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Transition of Care Program: A Quality Improvement Project

Sara Gigliotti

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A DNP PROJECT

Transition of Care Program:

A Quality Improvement Project

STUDENT NAME: Sara Gigliotti

DNP PROGRAM COORDINATOR: Kristen Slabaugh

DNP PROJECT TEAM MEMBERS: Kristen Slabaugh, Kimberly Fenstermacher, Nancy Woods

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A Quality Improvement Project

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Family Nurse Practitioner Track

By

Sara Gigliotti, BSN, RN

Approved: *Kristen Slabaugh, DNP, CRNP, CNE*

DNP Project Advisor

Approved: *Kimberely Fenstermacher, PhD, CRNP*

DNP Project Committee Member

Approved: *Nancy Woods, PhD, MPH, RN*

DNP Project Committee Member

Date: August 2, 2021

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Abstract

BACKGROUND: Unplanned hospital readmissions are a burden on healthcare expenditure. There is a paucity in research at the sub-acute level of care, where many patients receive services following a hospitalization, to decrease readmission rates. This project aimed to determine whether a formal transition of care program (TCP) in a sub-acute rehabilitation (SAR) center decreased unplanned hospital readmissions of adults within 30 days of discharge to home. METHODS: A literature review identified evidence-based interventions used to develop a formal TCP in a SAR center. The Ottawa Model of Research Use was used for the quality improvement (QI) project. Data was collected over a 3-month implementation phase and 30-days following discharge to assess for statistically significant differences in readmission rates pre- and postintervention. INTERVENTION: Participants were enrolled in a TCP that included plan of care meetings, treatment plan and disease-specific education, pharmacist-led medication reconciliation prior to rehabilitation discharge, scheduled home health, rehabilitation, and provider services after discharge, and follow-up communication with a team member weekly for a minimum of 30 days following discharge. RESULTS: There was no statistically significant difference in hospital readmission rates between the pre- and postintervention groups. CONCLUSIONS: A formal TCP at the SAR level of care may decrease 30-day unplanned readmission rates post-discharge. Future QI projects may be able to identify the impact of TCP at the SAR level of care with larger sample sizes.

Keywords: transitions of care, transitional care, discharge, care transition, rehospitalization, readmittance, subacute care, post-acute care, and rehabilitation center

Transition of Care Program: A Quality Improvement Project

Background

Unplanned hospital readmissions in the adult population increase healthcare expenditure. In 2011, there was an annual total of 3.3 million hospital readmissions, from all locations, costing $41.3 billion in the United States (Hospital Readmissions Reduction Program, 2018). Despite a significant focus on addressing unplanned hospital readmissions at the acute care level, there is a gap in research at the sub-acute care level. Approximately one in four Medicare beneficiaries will transition to a skilled nursing facility (SNF) after hospitalization, where sub-acute rehabilitation (SAR) is often provided. Of these individuals, one in four will be readmitted to the hospital within 30 days (Clark et al., 2017). The national cost associated with 30-day hospital readmission rates from SNFs was $10,362 per readmission or $4.34 billion annually per 2010 data (Smith et al., 2015). Of these readmissions, 78% were determined to be avoidable (Beresford, 2017).

As of 2018, the Protecting Access to Medicare Act of 2014 permits the Centers for Medicare and Medicaid Services (CMS) to use SNFs' 30-day all-cause hospital readmission rates to determine which SNFs will receive penalties up to two percent of Medicare reimbursement, which may extend to the discharging hospital as well (Beresford, 2017; Clark et al., 2017; Rau, 2018). The current benchmark for penalty is a rate higher than the national average for all SNFs that receive CMS reimbursement. Furthermore, CMS aims to keep information public to help guide the public and hospital networks to choose high quality and high performing SNFs (Smith et al., 2015).

