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Evaluation of a Telehealth Program for Heart Failure Patients

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Walden University
2021

Abstract

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MS, Walden University, 2012

BS, Immaculata University, 2007

Project Submitted in Partial Fulfillment

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Doctor of Nursing Practice

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Abstract

Heart failure (HF) is a progressive and life -threatening disease that places a large burden on the health care systems worldwide with increased rates of re-hospitalization, readmissions, and outpatient visits. With the use of telehealth monitoring and support from nursing case managers, HF patients are able to manage this disease at home. The focus of this project was to evaluate a home health agency (HHA) telehealth program, exploring if there was an improvement in 30-day readmission rates, and patient satisfaction scores for the HHA telehealth program one year after revising the program incorporating nursing virtual case managers. This project used the Plan, Do, Study, Act model to frame the project. The data used for this project were reviewed one year prior and one year after the improved telehealth program began. The quarterly Press Ganey scores for patient satisfaction were reviewed for the same time frame. The data revealed that for one-year pre virtual case managers (VCM) there was an 8% readmission rate and 89.9% patient satisfaction and one-year post VCM a 7% readmission rate and 94.7% patient satisfaction score. HF is a complicated disease and many factor impact readmission. Although there was only a 1% difference in the readmission rates, a positive change occurred with a significant increase of 5.07% in the patient satisfaction using nursing VCM to support HF patients and families virtually using telehealth.

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Dedication

I dedicate this paper to GOD, to my children (By'Ling, Martina, Latasha, Virginia, and Satin), and my grandchildren who have stood by me on this journey, and cheered me on when things got really hard, to my sweet mother who has passed on last August 2020, she is the one who instilled the importance of a good education, never giving up and being the best you can be, and to my Pastor and brothers and sisters at GTC, who prayed me through.

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I acknowledge my chair: Dr. Diane Whitehead, EdD, DNP, RN, ANEF, who often said, “JUST GET IT DONE!” I will never forget those words, and co-chair: Dr. Debra Lewis PhD, EdD, RN, CNE, who always had a word of encouragement.

Table of Contents

List of Tables

Section 1: Nature of the Project

Introduction

Heart Failure (HF) is a chronic and life-threatening disease that places a large burden on the health care systems worldwide with increased rates of re-hospitalization, readmissions, and outpatient visits. HF as a clinical syndrome caused by the impaired ability of the heart pumping and /or filling. As the inefficiency of the heart as a pump to meet the demands of the body occurs, symptoms of HF may occur. These symptoms include orthopnea, shortness of breath, dyspnea on exertion, and pulmonary edema. (Lewis et al., 2011; Wilkinson et al.,2016).

Over 5.7 million Americans aged 20 years or older suffer from HF with the incidence increasing 46% by 2030 causing costs over $70 billion by 2030. Data from 2016 revealed that Medicare and Medicaid spent $17.5 billion for hospital readmissions, (O'Connor et al., 2016). Decreasing numbers of all caused readmissions among (HF) patients is a national priority (O'Connor et al., 2016).

Telehealth is one strategy used to decrease the impact of hospital readmissions. Tele-monitoring is used to promote early detection of clinical symptoms of decompensation in patients with (HF), which allows for early interventions that can prevent re-hospitalizations, (O'Connor et al., 2016). Telehealth is a remote non-invasive monitoring system., Patients use the non-invasive devices in their homes to assess parameters such as weight, blood pressure, and pulse oximeter. The information is transmitted into an electronic device such as a tablet via Bluetooth and transmitted to a health care center where a heath care provider can give the patient feedback. This form of

monitoring allows for clinical data to be collected on a regular basis, permits early detection and treatment (Kitsiou et al.,2015).

O'Connor et al. (2016) reported that the telehealth data is recorded in real time to the telehealth nurse, who then collaborates with patients, their home health case manager and provider to establish best strategies to manage the patient's care and avoid rehospitalization. The telehealth program for this research team decreased the readmission rate for HF patients in the home health patients by 14%, this showed that telehealth monitoring with nursing and provider collaboration can improve HF patient's outcomes (O'Connor et al., 2016).

Section one introduces the problems many organizations face managing 30-day readmission rates for patients with HF. Section 1 addresses the gap in practice at a large medical facility, the purpose and nature of this DNP project, and the significance of this project in promoting improved patient outcomes and social change.

Problem Statement

Heart Failure is a progressive disease, it is a condition that develops when a person's heart does not pump enough blood to meet the body's needs. When the heart cannot fill up with enough blood, it becomes too weak to pump properly. HF can develop suddenly (acute) or over time (chronic), it can affect one side of the heart or both sides left and right. HF can be cause by other medical conditions that damages the heart, (i.e., coronary heart disease, heart inflammation, high blood pressure, cardiomyopathy, or irregular heartbeat), and overtime the heart weakens (National Heart, Lung, and Blood Institute, n.d.) HF causes complications (i.e., pulmonary hypertension, irregular

heartbeat, heart valve disease, sudden cardiac arrest), and damage to other organs (NHLBI, n.d.). Behavior changes and psychological coping interventions are needed for self-management for people with chronic conditions; helping patients with long-term diseases to live with and manage the signs and symptoms of their disease/illness is an important strategy, yet it is not easy for healthcare systems to develop strategies that are sustaining when it comes to self-management of HF patients (Noonan et al.2019). Patients rely more and more on family members as unpaid caregivers. Often these caregivers are elderly, may be impaired, experience worry, depression, and stress (Noonan, et al., 2019).

