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The Effects of Post-discharge Phone Calls on 30-day Readmission Rates in the Older Adult Population

Amy Salyer

University of Kentucky, salyer.amylynn@gmail.com

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The Effects of Post-discharge Phone Calls on 30-day Readmission Rates in the Older Adult
Population

Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing
Practice at the University of Kentucky

By Amy Salyer

Lexington, Kentucky

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Abstract

Objective: The purpose of the project is to develop a specialized and evidenced-based transitional care program including post-discharge phone calls for the older adult population within the University of Kentucky Good Samaritan Hospital system.

Background: Problems in the post-discharge period such as failure to communicate/understand discharge instructions appropriately and lack of timely follow-up appointment with primary care physician lead to increased readmission rates. Utilizing post-discharge phone calls will facilitate prompt communication with the patient after discharge ensuring full understanding of the plan of care.

Aim: Assess the readmission rates of those who received post-discharge phone calls compared to those who did not receive a phone call, assess the sociodemographic variables and co-morbidity index within the population, evaluate the process of post-discharge phone calls in regards to the ability to reach patients within a two-day post-discharge time frame and the amount of time needed for each phone call, and categorize most frequent patient concerns addressed during phone calls in order to improve the discharge process

Design: This was randomized controlled trial in which 30 patients will be randomly assigned into a group that receives a post-discharge phone call (n=15) and a group that does not receive a phone call (n=15).

Methods: This project was a pilot study in which the primary investigator will be devoted to the discharge process and provide follow-up phone calls using a preapproved script within forty-eight hours after discharge.

Results: There were 19 males and 11 females with an average age of 71.1 years old. The most common education level among the groups was high school graduate, encompassing 36.6% for males and 13.3% females. The Fisher exact test statistic was 0.4828, which is not statistically significant at $p < 0.05$. During the phone calls, the most frequent questions were related to medications (33.3%). Finally, the primary investigator was able to contact the patient within 48 hours after discharge 86.6% of the time and each call lasted an average of 20.3 minutes.

Conclusions: In 2015, the 7th Floor of Good Samaritan piloted a program enhancement project titled BOOST. BOOST, Better Outcomes by Optimizing Safe Transitions, is a program with a set of tools designed to improve care transitions from the hospital to home. Adding post-discharge phone calls to this tool kit will be a valuable tool to reduce 30-day readmissions in the older adult population.

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Dedication

I would like to dedicate this work to my family – my husband Stephen, and parents Larry and Debbie. Without their ongoing encouragement, love, and support I could have never accomplished this goal. To my outstanding son Lucas, you inspire me to daily to continue to work hard and pursue all of my dreams. I would also like to thank my friends, colleagues, and coworkers who have been with me every step of the way. Working full-time, pursuing a doctoral degree, and raising a family cannot be done alone, it takes a village. I am truly grateful to be surrounded by a fantastic village.

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Background

Although readmission to the hospital will occur in some cases, researchers have found that preventable readmissions for selected conditions vary significantly from hospital to hospital across the nation (Boccuti & Casillas, 2016). In an attempt to encourage hospitals to focus on these preventable readmission rates, Medicare has developed the Hospital Readmission Reduction Program (HRRP). This program imposes monetary penalties on hospitals with higher rates of Medicare readmissions (Patient Protection and Affordable Care Act, 2010). It is essential to understand what delineates readmission. Medicare operationally defines readmission rates as “unplanned readmission to an acute care hospital in the 30 days after discharge from a hospitalization” (U.S. Centers for Disease Control and Prevention, 2017). The HRRP targets 30-day readmissions of six diagnoses that take place 30-days after the patients’ original hospitalization. These select diagnoses include heart attack, heart failure, pneumonia, chronic obstructive pulmonary disease (COPD), elective hip or knee replacement, and coronary artery bypass graft (CABG).

Even though readmissions were documented before 2008, reducing readmission rates became an increasing priority with the development of the HRRP. Unplanned readmissions are a national problem with the average of hospital-wide unplanned 30-day readmission rate equaling 15.2% (Hospital Care Data, 2018). In comparison, the University of Kentucky hospital-wide unexpected 30-day readmission rate equals 16.2% (Hospital Care Data, 2018). High readmission rates indicate poor healthcare management, but also a financial challenge. The Centers for Medicare and Medicaid Services (CMS) projected in 2017 that the total penalties across all hospitals will total \$528 million, exceeding the previous year by \$108 million (Boccuti & Casillas, 2016).

As Medicare continues to add conditions to this list of readmission rates, it is essential for providers to not only understand the cost placed on the healthcare system, but also the impact on patients' health. Among all hospitals within the United States from January to November 2011, \$41.3 billion was spent on patients readmitted within 30 days of discharge (Hines et al., 2014). Of this \$41.3 billion, \$24 billion was spent on Medicare patients (65 years and older), while \$7.6 billion was expended on Medicaid patients, \$8.1 billion on privately insured patients, and \$1.5 billion uninsured patients (Hines et al., 2014). By examining this data, the older adult population (ages 65 and older) is at the highest risk for readmission. Among these Medicare patients, the three conditions with the most substantial number of 30-day all-cause readmissions were congestive heart failure, septicemia, and pneumonia (Hines et al., 2014).

