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How Provider Education On Identification And Referral Of Eligible Patients To A Care Management Program Affects Readmission Rates: An Evidence-Based Project

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HOW PROVIDER EDUCATION ON IDENTIFICATION AND REFERRAL OF ELIGIBLE PATIENTS TO A CARE MANAGEMENT PROGRAM AFFECTS READMISSION RATES: AN EVIDENCE-BASED PROJECT

A Doctor of Nursing Practice Project

by

KOSISOCHI AGUBE

Submitted to the Office of Graduate Studies of
Prairie View A&M University
in partial fulfillment of the requirement for the degree of

DOCTOR OF NURSING PRACTICE

May 2023

Major Subject: Nursing

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Approved as to style and content by:

Abida Solomon Chair of Committee	Jerrel Moore Committee Member
Stacy Sam Committee Member	Sharisse Hebert Committee Member,
Allyssa Harris Dean of College	

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ABSTRACT

How Provider Education on Identification and Referral of Eligible Patients to a Care Management Program Affects Readmission Rates: An Evidence-Based Project.

(May 2023)

Kosisochi Agube, B.S.N., Prairie View A&M University;

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Committee. Dr. Abida Solomon

Hospital readmissions cost the U.S. healthcare system approximately $17.4 billion each year. Minimizing hospitalizations among Medicare beneficiaries is therefore a high priority. This study aimed to evaluate how identifying patients at high risk of hospital readmission—i.e., patients with complex health needs, such as those with chronic conditions—and referring them to a transitional care program impacts readmission rates in a primary care clinic. The PI hypothesized that identifying high-risk individuals and enrolling them in a care management program to improve their health would lessen their need for inpatient and other high-cost healthcare services.

The PICOT question for this project is as follows: In a primary care clinic, does provider (P) education on the identification and referral of eligible patients to a care management program (I) increase referrals to the program and decrease the rate of hospital readmissions (O) compared with the pre-intervention rates (C) within a 3-month period (T)? The intervention involved educating full-time primary care providers at a Southeast Texas clinic on using the Community Assessment Risk Screen to identify patients at high risk of being readmitted to the hospital. The project observed the clinic's

readmission rate and number of referrals before and after the implementation of the educational presentation. The data were audited over 3 months to determine if the intervention led to an improvement (i.e., a 5% increase in the number of referrals and a 5% decrease in readmission rates).

The findings showed a 43.48% decrease in the readmission rates after the intervention and a 200% increase in the number of patients referred to the CM program after the intervention. Reduced readmissions, improved patient outcomes, and cost savings are just a few benefits of using screening techniques to identify patients at risk for readmission. Healthcare professionals can take early action by referring patients at greater risk of hospital readmission to the care management department, where they can receive early interventions to help them avoid more serious health problems.

Changes to the current methods of healthcare delivery, such as a team-based strategy and a focus on high-risk patients, may be necessary to implement care management programs. Care management programs typically require a team-based strategy that involves several healthcare experts, such as nurses, pharmacists, and social workers. To achieve coordinated care, these experts may need to collaborate and communicate clearly. The primary care clinic needs to be ready to commit more funds to sustaining and implementing care management initiatives that lower readmission rates.

Keywords: readmission rates, medicare, care management, primary care

DEDICATION

I dedicate this paper to my beautiful children, Rayna, and Jadon. You have made me stronger, better, and more fulfilled than I ever imagined. Thank you for being my rainbows after the storm.

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First and foremost, I want to thank God for giving me the strength and resilience to complete this project. Without Him, none of this would be possible. I also want to thank my DNP committee chair and members, Dr. Abida Solomon, Dr. Sharisse Hebert, Dr. Jerrel Moore, and Dr. Stacy Sam, for their encouragement, support, and guidance throughout this project. I extend my gratitude to everyone at Village Medical who was instrumental in the execution of my project, especially Dr. Louis Gilbert, Ciara Dove, and Amy Lara. Lastly, to my wonderful friends and family, especially my husband, Ugo, thank you for all the love, prayers, and encouragement.

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CHAPTER I

INTRODUCTION

Background

Readmission rates are increasingly utilized as a quality standard for health systems and as an outcome measure in health services research. The Centers for Medicare and Medicaid Services (CMS) describe hospital readmission as the act of being admitted to an acute care hospital within a time span of 30d days after being discharge from either the same hospital or a different acute care hospital (CMS, 2021). The CMS established the 30-day consideration period because readmissions during this time can be influenced by the hospital's quality of care and how well discharges are coordinated (CMS, 2021).

Excessive healthcare delivery expenses can strain the federal government and hospitals financially. There were 3.8 million hospital readmissions in the United States in 2018, with an average cost of $15,000 per visit (Weiss & Jiang, 2021). According to recent data compiled by the Agency for Healthcare Research and Quality (AHRQ), the national benchmark range for readmission rates is 13.9%–20% (AHRQ, 2021). Texas's readmission rate in 2016 was 16.1% (CMS, 2021).

This dissertation follows the style of the American Psychological Association, 7th Ed.

Hospitalizations and fatalities due to chronic illness are the most common causes of death and hospitalization worldwide (CDC, 2021). Recurrent hospitalization, particularly hospital readmission, is one of the most critical healthcare difficulties with chronic illnesses, owing to fragmented and episodic transitional care services (Brunner-La Rocca et al., 2020).

The CMS formally included readmission rates in its reimbursement decisions as part of the Patient Protection and Affordable Care Act of 2010. The Hospital Readmission Reduction Program established a method for calculating a health system's expected readmission rate and penalizing hospital systems that exceed their expected readmission rate, thereby holding hospital leaders and clinicians accountable for the quality of care they provide to patients after their initial hospital discharge. To avoid financial penalties, hospital management teams have developed risk strategies, such as transitional care programs, to decrease patient readmissions. Providers use risk assessment tools, such as the HOSPITAL score, LACE index, and Community Assessment Risk Screen (CARS), to identify patients at high risk of hospital readmission and enroll them in a transitional care program. This DNP project used the CARS tool.

Transitional Care

Transitional care is a broad category of time-limited services aimed at ensuring healthcare continuity, preventing preventable adverse outcomes in at-risk populations, and facilitating patients' safe and timely movement from one level of care or location to another. Gaps in treatment during critical transitions can result from, ~~e.g.,~~ poor communication, inadequate information transfer, insufficient education of older individuals and their family caregivers, restricted access to vital services, and the lack of

a single point person to maintain continuity of care. Enrolling high-risk patients in a transitional care program reduces the likelihood of unnecessary readmissions and associated expenses, resulting in a rise in practice revenue (Naylor, 2011).

Village Medical System

Village Medical (VMD) is a primary care–focused management company that works with and empowers doctors and other primary care providers (PCPs) to offer high-quality, compassionate primary care for communities. Because of its growing presence across the United States, VMD can offer value-based care to high-risk members of the community that require it. Of the 54 VMD clinics in the Houston market, 30 are joint locations within Walgreens, and the remaining 24 are free-standing clinics. As of June 2022, 299,110 patients received care at VMD; 164,950 had commercial insurance, 57,700 had Medicaid, 64,671 had Medicare, and 11,789 were self-payers.