Problem Statement

Due to potential for penalties from CMS and loss of hospital referrals and patient choice, SARs may benefit from quality improvement (QI) projects that aim to answer, in adult patients discharging from SAR facilities to home, how are unplanned hospital readmission rates impacted by a formal transition of care program (TCP) compared to usual discharge care within 30 days of discharge? Usual discharge care from a SAR does not include an interprofessional approach during the discharge process or after (a) to provide intensive disease- and medication-specific education, (b) provide medication reconciliation, (c) secure recommended services, (d) assess for adherence or complications, and (e) resolve conflict. Development and implementation of a formal process to address the barriers of a successful transition to home may aid in reducing readmission rates.

Needs Assessment

The Middletown Home is an independent nonprofit organization that provides SAR services to the community with a culture that supports financial and clinical stewardship. According to Medicare.gov (2021), based on data from October 1, 2019 through September 30, 2020, 16.6% of short-stay residents, residents treated for less than 100 days, at the Middletown Home were hospitalized following admission. Previous reports have reflected a readmission rate up to 28.3% for short-term residents (Medicare.gov, 2021). By comparison, the Pennsylvania average is 20.8% and the national average is 21.7% in the continuous tracking model. A two percent decrease in revenue, as a result of elevated rates, poses a significant risk to the operational budget of a SAR center.

In addition to the risk for Medicare penalties, the Middletown Home had a need for the project due to a lack of information, coordination, and collaboration (see Appendix A). The Middletown Home provided an ideal environment to implement this project because (a) there

was a history of elevated hospital readmissions rates, (b) there was no hospital affiliation, (c) the organization desired to be a part of innovative change, and (d) it served as a provider of rehabilitation services to the adult population. Despite the supportive organizational culture, the ability to translate new ideas into practice was often delayed, or dysfunctional. The DNP student attempted to overcome these barriers through education, ongoing communication with team members, and acting as team lead and care coordinator during implementation (see Appendix B).

Aims, Objectives, Purpose Statement

The overarching aim of this project was to decrease the incidence of unplanned hospital readmissions of adults within 30 days of discharge to home from a SAR center through the use of a TCP. An interprofessional approach, including the Doctor of Nursing Practice (DNP) student serving as the care coordinator, was used to achieve the project aim. The objectives included:

1. Over a three-month intervention phase, at least 80% of all adult patients discharged to home will be enrolled in the transition of care program.
2. Over a four-month period, the care coordinator will make initial contact with 80% of enrolled patients or caregivers within 48 hours of discharge to home.
3. Over a four-month period, the care coordinator will communicate with 80% of all enrolled patients or caregivers discharged to home on a weekly basis for a minimum of four weeks.
4. Over a four-month period, 30-day readmission rates in the intervention group will be decreased below the state and national benchmarks compared to the comparison group.

The overall purpose of this project was to implement a formal TCP, involving an interprofessional approach, within a SAR center to decrease unplanned hospital readmissions among adults within 30 days of discharge from the SAR to home to reduce healthcare expenditure related to hospital readmissions.

Review of Literature

A comprehensive search of current literature was completed May 2019 through March 2021 using CINAHL, Google Scholar, Cochrane Reviews, MEDLINE, PubMed, and AHRQ using the following keywords: transitions of care, transitional care, discharge, care transition, rehospitalization, readmittance, subacute care, post-acute care, and rehabilitation center. Keywords were identified from the PICOT question and keywords of relevant articles. Articles were limited to full-text availability, published from 2010 to 2020, academic journals, and published in English. Sixteen articles were included in the final review including two landmark studies from prior to 2010 (see Appendix C). The database searches revealed an adequate quality of evidence to support a QI project at the sub-acute care level. All identified articles were appraised at a level A or B quality rating (see Appendix D).

