Reducing 30-Day Hospital Readmission In The Older Homebound Population: Using An Interprofessional Communication Protocol Within A Multidisciplinary Hospital At Home Program

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Reducing 30-day hospital readmission in the older homebound population: 
Using an Interprofessional Communication Protocol 
within a Multidisciplinary Hospital at Home Program

A Project Submitted to the Doctor of Nursing Practice Faculty of 
Yale University School of Nursing

In Partial Fulfillment
Of Requirements for the Degree
Doctor of Nursing Practice

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This DNP Project is accepted in partial fulfillment of the requirements for the degree Doctor of Nursing Practice.

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Ron Yolo DNP, MSN, MBA, RN, NEA-BC
Date: __________________________
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Pamela Alvey
Abstract

Home-bound patients aged 65 and older are at the highest risk for avoidable 30-day hospital readmission: a factor contributing to rising healthcare costs and comprising over 30% of Medicare’s spending. The Hospital Readmission Reduction Program (HRRP) deemed that one in five patients that were discharged from the hospital were readmitted within 30 days, resulting in an annual waste of $17 billion. The increase in homebound older patients, coupled with ongoing avoidable 30-day readmissions, resulting in poorer quality of life, makes this a critical issue for the U.S. healthcare system. A key gap identified in the prevalence of avoidable 30-day readmissions is a communication breakdown between medical entities. Most homebound older patients are medically complex and are unable to obtain medical care in the traditional manner. Therefore, newer care delivery models should be further refined. A well-implemented interprofessional communication protocol can improve the delivery of healthcare across the continuum. The goal of this DNP project was to develop, implement, and evaluate an evidence-based Interprofessional Communication Protocol within a Multidisciplinary Hospital at-home program (MHAHP) to reduce 30-day readmission rates in the older homebound patient population. A comparative analysis of 30-day readmission rates was conducted pre-and post-project using a one-tailed, one-sample proportion test and found that the readmission rate was 0.6% lower than the baseline rate but not statistically significant (95%CI: 0% to 34% lower. P = 0.5%. $X^2 = 0$). Staff pre-and-post-knowledge tests was compared using a Paired T-test and found that the difference was statistically significant ($t = 6.29$, $p < 0.001$). The participants gained an average of 16 points (SD = 9.9) from pre- to post-test scores (95%CI: 10.5 to 21.6). The staff program evaluation survey of the training session was analyzed using descriptive statistics and found a median of 5 and an interquartile range of 0, the mean score was 4.79. Standard workflows that mirror the IPCP became the norm post-project implementation.
Executive Summary

Statement of need

The Congressional Budget Office (2013) reports that by 2050, one-fifth of the United States population will be 65 years of age or older, and of these, the older homebound population is estimated to reach 20% of the population by 2030 (US Census Report, 2012). Homebound older adults are medically complex, require more medical support, and experience more physical and psychological limitations, including multiple comorbidities resulting in higher 30-day readmission rates, when compared to those who are not homebound. In 2010, the Affordable Care Act (ACA) was signed into law, aimed at reducing Medicare spending while improving healthcare quality and outcomes. Health providers quickly found that the health complications associated with homebound patients over 65 years old accounted for more than 30% of Medicare’s spending. Due to this significant cost and the rising number of homebound older adults, the Hospital Readmission Reduction Program (HRRP) was created to identify interventions that would reduce avoidable 30-day readmissions. The HRRP has deemed that one in five patients that were discharged from the hospital are readmitted within 30 days with an annual price of $17 billion.

Proposed solution

There have been improvements in decreasing readmissions as the Medicare Payment Advisory Commission (MedPAC, 2019) reported that 30-day readmissions in those 65 years and older were down to 15.1% during 2016-2019 from the initial all-cause readmission rate of 18.7% in 2010. However, this percentage allows for further improvement. The increase in homebound older patients, coupled with ongoing avoidable 30-day readmissions, which results in poorer quality of life and costly medical spending, makes this a critical issue for the U.S.
healthcare system. The HRRP encourages hospitals to communicate better and involve patients, families, and caregivers to reduce avoidable 30-day readmissions. Therefore, developing a communication protocol to cover the gaps in care between the mobile organizations providing complex medical care in the patients’ homes is ideal. The goal of this DNP project was to develop and implement an evidenced-based Interprofessional Communication Protocol (IPCP) within a Multidisciplinary Hospital at Home Program (MHAHP) to reduce 30-day readmission rates in the older homebound patient population. The MHAHP consisted of a mobile house call company (MHCC), a mobile primary care practice partnering with a home health agency (HHA). This quality improvement project aligns with the HRRP to reduce avoidable readmissions.

Implementation plan and timeline

Training the MHCC staff occurred in a 30-minute in-person or Zoom training session during which hand-written material on the IPCP was provided. Training sessions were given over a two-week time frame until all MHCC clinical team members were trained. The project was implemented beginning mid-August 2023; once a homebound patient meeting the inclusion criteria had been referred to MHCC, the IPCP was initiated immediately for that patient. This process continued until 31 patients were enrolled. Each patient was enrolled for 30 days from their initial enrollment date or until they were discharged to the hospital or ER. A comparative analysis of 30-day readmission rates was conducted pre-and post-project using a one-tailed, one-sample proportion test and found that the readmission rate was 0.6% lower than the baseline rate but not statistically significant (95%CI: 0% to 34% lower. P = 0.5%. X^2 = 0). Staff pre-and-post-knowledge tests were compared using a Paired T-test and found that the difference was statistically significant (t = 6.29, p < 0.001). The participants gained an average of 16 points (SD = 9.9) from pre- to post-test scores (95%CI: 10.5 to 21.6). The staff program
evaluation survey of the training session was analyzed using descriptive statistics and found a median of 5 and an interquartile range of 0; the mean score was 4.79.

**Return on investment analysis**

Several potential indirect benefits that were expected but were not quantifiable were identified: (1) increased patient satisfaction; (2) greater access to medical care through home visits; and (3) improved patient and population health outcomes. By providing community-based medical care within patients’ homes, risks associated with hospital-acquired infections likely dissipated. To implement this quality improvement project, costs included a one-time training session for current staff at MHCC to provide education on the IPCP. The total start-up expense for this training, combined with project materials and a statistical team, was $1,602. There will not be any additional year-to-year expense for future training, as this process is embedded during their initial training and orientation for any additional staff hired.
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Part 1

Reducing 30-day hospital readmission in the older homebound population:
Using an Interprofessional Communication Protocol
within a Multidisciplinary Hospital at Home Program

Introduction

The Centers for Medicare & Medicaid Services (CMS, 2021) defines homebound as the situation in which an individual must require the assistance of a supportive device or help from another individual, or if leaving the home results in worsening of their medical condition, and it is difficult for them to leave their home. The Congressional Budget Office (2013) reports that by 2050, one-fifth of the United States population will be 65 years of age or older, and of these, the older homebound population is estimated to reach 20% of the population by 2030 (US Census Report, 2012). Homebound older adults are medically complex, require more medical support, and experience more physical and psychological limitations, including multiple comorbidities resulting in higher 30-day readmission rates when compared to those who are not homebound (Osakwe et al., 2020). Consequently, homebound patients experience poorer health outcomes than those who are non-homebound, exhibiting recurrent exacerbations of chronic conditions and poorer quality of life (Osakwe et al., 2020). Most homebound patients have two or more chronic conditions which can include, but are not limited to; osteoarthritis, diabetes mellitus, congestive heart failure, and chronic obstructive pulmonary disease (Leff et al., 2015).