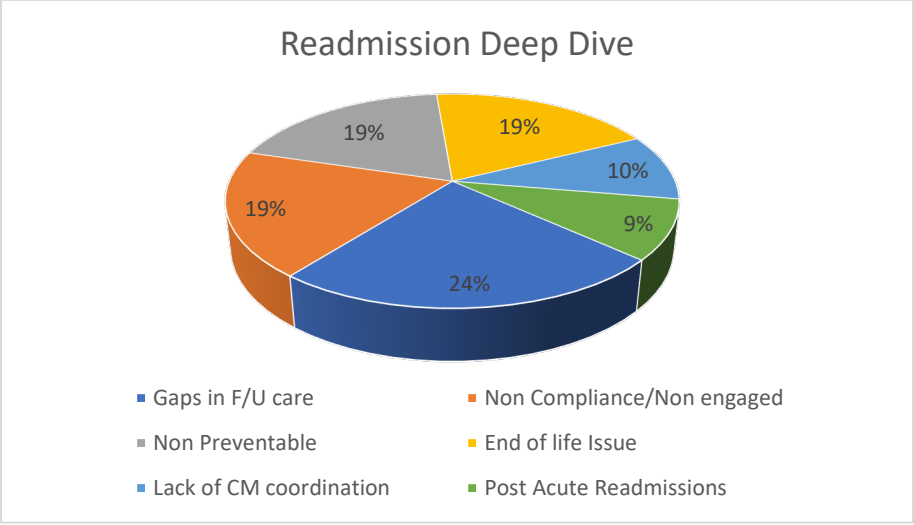
VMD created its Care Management (CM) program to provide high-risk patients with patient-centered care and services that reduce the need for hospital admissions. Patients who enroll in the VMD CM program meet one-on-one with a care manager who evaluates their risk, creates a personalized care plan, educates them on medication management, checks in with them to ensure adherence and progress, and identify potential risks, coordinates care with their provider and multidisciplinary team, and connects them with necessary resources. The CM team also includes a care coordinator, who organizes the patient's multidisciplinary team and keeps track of their program progress, and a social worker, who connects the patient with resources for overcoming social, economic, psychological, and emotional obstacles. Providers can refer patients to

the CM program by selecting “care management referral” in the assessment and planning section of the patient’s chart and inputting the necessary diagnosis.

A new CMS rule that went into effect in May 2021 requires hospitals to make a reasonable effort to inform a patient’s primary care physician whenever they admit, transfer, or discharge the patient from an inpatient service. The notifications should include the patient’s name, the treating physician, and the hospital. The VMD IT department obtains this information from the hospital every day and sends it to the CM department, where it is filtered by admissions, readmissions, providers, and clinics. VMD’s CM team assessment revealed that clinical and follow-up care gaps accounted for 24% of readmissions, and non-compliance and lack of patient involvement with care management accounted for 19%. Figure 1 shows the CM team’s deep dive results.

Figure 1

Causes of readmission at VMD



Problem Statement

Patients with chronic conditions have complex health needs. Identifying high-risk individuals and enrolling them in programs to improve their health will lessen their need for inpatient and other high-cost healthcare services. The treatment strategy and support teams at VMD aim to reduce the incidence of patient readmissions.

Local Problem

The intervention was conducted in a VMD clinic located in Southeast Texas. This clinic employed four full-time medical professionals: two board-certified family nurse practitioners and two board-certified medical doctors. As of August 2022, 1,096 patients received treatment at the Southeast clinic; 754 had commercial insurance, and 342 had Medicare. The clinic sees an average of 500 patients monthly—approximately half of whom are Medicare patients—and is open seven days a week (Monday through Friday, 7 am–7 pm; Saturday and Sunday, 9:30 am–5:00 pm), except for major holidays. This clinic provides patients with home health care, chronic care management, wellness checks, specialized care coordination, virtual visits, diagnostic testing, and same-day appointments.

The clinic accepts patients with commercial health insurance, Medicare, and Medicaid. Additionally, patients have the option of paying cash for their treatments. Only Medicare-eligible patients are factored into the clinic's readmission rate. Figure 2 demonstrates that despite VMD's goal of a 10% readmission rate, readmission rates at the clinic tended to lie above the target and reached nearly 16% in the months leading up to the study's intervention. The medical staff at this clinic could not determine which of their patients were at risk of hospital admission. They would therefore benefit from

enrollment in the CM program, as evidenced by the decline in patient referrals to the CM program (Figure 3). Figures 2 and 3 show the clinic's readmission rates and referral numbers against those of VMD Houston from January to August 2022.

Figure 2

Readmission rates in 2022 for VMD Houston and the Southeast Texas clinic

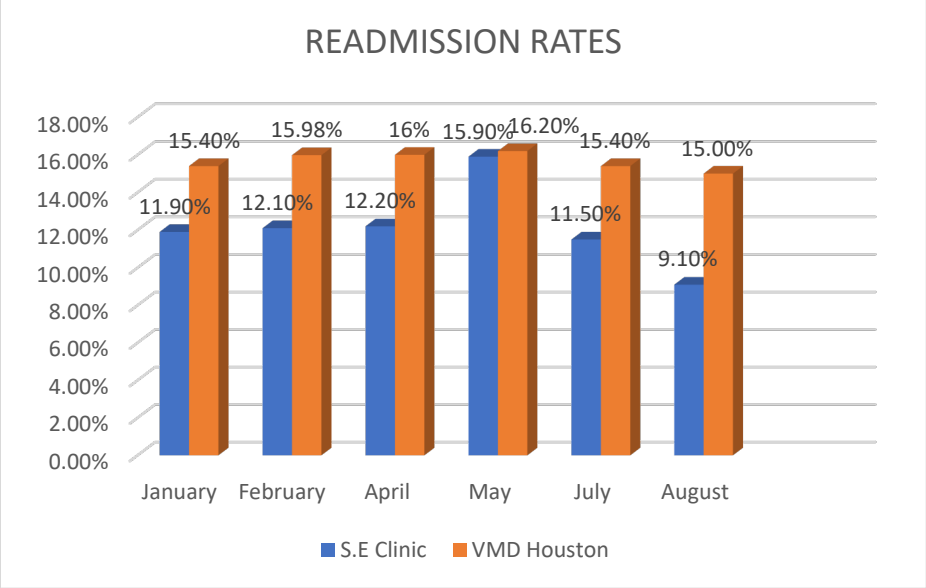
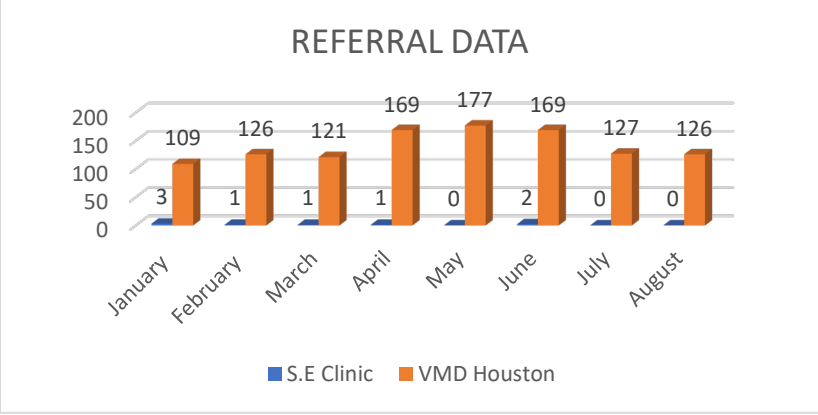


Figure 3

Number of referrals to the CM program at VMD Houston and the Southeast Texas clinic in 2022.