With the use of telehealth monitoring and the support of the telehealth nurses as Virtual Case Managers (VCMs) and visiting nurses; patients and their caregivers have daily support and receive educations on how to manage this disease. This continued support may increase patient and caregiver satisfaction and improved patient outcomes. Excessive rehospitalizations has been identified as one of the problems for high cost and fragmented quality in the United States health care systems (Messina, 2016), and to care for patients with HF has exceeded $12 billion per year due to frequent hospital admissions caused by HF exacerbations or decompensation. The Agency for Healthcare Research reported that nearly 20% of Medicare discharges have an adverse effect within 30 days, usually related to medication mismanagement. Other causes of adverse effects within 30 days include poor transition to home, or the patient and families may not have the basic knowledge, skills, or ability to manage the patient's care at home, the patient

would then deteriorate, and then the patient would be readmitted before their first follow-up visit (Messina, 2016).

This doctoral project was an evaluation of the use of telehealth technology with VCMs used by a home health agency to improve 30-day readmission rates for HF patients and patient satisfaction. This evaluation provided information supporting the use of telehealth technology to improve patient outcomes and decrease re-hospitalizations. By using telehealth technology, health professionals can review the patient's health parameters and identify any changes that may require further treatment with the collaboration of the patient's physician (Browning et al., 2011).

Nurses are the driving force behind home health agency (HHA) telehealth. Professional nurses use telehealth, incorporate the of use the nursing process, and evidence-based nursing knowledge to build on their interaction with telehealth technology along with patient care and assessments (American Association of Ambulatory Care Nurses [AAACN], 2018).

Purpose Statement

The gap in practice for the organization's home health agency was continued hospital readmissions for HF patients sooner than 30 days after being discharged from the hospital. Previously, the HHA had provided HH services to their HF patients once they were discharged from one of their hospitals. This telehealth program was for data collection of vital signs but did not provide much follow-up and collaboration between the nurse behind telehealth, the field clinicians (i.e., nurses case managers, physical therapist, occupational therapist, speech therapists), and the physicians. The patients

would often develop complications sometimes in less than a week and be readmitted the hospital.

The purpose of this quality improvement evaluation project was to evaluate the improved HHA's telehealth program with the use of VCMs. With the addition of VCMs, the HHA was able to provide multidisciplinary, family/caregiver, and physician collaboration. The data collected from this revised program were, 30-day readmission rates and patient satisfaction scores. The project question was: Was there an improvement in the 30-day readmission rates and patient satisfaction scores for the HHA telehealth program one year after the implementation of a revised telehealth monitoring program with VCMs?

Nature of the Doctoral Project

This project is a quality improvement evaluation of the home care telehealth system of a large urban healthcare system in the northeast US. The goal of implementing this program was to improve the 30-day re-admission rates and improve patient satisfaction in their HF patient population, by providing telehealth services along with the home care service already provided. The HF patients received telehealth support seven days a week by a master's prepared registered nurse called virtual case managers (VCMS), who provided education on identifying symptoms, managing symptoms, and the VCMs collaborated with visiting nurses, physical therapists, occupational therapists, speech therapists and physicians to help patients self-manage their HF while at home.

This project will follow the guidelines set forth in the Walden University manual for Quality Improvement Evaluation Projects. Evidence supporting this project will be

obtained from peer reviewed journals including ProQuest, Medline, CINAHL, and Google Scholar. Evidence will include English only journals published within the past five years. The Plan, Do, Study, Act, (PDSA) model was also used to validate this organization's quality improvement initiative. De-identified data on hospital readmissions for HF and patient satisfaction scores will be provided by the HHA quality and improvement manager and team. Data will be reviewed from for one year prior to implementation of the revised program, and data for one-year post implementation.

The practice of this organization for the initial telehealth program was to have nurses review patient's data and inform physicians of significant changes in the patient's vital signs, (i.e., weight increase, elevated blood pressure or abnormal heart rates), this is the gap in practice that needed improvement. The role of the VCMs was significant in the success of this telehealth program, the VCM's role consisted of monitoring vital signs, case management, collaboration, communication, and education of the patient with HF. This DNP project will show how the gap in practice had changed with this organization's revised telehealth program, including improved patient satisfaction and readmission rates for their HF patients.

Significance

The significance of a telehealth program is due to the excessive hospital readmission rates that contributes to increase the problem of high cost and fragmented quality of healthcare in the United States' healthcare system (Messina, 2016). Telehealth programs helps to potentiate communication between and among patients, caregivers, clinicians, and physicians to improve patient satisfaction through delivery of more

personalized and interactive care (Dahl et al.,2014; Messina, 2016; Becevic et al., 2015). Patients with chronic medical conditions consumes most of the U.S. healthcare resources, and yet quality, service, and cost of outcomes are behind what is desirable to meet clinical and administrative goals for U.S. population health (Nash, et al., 2016).