Since the development of the HRRP, a significant amount of research has focused on various methods to prevent readmissions. Understandingly, hospitals do not want to spend money on penalties from Medicare if it is avoidable. Therefore, focusing on techniques to reduce readmissions have become valuable information. Biese, et al., (2014), Constantino et al., (2013), Harrison et al., (2014), Melton et al., (2012), Soong et al., (2014), Naylor et al., (1999) all indicate that a post-discharge phone call reduces hospital readmissions significantly. Naylor et al. (1999) suggests that a post-discharge phone call decreased readmissions by 17% and Harrison et al., indicates that patients' who received a post-discharge phone call were 29% less likely to be readmitted. While some research focuses on post-discharge phone calls as a single intervention, others include post-discharge phone call as part of a toolkit that assists in the reduction of readmissions.

The purpose of this project is to develop a specialized and evidenced-based transitional care program including post-discharge phone calls for the older adult population within the

University of Kentucky Good Samaritan Hospital system. Utilizing post-discharge phone calls will facilitate prompt communication with the patient after discharge ensuring full understanding of the plan of care. Specifically, this project will focus on the following objectives:

Objective 1: Assess the readmission rates of those who received post-discharge phone calls compared to those who did not receive a phone call

Objective 2: Assess the sociodemographic variables and co-morbidity index within 30-day readmissions

Objective 3: Evaluate the process of post-discharge phone calls in regards to the ability to reach patients within a two-day post-discharge time frame and the amount of time needed for each phone call

Objective 4: Categorize most frequent patient concerns addressed during phone calls in order to improve the discharge process.

Theoretical and Conceptual Framework

Discharging patients from the hospital is not a simple, straightforward process. It is a complex, multidimensional process that requires collaboration amongst the interdisciplinary team. Meleis Transition Theory is a conceptualization of the transition that reveals a “holistic understanding of the conditions that influence the transition experience for patients” (Shumacher and Meleis, 1994). This theory focuses on understanding the transition experience itself and the many factors that may influence this process. It is important to recognize that nursing care and support is needed throughout the entire transition process and not only at the onset of the transition; however, this transition process not only requires nursing care, but also care from the entire multidisciplinary team. Rennke and Ranji (2015) suggest that patient engagement, use of a dedicated transitions provider, medication management, facilitation of communication with

outpatient providers, and patient outreach are the key factors in facilitating successful transitions. Figure 1 shows how all of these factors influence this process of a successful transition.

Review of Literature

Since the development of the HRRP, a significant amount of research has focused on various methods to prevent readmissions. Understandingly, hospitals do not want to spend money on penalties from Medicare if it is avoidable. Therefore, focusing on techniques to reduce readmissions have become valuable information. Biese, et al., (2014), Constantino et al., (2013), Harrison et al., (2014), Melton et al., (2012), Soong et al., (2014), Naylor et al., (1999) all indicate that a post-discharge phone call reduces hospital readmissions significantly. Naylor et al. (1999) suggests that a post-discharge phone call decreased readmissions by 17% and Harrison et al., indicates that patients' who received a post-discharge phone call were 29% less likely to be readmitted. While some research focuses on post-discharge phone calls as a single intervention, others include post-discharge phone call as part of a toolkit that assists in the reduction of readmissions. Hansen et al., (2013) shows that the Better Outcomes for Older Adults through Safe Transitions (BOOST) toolkit reduces readmission rates by 2%. Watkins et al., (2012) demonstrates the use of a hospital to home transition program to decrease hospital readmissions by 61% for the high-risk population. Daly et al., (2005) educates families with a disease management program which shows fewer days, on average, of re-hospitalization. Finally, Adams et al., (2014) reveals that the Re-Engineered Discharge (RED) toolkit had an overall reduction of readmissions at baseline of 44%. Although each of these interventions is a kit of multiple tools, each one includes a post-discharge phone call as part of the program. Multiple researchers established the time of the post-discharge phone call is essential. Harrison et al. (2011) shows that patients who did not receive a phone call within 14 days of discharge were 1.3 times more

likely to be readmitted and readmission rates are at a peak two-three days after discharge. Constantino et al. (2013) shows a reduction of 2.2% in the intervention group and reveals that the closer the intervention to the date of the discharge reveals a more significant reduction in many admissions. Soong et al. (2014) divulges that post-discharge calls within 72 hours positively affect the Care Transition Measure (CTM-3) which reports the patients' experience in the transition of care. Misky et al. (2010) explains that patients' who did not follow up with a primary care provider promptly after initial discharge were ten times more likely to be readmitted. Ultimately the research indicates that communication with the patient in a timely fashion after discharge will reduce the rate of readmissions. Research also suggests that the phone calls may be completed by a variety of providers within the interdisciplinary team. Bronstein et al. (2015) displays the importance social workers can play in the role of post-discharge phone calls. Carter et al., (2015), Sanchez et al., (2015), and Adams et al. (2014) exhibit the role of the pharmacist in post-discharge phone calls to verify understanding of medications. Although most of the research used registered nurses as the phone caller, this research indicates that communication from all parts of the interdisciplinary team is important.