Homebound patients who typically have two or more chronic conditions have difficulty accessing basic health care, demonstrating the complexity of the homebound patient population’s medical needs (Leff et al., 2015). This profile results in increased emergency department (ED) utilization and hospitalization for medical care, escalating medical costs, and poorer medical outcomes (Leff et al., 2015). Since obtaining medical care in the traditional manner is difficult for the
homebound population, newer care delivery models should be developed or further refined e.g., systematic multidisciplinary transitional mobile medical programs (Rerucha et al., 2020). These multidisciplinary transitional programs should include clinicians, practitioners, mobile lab and diagnostics, discharge planning, and medication management services along with interprofessional protocols to coordinate medical care and address acute issues (Jackson et al., 2015; Rerucha et al., 2020).

**Problem Statement**

Older homebound patients are at a higher risk for 30-day readmission. According to a study by Auerbach et al., (2016), 26.9% of 30-day readmissions were avoidable in this group, resulting in unnecessary spending of Medicare dollars annually (Beck et al., 2009; Osakwe et al., 2020; Powers et al., 2021). CMS supports interventions to improve gaps in medical care while lowering Medicare spending (Orszag et al., 2010; Upadhyay et al. 2019). In 2010, the Affordable Care Act (ACA) was signed into law, aimed at reducing Medicare spending while improving health care quality and outcomes (Orszag et al., 2010; Upadhyay et al., 2019). In addition, excessive costs and poor health outcomes became a focus of CMS, which led to the development of Hospital Readmission Reduction Program (HRRP) to identify interventions that would reduce avoidable 30-day readmissions. The HRRP has ensured attention to the 30-day readmission rates, patient safety, quality of care and cost containment which aligns with this DNP project to reduce 30-day readmissions in the homebound population. In 2012, CMS applied financial penalties to hospitals with higher 30-day readmission rates. HRRP encouraged hospitals to better communicate and involve the patients, families, and caregivers to reduce avoidable 30-day readmissions. There have been improvements in decreasing readmissions as Medicare Payment Advisory Commission (MedPAC, 2019) reports that 30-day readmissions in those 65 years and older is down to 15.1% during 2016-2019, from the initial all-cause readmission rate at 18.7% in 2010. However, this percentage allows for further improvement. MedPAC (2019) reported that 12% of 30-day readmissions are likely preventable. Therefore,
developing a communication protocol to cover the gaps of care between the hospital and the patient’s home through a sophisticated mobile care at home model would be a value-add for the targeted population.

Studies over the years have produced conflicting results regarding the use of at home programs effects on 30-day readmission rates (Osakwe et al., 2020; Reckrey et al., 2015; Sezgin et al., 2020). A major limitation of previous studies, however, is that most have not incorporated multidisciplinary teams or interprofessional communication protocols (Beck et al., 2009; Rerucha et al., 2020; Sezgin et al., 2020). Development of an interprofessional communication protocol to cover the gaps of care between the mobile organizations providing complex medical care in the patients’ home will improve communication between patients, families and professionals across the health care continuum. This DNP project will address this gap by developing and implementing an evidenced-based Interprofessional Communication Protocol (IPCP) within a Multidisciplinary Hospital At Home Program (MHAHP) to reduce 30-day readmission rates in the older homebound patient population.

**Significance**

Reducing avoidable 30-day readmissions in the homebound population is of utmost importance due to the rising trajectory of the older population in the United States. As of 2021, CMS reports that 61.5 million Americans are enrolled in Medicare. Furthermore, this number is increasing, as the number of homebound adults aged 70 years or older has more than doubled from 5.0% in 2011-2019 to 13.0% in 2020 (Ankuda et al., 2021). The increase in homebound older patients coupled with ongoing avoidable 30-day readmissions, which results in poorer quality of life, makes this a critical issue for the U.S. healthcare system. The health complications overrepresented in this group of patients contribute to rising healthcare delivery costs, that comprises more than 30% of Medicare’s spending (Beck et al., 2009; Powers et al., 2021; Osakwe et al., 2020). These numbers require attention to the one issue that impacts both
quality of life and medical care cost: avoidable 30-day hospital readmission rates in the older homebound patient population (Beck et al., 2009; Echverry et al., 2015; Osakwe et al., 2020; Powers et al., 2021).

Part 2
Review of Literature

Search Strategy

A review of literature was performed utilizing CINAHL, Cochrane Library, PubMed, Scopus, Ovid, WHO, Agency for Healthcare Research and Quality, and CMS.gov website. Key search words used were homebound, readmission (rate), older adults, and interdisciplinary communication. Inclusion criteria: published between 2010 and 2022 in the United States, with a study population of homebound patients, and evaluating a communication protocol, or other interventions to reduce hospital readmission. Policies, guidelines, and reports from federal agencies and other key organizations related to the aging population were also included.

Exclusionary criteria: studies that did not evaluate hospital readmissions. The search yielded a total of 127 articles and 10 additional records were identified through other sources. After reviewing title and abstract, 10 were removed for duplication. Due to not meeting inclusion criteria 80, articles were discarded. Full text review was done on the remaining 37 articles that were included in the review of literature and 11 studies were included in the matrix. Please see appendices A and B for the Prisma, Flowchart, and Evidence Table.

Synthesis of Literature

The levels of evidence included systematic reviews, cohort studies, and outcomes research (Centre for Evidence-Based Medicine, 2022). The literature revealed three common themes that are important for improving the delivery of medical care to the older homebound patient population. First, the older homebound population is growing rapidly, requiring complex medical care, and has the highest risk for 30-day readmission (Ankuda et al., 2021; US Census Report,
Second, hospital 30-day readmission among this population is associated with poorer quality of life and higher mortality rates, as well as excessive costs for the health care system (Osakwe et al., 2020). Third, there is a consensus that a well implemented IPCP can improve health care across the continuum for the older homebound patient population (Beck et al., 2009; Echeverry et al., 2015; Jacobs et al., 2017; Osakwe et al., 2020; Powers et al., 2021; Rerucha et al., 2020). These studies demonstrate that an IPCP can provide the best, most effective means of improving mobile primary medical care between care delivery entities to the homebound patient population within a MHAHP. This IPCP can decrease avoidable 30-day readmission rates, thus improving quality of life, and decreasing overall cost in the older homebound patient population. Strengths of the studies are the large sample size and the complexity of the patients studied, which yielded rich information. Limitations included the short study periods. Allowing for a longer study time period would provide more data accuracy and reliability.