The cost for caring for HF patients exceeds $12 billion per year and is primarily due to hospital admission and readmissions. The readmission rate for HF patients (20%-25%) within the first month of discharge, more than any other common medical condition. Home telehealth, combined with a RN case-manager and phone care interventions, is associated with prevention, or delaying hospital readmissions and helps patients to recover at home. Telehealth allows another means to provide follow-up assessments between doctor's visits, allows for patient focused care through collaboration of the health care team managing them, encourages patient autonomy and involvement. Research has also shown that treating patients in their homes environments promotes family socialization and community engagement at a lower cost than hospitalization (Messina, 2016; O'Hara & Jackson, 2017). Improved readmission rates for HF patients, and an RN case manager and phone care interventions will improve the quality of life for these patients and families, providing a positive social change for patients, families, caregivers, and health care providers.

Summary

The purpose of this project was to evaluate the telehealth quality improvement initiative through a home health agency in a large urban health system. Section 1 introduced the practice problem, the nature of the project and the significance to

improving patient outcomes and satisfaction. The project question was there an improvement in 30-day readmission rates and patient satisfaction scores for the HHA telehealth program one year after the implementation of a revised telehealth monitoring program with VCMs? Section 2 will describe the model framing this project, the evidence supporting this project, the context for the project and my role in planning, implementing, and evaluating this project.

Section 2: Background and Context

Introduction

Telehealth is the use non-invasive technology to monitor a patient's health status, through the exchange of medical information and vital signs being recorded through the technology. Currently there are more than seventy-seven million people in the United States living in health professional shortage areas, with 62 percent in rural areas and 31 percent in non-rural areas (Robler et al, 2020). Telehealth is a useful tool used to monitor the health of individuals with chronic diseases to reduce re-hospitalizations (Woo & Dowding, 2020). Telehealth is also a great tool for providing cost effective access to state-of-the-art medical expertise. Telehealth is not a separate specialty, but rather a method for delivering health care, and if implemented well can be the great equalizer in access to medical care across the population (Robler et al, 2020).

The Center for Disease Control and Prevention (CDC) reported that cardiovascular disease (CVD) is the leading cause of death in the United States (US) with HF identified as the leading cause of death for people over the age of 65 (CDC, 2020; Caban, 2019). In the US 11.5% adults are diagnosed with CVD. By 2030 that number will increase to about 40.5%. (Caban, 2019). When HF is not managed and becomes chronic it impacts the quality of life for these patients, increasing hospitalizations and decreasing quality of life.

In a large urban health system in the northeast U.S., HF readmissions rates were noted as 14.5% in January 2017. At that time, the HHA telehealth program had 157 patients with 115 HF patients. The nurse's role was to review the telehealth readings and

to notify physicians of abnormal changes in vital signs. The home health organization decided to revamp the telehealth program. The organization hired four registered nurses with advanced nursing degrees to work as VCMs. The goal of this new telehealth program was to improve and decrease the readmission hospital rate and improve patient satisfaction with the additional close monitoring by the telehealth program. The role of the VCM was to case manage the patients, collaborate the plan of care with other departments and the physician.

Concepts, Models, and Theories

Plan, Do, Study Act (PDSA) cyclic model for QI projects is a simple but comprehensive framework used for evaluating QI projects (Knudsen et al., 2019. In the PDSA based QI model each cycle informs the subsequent cycle.

Table 1

PDSA Model Alignment with Project

PDSA Cycle	Organization Activities
Plan – completed by facility	Organizational plan was to improve readmission rating for HF patients and improve patient satisfaction
Do – completed by facility	Telehealth program implemented for one year.
Study – DNP student	Obtain appropriate permissions to review the following identified data: telehealth stats for readmission of HF patients and patient satisfaction surveys. Data collection will be planned in collaboration with QI manager.
Act – DNP student	The findings will be presented to stakeholders (i.e., VCM, team leaders, directors, and Chief Nursing Officer). Recommendations for any changes or improvements will be presented to stakeholders.

Relevance to Nursing Practice

Telehealth

Telehealth is an emerging technology that allow for the delivery of health care services by using telecommunications and electronic devices to transmit information at a distance virtually (List et al, 2019). Telehealth is sometimes used interchangeable with telemedicine, telemonitoring and telecare; however, for this organization, telehealth is described as the remote monitoring of a patient with a long-term condition using vital sign monitoring, structured questions for health review of signs and symptoms, with data that is transmitted to the telehealth team of nurses and reviewed via computer, or mobile phone (Crundall-Goode & Goode, 2014). The technology of telehealth has the potential to expand access to high quality care for individuals in rural and underserved areas, there are more than seventy-seven million people in the United States who live in health professional shortage areas, with 62% in rural areas and 31% in non-rural areas (Robler et al., 2020). Telehealth nursing is a very important part of the process of delivering telehealth services to these populations.