Transition of Care Programs

Berkowitz et al. (2013), Englander et al. (2014), Jack et al. (2009), Miller and Roberto (2017), Wee et al. (2014), and Wingard et al. (2017) reported that interventions included during the transition from hospitals and post-acute care settings can impact the rates of unplanned hospital readmissions within 30 days of discharge and potentially reduce risk of adverse events. TCPs, such as Right TraC, The Aged Care Transition (ACTION), Project Re-Engineered Discharge (RED), the Care Transitions Innovation (C-TraIn), and a multidisciplinary post-acute transition care (MDTC) program, were associated with statistically significantly lower rates of

unplanned readmissions and emergency room utilization within 30 days of discharge from acute and sub-acute settings. Additionally, Weeks et al. (2018) reported reduced hospital readmission rates at 30, 60, and 180 days with the use of TCPs in a systematic review with meta-analysis. An integrative review completed by Albert (2016) identified common themes among existing transition of care models that may decrease rehospitalizations and improve quality of life. The themes included (a) discharge planning, (b) multi-professional teamwork, (c) timely and organized sharing of information, (d) medication reconciliation and adherence, (e) engagement in social support systems, (f) monitoring and managing conditions in collaboration with outpatient follow-up, (g) patient education, and (h) advanced care planning. Additionally, integration of caregivers into discharge planning was also reported by Rodakowski et al. (2017) to have been associated with 25% fewer readmissions at 90 days (relative risk (RR) = 0.75, 95% confidence interval (CI) = 0.62 – 0.91, p = 0.004) and 24% fewer readmissions at 180 days (RR = 0.76, 95% CI = 0.64 – 0.90, p = 0.001) compared to control groups.

Nurse Involvement

Sezgin et al. (2017) reported nursing care and follow-up programing in patients with heart failure resulted in improved patient ratings specific to self-care maintenance (p = <0.001), self-care management (p = <0.001), and self-confidence (p = <0.001) at three and six-month intervals compared to control groups. The intervention group also reported statistically significant improvements to quality of life on the Left Ventricular Dysfunction Scale (p = <0.001) compared to the control group. Support from a nurse during the period of transition from hospital to home was reported to result in lower rates of rehospitalization at 30 (8.3 vs 11.9, p = 0.048) and 90-days (16.7 vs 22.5, p = 0.04) post discharge compared to control groups (Coleman et al., 2006).

Pharmacist Involvement

Pharmacist inclusion has also been shown as beneficial in TCPs. Whalley et al. (2018) reported a statistically significant increase of 37.6% ($p = 0.001$) in the number of medication discrepancies per patient addressed after implementation of pharmacist-led medication reconciliation before discharge. Ensing et al. (2015) also reported pharmacist collaboration in the multi-disciplinary approach during the transition of care was most likely to improve clinical outcomes. Pharmacist interventions included (a) medication regimen review prior to discharge, (b) patient counseling at discharge, and (c) participating in post-discharge counseling for adherence. With two-thirds of adverse events after discharge being related to medications, the improvement in recognition and addressing medication discrepancies are of value (Whalley et al., 2018).

Post-Discharge Engagement

Ongoing engagement with a multidisciplinary team following discharge is also important in TCP's success. Weerahandi et al. (2019) reported that rehospitalization rates among SNF patients discharge to home was two to four times higher on days zero to two post-discharge compared to days three to thirty. Carnahan et al. (2017) reported home health visits completed within one week of discharge were associated with a statistically significant reduction in the hazard of unplanned 30-day hospital readmission (adjusted hazard ratio [aHR]= 0.61, p <0.001). Reduced rehospitalization rates at 30-days post-discharge (12.6 versus 16.6, p = <0.001) and reduced mortality at 30 and 90-days post-discharge (1.6 versus 4.2, p = <0.001; 5.3 versus 7.8, p = <0.001, respectively) were also reported by Simning et al. (2020) in participants discharged from a SNF to home that used Medicare-certified home health agency services compared to the control group.

Limitations

There was paucity of research related to the sub-acute care setting and the recent implementation of punitive legislation. Additionally, there was not a consensus in the literature or among national organizations on which specific measures impacted rehospitalizations rates the most. It was noted that the inclusion of an interprofessional approach, disease-specific care strategies for education and follow-up, and TCPs have been effective in decreasing readmission rates.

