guided and directed by evidenced-based interventions (Rasmusson, Flattery, & Baas, 2015). HF is a complex condition that, as a DNP prepared nurse, I had knowledge base and the ability to formulate a collaborative design to obtain the most suitable and beneficial outcomes for HF patients.

My role was to examine evidence- based interventions using the appropriate model to research and investigate the problem. I was able to facilitate change by clarifying the need to practice the evidence-based interventions and reveal the effects it will have towards improving patient outcomes. During my practicum, I witnessed the need to introduce evidence-based interventions to assist patients in managing their conditions. The DNP degree has created opportunities for nurses to implement evidence-based projects with collaborative clinical teams (Forsyth, Wright, Scherb, & Gaspar, 2010). I used the additional knowledge that I had gained from my DNP program and my clinical experience to become the change agent in creating interventions that will have a positive effect on the HF population.

Role of the Project Team

The role of the project team was to contribute in the plan of care for HF patients. The multidisciplinary collaborative approach of HF health care providers has a role in managing, educating, and improving patient outcomes. The team consisted of physicians, a dietician, pharmacist, transportation department, HF nurses, and me, who served as project leader. When warranted, the dietician and pharmacist were available to address the needs of the HF patients.

The transportation department transported patients to and from clinic/physician visits when necessary. The use of multidisciplinary involvement as an approach to patient education has shown to reduce hospital readmission rates and cost (Paul, 2008). Bi-weekly updates on the participating patients' progress were available to offer feedback and additional suggestions or recommendations.

Summary

New innovative interventions are required to meet clinical challenges. The advanced practice registered nurse (APRN) will be at the forefront of this movement. The health-related problem was identified, and interventions were designed. Technology has become a key adjunct in healthcare and in society. Developing interventions that would use technology to improve the communication between patients and health care providers may improve health outcomes. Schneider and Howard (2017) supported the innovative options technology provides to enhance discharge teaching and follow-up after discharge. Section 3 will contain the collection of evidence and analysis of the data.

Section 3: Collection and Analysis of Evidence

Introduction

The high cost of caring for HF patients is a result of the numerous prescribed medications, lab and diagnostic testing and procedures, and frequent hospitalizations. The purpose of this project was to use HIT along with written plans of care to assist HF patients in managing their care, diverting the patient to the physicians' office rather than the emergency room, and decreasing the hospitalization readmission rate within 30 days of discharge. The costly effects of HF readmission within 30 days of discharge has negatively influenced health care institutions and patient outcomes. The following section includes the motivation for this project, its purpose, and the sources relied upon to address this healthcare problem.

Practice-Focused Question

Will the adoption of the AHRQ best practices model that adds electronic monitoring written discharge instructions decrease the 30 day readmission rate for the HF population? The increased rate of hospital readmissions within 30 days of discharge of HF patients affects patient outcomes, the financial stability of the health care facility, and the economy. The purpose of this project was to use HIT, along with written of plans of care, to assist HF patients in managing their care, diverting the patient to the physicians' office rather than the emergency room, and decreasing the hospitalization readmission rate within 30 days of discharge. This approach aligns with the practice-focused question because it applies the evidenced-based interventions approved by the AHRQ. The AHRQ was assigned to develop clinical guidelines that would standardize the evaluation and treatment of conditions with a high occurrence, high cost, and high morbidity and mortality (Salcido, 2002). These guidelines do not include specifics regarding the use of technology in the management of heart HF patients.

Sources of Evidence

The collection of literature assisted in the project's development, planning, and evaluation. The sources of evidence and data included the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Ovid Nursing Journals, Index Medicus (MEDLINE), ProQuest Health and Science Direct, Cochrane Database of Systematic Reviews, and other applicable database. The National Hospital Discharge Survey (NHDS), U. S. Department of Health and Human Services (HHS), vital statistics, and the Centers for Medicare & Medicaid Services (CMS) were the secondary resources that addressed the increase in the readmission rate of HF patients within 30 -days of discharge.

Practice guidelines for HF patients have been recommended by IHI, AHA, and CMS (Terry, 2015). Monitoring of chronic HF patients should occur on a daily basis the first week after discharge, then three to four times a week for the second week, and then decrease to weekly as the patient becomes stable. Obtained and reassess as need were the initial baseline vitals, weight, and lab values. Referrals requested for dietary consult and support services to address their mental health are available. Health care providers directly involved in the patient's plan of care receive all of the patient's assessment data.