The American Academy of Ambulatory Care Nursing explains that the registered nurse's role in the delivery of telehealth services, is built on a broad knowledge base of nursing and health sciences, which applies clinical expertise rooted in the nursing process (AAACN, 2018). Telehealth nursing is a tool for delivering care remotely to improve efficiency and patient access to healthcare, this allows the continuum of healthcare (Mataxen & Webb, 2019). Telehealth programs allows nurses to interact with patients over the phone, or via video to identify and prioritize their health needs through

questioning, data interpretation, symptoms review, and skillful assessment of the urgency and level of care necessary to safely and effectively addresses the patient's needs (Mataxen & Webb, 2019; AAACN, 2018).

Telehealth and nursing go hand in hand, the patient having the technology without nursing interventions would find the equipment useless. The AAACN, (2018), explained that the role of the registered nurse in telehealth includes:

1. Identifying and clarifying patient needs
2. Conducting health education
3. Promoting patient advocacy and self-efficacy
4. Coordinating nursing and other health services
5. Assisting the patient to navigate the health care system
6. Consulting and collaborating with other health care professional
7. Facilitating the development of an intraprofessional care plan
8. Evaluating patient outcome (p. 17).

Telehealth nursing is an opportunity to connect nurses and persons receiving healthcare services. It also allows an opportunity to be present with the patient while receiving nursing care as nurses center and are aware of the words, silences, and movements that are there and not there (Carroll, 2018).

Heart Failure Readmissions

Chronic HF is identified as a structural abnormality or cardiac dysfunction that impairs the heart and decreases the function of the ventricles to relax and fill with blood or to contract and eject the blood from the ventricles of the heart (Jones & Grech, 2016).

HF is a condition that affects the heart health of millions of Americans, it is one of the main causes of rehospitalization. HF impacts about 5.8 million Americans annually and 670,000 new cases are diagnosed each year. Often these patients are discharged from the hospital, only to be readmitted, patients often miss the early signs and symptoms of HF before it is too late and they end up back in the hospital (Browning et al., 2011). HF remains one of the leading diagnoses of hospitalized patients in the US, the mortality rate within 5 years of initial diagnosis remains 50% and the cost to treat HF is estimated at $30.7 billion/year and by 2030 it is estimated at $69.7 billion/year. Although the cost is astronomical the emotional cost for patients, their families, and the community providing health care the cost is exorbitant due to the cycle of readmissions to the hospital because of HF (Usinowicz et al., 2020). A re-hospitalization is defined as a return to a hospital, for any cause, within 30 days of discharge from a prior HF related hospitalization (CMS, 2013; Usinowicz et al., 2020). There are penalties on payments to hospitals due to 30-day readmissions. Hospitals readmissions for HF accounts for 21.6% all because readmission rates across the nation and therefor the CMS levy's financial penalties on hospitals that report readmission rates at or above the national average (CMS, 2013; Usinowicz et al, 2020).

Telehealth and Heart Failure Readmissions

In the US and Europe, HF is the leading cause of hospitalization, and is one of the reasons for 1 million admissions with the standardization of care of HF through noninvasive methods that reaches rural areas also, could lower the cost the average

national hospital readmission rate for patient with HF once key factors are identified and addressed (Long et al, 2017).

Researchers have found that telehealth has a positive impact on 30-day hospital readmission rate with HF patients (Long et al., 2017). One study showed that the use of RN-managed telehealth and phone care technologies prevents or reduces rehospitalizations due to worsening of HF. This is due to professional ability to recognize early changes in physiologic and clinical status, and due to the decrease in these patients rehospitalization there were some financial savings as well (Messina, 2016); O'Connor et al., (2016), and found that telehealth was associated with a reduction in all-cause 30-day readmission for one mid-sized Medicare-certified home health agency. Long and colleagues (2017) completed a systematic review and concluded that although they could not find significant decrease in readmission rates for patients with HF on telehealth, they did find 50% decrease in mortality rates among patients using telemonitoring (Long et al., 2017). All in all, telehealth has a positive influence over the 30-day readmission rates of HF patients.

Current Practice and Recommendations

Some of the past practices for telehealth was the use of telehealth to bridge the gap between rural populations and urban medical centers. The lack of access to multidisciplinary specialist heart failure clinics for those living in rural areas has caused a need for increased usage of telehealth (Becevic et al., 2015; Jones & Grech, 2016). Remote telemonitoring technology is a unique form of telehealth which incorporates remote monitoring and communication with Bluetooth blood pressure cuffs, heart rate

monitors, and tablet devices used by patients to enter data and to make video calls. Telehealth technology is being used by many institutions to reduce 30-day readmission for heart failure patients, monitoring patients with other chronic diseases such as hypertension, and to improve connections between patients in rural areas to hospitals. By using this technology, it has been proven to decrease 30-day readmissions and management of patients while in their homes (Browning et al., 2011; Jones & Grech, 2016; Becevic et al., 2015; O'Connor et al., 2016; Messina, 2016).