Agency Description

Setting

The analysis was conducted at Good Samaritan Hospital on the 7th floor Internal Medicine Acute Care Service Line. This unit has a total of 30 beds with seven Registered Nurses, two Nursing Care Assistants, one Social Worker, one Patient Care Facilitator, and one Unit Manger caring for the patients. As part of the University of Kentucky, Good Samaritan Hospital is dedicated to the health of the people of Kentucky and provides the most advance patient care.

Target Population

The target population consist of older adults (65 years of age and older) on the 7th floor at Good Samaritan Hospital within the Internal Medicine Service line. These patients may suffer from multiple comorbidities and have frequent readmissions.

Organizations Mission, Goals, and Strategic Plan

Similar to the Essentials of Doctoral Education for Advanced Nursing Practice, the University of Kentucky Healthcare system is committed to the following three pillars of academic health care: research, education and clinical care. In 2015, the 7th Floor of Good Samaritan piloted a program enhancement project titled BOOST. BOOST, Better Outcomes by Optimizing Safe Transitions, is a program with a set of tools designed to improve care transitions from the hospital to home. This pilot program encompasses a variety of essentials for Advanced Nursing Practice including quality improvement, systems thinking, and inter-professional collaboration for improving patient and population health outcomes.

Description of Stakeholders

The following hospital leadership members are key internal stakeholders for this project: Chief Compliance Officer, R. Brett Short, Chief Nurse Executive, Gwen Moreland, Vice President for Hospital Operations, Colleen H. Swartz, DNP, MSN, MBA, RN, NEA-BC, Chief Financial Officer, Craig Collins, and Chief Administrative Officer, Angela Lang. Physicians within the Internal Medicine service line are key stakeholders. Dr. Celia Castellanos, a Clinical Instructor of Medicine at the University of Kentucky is the Physician Lead for the Internal Medicine Department at Good Samaritan. Case Management works closely with the interdisciplinary team to facilitate smooth transitions for the patient and families. Pearl Buehner and Ranessa Wilson were important contacts and stakeholders for this project. Finally, staff

nurses are a key part of the interdisciplinary team and play a vital role in assisting with the discharge process.

Site-specific Facilitators and Barriers to Implementation

The case managers played a vital role in recognizing who was being discharged each day. Meeting with them several times a week allowed me to identify those who were being discharged and obtain informed consent prior to discharge; however, sample size was limited based on admitting service line and hospital size.

One barrier that could occur with this project is the lack of belief that evidence-based practice will result in more positive outcomes. Some staff members may find it a challenge to have another person to communicate the plan of care with. Nurses, patient facilitators, and managers may be resistant to change and feel a loss of autonomy in this discharge process.

Project Design

This study conducted by the primary investigator (PI) examines the outcome of post-discharge phone calls on the 30-day readmission rates among the older adult population on the 7th floor at Good Samaritan between January 2019 and April 2019. This was a randomized control trial in which each of the 30 subjects were randomly assigned into a group that receives a post-discharge phone call (n=15) and a group that does not receive a phone call (n=15).

Project Methods

Procedure

The application for project approval was submitted to the University of Kentucky Institutional Review Board (IRB). Approval was granted January 2019 (Appendix A). Between January 2019 and April 2019, thirty five patients were deemed eligible to participate; however, five patients were removed due to not meeting the inclusion criteria. Inclusion criteria was

subjects that are 65 years of age and older, able to read and speak English, have multiple comorbidities, and are admitted within the Internal Medicine service line. Exclusion criteria was subjects who are being discharged to another facility such as LTACH, nursing home, or hospice, subjects who are homeless or do not have a telephone, those who leave against medical advice, subjects admitted under another service line, and those under 65 years of age.

Eligible patients were identified by a discharged patient report generated from the medical center's electronic health record (EHR) admission, discharge and transfer (ADT) system each weekday morning. During the morning interdisciplinary rounds, the patient care facilitator (who was not involved in this study) approached subjects who have planned discharges within 48 hours and meet the inclusion criteria, about participation in this study. If the patient was agreeable, the PI would meet with the patient in their room at Good Samaritan within twenty-four hours prior to discharge. At that time, the PI obtained informed consent and answered any questions the subject had.

Within forty eight hours of discharge the PI contacted those patients who were randomized into the intervention group via telephone to discuss discharge diagnosis, condition since discharge, medications, clarification of follow-up appointments, and post-discharge home health services (Appendix B). Prior to the phone call, the PI would review the patients' electronic health record in order to document marital status, ethnicity, age, level of education, Charlson Comorbidity Index, and admitting diagnosis (Appendix C). The Charlson Comorbidity Index is a method of categorizing comorbidities of patients based on the ICD diagnosis codes found within the chart. Each comorbidity category has a designated score (from 1 to 6), based on the adjusted risk of mortality or resource use, and the sum of all the weights results in a single comorbidity score for a patient (National Institute of Health, 2019).. A score of zero indicates

that no comorbidities were found. The higher the score, the more likely the predicted outcome will result in mortality or higher resource use.