**Literature Findings**

*Risks faced by the homebound population*

Jacobs et al. (2017) conducted a prospective observational study that included those born between 1920-1921 from the Jerusalem Longitudinal Study (1990-2015), examined in 1990, 1998, 2005, and 2010. The study found that the older homebound patient population is at higher risk for medical complications, have multiple complex needs, and have a higher mortality rate than those who leave the house on a more frequent basis. They assessed the association between leaving the house and mortality rate from age of 70 to 95 years. The study determined that even with advancing age, a higher frequency of leaving the home was associated with lower mortality rates (Jacobs et al., 2017). This observational study was a good study demonstrating that as the aging patient population becomes homebound, they are at higher risk for medical complications when compared to those the same age that can leave their home.
Further proving that the frail homebound patient population who are not able to leave their home for medical services, require that the medical community be innovative in meeting their diverse medical needs in their own environment.

Many hospital readmissions are potentially preventable. This was seen in a multicenter, multi-perspective study by Auberach et al. (2016) who performed surveys, interviews, and a record review of 1000 hospital readmissions and found that 26.9% (269 of 1000) were likely preventable and half of those were due to gaps in care during the patient’s original admission. These gaps in care included patient’s lack of follow up for discharge appointments, premature discharge, or inadequate discharge planning information for the patient (Aunerach et al., 2016). Their findings support the multifaceted communication transition programs to allow partnerships among community providers and agencies to cover the continuum of the patient’s medical care needs and stop working in silos to reduce 30-day readmission rates (Auerbach et al., 2016). The major strength of this study was including a large cohort of 1000 patients and using the multi-method data collection. This allowed the researchers to discover all potential gaps in hospital discharges resulting in preventable readmissions. Thus, providing us with the insight into improving communication systems during and after the discharge process.

**Complex care for the homebound population**

It is increasingly recognized that team-based models are needed in home-based primary care (Reckrey et al., 2015). Over a two-year period Reckery et al. (2015) developed an interdisciplinary team-based quality improvement project at the Mount Sinai Visiting Doctors (MSVD) program. Although they determined that there was no difference in 30-day readmission rates when they compared the patients in the team-based model to the usual care approach, they did demonstrate that they were able to restructure their interdisciplinary processes to work well together and adapt accordingly to the patients’ needs. Thus, indicating the need to partner with the community to address immediate patient needs (Reckrey et al., 2015). This two-year
project demonstrated that developing partnership with hospitals and the community could improve communication between all those involved in the home-bound population.

A systematic review conducted by Sezgin et al. (2020) examined 79 studies between 2002 and 2019, assessing whether transitional interventions reduced utilization of the ED and readmission rates. They determined those transitional interventions could reduce utilization of the ED, reduce readmissions, and improve cost; however, these findings were not consistent across all 79 studies as the interventions varied (Sezgin et al., 2020). Transition care interventions incorporating phone calls, coaching, and rehabilitation services at home had the best outcomes. These findings further indicate that it is imperative for medical professionals to communicate the patient’s health care needs across the interdisciplinary teams to improve 30-day readmission. This systematic review analyzed 79 studies, that used varying interventions to demonstrate that we must incorporate different ways to communicate within the interdisciplinary teams along with the patient to prevent 30-day readmission.

**Improving communication among care providers for homebound population**

To address complex and unintegrated medical systems while implementing and harmonizing interprofessional communications, Dr. Eric Coleman et al. (2006) developed a Care Transitions Intervention (CTI) model. The CTI consisted of medical professionals across different settings that worked with a transition coach, such as an advanced practice nurse or a registered nurse to aid in the patient’s transition to home. The CTI transition intervention centered on four pillars that addressed: 1) medication management; 2) patient health record; 3) prompt primary care and specialty follow-up; and 4) education regarding acute issues and how to respond. The patients in the study were first introduced to the intervention in the hospital by the transition coach. At that time, the follow up appointment was arranged at home within 48 to 72 hours post hospital discharge. If the patient was not released home but admitted to a skilled nursing facility
the transition coach called the patient weekly until they were discharged home and arranged a post discharge visit. Once the patient was seen at home, the four pillars were addressed over the 28-day posthospital time frame with an in-person assessment and multiple phone calls. This was a well-integrated transitional intervention, as the CTI was able to identify the patients’ and caregivers’ needs, with a significant impact on 30-day readmission rates. Therefore, demonstrating that the primary care clinician must identify and mitigate potential errors during the transition from hospital to home.

Relative to this type of intervention model, Fathi et al. (2016), conducted a thematic analysis of literature and discovered four processes to improve communication and partnering with other organizations, thus developing a framework for interdisciplinary member communication. The four processes included access to medical records, interdisciplinary team meetings, universal patient assessments, and secure e-messaging. This study illustrated that the medical community must be creative to adapt to the patients’ complex needs that require multiple ways to communicate, therefore reducing 30-day readmission. Moreover, it is now recognized that to reduce readmission in the homebound patient population, a continuous multiplex system is required in the home as encouraged by the National Transitions of Care Coalition (NTOCC, 2022, https://www.ntocc.org/). Seven areas are recognized by the NTOCC that must be addressed during and after the patient’s discharge home include: 1) medication management; 2) transition planning; 3) patient and family engagement; 4) information transfer; 5) follow-up care; 6) health care provider engagement; and 7) shared accountability across providers and organizations. Powers et al. (2021) incorporated these areas and implemented a quality study utilizing Plan, Do, Study, Act (PDSA) cycles during team meetings. They developed the geriatric patient-aligned care team (GeriPACT) and were successful at reducing all-cause 30-day readmission in the high-risk elderly population from 23% pre intervention to 15% post intervention from January through June 2020. Although this study was promising, the population was limited to the Veterans Health Administration, and may not apply to all settings. During the
six-month quality study, they demonstrated that utilizing the PDSA, the medical community can rapidly adapt to the complex homebound patient population needs, resulting in reduced 30-day readmission rates.