Evidence Generated for the Doctoral Project

The project team met at least four times to review the literature, construct the logic model, develop the plan of care, and create the HF checklist for the management of HF patients. The cardiology practice and HF clinic staff were committed to piloting this project. I led the process and used a consensus approach to deliberating and finalizing the approach of the comprehensive program. It was important that all members of the multidisciplinary team have an opportunity to share their individual perspectives.

For the program to be successful, objectives needed to relate to the efficacy of interventions to improve HF self-care maintenance and patient-related factors, such as knowledge about HF, self-efficacy for HF self-care, and beliefs regarding HF self-care (Barnason et al., 2012). The objectives should relate to the patient's mental status and ability to adhere to the interventions. The patients' and caregivers' understanding of this project and the purpose of this project was assessed. The first objective was that the patient understood and agreed to the proposed plan of care before discharge from the hospital. The patient was able to state the purpose of all prescribed medications by the time of discharge from the hospital. The patient will was able to state the changes in their condition that would require them to notify their physician.

After discharge, patients were able to communicate using electronic devices, in the form of smart phones or tablets. Downloading Skype or FaceTime was the mode of communication between the patient and HF nurses. The HF patients were educated on how to use the electronic device to communicate and interact with the health care providers involved in the pilot program. Before discharge, an agreement between the patient and the HF clinic was established to make the patient aware of the objectives and expected outcomes of the project.

The patients were given a packet that consisted of a weight chart, meal planner, information on when to notify the physician, medication handouts, and reading material relating to HF. There was also a checklist in the packet to aid them with managing their condition. Before discharge, the patients were instructed on how to use the checklist and were given the scheduled weekly dates for communication via electronic device. Use of a HF checklist results in a decrease in HF readmission rate and improved quality of care (Basoor et al., 2013).

After discharge, the patient received a message via the electronic device to assure them that everyone involved was working towards improving their outcome and to assess their

progress. The HF checklist includes an assessment of their weight, compliance with medications, if there is any observable edema, follow-up appointments, HF assessment questions, and patient statements during their communication.

Analysis and Synthesis

All information was in electronic form to make it easier to keep the members of the team aware and involved. The HF checklist was scanned into the patient's electronic health record after each interaction. Sharing of patient information only consisted of the HF team to protect the privacy of the patient. All communication with physicians was through the hospital's private communication system, which is Health Insurance Portability and Accountability Act (HIPAA) compliant.

With each patient encounter, there was an assessment of the patient's progress and discussion of any concerns. The project evaluation process consisted of a formative and summative evaluation. The purpose of the formative evaluation is to obtain information to be used to develop or improve a program, and the summative evaluation determines if the program produced the desired effects (Hodges & Videto, 2011). During the formative evaluation, the patients' general appearance, verbal, and nonverbal behaviors were included. In the HF checklist, the health care providers tracked the patients' weight, compliance with their medication regimen, smoking, alcohol consumption, compliance with doctor's appointments, and assessment findings relating to HF. With the formative assessments, it is important to consider the timing for data collection and analysis to ensure the program coordinators receive feedback in a timely manner to make adjustments to the program if necessary (Saunders, Evans, & Joshi, 2005). When making the adjustments from the formative assessment, it is essential that the team agrees on the changes made for the patients' plan of care.

During each phase of the project, evaluation by the program coordinator informed the patients' understanding of the questions and provided assistance when necessary to help the nurses complete the survey. The results from the findings were helpful in deciding whether the project was beneficial to the stakeholders and if the adjustments are small enough that changes would not be too extreme. The goals and objectives directly related to the outcomes of this project; therefore, the outcomes directly relate towards patients' achievements.

In the summative evaluation, I summarized issues that were reported by patients that interfered with their ability to follow the plan of care (i.e., confusion over medications, inability to obtain medications) using the checklist data. The evaluation included the number of patients diverted to their physician's office rather than the emergency room for early assessment and intervention and the number of patients who returned to the hospital in fewer than 30 days from discharge.

Summary

One of the key elements of health promotion is the encouragement of patient self-management of their care after discharge. HF patients pressured to understand and learn how to live with their condition. Patient participation can motivate a positive change in behavior that will improve his/her condition. Health communications requires an emphasis on providing HF patients with the self-management skills and self-belief needed to take charge of their health habits (Bandura, 2004). Positive encouragement and feedback will encourage HF patients to understand the importance of compliance within the prescribed interventions and plan of care.