Purpose of the Project

This evidence-based practice (EBP) project was designed to increase referrals to the CM program and decrease readmission rates in a primary care setting. The intervention involved educating providers on the importance of identifying and referring high-risk patients to the CM program for further management. High-risk patients were identified using the CARS tool, a simple instrument to identify patients at higher risk for health service use and increased costs. The goal was to increase referrals to the CM program and decrease readmission rates by five percent in three months. This goal was determined based on findings by White et al. (2014), who showed that primary care clinics that implemented an intensive, coordinated care management and transition process saw a 19.9% decrease in their readmission rates in a year, amounting to approximately a five percent decrease in three months.

PICO(T) Question

The PICO(T) question for this project was, "In a primary care clinic, does provider (P) education on identifying and referring eligible patients to the CM program (I) increase referrals to the CM program and decrease the rate of hospital readmissions (O) compared with the pre-intervention rates (C) within three months (T)?"

Population: Two medical doctors and two nurse practitioners working full-time at a Southeast Texas primary clinic.

Intervention: Educating providers on identifying candidates for referral to the CM program.

Comparison: The readmission rate and the number of patients referred to the CM program pre-and post-intervention.

Outcome: Increase referrals to the CM program and decrease readmission rates, each by five percent.

Time: Three months

Significance of the Project

Patients with substantial unmet needs may experience unfavorable clinical outcomes due to poor transitional care. According to the CMS, over 20% of Medicare patients discharged from hospitals are readmitted within 30 days. Transitional care programs help hospitalized patients with complicated chronic diseases move safely and promptly from one level of care to another. Patients referred to the CM team are partnered with a care manager who helps bridge the care gap.

Definition of Terms

Care management: A series of activities aimed at improving patient care and reducing the demand for medical services by improving care coordination and assisting patients and caregivers in managing their health problems more efficiently.

High-risk patients: Patients with an increased risk for severe illness due to age, medical condition, or geographic location.

Readmission: Admission to an acute care hospital within 30 days of discharge from the same or another acute care hospital.

Transitional care: A broad category of time-limited services aimed at ensuring healthcare continuity, preventing preventable adverse outcomes in at-risk populations, and facilitating patients' safe and timely movement from one level of care or location to another.

Summary

Hospital readmissions significantly impact the efficiency, quality, and cost of patient treatment. Reducing hospital readmission rates is necessary for improving healthcare quality, patient happiness, and hospital costs. Transitional care programs, which focus on transitional planning, follow-up care, patient and caregiver education, and healthcare provider participation, are critical for high-risk patients as they help avert preventable readmissions. Primary care clinicians can use risk assessment tools to identify at-risk patients who would benefit from additional interventions, such as a referral to a transitional care program.

Chapter II presents a review of the pertinent literature, Chapter III will provide a thorough explanation of the methodologies utilized in this DNP project, Chapter IV will present the findings, and Chapter V will provide a summary of the study along with conclusions and recommendations for future research.

CHAPTER II

LITERATURE REVIEW

Introduction

This project aimed to educate providers at a primary care clinic on ways to identify patients at risk of hospital readmissions and refer them to the CM team to reduce readmission rates. This chapter will provide an in-depth understanding of the available literature on care management enrollment and readmission rates. The literature review will address 1) the effect of care management program enrollment on readmission rates, 2) barriers and facilitators of hospital admission and readmission rates, and 3) interventions for reducing hospital admissions and readmission rates.

Search Strategy

Articles were obtained from the PubMed/MEDLINE and CINAHL databases using the following search terms: “admission rates,” “readmission rates,” “transitional care,” “Medicare,” “care management program,” and “the adult population.” The publication date was restricted to the previous eight years to gather the most pertinent papers. Seventy publications were found after searching PubMed/MEDLINE; 37 were reviewed, and 13 were used in the research. The CINAHL search produced 82 papers, of which 50 were reviewed, and 18 were used in the study. This literature review, therefore, includes a total of 31 articles. Several articles analyzed were concerned with lowering readmission rates but were connected to a specific patient profile or medical illness.

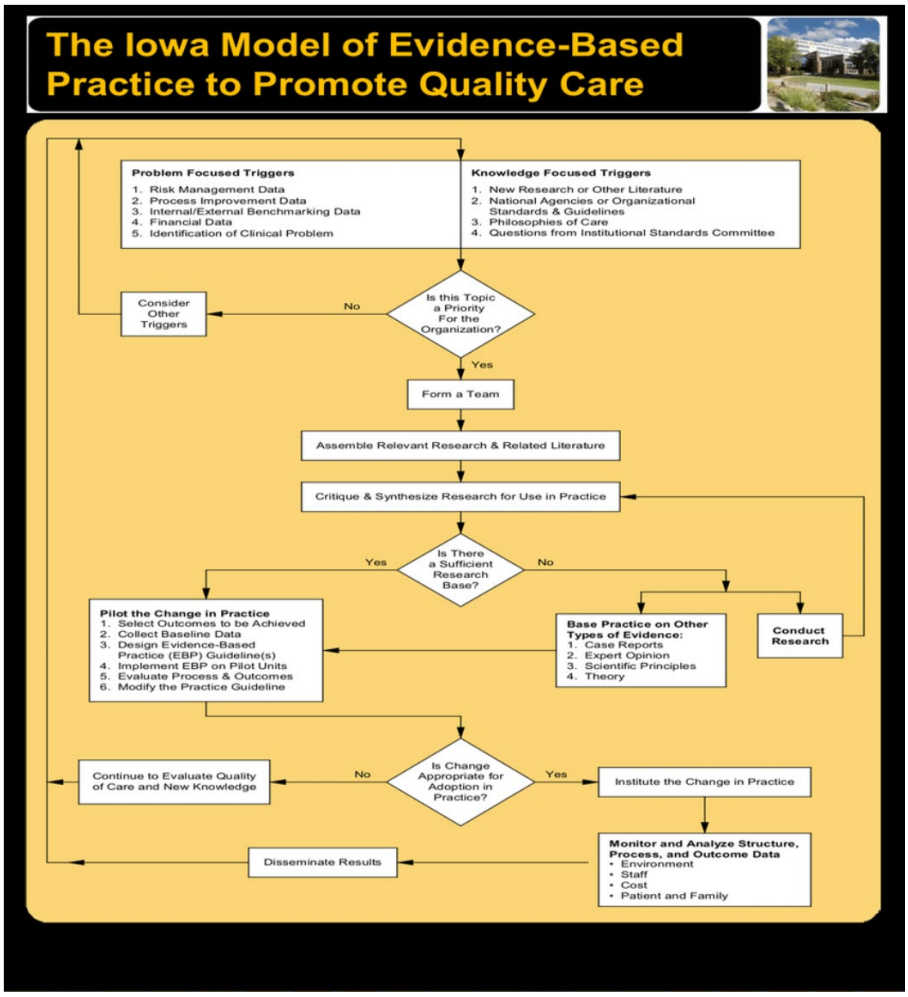
Theoretical Framework

The Iowa Model of Evidence-Based Practice (EBP) to Promote Quality Care was used as the theoretical framework for this project. The model explains the importance of

using research within the healthcare system to guide practice decisions (Cullen et al., 2017). The Iowa Model is a heuristic device and widely used framework for implementing EBP and articulating knowledge for nursing administration research, practice, and education (Hanrahan et al., 2019). The model consists of six key elements for the successful execution of EBP: (1) trigger identification, (2) organizational priority, (3) team formation, (4) systematic review of the evidence, (5) implementing evidence into practice, and (6) outcome evaluation.