Data Analysis

Descriptive analysis will be used to describe the demographics of the sample using means with standard deviations for interval/ratio data and frequencies with percentages for nominal/ordinal data. The differences in demographic variables between those who received phone calls (experimental group) and those who do not (control group) will be compared using chi-square tests for nominal/ordinal data and independent sample t-tests for the interval/ratio data. A p-value of <0.05 was considered significant for purposes of this study.

Results

Tables 1-4 describe the patient sample utilized for this project. The age range was from 65 years old to 88 years old. There were 19 males and 11 females with the average age being 71.7 years old. The most common educational level among the groups was high school graduate, encompassing 36.6% for males and 13.3% for females. The most common admitting diagnosis (Table 5) for all subjects was respiratory failure, pancreatitis, and end-stage renal disease each representing 16.7%. The other diagnosis included COPD (13.3%), Acute Kidney Injury (10%), Pneumonia and Cellulitis (6.7%), and Atrial Fibrillation, Foot ulcer, Dysuria, and GI Bleed (3.3%). The highest comorbidity score was 10, but only represented 3.3% of the study's population. 33.3% had a comorbidity score of 3 and 5.

Randomization of the groups resulted in 36.6% males and 13.3% females who received the post-discharge phone calls, while the control group consisted of 26.6% males and 23.3% females. The PI was able to contact patients within 48 hours of discharge 86.6% of the time and each call lasted an average of 20.3 minutes. Because of the small sample size, the Fisher's exact

test was used to determine if post-discharge phone calls were significant. The Fisher exact test statistic values was 0.4828 which is not statistically significant at $p < 0.05$. The two patients readmitted during this study were both Caucasian males with a comorbidity score of 4 and 5.

During the phone calls the most frequent questions were related to medications (33.3%) (Table 7). This was followed by current symptoms at 28%, follow-up appointments at 23% and admitting diagnosis at 16%.

Discussion

The purpose of this project had four major objectives. First, assess the readmission rates of those who received post-discharge phone calls compared to those who did not receive a phone call. The Fisher's exact test was used to determine if post-discharge phone calls were significant. The Fisher exact test statistic values was 0.4828 which was not statistically significant at $p < 0.05$. By only focusing on readmissions at Good Samaritan, there may have been readmissions at other facilities that could have altered this data.

Secondly, this project assessed the sociodemographic variables and co-morbidity index within 30-day readmissions. There were 19 males and 11 females with the average age being 71.7 years old. The most common educational level among the groups was high school graduate, encompassing 36.6% for males and 13.3% for females. In regards to ethnicity, the majority were Caucasian with 40% males and 23.3% females. This sample size was small and limited to only one unit within a small hospital.

The third objective was to evaluate the process of post-discharge phone calls in regards to the ability to reach patients within a two-day post-discharge time frame and the amount of time needed for each phone call. During this project, the PI was able to contact patients within 48

hours of discharge 86.6% of the time. This timing could be improved by having a dedicated registered nurse to complete these phone calls daily.

Finally, this study was able to categorize most frequent patient concerns addressed during phone calls in order to improve the discharge process. Although the concerns were fairly evenly distributed, the main concern was medication reconciliation (33%) (Table 7). Recognizing these most common concerns is a valuable piece of information in improving the discharge process.

Limitations

This study has several limitations. First the readmissions were only followed at Good Samaritan hospital; therefore, there was no ability to assess if patients were readmitted to another facility. Being unable to identify this data could have altered the results of 30 day readmissions. Nonworking phone numbers and an inability to reach patients is also a challenge when completing phone calls. Three of the five patients excluded from this subject were due to inability to reach the patient via phone.

Two additional limitations within the study were the length of time allowed for the study and small sample size. One way to improve the sample size may be to include other units and service lines. By focusing on only one floor, the PI was limited to a small number of patients willing to enroll in the study. Also, allowing more time, perhaps one year versus three months, may allow for more data collection time and further assessment of readmissions.

Implications for future practice

Although data was limited by small sample size, there are several factors that may be further addressed in future research. Adding a Transitional Care Nurse to the interdisciplinary team may be one way to facilitate post-discharge phone calls and prompt, consistent communication with patients. This person would be solely devoted to following patients during

their hospital stay and complete the follow-up phone calls upon discharge. This transitional nurse may also be able to continually educate the patients on medications, admission diagnosis, follow up appointments, and current symptoms throughout the hospital stay. This may eliminate these most common concerns during the discharge process. A cost benefit analysis may be beneficial to determine the financial implications of this position. Utilizing the average time needed for each phone call found in this study and delineating the salary of adding another RN to the budget would be valuable information to assess. This could be directly compared to the cost of each of the two readmissions to show that adding this position would be worth the cost.

Understanding the socioeconomic background and patients concerns may help design better educational tools and processes at the time of discharge. Future research may include changes in the discharge process and how that may affect readmissions. Improving this discharge process may improve patient satisfaction which could be another important factor to measure. This could be quantified by comparing the hospitals annual satisfaction scores to those who received the post-discharge phone calls compared to those who did not receive the calls.