In order to address health care needs for the vulnerable older population, methods to manage disease processes more efficiently at home are needed. Telehealth technology with video capability engages patients where they live and teaches them to self-monitor their health data. Telehealth technology uses the monitoring of patient's vital signs along with audio and visual abilities to allow the APN to conduct real-time and yet remote health assessments, provide education, immediate intervention, and all outside of the hospital emergency room (Clanton et al., 2014).

Other Approaches to Heart Failure Re-admissions

Some current approaches to treating heart failure and to decrease 30-day re-admission rates are medication management and clinical assessment including heart rates, systolic blood pressures, respiratory rates at the time of patients being discharged from the hospital (Babburi, 2017). B-lines at point-of-care lung ultrasounds on the day of in-patient hospital discharge is another method used to reduce 30-day readmission rates (Cohen et al., 2019). Some institutions are using telehealth devices without home health care services, this method still allows health professionals to follow up patient's health

status more closely and then manage or facilitate early detection of worsening symptoms (Murga et al., 2016). The use of a multidisciplinary team with a VCM is a relatively new approach to managing HF. The importance of evaluating this comprehensive approach is important to future care approaches for these vulnerable patients.

Local Background and Context

This large home health agency is part of a larger eastern healthcare system that has been using telehealth for several years. In 2018, they developed a new telehealth program that would incorporate VCMs with various areas of expertise, including geriatric, medical-surgical, cardiology, emergency medicine, global health, and transitional care. The goal of the program was to expand telehealth capacity to 220 devices, improve patient satisfaction and manage/decrease HF 30-day readmission rate. The VCMs were trained to use the technology and devices by Heath Recovery Solutions (HRS), the company that supplied the equipment and technology. The VCMs showed proficiency in applying the nursing process (i.e., assessment, diagnosis, planning, implementation, evaluation), and skills in listening, communication, and experience in the use of technology. Some of the APNs also participated in continuing education by becoming a certified home health case manager (CHHCM). These are all important components of the Standards of Practice for Professional Telehealth Nursing (AAACN, 2018).

The role of the VCM was to monitor all telehealth data: patient's weight, blood pressure, pulse ox, glucose, heart rate and responses to their survey questions. The VCM would call or launch a video call to assess the patient and collaborate their care with the

caregivers, clinicians, and physicians. The VCM would send trends of the vital signs and weights that were abnormal. The organizations Director of HHA and the acting team leader supported the VCMs ensuring a workspace where they could call patients and video call patients privately without allowing disturbance from others in the workplace. The QI program provided, leadership support, (i.e., Directors, Chief Nursing Officer (CNO), Chief Financial officer (CFO) and the Chief Executive Officer (CEO)) provided the VCMs with private office space, and the equipment needed for the new telehealth program (i.e., large computer monitors, large screens to allow privacy for each VCM during video calls, and private phones). There were weekly meetings with acting team leader and/or director. A third-party company was used to deliver, set up, and retrieve all telehealth equipment. The VCMs had access, communication, and collaboration with the main company who provided the telehealth equipment. The VCMs attended Team meeting and worked collaboratively with team leaders and staff identifying candidates for the telehealth program. The VCMs met weekly with team leaders to discuss all the patients on their teams that were on telehealth and discuss how they could collaboratively prevent certain patients from being readmitted and discuss patients that were already readmitted to the hospital and how and if the readmission could have been prevented.

The first criteria to be enrolled into the telehealth program was an open episode of care within the health system's home health or palliative care. Another main criterion was a LACE score of greater or equal to 59. These patients were considered high risk for readmission.

- L - length of stay of the index admission

- A - acuity of the admission. Specifically, if the patient is admitted through the Emergency Department vs. and elective admission
- C - co-morbidities, incorporating the Charlson Co-Morbidity Index (method of categorizing comorbidities of patients)
- E - number of emergency department visits within the last 6 months

There are a few other criteria (i.e., living alone, restricted mobility, frequent ED visits). Many of the patients have combined risks and comorbidities. Calculation of the LACE score is found at https://image.slidesharecdn.com/laceindexscoringtool-150414105404-conversion-gate01/95/lace-index-scoring-tool-1-638.jpg?cb=1429008903

The VCM Telehealth program used an integrated care delivery model by having weekly case review with the team leaders, case conferencing and VCM patient rounds. Standardize clinical documentation was established and the use of evidence-based instruments for clinical assessments and patient education. The VCM worked collaboratively with the teams that are visiting patients in their homes (i.e., registered nurse, physical therapist, occupational therapist, social worker, speech therapist) physicians and patient's families/caregivers to coordinate patient care and to prevent rehospitalization and maintain patient satisfaction.

Role of the DNP Student

I am one of the APNs chosen for my expertise in cardiac nursing care and home care nursing to work as a VCM and helped develop the revised telehealth program. As I have watched this program grow, I wanted to know if this program really made a difference in the community it served. Did having VCMs in this revised telehealth

program really decrease re-hospitalizations, and improve patient and caregiver's satisfaction? My role in this doctoral project was to evaluate the program using data that was collected prior to the improved program and a year after the program had started to compare whether the organization had truly decreased the readmission rates and improved patient satisfaction.

