**PICO Question**: Among acutely ill patients being discharged from a hospital, are hospital readmission rates higher when discharge location follows physical therapist recommendations or when discharge location is inconsistent with physical therapist recommendations?

**Introduction**

Health care costs are rising exponentially, directing the attention of policy makers to evaluate our current health care system. The US government reported in 2005 that Medicare expenditures for potentially preventable rehospitalizations was as high as $12 billion per year.1,2 It has recently been reported that costs for patients who are rehospitalized within 30 days of discharge may be as high as $44 billion a year for Medicare and other patients’ total hospital costs.2 Reducing the number of patients returning to the hospital after discharge would greatly cut health care costs in our country.1,2 To address high readmission rates, the Patient Protection and Affordable Care Act of 2010 (PPACA) implemented the Hospital Readmissions Reduction Program.1,2 The program aims to reduce payments for preventable risk-adjusted readmissions for patients with principle diagnoses of pneumonia, heart attack, or hospital-acquired conditions.1 Hospitals are fined through Medicare reimbursement cuts.2 From 2013 to 2019 Medicare is projecting to save $188 billion.1 Emphasis on thorough, comprehensive discharge planning has gained popularity over recent years in an attempt to reduce readmission rates to hospitals.

It has been found that nearly half of rehospitalizations could have been avoided if appropriate discharge planning and services were provided3,demonstrating a clear need for development and implementation of effective discharge planning. Discharge planning is “the development of a discharge plan for follow-up services for a patient prior to leaving the hospital with the aim of containing costs and improving patient outcomes”.5(p 694) In the United States, formal discharge planning is often practiced as a collaborative, multidisciplinary effort that is led by a case manager.5 Other disciplines that are involved include nurses, social workers, physical therapists, occupational therapists, and physicians.5 The multidisciplinary approach to discharge planning is important to ensure that all cognitive, physical, social, financial, environmental and accessibility factors are considered for each patient, especially those patients that are identified as having an increased risk for poor outcomes.5

Physical therapists in the acute environment play an important role in the multidisciplinary discharge planning process5, but fairly little research has been done relating to the specific role they play.7 Physical therapists make decisions that involve judgments about a patient’s functional abilities and make recommendations for the appropriate level of care following discharge that will lead to the patient attaining their optimal function.5,6 Discharge planning is within a physical therapist’s scope of practice according to the Guide to Physical Therapist Practice.5,7,8 The Guide states that “In consultation with appropriate individuals, the physical therapist plans for discharge and provides appropriate follow-up or referral”.8(p46) Discharge planning for the acutely ill patient is a highly complex process that involves synthesis of a multitude of factors.5-7 Making appropriate discharge recommendations is an important skill for an acute care physical therapist to ensure that patients are being discharged when they are ready and to an environment best suits them.

 The purpose of this review is to determine if hospital readmission rates are higher when discharge location for acutely ill patients being discharged from a hospital follows physical therapist recommendations or when discharge location is inconsistent with physical therapist recommendations. The results of this clinical question will help to emphasize the importance of physical therapists in discharge planning, the value of physical therapy services to hospitals and insurance companies, and the need for comprehensive discharge planning being integrated and emphasized throughout physical therapy curriculum. The results could also support the further investigation of the physical therapist’s role in discharge planning and help to establish physical therapist competencies in discharge planning.