Figure 4

Elements of the Iowa Model.



The Six Steps of the Iowa Model

1. The first key step in the Iowa Model is the identification of a pertinent problem- or knowledge-focused trigger. Problem-focused triggers may include clinical problems identified in risk management, process improvement, benchmarking, or financial data. Knowledge-focused triggers may be new empirical evidence, practice guidelines, or philosophies of care (Duff, 2020). The problem identified for this project was an increase in readmission rates at a primary care clinic.
2. The second step in the Iowa Model is determining if the problem- or knowledge-focused trigger is a priority for the organization (Duff, 2020). If senior leadership did not consider the EBP project a high-priority topic, the Iowa Model would not support moving forward; instead, the organization's priorities, triggers, or outcomes would need to be re-evaluated (Duff, 2020). VMD's treatment approach and support teams focus on preventing acute inpatient hospital readmissions. Despite VMD's 10% readmission rate goal, readmission rates at the clinic where the project was implemented tend to lie above the target and reached nearly 16% in the months leading up to the study's intervention indicating that the clinic would benefit from this evidence-based project.
3. The third step in the Iowa Model of EBP is to form a team that will assume responsibility for evaluating the evidence and developing an implementation and evaluation plan. Duff et al. (2020) emphasized the importance of enlisting interested, vital stakeholders as part of the team. The team for this project included the clinic lead, clinic manager, population health operation (PHO) manager, and care manager. The PHO manager provided the current readmission

rate, and the care manager provided the current number of referrals. These data were combined with data from the literature and the components of the Naylor Transitional Care model to highlight the benefits of lower readmission rates.

4. The fourth step in the Iowa Model is to evaluate the evidence. Duff (2020) suggested that all team members should be involved in evaluating the evidence to understand the scientific underpinning that supports the implementation of the new EBP change.
5. The fifth step in the Iowa Model is to pilot the change in practice. This pilot is a multi-step process in which the team selects the desired change outcomes, collects baseline data, designs and implements the EBP guidelines, evaluates the process and outcomes, and modifies the EBP guidelines based on the process and outcomes evaluation (Duff, 2020). Retrospective data showing an increase in readmission rates at the clinic were included in an educational presentation to the providers at the clinic.
6. The sixth step in the Iowa Model of EBP is to evaluate the outcomes to decide if the change is appropriate for adoption into practice. The team evaluated the project outcomes to determine if the project led to a significant decrease in readmission rates and an increase in CM program referrals. Readmission and referral data 3 months post-intervention served as the outcome indicator.

The Iowa Model of EBP was selected for this project because it aligns with its goals and outcomes. The model permits healthcare professionals to emphasize evidence and problem-focused triggers, causing organizations to examine existing nursing practices to

determine if they can be enhanced using up-to-date research discoveries (Cullen et al., 2017). The Iowa Model concentrates on infrastructure and teamwork, assimilating behavior, research, and other forms of evidence (Titler et al., 2001). It also emphasizes the importance of considering the healthcare system as a whole for healthcare providers, patients, and organizations and using research within these frameworks to direct practice decisions (Doody & Doody, 2011). The model emphasizes the need for support for EBP throughout the healthcare system, from clinicians to the highest management level, and pinpoints the researcher's role in identifying and developing EBP within the clinical setting (Zhao et al., 2016).

Review of the Literature

Effect of Care Management Program Enrollment on Readmission Rates

Approximately 18% of people over 75 years old are newly admitted to the hospital annually (de Man et al., 2019). In 2009, the CMS focused on reducing unplanned hospital readmissions by initiating public reporting of selected risk-adjusted readmission rates. One strategy healthcare organizations use to lower readmission rates is enrolling high-risk patients in a care management program, which ensures that patients follow up with primary care and specialist physicians, manage their prescriptions, and follow discharge instructions.

Research shows that transitioning from the hospital to the primary or long-term care setting can decrease readmissions (de Man et al., 2019). A cross-sectional study using data from insurance claims compared hospital readmissions and deaths among patients discharged to geriatric rehabilitation, community nursing, and short- and long-term care programs. The study showed that short- or long-term care program patients had

the lowest readmission rates. Another study reported similar findings on the effect of care management program enrollment on readmission rates. The study by McHugh et al. (2017), conducted in 16 hospitals in the United States, used data collected from 2009–2013 Medicare claims for readmission, reported decreased readmission rates among patients discharged to a skilled nursing facility compared with patients who were not discharged to a facility. Furthermore, after comparing the readmission rates of patients from four primary care clinics who were divided into two groups (patients whose clinic implemented transformation activities post-hospital discharge and patients whose clinic did not), White et al. (2014) concluded that primary care groups seeking to reduce their readmission rates should utilize a multicomponent intervention, including a transitional care program.

Barriers and Facilitators of Hospital Admission and Readmission Rates

Readmissions are costly, burdensome, and potentially preventable in the healthcare system (Stein et al., 2016). With the renewed national focus on the cost and quality of healthcare, readmissions have become a significant target for improvement. However, there are numerous obstacles that physicians and patients must overcome to lower admission and readmission rates. The studies in this area focus on patient and provider barriers and facilitators of reducing admission and readmission rates.

Stein et al. (2016) used chart audits and interviews to conduct their qualitative descriptive study focusing on adults over 18 who were readmitted between July and December 2013. The study's findings revealed that 21% of providers believed that some readmissions could have been prevented if patients had received proper follow-up post-discharge, including enrollment in a care management program. Other studies reported

similar provider perspectives about barriers to reducing readmissions. Loeb et al. (2016) obtained the perspectives of 15 PCPs on patient factors, physician competency, and healthcare system issues related to caring for complex patients. The results showed that providers believed physicians could keep patients out of the hospital by coordinating transitional care, scheduling numerous follow-up visits, and paying close attention to medication. Ofoma et al. (2018) conducted qualitative, semi-structured interviews with 10 intensive care unit providers and nine general medicine providers employed at the Mayo Clinic and reported that inefficiencies in care transition were linked to unplanned readmissions.

When it comes to the patient's point of view, many patients attribute their readmissions to a lack of follow-up with their PCP. In the Stein et al. (2016) study, 61% of patients reported not following up with their PCP due to a lack of time or suitable appointments. Improving multidisciplinary teams' communication, coordinating transitional care, and scheduling numerous follow-up visits will decrease admission and readmission rates.