Conclusion

This project was designed to evaluate post-discharge phone calls and readmission rates within the older adult population on the 7th floor at Good Samaritan Hospital. While this study did not have any statistically significant results to report, there are several important elements that may be addressed currently and in future research. Within the current discharge process, it is important to focus on medication reconciliation and current symptoms as these were the most common concerns discussed during the phone calls. For future research, it would be essential to have a larger sample size and longer time frame for data collection. Additionally, one might consider expanding evaluation of readmissions to other hospitals.

Hospital discharge has been defined as “a systemic problem that can be characterized as a dangerous situation in which latent conditions exist such that sharp end individuals are set up to fail” (Anthony et al., 2005). Understanding this process is flawed warrants an investigation for a change in practice. A review of the literature suggests that post-discharge communication plays a vital role in reducing 30-day hospital readmissions within the older adult population. Intervening with follow-up phone calls early after release from the hospital allows the patient to ask health care providers questions and provides an opportunity for the provider to evaluate the patient’s understanding of the discharge plan. While financial concerns are important, high readmission rates also indicate that these chronic conditions are not well managed. Managing these chronic diseases is a capacity in which healthcare providers can play a vital role in affecting the readmission rates.

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Appendix A:



XP Initial Review

Approval Ends:
1/17/2020

IRB Number:
45470

TO: Amy Salyer, BSN
Trauma and Acute Care Surgery
PI phone #: 859-559-6213

PI email: amy.salyer@uky.edu

FROM: Chairperson/Vice Chairperson
Medical Institutional Review Board (IRB)

SUBJECT: Approval of Protocol

DATE: 1/18/2019

On 1/18/2019, the Medical Institutional Review Board approved your protocol entitled:

The Effect of Post-discharge Phone Calls in Reducing 30-day Readmission Rates Among the Older Adult Population

Approval is effective from 1/18/2019 until 1/17/2020 and extends to any consent/assent form, cover letter, and/or phone script. If applicable, the IRB approved consent/assent document(s) to be used when enrolling subjects can be found in the "All Attachments" menu item of your E-IRB application. [Note, subjects can only be enrolled using consent/assent forms which have a valid "IRB Approval" stamp unless special waiver has been obtained from the IRB.] Prior to the end of this period, you will be sent a Continuation Review Report Form which must be completed and submitted to the Office of Research Integrity so that the protocol can be reviewed and approved for the next period.

In implementing the research activities, you are responsible for complying with IRB decisions, conditions and requirements. The research procedures should be implemented as approved in the IRB protocol. It is the principal investigator's responsibility to ensure any changes planned for the research are submitted for review and approval by the IRB prior to implementation. Protocol changes made without prior IRB approval to eliminate apparent hazards to the subject(s) should be reported in writing immediately to the IRB. Furthermore, discontinuing a study or completion of a study is considered a change in the protocol's status and therefore the IRB should be promptly notified in writing.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "[PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research](#)" available in the online Office of Research Integrity's [IRB Survival Handbook](#). Additional information regarding IRB review, federal regulations, and institutional policies may be found through [ORI's web site](#). If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at 859-257-9428.

Appendix B: Post-discharge Phone Call Documentation

Patient name: _____

Caregiver(s) name(s): _____

Relationship to patient: _____

Notes: _____

Discharge date: _____

Principal discharge diagnosis: _____

Interpreter needed? Y N Language/Dialect: _____

.....

Prior to phone call:

Review:

- Health history
- Medicine lists for consistency
- Medicine list for appropriate dosing, drug-drug and drug-food interactions, and major side effects
- Contact sheet
- DE notes
- Discharge summary and AHCP

Call Completed: Y N

With whom (patient, caregiver, both): _____

Number of hours between discharge and phone call: _____

Phone Call Attempts

<p>Phone Call #1: Date & Time:_____ Reached: Yes/No</p> <p style="padding-left: 40px;">If No (circle one): ans. machine/no answer/not home/declined/busy/rescheduled/other:</p> <p>Phone Call #2: Date & Time:_____ Reached: Yes/No</p> <p style="padding-left: 40px;">If No (circle one): ans. machine/no answer/not home/declined/busy/rescheduled/other:</p>

A. Diagnosis and Health Status

Ask patient about his or her diagnosis and comorbidities

- Patient confirmed understanding
- Further instruction was needed

If primary condition has worsened:

What, if any, actions had the patient taken?

Returned to see his/her clinician (name): _____
Called/contacted his/her clinician (name): _____
Gone to the ER/urgent care (specify): _____
Gone to another hospital/MD (name): _____
Spoken with visiting nurse (name): _____
Other: _____

If new problem since discharge:

Had the patient:

Contacted or seen clinician? (name): _____
Gone to the ER/urgent care? (specify): _____
Gone to another hospital/MD? (name): _____
Spoken with visiting nurse? (name): _____
Other?: _____

B. Medicines

Document any medicines patient is taking that are **NOT** on AHCP and discharge summary:

Document **problems** with medicines that are on the AHCP and discharge summary (e.g., has not obtained, is not taking correctly, has concerns, including side effects):

Medicine 1: _____

Problem: _____

Intentional nonadherence
Inadvertent nonadherence
System/provider error

Medicine 2: _____

Problem: _____

Intentional nonadherence
Inadvertent nonadherence
System/provider error

Medicine 3: _____

Problem: _____

Intentional nonadherence
Inadvertent nonadherence
System/provider error

C. Clarification of Appointments

Potential barriers to attendance identified: Y N

List: _____

Potential solutions/resources identified: Y N

List: _____

Alternative plan made: Y N Details: _____

D. Coordination of Post-discharge Home Services (if applicable)

Document any post-discharge services that were arranged prior to discharge and if these services were being used/in place.