Furthermore, the literature was limited by poor quality studies, out of date research and data, and threats to validity. Threats to validity were a result of (a) sampling techniques and sizes, (b) lack of clarity on program components, (c) unvalidated tools, (d) cross-cultural study sites and participants, (e) studies limited to specific disease states, and (f) lack of appropriate statistical tests, analysis, or discussions. Though limited data existed regarding SAR discharge processes to decreased hospital readmission rates compared to hospital discharge processes, the processes were similar and, therefore, the research in the acute care setting was applied to the SAR setting.

Theoretical Model

Milio's framework of prevention was used as the theoretical model for the project. The propositions of care revolve around how individuals and groups can be influenced to make better health decisions. According to Nancy Milio, PhD, RN (1976), the majority of individuals will make health choices based on what is perceived to be the easiest choice. Organizational behavior influences individuals' perception of ease when considering choices. A TCP was structured to offer resources and choices in a manner that was perceived as easy to individuals by changing the organizational behavior.

The six propositions of the model outline that the health status of populations is a result of

- the lack or excess of health resources,
- populations have limited selection of health habits,
- organizational behavior should ensure available options are known,
- individuals make decisions on options they perceive as available,
- social change is brought about by changing the behaviors of a significant portion of the population, and
- health education alone is not enough (Milio, 1976).

Starting points for what aspects needed to be addressed in the TCP were developed by using the six propositions. When a process adequately met all six propositions, Milio predicted the project would be successful because the phenomenon has been researched and addressed.

Translation Model

The Ottawa Model of Research Use (OMRU), developed by Ian Graham and Jo Logan (2004), was used as the translation model for the QI project. The planned action model consisted of a six-step approach developed with a focus on innovations through continuity-of-care. The OMRU was chosen due to the recognition of the importance of interprofessional collaboration and patient involvement, non-linear process evolution, and inclusion of external factors that are essential components of a TCP. The model specifically focused on three assumptions of knowledge transfer and translation to guide practice change (Graham & Logan, 2004):

- Knowledge translation is a complex process of research development and use
- Patients are central in the translational processes

- External social and health environments and factors impact the knowledge translation processes

The model served as a guide to process through the assessment, monitoring, and evaluation phases of the project. It outlined reassessment of barriers and supports, barrier management, and follow-up at each step in the approach (see Appendix E). The model provided starting points for assessing evidence, potential adopters, and the practice environment (Graham & Logan, 2004). The Middletown Home team members were not widely familiar with EBP methodology or implementation of QI projects. Using a visual representation was helpful in providing guidance on the process and encouraged engagement.

Methodology

Current recommendations from Smith et al. (2015) include addressing structural and processing issues specific to hospital readmissions. The project incorporated aspects of approaches identified through the literature search into a formal program supported by education to healthcare staff, providers, patients, and caregivers.

Participants

Participants were derived from a convenience sample of adult patients 18 years or older admitted for rehabilitation services who were subsequently discharged home from February through April 2019 and 2021 (N = 34). Rehabilitation services included physical, occupational, or speech therapy. The intervention group (n = 7) participated in a structured multidisciplinary TCP. The control group (n = 27) received usual discharge planning.

Exclusion criteria included (a) patients discharged to a SNF, residential group home, assisted living facility, or personal care home, (b) individuals with a planned hospital readmission, or (c) patients discharged with hospice services. Individuals discharged to non-

community homes or with hospice services received a higher level of care and follow-up than individuals discharged to locations without continuous nursing care. The benefits of the TCP aimed to address the barriers individuals without this resource encounter. Furthermore, individuals with planned hospital readmissions would have skewed data on readmission rates during the evaluation phase. Individuals were not excluded on the basis of advanced age, medical conditions, gender, ethnicity, race, or language. The company had translation services available for educational sessions, discharge instructions, and follow-up communications if needed. The project aimed to include all individuals that may benefit from the TCP.

Setting

The project took place in a Medicare and Medicaid certified 102-bed skilled nursing and rehabilitation center located in Middletown, Pennsylvania. Physical, occupational, and speech therapy services were offered seven days a week, in addition to 24-hour nursing care. Additionally, provider services were available on site twice weekly and via telephone 24-hours a day. Patients also received social work, dietary, pastoral care, psychiatry, physiatry, podiatry, dental, audiology, and transportation services.