HF has the high potential to affect an individual's quality of life, financial status, employment, and mental health. The cost of readmission within 30 days of discharge places a financial hardship on the health care institution and the economy as a whole. Of the 20% of

patients readmitted within 30 days of discharge, Medicare anticipates that the health care institutions receive nearly 17 billion (Shams, Ajorlou, & Yang, 2015). HF has the ability to affect vital organs that increases their probability of a readmission within 30 days of discharge. Using the appropriate transition of care interventions may be an effective strategy in resolving this health-related issue.

In Section 4, I will present the findings as well as the implications resulting from the findings, recommendations, contributions of the doctoral team, and strengths and limitations.

Section 4: Findings, Discussion and Limitations

Introduction

The cost of care for individuals with HF was approaching $37 billion annually with a portion of the cost associated with readmissions within 30 days of discharge (Freeman, 2015). This health care issue not only affects the patients, but also affects the health care institutions financially, justifying the need for improved health promotion and self-care management interventions. Written discharge instructions alone have not been successful in decreasing the readmission rate for HF patients. The practice-focused question was whether adopting the AHRQ best practices model that adds electronic monitoring written discharge instructions will decrease the number of 30-day readmissions for this HF population. The purpose of this project was to use HIT, along with written plans of care, to assist HF patients in managing their care, diverting the patient to the physicians' office rather than the emergency room, and decreasing the hospitalization readmission rate within 30 days of discharge.

Upon receiving the approval of the Walden University's Institutional Review Board, approval number 12-14-17-0415883, the project team began collecting data (see Appendix A). I obtained evidence by the data collected from the HF checklist, which the project team developed (see Appendix B). Researchers support the use of a checklist developed for HF patients demonstrating an improved quality of care, improved clinical outcomes, decreased the burden on the health care system, and the HF hospital readmission rate (Basoor, 2013).

Findings and Implications

The sample size consisted of 10 HF patients who possessed an electronic device that used Skype or FaceTime to communicate with the project team. The sample size was small due to the

request of the clinic manager at the project site. She wanted to verify if this alternative communication strategy would be successful in decreasing their HF hospital readmission rate. When homogeneity is a factor, smaller sample size to represent a population is supported (Terry, 2015).

During the formative evaluation, the patients' general appearance and, verbal and nonverbal behaviors were included. Nurses used the HF checklist to track the patients' weight, compliance with their medication regimen, smoking, alcohol consumption, compliance with doctor's appointments, and assessment findings relating to HF. Within the 1month following the discharge of these HF inpatients, there were only two patients who needed readmission out of the 10 patients involved in this project. One patient admission was due to fluid overload brought on by noncompliance with his or her dietary regimen. The HF nurses reported that this often occurs during family gatherings and holidays that often involve food intake that does not conform to the HF patient's diet. The other patient admission was related to an elevated blood pressure because of not taking his or her prescribed medications. This patient also had a history of depression, lived alone, and communicated to the HF nurse that no one cares if she lives or dies. It is necessary to assess HF patients' mental and physical health when determining their ability to self-manage their condition. With the formative assessments, it is important to consider the timing for data collection and analysis to ensure the program coordinators receive feedback in a timely manner to make adjustments to the program if necessary (Saunders et al., 2005).

This project's implementation and data collection lasted for 45 days. In the results of the project, I found a decreased in the readmission rate due to increased interaction with the HF nurses; I also found an increase in patients' confidence of self-managing their HF, and the ability of the project team to adhere to an agreed upon plan of care or their HF patients.

In the summative evaluation, I found minimal issues regarding the HF patients' ability to remain compliant with their plan of care. One noted issue was the inability of the HF patient to read his or her electronic devices due to cataracts and not having a support system at home. However, this same patient reported that he or she was encouraged and supported in their management of his or her condition due to the communication with the HF nurses. After conversing with the HF nurse, another patient arrived at the hospital emergency department for evaluation and subsequent readmission. The HF nurse determined the patient's emotional state was directly affecting his or her health and decision-making process. Out of the 10 patients participating, only two admissions noted and the remaining eight provided positive feedback. Of the 10 participants in the project, 80% enjoyed using an electronic devise to communicate with the HF team. The patients expressed gratification for not having to leave their home in bad weather and satisfaction about being able to care for themselves. One HF nurse stated that the use of the checklist made it straightforward and uncomplicated for the staff, and the patients to adhere to the prescribed care.