E. Problems

Did patient/caregiver know what constituted an emergency and what to do if a non-emergent problem arose?

Yes No

If no, document source of confusion:

F. Additional Notes

G. Time

Time for reviewing information prior to phone call: _____

Time for missed calls/attempts: _____

Time for initial phone call: _____

Time for speaking with family or caregivers: _____

Total time spent: _____

Appendix C: Data Collection Tool and Charlson Comorbidity Index

ID#: _____

Date of data collection: _____

Date of hospital admission: _____

Unit: _____

Sociodemographic Characteristics:

1. Sex

0: _____ Male 1: _____ Female

2. Age

_____ years old

3. Marital status

0: _____ Single

1: _____ Married

2: _____ Divorced/Separated

3: _____ Widowed

4. Ethnicity:

1: _____ Black or African American

2: _____ White or Caucasian

3: _____ Asian

4: _____ Hispanic or Latino

5: _____ American Indian

6: _____ Native Hawaiian or other Pacific Islander

7: _____ Other

5. What is the highest level of education?

1: _____ Less than high school graduate

2: _____ High school graduate

3: _____ Some post high school education

4: _____ Some college

5: _____ Associate degree

6: _____ Bachelor's degree

7: _____ Master's degree

8: _____ Professional degree

9: _____ Doctoral degree

6. Height and weight

_____lbs

_____cm

7. Medical diagnosis upon admission?

8. Comorbidities: Charlson Comorbidity Index

Does the patient have?			Comorbidity Index
Myocardial Infarction	Yes	No	Score = 1
Congestive Heart Failure	Yes	No	Score = 1
Peripheral vascular disease	Yes	No	Score = 1
Cerebrovascular disease	Yes	No	Score = 1
Dementia	Yes	No	Score = 1
Chronic pulmonary disease	Yes	No	Score = 1
Connective tissue disease	Yes	No	Score = 1
Stomach or peptic ulcer disease	Yes	No	Score = 1
Hemiplegia	Yes	No	Score = 2
Diabetes	Yes	No	Score = 1
If yes, has diabetes caused any organ damage	Yes	No	Score = 2
Moderate to severe renal disease	Yes	No	Score = 2
Mild liver disease	Yes	No	Score = 1
Cirrhosis or serious liver damage	Yes	No	Score = 3
AIDS	Yes	No	Score = 6
Leukemia	Yes	No	Score = 2
Lymphoma	Yes	No	Score = 2
Cancer (other than skin cancer, or lymphoma within the last 5 years)	Yes	No	Score = 2
If yes, has the cancer spread or metastasized to other parts of the body?	Yes	No	Score = 6