*Unnecessary medical spending in the homebound population*

With respect to the larger cost benefits of multifaceted interdisciplinary communication, the MedPAC reports that reducing readmissions by 10% could save Medicare $1 billion annually. In addition, HRRP has deemed that one in five patients that were discharged from the hospital are readmitted within 30 days with a price of $17 billion unnecessarily spent yearly. The cost savings can be seen in a pilot quality improvement project by Echverry et al. 2015 that examined if an in-home primary care would reduce hospital rates, 30-day readmissions and use of ED services, and improve symptoms and quality of life in congestive heart failure patients. Within seven days of receiving the referral, a home visit was performed by the nurse practitioner. At each visit, the patients’ medical conditions were assessed and discussed, education provided, and the families were included as well. With their project they were able to decrease hospitalizations by 64%, decreased 30-day hospital readmissions by 95%, decreased ED visits by 85%, and improved symptoms and quality of life. The setting was ideal as the private internal medicine practice serviced 5,000 patients, with most of the patients 65 years or older. The pre- and post-intervention comparison suggest that in-home primary care can reduce 30-day readmissions while improving quality of life and reducing medical spending. Although the study was a promising, the findings were limited as it was only studied for a three-month duration. Therefore, this further demonstrated that when working with the ever-growing older home-bound patient population, we must consider an IPCP to help manage the complex medical care in the patients’ home, with families, and across all health organizations involved in the patient’s care. All organizations to consider are the hospital care team, mobile primary care,
home health nursing, therapies, and social work, other medical specialists, pharmacies, mobile lab services, and mobile diagnostic services.

**Project Model**

**Donabedian’s Conceptual Model**

Donabedian’s Conceptual Model served as the model for this DNP quality improvement project as it focuses on larger structures and processes to evaluate the quality of patient outcomes at each system level and guide the decision-making where improvements need to occur (Brosnan, C., 2021; Donabedian, A., 1968). It outlines the **structures, processes, and outcomes**. The flexibility and guidance within Donabedian’s model allowed the use of several larger structures networking together to improve patient outcomes.

The **structures** consisted of the multidisciplinary hospital at home program (MHAHP), and the complex evidenced-based medical care being provided for the patient, in the patient’s home along with family and caregivers. The MHAHP included a mobile house call company (MHCC), which is a mobile primary care practice; a home health agency (HHA), the patient in their home along with their family or caregivers, and all mobile entities involved within the MHAHP. The MHCC team members included the project manager (PM), physicians, nurse practitioners, licensed practical nurses, a referral team, medical assistants, virtual back-office team, and a narcotics team. The HHA team members included the project-lead registered nurse, registered and licensed practical nurses, physical and occupational therapists, social workers, and speech therapists. All mobile entities involved with providing complex mobile primary care included mobile laboratory and diagnostic services, intravenous fluids, intravenous diuretics, antibiotics, tube feedings, non-invasive mechanical ventilation, oxygen and pulmonary nebulized medications, durable medical equipment, cardiopulmonary and falls programs, remote patient monitoring, wound care, and rapid molecular specialty testing. Additionally, other independent
mobile organizations were available if needed by the patient, including a mobile psychiatry department consisting of neuropsychiatry testing, nurse practitioner and social work services, mobile wound physician and nurse practitioner, mobile orthopedic physician assistants, a mobile insurance navigator, and a mobile pharmacy.

The processes included the interprofessional communication protocol (IPCP) between MHCC, HHA, the patient and their support system, and the MHAHP organizations. The PM provided the needed training to MHCC staff. The MHAHP team utilized EHR, secure e-messaging, phone calls, and team meetings with the MHCC PM and HHA lead registered nurse. All entities followed evidence-based practice guidelines to evaluate and treat chronic and acute medical conditions while utilizing the IPCP to coordinate care between all organizations. While using the IPCP, the patient, family, and caregivers were the central focus of these processes. The process began once the MHCC received the referral, or a current patient was discharged from the hospital or skilled nursing facility. MHCC tracked the patient weekly until discharged home using EHR, phone calls, and secure e-messaging. Prior to the patient being visited at home, the MHCC and HHA reviewed records via EPIC EMR or calling and requested the records to be faxed or sent via secure e-messaging. An MHCC licensed practical nurse started the patient’s visit note identifying needs and gaps in care before the practitioner’s visit. Once the patient was home, within 24 hours of discharge, the HHA registered nurse visited the patient, assessed, and educated them and their support system, identifying other needed entities and gaps in care. The type and frequency of visits were based on the HHA registered nurses’ initial assessment. The HHA communicated with the MHCC after the visit using a phone call or secure e-messaging. An MHCC practitioner visited the patient within 48 hours of the HHA’s initial assessment and communicated with the HHA using phone calls or secure e-messaging after the initial visit. An MHCC practitioner visited the patient every two weeks for the first 30 days and as needs arose. An MHCC medical assistant called the patient weekly to assess ongoing needs or any change in medical condition, triaged changes or concerns, and
referred to the PM to begin intervention based on medical guidelines. During the MHCC and HHA visits, medications and records were reviewed and discussed, a physical assessment was completed, and education was provided to the patient, family, and caregivers. The MHCC and HHA communicated after each visit, during acute issues or changes in medical condition using phone calls or secure e-messaging. Additionally, The MHCC PM and HHA lead registered nurse met weekly and monthly to discuss all patients and processes, reviewed any 30-day readmission, and assessed the structure and processes that may need to be changed or added. The MHCC and HHA worked with other mobile entities as defined within the structure to complete the MHAHP.

These structures and processes had three outcomes: 1) reduced 30-day readmission rates in the older homebound patient population; 2) improved staff knowledge of the IPCP; and 3) improved staff post-training satisfaction survey.

**Organizational assessment**

The two major organizations involved in this DNP quality improvement project were an MHCC and a HHA. The MHCC is a privately owned mobile primary medical care practice consisting of 5 nurse practitioners, three licensed practical nurses, six medical assistants, and one medical doctor. The practice was also comprised of a referral team, a narcotic team, and back-office staff. The MHCC services approximately 2,000 patients in a southeastern state, providing mobile medical care across all socioeconomic strata. The HHA is a large for-profit home health organization consisting of nursing and social work services and physical, occupational, and speech therapy, all of which were provided in the patients’ homes.

**Strengths, Weaknesses, Opportunities, and Threats Analysis (SWOT)**

A Strengths, Weaknesses, Opportunities, and Threats Analysis (SWOT) was conducted for this quality improvement project. Initial assessment to identify and advance successful strategies to implement the IPCP within a MHAHP were discovered. Opportunities were
identified to ensure a successful implementation of the IPCP, while weaknesses and threats were identified to mitigate any potential risks in project implementation and completion.