Implications from the findings suggest the importance of continuing this quality improvement initiative to enhance the health care delivery system of the HF population. The financial burden of readmissions for HF annually was approximately $30.7 billion in direct health care costs, which includes including services, medications, and missed workdays (Centers for Disease Control and Prevention, 2016). Potential implications to positive social change will be an improvement in patients' outcomes, which results in the HF readmission rate decreasing. Reducing HF readmission rates has found to be successful when effective multidisciplinary management programs have been implemented (Hobbs, 2016). Treating HF patients in a holistic manner will provide quality care that addresses their physical, mental, and psychosocial needs.

Recommendations

The goal of this this quality improvement project was to use electronic devices as a tool for collaborative management of HF patients care on an outpatient basis. Monitoring of chronic HF patients should take place on a daily basis the first week after discharge, then three to four times a week for the second week, and then decrease to weekly as the patient becomes stable. Incorporating the use of written discharge instructions with electronic devices as a communication strategy increases the interactions between the patient and the health care team, improving the odds of positive healthy outcomes. The findings in this study are consistent with that of the literature where electronic communication has been shown to improve patients' clinical outcomes by exchanging information among the collaborative team of health care providers (Levine & Goldschlag, 2015).

Contribution of the Doctoral Project Team

The project team consisted of the nurses in the HF clinic, the HF clinic manager, a cardiologist, dietician, pharmacist, and me. Each member of the team contributed to the development of the HF checklist and were asked to add any other suggestions they may have had to improve the chance of a successful project. The team provided feedback to me and necessary revisions to improve the process. Interprofessional collaboration allows for shared decision making, increases effectiveness of health care delivery, and provides an understanding of the responsibilities of each member of the team (Lancaster, Kolakowsky-Hayner, Kovacich, & Greer-Williams, 2015). One of the main goals of the HF clinic is to decrease HF readmission rates. The project team was dedicated and enthusiastic in applying a quality improvement tool that related to one of the purposes of their clinic.

Strengths and Limitations of the Project

Some unanticipated limitations the project team revealed were the sensory deficits, visual complications of viewing from an electronic device, emotional health due to the time of year, environmental factors affecting HF patients' ability to manage their condition, and additional health issues. Two common comorbid conditions found in patients with HF are depression and anxiety (Chapa et al., 2014). Holiday gatherings and dinning may produce increased potential for noncompliance with medication and dietary regimens. An anticipated limitation was the sample size and the length of the project, which influenced the results of the findings. If the results of this project were from data obtained for an entire year, it would provide additional insight of the HF patients' needs that would support improved patient outcomes.

One strength of this project was the vested interest of the project team and their ability to work together. Clear and concise communication was an essential component in obtaining the required feedback to reach the project's goals. Collaborative efforts among the project team entailed a shared respect for one another's practice, sharing of assessment findings, and maintaining an open line of communication accounts for the effectiveness of positive outcomes (Kelly & Penney, 2011). Another strength was the development of the HF checklist that incorporated contributions from each member of the project team. The manager of the HF clinic found the HF checklist as a valuable tool in determining if the evidence-based interventions were successful, required revisions, or if new interventions need to be developed. The HF team are planning on using the checklist and using electronic communication methods to assist in decreasing the HF readmission rate.

Section 5: Dissemination Plan

Introduction

The results of this project were presented during a meeting with the HF clinic team. One benefit from this quality improvement project is the awareness of the need to continually develop evidence-based interventions that improve patient clinical outcomes, patient satisfaction scores, decrease HF readmission rates, and reduce costs for the patient and health care institutions. The HF checklist will be used to evaluate patients' progress, and the findings will be discussed on a monthly basis for any necessary revisions for patient's plan of care.

Analysis of Self

When analyzing myself in the role of project manager, I found it slightly bothersome. I am used to being the person gathering the data and evaluating the findings. As a scholar, I enjoyed learning something new about myself and how I can become more involved in educating my fellow health care providers. In the role of a practitioner, I was able to use my nursing education knowledge to assist in producing an evaluation tool that focused on improving patient outcomes, stressing the importance of interprofessional collaboration; and improving patients' relationship with health care providers. This project experience has enhanced my ability to be an effective and efficient leader and manager. My long-term professional goals are to apply the knowledge I have gained from this experience in academia and continue to practice as a health care provider.