Interventions for Reducing Hospital Admissions and Readmission Rates

Hospital admissions and readmissions are a financial and clinical burden to healthcare organizations. There is a growing consensus regarding the need for improved transitional care interventions to reduce preventable readmissions (Warchol et al., 2019). This has led to the emergence of new strategies and tools aimed at identifying high-risk patients.

One such strategy is to ensure that patients schedule follow-up appointments with their PCP. One study found that patients without timely PCP follow-up after

hospitalization in a medical ward had a 10-fold increase in their likelihood of readmission (Marcondes et al., 2018). Other studies have reported similar findings. Misky et al. (2010) followed 65 patients admitted to the hospital setting and compared the readmission rates of those who followed up with their PCP post-discharge and those who did not. The results showed that patients who did not promptly follow up with their PCP were more likely to be readmitted for the same medical concern (Misky et al., 2010). The study by Corrao et al. (2019) shared similar results. The researchers utilized a retrospective cohort of newly diagnosed diabetics in 2010–2015 and observed their follow-up routine with their PCPs. The results showed that patients with chronic illness who adhered to the recommended follow-ups with their PCP had a 20% lower chance of hospitalization.

Another intervention that can reduce hospitalizations is the integration of screening tools. For example, health information exchange (HIE) enables providers to access patient information from disparate sources to improve care coordination and clinical communication during transitions of care. Kash et al. (2017) used the MEDLINE-PubMed database to systematically review 4,862 citations focusing on readmission reduction techniques from January 2006 to September 2016. Of the 164 articles they reviewed, only the 13 articles that included readmission reduction programs using HIE saw a decrease in their admission and readmission rates. They, therefore, concluded that using an HIE screening tool would decrease admission and readmission rates.

Other studies have reported similar findings on the effect of screening tools on admission and readmission rates. Pugh et al. (2021) obtained data from 10 veteran hospitals that reported either decreased or increased readmission rates despite proven

attempts to reduce readmissions in the previous five years. The results revealed that organizations implementing a transitional care checklist decreased their readmission rates. In a case study by Wyer et al. (2016), 14 hospital employees attended a three-day creative building conference on evidence-based healthcare. The researchers compared the pre- and post-conference readmission rates. They found that the rates decreased after the hospital employees developed and implemented an effective interdisciplinary program for lowering readmissions based on the knowledge they gained from the conference.

Synthesis of Findings

Identification of high-risk patients with a screening tool, rapid PCP follow-up, and patient participation in a transitional care program can reduce readmission rates, according to research in this field.

The studies by de Man et al. (2019), McHugh et al. (2017), and White et al. (2014) came to the same conclusion regarding the effects of care management program enrollment on readmission rates. They suggested that primary care settings seeking to lower their readmission rates should use a multicomponent intervention, such as enrolling high-risk patients in a care management program.

After examining the barriers and facilitators of hospital admission and readmission rates, Stein et al. (2016) and Loeb et al. (2016) concluded that a lack of PCP follow-up, particularly after hospital discharge, was a significant factor in the rise in readmission rates. However, Stein et al. (2016) found that patients often cited a lack of PCP appointments after their release as the reason they had to be readmitted.

The research by Warchol et al. (2019), Misky et al. (2010), and Kash et al. (2017) considered strategies for lowering hospital admissions and readmission rates and found that rapid follow-up with a PCP contributed to reduced readmission rates.

By concentrating on prompt provider follow-up, tailored care plans that include techniques for disease self-management, and patient education on symptom management, transitional care lowers the chance of hospital readmission (Barnason et al., 2010; Yu et al., 2006).

Overall, this synthesis gives relevance and credence to the project by highlighting the need for effective interventions, such as care management programs, to reduce readmissions and improve patient outcomes.

Summary

Hospital readmissions are an essential measure for assessing the performance of the healthcare system (Axon & Williams, 2011), and reducing preventable hospital readmissions can improve healthcare quality and lower costs (Podulka, et al., 2008). The literature supports the need for studies on patient enrollment in care management programs. Care management programs are crucial in high-risk patients' transitions from the hospital to their homes because they help prevent preventable readmissions. Studies have also proven that strategies involving risk assessment tools are effective in determining a patient's risk for readmission and the need for further interventions, thereby helping to reduce readmission rates (Kansagara et al., 2011). Enrolling patients in care management programs will hopefully bridge the gaps in care and ultimately help patients stay as healthy as possible. Chapter III will provide a detailed understanding of the methods used in this DNP project.

CHAPTER III

METHODOLOGY

Introduction

This methodology section described how this DNP project addressed the following study question: "In a primary care clinic, does provider education on identifying and referring eligible patients to a care management program decrease the clinic's readmission rates compared with those before the education?" The following sections will discuss and describe the study design, population/sample, setting, instruments/measures, intervention, data collection, data analysis, and ethical considerations.

Research Design

This study used a comparative, pre-post, quasi-experimental design. The project observed the readmission rates and the number of referrals to the CM program before and after implementing an educational presentation. The data were audited over three months to determine if the intervention led to an improvement (i.e., a five percent increase in referrals to the CM program and a five percent decrease in readmission rates).

Setting

The setting for this project was a primary care clinic in Southeast Texas. The clinic employed four full-time medical professionals: two board-certified family nurse practitioners and two board-certified medical doctors. As of August 2022, 1,096 patients received treatment at the clinic; 754 had commercial insurance, and 342 had Medicare. The clinic saw an average of 500 patients monthly, approximately 250 of whom were Medicare patients. The clinic was open seven days a week (Monday through Friday, 7

am–7 pm; Saturday and Sunday, 9:30 am–5:00 pm), except for major holidays. The clinic offered chronic care management, wellness checks, specialty care coordination, same-day appointments, virtual visits, diagnostic testing, and home health care, among other services. The clinic accepted patients with commercial health insurance, Medicare, and Medicaid, as well as those paying out of pocket.

Target Population

The project's target population consisted of the four PCPs who saw patients at the clinic. The inclusion criterion was full-time employment as a board-certified medical provider at the clinic. The clinic's part-time and PRN providers were excluded from the study.

Sample Size

A sample size calculation determined the minimum size needed to detect a significant difference with 80% power. With a 95% confidence level and an effect size of 0.2, the minimum sample size was calculated to be 197 patients. As the clinic saw approximately 250 Medicare patients monthly, a time frame of three months was determined to be more than sufficient to achieve the minimum sample size.

Intervention

The intervention was scheduled upon approval from the Institutional Review Board (IRB) and family practice clinic during the monthly meeting. A PowerPoint presentation was shown during this meeting, including a brief introduction to the DNP project, a review of the data on readmission rates and referral numbers obtained from a retrospective chart audit, the importance of reducing readmission rates, and information on the CM program and referral procedure. An overview of the CARS tool and a

rundown of the workflow was also discussed. Providers were strongly encouraged to attend, and the clinic manager was notified beforehand so the providers' schedules could be adjusted. The principal investigator (PI) visited the site monthly to retrieve completed CARS forms and answer questions the team may have. The results were emailed to the team after the intervention period.