The strengths exhibited by these organizations include the partnership between the MHCC and the HHA, as well as the vast support of mobile services that allow an MHAHP to be delivered to the patient’s home. The MHCC and the HHA shared patient goals, including improving quality of life by advancing the communication process across the health care continuum. Additionally, accessibility to EHR and the use of secure e-messaging allowed for easier and faster access to medical records and the ability to communicate with one another with a rapid response time. This reduced the possibility of delay in response time to a patient’s medical need that would result in a 30-day readmission. One major weakness was the massive size of the HHA. Recruiting and maintaining consistent training of their clinicians would require a larger support team for ongoing training. Retaining champions and dedicated nurses can be an obstacle. Moreover, the MHCC needed a stronger, supported leadership team to implement and sustain the implementation of the IPCP. These structures and processes comprise two major opportunities. The first is that this could result in the complete buy-in from the HHA with the MHCC to provide the needed financial resources and staff support systems to scale the IPCP in all of Kentucky and across the United States. Second, demonstrating the cost savings to insurance organizations could result in increased pay from the payor sources, allowing for scalability. The threats facing the structures included a reduction in payment by insurance payors or restructuring the medical guidelines allowing for a mobile practitioner to provide medical care within the patient’s home. Furthermore, the loss of partnerships with the other mobile medical entities within the community would have disrupted the implementation of the IPCP within a MHAHP. Additionally, there was the potential threat of new entrants, as we had the market monopolized.

Project Goal and Aims
Goal Statement

The goal of this DNP project was to develop and implement an evidenced-based Interprofessional Communication Protocol (IPCP) within a Multidisciplinary Hospital at Home Program (MHAHP) to reduce 30-day readmission rates in the older homebound patient population.

Aims:
1) Developed an interprofessional communication protocol (IPCP) for use within a multidisciplinary hospital-at-home program (MHAHP).
2) Implemented and evaluated the Interprofessional Communication Protocol.
3) Make recommendations for scaling and sustainability of the program.

Overview of Methods

This quality improvement project developed and implemented an evidenced-based Interprofessional Communication Protocol (IPCP) within a Multidisciplinary Hospital at Home Program (MHAHP) to reduce 30-day readmission rates in the older homebound patient population. Implementation and evaluation of the interprofessional communication protocol within a homebound patient population cared for by two agencies: The mobile house call company (MHCC), a mobile primary medical care practice, and the home health agency (HHA).

Goal and Aims of the Project

This DNP project developed and implemented an evidence-based Interprofessional Communication Protocol (IPCP) within a Multidisciplinary Hospital at Home Program (MHAHP) to reduce 30-day readmission rates in the older homebound patient population.

Aims of the project are:
1. Developed an Interprofessional Communication Protocol (IPCP) utilized within a Multidisciplinary Hospital at Home Program (MHAHP).
2. Implemented and evaluated the Interprofessional Communication Protocol.

**Aims and Associated Methods**

Aim 1. Developed an Interprofessional Communication Protocol utilized within a Multidisciplinary Hospital at Home Program.

**Development**

**Project leadership formation: Stakeholders**

- **Leadership**
  - The PM (Nurse Practitioner with the MHCC) assumed project development protocol oversight and collaborated with and trained the steering committee.
  - The IPCP was developed by the PM utilizing the evidenced-based communication tool: situation, background, assessment, recommendation (SBAR).
  - The steering committee consisted of the PM, Lead HHA RN, and Regional Chief RN with HHA, who provided guidance and support of the IPCP. They also supported and led the clinical team's recruitment, training, and education.

- **Implementation Team**
  - The clinical champions included the Lead LPN, Lead Referral Manager, and Lead Medical Assistant (MA) with the MHCC. They oversaw the initial stages and ongoing implementation of the IPCP.

**Interprofessional Communication Protocol**

**Referral Phase**
Once a patient was referred to the MHCC while in the hospital or subacute rehab center, the Lead Referral Manager onboarded the patient to the transitional care management (TCM) tracker. If a current MHCC patient was admitted to the hospital, the Lead Referral Manager onboarded the patient to the TCM tracker once notified.

Tracking Phase

The MHCC Lead Referral Manager followed the patient and updated the TCM tracker by calling the hospital or accessing the EMR three times weekly. If the patient was transferred to a skilled nursing facility or acute rehab, the patient was tracked by the MHCC Lead Referral Manager, who called the facility twice weekly. The MHCC Lead Referral Manager updated the TCM tracker and emailed the PM, MHCC Lead LPN, and the Lead HHA RN when the patient was discharged home. Once the patient was discharged home, the Lead Referral Manager onboarded the patient to the IPCP Tracker, and the PM managed the IPCP tracker.

- Communication during Tracking Phase
  - The MHCC Lead Referral Manager provided weekly updates on the TCM tracker to the PM, Lead MHCC LPN and MA, and the Lead HHA RN via secure e-messaging.
  - The MHCC Lead Referral Manager notified the PM, Lead MHCC LPN and MA, and the Lead HHA RN via secure e-messaging once the patient was discharged home.

Record Review Phase

Prior to the MHCC practitioner’s in-home TCM visit, the MHCC LPN obtained records from the place(s) of discharge. The MHCC LPN identified social determinants of health needs or medical gaps in care and performed medication reconciliation by calling the patient
and reviewing medical records within 48 hours of discharge home. The MHCC LPN initiated the practitioner’s visit note to have all pertinent medical and social information documented in the patient’s visit progress note before the MHCC practitioner’s initial in-home TCM visit. If the MHCC LPN identified any critical or urgent needs, the LPN called the PM, and interventions were implemented.

Transition Home Phase

**HHA component**

- The HHA RN called the patient within 24 hours of the patient’s discharge to their home and scheduled the RN's initial in-home patient visit.
- The HHA RN completed the initial in-home patient assessment within 48 hours of discharge home.
- The HHA RN added other medical home health services as identified according to patient needs.

**MHCC component**

- Once the patient was discharged home, the Lead Referral Manager called the patient within 48 hours to confirm the patient has been discharged and scheduled an in-home TCM visit with the MHCC practitioner.
- The MHCC LPN called the patient within 48 hours to complete a record review.
- The MHCC practitioner saw the patient within seven days of discharge to home and completed an in-home TCM visit.
Follow-up Phase

**HHA component**
- The HHA RN or LPN continued in-home patient visits along with other ancillary staff PT/OT, SW, and SLP weekly and based on the patient’s medical needs.

**MHCC component**
- The MHCC Lead MA called the patient weekly in between the HHA RN/LPN nursing visits and the MHCC practitioner visits to ensure no acute needs or changes in the patient’s medical condition or social determinants of health were identified. If needs were identified, the MHCC Lead MA notified the PM using secure e-messaging or phone calls, and the PM implemented interventions.
- The MHCC practitioner continued in-home patient visits every two weeks and as needed if an acute need arose.