9. Was the patient readmitted within 30 days?

_____yes _____no

10. Did the patient receive the phone call within 48 hours of discharge?

_____yes _____no

Figure 1: Conceptual Framework

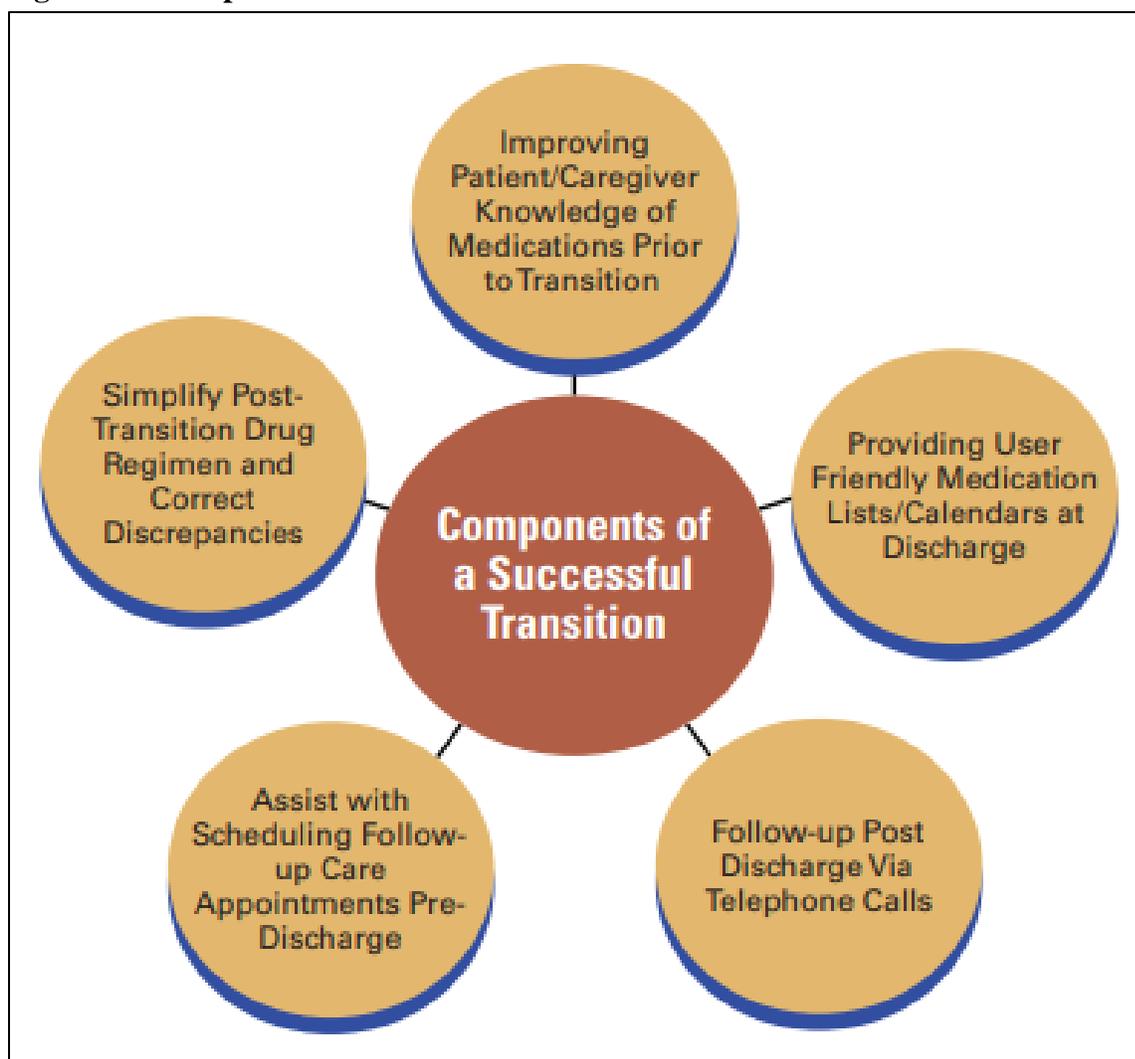


Table 1: Ethnicity

Ethnicity	Male	Female
Black or African American	4 (13.3%)	4 (13.3%)
White or Caucasian	12 (40%)	7 (23.3%)
Asian	0	0
Hispanic American Indian	3 (10%)	0
Native Hawaiian or Pacific Islander	0	0
Other	0	0

Table 2: Age of Sample

Age of Sample	Male	Female
60-65	5 (16.6%)	3 (10%)
66-70	8 (26.6%)	4 (13.3%)
71-75	0	0
76-80	2 (6.6%)	2 (6.6%)
81-85	2 (6.6%)	0
86-90	2 (6.6%)	2 (6.6%)

Table 3: Education

Highest level of education	Male	Female
Less than high school	2 (6.6%)	3 (10%)
High school graduate	11 (36.6%)	4 (13.3%)
Some post high school education	6 (20%)	1 (3.3%)
Some college	0	0
Associate's degree	1 (3.3%)	0
Bachelor's degree	1 (3.3%)	1 (3.3%)
Master's degree	0	0
Professional degree	0	0
Doctoral degree	0	0

Table 4: Marital Status

Marital Status	Male	Female
Single	4 (13.3%)	2 (6.6%)
Married	12 (40%)	2 (6.6%)
Divorced	0	2 (6.6%)
Widowed	3 (10%)	5 (16.6%)