**Summary of Current Evidence**

 A retrospective study by Smith et al5 examined how often physical therapist recommendations for discharge were implemented. The study also looked at the relationship between readmission rates when physical therapist recommendations were not followed in order to validate the role that the acute care physical therapist plays in discharge planning. Authors analyzed patient data, discharge recommendation, discharge location, reason for mismatch between recommendation and location if applicable, and readmission rate for 762 patients from medical, surgical, neurological, and trauma/orthopedic services.5 It was found that 17% of discharge locations did not match physical therapist recommendations. The majority of these mismatches occurred in patients who were discharged home when they did not receive recommended home therapy.5 Holding all other variables constant, a patient was 2.9 times more likely to be readmitted when the therapist discharge recommendation was not implemented compared with patients whose discharge location matched physical therapist recommendations.5

 Two studies examined the discharge planning process of physical therapists. The first study by Kasinskas et al7 surveyed physical therapists employed at 28 various hospitals in Connecticut. It was found that discharge planners and physicians most often initiated the discharge planning process. Physical therapists reported that they recommended home with home care physical therapy, sub-acute rehabilitation, acute rehabilitation, outpatient physical therapy, long-term care and home with specialized outpatient programs such as cardiac or pulmonary rehabilitation.7 The ability to transfer and ambulate, having a person at home to provide assistance and the patient’s cognitive status were the three most common factors in determining discharge recommendations. Other factors included the patient’s home environment and accessibility, prior functional status, medical or surgical diagnosis and the patient’s community resources.7

 The second study examining the discharge planning process was by Jette et al.6 Interviews with physical and occupational therapists were conducted and data was analyzed. A theoretical model was developed for discharge destination recommendations from the acute care setting. The model can be described as follows: In determining recommendations for discharge placement, a therapist examines patients and collects information about their functioning and disability, wants and needs, ability to participate, and the context in which they live their lives. This information is synthesized and considered in light of the therapist’s experience to derive an initial impression of what the recommendation should be based on the examination. The therapist then considers the effects that regulations imposed by the health care system place on options for recommendations and shares opinions with other team members before deriving a final recommendation. Physical and occupational therapists use a patient’s level of functioning and disability as the core dimension in their initial decision-making.6 Both Kasinskas et al7 and Jette et al6 demonstrated the complexity of factors that physical therapists consider when making discharge recommendations and identified the most important of these factors.

 Two studies considered the relationship between discharge destination, patient characteristics and hospital readmission. The first study by Lockery et al3 prospectively followed a selected sample population and analyzed patient data to examine how environmental and psychosocial factors influence readmission rates. Of this sample, 17% were readmitted within 30 days of discharge. No significant relationship was found between rehospitalizations and socioeconomic status, martial status, functional capacity, or level of depression before hospitalization. Surprisingly it was also seen that patient involvement in the discharge planning process did not have a significant effect on rehospitalizations rates. It was observed that 22.5% of patients discharged to their home were readmitted whereas only 9.3% of patients discharged to a facility were readmitted. Being unmarried, from a higher socioeconomic class and having a lower functional capacity had a combined direct effect on discharge destination, which was found to have an indirect effect on rehospitalizations.3

 The second study by Naylor et al4 evaluated the effects of a comprehensive discharge planning protocol implemented by nurse specialists through a randomized control trial. Functional and mental status, perception of health, self-esteem and patient affect were used when investigating the protocol. The comprehensive discharge planning protocol involved individualized initial and ongoing assessments of discharge planning needs of a patient and their caregiver, collaboration between patient, caregiver, physician, primary nurse and other members of the health care team, validation of patient and caregiver education, coordination of the discharge plan throughout the patient’s hospitalization through two weeks post-discharge, and ongoing evaluation of the effectiveness of the plan. Discharge planning was implemented by trained nurse specialists4, but Kasinskas et al7 and Jette et al6 demonstrated the capabilities of physical therapists in the discharge planning process making this applicable to the clinical question at hand. Findings of the study support the need for more comprehensive discharge planning that is designed for the elderly to improve patient outcomes after hospital discharge and to save costs.4