Tools

Participants were tracked in a postdischarge tracking log created by the DNP student to track demographic data, discharge preparation, and postdischarge communications (see Appendix F). Cognitive scores, using the Brief Interview for Mental Status (BIMS), were also collected on admission and prior to discharge for the intervention group (see Appendix G).

The BIMS is a mandated cognitive assessment tool in the Minimum Data Set 3.0 which is used in SNF reimbursement from CMS. The BIMS has been shown to be a valid and reliable tool to screen for cognitive impairment (Mansbach et al., 2014). Scores may reflect the severity of

cognitive impairment in an individual ranging from cognitively intact (13-15), moderately impaired (8-12), and severe impairment (0-7). Impaired cognition may limit a patient's ability to fully participate in his or her plan of care, discharge planning, and follow-up care. If a patient's BIM score was 12 or less, a caregiver was included in the TCP along with the patient. All participants in the intervention group were encouraged to include a caregiver of his or her choosing regardless of BIMS score.

Additionally, patients and caregivers were surveyed after discharge with the 3-Item Care Transitions Measure© (CTM-3©) developed by Dr. Eric A. Coleman, who granted permission for the use in this project (see Appendix H). The CTM-3© is survey tool used to measure patient perspectives on coordination of discharge services and preparedness for discharge to home. The CTM-3© is a Likert scale survey ranging from 0, lowest satisfaction, to 12, highest satisfaction. The total score is composed from three categories ranging 0 to 4 measuring satisfaction with

- preferences considered in discharge planning,
- understanding of managing health needs, and
- understanding of medications.

The Care Transitions Measure- 15 has been shown as valid and reliable (Cronbach's alpha 0.95) in previous studies with the shorter version, CTM-3©, accounting for 88% of the variance in the full measure (Anatchkova et al., 2014; Coleman et al., 2002). The reliability of the CTM-3© in this project was good (Cronbach's alpha 0.808).

Intervention

Prior to Discharge

The project was introduced to patients and caregivers upon admission to the SAR center and initiated using the process map (see Appendix I & Appendix J*)*. Although discharge

planning began on admission to the SAR, the specific TCP discharge preparation interventions began when a last covered date (LCD) of service, “the last date of insurance coverage for SAR services,” was rendered. Individuals must have had at least 48 hours advance notice of the LCD. Following enrollment, the project proceeded as follows:

1. Social services discussed discharge services and follow-up communication with the patient and caregivers during care plan meetings and discharge planning.
2. The provider, rehabilitation specialists, nurses, and social services reviewed the medical record and recommended specific discharge services for the patient based on medical necessity.
3. Social services scheduled discharge services and notified the patient and caregiver of the recommended services during discharge planning.
4. Home health services and a primary care appointment were scheduled to occur within one week of discharge.
5. A pharmacist completed a medication reconciliation, provided recommendations to the provider prior to discharge, and counseled the patient and caregiver regarding the medication regimen.
6. The provider communicated medication changes to the nursing department.
7. Nurses ensured seven days of medications were accurate and available for the patient.
8. Nurses provided verbal and written education to the patient and caregiver on medications, patient specific treatment plans and disease processes, and follow-up provider appointments.

9. Fidelity was ensured by the DNP student by completing a checklist on each participant beginning at enrollment that ensured each intervention was completed timely prior to discharge (see Appendix K).

Post-Discharge

During the initial and follow-up communications (a) education was offered on any questions, (b) observed changes in condition or complications were inquired about, and (c) a review of the medication regimen and scheduled provider follow-up appointments were completed (see Appendix L). If a conflict had arisen with discharge services, the DNP student, serving as the care coordinator, communicated it with team members to attempt resolution. Post-discharge communications attempted to meet the schedule of patients and caregivers by being prearranged. Following discharge, enrolled patients and caregivers were engaged in the TCP as follows:

1. The DNP student attempted to contact the patient and caregiver within 48 hours of discharge to ensure that scheduled home health services had begun as recommended and survey the patient or caregiver using the CTM-3©.
2. Follow-up communications then occurred on a weekly basis with the patient or caregiver for a minimum of 30 days following discharge to (a) continue to aid in conflict resolution, (b) provide education, (c) ensure adherence to recommended discharge services, and (d) inquire about unplanned hospital readmissions.