As an employee of this institution, and after working as a VCM for 2 years, I understood, and valued and the role telehealth plays in the communities in which this HHA provides services. The question remains, "Is the program working?" I do not believe I have bias in this project, as an APN, my goal is to provide evidence of appropriate care based on the best practice and research and to present it in a way that it would help other nurses in their practice. I will not be working with a team, Once I am able to collect the data, I will share the analysis of the findings with agency stakeholders.

Summary

The gap in practice for the organization's HHA was continued hospital readmissions for HF patients within 30 days post previous hospitalization. The VCM telehealth program was initiated in this organization to decrease 30-day readmissions. This program is an integrated care delivery model consisting of VCM, team leaders/managers, registered nurses, licensed practical nurses, physical therapists, occupational therapists, medical social workers, and speech language pathologists to care for HF patients via telehealth. This project was a quality improvement evaluation of this program. The project question was: Was there an improvement in 30-day readmission rates and patient satisfaction scores for the HHA telehealth program one year after the

implementation of a revised telehealth monitoring program with VCM? Section 2 discussed the evidence supporting this project, the PDSA model which will evaluate this project, the local background and context, and my role in the project. Section 3 introduced the procedures and protections for this project, and the plan for analysis and synthesis.

Section 3: Collection and Analysis of Evidence

Introduction

There are over 5.7 million Americans 20 years or older that suffer from HF. This incidence increases 46% by 2030 causing costs over $70 billion. Decreasing numbers of all caused readmissions among (HF) patients is a national priority (O'Connor et al., 2016). Telehealth is one strategy used to decrease the impact of hospital readmissions. Tele-monitoring is used to promote early detection of clinical symptoms of decompensation in patients with (HF), which allows for early interventions that can prevent re-hospitalizations, (O'Connor et al., 2016). The purpose of this quality improvement project was to evaluate several outcomes of home health care patients with HF participating in the telehealth program. These outcomes are 30-day readmission rates and patient satisfaction scores. Section 3 introduced the practice question, sources of evidence for the project, the participants, procedures, and protections for the project, and the plan for analysis and synthesis of the results.

Practice-Focused Question(s)

The gap in practice for the organization's home health agency (HHA) was continued hospital readmissions for HF patients sooner than 30 days post previous hospitalization. Previously, the HHA had provided HH services to their HF patients once they were discharged from one of their hospitals. This telehealth program was for data collection of vital signs but did not provide much follow-up and collaboration between interdisciplinary team. The readmission rate for 30-day readmissions was below the

identified benchmark. The revised telehealth program was an integrated care delivery model consisting of VCM, team leaders/managers, registered nurses, licensed practical nurses, physical therapists, occupational therapists, medical social workers, and speech language pathologists to care for HF patients via telehealth. This project was a quality improvement evaluation of this program. The project question was: Was there an improvement in 30-day readmission rates and patient satisfaction scores for the HHA telehealth program one year after the implementation of a revised telehealth monitoring program with VCM? Sources of Evidence

English language evidence-based peer reviewed journals dated within the past five years were explored using the online databases from the Walden University library including PubMed, Google Scholar, CINAHL, Ovid Nursing Journals, ProQuest Nursing & Allied Health Source, and MEDLINE. Search terms included *telehealth, telemedicine, readmissions, heart failure, and heart failure readmissions.*

De-identified data on hospital readmissions for HF and patient satisfaction scores were provided by the HHA quality and improvement manager. Data was reviewed from for one year prior to implementation of the revised program, and data for one-year post implementation.

Analysis and Synthesis

This project followed the guidelines in the Walden University DNP Manual for Quality Improvement Evaluation. The signed site approval form to conduct a quality improvement evaluation was submitted to Walden IRB as part of the IRB application. De-identified data on HF readmissions and patient satisfaction scores for twelve months

prior to implementation of the revised telehealth program and twelve months after implementation of the new program from the home health agency were provided to me by the organization.

Summary

Section 3 described the project question, the sources of evidence, CINAHL, and the process for analysis and synthesis of the data. Section 4 discussed the findings and implications from the data analysis. Strengths, limitations, and recommendations from the results will be discussed.

Section 4: Findings and Recommendations

Introduction

The cost of caring for patients with HF exceeds $12 billion a year and it is largely due to frequent hospitalizations and readmissions for decompensations. Researchers have found that HF continues to be a leading cause of hospitalization in elderly with a have a higher readmission rate (20%-25%) within the first month of being discharged from the hospital. Organizations continue to explore ways to reduce the cost of caring for patients with HF (Messina, 2016).

Telehealth is one strategy that is being used to decrease the impact of hospital readmissions. Telehealth programs help to potentiate communication between and among patients, caregivers, clinicians, and physicians to improve patient satisfaction through the delivery of more personalized and interactive care (Dahl et al.,2014; Messina, 2016; Becevic et al.,2015). While chronic medical conditions consume most of the U. S. healthcare resources, quality, service, and cost outcome are what is desirable to meeting clinical and administrative goals for the U.S. population health (Nash, et al., 2016).