Figure 2: Admitting Diagnosis

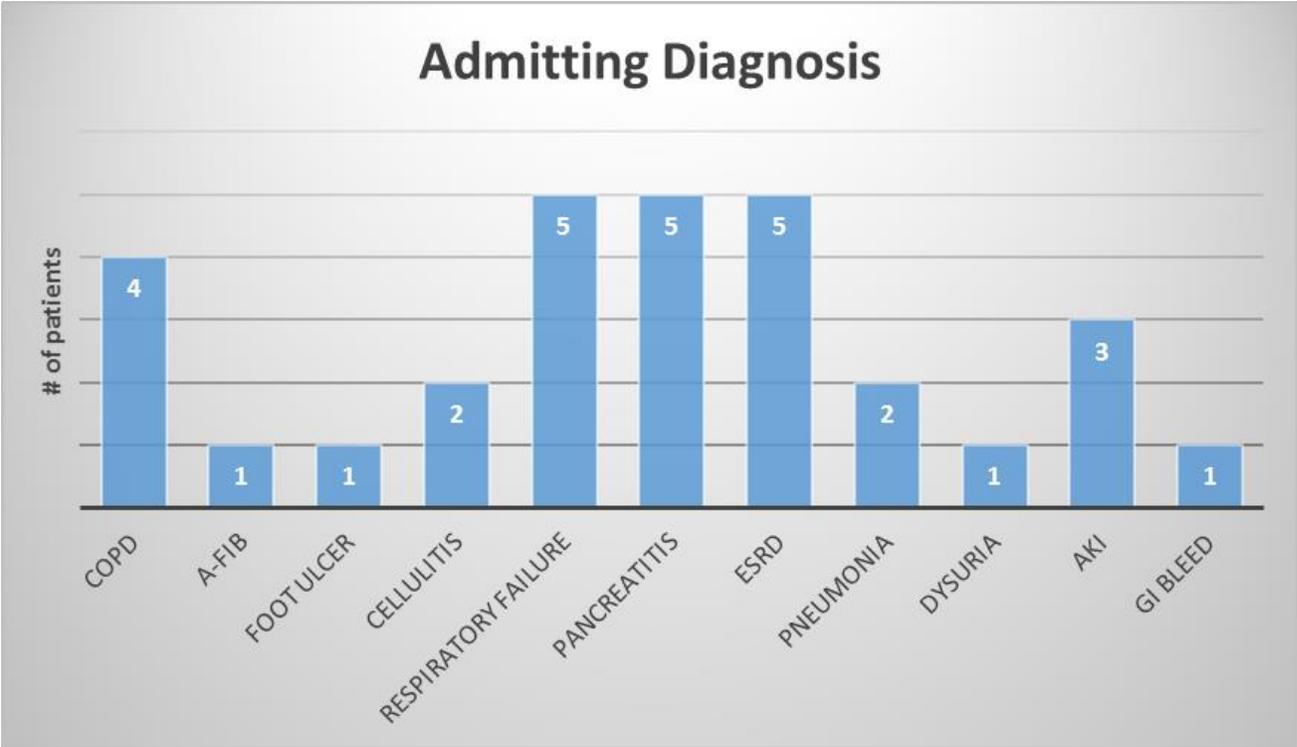


Figure 3: Charlson Comorbidity Score

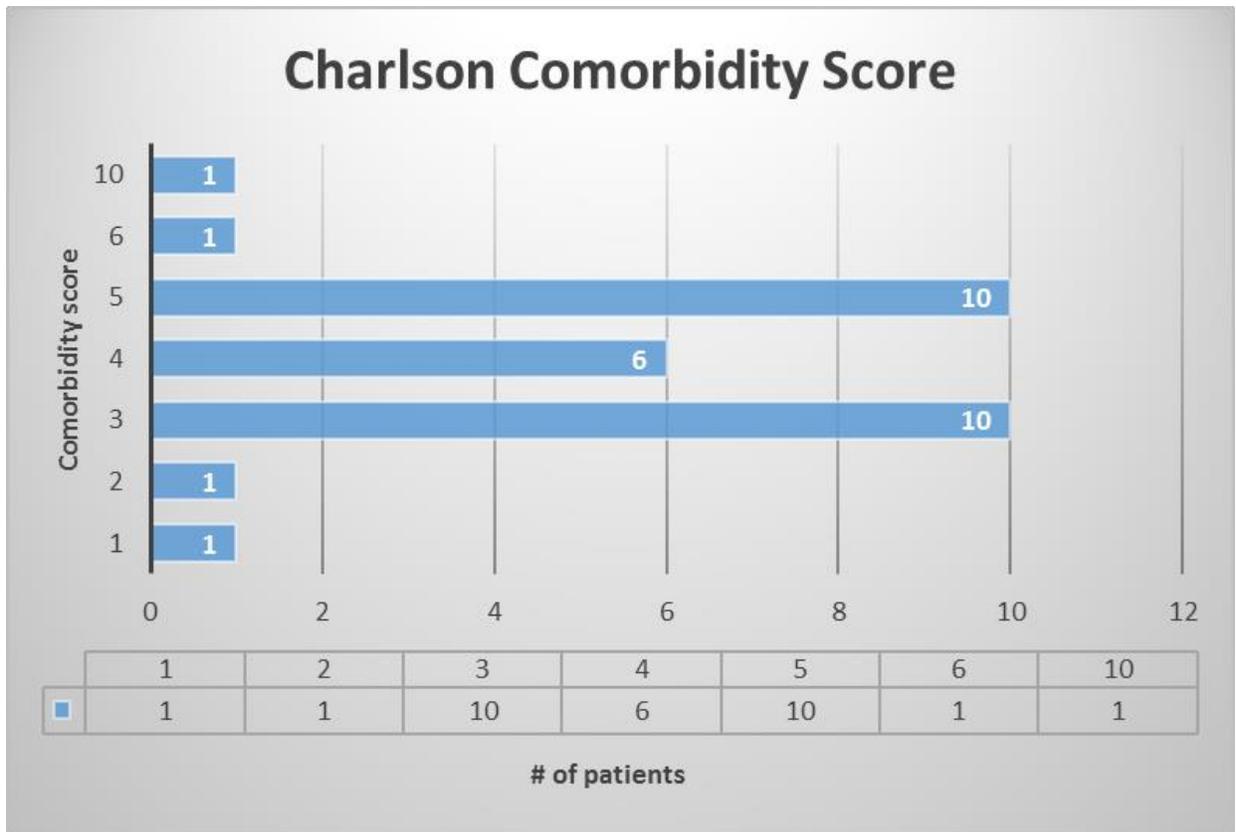


Figure 4: Phone Call Concerns