Data Collection

Preintervention

Data for the comparison group was collected from the electronic health record (EHR) from February through April 2019. Participant demographics collected included (a) age, (b)

gender, (c) race, (d) ethnicity, (e) primary language, (f) hospital discharge date, (g) admission date to SAR, and (h) date of discharge to home. Hospital readmission rates were calculated for preintervention comparison group. Due to the impact of the COVID-19 pandemic, 2019 data was chosen as a representative control group versus 2020 data. Patient census, medical acuity, and staffing patterns were significantly altered during the COVID-19 pandemic.

Intervention

Data for the intervention group was collected from February through May 2021 during the QI project. Participant (a) demographics, (b) BIMS scores, (c) discharge services, (d) CTM-3© responses, (e) post-discharge communication, and (f) hospital readmission data were recorded on the postdischarge tracking log. Demographic data was also collected on individuals determined to be ineligible for the project on admission to the SAR. Data was collected from the EHR and patient and caregiver communications. Hospital readmission rates were calculated for intervention group. Missing data resulting from a lack of engagement following discharge to home was handled with the individual being dropped from the intervention group. The individual was included in the dropped 2021 data set.

Cost Analysis

The costs associated with implementation and the overall budget for the project were minimal. Project implementation costs were largely donated by the DNP student. Additionally, resources were already included in the responsibilities of current staff members and the company's assets. The proposed budget included data to support sustaining the project after implementation, which would require a significantly larger budget (Indeed.com, 2020; Meyer, 2018) (see Appendix M). Despite the financial cost of sustaining the program, the company could expect to gain revenue by avoiding CMS penalties. Due to limited data on the Middletown

Home's Medicare reimbursement rates, services rendered and billed, and census data this estimate may have been grossly undervalued.

Initially, the project demanded more time from staff, providers, patients, caregivers, and stakeholders to learn the project goals and participate in implementation. Patients and caregivers faced an increased demand on time to adhere to discharge services, participate care plan and discharge meetings, and engage in educational session. All parties were expected to benefit from time saved by avoiding hospital readmissions.

Timeline

The project timeline began April 30, 2020 with proposal approval by the Messiah University Graduate Nursing Program panel. After receiving approval, the project site agreement and Messiah University's Institutional Review Board (IRB) approval were obtained (see Appendix N). The IRB approved the project implementation January 8, 2021.

Preimplementation meetings began with team members in January 2021. The DNP student educated the rehabilitation, social services, nursing, and pharmacy departments on their specific roles and responsibilities during the TCP. Project implementation began February 15, 2021 and continued through May 31, 2021 to ensure the capture of all discharged participants for 30 days. Postimplementation data analysis began in June 2021 and was completed on June 10, 2021. Interpretation and dissemination of findings from the project will be shared with the Middletown Home's Quality Assurance and Performance Improvement committee, comprised of the company's key stakeholders and community members, during the August 2021 meeting.

Ethics and Human Subject Protection

The Messiah University IRB approval was obtained prior to initiating the DNP project. The project was determined to be exempt and did not require informed consent. All individuals

that participated in the implementation of the project had received training on the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Participants received a level of care consistent with the *Standards of Care*. All information collected as part of evaluating the project's impact was stored in the company's secured EHR, recorded on an Excel spreadsheet, or locked in a filing cabinet. Access to the EHR was secured with restricted role-based access within the program and password protected. All other electronic files were stored under password protection to prevent access by unauthorized users. Only the project coordinator had access to the electronic files stored on the DNP student's personal laptop and the filing cabinet which were double locked. Data will be stored for a minimum of five years and then destroyed via secure paper shredding and electronic deletion.