Instruments/Measurement Tool

The clinic's PCPs used the CARS tool to identify patients at high risk for readmissions so they could refer those patients to the CM program. The CARS readmission tool was developed and validated using Medicare claims of healthcare utilization over 12 months to identify older adults at risk of hospitalization or emergency department visits (Shelton et al., 2000).

The predictive validity of the risk score was evaluated by calculating the area under the receiver operating characteristic curve (AUC), a diagnostic measure for evaluating the accuracy of predictors of education outcomes. The closer the AUC is to 1, the more accurate the predictor is (>0.8, high classification accuracy; 0.7–0.8, moderate accuracy; <0.7, low accuracy). The CARS tool was shown to have a moderate degree of predictive discrimination (AUC 0.74).

Three characteristics were found to predict readmission and high cost of care: (a) having two or more comorbidities, (b) taking five or more medications, and (c) having a hospitalization in the last six months. A score of four or more would identify a person with a more complex medical picture and trigger a referral to the CM program.

Data Collection

The target population consisted of providers aged 35 to 55 years, with 75% women, 25% men, and 100% identifying as White or of European ancestry. Medical doctors comprised 50% of the participants, and family nurse practitioners comprised the remaining 50%. The clinic employed all participants for over three months, and they were all full-time, board-certified healthcare professionals.

The IT department at VMD conducted a retrospective chart audit to obtain data on the clinic's readmission rate and the number of patients who were referred to the CM program in the three months before the intervention. The IT department then generated a monthly report from the data and emailed it to the PHO manager and director of CM, who then forwarded the report to the PI.

During the intervention phase, which lasted three months, Medicare patients completed the screening questionnaire during check-in. During the assessment section of their appointment, they presented the completed form to the medical assistant, who reviewed the form, calculated each patient's score using the responses to all three questions, and handed the form to the provider. The provider reviewed the score and ordered a referral to the CM program if the score was at least four. Once the referral was processed, a care manager contacted the patient, evaluated their risk, and created a personalized care plan. The clinic stored the completed forms securely, and the PI picked them up monthly. Post-intervention data were obtained similarly to the pre-intervention data, and the two datasets were compared.

Data Analysis

A Chi-square test of independence was conducted to determine the difference in the number of referrals and readmission rates between the three months before and after the intervention. The comparison was conducted using a type 1 error rate of .05 to determine the statistical significance.

IRB Approval and Ethical Considerations

Prairie View A&M University's IRB and the Quality Improvement Department at VMD determined that this evidence-based quality improvement project complied with all federal, institutional, and ethical guidelines to protect all individuals' health, well-being, and rights. This EBP project examined retrospective and prospective patient data the PHO manager provided to the PI. The PI took measures to prevent a breach of patient confidentiality, and no identifying data (e.g., name, birth date, medical record number, or social security number) were collected.

Chapter Summary

This chapter thoroughly overviewed the research design, setting, target population, and interventions. The target population used the CARS tool to identify persons at risk for hospitalization, refer them to the CM program, and lower readmission rates. The IRB and VMD, Quality Improvement Department, approved the conduct of this research study. Chapter IV covers this DNP experiment's findings in more detail.

CHAPTER IV
RESULTS

Introduction

This EBP project aimed to decrease the readmission rate and increase the referrals of high-risk patients to the CM program. This chapter summarizes the project's outcomes and thoroughly describes the data obtained, the data analysis results, and the study's findings.

Descriptive Statistics

Four full-time medical professionals, including two board-certified family nurse practitioners and two board-certified medical doctors, participated in the educational session focusing on reducing readmission rates.

The providers used the CARS readmission screening tool to screen 302 patients. The tool examined the following three characteristics, which are known to predict admission and high cost of care: (a) having two or more comorbidities, (b) taking five or more medications, and (c) having been hospitalized within the previous six months. A provider would refer a patient to the CM program if the person received a score of four or higher. The CM department received 12 patient referrals.

Inferential Statistics

To address the research question, data were collected to compare pre-intervention and post-intervention compliance rates. A pre-intervention retrospective clinic audit of the readmission rate and the number of referrals was conducted in September, October, and November of 2022. Following the educational session in November 2022, data were

audited over the next three months (December, January, and February) to determine if the intervention led to an improvement.

A Chi-square test of independence was conducted to determine the difference in the number of referrals and readmission rates between the three months before and after the intervention. The comparison was conducted using a type 1 error rate of .05 to determine the statistical significance. It included two levels in readmission rates (pre-intervention and post-intervention) and two levels in referral (yes and no).

The assumption of adequate cell size, which requires all cells to have expected values greater than zero and 80% of cells to have expected values of at least five, was assessed (McHugh, 2017). All cells had expected values of at least five, indicating that both conditions were met.

Presentation of Data and Results

The Chi-square test results comparing the pre-and post-intervention data of the clinic's readmission rates were not significant based on an alpha value of .05 ($\chi^2[1]=2.87$, $p=.090$), suggesting that the pre-and post-intervention data could be independent of one another. This implies that the observed frequencies were not significantly different from the expected frequencies. The findings also showed a 43.48% decrease in the readmission rates after the intervention; thus, the study's objective of reducing readmission rates by five percent was reached despite the lack of statistical significance. Table 1 presents the results of the Chi-square test.

Table 1

Observed and expected frequencies of readmissions

	Readmitted				
Readmission	Yes	No	χ^2	*df*	*p*
Pre-intervention	40 [33.39]	389 [395.61]	2.87	1	.090
Post-intervention	26 [32.61]	393 [386.39]			

Note. Values formatted as observed [expected].

The Chi-square test results comparing the clinic's pre- and post-intervention referral rates were significant based on an alpha value of .05 ($\chi^2[1]=4.27$, $p=.039$), suggesting that the pre-and post-intervention data are related to one another. The following level combinations had observed values that were greater than their expected values: test (post-test) and referral (yes), and test (pre-test) and referral (no). The following level combinations had observed values that were less than their expected values: test (pre-test) and referral (yes), and test (post-test) and referral (no). In addition, the results indicated a 200% increase in the number of patients referred to the CM program after the intervention, indicating that the objective of a five percent increase in referrals was achieved. Table 2 presents the results of the Chi-square test.

Table 2

Observed and expected referral counts

	Referral				
Test	Yes	No	χ^2	*df*	*p*
Pre-test	4 [8.09]	425 [420.91]	4.27	1	.039
Post-test	12 [7.91]	407 [411.09]			

Note. Values formatted as observed [expected].

Methodological Approach

The Iowa Model of EBP was used to analyze the data by following the steps below:

1) Identify the trigger.
    - Readmission rates at the clinic were rising above VMD's target, so this project aimed to determine whether the increase could be mitigated by providers referring high-risk patients to care management.
2) Determine the organization's priority.
    - The organization has a readmission goal of 10%, and the readmission rate at the clinic tends to lie above the target and reached nearly 16% in the months leading up to the study's intervention.
3) Establish the team.
    - The team members included the clinic lead, clinic manager, PHO manager, and care manager.
4) Systematically review the evidence.
    - The PI evaluated the evidence to understand the scientific underpinning that supports implementing the new EBP change.
5) Implement evidence into practice.
    - The team members were responsible for collecting baseline data, designing, and implementing the EBP guidelines, evaluating the process and outcomes, and modifying the EBP guidelines based on the process and outcomes evaluation.
6) Evaluate the outcomes.