**Communication Processes**

If no acute needs were identified during an in-home visit or phone call with the patient, the clinical team member sent a progress report using secure e-messaging after each encounter. If any MHCC or HHA staff identified an acute need with the patient, the PM or Lead HHA RN would be notified via phone, and all acute needs were addressed.

**Tracking readmissions**

If the patient was transferred to the ER or re-admitted during their qualifying 30-day time frame, a root cause analysis and action plan was implemented by the PM.

**Staff Training**

The PM developed and presented a 30-minute in-person training session on the IPCP in the MHCC office or via Zoom. A PPT presentation that included the overview, detailed
description, and a flow chart of the IPCP was provided along with paper copies (See appendices G, H, and I). All the MHCC staff were trained. Originally, all HHA staff were to be trained; however, due to organizational structure changes and staffing shortages, HHA clinical team members were not trained; only the steering committee was trained. Make-up training sessions were offered to ensure all staff were trained. Attendance was tracked by the PM and maintained on an Excel document.

Identification of Participants

- The MHCC clinical team members consisted of medical assistants (3) and referral managers (2), LPNs (3), medical doctor (1), and nurse practitioners (5).
- The HHA team members consisted of the lead HHA RN and the regional chief RN, but did not take the pre-and post-test or post-program evaluations.

Identification of Patient Group

- The patient cohort consisted of 31 homebound patients as determined by Medicare’s criteria.
- The patient group had a qualifying hospital or skilled nursing facility admission that required an in-home TCM visit by the MHCC practitioner.
- The patient group did not include patients who were deemed non-homebound as per Medicare definition.

Development of Patient Enrollment Plan

- Eligible patients were deemed homebound (according to Medicare definition) and were referred to the MHCC via phone call, secure e-messaging, or fax.
- Referral resources were from the hospital, skilled nursing facility, and subacute rehab patient channels upon discharge home.
- The patient had a hospital or skilled nursing facility stay requiring an in-home TCM visit upon discharge home.
- The enrollment period continued until 31 patients were enrolled in the quality improvement project.

Development of Assessment Surveys and Program Evaluation Tool

Pre-and-Post knowledge assessment

- The PM developed a confidential pre-and-post-program IPCP multiple-choice knowledge test consisting of five test questions (10 points each, for a total score of 50 points) which was given to the MHCC clinical team members. The questions covered the following topics.
- The test questions were the same pre-and-post program.
- The tests were given in person or via Zoom with paper and pencil immediately prior to and following the training session of the IPCP.

Development of Program Evaluation

- The PM developed a confidential program evaluation and was completed by MHCC clinical team members following the training session.
- It consisted of a 5-point Likert Scale with five questions and with open-ended comment sections.
- The survey was given immediately following the training session of the IPCP.
- The survey was given in person or via Zoom with paper and pencil immediately following the training session of the IPCP.

Aim 2. To implement and evaluate the interprofessional communication protocol.

Implementation

Meetings during the project

The first implementation meeting began with the PM training the steering committee and the clinical champions via Zoom on the IPCP. The PM conducted weekly
fidelity meetings via Zoom, and the clinical champions discussed and tracked new and current patient censuses, program progress, challenges, and solutions. During the patient’s first 30 days after discharge to home, the steering committee reviewed the in-home notes from the MHCC and HHA and new clinical information, including lab work and clinical visit notes, weekly during the meetings. The steering committee reviewed and treated any acute patient medical changes or social needs during the patient’s first 30 days after discharge to the home utilizing the IPCP. During this process, the steering committee reviewed whether the patient remained home, or sent to the ER, or readmitted during their 30-day tracking period.

Implement training of the Interprofessional Communication Protocol

- A 30-minute in-person training session occurred at the MHCC officed or via Zoom during which hand-written material on the IPCP was provided.
- The training occurred over a two-week time frame until all the MHCC clinical team members were trained.
- The PM tracked attendance on a secure Excel sheet.

Patient enrollment

- Following staff training, patient enrollment began.
- Enrollment continued until 31 patients were enrolled.
- The enrollment process is outlined in the IPCP.

Implementation of the Interprofessional Communication Protocol

- Began mid-August 2023, once a homebound patient was identified and referred to the MHCC, the IPCP was initiated immediately.
- This process continued until 31 patients were enrolled.
Each patient was enrolled for 30 days from their initial enrollment date or until discharged back to the hospital or ER.

Patient tracking and information

- The PM tracked patients by name, date of birth, and a medical record number identified by a protected EHR within the MHCC’s platform. The data was kept in a secure Excel program on a secure drive, only accessible by the PM.
- Patient’s information that was tracked: 1) Top four diagnoses; 2) Date of birth; 3) Identified gender; 4) Race; 5) Admit and discharge date; 6) If discharged from a hospital, skilled nursing facility, or sub-acute rehab; 7) If remained home; 8) If readmitted or went to the ER within their qualifying 30-day time frame; 9) the reason, and; 10) was it avoidable or unavoidable as determined by the PM.

Administration of evaluation assessments

- A confidential pre-program knowledge test was administered before the 30-minute training session of the IPCP.
- A confidential post-program knowledge test was administered after the 30-minute training session of the IPCP.
- A confidential post-program survey was administered after the 30-minute training session of the IPCP.
Evaluation

Descriptive and bivariate statistics were used to evaluate outcomes.

30-day readmission rates

- A comparative analysis of 30-day readmission rates was conducted using a one-tailed, one-sample proportion test comparing mid-August 2022 through December 2022 to mid-August 2023 through December 2023, through the assistance of a data analyst from Yale New Haven Health.
- Patient confidentiality was maintained through the MHCC secure EHR and a secure Excel program in a secured drive, only accessible by the PM.

Pre-and Post-program knowledge tests

- The staff Pre- and Post-program knowledge tests was compared using a Paired T-test.

Program Evaluation Survey

- The staff program evaluation survey was analyzed using descriptive statistics.

Weekly Fidelity Meetings

- Program progress, challenges, and solutions was analyzed descriptively.

Data Storage

- Staff were assigned an identification number along with their title that only the PM had access to and was kept on an encrypted drive provided by the MHCC.
Aim 3. Recommendations for scaling and sustainability of the interprofessional communication protocol within a multidisciplinary hospital at home program.

Sustainability

- The stakeholders within the MHCC have ensured the ongoing implementation of the IPCP post-project. The PM continues to ensure that all aspects of the IPCP are adopted for all new and existing MHCC patients. Standard workflows that mirror the IPCP are now the norm post-project implementation.

- Strategies to ensure ongoing implementation of the IPCP include the clinical champions maintaining their current role, offering routine (every six months) staff in-services, training new staff, and routine chart audits conducted by the PM (20 charts monthly).