The risks to the participants in this project included an increased burden of time prior to and after discharge. Participants were made aware of expectations of participation prior to enrollment and were be able to opt-out of participation at any time. Care plan meetings, discharge planning meetings, and educational sessions were offered in person, via telephone, and via video conferencing to accommodate schedules of patients and caregivers.

There were no anticipated increased costs or risk of physical harm associated with participation in the project. Furthermore, participants may have potentially benefited from decreased rates of readmissions, improved communication with healthcare professionals, and improved access to healthcare resources. The result of these benefits may have improved direct and indirect costs associated with readmission rates to the hospital such as loss of labor hours and medical costs.

Results

Analysis and Evaluation

Data Analysis

Data were maintained and analyzed with IBM SPSS Statistics, Version 27.0. Differences between group demographics (gender, race, and ethnicity) were evaluated using a Chi-square test of association with a Fisher's exact test as appropriate; differences in age between groups was evaluated using an independent samples *t*-test. The outcome value, unplanned hospital readmissions, was evaluated using a Chi-square test of differences with a Fisher's exact test as appropriate due to the data not meeting the assumptions for parametric testing and violating the required minimum cell count. Statistical significance was established at $p < .05$. Descriptive statistics using frequencies were used to evaluate BIMS scores, CTM-3© scores, and postdischarge communication data.

Sample Characteristics

A total of 46 patients were excluded from the final sample (comparison group = 27; intervention group = 19) due to (a) transitioning to long-term care, (b) being hospitalized without returning to the SAR, (c) not being discharged to home during the project time frame, or (d) a lack of engagement following discharge. There were no statistically significant differences between the excluded and included patients in the comparison group for race ($p = 0.67$), ethnicity (all non-Hispanic), or age ($p = 0.07$). There was a statistically significant difference between genders ($p = 0.01$), with the excluded comparison group being primarily female and the included comparison group being primarily male (see Table O1 and Table O4 in Appendix O). Among the excluded and included patients in the intervention group, there were no statistically significant differences for race ($p = 1.00$), ethnicity ($p = 0.28$), age ($p = 0.66$), or gender ($p = 0.41$) (see Table O2 and Table O4 in Appendix O).

The final sample of 34 patients (comparison group = 27; intervention group = 7) were predominantly older (range 62-96 years, mean = 77.5 years, SD = 8.69), Caucasian (88.2%, n = 30), non-Hispanic (97.1%, n = 33), and male (55.9%, n = 19). All patients spoke English as a first language. There were no statistically significant differences between the intervention and control groups related to gender (p = 0.20), race (p = 0.56), ethnicity (p = 0.21), or age (p = 0.58) (see Table O3 and Table O4 in Appendix O). The BIMS scores in the intervention group were primarily cognitively intact (85.7%, n = 6) at the time of admission (range 10 – 15, mean = 13.6, SD = 2.1) and discharge (range 11- 15, mean 14.1, SD – 1.5) (see Table O5 in Appendix O).

Findings

Of the patients discharged to home during the project, 87.5% (n = 7) were included in the project. One individual was dropped from the project following discharge due to a lack of participation. Initial contact was made with 57.1% (n = 4) of patients within 48 hours of discharge to home. Weekly communication occurred with 42.9% (n = 3) patients or caregivers for a minimum of four weeks (see Table O6 in Appendix O). The other participants were not reached for one or more of the weekly contacts. The weekly communications ranged from 0 to 25 minutes in length. The total CTM-3© scores ranged from 9 to 12 with a mean of 11.29 (SD 1.1). CTM-3© scores for preference ranged from 3 to 4 with a mean score of 3.86 (SD 0.38), for health ranged from 3 to 4 with a mean score of 3.57 (SD 0.54), and for medications from 3 to 4 with a mean score of 3.86 (SD 0.38) (see Table O7 in Appendix O). Within 30 days of discharge to home, there were no readmissions in the intervention group and five readmissions in the comparison group (0% vs. 18.5% respectively, χ^2 (1)= 1.5, p = 0.56) (see Table O8 in Appendix O).