- The PI evaluated the project outcomes to determine if the project led to a significant decrease in readmission rates and an increase in CM program referrals.

Summary

The burden of hospital readmissions can be lessened by referring high-risk patients to a care management program. Care management programs guarantee that patients receive the support they require to change their lifestyles and manage their health after discharge. Chapter V will summarize and address the findings, consequences, restrictions, scholarly contributions, and prospective future projects of the DNP project.

CHAPTER V

CONCLUSIONS AND FUTURE WORK

Introduction

The main objective of this project was to assess how referring patients at a high risk of hospital readmission to a care management program affected readmission rates in a primary care clinic. This chapter will summarize the analysis and findings, address the study's limits and addition to the body of knowledge, conclude the research, and offer potential directions for future work.

Summary and Discussion of Results

Hospitalizations and fatalities due to chronic illnesses are the world's most common causes of death and hospitalization (CDC, 2021). Recurrent hospitalization, particularly hospital readmissions following discharge from a hospital, is one of the most critical healthcare difficulties for people with chronic illnesses, owing to fragmented and episodic transitional care services (Brunner-La Rocca et al., 2020).

The study was carried out at a primary care clinic in Southeast Texas that saw an increase in patients being readmitted to hospitals. The clinic's full-time healthcare providers participated in a training session on the value of detecting high-risk patients and referring them to the CM department to lower readmission rates. With this study's aid, healthcare professionals could use the CARS screening tool to identify patients who may have required hospital admission and refer them to the CM program.

The findings show that referring high-risk patients to the CM program reduced the readmission rate. These results are consistent with earlier comparative research on readmission rates and the recommendation of high-risk patients for care management.

Discussion of the Conclusions Relative to Literature

According to the study's findings, the care management strategy for high-risk patients in a primary care setting effectively lowered readmission rates and enhanced health outcomes. The study also showed the efficacy of care coordination in improving health outcomes and lowering costs. Care coordination entails employing a multidisciplinary team to coordinate care delivery and guarantee that the patient receives the most comprehensive treatment possible. This result aligns with prior research studies, including those by de Man et al. (2019), McHugh et al. (2017), and White et al. (2014), contending that high-quality, patient-centered care is the main emphasis of care management systems, which are also intended to fill care gaps, enhance patient outcomes, and lower hospital utilization.

Another study finding revealed that educating providers on using the CARS screening tool to identify patients at risk of readmission successfully boosted referral rates to the CM program. The outcomes are consistent with the quality improvement project by Sprague et al. (2020), which showed that incorporating provider education and communication tactics could successfully raise referral rates to a transitional care program for high-risk patients.

Care management programs can improve patients' health outcomes by giving them the tools and support they need to manage their health. For example, disease management programs help patients manage chronic conditions, such as asthma, diabetes, and hypertension, by educating them on the illness, helping them manage their medications, and scheduling regular check-ins with their healthcare providers. Other initiatives include care coordination, which aims to ensure that patients receive consistent

care from various healthcare providers and settings, and wellness initiatives, encouraging healthy habits and lifestyle changes to lower the risk of chronic disease and enhance overall health outcomes.

Strengths and Limitations

The organizational backing of the research project was unquestionably a strength. VMD gave the PI all the information, tools, and assistance needed to complete the project upon informing the organization's leaders of the project and how it would benefit VMD. The organization's prioritization and support of the project sent a message to the team members that this project was important and worth funding.

Another strength of this study was that the organization already had a system for tracking readmission and referral data. This system worked well because it enabled the organization to pinpoint areas for improvement, make changes, and monitor the success of those changes over time. This can result in better patient outcomes, including lower morbidity and mortality rates.

The team's buy-in at the setting was another asset of this project. Studies have shown that when staff members support a project, they are more likely to be invested in its success and implement it accurately and consistently, producing a better result. All the staff members embraced and supported the evidence-based initiative, as evidenced by the sample size being met.

The research study also faced several challenges. The number of full-time primary care doctors working at the clinic unexpectedly changed, which served as the study's primary research constraint. The clinic had four full-time providers before the project implementation; however, one of the nurse practitioners changed from full-time to PRN

work and only worked 2–3 shifts per month just after the training session. The clinic filled the post in the first week of January (one month after the intervention), at which point the PI emailed all instructional materials and session recordings to the new provider to help them get up to speed.

Maintaining the project's workflow for the first month was another challenge. For this project to be effective, the clinic's staff needed to hand each Medicare patient the screening form to fill out while they waited for the medical aid to bring them back to the exam room for triaging. The medical assistant would then read over the paperwork with the patient as they entered the examination room, verify that they had filled it out completely, address any of the patient's queries, score the form, and leave it in the room for the provider to decide whether or not to refer the patient to the CM program based on the score and their knowledge of the patient's history. In practice, the patients did not receive the forms at check-in but instead in the exam room after they had been triaged. The medical assistants still should have checked the forms to ensure they were filled out correctly, but when the providers went in to assess their patients, they sometimes found that the paperwork needed to be completed or had not been provided. To fix this issue, the PI went to the clinic, discussed the workflow with each team member, and followed up by emailing a flowchart diagram to all team members.

Finally, the intervention's implementation at only one clinic and the three-month follow-up period preclude any conclusions about how the intervention will affect patients in the long term. To assess the sustainability of the intervention, future research should monitor compliance rates more extensively after the intervention and include more clinics.

Recommendations for Further Research

The results from this project and earlier studies suggest that care management programs could be a successful strategy for lowering hospital admissions and readmissions. However, this study only examined the experiment's results during three months of follow-up; longer-term follow-up studies would help evaluate the sustainability of any improvements in health outcomes attained through care management programs.

Future research should examine how care management interventions affect outcomes in different contexts, such as community-based settings and practices for specialized care, and explore the effects of various care management strategies, such as those that emphasize lifestyle changes, health education, and disease self-management. Furthermore, future studies should observe the effects of care management on various patient populations, including those with mental health disorders and those from underprivileged populations, as well as the cost-effectiveness of the care management program. Additional research could also compare the program’s price to the savings of lowering hospital admissions and readmissions.

Conclusions

There are many advantages to using screening methods to find patients at risk for readmission, including reduced readmissions, improved patient outcomes, and cost savings. Healthcare professionals can act early by directing patients who are more likely to require readmission to the hospital to the care management department, where they can receive early interventions to help them avert more severe issues.

Care management initiatives, such as disease management, case management, and patient-centered medical homes, demonstrably reduce readmission rates for high-risk patients. Such programs may give patients the assistance they need to manage their diseases and maintain their health by addressing drug adherence, lifestyle choices, and health literacy, among other health-related topics. This is a promising approach that health systems should consider as they work to raise the standard of service and lower costs.