Scaling

- The PM has presented the findings of this project to the HHA leadership Team within the home-based division. The PM has recommended that they adopt the IPCP, as the HHA does not have a communication protocol in place. This IPCP may decrease their readmission rate, thus improving quality outcome measures.

Dissemination

The PM will submit an abstract for a podium presentation at the American Academy Of Home Care Medicine Annual Meeting and to the peer-reviewed journal Home Healthcare Now.

Statement related to human subjects

This DNP project has been deemed a quality improvement project by the Yale IRB. It poses minimal risk to the participants.
Part 3

The Business Case and Leadership Engagement

I. Leadership and Stakeholder Engagement

   The student served as the PM for this DNP quality improvement project. The Interprofessional Communication Protocol (IPCP) was evaluated within the mobile house call company (MHCC) and in collaboration with the home health agency (HHA), which together make up a multidisciplinary hospital at home program (MHAHP). As co-owner of the MHCC, the PM served as the decision maker and formed a partnership with the HHA. The Corporate Responsibility at the HHA—the parent company of the HHA—actively supported the collaborative partnership for this DNP project. The PM assumed project development and protocol oversight and trained the steering committee and clinical champions. The steering committee consisted of the PM, Lead HHA RN, and Regional Chief HHA RN, who provided guidance and support regarding the IPCP. The clinical champions consisted of the Lead LPN, Lead Referral Manager, and Lead Medical Assistant with the MHCC. The team and the PM oversaw the clinical implementation of the IPCP. The MHCC clinical team consisted of Medical Assistants and Referral Managers, LPNs, a Medical Doctor, and Nurse Practitioners.

II. Kotter’s Change Management Theory

   The PM utilized Kotter’s Change Management Theory to effectively implement change in the medical delivery processes within the MHAP. This involved ensuring the stakeholders understanding of the why behind the change and communicating the vision to build a strong foundation for a culture that supports change. To achieve this, the PM employed several communication modalities, e.g., presentations, KnowDoShare (KDS) documents, and weekly fidelity meetings to ensure comprehension and project buy-in. Short-term wins were also celebrated to keep stakeholders invested and drive success throughout the project. The steering committee and the clinical champions served as change agents to facilitate
implementation across all departments and worked closely with the PM. Such efforts supported a collective vision for the reduction of avoidable 30-day readmission rates in the homebound patient population. In anticipation of barriers, the steering committee met weekly and reviewed adherence to the IPCP. When obstacles were discovered, the steering committee course-corrected any obstacles immediately. Momentum was sustained throughout all phases of this DNP project, as the PM ensured that all aspects of the protocol were adhered to. Strategies included weekly fidelity meetings, stakeholder check-ins, and routine patient status reports. Staff were also engaged in monthly meetings intended to promote the development of soft leadership skills, such as self-awareness, motivation, and open communication.

Budget and ROI

The goal of this DNP project was to develop an Interprofessional Communication Protocol (IPCP) to be utilized within a Multidisciplinary Hospital at Home Program, to reduce 30-day readmission rates in the homebound patient population. Homebound patients are medically complex, costing Medicare $17 billion dollars annually on avoidable hospital readmissions. Communication breakdown between medical entities across the healthcare continuum is one of the contributing factors to unnecessary hospital readmissions. This quality improvement project aligns with the Hospital Readmission Reduction Program (HRRP) initiated by the Affordable Care Act (ACA) in 2012 to reduce avoidable readmissions.

This quality improvement project aimed to reduce hospital readmissions for those patients currently under the care of the MHCC. The goal of this project was to demonstrate a fifty percent reduction in readmission rate within a 3-month time period. A comparative analysis using a one-sample proportion test was conducted to show the MHCC’s baseline readmission rate versus project outcome data. Additionally, this project was to illustrate an indirect benefit for hospital systems for reduced readmissions. A penalty of up to 3% or an average of $217,000 is imposed by Medicare on hospitals with higher 30-day avoidable readmission rates annually.
Currently, Medicare spends an average of $15,500 per episode for a readmission. For instance, should the project prevent 20 patients from being readmitted, it would result in a $310,000 savings in Medicare dollars.

Several potential indirect benefits that could be expected but are not quantifiable consisted of: (1) increased patient satisfaction; (2) greater access to medical care through home visits; and (3) improved patient and population health outcomes. By providing community-based medical care within patients’ homes, risks associated with hospital-acquired infections will likely dissipate. Costs for implementing this quality improvement project included a one-time training session for current staff at the MHCC to provide education on the IPCP. The total start-up expense for this training, combined with project materials and a statistical team, was $1,602. There will not be any additional year-to-year expense for future training, as this process will be embedded during their initial training and orientation for any additional staff hired. Information Technology (IT) components already exist within the organization.

**Risk Analysis and Contingency Plan**

As a mobile primary care house call organization, the MHCC partnered with a prominent HHA; the internal and external risk factors were considered, and a contingency plan was made. Several internal risk factors to consider included the possibility of an acquisition, workforce attrition, and stakeholder resistance. If an acquisition had transpired, it would have been incorporated in the contract terms that the project must proceed with implementation. To address workforce attrition, the MHCC continued interviewing, hiring, and training during the project to have backup staff ready to fill any gaps identified. Finally, the PM held weekly Zoom or in-person meetings to mitigate stakeholder resistance and ensure ongoing buy-in.

External risk factors included a HHA merger, lack of referrals from the HHA, HHA leadership turnover, and changes in regulatory and compliance laws. In instances where a lack of HHA patient referrals could have occurred, the MHCC maintained concurrent partnerships
with two other home health agencies that could fill the void as needed. In cases of HHA leadership turnover, sustaining and strengthening alliances within the HHA organization ensured the project continued as planned. Additionally, the MHCC held bi-monthly meetings with the HHA leadership team and reviewed and discussed our patient population's status and outcomes, providing a paper trail in case of leadership turnover. Finally, it was unlikely that regulatory and compliance laws would change during this project's implementation and evaluation phases, as the impact on Medicare changes occurs after the first of each year—which was post-implementation phase.

Part 4

Results

Effect of IPCP utilization on 30-day readmission rate

A one-tailed, one-sample proportion test was employed to evaluate whether the IPCP model was effective in reducing the 30-day readmission rate relative to the 20% readmission baseline. The proportion parameter was found to be 0.6% lower than the baseline rate but not statistically significant (95%CI: 0% to 34% lower. P = 0.5%. $X^2 = 0$). A post-hoc power analysis found that the current project design was sufficiently powered (0.8 level) to detect an effect corresponding to a readmission rate of 5.6% (a 72% reduction from baseline). The observed readmission rate of 19.35% (a 3% reduction from baseline) was larger than this, suggesting insufficient data to make a statement regarding the lack of an observed effect.