Summary

This quality improvement project was patient-focused with the potential to lead to changes in policy and organizational practice. HF incidence is increasing in elderly patients aged 65 years or older, and the appropriate treatment should be personalized and take into

consideration comorbidities such as frailty, quality of life, and social and economic factors (Guerra, Brambatti, Matassini, & Capucci, 2017). The process involved in the transition of care from the inpatient to the outpatient setting directly impacts patients' ability to self-manage their care. Due to the influx of technology worldwide, the application of electronic devices assisting patients in managing their care is an appropriate direction to proceed in the development of interventions that improve the health care delivery system.

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Appendix A: IRB Approval

IRB Materials Approved - Vernell Thames

IRB <irb@mail.waldenu.edu>

Thu 12/14/2017, 7:09 PM
Vernell Thames;
Catherine Garner

Inbox

Dear Ms. Thames,

This email is to confirm that, based on your responses to Form A, your DNP study appears to fall within the parameters that the IRB pre-approved for a DNP Quality Improvement Evaluation. This means that you are permitted to collect and analyze data from public data/literature and internal site documents/data, as per the terms of the site agreement in the DNP Quality Improvement Evaluation Manual. No other data may be collected by you without prior approval from the IRB. Since this project will serve as a Walden doctoral capstone, the Walden IRB will oversee your capstone data analysis and results reporting. Your IRB approval number is 12-14-17-0415883.

This confirmation is contingent upon your adherence to the exact procedures described in the final version of the documents that have been submitted to IRB@mail.waldenu.edu as of this date. This includes maintaining your current status with the university and the oversight relationship is only valid while you are an actively enrolled student at Walden University. If you need to take a leave of absence or are otherwise unable to remain actively enrolled, this is suspended.

If you need to make any changes to the project staff or procedures, you must obtain IRB approval by submitting the IRB Request for Change in Procedures Form. You will receive confirmation with a status update of the request within 10 business days of submitting the change request form and are not permitted to implement changes prior to receiving approval. Please note that Walden University does not accept responsibility or liability for doctoral scholarship activities conducted without the IRB's approval, and the University will not accept or grant credit for student work that fails to comply with the policies and procedures related to ethical standards in scholarship.

When you submitted your IRB materials, you made a commitment to communicate both discrete adverse events and general problems to the IRB within 1 week of their occurrence/realization. Failure to do so may result in invalidation of data, loss of academic credit, and/or loss of legal protections otherwise available to the doctoral student.

Both the Adverse Event Reporting form and Request for Change in Procedures form can be obtained at the IRB section of the Walden
website: http://academicguides.waldenu.edu/researchcenter/orec

You are expected to keep detailed records of your capstone activities for the same period of time you retain the original data. If, in the future, you require copies of the originally submitted IRB materials, you may request them from Institutional Review Board.

Both students and faculty are invited to provide feedback on this IRB experience at the link below:

http://www.surveymonkey.com/s.aspx?sm=qHBJzkJMUx43pZegKImdiQ_3d_3d

Sincerely,
Libby Munson
Research Ethics Support Specialist
Office of Research Ethics and Compliance
Email: irb@mail.waldenu.edu
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Minneapolis, MN 55401

Information about the Walden University Institutional Review Board, including instructions for application, may be found at this link:
http://academicguides.waldenu.edu/researchcenter/orec

Appendix B: Heart Failure Checklist

Heart Failure Checklist

Name: _____

DOB: _____

Date: _____

Discharge Date: _____

Follow-up appointment (Date & Time): _____

Cardiologist: _____ Nurse: _____

Assessment Questions	Yes	No	Comments
1. Are you documenting your weights daily? –view via electronic device Is so any weight gain of 2 or 3 lbs. in one day?			
2. Pedal edema? –view via electronic device			
3. Is the patient wearing compression stockings/teds (if warranted)?–view via electronic device			
4. Any episodes of SOB at rest? If so when, how long of an episode, and any measures you performed to improve your breathing?			
5. Any episodes of chest pain at rest? If so when, how long of an episode, and any measures you performed to alleviate the pain?			
6. Any changes in your medications?			
7. Any changes in your dietary regimen?			
8. Activity or exercise level?			

Progress Note:

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Next Heart Failure Follow-up (Date & Time): _____