 Three studies were reviewed that examined the use of outcome measures in making discharge recommendations. Both Ekstrand et al9 and Oldmeadow et al10 studies were cohort studies that evaluated the respective outcome measure after discharge destination data was collected. Ekstrand et al found that in patients 50 years and older who experience their first stroke, that the Physiotherapy Clinical Outcome Variables Scale (COVS) measures improvements and can predict length of stay, discharge destination and future home facility at 3 months. Oldmeadow et al10 looked at the relationship between discharge rates and patients’ functional mobility levels measured using the Iowa Level of Assistance Scale at discharge within the context of shorter hospital lengths of stay in patients post total knee replacements. It was found that the average length of stay was shorter than for the previous year and that there was a high rate of discharge to rehabilitation facilities (64% of patients). Patients that were discharged home had achieved independence in functional mobility and were medically stable. Of the patients that were discharged to rehabilitation, 20% were functionally independent, 16% required supervision and 28% required assistance10, demonstrating potential overutilization of rehabilitation resources.

 The final study that examined the relationship between an outcome measure and discharge destination was by Unsworth.11 Using a cross-sectional design, this study mathematically modeled the variables that have the greatest impact on patient discharge destination to assist clinicians to determine where these patients should be discharged. The Functional Independence Measure (FIM) and Rehabilitation Institute of Chicago Functional Assessment Scale (RICFAS) were analyzed to determine the most accurate combination of predictive items. Data analysis revealed that for lower extremity orthopedic patients, measuring patient performance on stairs, bed transfers and eating using the adult FIM is an accurate way to predict discharge destination. For stroke patients, the use of adult FIM data plus the inclusion of instrumental ADLs, premorbid housing, premorbid cognitive status and social situation improved prediction rates.11

**Discussion/Conclusion**

A thorough understanding of effective discharge planning by health care professionals can greatly decrease unnecessary health care costs and improve quality of patient care. While a multidisciplinary approach to discharge planning is widely accepted5, the role that a physical therapist has in this process is underreported.7 The clinical question of whether or not hospital readmission rates are higher when discharge location is inconsistent with physical therapist recommendations was directly addressed in the Smith et al study where it was found that a patient was 2.9 times more likely to be readmitted to the hospital when therapist discharge recommendations were not implemented.5 These conclusions were drawn using data from one large hospital. With expansion of the sample population these results would be of higher quality. However, these results strongly establish a need for physical therapist involvement in the discharge planning process5 and are made stronger when considered with the other articles reviewed.

Kasinskas et al7 and Jette et al6 provided a combined evaluation of a physical therapist’s approach to the discharge planning process supporting the ability of a physical therapist to make appropriate recommendations. Together, both studies demonstrated that physical therapists consider a multitude of factors when making a discharge recommendation and also consider a wide variety of settings in which to recommend a patient be discharged to.6,7 A physical therapist’s multi-dimensional approach to patient care3,6,7 matches the comprehensive discharge planning that Naylor et al found to be effective at reducing hospital readmission rates.4 This approach to discharge planning is one that can direct health care professionals to consider the patient’s physical wellness and functioning, the patient’s self and the patient’s life context.

Findings by Smith et al that physical therapists make effective discharge recommendations5 are also supported by Oldsmeadow et al who showed a potential overutilization of rehabilitation resources in three major hospitals in Australia, seen by physical therapist ratings of patient function on the Iowa Level of Assistance Scale. It was found that patients who were rated functionally independent were still discharged to rehabilitation and not to their homes.10 This raises the question of whether or not determining discharge destination by the physical therapist’s functional rating would have led to more appropriate discharge destinations, thereby decreasing overutilization of resources.It is important to note that rates of rehabilitation overutilization may have been skewed due to existing policies at one of the three hospitals involved in the study.10 One explanation for a physical therapist’s functional rating determining an appropriate discharge destination is their ability to consider functional status5-7,10 along with many other patient variables6,7 while applying their existing knowledge about a wide variety of discharge desinations.3,5

It is important to not only understand current evidence for risk of readmission, but also to be able to apply this clinically. An interesting theme that developed through review of current evidence was the correlation between a patient being discharged to their home and the risk this puts them at for hospital readmission.3,5 Smith et al reported that the majority of inconsistencies between physical therapist recommendations and discharge locations were patients who did not receive home therapy when it was recommended, putting these patients at a higher risk for readmission.5 Lockery et al found that a 22.5% of patients discharged home were readmitted to the hospital versus only 9.3% of patients discharged to a facility for further care.3  This is an important clinical finding when attempting to identify methods to decrease hospital readmission, and should be explored further. The potential for identifying barriers to patients receiving recommended home physical therapy following hospital discharge could provide insight in to structural changes that should be made to improve patient care and follow up, thereby reducing readmissions.