To measure the effectiveness of this project data collected by the organization compared to previous year data to determine if the readmission rates had improved, and if the program improved patient satisfaction. The project question was: Was there an improvement in 30-day readmission rates and patient satisfaction scores for the HHA telehealth program one year after the implementation of a revised telehealth monitoring program with VCM?

Findings and Implications

The organization defined 30-day readmission rate as patients with a telehealth start of care (SOC) resumption of care (ROC) and a readmission within 30-days of the index hospitalization. The data source was from the patient's chart with patients on telehealth for any portion of the 30-day period. The most direct metric of the telehealth intervention is the telehealth 30-day hospitalization rate, defined as all cause admission to any facility within 30 days of the telehealth SOC/ROC. This includes hospitalizations and readmissions to both the organization's hospital and non-organization facilities.

Data was tracked and collected by the Director of quality improvement and his team on a monthly basis. The data showed how many patients were on telehealth and how many were readmitted. Patients are categorized as HF, cardiothoracic surgery (CT), medically complex (MC), caring way (CW). Between May 2017-April 2018, the data showed there were a total of 1512 patients enrolled in the former telehealth program and 1264 of those patients were HF patients. Data was reviewed from May 2018- May 2019.

Table 2

Telehealth Program Data May 2018 – May 2019

Date	Telehealth Patients	Telehealth HF Patients	Readmissions	HF Readmissions
May 2018	133	113	2	2
June 2018	136	111	7	6
July 2018	0	0	0	0
August 2018	143	108	11	8
September 2018	139	106	12	6
October 2018	0	0	0	0
November 2018	142	109	8	5
December 2018	133	109	9	2
January 2019	90	75	12	12
February 2019	137	107	7	5
March 2019	190	148	33	25
April 2019	218	164	13	7
May 2019	226	164	22	15

Table 3

1-year prior to implementation and 1-year after implementation

Dates	May 2017-April 2018 No data collected for November	May 2018- May 2019 No data collected for July and October
Total Patients on telehealth	1512	1687
Total HF Patients	1264 (84%)	1314 (78%)
Total readmissions	111 (7%)	136 (8%)
Total HF readmissions	96 (8%)	93 (7%)

The next portion of this QI project evaluation is the patient satisfaction score during the same period of time period but using the quarters of the fiscal year July 2017-2018 and July 2018-2019. The patient satisfaction scores are collected and evaluated through Press Ganey scores each quarter and then calculated at the end of the fiscal year. The Press Ganey scores are collected quarterly, they reflect the patient's and/or their caregiver's satisfaction with the HHA. The questions are broken up into multiple sections, 1- overall patient satisfaction, 2-Personal issues, 3-Nurses, -4-Care of the patient

Satisfaction scores are measured on a scale from 1-5 (1-strongly agree, to disagree 5-strongly). The telehealth patients are asked additional questions related to the telehealth program that were not reflected in the Press Ganey scores. Over 90% of the patients on telehealth either agreed or strongly agreed in their patient satisfaction ratings for all of these categories.

1. Overall, I am satisfied with the telehealth program.
2. The telehealth equipment is easy to use.
3. I am more involved in my care while using the telehealth system.
4. I would recommend the use of the telehealth system to a family member or friend.
5. The telehealth program makes me feel supported by my healthcare team.

Table 4

Press Ganey Mean Score Results Agree or Strongly Agree

Date	Fiscal Year 2017-2018	Fiscal Year 2018-2019
Mean	89.9%	94.7%

According to table 4, the Press Ganey scores increased by 5.07% fiscal year 2018-2019. In the fiscal year 2017-2018 the Press Ganey mean score was 89.9% and in the fiscal year 2018-2019 the Press Ganey mean score was 94.7%.

Based on the information in Table 3, the percentage of HF patients readmitted to the hospital within 30-days of being discharged from the hospital and enrolled in the HHA telehealth with VCMs QI program is only a 1% difference between pre-implementation and 1 year later. The difference is that there were 1264 HF patients admitted to the telehealth program from May 2017-April 2018 and 1314 HF patients admitted to the QI program May 2018-May 2019, which is only 4% (50) patient difference.

Although there was not much of a difference in the rehospitalization prior to the initiation of the improve QI telehealth project using VCMs, the patient satisfaction scores for the HHA increased significantly. The lack of change in the rehospitalization rates for the HF patients on telehealth could be the results of several factors,

1. Most heart failure patients have other co-morbidities.
2. Patients are discharged from hospital sicker.
3. Patient lack of compliance with diet and/or medication adherence.

4. Inconsistent or missing data

   Inconsistent data collection causes the study to become inconclusive and takes away from the hard work that was put into the project. The purpose of studies like these to provide information that would give other organizations understanding of best practices in the area studied. Given the serenity of HF and the impact of cost it has on our society, it is important to follow these processes in place to allow research for best practices.

Recommendations

The literature shows that telehealth technology and the use of a professional allows patients to stay at home while managing their HF. My recommendations are as follows,

1. Improve data collections, to include the number of daily HF patients enrolled in the telehealth program.
2. Continue using the VCMs, they are a valuable part of this QI project, based on the patient satisfaction scores.
3. Continue to follow HF patients enrolled in telehealth on a monthly basis without gap in data.
4. Continue to survey patients on their satisfaction with the telehealth program.
5. Take the wins, improved patient satisfaction is a big win for any organization, the rest will catch up.