Discussion

Findings

Greater than 80% of patients discharged to home were enrolled in the TCP. Initial contact with patients or caregivers within 48 hours of discharge and weekly communication over the following discharge failed to meet the project objective of 80%. Within 30 days of discharge to home, there were less hospital readmissions in the intervention group than the comparison group, but there was no statistically significant difference between the groups. The intervention group hospital readmission rate was below the state and national benchmarks set by CMS.

Of the discharged patients and caregivers in the intervention group, a majority reported a high level of perceived preparedness to manage health conditions and medications following discharge to home. Additionally, high survey scores were reported for personal preferences being included in the plan of care. These findings support continued engagement of patients and caregivers in a TCP at the time of discharge to promote perceived preparedness and preference. Although these benefits may have been associated with the TCP, additional research with a larger sample size, alternative electronic modalities for communication and follow-up, and increased availability of a care coordinator is needed to explore the most efficient and effective TCP to decrease 30-day rehospitalizations following discharge to home from a SAR center.

The project site may be unable to sustain the TCP developed for this project without adjusting the workflow and demands of current team members, employing additional team members to address gaps in availability, and expanding communication methods available to team members, patients, and caregivers. Despite difficulties in sustaining the TCP, project site benefited from an opportunity to increase interdisciplinary engagement in the discharge process,

increase individualized patient education, and identify barriers to enacting and sustaining the program.

Limitations

There were several limitations to this project due to (a) small sample size and inadequate power to determine statistical significance of readmission rates, (b) competing priorities of team members, (c) difficulty initiating and maintain contact with patients and caregivers following discharge, (d) lack of data for the comparison group, and (e) the impact of the COVID-19 pandemic. With an alpha of .05, 80% power, and effect size 0.211, the project would have needed a total sample size of 178 to assess for statistical significance. Accounting for 10% attrition, the project would have needed to increase the sample size to 196 participants. Considering the sample size necessary for future studies, it may not be feasible to complete this project in similar setting. Other studies have shown decreased rates of hospital readmissions after implementing transition of care programs, but those studies were primarily conducted in an acute care setting and with larger sample sizes (Berkowitz et al., 2013; Englander et al., 2014; Jack et al., 2009; Miller & Roberto, 2017; Wee et al., 2014; Wingard et al., 2017).

Coordination of team member schedules and priorities was a challenge during the project due to competing demands. As a result, there were often delays in communication and inability to attend education sessions. Following discharge, there were difficulties in initiating and maintaining communication with patients or caregivers. The care coordinator made multiple attempts to contact and serve as a liaison between team members, patients, and caregivers, but with limited success. In future studies, these barriers may be improved by employing a care coordinator on a more full-time basis to meet varying schedules of team members, patients, and caregivers.

The project timeline and data collection were also impacted by the challenges associated with the COVID-19 pandemic. The comparison group consisted of older data due to changes in census, acuity, and protocols during the COVID-19 pandemic. Furthermore, data collection related to the discharge process and CTM-3© scores were not available for the comparison group.

The initial cost of project implementation was minimalized by donated hours and resources. Overall financial impact is difficult to assess due to limited access to the SAR's financial records, fluctuations in patient census and acuity, and lack of statistical significance to assess for differences pre and postintervention.

Conclusion

Unplanned hospital readmissions financially burden the healthcare system, and many occur after receiving SAR services. This evidence-based QI project revealed strengths and limitations during implementation providing considerations for future projects aiming to close the gap in research at SAR centers. Advanced practice nurses are uniquely equipped to aid in addressing this issue due to education and experience that has developed their ability to holistically assess and manage comprehensive patient, caregiver, and healthcare system needs. Advanced practice nurses are expected to innovate and improve the healthcare system and quality of patient care while being financial stewards. Successful TCPs in SAR centers may prove to be fiscally beneficial, to individual centers and the larger healthcare system, through a reduction of unplanned hospital readmission rates and avoidance of penalties.

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