Beyond a physical therapist’s multi-faceted approach to patient evaluation, plan of care and discharge recommendation development,5-8,10 specific tools exist to assist with and support recommendations.9-11 From this review, these tools include the Physiotherapy Clinical Outcome Variables Scale (COVS)9, the Iowa Level of Assistance Scale10, and the adult Functional Independence Measure with and without items from the Rehabilitation Institute of Chicago Functional Assessment Scale (RIFCAS)11. Further work would be beneficial to perform a systematic review of all outcome measures that can be used to assist in selecting or predicting discharge destination to create an inclusive resource. By validating these measures, their utilization in the acute care discharge planning could help increase insurance approval and coverage and could provide stronger evidential support for discharge recommendations.

Physical therapists in the acute care setting are an integral part of the discharge planning team. Implementation of their recommendations helps to decrease the risk of patient readmission to the hospital.5 The physical therapist’s ability to make these appropriate and effective discharge recommendations comes from their mastery of assessing function and disability5-8, a multi-faceted approach to analyzing patient information6,7, and presence of helpful tools9-11 to support their decisions.

**Limitations of Current Evidence and Recommendations for Further Research**

Smith et al directly answered the original clinical question of whether or not hospital readmission rates are higher when discharge location is inconsistent with physical therapist recommendations, but further work is needed to provide a higher level of evidence. An expansion of the Smith et al study to include a greater number of hospitals that encompass more regions of the country would be appropriate considering the current evidence. This proposed expansion should also follow patient readmissions over a geographical area rather than at just one hospital to ensure that all hospital readmissions are accounted for.

A major overall limitation of the work reviewed is the lack of studies that have directly addressed a physical therapist’s role in the discharge planning process. Jette et al6 and Lockery et al3 explored the discharge planning process for a physical therapist, but only Smith et al5 focused data analysis and outcomes on factors relating directly to physical therapist discharge recommendations and how their implementation affected hospital readmission rates. Unfortunately, it is difficult to extract and quantify the effectiveness of physical therapist discharge recommendations seeing as there are so many factors to the discharge planning process. It would not be ethical to perform a randomized control trial for this topic as purposefully ensuring that physical therapist discharge recommendations are not followed could endanger a patient.

 Another recommendation for further research on this topic is to follow a patient’s functional status post-discharge from the acute care setting to provide a better understanding of what a patient’s expected long term outcome is based on their discharge recommendation. Finally, more work is needed to explore the physical therapist’s ability to determine appropriate discharge destination and how this can prevent overutilization of resources. Research in this area can expand current findings about the importance of physical therapist discharge recommendations by demonstrating that physical therapists not only prevent excessive costs from hospital readmissions but that they can also help to avoid unnecessary referrals, adding more value to a physical therapist’s clinical expertise and services.

**Application to Capstone**

An understanding of and knowledge about the multitude of factors involved in effective discharge planning are essential for a physical therapist practicing in acute care. Discharge planning is a skill that is difficult for physical therapy students to master due to the many components involved.7 Considering the important role that a physical therapist has been shown to play in the discharge planning process and the effects that physical therapist recommendations have on patient outcomes5, it is imperative that physical therapy students obtain and possess the necessary knowledge involved in effective discharge planning. Together with an identified consensus between current students about a general lack of acute care discharge planning education in the UNC-CH DPT curriculum, this review demonstrates the need for an educational module on discharge planning.

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