The effect of the proposed IPCP on the 30-day readmission rate of homebound patients was investigated by implementing this model within an MHAHP on a sample size of 31 patients. The readmission rate of the patients in the project was analyzed on the basis of four descriptive statistics: age, gender, race, and hospital length stay (LOS). The patient age within the overall
project population ranged from 48 to 98. Patients who had a readmission had an average age of 77.3 (SD: 14.0), while those who did not had an average age of 72.4 (SD: 12.8). A t-test analysis found no statistically significant difference in age between readmitted and non-readmitted patients (p = 0.46). Females (n = 19) were found to be more likely to have a readmission relative to males (n = 12) (21% vs 17%, respectively); however, a Fisher’s Exact test found no statistically significant difference between the sexes (p = 1). Similarly, white patients (n = 17) were more likely to be readmitted relative to black patients (n = 13) (24% vs 15%, respectively), but a Fisher’s Exact test found no statistically significant association with race (p = 0.74). Of note, a single patient was not classified as white or black (n = 1) and was not readmitted. In regard to hospital LOS, the mean LOS was 12.4 days (SD: 17.2), the median was 6.5 days (IQR: 11.5), and the maximum was 84 days. LOS was not found to be normally
distributed (Figure 1), therefore a Wilcoxon rank sum test was performed to assess its association with readmission; no statically significant difference was found ($p = 0.42$). Furthermore, a t-test analysis found no association between hospital LOS and readmission ($p = 0.59$). Of the 31 patients in this project, 1 had an unknown admission date. Therefore, this patient was excluded from this analysis.

**Figure 1.** Histogram of patient hospitalization LOS by readmission status.

*bin width: 5 days*
Pre-and-Post Knowledge Test of the IPCP Model

Pre-and-post-knowledge tests were administered to 15 MHCC staff members before and after training on the IPCP. For each test, a final score was calculated by counting each correct answer as 10 points and each incorrect answer as 0, for a potential total of 50 points. As such, all final scores ranged between 0 and 50. The pre-and-post score difference was calculated by subtracting the pre-test final score from the post-test final score for each individual. A paired t-test was carried out to assess the difference in final scores pre- vs. post-training. The difference was found to be statistically significant (t = 6.29, p < 0.001). The participants gained an average of 16 points (SD = 9.9) from pre- to post-test scores (95%CI: 10.5 to 21.6) (Figure 2), demonstrating the educational program was beneficial for staff in gaining a better understanding of the IPCP processes and workflow.

Figure 2. Pre- and post-training IPCP knowledge scores.
Post-program evaluations of IPCP training session

A post-program evaluation of the IPCP training session was developed using a 5-point Likert Scale. The evaluation consisted of five questions scaled from 1 (strongly disagree) to 5 (strongly agree). The evaluation was administered immediately following the IPCP training session to a total of 15 medical professionals (MD, n = 1; MA, n = 6; LPN, n = 3; NP, n = 5). Taking all question responses for all respondents, the mean score was 4.79 (SD: 0.41) (Figure 3) with a median of 5 and an interquartile range (IQR) of 0. Given the scores on the post-program evaluation, the IPCP training session was determined to be beneficial to the participants.

Average Answer (1-5 Scale) by Provider Type and Question

Figure 3. Mean score of each question in the post-program evaluation by medical profession. Error bars show a standard deviation of 1.
Part 5

Discussion

While this project did not significantly reduce 30-day readmission rates, it presents a promising new IPCP model that could be implemented within an MHAHP to address key shortcomings in communication between distinct caregiving units. This IPCP aimed to address the hypothesis that enhancing communication touchpoints between patients/families and collaborating with community-based healthcare partners could improve healthcare outcomes for patients within an MHAHP. Although this project, as conducted, was unable to establish a statistically significant link between 30-day readmission rates and the implementation of the IPCP, making several adjustments in the project design could have yielded a firm relationship between these variables. Namely, if CMS exclusion criteria had been applied for 30-day all-cause readmission, the project would have been more adept at establishing statistically significant connections between the IPCP and 30-day readmission rate. The CMS exclusion criteria for 30-day all-cause readmission include: (1) discharged against medical advice, (2) death occurred during the admission, or (3) planned readmission. After conducting a root cause analysis and thematic investigation of the readmission rate in our project and applying CMS’s criteria, five of the six readmitted patients were deemed non-attributable to errors by the MHAHP. The five readmissions were deemed unavoidable from the perspective as the causes for the readmissions were: (1) surgical repair of gastrostomy tube, (2) recurrent stroke and discharged to hospice care, (3) caregiver refused skilled nursing facility, (4) insurance denied hospitalist recommendation for skilled rehab stay, and (5) death.
Limitations

Several studies have examined in-home programs aimed at reducing avoidable 30-day readmission, but many lack the comprehensiveness of a multi-interdisciplinary team approach (Beck et al., 2009; Rerucha et al., 2020; Sezgin et al., 2020). This project employed an MHAHP using an IPCP model; however, due to a short project time frame (90 days) and a small sample size (31 patients), a significant reduction in 30-day readmission rate could not be demonstrated. It is proposed that a longer analysis period with a more robust patient panel is needed to fully and accurately assess if an MHAHP can reduce 30-day readmission in the homebound patient population utilizing this new IPCP model. Additionally, this project did not utilize exclusion criteria and, therefore, did not omit patients who were not appropriate for the project. If the CMS exclusion criteria for 30-day readmission had been used, five of the six readmissions in this project would have been avoided. Further examination of the implementation of this new IPCP model should include more clearly defined exclusion criteria established by CMS to determine if avoidable 30-day readmission can be reduced.

Scalability

Successful execution of this IPCP model may strengthen the communication networks of transitional home-based primary care organizations, thereby preventing avoidable 30-day readmissions. This project integrated telehealth to bolster and expedite access to health care. Telehealth did not supplant in-person visits; rather, it augmented the delivery of care and provided additional touchpoints for patients. Implementing this IPCP model successfully and producing ongoing positive outcomes will require a primary care organization with a dedicated team leader, established partnerships with home health agencies, and collaboration with community-based organizations. This IPCP model can be modified and applied across the many cultures of home-based delivery programs.
Conclusion

In summary, this project marks the inaugural quality improvement project utilizing an MHAHP with a novel IPCP model to improve longitudinal access to healthcare while strengthening patient health outcomes in the homebound population. This innovative IPCP model requires broader-scale investigation to showcase how it can be effectively integrated within an MHAHP to reduce avoidable 30-day readmissions in this rapidly expanding, complex, and financially burdensome patient population. This demographic requires primary care that is adaptable and forward-thinking, enabling the delivery of complex patient care at home. Integrating this new IPCP model within an MHAHP will help avert emergency room visits and reduce 30-day readmission rates.
References