Strengths and Limitations of the Project

The strength of this QI project is that the organization recognized the need to improve patient satisfaction and decrease 30-readmission and was willing to step out and redesign a program already in existence to make it better. Using VCMs in the telehealth program is part of the strength in this project. Their roles in the delivery of telehealth provides cohesiveness and continuity of care for the HF patient through collaboration among other disciplines, patients/caregivers, physicians, and the leadership team. Telehealth and nursing go hand in hand, the technology with expert nursing interventions would be useless to the patient/caregivers (AAACN, 2018).

Following the PDSA model as an evaluation tool is another strength for this project, due to its interactive cyclic method, it allows ongoing evaluation, research, and revamping of the project to meet the objectives.

Summary

The use of VCMs in the telehealth program may not improve 30-day readmission rates for several reasons including, patients are discharged from the hospital sicker. However, using VCMs in the telehealth program is a method for delivering care remotely and allows the continuum of healthcare. The significance of the telehealth program using VCMs, improves transition of care post-discharge, improve knowledge for patient/caregiver, improved collaboration among disciplines, and provides support for the patient/caregivers while promoting self-management of the HF patient. The data has shown that patient satisfaction increased significantly, which is a result of improved patient outcomes, support, and close monitoring. Further research is needed with

consistent data to provide the evidence of best practice so other organization can use this program as a guide for their own practice.

Section 5: Dissemination Plan

Introduction

HF is a general problem that is the leading cause rehospitalization for elderly patients within 30 days of discharge from an inpatient stay at the hospital across the United States. This is due to poor transition of care post-discharge, lack of knowledge on the part of patient/caregiver, the need for collaboration among practitioners, the need for patient support of management of self-care, mismanagement of medications, and missed follow-up appointments. The purpose or focus of this project was to evaluate the strategy of a large urban organization use of a telehealth program with VCMs to improve 30-day readmission rates and patient satisfaction scores. Using the PDSA model the DNP student collected data from the Director of QI and his team from 1 year prior to the revised telehealth program using VCMs, and 1 year after, to evaluate the results to answer the problem question.

The DNP student used 10 months with data from each year, due to missing months of data collection. The data from May 2017-April 2018 showed there was an 8% 30-day readmission rate of HF patients enrolled in the old telehealth program. Data collected from May 2018-May 2019 showed a 7% 30-day readmission rate, this is only a 1% decrease 1 year after the revised program had started. However, there was a significant change in the patient satisfaction scores. Data for Press Ganey is collected on a quarterly basis from fiscal year to fiscal year. Fiscal year 2017-2018 showed a patient satisfaction score of 89.9% and Fiscal year 2018-2019 showed a patient satisfaction score of 94.7%, this is a 5.07% increase since the revised telehealth program had begun.

The answer to the DNP analysis of the organizations improved telehealth program is no/yes, the improved telehealth program with VCMs, did not improve the 30-day readmission rate significantly, which can be for several reasons and can be addressed in another research. However, there was a significant improvement in the overall patient satisfaction scores, this improvement also may call for more research to share with other organizations.

Analysis of Self

During this DNP program, I have gained the knowledge, skill, and ability to identify a problem practice, to research, research and research and identify the evidence for best practice for my DNP project. I have learned that as a scholar, I must use my nursing knowledge to build and advance the nursing practice. Prior to the DNP program my self- analysis would have been without any confidence, in research, analysis and dissemination of the research and how to put all of what I learned into practice. I actually hated research, but now with tears in my eyes, I write this analysis of myself realizing I need research and scientific knowledge as a DNP nurse. As a DNP nurse, I have learned that collaborating with the leaders of interprofessional colleagues to improves my practice and the organization as a whole. Of course, I don’t know everything, and I consider myself a novice when it comes to leadership. However, during this DNP program and my time and efforts put into this DNP project, I have worked among different leaders with different leadership styles and have developed a leadership style of my own. I am confident that the knowledge and skills I have gained from the Walden

University DNP program has prepared me for my new role as an DNP nurse to serve in the community, in the organization where I work and among my peers.

Summary

Managing patients with HF and decreasing 30-day readmission rates is not a new subject, and even though telehealth is usually implemented to improve physical health outcomes and to decrease re-hospitalization of the HF patient. Telehealth could be used to improve other outcomes in the HF population such as improved mental health, functional status, and quality of life (Clanton et al., 2014). The purpose of this DNP project was to analyze the effectiveness of this large home health system's improved telehealth program using VCMs and answer the project question, "Is there improvement in 30-day readmission rates and patient satisfaction one year after implementation of a revised telehealth monitoring program with VCMs? After research and the analysis of the data I found that there were several factors that inhibit lower readmission rates, but improved patient satisfaction rates. I conclude that this project was very informative and shows there is more room for research and that good data collection is pertinent to the success of determining outcomes.

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