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APPENDICES

Appendix A – Community Assessment Risk Screen

1. Do you have any of the following health conditions?

	Yes	No
a. Heart disease?	___	___
b. Diabetes?	___	___
c. Myocardial infarction?	___	___
d. Stroke?	___	___
e. Chronic obstructive pulmonary disease?	___	___
f. Cancer?	___	___

(Score: If 2 or more conditions are "YES" score = 2)

SCORE ___

2. How many prescription medications do you take? ___

(Score: If "5 or more" medications score = 3)

SCORE ___

3. Have you been hospitalized or had to go to an emergency department or urgent care center in the past 6 months?

(Score: If the answer is "YES" score = 4)

Yes	No
___	___

SCORE ___

TOTAL ____

Appendix B – Letter of Support

VillageMD

Letter of Support

May 12th, 2022

Prairie View School of Nursing
6436 Fannin Street
Houston, Texas 77030

To Whom it May Concern:

Village Medical has been notified by Kosi Agube of the upcoming quality improvement (QI) project that is required for the successful completion of her Doctor of Nursing Practice (DNP) program. We understand that the project will take place in one of our primary care clinics with the goal of decreasing the clinics readmission rate and increasing the number of high-risk patients referred to Village Medical Care Management (CAM) department.

Our organization is in full support of Mrs. Agube completing this project at any of our primary care clinics pending the approval from the Institutional Review Board (IRB) and will provide the necessary guidance and resources to assist with the process. We will also grant Mrs. Agube complete ownership of the QI project with the ability to utilize editorial and statistical services of the project results.

Thank you,

Louis Gilbert, DO | Senior Medical Director - Houston
Co-Chair Clinical Outcomes Committee
Co-Chair Physician Executive Council
Medical Director Pharmacy Integration
Diversity, Equity, Inclusion Council

Appendix C – Provider Handout

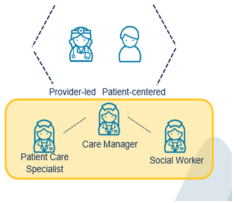
Key Roles of Village Medical Care Management

- Meets 1:1 with patients to assess risk & develop personalized care plans.
- Provides education preventive services, medication management, early intervention strategies.
- Follows up with patients to monitor quality, utilization, medication adherence, progress, potential risks.
- Coordinates care with Provider and multidisciplinary team.
- Connects patients with needed resources.

Care Management at Village Medical

Care Management

Care Management at Village Medical consist of a dedicated care team to help you deliver high quality, more holistic care to your patients.



Team Structure

Care Manager

- Quarterback of CM team; overall coordination of care for patients.

Care Coordinator

- Coordinates multidisciplinary team; monitors patient progress in program, escalates needs to PCP/Care Manager

Social Worker/Resource Coordinator

- Connects patients with resources to help with social, economic, psychological & emotional barriers, behavioral health screening.

Benefits of Care Management.

- Ongoing 1:1 time with patients to understand barriers & develop strategies to help them manage their own health.
- Staff to provide extra care and support to patients who need it most.
- Managing complicated aspects of the healthcare system.
- Early interventions to keep patients out of the hospital or ED.

Appendix D – Educational PowerPoint

THE EFFECT OF A TRANSITIONAL CARE MANAGEMENT PROGRAM ON READMISSION RATES IN A PRIMARY CARE CLINIC.

Kosi Agube FNP-C

1

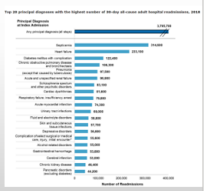
HOSPITAL READMISSIONS

- Admission to an acute care hospital within 30 days of discharge from the same or another acute care hospital.
- In the United States, there were 3.8 million hospital readmissions in 2018, costing an average of $15,000 per (Weiss & Jiang, 2021).
- Common Causes
  - Noncompliance
  - Medication errors
  - Lack of Timely Follow-up-care
  - Illness Complications

2

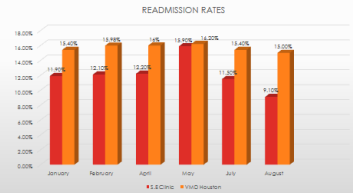
HOSPITAL READMISSIONS

- More than half of chronic disease patients require hospital readmission within 30 days after release (Brunner-La Rocca et al., 2020).
- Enrolling high-risk patients in a Transitional Care Program reduces the likelihood of unnecessary readmissions. (Naylor, 2003).



3

CLINIC DATA



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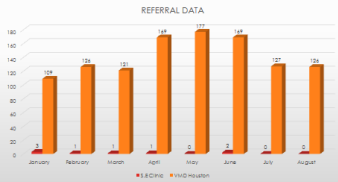
CLINIC DATA



5

DNP PROJECT

- This project aims to evaluate the impact of referrals of high-risk patients to a Transitional Care Program on readmission rates in a primary care clinic.
- The PICO(T) question for this project is,
  - "In a primary care clinic, does provider education on identification and referral of eligible patients to a care management program increase referral to CM and decrease the rate of hospital readmission compared to pre-intervention within a three-month period?"
- Method
  - The difference in readmission rates and the number of referrals between the three months prior to the intervention and the three months after the intervention will be compared.
- Goal
  - An increase in the number of patients referred to a care management program.
  - A decrease in the clinic's readmission rate by 5%.

6

CARE MANAGEMENT (CM) AT VILLAGE MEDICAL

- Created to offer patient-centered care to VMD's most vulnerable populations by offering services to high-risk patients to reduce the need for hospital admissions.
- Team members include
  - Care Manager
  - Care Coordinator
  - Social Worker.
- Key Roles CAM
  - 1:1 meeting with patient.
  - Provides education.
  - Follows up with patients.
  - Coordinates care with Provider and multidisciplinary team.

7

BENEFITS OF CM

Patients

- Stronger network of support.
- Personalized care.
- Managing complicated aspects of the healthcare system.
- Management of healthcare services.

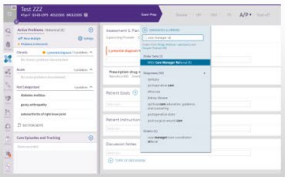
Providers

- Enhanced Provider/patient relationship.
- Proactive identification of gaps in care.
- Added clinical support staff.
- Reduction in total cost of care.

8

HOW TO REFER TO CM IN ATHENA

- Inside the A/P section of the patient's chart, click on the Plus sign to add an order. Then type in "care manager referral". Add the appropriate diagnosis for this order.



9

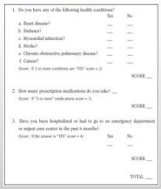
DOCUMENTATION

- In the "Internal note" section indicate reason for referral.

10

COMMUNITY ASSESSMENT RISK SCREEN (CARS)

- A score of 4 or greater triggers a referral to CM.



11

WORKFLOW

12

SUMMARY

- Identify high risk patients
- Refer to Care Management
- Compare readmission and referral data

13

QUESTIONS

14

REFERENCES

- Brunner-La Rocca, H., Peden, C. J., Soong, J., Holman, P. A., Bogdanovskaya, M., & Barclay, L. (2020). Reasons for readmission after hospital discharge in patients with chronic diseases-Information from an international dataset. *PloS One*, *15*(6), e0233457. https://doi-org.pvamu.idm.oclc.org/10.1371/journal.pone.0233457
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